

January 8, 2016

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Subject: Corrective Actions Report for AIA RAVN Alaska Airport Maintenance Facility, ADEC File No. 2100.38.558, Hazard ID #26474, Formerly ADEC Spill "Bowser leaking Raven Aviation" ADEC Spill Number 15239929501.

Ms. Krebs-Barsis:

INTRODUCTION

On behalf of NRC Alaska LLC. (NRC), Restoration Science & Engineering, LLC (RSE) is providing this report regarding corrective actions taken to address an accidental release of jet fuel to soil at RAVN Alaska's Aircraft Maintenance Facility, located inside the secured Ted Stevens Anchorage International Airport (TSAIA) Airport Operations Area (AOA). The subject property is located at 4700 Old International Airport Road, Anchorage, Alaska.

SPILL HISTORY

RSE understands on or about October 22, 2015 a fuel leak was discovered from a faulty bottom outlet valve on a mobile tank used to de-fuel aircraft undergoing maintenance. After discovering the release, RAVN personnel initially responded by hand-excavating impacted soil into a 55-gallon open-top drum and reporting the spill to the Alaska Department of Environmental Conservation (ADEC). On October 23, 2015, NRC continued spill response activities, obtaining public utility locates for planned excavation activities and working with RAVN personnel to move shipping containers and other stored materials from within the likely excavation footprint. The Bowser tank reportedly held a capacity of 1,000 gallons, approximately 830 gallons of jet fuel remained in the tank with approximately 170 gallons released.

CORRECTIVE ACTIONS

At the request of NRC, RSE prepared a corrective actions work plan, dated October 27, 2015 and this plan was submitted by NRC to ADEC for approval shortly thereafter (RSE, 2015a). NRC received work plan approval from ADEC and on October 26, 2015, NRC obtained ADEC transport approval for the contaminated soil to be direct hauled to Alaska Soil Recycling (ASR) for thermal remediation.

Initial site cleanup activities were conducted by NRC between October 27, 2015 and November 2, 2015. Spill cleanup activities were conducted in general accordance with the work plan prepared by RSE, although RSE was not on site until primary excavation activities were

completed. Corrective action activities included removal of jet fuel impacted soil using an excavator and placing excavated material directly into end dump trucks for transport to ASR. The excavation extended to the property fence line to the east, and west and north along the spill pathway. Initial removal of impacted material ranged from 2 feet to 5 feet below ground surface (bgs). A total of 787.29 tons of material was hauled to ASR between October 27, 2015 and October 31, 2015.

On November 2, 2015, at the request of NRC, RSE Qualified Environmental Professional personnel arrived onsite to provide site field screening and closure sampling services in support of NRC's corrective action activities.

RSE field screening efforts identified the need for additional excavation to meet hydrocarbon cleanup standards. RSE continued additional field screening, and closure sampling activities from November 2 to November 4, 2015. Based on RSE photo-ionization detector (PID) field screening, NRC advanced the excavation to the west an additional 30 feet, until field screening results were near or under 50 parts per million by volume (ppmv). Additionally the bottom of the excavation was deepened at localized depths of up to 8.5 feet bgs that yielded elevated PID values. Figures depicting the site location, the excavation limits, and field screening and analytical samples locations are provided as Figures 1 through 4 in Attachment A. RSE field notes and selected site photographs are provided in Attachment C. NRC field notes and selected photographs are provided in Attachment D.

A total of 234.72 tons of additional material was hauled to ASR between November 2 and 4, 2015. Over the course of excavation activities a total of 1,022.01 tons of soil was removed and transported to ASR. The excavation was backfilled on or around December 4, 2015.

FIELD SCREENING AND ANALYTICAL SAMPLING METHODS

During the initial excavation activities, NRC field screened the soil using a PID calibrated to 100 ppmv isobutylene gas. Field screening samples were collected using clean stainless steel spoons. NRC field screening samples were placed into a quart-sized bag, warmed, and the head space within the bag was sampled using a PID. NRC also used a cold field screening technique due to the fresh nature of the spill. NRC field personnel noted the sample ID, location, and the PID result for each sample location (Attachment D).

RSE personnel field screened soil using a MiniRae Lite PID calibrated to 100 ppmv isobutylene gas. Field screening samples were collected from the excavation bottom and sidewalls using a stainless steel spoon and placed into a Ziploc™ quart-sized bag. Field screening samples were warmed to approximately 60° F, and the head space within the bag was measured using a PID. RSE field personnel noted the sample ID, location, depth bgs, soil type, and the PID reading for each sample location.

Based upon conversations with NRC, RAVN Air, and ADEC staff regarding the jet fuel release, the following contaminants of potential concern (COPCs) and associated cleanup standards are provided in Table 1. The goal of this cleanup effort was to remove petroleum hydrocarbon

impacted soil to Method 2 Soil Cleanup Levels identified in 18 AAC 75 and to a standard which is protective of human health and the environment. Prior to closure sampling, RSE requested a work plan modification to reduce the number of VOC and PAH samples from 25 percent to 10 percent frequency with samples collected from locations yielding the highest field screening. ADEC approved this reduction in frequency request.

Table 1 – Contaminants of Potential Concern and ADEC Method 2 – Soil Cleanup Levels for Migration to Groundwater (18 AAC 75 Table B1 and Table B2)

COPC	COPC Abbreviation	ADEC-Approved Lab Method	ADEC Soil Cleanup Level
Gasoline Range Organics	GRO	AK 101	300 mg/Kg
Diesel Range Organics	DRO	AK 102	250 mg/Kg
Benzene	Collectively referred to as BTEX	EPA 8021B	0.025 mg/Kg
Toluene			6.5 mg/Kg
Ethylbenzene			6.9 mg/Kg
Total Xylenes			63 mg/Kg
Polycyclic Aromatic Hydrocarbons	PAHs	EPA 8270D	Varies
Volatile Organic Compounds	VOCs	EPA 8260C	Varies TCE 20 ug/Kg PCE 24 ug/Kg 1,1,2-Trichloroethane 18 ug/Kg 1,2-Dibromoethane 0.16 ug/Kg

1. ADEC Cleanup Levels are presented only for those VOCs detected above ADEC Method 2 Cleanup Levels for Migration to Groundwater.

The total area of the final excavation limits was approximately 2,900 square feet; with final excavation depths ranging from 2 feet to 8.5 feet bgs. Laboratory analytical samples were collected from the sidewalls and bottom of the excavation at locations yielding the greatest PID field screening values.

RSE field personnel collected the requisite number of field screening and analytical samples based upon excavation bottom and sidewalls measurements, and field screened the soil in accordance with the frequencies described in the work plan and ADEC Draft Field Sampling Guidance dated May 2010 (Table 2B), as shown in Table 2 below.

Table 2 – Excavation Base and Excavation Sidewall Soil Sample Collection for COPCs

Surface Area (square feet)	Number of Field-Screening Samples	Number of Laboratory Samples
0-50	5	1
51-124	5	2
125-250	1 per 25 square feet	2
More than 250	10 plus 1 per additional 100 square feet	2 samples, plus 1 sample for each additional 250 square feet
Excavation sidewalls	1 per 10 linear feet	1 per 20 linear feet

RSE collected samples using clean stainless steel spoons to place soil directly into method-specific containers provided by the contract laboratory. Samples were collected in order of volatility and samples requiring a preservative were immediately field-preserved with methanol. Sample containers were placed into a cooler packed with gel-ice and maintained between 2° and 6° C. All analytical soil samples were transported with a chain of custody (COC) to SGS North America laboratory in Anchorage, Alaska for analyses. Soil samples were analyzed for COPCs in accordance with Table 1.

FIELD SCREENING AND ANALYTICAL RESULTS

Between November 2 and November 4, 2015, a total of 125 field screening samples and 30 analytical soil samples were collected from the excavation footprint and sidewalls. This total includes three (3) blind duplicate soil samples. All RSE PID field screening results are presented in Table 1 and analytical results are presented in Tables 2 through 4 in Attachment B.

Soil appeared to consist of very fine brown sand or brown silt and fine sand with gravel. RSE Field screening samples collected from the excavation limits ranged from less than 50 ppmv to 102 ppmv. Fourteen (14) soil samples were collected from the excavation sidewalls and thirteen (13) soil samples were collected from the bottom of the excavation for a total of twenty seven (27) confirmation samples and three (3) blind field duplicates. During the November 2-4, 2015 field work, six (6) samples yielding the highest PID field screening results were selected for analyses for VOCs and PAHs.

The excavation remained open after analytical samples were collected. Preliminary results received on November 18, 2015 from initial project samples indicated that tetrachloroethene (PCE) and trichloroethene (TCE) were present, but were not anticipated by NRC, given that the spilled product was reportedly Jet fuel. RSE notified NRC who in turn notified ASR of this finding.

All samples yielded concentrations of residual range organics (RRO), gasoline range organics (GRO), and benzene, toluene, ethylbenzene and xylenes (BTEX) that were either undetected or below the ADEC Method 2 cleanup levels. Concentrations of diesel range organics (DRO) were less than ADEC Method 2 cleanup level for all samples, except for sample RV-3. Sample RV-3, located on the southeast corner of the excavation sidewall, yielded a DRO result of 1,930 mg/Kg. A map depicting DRO sample locations is provided as Figure 2 in Attachment A.

All VOC samples, except RV-24, yielded concentrations of PCE greater than the ADEC Method 2 Cleanup Level for migration to groundwater of 24 ug/Kg. Samples RV-3, RV-13, RV-54, RV-119, and RV-121 yielded PCE results ranging between 28.3 ug/Kg and 2,620 ug/Kg. Sample RV-24 yielded PCE concentrations of 14.9 ug/Kg, below ADEC Method 2 Cleanup Level for migration to groundwater. In addition to PCE, Samples RV-54 and RV-119 yielded concentrations of TCE of 30.6 ug/Kg and 52.9 ug/Kg, respectively, greater than the ADEC Method 2 Cleanup Level for migration to ground water of 20 ug/Kg. All other VOC concentrations were either undetected or below the ADEC Method 2 cleanup levels. PAH analysis did not yield any target compounds at concentrations greater than ADEC cleanup levels. Tables comparing lab results to ADEC cleanup

levels are provided in Attachment B.

Based on detections of PCE and TCE, RSE proposed additional samples be collected prior to backfilling the excavation. To infill VOC data, RSE returned to the site on November 25, 2015 to collect an additional fourteen (14) VOC samples and one (1) blind duplicate sample to characterize the extent of PCE and TCE impacts. The additional sample locations were chosen to better characterize the spatial distribution of the chlorinated solvents based on previous field screening and sample locations. PCE and TCE sample locations are provided in Figure 3 in Attachment A.

Sample RV-3-1, located at the fence line on the east excavation sidewall, approximately 10 feet to the north of Sample RV-3, was also analyzed for DRO and RRO. Sample RV-3-1 yielded a DRO result of 4,880 mg/Kg, greater than the ADEC Method 2 Cleanup Level for migration to groundwater of 250 mg/Kg. RRO results for sample RV-3-1 were less than the ADEC cleanup level.

VOC analysis for the November 25, 2015 sampling event yielded concentrations of PCE for samples RV-1, RV-3-1, RV-6A, RV-19, RV-56, RV-67, and RV-70, that varied between 65.2 ug/Kg and 1,860 ug/Kg, greater than the ADEC Method 2 Cleanup Level for migration to groundwater of 24 ug/Kg. Samples RV-6A, RV-21, and RV-93 yielded TCE results ranging from 20.8 ug/Kg to 67.4 ug/Kg, greater than the ADEC Method 2 Cleanup Level of 20 ug/Kg. Sample RV-3-1 yielded concentrations of 1,1,2-Trichloroethane of 30.1 ug/Kg, greater than ADEC Method 2 Cleanup Level for migration to groundwater of 18 ug/Kg. Sample RV-67 yielded concentrations of 1,2-Dibromoethane of 13.9 ug/Kg, greater than ADEC Method 2 Cleanup level for migration to groundwater of 0.16 ug/Kg. All other VOC concentrations were either undetected or below the ADEC Method 2 cleanup levels. Tables comparing lab results to ADEC cleanup levels are provided in Attachment B.

All samples yielding PCE and TCE concentrations above ADEC Method 2 Cleanup Levels for Migration to Groundwater were less than ADEC Method 2 Cleanup levels for both Direct Contact and Outdoor Inhalation. The two samples yielding results 1,1,2-Trichloroethane and 1,2-Dibromoethane were also less than ADEC Method 2 Cleanup levels for both Direct Contact and Outdoor Inhalation (Table 3, Attachment B).

QUALITY ASSURANCE AND QUALITY CONTROL

RSE collected each soil sample in general accordance with applicable ADEC regulations and guidance documents, as well as the ADEC approved work plan dated October 27, 2015. RSE reviewed laboratory data quality control parameters and completed an ADEC Laboratory Review checklist for each laboratory report received. Laboratory reports and data review checklists are provided in Attachment E. A trip blank was submitted with each sample cooler containing samples subject to VOC analyses.

A total of four (4) blind duplicate samples were collected in association with the project samples. Sample RV-X was collected as a blind duplicate of sidewall sample RV-13, RV-X2 was collected as a blind duplicate of sidewall sample RV-96-1, and RV-X3 was collected as a blind duplicate of bottom sample RV-54, and RV-Y was a blind duplicate of bottom sample RV-108.

Based on laboratory data, all data were determined to be usable for the intended purpose of comparison with ADEC soil cleanup standards.

INVESTIGATIVE DERIVED WASTE

Consumables such as plastic bags, liner material, gloves and used jars were disposed of in an appropriate onsite trash receptacle. Non-consumable such as spoons and other field equipment were decontaminated using Alconox and hot water at RSE's equipment room.

TEMPORARY STORAGE, TREATMENT OR DISPOSAL OF IMPACTED SOIL

Excavated soil was transported to ASR for thermal treatment at 2301 Spar Avenue in Anchorage, Alaska. The ADEC Soil Transport Form and ASR weight tickets are provided in Attachment F. Prior to the discovery of PCE and TCE impacts, the soil was transported, stockpiled, and blended with an aggregated 858.73 tons of hydrocarbon-impacted soils originating from 14 different projects awaiting treatment at ASR. Due to blending, the stockpile at ASR currently consists of a single stockpile of 1,900 tons of impacted soil.

To support additional soil management actions, a Soil Stockpile Characterization Work Plan for the RAVN Combined Stockpile REV. 1.0 was prepared by RSE (RSE, 2015b). The goal of the work plan was to characterize the stockpile to determine if detectable concentrations of chlorinated solvents remain in the soil to determine if it can be thermally treated at ASR per ADEC permit requirements. The work plan was approved by ADEC, ASR Project Manager Robert Weimer on December 10, 2015.

RSE completed soil stockpile characterization sampling on December 14 and 15, 2015. All nine stockpile samples yielded VOC concentrations of PCE above the ADEC Method 2 cleanup level of 24 ug/Kg. PCE concentrations ranged between 26.3 ug/Kg (RVN-5-13) to 63.2 ug/Kg (RVN-6-2). VOC concentrations of TCE were either non-detected or below the ADEC Method 2 cleanup level of 20 ug/Kg. Samples RVN-1-13, RVN-2-4, RVN-3-10, RVN-4-5, RVN-5-13, RVN-6-2, and RVN-7-1 yielded Benzene concentrations above the ADEC Method 2 cleanup level of 25 ug/Kg. Benzene concentrations ranged between 29.5 ug/Kg (RVN-3-10) to 189 ug/Kg (RVN-5-13). All other samples were either non-detected or below the ADEC Method 2 cleanup levels for migration to groundwater. (RSE, 2015c).

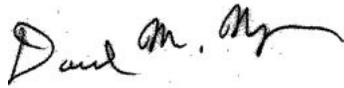
The stockpile is currently covered and on a bermed liner at ASR. NRC is working with ASR to develop a management plan for ADEC approval for treatment. Based on recent information, the soil may be transported off-site to OIT in Fairbanks, Alaska for thermal treatment.

CONCLUSIONS

The final excavation footprint exhibited concentrations of DRO, PCE, TCE, 1,1,2-Trichloroethane and 1,2-Dibromoethane greater than the ADEC Method 2 Cleanup Levels for migration to

groundwater. DRO exceeded ADEC cleanup levels at two discrete sample location located along the fence line at the southeast excavation sidewall. PCE and TCE exceeded ADEC cleanup levels at several locations in the excavation and at the fence line and lease boundary. Only one sample exceeded ADEC cleanup levels for 1,1,2-Trichloroethane, and one for 1,2-Dibromoethane. Analytical method detection limits for 1,2-Dibromoethane were noted to be above the ADEC Method 2 Soil Cleanup Levels in most of the VOC results for this compound. All other COPCs in soil remaining in place were either not detectable or were less than the ADEC Method 2 cleanup levels unless previously noted.

If you have any questions or comments please contact David Nyman at (907) 278-1023 ext. 1103.



David Nyman, PE

Attachments

Attachment A - Site Maps

Attachment B – Data Tables

Attachment C - RSE Select Site Photographs and Field Notes

Attachment D - NRC Select Site Photographs and Field Notes

Attachment E - ADEC Data Quality Review Checklist

- Laboratory Data Report

Attachment F - Soil Transport Approval Form

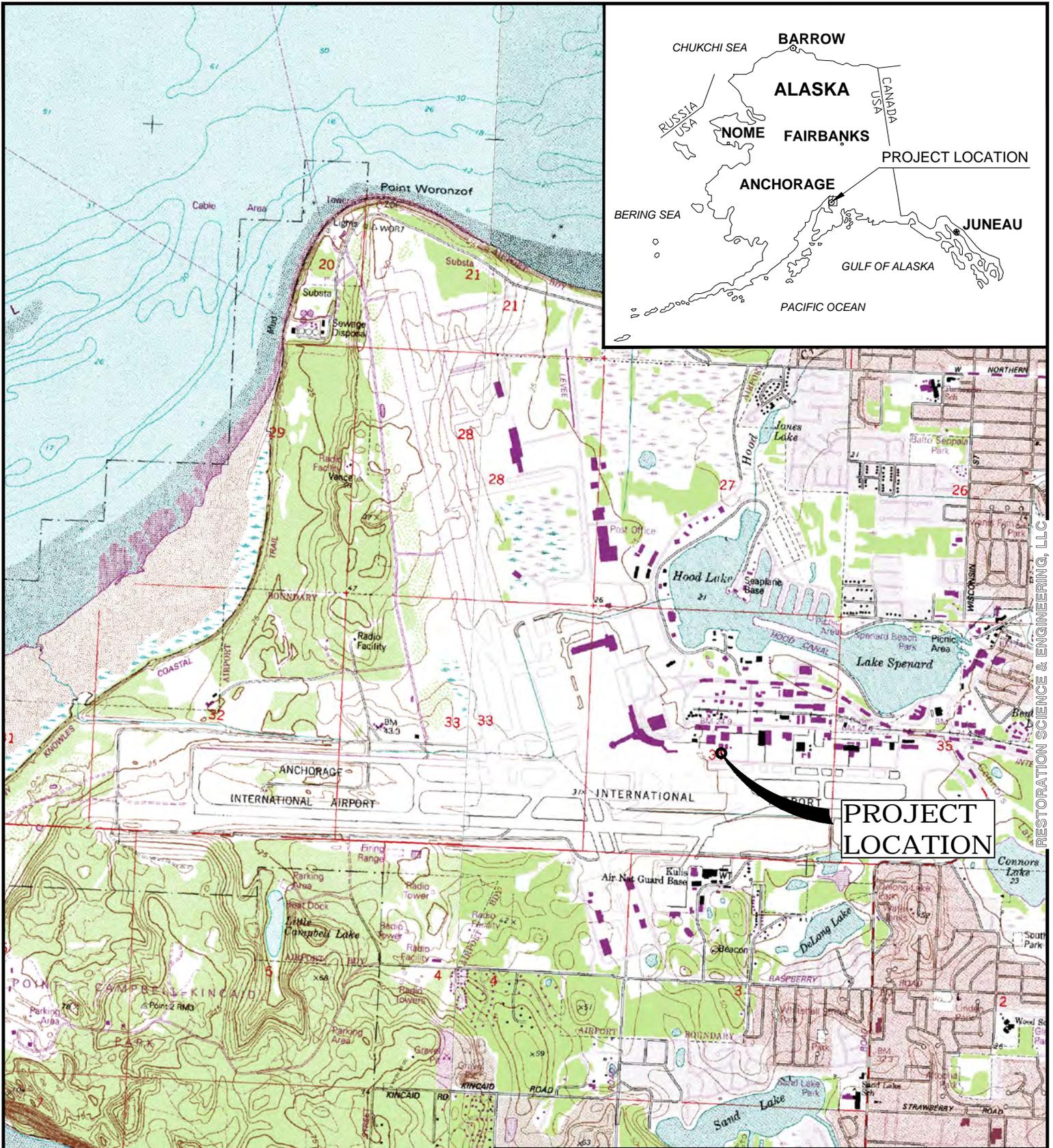
-ASR Weight Tickets

REFERENCES

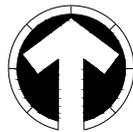
- RSE, 2015a. Corrective Actions Work Plan for ADEC Spill Name "Bouser leaking Raven Aviation" located at the "Anchorage Airport Field Maintenance Equipment Shop". ADEC Spill Number: 15239929501. REV 1.1. October 27, 2015 Prepared for NRC.
- RSE, 2015b. Soil Stockpile Characterization Work Plan of RAVN Combined Stockpile at Alaska Soil Recycling, 2301 Spar Avenue in Anchorage, Alaska. REV 1.0; RAVN Air ADEC Spill Number: 15239929501. December 10, 2015. Prepared for ADEC.
- RSE, 2015c. Soil Stockpile Characterization Report of RAVN Combined Stockpile at Alaska Soil Recycling, 2301 Spar Avenue in Anchorage, Alaska. REV 1.0; RAVN Air ADEC Spill Number: 15239929501. December 18, 2015. Prepared for ADEC.

ATTACHMENT A

Figures



**RAVN AIR JET FUEL RELEASE
ANCHORAGE AIRPORT FIELD MAINTENANCE EQUIPMENT SHOP**



N.T.S.

VICINITY MAP

ANCHORAGE, ALASKA

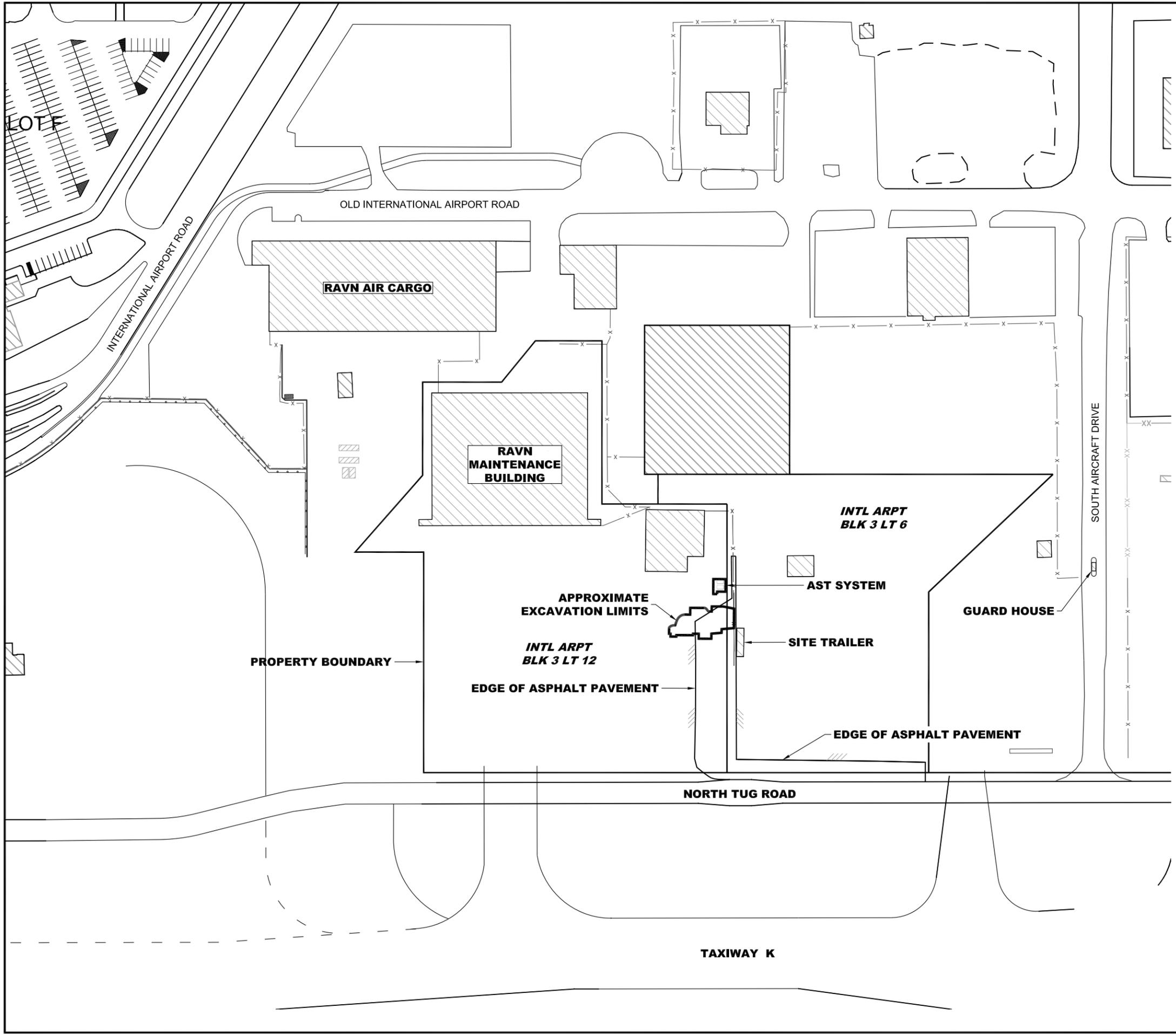
JOB NO: 15-1454
DATE: 1-7-2016

DRAWN: MSB
CHECKED: NB/DN

RESTORATION
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Anchorage, Alaska 99501
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FIGURE 1

RESTORATION SCIENCE & ENGINEERING, LLC



LEGEND

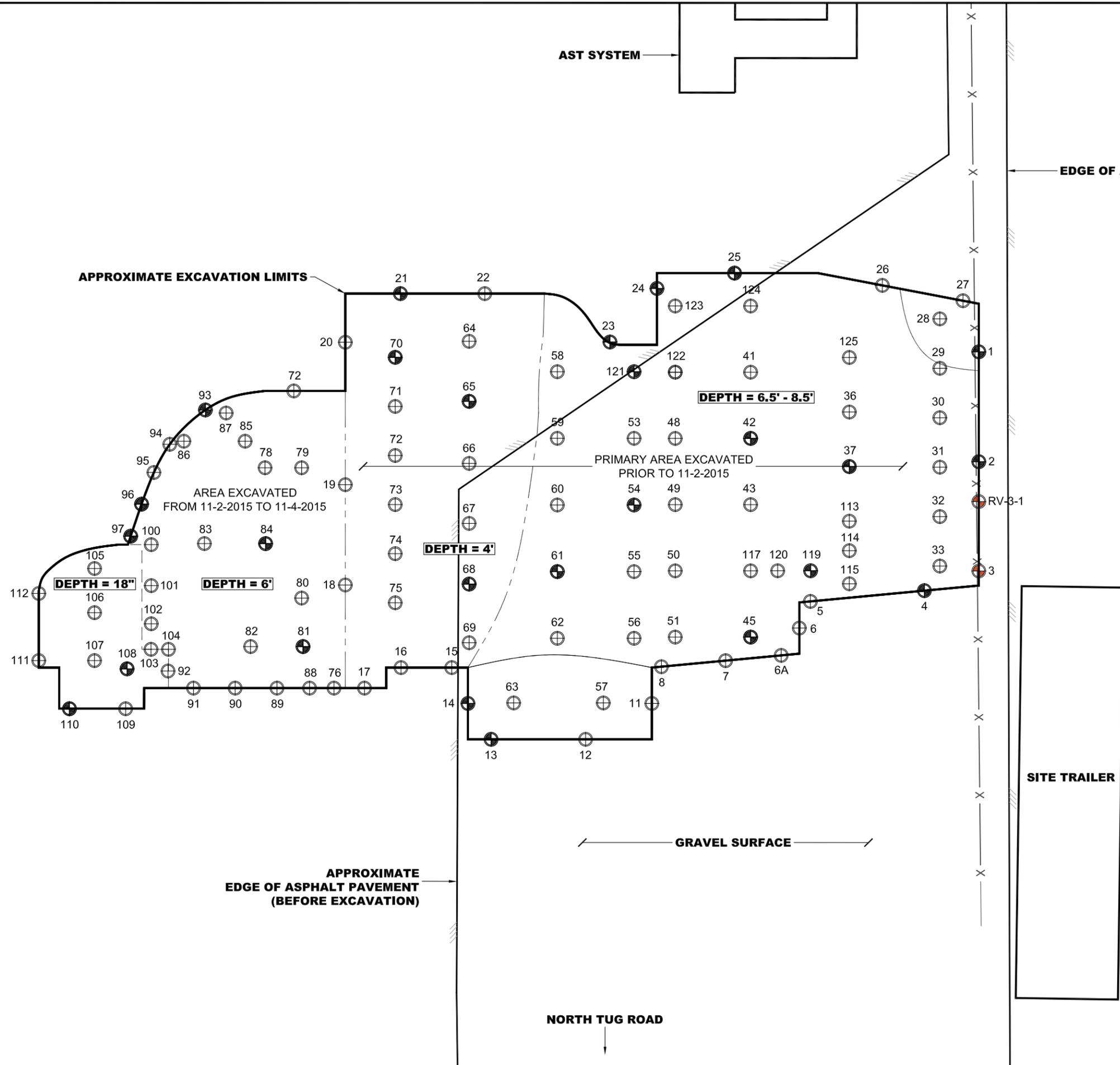
-  EXISTING BUILDING
-  EXCAVATION LIMITS
-  FENCE



5 0 10
GRAPHIC SCALE
 1"=10'

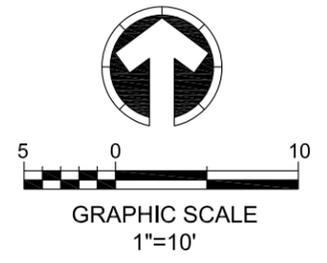
RAVN AIR JET FUEL RELEASE ANCHORAGE AIRPORT FIELD MAINTENANCE EQUIPMENT SHOP	
SITE MAP TED STEVENS INTERNATIONAL AIRPORT INTL ARPT BLOCK 3 LOT 12 ANCHORAGE, ALASKA	 RESTORATION Science & Engineering, LLC 911 West 8th Avenue, Suite 100 Anchorage, Alaska 99501 PH (907) 278-1023 FAX (907) 277-5718
JOB NO: 15-1454 DATE: 12.30.2015	DRAWN: MSB CHECKED: NB/DN/CB
FIGURE 2	

RESTORATION SCIENCE & ENGINEERING, LLC



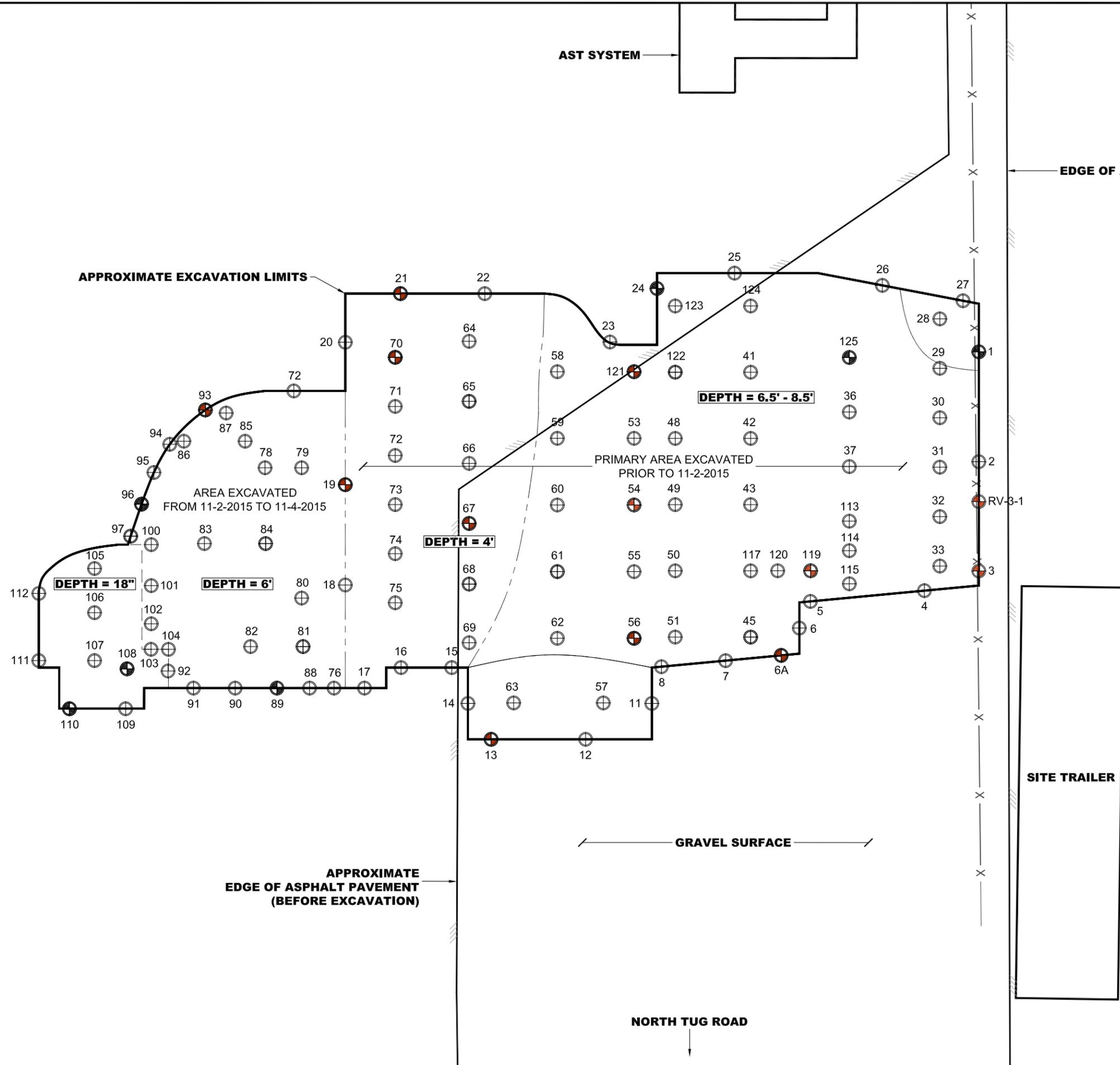
LEGEND

	FIELD SCREENING SAMPLE LOCATION
	ANALYTICAL SAMPLE LOCATION LESS THAN ADEC CLEANUP LEVELS FOR DRO
	EXCEEDS ADEC CLEANUP LEVELS FOR DRO
	EXCAVATION LIMITS
	FENCE



RAVN AIR JET FUEL RELEASE ANCHORAGE AIRPORT FIELD MAINTENANCE EQUIPMENT SHOP	
DRO SAMPLE LOCATION MAP TED STEVENS INTERNATIONAL AIRPORT INTL ARPT BLOCK 3 LOT 12 ANCHORAGE, ALASKA	 RESTORATION Science & Engineering, LLC 911 West 8th Avenue, Suite 100 Anchorage, Alaska 99501 PH (907) 278-1023 FAX (907) 277-5718
JOB NO: 15-1454 DATE: 12.30.2015	DRAWN: MSB CHECKED: NB/DN/CB
FIGURE 3	

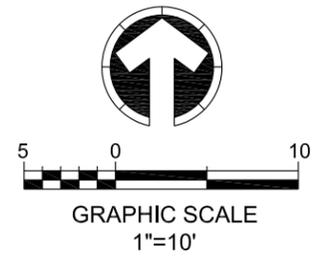
RESTORATION SCIENCE & ENGINEERING, LLC



LEGEND

	FIELD SCREENING SAMPLE LOCATION
	ANALYTICAL SAMPLE LOCATION LESS THAN ADEC CLEANUP LEVELS FOR PCE AND/OR TCE
	EXCEEDS ADEC CLEANUP LEVELS FOR PCE AND/OR TCE
	EXCAVATION LIMITS
	FENCE

- NOTES:**
1. SAMPLES RV-6A, RV-54, AND RV-119 EXCEEDS ADEC CLEANUP STANDARDS FOR BOTH PCE AND TCE.
 2. SAMPLES RV-21 & RV-93 EXCEEDS ADEC CLEANUP STANDARDS FOR TCE ONLY.
 3. SAMPLES RV-1, RV-3, RV-3-1, RV-13, RV-19, RV-56, RV-67, RV-70, AND RV-121 EXCEEDS ADEC CLEANUP STANDARDS FOR PCE ONLY.



RAVN AIR JET FUEL RELEASE ANCHORAGE AIRPORT FIELD MAINTENANCE EQUIPMENT SHOP	
PCE & TCE SAMPLE LOCATION MAP TED STEVENS INTERNATIONAL AIRPORT INTL ARPT BLOCK 3 LOT 12 ANCHORAGE, ALASKA	RESTORATION Science & Engineering, LLC 911 West 8th Avenue, Suite 100 Anchorage, Alaska 99501 PH (907) 278-1023 FAX (907) 277-5718
JOB NO: 15-1454 DATE: 12.30.2015	DRAWN: MSB CHECKED: NB/DN
FIGURE 4	

RESTORATION SCIENCE & ENGINEERING, LLC

ATTACHMENT B

Data Tables

**TABLE 1
PHOTOIONIZATION DETECTOR FIELD SCREENING
RAVN AIR JET A RELEASE**

PHOTOIONIZATION DETECTOR FIELD SCREENING					
SAMPLE ID	DATE	DEPTH BELOW GROUND SURFACE	PID RESULT	NOTES	LABORATORY SAMPLE COLLECTED
		(FT)	(PPMV)		
RV-1	11/2/2015	3	24.7	fine silty sand, sidewall	X
RV-2	11/2/2015	3	24.9	fine silty sand, sidewall	X
RV-3	11/2/2015	3	52.2	fine silty sand, sidewall	X
RV-4	11/2/2015	3	28.8	fine silty sand, sidewall	X
RV-5	11/2/2015	3.5	7.8	fine silty sand, sidewall	
RV-6	11/2/2015	3.5	6.2	fine silty sand, sidewall	
RV-7	11/2/2015	3.5	3.0	fine silty sand, sidewall	
RV-8	11/2/2015	3.5	4.0	fine silty sand, sidewall	
RV-9	11/2/2015	5	8.2	fine silty sand, sidewall	
RV-10	11/2/2015	3	6.8	fine silty sand, sidewall	
RV-11	11/2/2015	1.5	3.2	fine silty sand, sidewall	
RV-12	11/2/2015	1.5	1.7	fine silty sand, sidewall	
RV-13	11/2/2015	1.5	101.5	fine silty sand, sidewall	X
RV-14	11/2/2015	1.5	30.6	fine silty sand, sidewall	X
RV-15	11/2/2015	3	9.8	fine silty sand, sidewall	
RV-16	11/2/2015	2.5	6.2	fine silty sand, sidewall	
RV-17	11/2/2015	3	365.5	fine silty sand, sidewall, excavated	
RV-18	11/2/2015	3.5	4,454	fine silty sand, sidewall, excavated	
RV-19	11/2/2015	3	3,158	fine silty sand, sidewall, excavated	
RV-20	11/2/2015	3	13.6	fine silty sand, sidewall	
RV-21	11/2/2015	2	10.5	fine silty sand, sidewall	X
RV-22	11/2/2015	3	8.7	fine silty sand, sidewall	
RV-23	11/2/2015	4	16.1	fine silty sand, sidewall	X
RV-24	11/2/2015	3	22.5	fine silty sand, sidewall	X
RV-25	11/2/2015	4	25.7	fine silty sand, sidewall	X
RV-26	11/2/2015	2.5	6.7	fine silty sand, sidewall	
RV-27	11/2/2015	2.5	12.2	fine silty sand, sidewall	
RV-28	11/2/2015	4	15.2	silty sand	
RV-29	11/2/2015	3	12.1	silty sand, excavated	
RV-30	11/2/2015	3	154.7	silty sand	
RV-31	11/2/2015	3	19.2	silty sand	
RV-32	11/2/2015	3	15.1	silty sand	
RV-33	11/2/2015	3	12.6	silty sand	
RV-34	11/2/2015	3	5.7	silty sand, excavated	
RV-35	11/2/2015	3	1,250	silty sand, excavated	
RV-36	11/2/2015	4	45.8	silty sand	
RV-37	11/2/2015	3	75.6	silty sand	X
RV-38	11/2/2015	3	171.3	silty sand, excavated	
RV-39	11/2/2015	4	763.8	silty sand, excavated	
RV-40	11/2/2015	6.0	130.1	silty sand, excavated	

PHOTOIONIZATION DETECTOR FIELD SCREENING					
SAMPLE ID	DATE	DEPTH BELOW GROUND SURFACE	PID RESULT	NOTES	LABORATORY SAMPLE COLLECTED
		(FT)	(PPMV)		
RV-41	11/2/2015	7.5	16.0	silty sand	
RV-42	11/2/2015	6.5	42.4	silty sand	X
RV-43	11/2/2015	6.5	17.8	silty sand	
RV-44	11/2/2015	5.5	86.3	silty sand, excavated	
RV-45	11/2/2015	5.5	36.4	silty sand	X
RV-46	11/2/2015	6	128.3	silty sand, excavated	
RV-47	11/2/2015	6	69.0	silty sand, excavated	
RV-48	11/2/2015	6	26.3	silty sand	
RV-49	11/2/2015	5.5	383	silty sand, excavated	
RV-50	11/2/2015	5.5	18.6	silt	
RV-51	11/2/2015	5.5	16.4	silty sand	
RV-52	11/2/2015	6	723.0	silty sand, excavated	
RV-53	11/2/2015	6	25.6	silty sand	
RV-54	11/2/2015	5.5	48.9	silty sand	X
RV-55	11/2/2015	5.5	20.0	silty sand	
RV-56	11/2/2015	5.5	19.6	silt	
RV-57	11/2/2015	3	8.1	silty sand	
RV-58	11/2/2015	7	38.7	silty sand, excavated	
RV-59	11/2/2015	7.0	35.1	silty sand, excavated	
RV-60	11/2/2015	6	175.2	silty sand, excavated	
RV-61	11/2/2015	5.5	35.7	silty sand	X
RV-62	11/2/2015	5.5	14.6	silty sand	
RV-63	11/2/2015	3	7.8	silty sand	
RV-64	11/2/2015	4	10.9	silty sand	
RV-65	11/2/2015	4	48.4	silty sand	X
RV-66	11/2/2015	4	24.6	silty sand	
RV-67	11/2/2015	4	24.1	silty sand	
RV-68	11/2/2015	4	33.4	silty sand	X
RV-69	11/2/2015	4	19.3	silty sand	
RV-70	11/2/2015	4	22.5	silty sand	X
RV-71	11/2/2015	4	10.4	silty sand	
RV-72	11/2/2015	4	11.3	silty sand	
RV-73	11/2/2015	4	82.7	silty sand, excavated	
RV-74	11/2/2015	4	520.0	silty sand, excavated	
RV-75	11/2/2015	4	593.0	silty sand, excavated	
RV-76	11/3/2015	2	19.6	sandy gravel, sidewall	
RV-77	11/3/2015	2	20.0	sandy gravel, sidewall	
RV-78	11/3/2015	2	53.6	sandy gravel, sidewall, excavated	
RV-79	11/3/2015	5	11.7	silty sand	
RV-80	11/3/2015	5	26.7	silty sand	

NOTES:

- 1) All field screening performed using a MiniRae Lite photoionization detector (PID) calibrated to 100 ppmv isobutylene.
- 2) Field screening samples were warmed to approximately 60 °F before measuring headspace.

**TABLE 1
PHOTOIONIZATION DETECTOR FIELD SCREENING
RAVN AIR JET A RELEASE**

PHOTOIONIZATION DETECTOR FIELD SCREENING					
SAMPLE ID	DATE	DEPTH BELOW GROUND SURFACE	PID RESULT	NOTES	LABORATORY SAMPLE COLLECTED
		(FT)	(PPMV)		
RV-81	11/3/2015	5	31.9	silty sand	X
RV-82	11/3/2015	5	18.3	silty sand	
RV-83	11/3/2015	5	18.2	silty sand	
RV-84	11/3/2015	5	33.4	silty sand	X
RV-85	11/3/2015	5	17.0	silty sand	
RV-86	11/3/2015	5	12.0	silty sand	
RV-87	11/3/2015	5	11.6	silty sand	
RV-88	11/3/2015	2.5	25.0	silty sand, sidewall	
RV-89	11/3/2015	2.5	18.4	silty sand, sidewall	
RV-90	11/3/2015	2.5	24.3	silty sand, sidewall	
RV-91	11/3/2015	2.5	32.6	sand with gravel, sidewall	
RV-92	11/3/2015	2.5	35.2	sand with gravel, sidewall	
RV-93	11/3/2015	3	22.2	silty sand, sidewall	X
RV-94	11/3/2015	3	19.7	silty sand, sidewall	
RV-95	11/3/2015	3	20.3	silty sand, sidewall	
RV-96	11/3/2015	3	31.6	silty sand, sidewall	
RV-96-1	11/3/2015	1	39.3	sandy gravel, sidewall	X
RV-97	11/3/2015	3	31.3	silty sand, sidewall	X
RV-98	11/3/2015	5	9.4	silty sand	
RV-99	11/3/2015	5	6.7	silty sand	
RV-100	11/3/2015	2.5	6.7	sidewall	
RV-101	11/3/2015	3	8.7	sidewall	
RV-102	11/3/2015	3	9.3	sidewall	
RV-103	11/3/2015	3	9.8	sidewall	
RV-104	11/3/2015	3	9.2	sidewall	
RV-105	11/3/2015	2	26.6	bench	
RV-106	11/3/2015	2	26.3	bench	
RV-107	11/3/2015	2	36.0	bench	
RV-108	11/3/2015	2	46.4	bench	X
RV-109	11/3/2015	2	18.0	co-located sidewall/bottom	
RV-110	11/3/2015	2	21.0	silty sand with gravel	X
RV-111	11/3/2015	2	14.6	silty sand with gravel	
RV-112	11/3/2015	2	16.9	silty sand with gravel	
RV-113	11/3/2015	6	50.2	silty sand	
RV-114	11/3/2015	6	38.3	silty sand	
RV-115	11/3/2015	6	40.7	silty sand	
RV-116	11/3/2015	8	54.8	silty sand	
RV-117	11/3/2015	8.5	48.3	silty sand	X
RV-118	11/3/2015	8.5	105.2	silty sand	
RV-119	11/4/2015	6.5	93.6	fine silty sand	X

PHOTOIONIZATION DETECTOR FIELD SCREENING					
SAMPLE ID	DATE	DEPTH BELOW GROUND SURFACE	PID RESULT	NOTES	LABORATORY SAMPLE COLLECTED
		(FT)	(PPMV)		
RV-120	11/4/2015	6.5	75.2	fine silty sand	
RV-121	11/4/2015	8	97.3	fine silty sand	X
RV-122	11/4/2015	8	90.8	fine silty sand	
RV-123	11/4/2015	8	50.6	fine silty sand	
RV-124	11/4/2015	8.0	10.3	fine silty sand	
RV-125	11/4/2015	6.5	19.1	fine silty sand	
RV-1	11/25/2014	3	20.3	fine silty sand	X
RV-3-1	11/25/2014	3	1523.0	fine silty sand	X
RV-3-2	11/25/2014	3	18.6	fine silty sand	
RV-3-3	11/25/2014	3	18.9	fine silty sand	
RV-6A	11/25/2014	3	13.6	fine silty sand	X
RV-19	11/25/2014	6	13.6	fine silty sand	X
RV-21	11/25/2014	3	35.0	fine silty sand	X
RV-56	11/25/2014	6	19.2	fine silty sand	X
RV-67	11/25/2014	4	56.1	fine silty sand	X
RV-70	11/25/2014	5	17.7	fine silty sand	X
RV-89	11/25/2014	2	9.8	fine silty sand	X
RV-93	11/25/2014	3	10.0	fine silty sand	X
RV-96	11/25/2014	3	10.5	fine silty sand	X
RV-108	11/25/2014	2	9.3	fine silty sand	X
RV-110	11/25/2014	2	11.0	fine silty sand	X
RV-125	11/25/2014	6	7.4	fine silty sand	X

NOTES:

- 1) All field screening performed using a MiniRae Lite photoionization detector (PID) calibrated to 100 ppmv isobutylene.
- 2) Field screening samples were warmed to approximately 60 °F before measuring headspace.

**TABLE 2
HYDROCARBON CONCENTRATIONS IN SOIL
RAVN AIR JET A RELEASE**

HYDROCARBON CONCENTRATIONS IN SOIL												
SAMPLE	DATE	SGS LABORATORY REPORT	DEPTH BELOW GROUND SURFACE	PID RESULTS	PERCENT SOLIDS	DIESEL RANGE	RESIDUAL RANGE	GASOLINE RANGE	BENZENE	TOLUENE	ETHYL- BENZENE	TOTAL XYLENES
						ORGANICS	ORGANICS	ORGANICS	(µg/Kg)	(µg/Kg)	(µg/Kg)	(µg/Kg)
			(FT)	(PPMV)	(%)	(mg/Kg)	(mg/Kg)	(mg/Kg)	(µg/Kg)	(µg/Kg)	(µg/Kg)	(µg/Kg)
RV-1	11/2/2015	1156474	3	24.7	86.9	165	825	2.79	6.1 U	12.2 U	12.2 U	87.7 J
RV-2	11/2/2015	1156474	3	24.9	85.8	165	283	1.87 J	6.05 U	14.0 J	9.17 J	75.5 J
RV-3	11/2/2015	1156474	3	52.2	86.7	1,930	1,270	3.01	6.45 U	8.76 J	12.9 U	48.0 J
RV-3-1	11/25/2015	1156886	3	1523	85.4	4,880	1,980	--	5.95 U	11.9 U	11.9 U	35.6 U
RV-4	11/2/2015	1156474	3	28.8	85.4	237	447	2.07 J	7.35 U	14.75 U	14.75 U	28.6 J
RV-13	11/2/2015	1156474	1.5	101.5	87.8	96.8	284	1.90 J	5.45 U	10.9 U	16.8 J	129.2
RV-X	11/2/2015	1156474	1.5	--	87.9	114	286	2.47 J	6.2 U	8.20 J	21.4 J	176.1
RV-14	11/2/2015	1156474	1.5	30.6	86.0	197	406	3.56	6.3 U	12.55 U	12.55 U	71.1 J
RV-21	11/2/2015	1156474	2	10.5	84.9	7.35 J	38.2	0.862 J	6.15 U	12.3 U	12.3 U	29.46 J
RV-23	11/2/2015	1156474	4	16.1	93.4	10.6 U	10.6 U	1.94	4.39 J	37.7	122	476.0
RV-24	11/2/2015	1156474	3	22.5	86.4	11.1 J	16.8 J	3.51	5.95 U	14.9 J	77.1	222.8
RV-25	11/2/2015	1156474	4	25.7	88.9	22.1	14.7 J	1.84 J	5.2 U	12.4 J	9.94 J	75.6
RV-37	11/2/2015	1156548	3	75.6	80.1	52.8	43.7	2.32 J	7.6 U	15.15 U	21.5 J	147.1
RV-42	11/2/2015	1156548	6.5	42.4	83.7	10.2 J	65.8	2.23 J	7.8 U	15.6 U	15.6 U	39.9 J
RV-45	11/2/2015	1156548	5.5	36.4	85.4	11.65 U	10.3 J	0.762 J	6.1 U	12.15 U	12.15 U	24.3 U
RV-54	11/2/2015	1156548	5.5	48.9	89.1	44.0	25.8	3.10	9.55 J	14.1 J	88.6	345
RV-X3	11/2/2015	1156548	5.5	--	88.7	43.8	30.2	3.98	9.64 J	13.7 J	84.7	334
RV-61	11/2/2015	1156548	5.5	35.7	89.0	17.0 J	8.33 J	2.08 J	5.10 J	12.0 J	36.1	192.6
RV-65	11/2/2015	1156548	4	48.4	93.1	25.6	10.55 U	0.958 J	4.88 U	11.7 J	18.9 J	107.6
RV-68	11/2/2015	1156548	4	33.4	90.9	10.85 U	14.4 J	1.26 J	5.1 U	10.2 U	10.2 U	42.6 J
RV-70	11/2/2015	1156548	4	22.5	85.7	11.5 U	21.6 J	1.03 J	6.55 U	13.1 U	13.1 U	26.2 U
RV-81	11/3/2015	1156548	5	31.9	85.5	57.6	12.1 J	1.32 J	6.25 U	12.5 U	14.0 J	47.1 J
RV-84	11/3/2015	1156548	5	33.4	89	11.2 U	11.2 U	1.16 U	5.8 U	11.6 U	11.6 U	23.2 U
RV-93	11/3/2015	1156548	3	22.2	92.1	79.9	165	0.879 J	4.50 U	6.83 J	9.00 U	25.15 J
RV-96-1	11/3/2015	1156548	1	39.3	88.2	30.8	90.8	1.54 J	6.4 U	12.75 U	12.75 U	46.9 J
RV-X2	11/3/2015	1156548	1	--	88.4	31.6	89.7	1.28 J	5.8 U	11.65 U	11.65 U	25.6
RV-97	11/3/2015	1156548	3	31.3	85.8	11.5 U	26.5	1.19 U	5.95 U	11.9 U	11.9 U	23.75 U
RV-108	11/3/2015	1156548	2	46.4	93.7	49	200	0.528 J	4.32 U	8.65 U	8.65 U	17.25 U
RV-110	11/3/2015	1156548	2	21.0	88.1	34.4	168	1.17 U	5.85 U	11.7 U	11.7 U	23.4 U
RV-119	11/4/2015	1156548	6.5	93.6	85.1	10.4 J	39.6	2.73 J	9.86 J	14.95 U	44.2	200
RV-121	11/4/2015	1156548	8	97.3	91.5	20.4 J	10.85 U	2.01	7.52 J	14.5 J	86.3	322
ADEC METHOD 2 MIGRATION TO GROUNDWATER SOIL CLEANUP LEVELS						250	11,000	300	25	6,500	6,900	63,000

NOTES:

- 1) Diesel Range Organics analysis by Method AK 102; Residual Range Organics analysis by Method AK 103; Gasoline Range Organics analysis by Method AK 101; BTEX analysis by Method EPA 8260B
- 2) Bold font indicates that contaminant concentrations were detected above the Detection Limit (DL).
- 3) Bolded values with a J flag indicate the result is an estimated value.
- 4) Italicized values with a U flag indicate the analyte measured non-detectable at the DL, the value given is the Limit of Detection (LOD = 1/2 LOQ).
- 5) Light yellow highlighting indicates the analyte measured above ADEC Method 2 Migration to Groundwater Soil Cleanup Levels.
- 6) FT = feet; PPMV = parts per million by volume; mg/Kg = milligrams per kilogram; µg/Kg = micrograms per kilogram; LOQ = limit of quantitation
- 7) RV-X is the duplicate of RV-13; RV-X2 is a duplicate of RV-96-1; RV-X3 is a duplicate of RV-54

TABLE 3
VOLATILE ORGANIC COMPOUND CONCENTRATIONS IN SOIL
RAVN AIR JET A RELEASE

VOLATILE ORGANIC COMPOUND CONCENTRATIONS IN SOIL										
SAMPLE ID	RV-1	RV-3	RV-3-1	RV-6A	RV-13	RV-X	ADEC METHOD 2 SOIL CLEANUP LEVELS			
	DATE	11/25/15	11/02/15	11/25/15	11/25/15	11/2/2015	11/2/2015	MIGRATION TO GROUNDWATER (ug/Kg)	UNDER 40 inch ZONE	
PERCENT SOLIDS (%)	84.6	86.7	85.4	87.6	87.8	87.9			DIRECT CONTACT (ug/Kg)	OUTDOOR INHALATION (ug/Kg)
UNITS	(ug/Kg)	(ug/Kg)	(ug/Kg)	(ug/Kg)	(ug/Kg)	(ug/Kg)	(ug/Kg)			
1,1,1,2-Tetrachloroethane	13.9 U	12.9 U	11.9 U	10.8 U	10.9 U	12.4 U	--			
1,1,1-Trichloroethane	55.0	196	254	10.8 U	8.06 J	9.19 J	820			
1,1,2,2-Tetrachloroethane	6.95 U	6.45 U	5.95 U	5.40 U	5.45 U	6.2 U	17			
1,1,2-Trichloroethane	5.55 U	5.15 U	30.1	4.32 U	4.355 U	4.97 U	18	150,000	570	
1,1-Dichloroethane	13.9 U	12.9 U	11.9 U	10.8 U	10.9 U	12.4 U	25,000			
1,1-Dichloroethene	13.9 U	12.9 U	11.9 U	10.8 U	10.9 U	12.4 U	--			
1,1-Dichloropropene	13.9 U	12.9 U	11.9 U	10.8 U	10.9 U	12.4 U	--			
1,2,3-Trichlorobenzene	27.8 U	25.75 U	23.7 U	21.6 U	21.8 U	24.85 U	--			
1,2,3-Trichloropropane	13.9 U	12.9 U	11.9 U	10.8 U	10.9 U	12.4 U	0.53			
1,2,4-Trichlorobenzene	13.9 U	12.9 U	11.9 U	10.8 U	10.9 U	12.4 U	850			
1,2,4-Trimethylbenzene	27.8 U	25.75 U	23.7 U	19.7 J	82.4	134	23,000			
1,2-Dibromo-3-chloropropane	55.5 U	51.5 U	47.5 U	43.2 U	43.55 U	49.7 U	--			
1,2-Dibromoethane	5.55 U	5.15 U	4.75 U	4.32 U	4.355 U	4.97 U	0.16	4,200	600	
1,2-Dichlorobenzene	13.9 U	12.9 U	11.9 U	10.8 U	10.9 U	12.4 U	5,100			
1,2-Dichloroethane	5.55 U	5.15 U	4.75 U	4.32 U	4.355 U	4.97 U	16			
1,2-Dichloropropane	5.55 U	5.15 U	4.75 U	4.32 U	4.355 U	4.97 U	18			
1,3,5-Trimethylbenzene	13.9 U	9.02 J	7.59 J	12.3 J	35.9	57.6	23,000			
1,3-Dichlorobenzene	13.9 U	12.9 U	11.9 U	10.8 U	10.9 U	12.4 U	28,000			
1,3-Dichloropropane	5.55 U	5.15 U	4.75 U	4.32 U	4.355 U	4.97 U	--			
1,4-Dichlorobenzene	13.9 U	12.9 U	11.9 U	10.8 U	10.9 U	12.4 U	640			
2,2-Dichloropropane	13.9 U	12.9 U	11.9 U	10.8 U	10.9 U	12.4 U	--			
2-Butanone (MEK)	139 U	129 U	119 U	108 U	109 U	124 U	59,000			
2-Chlorotoluene	13.9 U	12.9 U	11.9 U	10.8 U	10.9 U	12.4 U	--			
2-Hexanone	139 U	129 U	119 U	108 U	109 U	124 U	--			
4-Chlorotoluene	13.9 U	12.9 U	11.9 U	10.8 U	10.9 U	12.4 U	--			
4-Isopropyltoluene	13.9 U	12.9 U	11.9 U	10.8 U	12.0 J	16.1 J	--			
4-Methyl-2-pentanone (MIBK)	139 U	129 U	125 J	108 U	109 U	124 U	8,100			
Benzene	6.95 U	6.45 U	5.95 U	5.40 U	5.45 U	6.2 U	25			
Bromobenzene	13.9 U	12.9 U	11.9 U	10.8 U	10.9 U	12.4 U	--			
Bromochloromethane	13.9 U	12.9 U	11.9 U	10.8 U	10.9 U	12.4 U	--			
Bromodichloromethane	13.9 U	12.9 U	11.9 U	10.8 U	10.9 U	12.4 U	44			
Bromoform	13.9 U	12.9 U	11.9 U	10.8 U	10.9 U	12.4 U	340			
Bromomethane	111 U	103 U	95 U	86.5 U	87 U	99.5 U	160			
Carbon disulfide	55.5 U	51.5 U	47.5 U	43.2 U	43.55 U	49.7 U	12,000			
Carbon tetrachloride	6.95 U	6.45 U	5.95 U	5.40 U	5.45 U	6.2 U	23			
Chlorobenzene	13.9 U	12.9 U	11.9 U	10.8 U	10.9 U	12.4 U	630			
Chloroethane	111 U	103 U	95 U	86.5 U	87 U	99.5 U	580,000			
Chloroform	13.9 U	12.9 U	11.9 U	10.8 U	10.9 U	12.4 U	460			
Chloromethane	13.9 U	12.9 U	11.9 U	10.8 U	10.9 U	12.4 U	210			
cis-1,2-Dichloroethene	13.9 U	12.9 U	11.9 U	10.8 U	10.9 U	12.4 U	240			
cis-1,3-Dichloropropene	13.9 U	12.9 U	11.9 U	10.8 U	10.9 U	12.4 U	--			
Dibromochloromethane	13.9 U	12.9 U	11.9 U	10.8 U	10.9 U	12.4 U	32			
Dibromomethane	13.9 U	12.9 U	11.9 U	10.8 U	10.9 U	12.4 U	--			
Dichlorodifluoromethane	27.8 U	25.75 U	23.7 U	21.6 U	21.8 U	24.85 U	140,000			
Ethylbenzene	13.9 U	12.9 U	11.9 U	10.8 U	15.0 J	19.6 J	6,900			
Freon-113	55.5 U	51.5 U	47.5 U	43.2 U	43.55 U	49.7 U	--			
Hexachlorobutadiene	27.8 U	25.75 U	23.7 U	21.6 U	21.8 U	24.85 U	120			
Isopropylbenzene (Cumene)	13.9 U	12.9 U	11.9 U	10.8 U	12.0 J	15.2 J	51,000			
Methylene chloride	55.5 U	51.5 U	47.5 U	43.2 U	43.55 U	49.7 U	16			
Methyl-t-butyl ether	55.5 U	51.5 U	47.5 U	43.2 U	43.55 U	49.7 U	1,300			
Naphthalene	27.8 U	25.75 U	30.8 J	21.6 U	37.3 J	73.3	20,000			
n-Butylbenzene	13.9 U	12.9 U	11.9 U	10.8 U	10.9 U	12.4 U	15,000			
n-Propylbenzene	13.9 U	12.9 U	11.9 U	10.8 U	16.1 J	22.9 J	15,000			
o-Xylene	13.9 U	12.9 U	11.9 U	10.8 U	14.0 J	38.3	49.9	63,000		
P & M -Xylene	27.8 U	25.75 U	23.7 U	38.7 J	52.3	67.6	63,000			
sec-Butylbenzene	13.9 U	12.9 U	11.9 U	10.8 U	14.8 J	21.4 J	12,000			
Styrene	13.9 U	12.9 U	11.9 U	10.8 U	10.9 U	12.4 U	960			
tert-Butylbenzene	13.9 U	12.9 U	11.9 U	10.8 U	10.9 U	12.4 U	12,000			
Tetrachloroethene	819	2,620	1,860	253	38.1	39.5	24	15,000	10,000	
Toluene	13.9 U	12.9 U	11.9 U	38.2	10.9 U	12.4 U	6,500			
trans-1,2-Dichloroethene	13.9 U	12.9 U	11.9 U	10.8 U	10.9 U	12.4 U	370			
trans-1,3-Dichloropropene	13.9 U	12.9 U	11.9 U	10.8 U	10.9 U	12.4 U	33			
Trichloroethene	6.95 U	6.45 U	5.95 U	67.4	5.45 U	6.2 U	20	21,000	570	
Trichlorofluoromethane	27.8 U	25.75 U	23.7 U	21.6 U	21.8 U	24.85 U	86,000			
Vinyl acetate	55.5 U	51.5 U	47.5 U	43.2 U	43.55 U	49.7 U	--			
Vinyl chloride	5.55 U	5.15 U	4.75 U	4.32 U	4.355 U	4.97 U	8.5			
Xylenes (total)	41.6 U	38.65 U	35.6 U	52.7 J	90.6	118	63,000			

NOTES:

- 1) Volatile Organic Compounds (VOC) analysis by Method EPA 8260B.
- 2) Bold font indicates that contaminant concentrations were detected above the Detection Limit (DL).
- 3) Bolded values with a J flag indicate the result is an estimated value.
- 4) Italicized values with a U flag indicate the analyte measured non-detectable at the DL, the value given is the Limit of Detection (LOD = 1/2 LOQ).
- 5) Light yellow highlighting indicates the analyte measured above ADEC Method 2 Migration to Groundwater Soil Cleanup Levels.
- 6) Light blue highlighting indicates DL exceeds the ADEC Method 2 Migration to Groundwater Soil Cleanup Levels.
- 7) FT = feet; PPMV = parts per million by volume; µg/Kg = micrograms per kilogram; LOQ = limit of quantitation
- 8) RV-X is the duplicate of RV-13
- 9) Direct Contact and Direct Inhalation Cleanup Levels are listed only for compounds that exceed ADEC Method 2 Migration to Groundwater Soil Cleanup Levels.
- 10) All sample depths are located in Table 2, except for sample RV-6A which was collected at a depth of 3 feet below ground surface

TABLE 3
VOLATILE ORGANIC COMPOUND CONCENTRATIONS IN SOIL
RAVN AIR JET A RELEASE

SAMPLE ID	RV-19	RV-21	RV-24	RV-54	RV-X3	RV-56	ADEC METHOD 2 SOIL CLEANUP LEVELS		
	DATE	11/25/15	11/25/15	11/2/2015	11/04/15	11/04/15	11/25/15	MIGRATION TO GROUNDWATER (ug/Kg)	UNDER 40 inch ZONE
PERCENT SOLIDS (%)	84.9	86.8	86.4	89.1	88.7	82.2			DIRECT CONTACT (ug/Kg)
UNITS	(ug/Kg)	(ug/Kg)	(ug/Kg)	(ug/Kg)	(ug/Kg)	(ug/Kg)	(ug/Kg)		
1,1,1,2-Tetrachloroethane	13.4 U	12.1 U	11.85 U	11.95 U	12.7 U	14.6 U	--		
1,1,1-Trichloroethane	13.4 U	12.1 U	11.85 U	11.0 J	11.4 J	14.6 U	820		
1,1,2,2-Tetrachloroethane	6.75 U	6.05 U	5.95 U	5.95 U	6.35 U	7.30 U	17		
1,1,2-Trichloroethane	5.40 U	4.85 U	4.745 U	4.775 U	5.05 U	5.80 U	18	150,000	570
1,1-Dichloroethane	13.4 U	12.1 U	11.85 U	10.5 J	10.9 J	18.1 J	25,000		
1,1-Dichloroethene	13.4 U	12.1 U	11.85 U	11.95 U	12.7 U	14.6 U	--		
1,1-Dichloropropene	13.4 U	12.1 U	11.85 U	11.95 U	12.7 U	14.6 U	--		
1,2,3-Trichlorobenzene	26.9 U	24.3 U	23.7 U	23.9 U	25.35 U	29.1 U	--		
1,2,3-Trichloropropane	13.4 U	12.1 U	11.85 U	11.95 U	12.7 U	14.6 U	0.53		
1,2,4-Trichlorobenzene	13.4 U	12.1 U	11.85 U	11.95 U	12.7 U	14.6 U	850		
1,2,4-Trimethylbenzene	161	91.2	118	194	201	197	23,000		
1,2-Dibromo-3-chloropropane	54.0 U	48.5 U	47.45 U	47.75 U	50.5 U	58.0 U	--		
1,2-Dibromoethane	5.40 U	4.85 U	4.745 U	4.775 U	5.05 U	5.80 U	0.16	4,200	600
1,2-Dichlorobenzene	13.4 U	12.1 U	11.85 U	11.95 U	12.7 U	14.6 U	5,100		
1,2-Dichloroethane	5.40 U	4.85 U	4.745 U	4.775 U	5.05 U	5.80 U	16		
1,2-Dichloropropane	5.40 U	4.85 U	4.745 U	4.775 U	5.05 U	5.80 U	18		
1,3,5-Trimethylbenzene	60.6	92.1	43.2	71.9	75.8	56.5	23,000		
1,3-Dichlorobenzene	13.4 U	12.1 U	11.85 U	11.95 U	12.7 U	14.6 U	28,000		
1,3-Dichloropropane	5.40 U	4.85 U	4.745 U	4.775 U	5.05 U	5.80 U	--		
1,4-Dichlorobenzene	13.4 U	12.1 U	11.85 U	11.95 U	12.7 U	14.6 U	640		
2,2-Dichloropropane	13.4 U	12.1 U	11.85 U	11.95 U	12.7 U	14.6 U	--		
2-Butanone (MEK)	134.5 U	121. U	118.5 U	191 J	180 J	146 U	59,000		
2-Chlorotoluene	13.4 U	12.1 U	11.85 U	11.95 U	12.7 U	14.6 U	--		
2-Hexanone	134.5 U	121. U	118.5 U	345	351	146 U	--		
4-Chlorotoluene	13.4 U	12.1 U	11.85 U	11.95 U	12.7 U	14.6 U	--		
4-Isopropyltoluene	38.5	16.7 J	16.1 J	22.7 J	23.6 J	32.9	--		
4-Methyl-2-pentanone (MIBK)	134.5 U	121. U	118.5 U	119.5 U	127. U	146 U	8,100		
Benzene	6.75 U	6.05 U	7.83 J	9.55 J	9.64 J	7.30 U	25		
Bromobenzene	13.4 U	12.1 U	11.85 U	11.95 U	12.7 U	14.6 U	--		
Bromochloromethane	13.4 U	12.1 U	11.85 U	11.95 U	12.7 U	14.6 U	--		
Bromodichloromethane	13.4 U	12.1 U	11.85 U	11.95 U	12.7 U	14.6 U	44		
Bromoform	13.4 U	12.1 U	11.85 U	11.95 U	12.7 U	14.6 U	340		
Bromomethane	107.5 U	97.0 U	95. U	95.5 U	101.5 U	117 U	160		
Carbon disulfide	54.0 U	48.5 U	47.45 U	47.75 U	50.5 U	58.0 U	12,000		
Carbon tetrachloride	6.75 U	6.05 U	5.95 U	5.95 U	6.35 U	7.30 U	23		
Chlorobenzene	13.4 U	12.1 U	11.85 U	11.95 U	12.7 U	14.6 U	630		
Chloroethane	107.5 U	97.0 U	95. U	95.5 U	101.5 U	117 U	580,000		
Chloroform	13.4 U	12.1 U	11.85 U	11.95 U	12.7 U	14.6 U	460		
Chloromethane	13.4 U	12.1 U	11.85 U	11.95 U	12.7 U	14.6 U	210		
cis-1,2-Dichloroethene	11.6 J	12.1 U	11.85 U	11.95 U	12.7 U	14.6 U	240		
cis-1,3-Dichloropropene	13.4 U	12.1 U	11.85 U	11.95 U	12.7 U	14.6 U	--		
Dibromochloromethane	13.4 U	12.1 U	11.85 U	11.95 U	12.7 U	14.6 U	32		
Dibromomethane	13.4 U	12.1 U	11.85 U	11.95 U	12.7 U	14.6 U	--		
Dichlorodifluoromethane	26.9 U	24.3 U	23.7 U	23.9 U	25.35 U	29.1 U	140,000		
Ethylbenzene	13.4 U	12.1 U	64.3	88.6	84.7	14.6 U	6,900		
Freon-113	54.0 U	48.5 U	47.45 U	47.75 U	50.5 U	58.0 U	--		
Hexachlorobutadiene	26.9 U	24.3 U	23.7 U	23.9 U	25.35 U	29.1 U	120		
Isopropylbenzene (Cumene)	16.4 J	21.3 J	17.3 J	21.0 J	21.6 J	14.6 U	51,000		
Methylene chloride	54.0 U	48.5 U	47.45 U	47.75 U	50.5 U	58.0 U	16		
Methyl-t-butyl ether	54.0 U	48.5 U	47.45 U	47.75 U	50.5 U	58.0 U	1,300		
Naphthalene	190	240	23.7 U	41.1 J	35.0 J	80.4	20,000		
n-Butylbenzene	13.4 U	12.1 U	11.85 U	11.95 U	12.7 U	14.6 U	15,000		
n-Propylbenzene	32.0	38.3	22.5 J	32.7	34.2	20.1 J	15,000		
o-Xylene	49.8	17.9 J	42.5	142	138	68.2	63,000		
P & M -Xylene	98.3	73.7	127	203	196	58.8	63,000		
sec-Butylbenzene	13.4 U	21.1 J	17.8 J	20.8 J	22.1 J	14.6 U	12,000		
Styrene	13.4 U	12.1 U	11.85 U	11.95 U	12.7 U	14.6 U	960		
tert-Butylbenzene	13.4 U	12.1 U	11.85 U	11.95 U	12.7 U	14.6 U	12,000		
Tetrachloroethene	90.5	13.6	14.9	73.6	72.8	120	24	15,000	10,000
Toluene	19.9 J	12.1 U	8.07 J	14.1 J	13.7 J	14.6 U	6,500		
trans-1,2-Dichloroethene	13.4 U	15.3 J	11.85 U	11.95 U	12.7 U	14.6 U	370		
trans-1,3-Dichloropropene	13.4 U	12.1 U	11.85 U	11.95 U	12.7 U	14.6 U	33		
Trichloroethene	6.75 U	37.6	17.3	30.6	30.9	7.30 U	20	21,000	570
Trichlorofluoromethane	26.9 U	24.3 U	23.7 U	23.9 U	25.35 U	29.1 U	86,000		
Vinyl acetate	54.0 U	48.5 U	47.45 U	47.75 U	50.5 U	58.0 U	--		
Vinyl chloride	5.40 U	4.85 U	4.745 U	4.775 U	5.05 U	5.80 U	8.5		
Xylenes (total)	148	91.6	170	345	334	127	63,000		

NOTES:

- 1) Volatile Organic Compounds (VOC) analysis by Method EPA 8260B.
- 2) Bold font indicates that contaminant concentrations were detected above the Detection Limit (DL).
- 3) Bolded values with a J flag indicate the result is an estimated value.
- 4) Italicized values with a U flag indicate the analyte measured non-detectable at the DL, the value given is the Limit of Detection (LOD = 1/2 LOQ).
- 5) Light yellow highlighting indicates the analyte measured above ADEC Method 2 Migration to Groundwater Soil Cleanup Levels.
- 6) Light blue highlighting indicates DL exceeds the ADEC Method 2 Migration to Groundwater Soil Cleanup Levels.
- 7) FT = feet; PPMV = parts per million by volume; µg/Kg = micrograms per kilogram; LOQ = limit of quantitation
- 8) RV-X3 is a duplicate of RV-54
- 9) Direct Contact and Direct Inhalation Cleanup Levels are listed only for compounds that exceed ADEC Method 2 Migration to Groundwater Soil Cleanup Levels.

TABLE 3
VOLATILE ORGANIC COMPOUND CONCENTRATIONS IN SOIL
RAVN AIR JET A RELEASE

VOLATILE ORGANIC COMPOUND CONCENTRATIONS IN SOIL								
SAMPLE ID	RV-67	RV-70	RV-89	RV-93	RV-96	ADEC METHOD 2 SOIL CLEANUP LEVELS		
DATE	11/25/15	11/25/15	11/25/15	11/25/15	11/25/15	MIGRATION TO GROUNDWATER (ug/Kg)	UNDER 40 inch ZONE	
PERCENT SOLIDS (%)	91.6	77.1	85.2	83.4	80.4		DIRECT CONTACT (ug/Kg)	OUTDOOR INHALATION (ug/Kg)
UNITS	(ug/Kg)	(ug/Kg)	(ug/Kg)	(ug/Kg)	(ug/Kg)			
1,1,1,2-Tetrachloroethane	9.30 U	15.3 U	12.4 U	9.65 U	15.7 U	--		
1,1,1-Trichloroethane	10.4 J	15.3 U	12.4 U	9.65 U	15.7 U	820		
1,1,2,2-Tetrachloroethane	4.64 U	7.65 U	6.20 U	4.82 U	7.85 U	17		
1,1,2-Trichloroethane	3.71 U	6.10 U	4.95 U	3.85 U	6.30 U	18	150,000	570
1,1-Dichloroethane	9.30 U	15.3 U	12.4 U	9.65 U	15.7 U	25,000		
1,1-Dichloroethene	9.30 U	15.3 U	12.4 U	9.65 U	15.7 U	--		
1,1-Dichloropropene	9.30 U	15.3 U	12.4 U	9.65 U	15.7 U	--		
1,2,3-Trichlorobenzene	18.6 U	30.6 U	24.8 U	19.3 U	31.4 U	--		
1,2,3-Trichloropropane	9.30 U	15.3 U	12.4 U	9.65 U	15.7 U	0.53		
1,2,4-Trichlorobenzene	9.30 U	15.3 U	12.4 U	9.65 U	15.7 U	850		
1,2,4-Trimethylbenzene	201	196	281	19.3 U	31.4 U	23,000		
1,2-Dibromo-3-chloropropane	37.1 U	61.0 U	49.5 U	38.5 U	63.0 U	--		
1,2-Dibromoethane	13.9	6.10 U	4.95 U	3.85 U	6.30 U	0.16	4,200	600
1,2-Dichlorobenzene	9.30 U	15.3 U	12.4 U	9.65 U	15.7 U	5,100		
1,2-Dichloroethane	3.71 U	6.10 U	4.95 U	3.85 U	6.30 U	16		
1,2-Dichloropropane	3.71 U	6.10 U	4.95 U	3.85 U	6.30 U	18		
1,3,5-Trimethylbenzene	45.7	87.2	121	9.65 U	15.7 U	23,000		
1,3-Dichlorobenzene	9.30 U	15.3 U	12.4 U	9.65 U	15.7 U	28,000		
1,3-Dichloropropane	3.71 U	6.10 U	4.95 U	3.85 U	6.30 U	--		
1,4-Dichlorobenzene	9.30 U	15.3 U	12.4 U	9.65 U	15.7 U	640		
2,2-Dichloropropane	9.30 U	15.3 U	12.4 U	9.65 U	15.7 U	--		
2-Butanone (MEK)	64.8 J	153 U	124 U	96.5 U	157 U	59,000		
2-Chlorotoluene	9.30 U	15.3 U	12.4 U	9.65 U	15.7 U	--		
2-Hexanone	74.9 J	153 U	124 U	96.5 U	157 U	--		
4-Chlorotoluene	9.30 U	15.3 U	12.4 U	9.65 U	15.7 U	--		
4-Isopropyltoluene	16.7 J	25.1 J	15.6 J	9.65 U	15.7 U	--		
4-Methyl-2-pentanone (MIBK)	93.0 U	153 U	124 U	96.5 U	157 U	8,100		
Benzene	4.64 U	7.65 U	6.20 U	4.82 U	7.85 U	25		
Bromobenzene	9.30 U	15.3 U	12.4 U	9.65 U	15.7 U	--		
Bromochloromethane	9.30 U	15.3 U	12.4 U	9.65 U	15.7 U	--		
Bromodichloromethane	9.30 U	15.3 U	12.4 U	9.65 U	15.7 U	44		
Bromoform	9.30 U	15.3 U	12.4 U	9.65 U	15.7 U	340		
Bromomethane	74.5 U	123 U	99.0 U	77.0 U	126 U	160		
Carbon disulfide	37.1 U	61.0 U	49.5 U	38.5 U	63.0 U	12,000		
Carbon tetrachloride	4.64 U	7.65 U	6.20 U	4.82 U	7.85 U	23		
Chlorobenzene	9.30 U	15.3 U	12.4 U	9.65 U	15.7 U	630		
Chloroethane	74.5 U	123 U	99.0 U	77.0 U	126 U	580,000		
Chloroform	9.30 U	15.3 U	12.4 U	9.65 U	15.7 U	460		
Chloromethane	9.30 U	15.3 U	12.4 U	9.65 U	15.7 U	210		
cis-1,2-Dichloroethene	9.30 U	15.3 U	46.2	9.65 U	15.7 U	240		
cis-1,3-Dichloropropene	9.30 U	15.3 U	12.4 U	9.65 U	15.7 U	--		
Dibromochloromethane	9.30 U	15.3 U	12.4 U	9.65 U	15.7 U	32		
Dibromomethane	9.30 U	15.3 U	12.4 U	9.65 U	15.7 U	--		
Dichlorodifluoromethane	18.6 U	30.6 U	24.8 U	19.3 U	31.4 U	140,000		
Ethylbenzene	9.30 U	15.3 U	12.4 U	9.65 U	15.7 U	6,900		
Freon-113	37.1 U	61.0 U	49.5 U	38.5 U	63.0 U	--		
Hexachlorobutadiene	18.6 U	30.6 U	24.8 U	19.3 U	31.4 U	120		
Isopropylbenzene (Cumene)	12.6 J	21.1 J	28.2	9.65 U	15.7 U	51,000		
Methylene chloride	37.1 U	61.0 U	49.5 U	38.5 U	63.0 U	16		
Methyl-t-butyl ether	37.1 U	61.0 U	49.5 U	38.5 U	63.0 U	1,300		
Naphthalene	247	266	120	19.3 U	31.4 U	20,000		
n-Butylbenzene	9.30 U	15.3 U	12.4 U	9.65 U	15.7 U	15,000		
n-Propylbenzene	27.5	42.5	43.3	9.65 U	15.7 U	15,000		
o-Xylene	55.7	51.1	69	9.65 U	15.7 U	63,000		
P & M -Xylene	81.7	63.3	154	19.3 U	31.4 U	63,000		
sec-Butylbenzene	20.1	30.6	22.0 J	9.65 U	15.7 U	12,000		
Styrene	9.30 U	15.3 U	12.4 U	9.65 U	15.7 U	960		
tert-Butylbenzene	9.30 U	15.3 U	12.4 U	9.65 U	15.7 U	12,000		
Tetrachloroethene	148	65.2	6.20 U	20.8	19.1	24	15,000	10,000
Toluene	29.0	26.3 J	14.6 J	11.6 J	15.7 U	6,500		
trans-1,2-Dichloroethene	9.30 U	15.3 U	12.4 U	9.65 U	15.7 U	370		
trans-1,3-Dichloropropene	9.30 U	15.3 U	12.4 U	9.65 U	15.7 U	33		
Trichloroethene	16.9	11.6 J	11.9 J	20.8	10.4 J	20	21,000	570
Trichlorofluoromethane	18.6 U	30.6 U	24.8 U	19.3 U	31.4 U	86,000		
Vinyl acetate	37.1 U	61.0 U	49.5 U	38.5 U	63.0 U	--		
Vinyl chloride	3.71 U	6.10 U	4.95 U	3.85 U	6.30 U	8.5		
Xylenes (total)	137	114	223	28.9 U	47.05 U	63,000		

NOTES:

- 1) Volatile Organic Compounds (VOC) analysis by Method EPA 8260B.
- 2) Bold font indicates that contaminant concentrations were detected above the Detection Limit (DL).
- 3) Bolded values with a J flag indicate the result is an estimated value.
- 4) Italicized values with a U flag indicate the analyte measured non-detectable at the DL, the value given is the Limit of Detection (LOD = 1/2 LOQ).
- 5) Light yellow highlighting indicates the analyte measured above ADEC Method 2 Migration to Groundwater Soil Cleanup Levels.
- 6) Light blue highlighting indicates DL exceeds the ADEC Method 2 Migration to Groundwater Soil Cleanup Levels.
- 7) FT = feet; PPMV = parts per million by volume; µg/Kg = micrograms per kilogram; LOQ = limit of quantitation
- 8) Direct Contact and Direct Inhalation Cleanup Levels are listed only for compounds that exceed ADEC Method 2 Migration to Groundwater Soil Cleanup Levels.

TABLE 3
VOLATILE ORGANIC COMPOUND CONCENTRATIONS IN SOIL
RAVN AIR JET A RELEASE

VOLATILE ORGANIC COMPOUND CONCENTRATIONS IN SOIL									
SAMPLE ID	RV-108	RV-Y	RV-110	RV-119	RV-121	RV-125	ADEC METHOD 2 SOIL CLEANUP LEVELS		
	DATE	11/25/15	11/25/15	11/25/15	11/04/15	11/04/15	11/25/15	MIGRATION TO GROUNDWATER (ug/Kg)	UNDER 40 inch ZONE
PERCENT SOLIDS (%)	88.9	90.0	68.9	85.1	91.5	81.9			DIRECT CONTACT (ug/Kg)
UNITS	(ug/Kg)	(ug/Kg)	(ug/Kg)	(ug/Kg)	(ug/Kg)	(ug/Kg)			
1,1,1,2-Tetrachloroethane	7.25 U	7.15 U	17.4 U	14.95 U	9.9 U	13.4 U	--		
1,1,1-Trichloroethane	7.25 U	7.15 U	17.4 U	17.6 J	7.33 J	13.4 U	820		
1,1,2,2-Tetrachloroethane	3.62 U	3.58 U	8.70 U	7.45 U	4.95 U	6.75 U	17		
1,1,2-Trichloroethane	2.90 U	2.87 U	6.95 U	6.0 U	3.96 U	5.40 U	18	150,000	570
1,1-Dichloroethane	7.25 U	7.15 U	17.4 U	15.5 J	9.11 J	13.4 U	25,000		
1,1-Dichloroethene	7.25 U	7.15 U	17.4 U	14.95 U	9.9 U	13.4 U	--		
1,1-Dichloropropene	7.25 U	7.15 U	17.4 U	14.95 U	9.9 U	13.4 U	--		
1,2,3-Trichlorobenzene	14.5 U	14.3 U	34.8 U	29.9 U	19.8 U	26.9 U	--		
1,2,3-Trichloropropane	7.25 U	7.15 U	17.4 U	14.95 U	9.9 U	13.4 U	0.53		
1,2,4-Trichlorobenzene	7.25 U	10.5 J	17.4 U	14.95 U	9.9 U	13.4 U	850		
1,2,4-Trimethylbenzene	14.5 U	14.3 U	34.8 U	86.7	88.5	108	23,000		
1,2-Dibromo-3-chloropropane	28.9 U	28.6 U	69.5 U	60.0 U	39.6 U	54.0 U	--		
1,2-Dibromoethane	2.90 U	2.87 U	6.95 U	6.0 U	3.96 U	5.40 U	0.16	4,200	600
1,2-Dichlorobenzene	7.25 U	7.15 U	17.4 U	14.95 U	9.9 U	13.4 U	5,100		
1,2-Dichloroethane	2.90 U	2.87 U	6.95 U	6.0 U	3.96 U	5.40 U	16		
1,2-Dichloropropane	2.90 U	2.87 U	6.95 U	6.0 U	3.96 U	5.40 U	18		
1,3,5-Trimethylbenzene	7.25 U	4.73 J	17.4 U	41.8	33.3	27.5	23,000		
1,3-Dichlorobenzene	7.25 U	7.15 U	17.4 U	14.95 U	9.9 U	13.4 U	28,000		
1,3-Dichloropropane	2.90 U	2.87 U	6.95 U	6.0 U	3.96 U	5.40 U	--		
1,4-Dichlorobenzene	7.25 U	7.15 U	17.4 U	14.95 U	9.9 U	13.4 U	640		
2,2-Dichloropropane	7.25 U	7.15 U	17.4 U	14.95 U	9.9 U	13.4 U	--		
2-Butanone (MEK)	72.5 U	71.5 U	174 U	149.5 U	157 J	134.5 U	59,000		
2-Chlorotoluene	7.25 U	7.15 U	17.4 U	14.95 U	9.9 U	13.4 U	--		
2-Hexanone	72.5 U	71.5 U	174 U	149.5 U	69.1 J	134.5 U	--		
4-Chlorotoluene	7.25 U	7.15 U	17.4 U	14.95 U	9.9 U	13.4 U	--		
4-Isopropyltoluene	7.25 U	10.3 J	17.4 U	14.9 J	12.5 J	18.1 J	--		
4-Methyl-2-pentanone (MIBK)	72.5 U	71.5 U	174 U	149.5 U	99. U	134.5 U	8,100		
Benzene	3.62 U	3.58 U	8.70 U	9.86 J	7.52 J	6.75 U	25		
Bromobenzene	7.25 U	7.15 U	17.4 U	14.95 U	9.9 U	13.4 U	--		
Bromochloromethane	7.25 U	7.15 U	17.4 U	14.95 U	9.9 U	13.4 U	--		
Bromodichloromethane	7.25 U	7.15 U	17.4 U	14.95 U	9.9 U	13.4 U	44		
Bromoform	7.25 U	7.15 U	17.4 U	14.95 U	9.9 U	13.4 U	340		
Bromomethane	58.0 U	57.5 U	139 U	119.5 U	79. U	108 U	160		
Carbon disulfide	28.9 U	28.6 U	69.5 U	60.0 U	39.6 U	54.0 U	12,000		
Carbon tetrachloride	3.62 U	3.58 U	8.70 U	7.45 U	4.95 U	6.75 U	23		
Chlorobenzene	7.25 U	7.15 U	17.4 U	14.95 U	9.9 U	9.70 J	630		
Chloroethane	58.0 U	57.5 U	139 U	119.5 U	79. U	108 U	580,000		
Chloroform	7.25 U	7.15 U	17.4 U	14.95 U	9.9 U	13.4 U	460		
Chloromethane	7.25 U	7.15 U	17.4 U	14.95 U	9.9 U	13.4 U	210		
cis-1,2-Dichloroethene	7.25 U	7.15 U	17.4 U	14.95 U	9.9 U	13.4 U	240		
cis-1,3-Dichloropropene	7.25 U	7.15 U	17.4 U	14.95 U	9.9 U	13.4 U	--		
Dibromochloromethane	7.25 U	7.15 U	17.4 U	14.95 U	9.9 U	13.4 U	32		
Dibromomethane	7.25 U	7.15 U	17.4 U	14.95 U	9.9 U	13.4 U	--		
Dichlorodifluoromethane	14.5 U	14.3 U	34.8 U	29.9 U	19.8 U	26.9 U	140,000		
Ethylbenzene	7.25 U	4.58 J	17.4 U	44.2	86.3	34.8	6,900		
Freon-113	28.9 U	28.6 U	69.5 U	60.0 U	39.6 U	54.0 U	--		
Hexachlorobutadiene	14.5 U	14.3 U	34.8 U	29.9 U	19.8 U	26.9 U	120		
Isopropylbenzene (Cumene)	7.25 U	6.30 J	17.4 U	17.3 J	13.1 J	11.9 J	51,000		
Methylene chloride	28.9 U	28.6 U	69.5 U	60.0 U	39.6 U	54.0 U	16		
Methyl-t-butyl ether	28.9 U	28.6 U	69.5 U	60.0 U	39.6 U	54.0 U	1,300		
Naphthalene	14.5 U	14.3 U	34.8 U	29.9 U	19.8 U	26.9 U	20,000		
n-Butylbenzene	7.25 U	39.7	17.4 U	14.95 U	9.9 U	13.4 U	15,000		
n-Propylbenzene	7.25 U	6.16 J	17.4 U	21.2 J	19.6 J	18.3 J	15,000		
o-Xylene	7.25 U	7.15 U	17.4 U	59.2	102	20.2 J	63,000		
P & M -Xylene	14.5 U	9.60 J	34.8 U	141	220	64.9	63,000		
sec-Butylbenzene	7.25 U	9.88 J	17.4 U	18.2 J	13.3 J	18.3 J	12,000		
Styrene	7.25 U	7.15 U	17.4 U	14.95 U	9.9 U	13.4 U	960		
tert-Butylbenzene	7.25 U	7.30 J	17.4 U	14.95 U	7.92 J	11.9 J	12,000		
Tetrachloroethene	3.62 U	3.58 U	8.70 U	88.8	28.3	17.0	24	15,000	10,000
Toluene	7.25 U	7.15 U	17.4 U	14.95 U	14.5 J	8.89 J	6,500		
trans-1,2-Dichloroethene	7.25 U	7.15 U	17.4 U	14.95 U	9.9 U	13.4 U	370		
trans-1,3-Dichloropropene	7.25 U	7.15 U	17.4 U	14.95 U	9.9 U	13.4 U	33		
Trichloroethene	3.62 U	3.58 U	8.70 U	52.9	18.8	11.0 J	20	21,000	570
Trichlorofluoromethane	14.5 U	14.3 U	34.8 U	29.9 U	19.8 U	26.9 U	86,000		
Vinyl acetate	28.9 U	28.6 U	69.5 U	60.0 U	39.6 U	54.0 U	--		
Vinyl chloride	2.90 U	2.87 U	6.95 U	6.0 U	3.96 U	5.40 U	8.5		
Xylenes (total)	21.8 U	14.0 J	52.0 U	200	322	85.1	63,000		

NOTES:

- 1) Volatile Organic Compounds (VOC) analysis by Method EPA 8260B.
- 2) Bold font indicates that contaminant concentrations were detected above the Detection Limit (DL).
- 3) Bolded values with a J flag indicate the result is an estimated value.
- 4) Italicized values with a U flag indicate the analyte measured non-detectable at the DL, the value given is the Limit of Detection (LOD = 1/2 LOQ).
- 5) Light yellow highlighting indicates the analyte measured above ADEC Method 2 Migration to Groundwater Soil Cleanup Levels.
- 6) Light blue highlighting indicates DL exceeds the ADEC Method 2 Migration to Groundwater Soil Cleanup Levels.
- 7) FT = feet; PPMV = parts per million by volume; µg/Kg = micrograms per kilogram; LOQ = limit of quantitation
- 8) RV-Y is a duplicate of RV-108
- 9) Direct Contact and Direct Inhalation Cleanup Levels are listed only for compounds that exceed ADEC Method 2 Migration to Groundwater Soil Cleanup Levels.

**TABLE 4
POLYAROMATIC HYDROCARBONS CONCENTRATIONS IN SOIL
RAVN AIR JET A RELEASE**

POLYAROMATIC HYDROCARBONS CONCENTRATIONS IN SOIL									
SAMPLE ID	RV-3	RV-13	RV-X	RV-24	RV-54	RV-X3	RV-119	RV-121	ADEC METHOD 2 MIGRATION TO GROUNDWATER SOIL CLEANUP LEVELS (µg/Kg)
DATE	11/02/15	11/02/15	11/02/15	11/03/15	11/04/15	11/04/15	11/04/15	11/04/15	11/04/15
UNITS	(µg/Kg)	(µg/Kg)	(µg/Kg)	(µg/Kg)	(µg/Kg)	(µg/Kg)	(µg/Kg)	(µg/Kg)	(µg/Kg)
PERCENT SOLIDS	86.7	87.8	87.9	86.4	89.1	88.7	85.1	91.5	
1-Methylnaphthalene	28.7 <i>U</i>	67.1	72.8	2.845 <i>U</i>	6.30	2.45 J	2.935 <i>U</i>	2.72 <i>U</i>	6,200
2-Methylnaphthalene	28.7 <i>U</i>	20.6 J	21.9 J	2.845 <i>U</i>	7.03	2.795 <i>U</i>	2.935 <i>U</i>	2.72 <i>U</i>	6,100
Acenaphthene	28.7 <i>U</i>	19.7 J	14. <i>U</i>	2.845 <i>U</i>	2.77 <i>U</i>	2.795 <i>U</i>	2.935 <i>U</i>	2.72 <i>U</i>	180,000
Acenaphthylene	28.7 <i>U</i>	13.95 <i>U</i>	14. <i>U</i>	2.845 <i>U</i>	2.77 <i>U</i>	2.795 <i>U</i>	2.935 <i>U</i>	2.72 <i>U</i>	180,000
Anthracene	28.7 <i>U</i>	45.8	13.8 J	2.845 <i>U</i>	2.77 <i>U</i>	2.795 <i>U</i>	2.935 <i>U</i>	2.72 <i>U</i>	3,000,000
Benzo(a)Anthracene	28.7 <i>U</i>	142	58.4	2.845 <i>U</i>	2.77 <i>U</i>	2.795 <i>U</i>	2.935 <i>U</i>	2.72 <i>U</i>	3,600
Benzo[a]pyrene	143.5 <i>U</i>	194	93.9	2.845 <i>U</i>	2.77 <i>U</i>	2.795 <i>U</i>	2.935 <i>U</i>	2.72 <i>U</i>	2,100
Benzo[b]Fluoranthene	28.7 <i>U</i>	362	195	2.845 <i>U</i>	2.77 <i>U</i>	2.795 <i>U</i>	2.935 <i>U</i>	2.72 <i>U</i>	12,000
Benzo[g,h,i]perylene	28.7 <i>U</i>	255	181	2.845 <i>U</i>	2.77 <i>U</i>	2.795 <i>U</i>	2.935 <i>U</i>	2.72 <i>U</i>	38,700,000
Benzo[k]fluoranthene	28.7 <i>U</i>	13.95 <i>U</i>	14. <i>U</i>	2.845 <i>U</i>	2.77 <i>U</i>	2.795 <i>U</i>	2.935 <i>U</i>	2.72 <i>U</i>	120,000
Chrysene	28.7 <i>U</i>	179	88.1	2.845 <i>U</i>	2.77 <i>U</i>	2.795 <i>U</i>	2.935 <i>U</i>	2.72 <i>U</i>	360,000
Dibenzo[a,h]anthracene	28.7 <i>U</i>	53.9	33	2.845 <i>U</i>	2.77 <i>U</i>	2.795 <i>U</i>	2.935 <i>U</i>	2.72 <i>U</i>	4,000
Fluoranthene	28.7 <i>U</i>	256	90.1	2.845 <i>U</i>	2.77 <i>U</i>	2.795 <i>U</i>	2.935 <i>U</i>	2.72 <i>U</i>	1,400,000
Fluorene	28.7 <i>U</i>	23.4 J	12.7 J	2.845 <i>U</i>	2.77 <i>U</i>	2.795 <i>U</i>	2.935 <i>U</i>	2.72 <i>U</i>	220,000
Indeno[1,2,3-c,d] pyrene	28.7 <i>U</i>	184	119	2.845 <i>U</i>	2.77 <i>U</i>	2.795 <i>U</i>	2.935 <i>U</i>	2.72 <i>U</i>	41,000
Naphthalene	28.7 <i>U</i>	12.4 J	11.7 J	2.20 J	20.4	18.2	2.935 <i>U</i>	2.72 <i>U</i>	20,000
Phenanthrene	28.7 <i>U</i>	196	50.2	2.845 <i>U</i>	2.77 <i>U</i>	2.795 <i>U</i>	2.935 <i>U</i>	2.72 <i>U</i>	3,000,000
Pyrene	28.7 <i>U</i>	249	93.6	2.845 <i>U</i>	2.77 <i>U</i>	2.795 <i>U</i>	2.935 <i>U</i>	2.72 <i>U</i>	1,000,000

NOTES:

- 1) Polyaromatic Hydrocarbon (PAH) analysis by Method EPA 8270D.
- 2) Bold font indicates that contaminant concentrations were detected above the Detection Limit (DL).
- 3) Bolded values with a J flag indicate the result is an estimated value.
- 4) Italicized values with a U flag indicate the analyte measured non-detectable at the DL, the value given is the Limit of Detection (LOD = 1/2 LOQ).
- 5) Light yellow highlighting indicates the analyte measured above ADEC Method 2 Migration to Groundwater Soil Cleanup Levels.
- 6) FT = feet; PPMV = parts per million by volume; µg/Kg = micrograms per kilogram; LOQ = limit of quantitation
- 7) RV-X is the duplicate of RV-13; RV-X3 is a duplicate of RV-54

ATTACHMENT C

RSE Selected Site Photographs

RSE Field Notes



Final Excavation Limits, Facing East



Target Excavation in the Eastern Portion of the Excavation



Typical Excavation Sidewall in Western Portion of the Excavation: 1 to 3 Feet of Gravel on Top of Fine Sand or Silt, Facing West



Typical Excavation Sidewall in Eastern Portion of the Excavation: Fine Sand or Silt from Surface to 8.5 Feet, Facing North



Name RESTORATION SCIENCE & ENG. LLC
C BRANDT

Address 911 W 8TH AVE, STE 100
ANCHORAGE, AK 99501

Phone (907) 278 1023 EXT. 1113

Email cbrandt@restorsci.com

Projects 15-1454

NRC RAUN AIR AVGAS RELEASE

OCTOBER 2015

ADES SPILL #

15 239929501



RiteintheRain.com

11/2/15 - RAIN ~~At~~ Cleanup

Perimeter Total: 231 ft
(+ 19' where there is a bench)

Footprint area
rough estimate
 $\sim 67 \times 52.5 = 3,517.5 \text{ sq ft}$

3600

Smaller areas

$$\sim 37 \times 36 = 1,332 \text{ sq ft}$$

$$\sim 26 \times 52.5 = 1,365 \text{ sq ft}$$

$$\sim 30 \times 46 = 1,380$$

} 4,031 sq ft.

Sidewall Samples = 231 ft \rightarrow 240
+ 19 \rightarrow 20

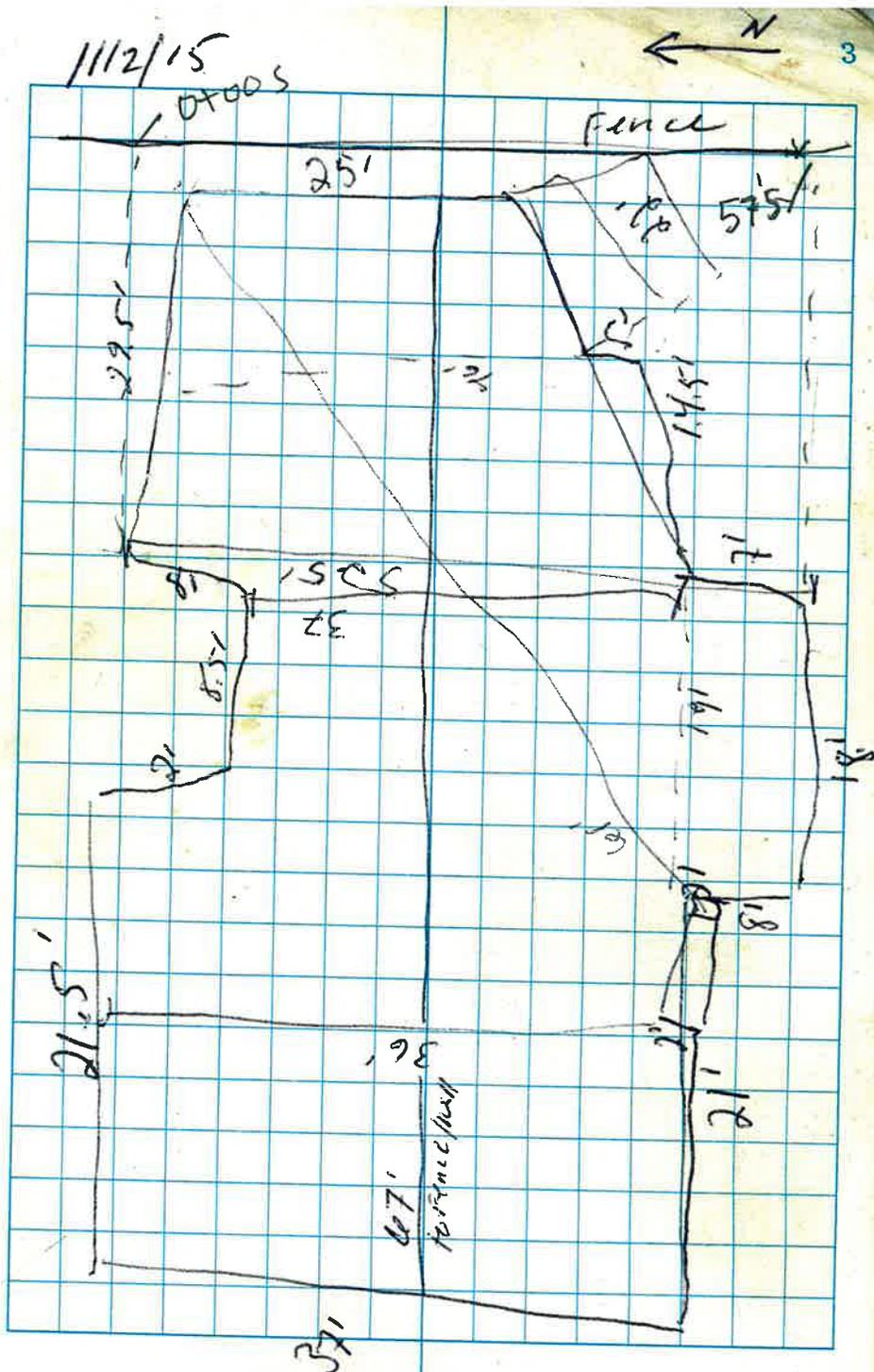
Screening 26 Sidewall Samples
13 laboratory Samples

Bottom: 3,600 sq ft

Screening: 10 + 34 = 44

laboratory: 2 + 14 = 16

duplicates: 2 bottom or 3 total
2 side walls



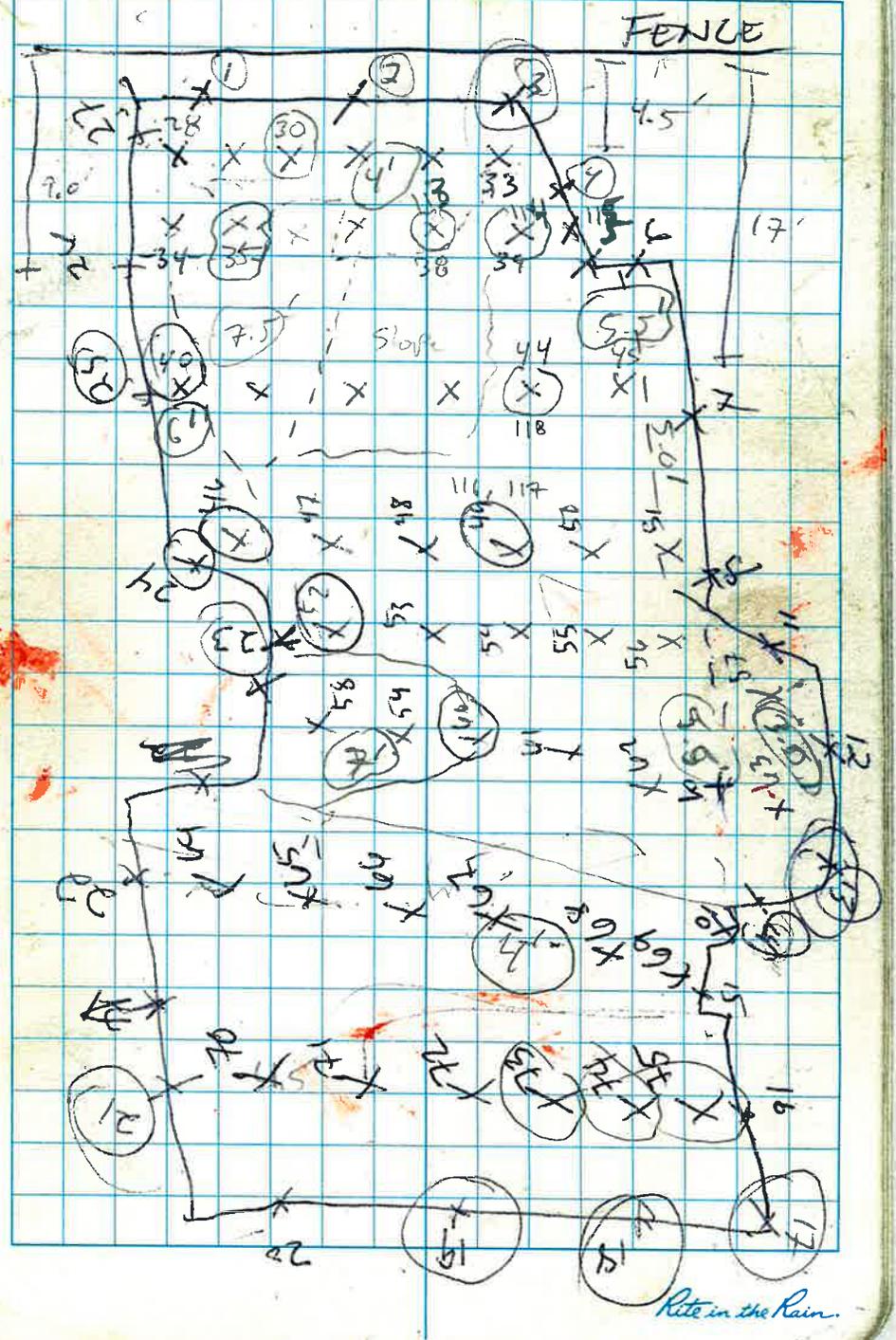
4 11/2/15 Run Clamp

AS 3	ID	PID	dept	NOTES
	RV-1	24.7	3'	
	RV-2	24.9		Silty loam
	-3	52.2		
	-4	28.8		
	-5	7.8	3.5'	
	-6	6.2		
	-7	3.0		
	-8	4.0		
	-9	8.2	2' down from Back	
	-10	6.8	3' bgs	
	-11	3.2	1.5'	
	-12	1.7	1.5'	
	-13	101.5	1.5'	sandy silt
	-14	30.6	1.5'	
	-15	9.8	3.0'	
	-16	6.2	2.5'	
	-17	305.5	3.0'	ID PID NOTES
	-18	445.4	2.5'	RV-24 22.5 3'
	-19	3.158	3.0'	-25 25.7 4'
	-20	13.0	3.0'	-26 6.7 3.5'
	-21	10.5	2.0'	-27 12.2 ne sandy silt
	-22	8.7	3.0'	
	-23	16.1	4.0'	

SIDEWAYS 1-27

uplink

5 11/2/15 Run Clamp



11/2/15

Sample ID	DEPTH	PID	NOTES
RV-28	3'4.0'	15.2	Bottom samples $\phi=6.0$
29	3'	12.1	Silty sand, Brown
30	3'	154.7	excd out
31	3'	19.2	
32	3'	15.1	
33	3'	12.6	
34	3'	5.7	
35	3'	125.0	excd out
36	4'	45.8	
37	3'	75.6	
38	3'	171.3	
39	4'	763.8	excd out
40	5.6'	130.1	
41	6.5	16.0	
42	6.5	42.4	
43	6.5	17.8	
44	5.5	86.3	excd out
45	5.5	36.4	
46	6'	128.3	excd out
47	6'	69.0	excd out
48	6'	26.3	
49	5.5'	383	excd out Silty sand
50	5.5'	18.6	Silt

11/2/15

ID	BGS	PID	NOTES
51	5.5	16.4	Silty sand
52	6'	723	excd out
53	6'	25.4	Silty sand
54	5.5'	48.9	
55	5.5'	20.0	
56	5.5'	19.6	Silt
57	3.0'	8.1	
58	7'	38.7	excd out
59	7'	35.1	excd out
60	6'	175.2	excd out
61	5.5'	35.7	
62	5.5'	14.6	
63	3.0'	7.8	
64	4'	10.9	
65	4'	48.4	Silty sand
66	4'	24.6	" "
67	4'	24.1	" "
68	4'	33.4	" "
69	4'	19.3	
70	4'	22.5	
71	4'	10.4	
72	4'	11.3	
73	4'	82.7	End of Day!
74	4'	520	excd out
75	4'	593	11/3 <i>Rite in the Rain.</i>

11/3/15

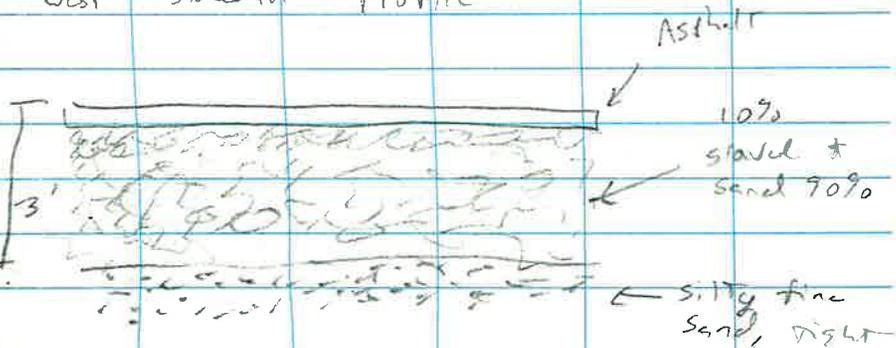
RAVN Cleanup

0900 - left office. Through safe @
0939, NRC Arrived 0918

Safety meeting, present discussion.
collected screening samples from
New sidewalks on western portion
of excavation, under asphalt

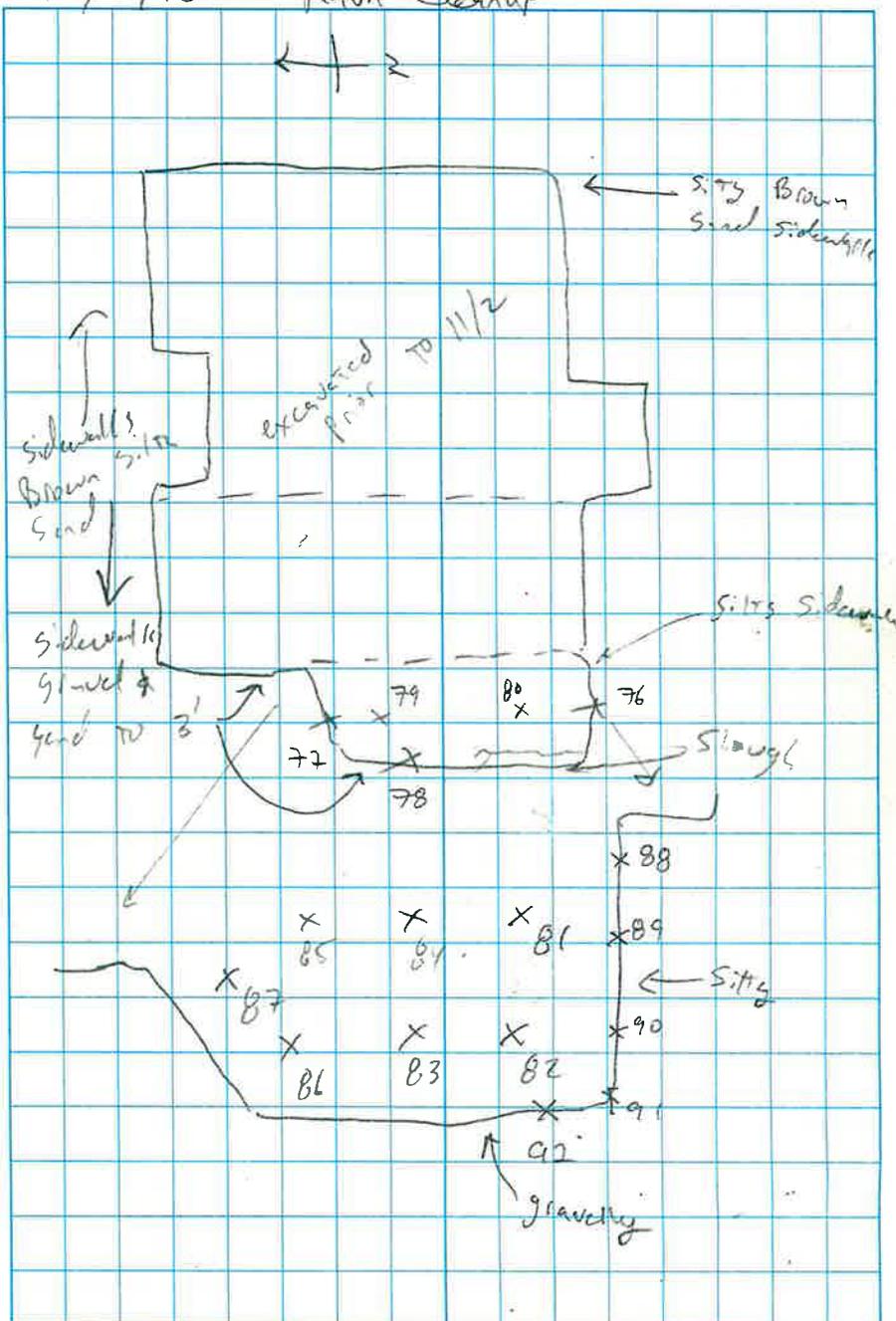
Sample ID	PID	Depth	Notes
76	18.6	2.0	Sandy gravel, sidewalk (S)
77	20.0	2.0	" " North
78	53.6	2.0	exc out western
79	11.7	5'	Bottom, Silty Sand
80	26.7	5'	Bottom " "

West Sidewalk Profile



11/3/15

RAVN Cleanup



11/3/15

RAVN Cleanup

ID	PID	Depth NOTES	NOTES
81	31.9	5'	silty sand, bottom samples
82	18.3	5'	" "
83	18.2	5'	
84	33.4	5'	
85	17.0	5'	
86	12.0	5'	
87	11.6	5'	
88	25.0	25'	silty sand, sidewall
89	18.4	25'	
90	24.3	25'	
91	32.6	25'	sandy gravelly sand
92	35.2	25'	gravelly sand

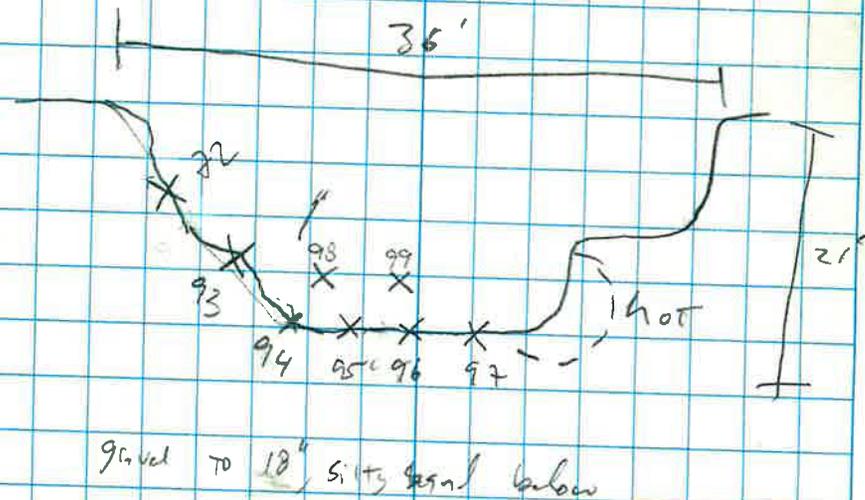
NRC reports slow Truck Turn around
due to weather.

Generally: NRC screened cold samples directly
in excavation & excavation continued until
cold screenings were < 20 ppm, then
vertical lead pipe samples were collected

11/3/15

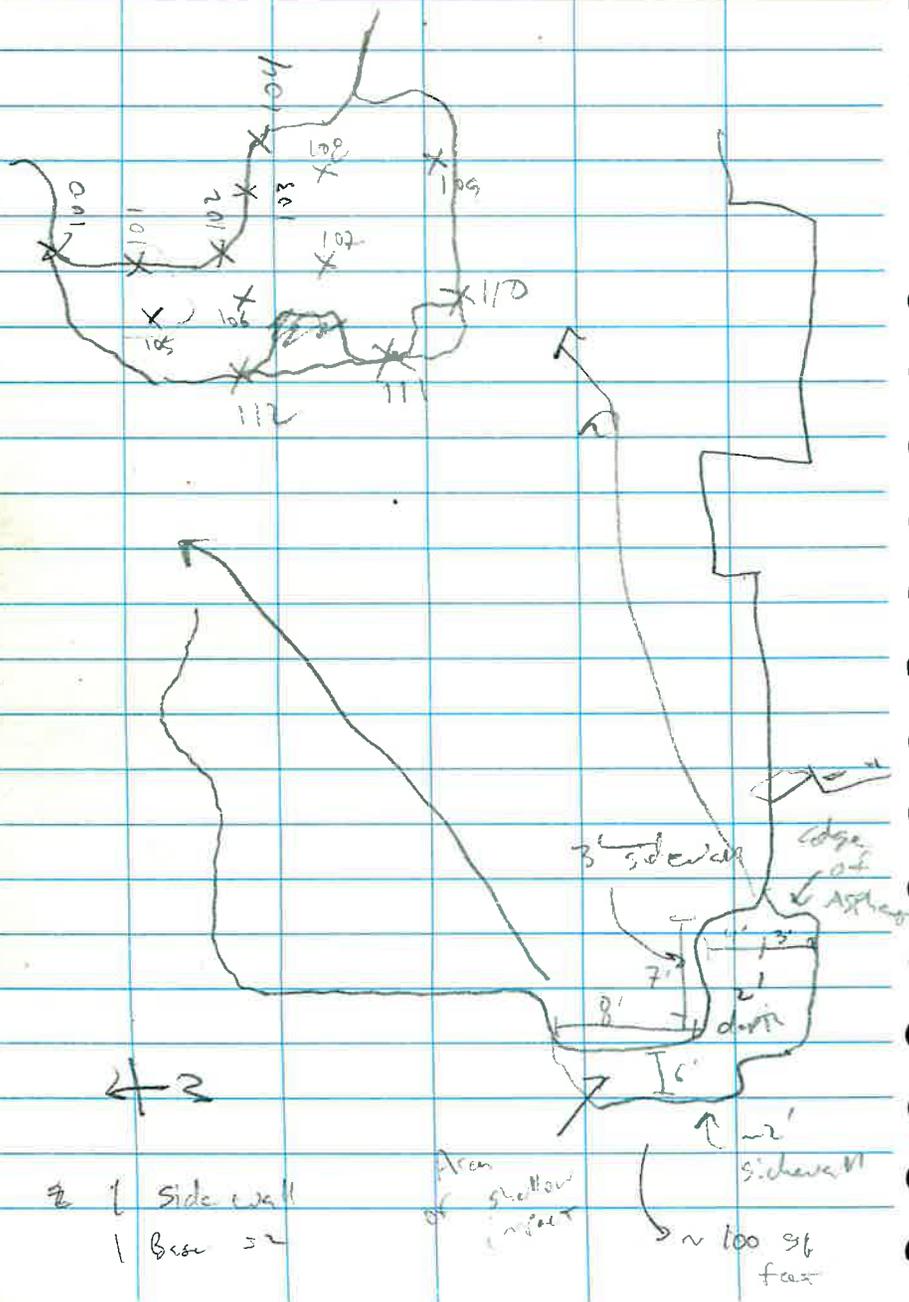
RAVN Cleanup

Sample ID	PID	Depth	Notes
93	22.2	3'	sidewalls
94	19.7		
95	20.3		
96	31.6		
98-1	39.3		→ dwt = RV-X ² 1 foot left
97	31.3		
98	9.4		Bottom
99	6.7		Bottom



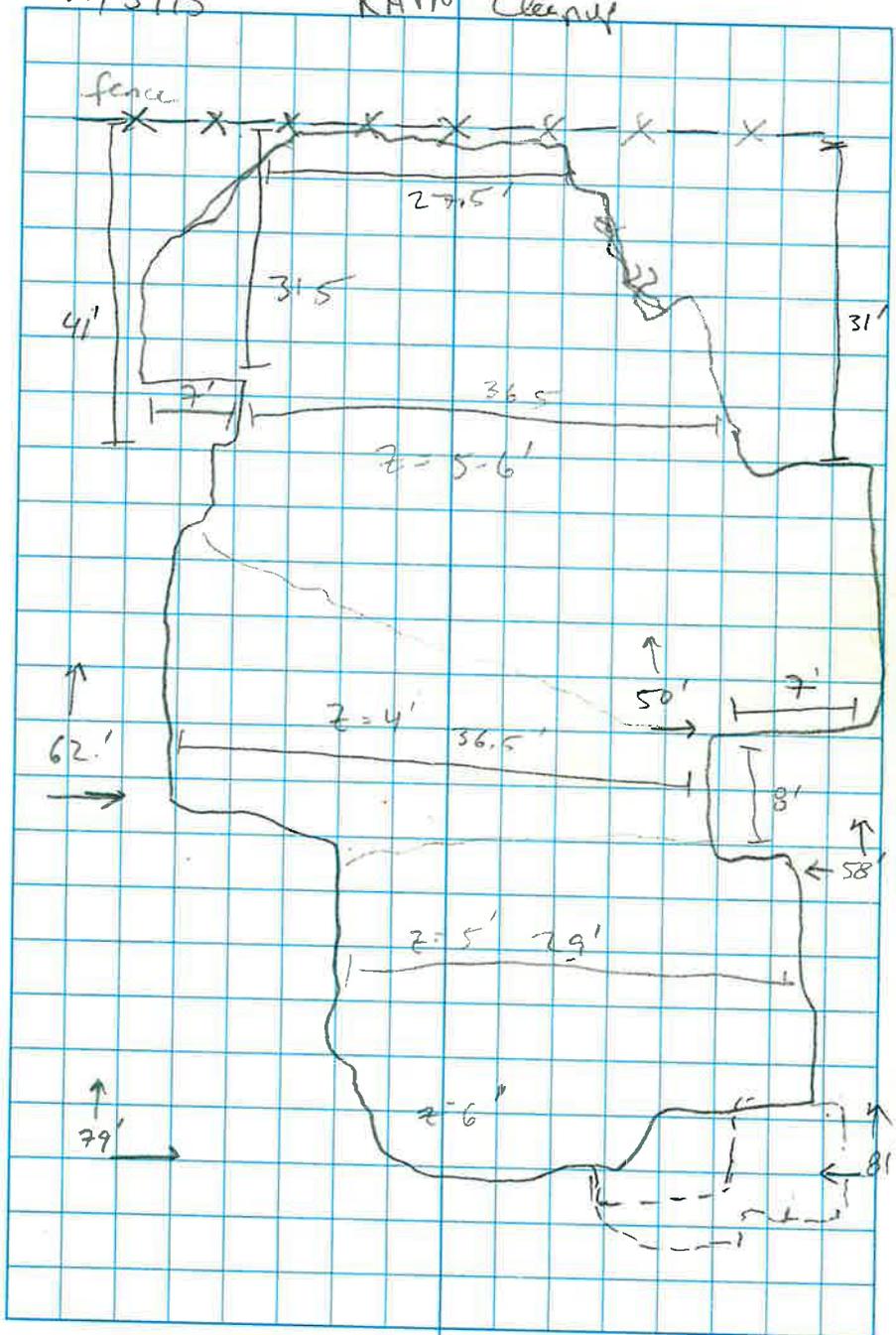
11/3/15

RAW Cleanup



11/3/15

RAW Cleanup



Rite in the Rain

11/3/15 RAVN Cleanup

$$\begin{aligned}
 36.5 \times 62 &= 2,263 \\
 + 15 \times 30 &= + 450 \\
 &= \del{2650} \quad 2,713 \\
 + 7 \times 20 &= 140 \\
 + \frac{1}{2}(7)(30.5) &= 110 \\
 &= 2,913
 \end{aligned}$$

$$\begin{aligned}
 \sim 3,000 \text{ sq feet} - 750 &= 2 \\
 \frac{2750}{250} &= 11 = 13 \text{ samples} \\
 &\quad \text{discrete}
 \end{aligned}$$

+ 2 Duplicates = 15 total

need only 1 min Duplicate

Need to select out hot Area first

||

Sidewall hole to be sampled (Western
portion excavation) ~ 56'

60 or 3 analyticals

11 Screening samples along wall: 72 + 93-97
+ 100-104

11/3/15 RAVN Cleanup

Sample ID	PID Depth	DEPTH	Notes
100	6.7	2.5'	West small sample
101	8.2	3.0'	below band
102	9.3	3.0'	
103	9.8	3.0'	
104	9.2	3.0'	
<hr/>			
105	26.6	2.0'	Band west end
106	26.3	" "	
107	36.0		HOT!
108	(46.4)		
109	18.0		co-located side/Btm
110	(21.0)		
111	14.6		
112	16.9	" "	
<hr/>			
113	50.2		Bottoms from rear of
114	38.3		Additional excavation
115	40.7		
116	54.8 → 8.0		(Deep spot) excavated at
117	105.2 →		Use 117
118	(48.3) → 8.5		Deep spot, sample
	↳ removed		# 117

1730 offsite, End of Day ~~over~~
Rite in the Rain.

11/4/15

RAVN Cleanup

09:20 Arrived onsite, Safety meeting w/
MRC. equipment is cold & Truck
load was frozen in quantity truck.

Discussed approach -

Samples are typically between 50-100 even
cold screened. No odor or staining, suspect
Voc's Trapped in pore space of fine silty sand.

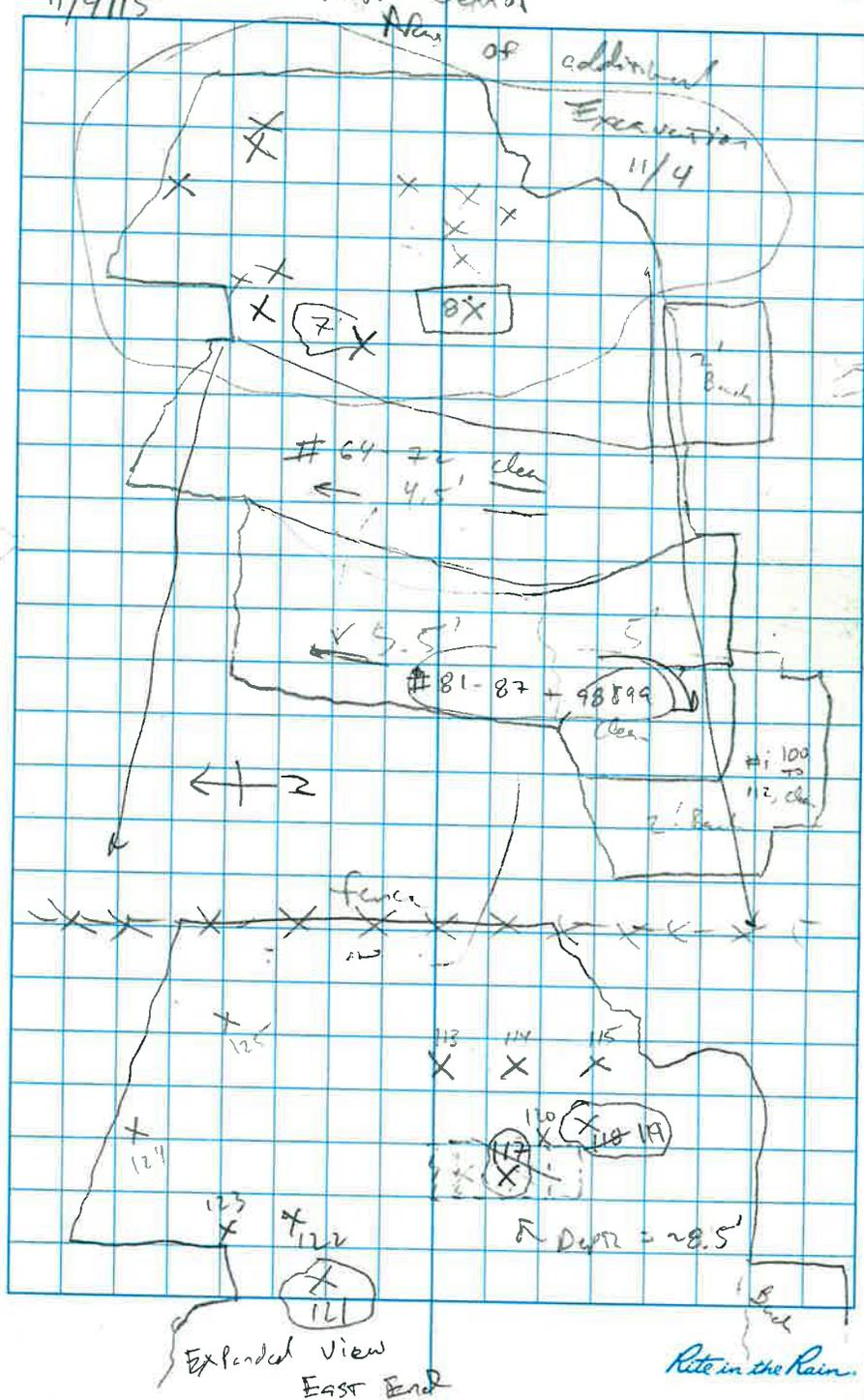
Sample ID	Depth	depth	Notes
119	93.6	6.5	Silty fine sand (Hot)
120	75.2	6.5	"
121	97.3	8.0	"
122	90.8	8.0	"
123	50.6	8.0	"

2 closure log samples

Sample ID	PID	depth	Notes
124	10.3		
125	19.1		

11/4/15

RAVN Cleanup



11/4/15

RAVW Cleanup

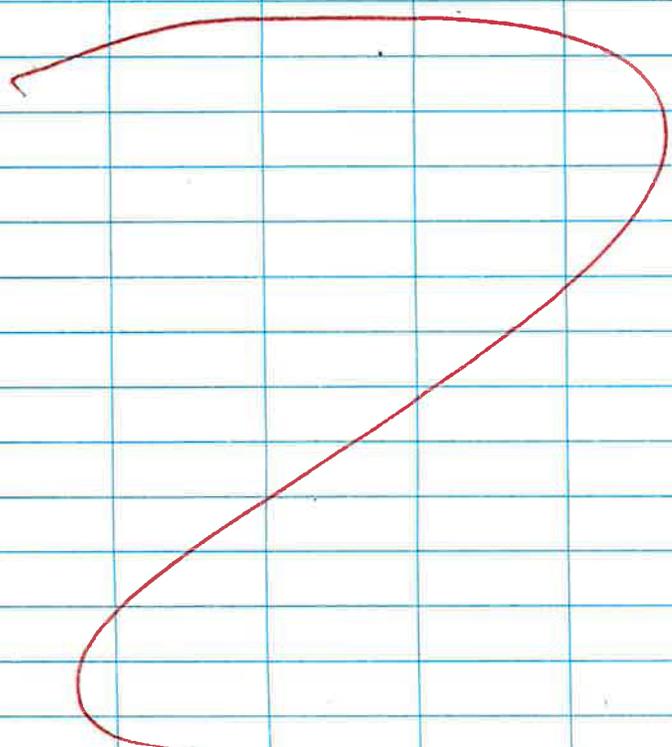
BTM Samples: 119V ~~65V~~ 70 ✓
 121V ~~68V~~ 81 ✓
~~84 ✓ - 37 ✓ - 42 ✓~~
 45 ✓ (54) 61 ✓

Duplicate

x3

RV-61

14:52



11/25/15

RAVW Cleanup

Additional PCE Samples &

VOC sampling & elevation survey

Weather: ~35°F, wet & muddy, light wind

10:30 onsite, met chris &
 escorted through gate collected
 samples from selected locations.

ID	PID	Notes
RV-1	20.3	sand w/ silt silt &
(6A)	13.6	New location silt &
125	7.4	silt
90	17.7	Wet silt
108	9.3	Wet silt & ^{Deep sample R-4} sand w/ gravel
21	35	silt
89	9.8	silt
93	10.0	Wet silt w/ sand
67	56.1	fine sand w/ silt
56	19.2	silt
110	11.0	Wet silt w/ sand
96	10.5	Wet silt
19	13.6	moist silt
RV-3-1	15.23	east wall under fence
-2	18.6	collected for additional
-3	18.9	characterization under fence pole

Rite in the Rain.

11/25/15 RAVN Cleanup

Elevation Survey

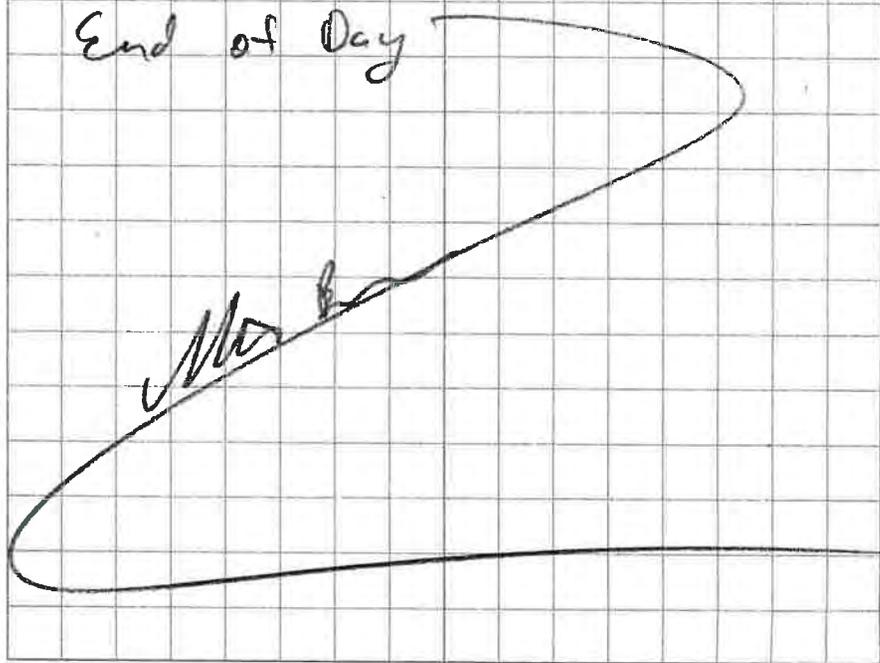
Sta	+	-	HI	elevation
TBN	3.16			
①		5.19	} Surface grade	
②		5.35		
③		5.19		
④		4.88		
⑤		5.11		
⑥		9.30	} Bottom of ex	
⑦		10.38		
⑧		11.09		
⑨		12.62 12.62		
⑩		13.60		
⑪		11.49		
⑫		13.77		
⑬		12.36		
⑭		10.29		
⑮		13.64		
⑯		21.13		

11/25/15 RAVN Cleanup

Sta	+	-	HI	Elevation
17		9.59		
18		9.17		
19		10.53		
20		7.84		
21		6.99		

Labeled sample Jars, checked USA
~~at~~ 1430 offsite, samples to the
 lab, demobilize gear at office

End of Day



11:00 Arrive on site 'Jet A'
had (microbial contamination
valve was loose fitting at
tank bottom
they are currently off loading
tank.

Unknown on # of loads
about 30+ loads

Thur/Fri 18, 5 on Sunday
and 6 & 6 (Tue/Wed)

soil started at least size
of shallow ex on south
boundary of excavation.

soil types changed at
upper 6" was pe gravel
then 3" minus for, then
(silt) clay/sand/clay (silt)

11-2-15

Rex Jordan

Eck Hamilton & Morgan Kuhnke

TRIED to dig north/westerly
towards fence.

Had glycol tanks in NE cor
"cold sniff" 800 - 0.5

Stopped digging at cold sniff
under 50 hottest was 1300
Mini Pae 2000 cal. Bated 160 ppm
150 butyls / bump tested.

RAIN JET A RELEASE

DATE LOWELL RAIN SAFETY

11:55 JORDAN help w/ elevatin

X @ 56" ABOVE ASPHIT

STA + HI ELEV NOTE

TBM-1 2.70

① 4.41

② 4.64

③ 4.78

④ 4.55

⑤ 7.52

⑥ 10.02

⑦ 8.30

⑧ 11.95

⑨ 9.45

⑩ 10.85

⑪ 10.45

⑫ 8.90

⑬ 11.75

⑭ 11.10

⑮ 8.92

⑯ 8.90

⑰ 8.52

⑱ 8.80

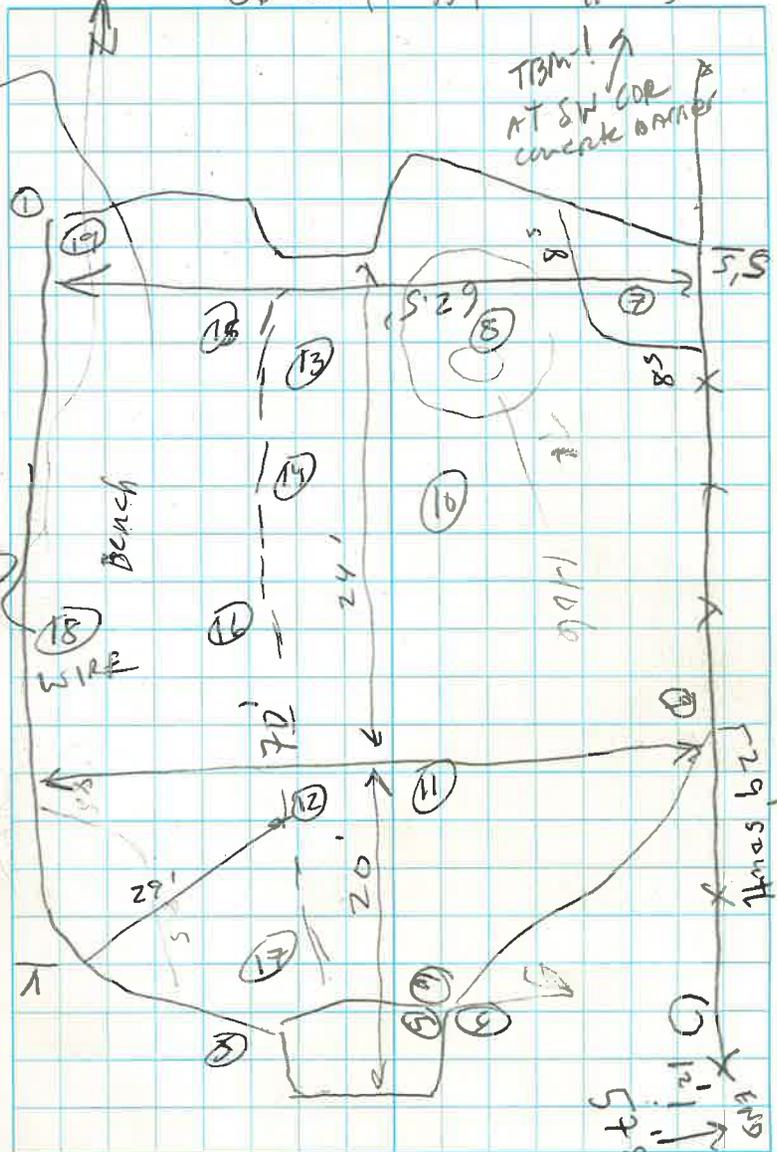
⑲ 8.80

TBM-1 2.73 ✓

1st bench

Deepest spot

Overcast -35°F 11-2-15



ATTACHMENT D

NRC Selected Site Photographs

NRC Field Notes



Initial Spill Excavation (View North)



Initial Spill Excavation (View North)



Initial Spill Excavation (View East)



NRC Excavation Sidewall – Sidewall and Bottom Samples
(View East)



Release Area (view South)



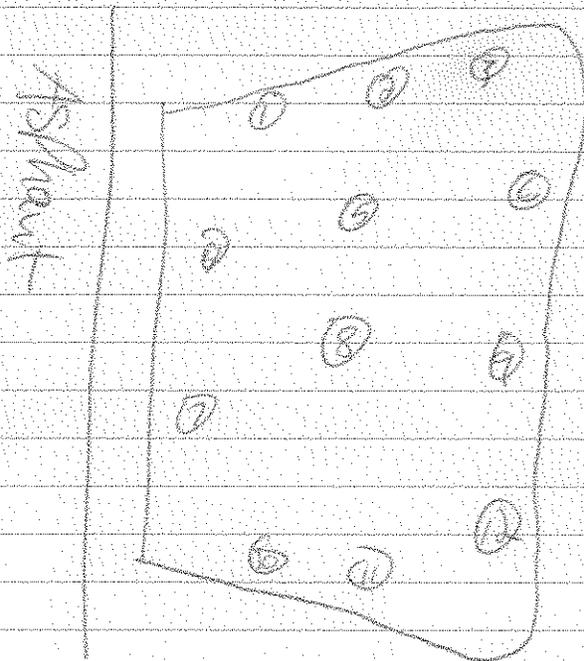
Excavation Area (View Northeast)



Excavation Expansion (View Northeast)

1230
Hole update

CO₂ SUFFS



1=268

6=89.2

11=12.2

2=240

7=76

12=7.3

3=250

8=45.6

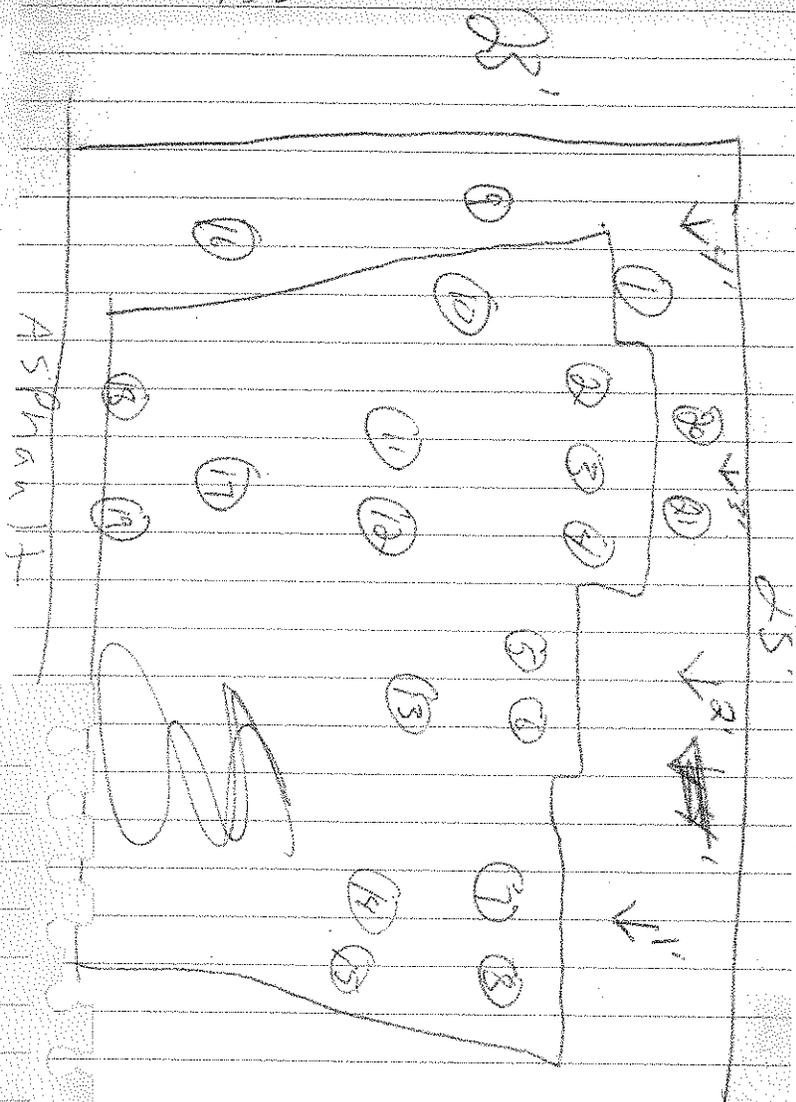
4=144

9=65

5=147

10=98.8

Plot in the Rain



- 1 = 529
- 2 = 396
- 3 = 41.7
- 4 = 25
- 5 = 28
- 6 = 25.1
- 7 = 50.2
- 8 = 42.4
- 9 = 389
- 10 = 40.4
- 11 = 22
- 12 = 13.3
- 13 = 23.4
- 14 = 40.2
- 15 = 12
- 16 = 318
- 17 = 33.3
- 18 = 50.9
- 19 = 18.9
- 20 = ~~208~~ 208
- 21 = 43

Plot in the Rain

38 Cold

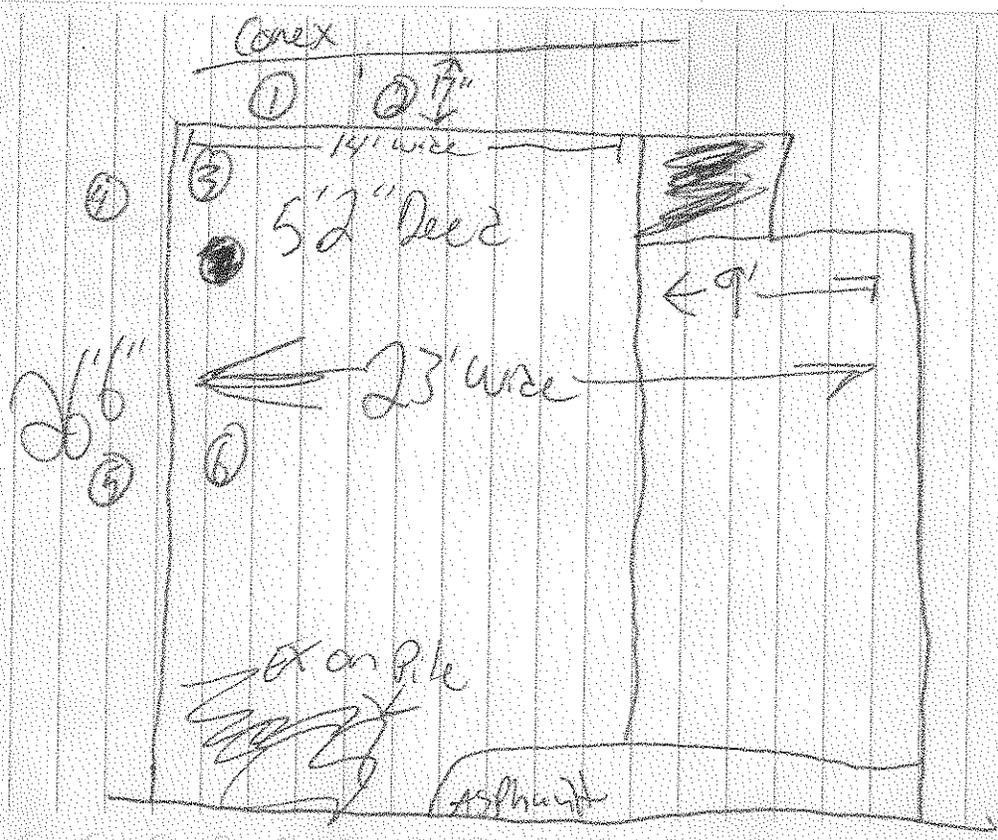
Depth Elevations
32"
33"
64"
37"
37"
64"

200	1 = 1,064
350	2 = 568
432	3 = 159
Redo 200	4 = 596
6-27	5 = 1,400
200	6 = 837

Col 2 Camera @ 150 ft
not very down

37

1645



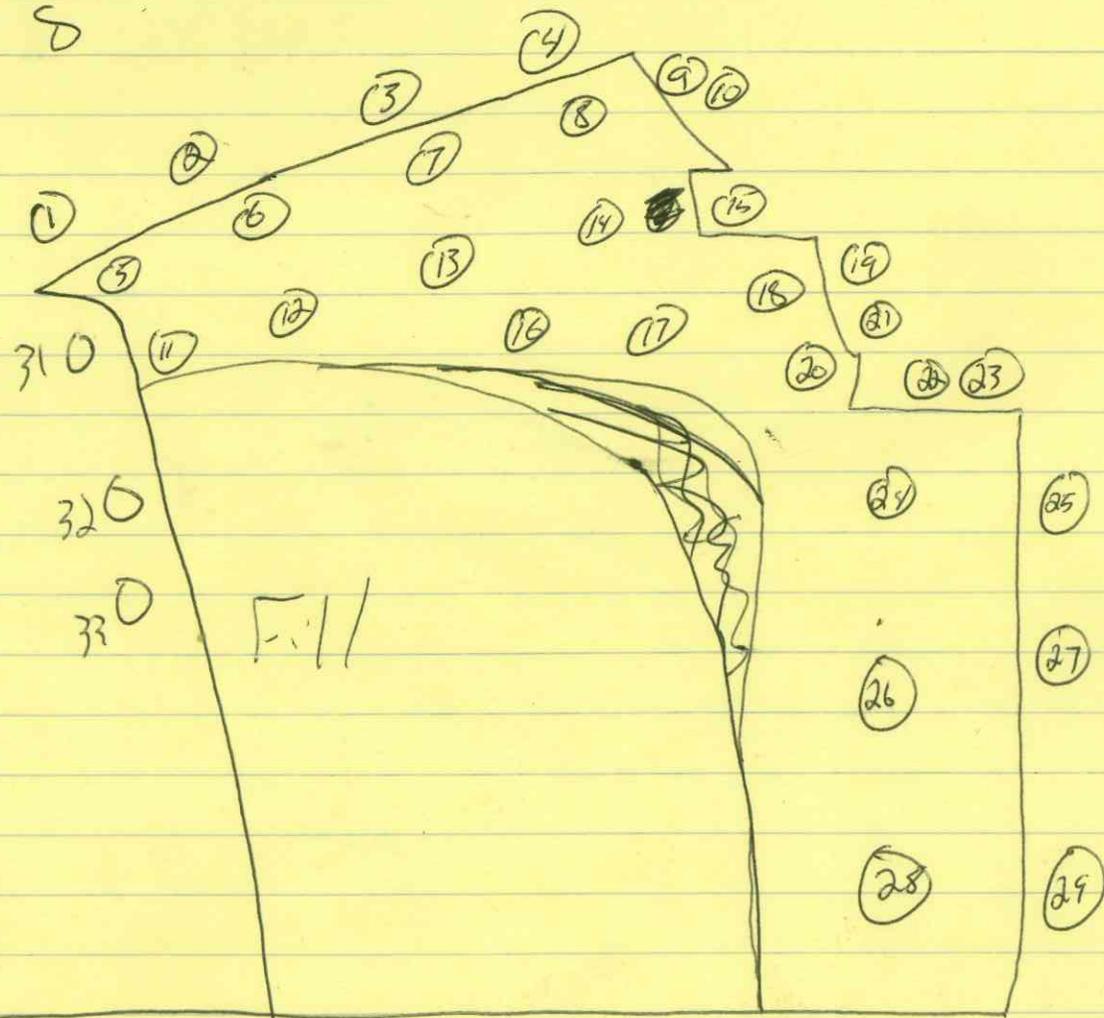
Att. on file

10-28-15 RAW

- 0915 on site Rex needs some fill put in front of the core's so ~~we~~ ^{they} can empty them
- 0920 TSA came and we cant continue to get on the camp like we have been. - Mem big shift ☺
- 1015 Sam on site Eli on site with trench box
-
- 1040 Trench box set up and put to the side. Waiting on rain to finish emptying cones. Once empty Zack will tear down wood shack next to them and load into roll off dumpster.
- 1115 Wood shed between core's is tore down. Once dumpster shows up for it we will load it. I took some preliminary field screenings and the entire north west side of the excavation needs to be larger in every direction - towards asphalt, fence, and building. The southeast is looking good.
- 1230 Sam left with first load. Zack dug the hole back ~~to~~ another 4 feet towards the fence on the north west corner and it is still hot pulling cold snuff numbers anywhere from 120-870ppm. ~~Still~~ continuing to try to locate the North end.
- 1330 Sam back on site. Dsh called for a second truck.
1345. Called TTT they are getting a cal bottle ready for me to re-cal the meter every morning.
- 1355 Truck loaded. Zack is going to take another 4 feet on the North and North west walls since numbers were still show. Clean up levels.
- 1400 AK frontiers here. Loading.
- 1445 AK front off site.
- 1630 Sam on site for last load.
- 1645 Sam loaded.

W — E 1500 10-28
 S

M
 1/2



near red
 near space
 samples

Asphalt

	Depth		Depth		Depth
1 = 16	36	13	66	25 = 8.1	20
2 = 0	34	14	60	26 = 2.3	30
3	36	15	39	27 = 1.6	24
4 = 0	36	16 = 14.6	70	28 = 4.2	31
5	70	17	68	29 = 4.7	26
6	70	18	58	30 = 2.4	22
7	67	19	43	31 = 39.7	44
8	63	20 = 3.1	60	32	43
9 = 8.6	38	21	40	33 = 64.7	46
10 = 1.6	37	22 = 1.3	24		
11	71	23 = 1.6	24		
12	68	24	38		

Heater

$$A1 = 6.7$$

$$A2 = 3.9$$

$$A0 = 18.5$$

$$B4 = 6.9$$

$$B0 = 1.8$$

$$B2 = 9.7$$

$$B5 = 1.8$$

$$B3 = 4.3$$

$$A5 = 3.9$$

$$B1 = 1.3$$

$$A3 = 30$$

$$A4 = 920 \text{ -old: } 172$$

$$D5 = 31$$

$$E7 = 405 \text{ -old: } 17$$

$$C3 = 10$$

$$C5 = 6.2$$

$$E4 = 11.6$$

$$E8 = 3.7$$

$$E3 = 13$$

$$C4 = 3.2$$

$$E1 = 7.3$$

$$E2 = 11.9$$

$$E5 = 9.3$$

$$E0 = 20.6$$

$$D4 = 14.7$$

$$E6 = 19.8$$

$$C6 = 2.5$$

$$D2 = 29.3$$

$$D3 = 777 \text{ -old: } 130$$

$$C1 = 754 \text{ -old: } 107$$

$$D6 = 27.1$$

$$D1 = 14.8$$

$$C2 = 49.9$$

$$C0 = 13.3$$

$$D0 = 14.9$$

$$G8 = 2.2$$

$$G7 = 16.6$$

$$F8 = 2.4$$

$$F7 = 25.6$$

$$F6 = 27.9$$

$$F5 = 33.2$$

$$G6 = 28.8$$

$$G5 = 101$$

$$G4 = 57.3$$

$$G2 = 17.2$$

$$F3 = 24.2$$

$$G1 = 10.1$$

$$F4 = 34.6$$

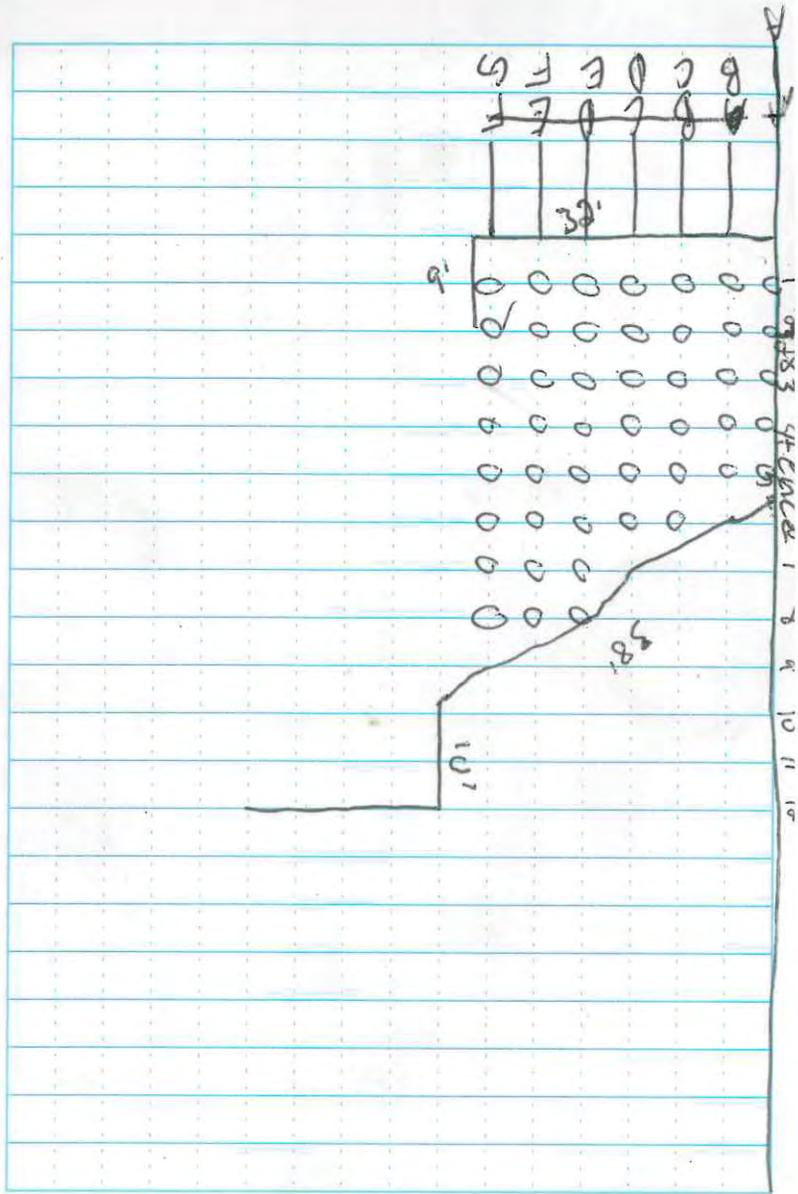
$$F2 = 81.8$$

$$G0 = 19.5$$

$$F1 = 26.6$$

$$F0 = 14.3$$

$$G3 = 28.2$$



Scale: 1 square = 5 feet

Rite in the Rain

ATTACHMENT E

SGS Laboratory Data Reports

ADEC Data Review Checklists

Laboratory Data Review Checklist

Completed by:

Title: Date:

CS Report Name: Report Date:

Consultant Firm:

Laboratory Name: Laboratory Report Number:

ADEC File Number: 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:

- 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:

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 ($4^{\circ} \pm 2^{\circ} \text{C}$)?
 Yes No NA (Please explain.) Comments:

- 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:

Review of the sample receipt form indicated the 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 discrepancies with the samples.

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

Data quality and usability was not affected.

4. Case Narrative

- a. Present and understandable?
 Yes No NA (Please explain.) Comments:

The case narrative is present and understandable on page 2 of the lab report.

- b. Discrepancies, errors or QC failures identified by the lab?
 Yes No NA (Please explain.) Comments:

The case narrative notes PAH surrogate recovery for samples RV3 for 2-fluorobiphenyl does not meet QC criteria due to dilution, and PAH surrogate recovery for sample RV24 for terphenyl-d14 did not meet QC criteria.
The case narrative notes that multiple internal standard recoveries associated with the LCS/LCSDs and MS/MSDs did not meet QC goals. Corrective actions for these are noted in the case narrative and described subsequently in this document.

- c. Were all corrective actions documented?
 Yes No NA (Please explain.) Comments:

No Corrective actions were required.

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

There is no effect on data quality and usability.

5. Samples Results

- a. Correct analyses performed/reported as requested on COC?
 Yes No NA (Please explain.) Comments:

The correct analyses were performed and reported as requested on the COC.

b. All applicable holding times met?

Yes No NA (Please explain.)

Comments:

Holding times were met for all samples according to the lab method.

c. All soils reported on a dry weight basis?

Yes No NA (Please explain.)

Comments:

Sample weights are reported on a dry weight basis on each page of the report describing the target sample.

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:

SGS refers to the PQL as the LOQ and reports data below the PQL but above the detection limit (DL) as estimated results with a "J". Constituents that were analyzed for but not detected are reported as a value equal to 2 times the DL and flagged with a "U". All PQLs were below the cleanup level.

e. Data quality or usability affected?

Comments:

There is no effect on data quality or usability.

6. QC Samples

a. Method Blank

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

Yes No NA (Please explain.)

Comments:

There is one method blank for each requested analyses.

ii. All method blank results less than PQL?

Yes No NA (Please explain.)

Comments:

All method blank results are less than the LOQ (PQL).

iii. If above PQL, what samples are affected?

Comments:

No method blank samples were reported above the LOQ (PQL).

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

Yes No NA (Please explain.)

Comments:

No method blank samples were reported above the LOQ (PQL).

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

Data quality or usability was not affected.

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:

LCS and LCSDs were performed for AK 101, AK 102, AK 103 and, SW8021B analyses. LCS was performed for 8260B analysis associated with samples RV-3, RV13, RVX, and RV24, but not LCSD

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

Yes No NA (Please explain.) Comments:

Metals analysis was not performed

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 was performed for 8260B resulted in a recovery of 1,1,2-trichloroethane associated with water samples, and Trichlorofluoromethane associated with soil samples that were greater than QC goals, these analytes were not detected above the DL in the associated samples.

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:

The lab reported two sets of LCS/LCSD results for SW8260B associated with water samples. One met QC criteria and the other failed to meet QC criteria for the RPD associated with chloromethane, this analyte was not detected above the LOQ in the associated samples. MS/MSDs failed to meet QC goals for multiple analytes. MS/MSDs were not carried out on samples originating from the project site and are not likely to reflect matrix conditions associated with samples from this project.

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

No samples were affected

Comments:

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

Yes No NA (Please explain.) Comments:

No data was flagged as a result LCS/LCSD failures

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

Comments:

Data quality or usability was 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:

Surrogate recoveries are reported for all organic analyses.

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:

All percent recoveries for organic analyses are reported and within method and laboratory limits. PAH surrogate recovery for samples RV3 for 2-fluorobiphenyl does not meet QC criteria due to dilution, and PAH surrogate recovery for sample RV24 for terphenyl-d14 did not meet QC criteria

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:

There were no reported surrogate recovery QC failures.

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

Comments:

Data quality or usability 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:

A trip blank for soil samples was included.

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:

Trip blank was clearly indicated on the COC.

iii. All results less than PQL?

Yes No NA (Please explain.)

Comments:

All trip bank results were less than the PQL.

iv. If above PQL, what samples are affected?

Comments:

No affected samples.

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

Comments:

Data quality and usability not affected.

e. Field Duplicate

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

Yes No NA (Please explain.)

Comments:

One Field Duplicate was collected. RVX was a field duplicate of RV13.

ii. Submitted blind to lab?

Yes No NA (Please explain.)

Comments:

Field Duplicates was submitted to the lab blind.

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:

All RPDs of RV13 and RVX were less than 50%

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

Comments:

Data quality and usability was not affected.

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

Yes No NA (Please explain.)

Comments:

All equipment used in sampling was dedicated and disposable, or was cleaned inalconox solution and rinsed with Deionized water prior to sampling. Equipment was not re-used during the sampling event. Based on previous experience, and equipment blank was not determined necessary.

i. All results less than PQL?

Yes No NA (Please explain.)

Comments:

There are no decontamination or equipment blanks

ii. If above PQL, what samples are affected?

Comments:

There are no decontamination equipment blanks

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

Data quality or usability was not affected.

Comments:

7. Other Data Flags/Qualifiers (ACOE, AFCEE, Lab Specific, etc.)

a. Defined and appropriate?

Yes No NA (Please explain.)

Comments:

Data flags and qualifiers are defined appropriately. Page 3 of the lab report describes the qualifiers used.



Laboratory Report of Analysis

To: Restoration Science & Eng
911 West 8th Ave Suite 100
Anchorage, AK 99501
(907)278-1023

Report Number: **1156474**

Client Project: **RAVN ANC**

Dear Nick Braman,

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 Chuck 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.

Chuck Homestead
Project Manager
Charles.Homestead@sgs.com

Date

Print Date: 11/18/2015 12:28:23PM

Case Narrative

SGS Client: **Restoration Science & Eng**
SGS Project: **1156474**
Project Name/Site: **RAVN ANC**
Project Contact: **Nick Braman**

Refer to sample receipt form for information on sample condition.

RV3 (1156474003) PS

8270D SIM - PAH surrogate recovery for 2-fluorobiphenyl (0%) does not meet QC criteria due to dilution (X5).

RV24 (1156474010) PS

8270D SIM - PAH surrogate recovery for terphenyl-d14 (123%) does not meet QC criteria.

LCS for HBN 1724480 [XXX/34573 (1302651) LCS

8270D SIM - PAH LCS recoveries for fluoranthene (120%), pyrene (123%), and benzo[a]pyrene (43%) do not meet QC criteria. Results for these analytes may be estimated in the associated samples.

LCS for HBN 1725016 [VXX/28255 (1303688) LCS

8260B -LCS recovery for Trichlorofluoromethane does not meet QC criteria (145%). This analyte was not detected above the LOQ in the associated samples.

LCSD for HBN 1724480 [XXX/3457 (1302652) LCSD

8270D SIM - PAH LCSD recoveries for fluoranthene (123%), pyrene (125%), and benzo[a]pyrene (46%) do not meet QC criteria. Results for these analytes may be estimated in the associated samples.

MB for HBN 1724480 [XXX/34573] (1302650) MB

8270D SIM - PAH MB surrogate recovery for terphenyl-d14 (137%) does not meet QC criteria.

1158853002MS (1302653) MS

8270D PAH - MS/MSD recoveries for several analytes do not meet QC criteria due to dilution.
8270D SIM - PAH MB surrogate recovery for terphenyl-d14 (137%) does not meet QC criteria.
8270D SIM - PAH LCS/LCSD recoveries for fluoranthene (120%), pyrene (123%), and benzo[a]pyrene (43%) do not meet QC criteria. Results for these analytes may be estimated in the associated samples.

1156402005(1303778MS) (1303763) MS

AK101/8021B - MS recovery for GRO (54.8%) and 4-bromofluorobenzene (49.9%) does not meet QC criteria due to matrix interference. Refer to LCS for accuracy requirements.

1158853002MSD (1302654) MSD

8270D PAH - MSD recoveries for several analytes do not meet QC criteria due to dilution.
8270D SIM - PAH MB surrogate recovery for terphenyl-d14 (137%) does not meet QC criteria.
8270D SIM - PAH LCS/LCSD recoveries for fluoranthene (120%), pyrene (123%), and benzo[a]pyrene (43%) do not meet QC criteria. Results for these analytes may be estimated in the associated samples.

1158836027MSD (1303300) MSD

8260B -MS/MSD RPD for 2-Butanone (MEK) do not meet QC criteria. This analyte was not detected above the LOQ in the associated samples.

1158836022MSD (1303690) MSD

8260B -MS/MSD RPD for Chloroethane do not meet QC criteria. This analyte was not detected above the LOQ in the associated samples.

1156402005(1303778MSD) (1303764) MSD

AK101/8021B - MSD recovery for GRO (56.8%) and 4-bromofluorobenzene (49.1%) does not meet QC criteria due to matrix interference. Refer to LCSD for accuracy requirements.

Case Narrative

SGS Client: **Restoration Science & Eng**
SGS Project: **1156474**
Project Name/Site: **RAVN ANC**
Project Contact: **Nick Braman**

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

Print Date: 11/18/2015 12:28:23PM

Report of Manual Integrations

<u>Laboratory ID</u>	<u>Client Sample ID</u>	<u>Analytical Batch</u>	<u>Analyte</u>	<u>Reason</u>
8270D SIMS (PAH)				
1304189	CVC for HBN 1725123 [XMS/9074]	XMS9074	Benzo[k]fluoranthene	RP
1304189	CVC for HBN 1725123 [XMS/9074]	XMS9074	Chrysene	RP
SW8260B				
1156474005	RV13	VMS15420	4-Isopropyltoluene	SP
1156474007	RVX	VMS15420	4-Isopropyltoluene	SP
1156474010	RV24	VMS15420	4-Isopropyltoluene	SP

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, indemnification 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

<u>Client Sample ID</u>	<u>Lab Sample ID</u>	<u>Collected</u>	<u>Received</u>	<u>Matrix</u>
RV1	1156474001	11/02/2015	11/02/2015	Soil/Solid (dry weight)
RV2	1156474002	11/02/2015	11/02/2015	Soil/Solid (dry weight)
RV3	1156474003	11/02/2015	11/02/2015	Soil/Solid (dry weight)
RV4	1156474004	11/02/2015	11/02/2015	Soil/Solid (dry weight)
RV13	1156474005	11/02/2015	11/02/2015	Soil/Solid (dry weight)
RV14	1156474006	11/02/2015	11/02/2015	Soil/Solid (dry weight)
RVX	1156474007	11/02/2015	11/02/2015	Soil/Solid (dry weight)
RV21	1156474008	11/02/2015	11/02/2015	Soil/Solid (dry weight)
RV23	1156474009	11/02/2015	11/02/2015	Soil/Solid (dry weight)
RV24	1156474010	11/02/2015	11/02/2015	Soil/Solid (dry weight)
RV25	1156474011	11/02/2015	11/02/2015	Soil/Solid (dry weight)
Trip Blank	1156474012	11/02/2015	11/02/2015	Soil/Solid (dry weight)

<u>Method</u>	<u>Method Description</u>
8270D SIMS (PAH)	8270 PAH SIM Semi-Volatiles GC/MS
AK101	AK101/8021 Combo. (S)
SW8021B	AK101/8021 Combo. (S)
AK102	Diesel/Residual Range Organics
AK103	Diesel/Residual Range Organics
SM21 2540G	Percent Solids SM2540G
SW8260B	VOC 8260 (S) Field Extracted

Print Date: 11/18/2015 12:28:26PM



Detectable Results Summary

Client Sample ID: **RV1**
Lab Sample ID: 1156474001
Semivolatile Organic Fuels

Volatile Fuels

<u>Parameter</u>	<u>Result</u>	<u>Units</u>
Diesel Range Organics	165	mg/Kg
Residual Range Organics	825	mg/Kg
Gasoline Range Organics	2.79	mg/Kg
o-Xylene	61.8	ug/Kg
P & M -Xylene	25.9J	ug/Kg

Client Sample ID: **RV2**
Lab Sample ID: 1156474002
Semivolatile Organic Fuels

Volatile Fuels

<u>Parameter</u>	<u>Result</u>	<u>Units</u>
Diesel Range Organics	165	mg/Kg
Residual Range Organics	283	mg/Kg
Ethylbenzene	9.17J	ug/Kg
Gasoline Range Organics	1.87J	mg/Kg
o-Xylene	36.9	ug/Kg
P & M -Xylene	38.6J	ug/Kg
Toluene	14.0J	ug/Kg

Client Sample ID: **RV3**
Lab Sample ID: 1156474003
Semivolatile Organic Fuels

Volatile Fuels

<u>Parameter</u>	<u>Result</u>	<u>Units</u>
Diesel Range Organics	1930	mg/Kg
Residual Range Organics	1270	mg/Kg
Gasoline Range Organics	3.01	mg/Kg
o-Xylene	23.5J	ug/Kg
P & M -Xylene	24.5J	ug/Kg
Toluene	8.76J	ug/Kg
1,1,1-Trichloroethane	196	ug/Kg
1,3,5-Trimethylbenzene	9.02J	ug/Kg
Tetrachloroethene	2620	ug/Kg

Client Sample ID: **RV4**
Lab Sample ID: 1156474004
Semivolatile Organic Fuels

Volatile Fuels

<u>Parameter</u>	<u>Result</u>	<u>Units</u>
Diesel Range Organics	237	mg/Kg
Residual Range Organics	447	mg/Kg
Gasoline Range Organics	2.07J	mg/Kg
o-Xylene	28.6J	ug/Kg

Print Date: 11/18/2015 12:28:27PM

Detectable Results Summary

Client Sample ID: **RV13**

Lab Sample ID: 1156474005

Polynuclear Aromatics GC/MS

<u>Parameter</u>	<u>Result</u>	<u>Units</u>
1-Methylnaphthalene	67.1	ug/Kg
2-Methylnaphthalene	20.6J	ug/Kg
Acenaphthene	19.7J	ug/Kg
Anthracene	45.8	ug/Kg
Benzo(a)Anthracene	142	ug/Kg
Benzo[a]pyrene	194	ug/Kg
Benzo[b]Fluoranthene	362	ug/Kg
Benzo[g,h,i]perylene	255	ug/Kg
Chrysene	179	ug/Kg
Dibenzo[a,h]anthracene	53.9	ug/Kg
Fluoranthene	256	ug/Kg
Fluorene	23.4J	ug/Kg
Indeno[1,2,3-c,d] pyrene	184	ug/Kg
Naphthalene	12.4J	ug/Kg
Phenanthrene	196	ug/Kg
Pyrene	249	ug/Kg

Semivolatile Organic Fuels

Diesel Range Organics	96.8	mg/Kg
Residual Range Organics	284	mg/Kg

Volatile Fuels

Ethylbenzene	16.8J	ug/Kg
Gasoline Range Organics	1.90J	mg/Kg
o-Xylene	61.9	ug/Kg
P & M -Xylene	67.3	ug/Kg

Volatile GC/MS

1,1,1-Trichloroethane	8.06J	ug/Kg
1,2,4-Trimethylbenzene	82.4	ug/Kg
1,3,5-Trimethylbenzene	35.9	ug/Kg
4-Isopropyltoluene	12.0J	ug/Kg
Ethylbenzene	15.0J	ug/Kg
Isopropylbenzene (Cumene)	12.0J	ug/Kg
Naphthalene	37.3J	ug/Kg
n-Propylbenzene	16.1J	ug/Kg
o-Xylene	38.3	ug/Kg
P & M -Xylene	52.3	ug/Kg
sec-Butylbenzene	14.8J	ug/Kg
Tetrachloroethene	38.1	ug/Kg
Xylenes (total)	90.6	ug/Kg

Client Sample ID: **RV14**

Lab Sample ID: 1156474006

Semivolatile Organic Fuels

<u>Parameter</u>	<u>Result</u>	<u>Units</u>
Diesel Range Organics	197	mg/Kg
Residual Range Organics	406	mg/Kg

Volatile Fuels

Gasoline Range Organics	3.56	mg/Kg
o-Xylene	26.6	ug/Kg
P & M -Xylene	44.5J	ug/Kg

Print Date: 11/18/2015 12:28:27PM

Detectable Results Summary

Client Sample ID: **RVX**

Lab Sample ID: 1156474007

Polynuclear Aromatics GC/MS

<u>Parameter</u>	<u>Result</u>	<u>Units</u>
1-Methylnaphthalene	72.8	ug/Kg
2-Methylnaphthalene	21.9J	ug/Kg
Anthracene	13.8J	ug/Kg
Benzo(a)Anthracene	58.4	ug/Kg
Benzo[a]pyrene	93.9	ug/Kg
Benzo[b]Fluoranthene	195	ug/Kg
Benzo[g,h,i]perylene	181	ug/Kg
Chrysene	88.1	ug/Kg
Dibenzo[a,h]anthracene	33.0	ug/Kg
Fluoranthene	90.1	ug/Kg
Fluorene	12.7J	ug/Kg
Indeno[1,2,3-c,d] pyrene	119	ug/Kg
Naphthalene	11.7J	ug/Kg
Phenanthrene	50.2	ug/Kg
Pyrene	93.6	ug/Kg

Semivolatile Organic Fuels

Diesel Range Organics	114	mg/Kg
Residual Range Organics	286	mg/Kg

Volatile Fuels

Ethylbenzene	21.4J	ug/Kg
Gasoline Range Organics	2.47J	mg/Kg
o-Xylene	86.7	ug/Kg
P & M -Xylene	89.4	ug/Kg
Toluene	8.20J	ug/Kg

Volatile GC/MS

1,1,1-Trichloroethane	9.19J	ug/Kg
1,2,4-Trimethylbenzene	134	ug/Kg
1,3,5-Trimethylbenzene	57.6	ug/Kg
4-Isopropyltoluene	16.1J	ug/Kg
Ethylbenzene	19.6J	ug/Kg
Isopropylbenzene (Cumene)	15.2J	ug/Kg
Naphthalene	73.3	ug/Kg
n-Propylbenzene	22.9J	ug/Kg
o-Xylene	49.9	ug/Kg
P & M -Xylene	67.6	ug/Kg
sec-Butylbenzene	21.4J	ug/Kg
Tetrachloroethene	39.5	ug/Kg
Xylenes (total)	118	ug/Kg

Client Sample ID: **RV21**

Lab Sample ID: 1156474008

Semivolatile Organic Fuels

<u>Parameter</u>	<u>Result</u>	<u>Units</u>
Diesel Range Organics	7.35J	mg/Kg
Residual Range Organics	38.2	mg/Kg

Volatile Fuels

Gasoline Range Organics	0.862J	mg/Kg
o-Xylene	7.86J	ug/Kg
P & M -Xylene	21.6J	ug/Kg

Print Date: 11/18/2015 12:28:27PM

Detectable Results Summary

Client Sample ID: **RV23**
 Lab Sample ID: 1156474009

Volatile Fuels

<u>Parameter</u>	<u>Result</u>	<u>Units</u>
Benzene	4.39J	ug/Kg
Ethylbenzene	122	ug/Kg
Gasoline Range Organics	1.94	mg/Kg
o-Xylene	95.0	ug/Kg
P & M -Xylene	381	ug/Kg
Toluene	37.7	ug/Kg

Client Sample ID: **RV24**
 Lab Sample ID: 1156474010

Polynuclear Aromatics GC/MS
Semivolatile Organic Fuels

Volatile Fuels

<u>Parameter</u>	<u>Result</u>	<u>Units</u>
Naphthalene	2.20J	ug/Kg
Diesel Range Organics	11.1J	mg/Kg
Residual Range Organics	16.8J	mg/Kg
Ethylbenzene	77.1	ug/Kg
Gasoline Range Organics	3.51	mg/Kg
o-Xylene	67.8	ug/Kg
P & M -Xylene	155	ug/Kg
Toluene	14.9J	ug/Kg

Volatile GC/MS

1,2,4-Trimethylbenzene	118	ug/Kg
1,3,5-Trimethylbenzene	43.2	ug/Kg
4-Isopropyltoluene	16.1J	ug/Kg
Benzene	7.83J	ug/Kg
Ethylbenzene	64.3	ug/Kg
Isopropylbenzene (Cumene)	17.3J	ug/Kg
n-Propylbenzene	22.5J	ug/Kg
o-Xylene	42.5	ug/Kg
P & M -Xylene	127	ug/Kg
sec-Butylbenzene	17.8J	ug/Kg
Tetrachloroethene	14.9	ug/Kg
Toluene	8.07J	ug/Kg
Trichloroethene	17.3	ug/Kg
Xylenes (total)	170	ug/Kg

Client Sample ID: **RV25**
 Lab Sample ID: 1156474011

Semivolatile Organic Fuels

Volatile Fuels

<u>Parameter</u>	<u>Result</u>	<u>Units</u>
Diesel Range Organics	22.1	mg/Kg
Residual Range Organics	14.7J	mg/Kg
Ethylbenzene	9.94J	ug/Kg
Gasoline Range Organics	1.84J	mg/Kg
o-Xylene	20.7	ug/Kg
P & M -Xylene	54.9	ug/Kg
Toluene	12.4J	ug/Kg



Results of RV1

Client Sample ID: RV1
Client Project ID: RAVN ANC
Lab Sample ID: 1156474001
Lab Project ID: 1156474

Collection Date: 11/02/15 15:45
Received Date: 11/02/15 17:01
Matrix: Soil/Solid (dry weight)
Solids (%):86.9
Location:

Results by Semivolatile Organic Fuels

Table with 8 columns: Parameter, Result Qual, LOQ/CL, DL, Units, DF, Allowable Limits, Date Analyzed. Row: Diesel Range Organics, 165, 91.1, 28.2, mg/Kg, 4, 11/06/15 03:21

Surrogates

Table with 8 columns: Parameter, Result Qual, LOQ/CL, DL, Units, DF, Allowable Limits, Date Analyzed. Row: 5a Androstane (surr), 89.8, 50-150, %, 4, 11/06/15 03:21

Batch Information

Analytical Batch: XFC12195
Analytical Method: AK102
Analyst: NLL
Analytical Date/Time: 11/06/15 03:21
Container ID: 1156474001-A

Prep Batch: XXX34563
Prep Method: SW3550C
Prep Date/Time: 11/04/15 09:39
Prep Initial Wt./Vol.: 30.339 g
Prep Extract Vol: 1 mL

Table with 8 columns: Parameter, Result Qual, LOQ/CL, DL, Units, DF, Allowable Limits, Date Analyzed. Row: Residual Range Organics, 825, 91.1, 28.2, mg/Kg, 4, 11/06/15 03:21

Surrogates

Table with 8 columns: Parameter, Result Qual, LOQ/CL, DL, Units, DF, Allowable Limits, Date Analyzed. Row: n-Triacontane-d62 (surr), 74.8, 50-150, %, 4, 11/06/15 03:21

Batch Information

Analytical Batch: XFC12195
Analytical Method: AK103
Analyst: NLL
Analytical Date/Time: 11/06/15 03:21
Container ID: 1156474001-A

Prep Batch: XXX34563
Prep Method: SW3550C
Prep Date/Time: 11/04/15 09:39
Prep Initial Wt./Vol.: 30.339 g
Prep Extract Vol: 1 mL



Results of RV1

Client Sample ID: RV1
Client Project ID: RAVN ANC
Lab Sample ID: 1156474001
Lab Project ID: 1156474

Collection Date: 11/02/15 15:45
Received Date: 11/02/15 17:01
Matrix: Soil/Solid (dry weight)
Solids (%):86.9
Location:

Results by Volatile Fuels

Table with 8 columns: Parameter, Result Qual, LOQ/CL, DL, Units, DF, Allowable Limits, Date Analyzed. Row: Gasoline Range Organics, 2.79, 2.44, 0.733, mg/Kg, 1, 11/10/15 12:52

Surrogates

Table with 8 columns: Parameter, Result Qual, LOQ/CL, DL, Units, DF, Allowable Limits, Date Analyzed. Row: 4-Bromofluorobenzene (surr), 115, 50-150, %, 1, 11/10/15 12:52

Batch Information

Analytical Batch: VFC12816
Analytical Method: AK101
Analyst: KAS
Analytical Date/Time: 11/10/15 12:52
Container ID: 1156474001-B

Prep Batch: VXX28253
Prep Method: SW5035A
Prep Date/Time: 11/02/15 15:45
Prep Initial Wt./Vol.: 85.299 g
Prep Extract Vol: 36.2164 mL

Table with 8 columns: Parameter, Result Qual, LOQ/CL, DL, Units, DF, Allowable Limits, Date Analyzed. Rows: Benzene, Ethylbenzene, o-Xylene, P & M -Xylene, Toluene

Surrogates

Table with 8 columns: Parameter, Result Qual, LOQ/CL, DL, Units, DF, Allowable Limits, Date Analyzed. Row: 1,4-Difluorobenzene (surr), 94.8, 72-119, %, 1, 11/10/15 12:52

Batch Information

Analytical Batch: VFC12816
Analytical Method: SW8021B
Analyst: KAS
Analytical Date/Time: 11/10/15 12:52
Container ID: 1156474001-B

Prep Batch: VXX28253
Prep Method: SW5035A
Prep Date/Time: 11/02/15 15:45
Prep Initial Wt./Vol.: 85.299 g
Prep Extract Vol: 36.2164 mL



Results of RV2

Client Sample ID: RV2
Client Project ID: RAVN ANC
Lab Sample ID: 1156474002
Lab Project ID: 1156474

Collection Date: 11/02/15 15:50
Received Date: 11/02/15 17:01
Matrix: Soil/Solid (dry weight)
Solids (%):85.8
Location:

Results by Semivolatile Organic Fuels

Table with 8 columns: Parameter, Result Qual, LOQ/CL, DL, Units, DF, Allowable Limits, Date Analyzed. Row: Diesel Range Organics, 165, 23.3, 7.21, mg/Kg, 1, 11/05/15 16:25

Surrogates

Table with 8 columns: Parameter, Result Qual, LOQ/CL, DL, Units, DF, Allowable Limits, Date Analyzed. Row: 5a Androstane (surr), 88.9, 50-150, %, 1, 11/05/15 16:25

Batch Information

Analytical Batch: XFC12195
Analytical Method: AK102
Analyst: NLL
Analytical Date/Time: 11/05/15 16:25
Container ID: 1156474002-A

Prep Batch: XXX34563
Prep Method: SW3550C
Prep Date/Time: 11/04/15 09:39
Prep Initial Wt./Vol.: 30.053 g
Prep Extract Vol: 1 mL

Table with 8 columns: Parameter, Result Qual, LOQ/CL, DL, Units, DF, Allowable Limits, Date Analyzed. Row: Residual Range Organics, 283, 23.3, 7.21, mg/Kg, 1, 11/05/15 16:25

Surrogates

Table with 8 columns: Parameter, Result Qual, LOQ/CL, DL, Units, DF, Allowable Limits, Date Analyzed. Row: n-Triacontane-d62 (surr), 102, 50-150, %, 1, 11/05/15 16:25

Batch Information

Analytical Batch: XFC12195
Analytical Method: AK103
Analyst: NLL
Analytical Date/Time: 11/05/15 16:25
Container ID: 1156474002-A

Prep Batch: XXX34563
Prep Method: SW3550C
Prep Date/Time: 11/04/15 09:39
Prep Initial Wt./Vol.: 30.053 g
Prep Extract Vol: 1 mL



Results of RV2

Client Sample ID: RV2
Client Project ID: RAVN ANC
Lab Sample ID: 1156474002
Lab Project ID: 1156474

Collection Date: 11/02/15 15:50
Received Date: 11/02/15 17:01
Matrix: Soil/Solid (dry weight)
Solids (%):85.8
Location:

Results by Volatile Fuels

Table with 8 columns: Parameter, Result Qual, LOQ/CL, DL, Units, DF, Allowable Limits, Date Analyzed. Row: Gasoline Range Organics, 1.87 J, 2.41, 0.724, mg/Kg, 1, 11/10/15 13:49

Surrogates

Table with 8 columns: Parameter, Result Qual, LOQ/CL, DL, Units, DF, Allowable Limits, Date Analyzed. Row: 4-Bromofluorobenzene (surr), 117, 50-150, %, 1, 11/10/15 13:49

Batch Information

Analytical Batch: VFC12816
Analytical Method: AK101
Analyst: KAS
Analytical Date/Time: 11/10/15 13:49
Container ID: 1156474002-B

Prep Batch: VXX28253
Prep Method: SW5035A
Prep Date/Time: 11/02/15 15:50
Prep Initial Wt./Vol.: 91.794 g
Prep Extract Vol: 38.0218 mL

Table with 8 columns: Parameter, Result Qual, LOQ/CL, DL, Units, DF, Allowable Limits, Date Analyzed. Rows: Benzene, Ethylbenzene, o-Xylene, P & M -Xylene, Toluene

Surrogates

Table with 8 columns: Parameter, Result Qual, LOQ/CL, DL, Units, DF, Allowable Limits, Date Analyzed. Row: 1,4-Difluorobenzene (surr), 93.8, 72-119, %, 1, 11/10/15 13:49

Batch Information

Analytical Batch: VFC12816
Analytical Method: SW8021B
Analyst: KAS
Analytical Date/Time: 11/10/15 13:49
Container ID: 1156474002-B

Prep Batch: VXX28253
Prep Method: SW5035A
Prep Date/Time: 11/02/15 15:50
Prep Initial Wt./Vol.: 91.794 g
Prep Extract Vol: 38.0218 mL



Results of RV3

Client Sample ID: **RV3**
Client Project ID: **RAVN ANC**
Lab Sample ID: 1156474003
Lab Project ID: 1156474

Collection Date: 11/02/15 15:55
Received Date: 11/02/15 17:01
Matrix: Soil/Solid (dry weight)
Solids (%):86.7
Location:

Results by Polynuclear Aromatics GC/MS

<u>Parameter</u>	<u>Result Qual</u>	<u>LOQ/CL</u>	<u>DL</u>	<u>Units</u>	<u>DF</u>	<u>Allowable Limits</u>	<u>Date Analyzed</u>
1-Methylnaphthalene	28.7 U	57.4	17.2	ug/Kg	10		11/13/15 04:15
2-Methylnaphthalene	28.7 U	57.4	17.2	ug/Kg	10		11/13/15 04:15
Acenaphthene	28.7 U	57.4	17.2	ug/Kg	10		11/13/15 04:15
Acenaphthylene	28.7 U	57.4	17.2	ug/Kg	10		11/13/15 04:15
Anthracene	28.7 U	57.4	17.2	ug/Kg	10		11/13/15 04:15
Benzo(a)Anthracene	28.7 U	57.4	17.2	ug/Kg	10		11/13/15 04:15
Benzo[a]pyrene	144 U	287	86.1	ug/Kg	50		11/13/15 20:45
Benzo[b]Fluoranthene	28.7 U	57.4	17.2	ug/Kg	10		11/13/15 04:15
Benzo[g,h,i]perylene	28.7 U	57.4	17.2	ug/Kg	10		11/13/15 04:15
Benzo[k]fluoranthene	28.7 U	57.4	17.2	ug/Kg	10		11/13/15 04:15
Chrysene	28.7 U	57.4	17.2	ug/Kg	10		11/13/15 04:15
Dibenzo[a,h]anthracene	28.7 U	57.4	17.2	ug/Kg	10		11/13/15 04:15
Fluoranthene	28.7 U	57.4	17.2	ug/Kg	10		11/13/15 04:15
Fluorene	28.7 U	57.4	17.2	ug/Kg	10		11/13/15 04:15
Indeno[1,2,3-c,d] pyrene	28.7 U	57.4	17.2	ug/Kg	10		11/13/15 04:15
Naphthalene	28.7 U	57.4	17.2	ug/Kg	10		11/13/15 04:15
Phenanthrene	28.7 U	57.4	17.2	ug/Kg	10		11/13/15 04:15
Pyrene	28.7 U	57.4	17.2	ug/Kg	10		11/13/15 04:15
Surrogates							
2-Fluorobiphenyl (surr)	88.7	46-115		%	10		11/13/15 04:15
Terphenyl-d14 (surr)	103	58-113		%	10		11/13/15 04:15

Batch Information

Analytical Batch: XMS9074
Analytical Method: 8270D SIMS (PAH)
Analyst: NRB
Analytical Date/Time: 11/13/15 04:15
Container ID: 1156474003-A

Prep Batch: XXX34621
Prep Method: SW3550C
Prep Date/Time: 11/12/15 10:10
Prep Initial Wt./Vol.: 22.612 g
Prep Extract Vol: 1 mL

Analytical Batch: XMS9081
Analytical Method: 8270D SIMS (PAH)
Analyst: NRB
Analytical Date/Time: 11/13/15 20:45
Container ID: 1156474003-A

Prep Batch: XXX34621
Prep Method: SW3550C
Prep Date/Time: 11/12/15 10:10
Prep Initial Wt./Vol.: 22.612 g
Prep Extract Vol: 1 mL



Results of RV3

Client Sample ID: RV3
Client Project ID: RAVN ANC
Lab Sample ID: 1156474003
Lab Project ID: 1156474

Collection Date: 11/02/15 15:55
Received Date: 11/02/15 17:01
Matrix: Soil/Solid (dry weight)
Solids (%):86.7
Location:

Results by Semivolatile Organic Fuels

Table with 8 columns: Parameter, Result Qual, LOQ/CL, DL, Units, DF, Allowable Limits, Date Analyzed. Row: Diesel Range Organics, 1930, 91.3, 28.3, mg/Kg, 4, 11/06/15 04:01

Surrogates

Table with 8 columns: Parameter, Result Qual, LOQ/CL, DL, Units, DF, Allowable Limits, Date Analyzed. Row: 5a Androstane (surr), 109, 50-150, %, 4, 11/06/15 04:01

Batch Information

Analytical Batch: XFC12195
Analytical Method: AK102
Analyst: NLL
Analytical Date/Time: 11/06/15 04:01
Container ID: 1156474003-A

Prep Batch: XXX34563
Prep Method: SW3550C
Prep Date/Time: 11/04/15 09:39
Prep Initial Wt./Vol.: 30.343 g
Prep Extract Vol: 1 mL

Table with 8 columns: Parameter, Result Qual, LOQ/CL, DL, Units, DF, Allowable Limits, Date Analyzed. Row: Residual Range Organics, 1270, 91.3, 28.3, mg/Kg, 4, 11/06/15 04:01

Surrogates

Table with 8 columns: Parameter, Result Qual, LOQ/CL, DL, Units, DF, Allowable Limits, Date Analyzed. Row: n-Triacontane-d62 (surr), 102, 50-150, %, 4, 11/06/15 04:01

Batch Information

Analytical Batch: XFC12195
Analytical Method: AK103
Analyst: NLL
Analytical Date/Time: 11/06/15 04:01
Container ID: 1156474003-A

Prep Batch: XXX34563
Prep Method: SW3550C
Prep Date/Time: 11/04/15 09:39
Prep Initial Wt./Vol.: 30.343 g
Prep Extract Vol: 1 mL



Results of RV3

Client Sample ID: **RV3**
Client Project ID: **RAVN ANC**
Lab Sample ID: 1156474003
Lab Project ID: 1156474

Collection Date: 11/02/15 15:55
Received Date: 11/02/15 17:01
Matrix: Soil/Solid (dry weight)
Solids (%):86.7
Location:

Results by Volatile Fuels

<u>Parameter</u>	<u>Result Qual</u>	<u>LOQ/CL</u>	<u>DL</u>	<u>Units</u>	<u>DF</u>	<u>Allowable Limits</u>	<u>Date Analyzed</u>
Gasoline Range Organics	3.01	2.58	0.773	mg/Kg	1		11/10/15 14:07

Surrogates

4-Bromofluorobenzene (surr)	89.6	50-150		%	1		11/10/15 14:07
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Batch Information

Analytical Batch: VFC12816
Analytical Method: AK101
Analyst: KAS
Analytical Date/Time: 11/10/15 14:07
Container ID: 1156474003-B

Prep Batch: VXX28253
Prep Method: SW5035A
Prep Date/Time: 11/02/15 15:55
Prep Initial Wt./Vol.: 79.757 g
Prep Extract Vol: 35.6295 mL

<u>Parameter</u>	<u>Result Qual</u>	<u>LOQ/CL</u>	<u>DL</u>	<u>Units</u>	<u>DF</u>	<u>Allowable Limits</u>	<u>Date Analyzed</u>
Benzene	6.45 U	12.9	4.12	ug/Kg	1		11/10/15 14:07
Ethylbenzene	12.9 U	25.8	8.04	ug/Kg	1		11/10/15 14:07
o-Xylene	23.5 J	25.8	8.04	ug/Kg	1		11/10/15 14:07
P & M -Xylene	24.5 J	51.5	15.5	ug/Kg	1		11/10/15 14:07
Toluene	8.76 J	25.8	8.04	ug/Kg	1		11/10/15 14:07

Surrogates

1,4-Difluorobenzene (surr)	93	72-119		%	1		11/10/15 14:07
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Batch Information

Analytical Batch: VFC12816
Analytical Method: SW8021B
Analyst: KAS
Analytical Date/Time: 11/10/15 14:07
Container ID: 1156474003-B

Prep Batch: VXX28253
Prep Method: SW5035A
Prep Date/Time: 11/02/15 15:55
Prep Initial Wt./Vol.: 79.757 g
Prep Extract Vol: 35.6295 mL



Results of RV3

Client Sample ID: **RV3**
 Client Project ID: **RAVN ANC**
 Lab Sample ID: 1156474003
 Lab Project ID: 1156474

Collection Date: 11/02/15 15:55
 Received Date: 11/02/15 17:01
 Matrix: Soil/Solid (dry weight)
 Solids (%):86.7
 Location:

Results by Volatile GC/MS

<u>Parameter</u>	<u>Result Qual</u>	<u>LOQ/CL</u>	<u>DL</u>	<u>Units</u>	<u>DF</u>	<u>Allowable Limits</u>	<u>Date Analyzed</u>
1,1,1,2-Tetrachloroethane	12.9 U	25.8	8.04	ug/Kg	1		11/06/15 19:38
1,1,1-Trichloroethane	196	25.8	8.04	ug/Kg	1		11/06/15 19:38
1,1,2,2-Tetrachloroethane	6.45 U	12.9	4.02	ug/Kg	1		11/06/15 19:38
1,1,2-Trichloroethane	5.15 U	10.3	3.20	ug/Kg	1		11/06/15 19:38
1,1-Dichloroethane	12.9 U	25.8	8.04	ug/Kg	1		11/06/15 19:38
1,1-Dichloroethene	12.9 U	25.8	8.04	ug/Kg	1		11/06/15 19:38
1,1-Dichloropropene	12.9 U	25.8	8.04	ug/Kg	1		11/06/15 19:38
1,2,3-Trichlorobenzene	25.8 U	51.5	15.5	ug/Kg	1		11/06/15 19:38
1,2,3-Trichloropropane	12.9 U	25.8	8.04	ug/Kg	1		11/06/15 19:38
1,2,4-Trichlorobenzene	12.9 U	25.8	8.04	ug/Kg	1		11/06/15 19:38
1,2,4-Trimethylbenzene	25.8 U	51.5	15.5	ug/Kg	1		11/06/15 19:38
1,2-Dibromo-3-chloropropane	51.5 U	103	32.0	ug/Kg	1		11/06/15 19:38
1,2-Dibromoethane	5.15 U	10.3	3.20	ug/Kg	1		11/06/15 19:38
1,2-Dichlorobenzene	12.9 U	25.8	8.04	ug/Kg	1		11/06/15 19:38
1,2-Dichloroethane	5.15 U	10.3	3.20	ug/Kg	1		11/06/15 19:38
1,2-Dichloropropane	5.15 U	10.3	3.20	ug/Kg	1		11/06/15 19:38
1,3,5-Trimethylbenzene	9.02 J	25.8	8.04	ug/Kg	1		11/06/15 19:38
1,3-Dichlorobenzene	12.9 U	25.8	8.04	ug/Kg	1		11/06/15 19:38
1,3-Dichloropropane	5.15 U	10.3	3.20	ug/Kg	1		11/06/15 19:38
1,4-Dichlorobenzene	12.9 U	25.8	8.04	ug/Kg	1		11/06/15 19:38
2,2-Dichloropropane	12.9 U	25.8	8.04	ug/Kg	1		11/06/15 19:38
2-Butanone (MEK)	129 U	258	80.4	ug/Kg	1		11/06/15 19:38
2-Chlorotoluene	12.9 U	25.8	8.04	ug/Kg	1		11/06/15 19:38
2-Hexanone	129 U	258	80.4	ug/Kg	1		11/06/15 19:38
4-Chlorotoluene	12.9 U	25.8	8.04	ug/Kg	1		11/06/15 19:38
4-Isopropyltoluene	12.9 U	25.8	8.04	ug/Kg	1		11/06/15 19:38
4-Methyl-2-pentanone (MIBK)	129 U	258	80.4	ug/Kg	1		11/06/15 19:38
Benzene	6.45 U	12.9	4.02	ug/Kg	1		11/06/15 19:38
Bromobenzene	12.9 U	25.8	8.04	ug/Kg	1		11/06/15 19:38
Bromochloromethane	12.9 U	25.8	8.04	ug/Kg	1		11/06/15 19:38
Bromodichloromethane	12.9 U	25.8	8.04	ug/Kg	1		11/06/15 19:38
Bromoform	12.9 U	25.8	8.04	ug/Kg	1		11/06/15 19:38
Bromomethane	103 U	206	63.9	ug/Kg	1		11/06/15 19:38
Carbon disulfide	51.5 U	103	32.0	ug/Kg	1		11/06/15 19:38
Carbon tetrachloride	6.45 U	12.9	4.02	ug/Kg	1		11/06/15 19:38
Chlorobenzene	12.9 U	25.8	8.04	ug/Kg	1		11/06/15 19:38
Chloroethane	103 U	206	63.9	ug/Kg	1		11/06/15 19:38

Print Date: 11/18/2015 12:28:27PM

J flagging is activated



Results of RV3

Client Sample ID: **RV3**
 Client Project ID: **RAVN ANC**
 Lab Sample ID: 1156474003
 Lab Project ID: 1156474

Collection Date: 11/02/15 15:55
 Received Date: 11/02/15 17:01
 Matrix: Soil/Solid (dry weight)
 Solids (%):86.7
 Location:

Results by Volatile GC/MS

<u>Parameter</u>	<u>Result Qual</u>	<u>LOQ/CL</u>	<u>DL</u>	<u>Units</u>	<u>DF</u>	<u>Allowable Limits</u>	<u>Date Analyzed</u>
Chloroform	12.9 U	25.8	8.04	ug/Kg	1		11/06/15 19:38
Chloromethane	12.9 U	25.8	8.04	ug/Kg	1		11/06/15 19:38
cis-1,2-Dichloroethene	12.9 U	25.8	8.04	ug/Kg	1		11/06/15 19:38
cis-1,3-Dichloropropene	12.9 U	25.8	8.04	ug/Kg	1		11/06/15 19:38
Dibromochloromethane	12.9 U	25.8	8.04	ug/Kg	1		11/06/15 19:38
Dibromomethane	12.9 U	25.8	8.04	ug/Kg	1		11/06/15 19:38
Dichlorodifluoromethane	25.8 U	51.5	15.5	ug/Kg	1		11/06/15 19:38
Ethylbenzene	12.9 U	25.8	8.04	ug/Kg	1		11/06/15 19:38
Freon-113	51.5 U	103	32.0	ug/Kg	1		11/06/15 19:38
Hexachlorobutadiene	25.8 U	51.5	15.5	ug/Kg	1		11/06/15 19:38
Isopropylbenzene (Cumene)	12.9 U	25.8	8.04	ug/Kg	1		11/06/15 19:38
Methylene chloride	51.5 U	103	32.0	ug/Kg	1		11/06/15 19:38
Methyl-t-butyl ether	51.5 U	103	32.0	ug/Kg	1		11/06/15 19:38
Naphthalene	25.8 U	51.5	15.5	ug/Kg	1		11/06/15 19:38
n-Butylbenzene	12.9 U	25.8	8.04	ug/Kg	1		11/06/15 19:38
n-Propylbenzene	12.9 U	25.8	8.04	ug/Kg	1		11/06/15 19:38
o-Xylene	12.9 U	25.8	8.04	ug/Kg	1		11/06/15 19:38
P & M -Xylene	25.8 U	51.5	15.5	ug/Kg	1		11/06/15 19:38
sec-Butylbenzene	12.9 U	25.8	8.04	ug/Kg	1		11/06/15 19:38
Styrene	12.9 U	25.8	8.04	ug/Kg	1		11/06/15 19:38
tert-Butylbenzene	12.9 U	25.8	8.04	ug/Kg	1		11/06/15 19:38
Tetrachloroethene	2620	129	40.2	ug/Kg	10		11/10/15 18:17
Toluene	12.9 U	25.8	8.04	ug/Kg	1		11/06/15 19:38
trans-1,2-Dichloroethene	12.9 U	25.8	8.04	ug/Kg	1		11/06/15 19:38
trans-1,3-Dichloropropene	12.9 U	25.8	8.04	ug/Kg	1		11/06/15 19:38
Trichloroethene	6.45 U	12.9	4.02	ug/Kg	1		11/06/15 19:38
Trichlorofluoromethane	25.8 U	51.5	15.5	ug/Kg	1		11/06/15 19:38
Vinyl acetate	51.5 U	103	32.0	ug/Kg	1		11/06/15 19:38
Vinyl chloride	5.15 U	10.3	3.20	ug/Kg	1		11/06/15 19:38
Xylenes (total)	38.6 U	77.3	23.5	ug/Kg	1		11/06/15 19:38
Surrogates							
1,2-Dichloroethane-D4 (surr)	122	71-136		%	1		11/06/15 19:38
4-Bromofluorobenzene (surr)	104	55-151		%	1		11/06/15 19:38
Toluene-d8 (surr)	108	85-116		%	1		11/06/15 19:38



Results of RV3

Client Sample ID: **RV3**
Client Project ID: **RAVN ANC**
Lab Sample ID: 1156474003
Lab Project ID: 1156474

Collection Date: 11/02/15 15:55
Received Date: 11/02/15 17:01
Matrix: Soil/Solid (dry weight)
Solids (%):86.7
Location:

Results by Volatile GC/MS

Batch Information

Analytical Batch: VMS15420
Analytical Method: SW8260B
Analyst: ST
Analytical Date/Time: 11/06/15 19:38
Container ID: 1156474003-B

Prep Batch: VXX28246
Prep Method: SW5035A
Prep Date/Time: 11/02/15 15:55
Prep Initial Wt./Vol.: 79.757 g
Prep Extract Vol: 35.6295 mL

Analytical Batch: VMS15424
Analytical Method: SW8260B
Analyst: ST
Analytical Date/Time: 11/10/15 18:17
Container ID: 1156474003-B

Prep Batch: VXX28255
Prep Method: SW5035A
Prep Date/Time: 11/02/15 15:55
Prep Initial Wt./Vol.: 79.757 g
Prep Extract Vol: 35.6295 mL



Results of **RV4**

Client Sample ID: **RV4**
Client Project ID: **RAVN ANC**
Lab Sample ID: 1156474004
Lab Project ID: 1156474

Collection Date: 11/02/15 15:58
Received Date: 11/02/15 17:01
Matrix: Soil/Solid (dry weight)
Solids (%):85.4
Location:

Results by **Semivolatile Organic Fuels**

<u>Parameter</u>	<u>Result Qual</u>	<u>LOQ/CL</u>	<u>DL</u>	<u>Units</u>	<u>DF</u>	<u>Allowable Limits</u>	<u>Date Analyzed</u>
Diesel Range Organics	237	23.3	7.21	mg/Kg	1		11/05/15 16:15

Surrogates

5a Androstane (surr)	97.4	50-150		%	1		11/05/15 16:15
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Batch Information

Analytical Batch: XFC12195
Analytical Method: AK102
Analyst: NLL
Analytical Date/Time: 11/05/15 16:15
Container ID: 1156474004-A

Prep Batch: XXX34563
Prep Method: SW3550C
Prep Date/Time: 11/04/15 09:39
Prep Initial Wt./Vol.: 30.198 g
Prep Extract Vol: 1 mL

<u>Parameter</u>	<u>Result Qual</u>	<u>LOQ/CL</u>	<u>DL</u>	<u>Units</u>	<u>DF</u>	<u>Allowable Limits</u>	<u>Date Analyzed</u>
Residual Range Organics	447	23.3	7.21	mg/Kg	1		11/05/15 16:15

Surrogates

n-Triacontane-d62 (surr)	111	50-150		%	1		11/05/15 16:15
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Batch Information

Analytical Batch: XFC12195
Analytical Method: AK103
Analyst: NLL
Analytical Date/Time: 11/05/15 16:15
Container ID: 1156474004-A

Prep Batch: XXX34563
Prep Method: SW3550C
Prep Date/Time: 11/04/15 09:39
Prep Initial Wt./Vol.: 30.198 g
Prep Extract Vol: 1 mL



Results of RV4

Client Sample ID: RV4
Client Project ID: RAVN ANC
Lab Sample ID: 1156474004
Lab Project ID: 1156474

Collection Date: 11/02/15 15:58
Received Date: 11/02/15 17:01
Matrix: Soil/Solid (dry weight)
Solids (%):85.4
Location:

Results by Volatile Fuels

Table with 8 columns: Parameter, Result Qual, LOQ/CL, DL, Units, DF, Allowable Limits, Date Analyzed. Row: Gasoline Range Organics, 2.07 J, 2.95, 0.885, mg/Kg, 1, 11/10/15 14:26

Surrogates

Table with 8 columns: Parameter, Result Qual, LOQ/CL, DL, Units, DF, Allowable Limits, Date Analyzed. Row: 4-Bromofluorobenzene (surr), 106, 50-150, %, 1, 11/10/15 14:26

Batch Information

Analytical Batch: VFC12816
Analytical Method: AK101
Analyst: KAS
Analytical Date/Time: 11/10/15 14:26
Container ID: 1156474004-B

Prep Batch: VXX28253
Prep Method: SW5035A
Prep Date/Time: 11/02/15 15:58
Prep Initial Wt./Vol.: 69.781 g
Prep Extract Vol: 35.1625 mL

Table with 8 columns: Parameter, Result Qual, LOQ/CL, DL, Units, DF, Allowable Limits, Date Analyzed. Rows: Benzene, Ethylbenzene, o-Xylene, P & M -Xylene, Toluene

Surrogates

Table with 8 columns: Parameter, Result Qual, LOQ/CL, DL, Units, DF, Allowable Limits, Date Analyzed. Row: 1,4-Difluorobenzene (surr), 91.2, 72-119, %, 1, 11/10/15 14:26

Batch Information

Analytical Batch: VFC12816
Analytical Method: SW8021B
Analyst: KAS
Analytical Date/Time: 11/10/15 14:26
Container ID: 1156474004-B

Prep Batch: VXX28253
Prep Method: SW5035A
Prep Date/Time: 11/02/15 15:58
Prep Initial Wt./Vol.: 69.781 g
Prep Extract Vol: 35.1625 mL



Results of RV13

Client Sample ID: **RV13**
Client Project ID: **RAVN ANC**
Lab Sample ID: 1156474005
Lab Project ID: 1156474

Collection Date: 11/02/15 16:30
Received Date: 11/02/15 17:01
Matrix: Soil/Solid (dry weight)
Solids (%):87.8
Location:

Results by Polynuclear Aromatics GC/MS

<u>Parameter</u>	<u>Result Qual</u>	<u>LOQ/CL</u>	<u>DL</u>	<u>Units</u>	<u>DF</u>	<u>Allowable Limits</u>	<u>Date Analyzed</u>
1-Methylnaphthalene	67.1	27.9	8.38	ug/Kg	5		11/13/15 03:29
2-Methylnaphthalene	20.6 J	27.9	8.38	ug/Kg	5		11/13/15 03:29
Acenaphthene	19.7 J	27.9	8.38	ug/Kg	5		11/13/15 03:29
Acenaphthylene	13.9 U	27.9	8.38	ug/Kg	5		11/13/15 03:29
Anthracene	45.8	27.9	8.38	ug/Kg	5		11/13/15 03:29
Benzo(a)Anthracene	142	27.9	8.38	ug/Kg	5		11/13/15 03:29
Benzo[a]pyrene	194	27.9	8.38	ug/Kg	5		11/13/15 03:29
Benzo[b]Fluoranthene	362	27.9	8.38	ug/Kg	5		11/13/15 03:29
Benzo[g,h,i]perylene	255	27.9	8.38	ug/Kg	5		11/13/15 03:29
Benzo[k]fluoranthene	13.9 U	27.9	8.38	ug/Kg	5		11/13/15 03:29
Chrysene	179	27.9	8.38	ug/Kg	5		11/13/15 03:29
Dibenzo[a,h]anthracene	53.9	27.9	8.38	ug/Kg	5		11/13/15 03:29
Fluoranthene	256	27.9	8.38	ug/Kg	5		11/13/15 03:29
Fluorene	23.4 J	27.9	8.38	ug/Kg	5		11/13/15 03:29
Indeno[1,2,3-c,d] pyrene	184	27.9	8.38	ug/Kg	5		11/13/15 03:29
Naphthalene	12.4 J	27.9	8.38	ug/Kg	5		11/13/15 03:29
Phenanthrene	196	27.9	8.38	ug/Kg	5		11/13/15 03:29
Pyrene	249	27.9	8.38	ug/Kg	5		11/13/15 03:29
Surrogates							
2-Fluorobiphenyl (surr)	62.1	46-115		%	5		11/13/15 03:29
Terphenyl-d14 (surr)	108	58-113		%	5		11/13/15 03:29

Batch Information

Analytical Batch: XMS9074
Analytical Method: 8270D SIMS (PAH)
Analyst: NRB
Analytical Date/Time: 11/13/15 03:29
Container ID: 1156474005-A

Prep Batch: XXX34621
Prep Method: SW3550C
Prep Date/Time: 11/12/15 10:10
Prep Initial Wt./Vol.: 22.933 g
Prep Extract Vol: 1 mL



Results of RV13

Client Sample ID: **RV13**
Client Project ID: **RAVN ANC**
Lab Sample ID: 1156474005
Lab Project ID: 1156474

Collection Date: 11/02/15 16:30
Received Date: 11/02/15 17:01
Matrix: Soil/Solid (dry weight)
Solids (%):87.8
Location:

Results by Semivolatile Organic Fuels

<u>Parameter</u>	<u>Result Qual</u>	<u>LOQ/CL</u>	<u>DL</u>	<u>Units</u>	<u>DF</u>	<u>Allowable Limits</u>	<u>Date Analyzed</u>
Diesel Range Organics	96.8	90.2	27.9	mg/Kg	4		11/06/15 03:51

Surrogates

5a Androstane (surr)	85.6	50-150		%	4		11/06/15 03:51
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Batch Information

Analytical Batch: XFC12195
Analytical Method: AK102
Analyst: NLL
Analytical Date/Time: 11/06/15 03:51
Container ID: 1156474005-A

Prep Batch: XXX34563
Prep Method: SW3550C
Prep Date/Time: 11/04/15 09:39
Prep Initial Wt./Vol.: 30.327 g
Prep Extract Vol: 1 mL

<u>Parameter</u>	<u>Result Qual</u>	<u>LOQ/CL</u>	<u>DL</u>	<u>Units</u>	<u>DF</u>	<u>Allowable Limits</u>	<u>Date Analyzed</u>
Residual Range Organics	284	90.2	27.9	mg/Kg	4		11/06/15 03:51

Surrogates

n-Triacontane-d62 (surr)	90	50-150		%	4		11/06/15 03:51
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Batch Information

Analytical Batch: XFC12195
Analytical Method: AK103
Analyst: NLL
Analytical Date/Time: 11/06/15 03:51
Container ID: 1156474005-A

Prep Batch: XXX34563
Prep Method: SW3550C
Prep Date/Time: 11/04/15 09:39
Prep Initial Wt./Vol.: 30.327 g
Prep Extract Vol: 1 mL



Results of RV13

Client Sample ID: **RV13**
Client Project ID: **RAVN ANC**
Lab Sample ID: 1156474005
Lab Project ID: 1156474

Collection Date: 11/02/15 16:30
Received Date: 11/02/15 17:01
Matrix: Soil/Solid (dry weight)
Solids (%):87.8
Location:

Results by Volatile Fuels

<u>Parameter</u>	<u>Result Qual</u>	<u>LOQ/CL</u>	<u>DL</u>	<u>Units</u>	<u>DF</u>	<u>Allowable Limits</u>	<u>Date Analyzed</u>
Gasoline Range Organics	1.90 J	2.18	0.654	mg/Kg	1		11/10/15 14:45

Surrogates

4-Bromofluorobenzene (surr)	113	50-150		%	1		11/10/15 14:45
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Batch Information

Analytical Batch: VFC12816
Analytical Method: AK101
Analyst: KAS
Analytical Date/Time: 11/10/15 14:45
Container ID: 1156474005-B

Prep Batch: VXX28253
Prep Method: SW5035A
Prep Date/Time: 11/02/15 16:30
Prep Initial Wt./Vol.: 96.059 g
Prep Extract Vol: 36.7413 mL

<u>Parameter</u>	<u>Result Qual</u>	<u>LOQ/CL</u>	<u>DL</u>	<u>Units</u>	<u>DF</u>	<u>Allowable Limits</u>	<u>Date Analyzed</u>
Benzene	5.45 U	10.9	3.49	ug/Kg	1		11/10/15 14:45
Ethylbenzene	16.8 J	21.8	6.80	ug/Kg	1		11/10/15 14:45
o-Xylene	61.9	21.8	6.80	ug/Kg	1		11/10/15 14:45
P & M -Xylene	67.3	43.6	13.1	ug/Kg	1		11/10/15 14:45
Toluene	10.9 U	21.8	6.80	ug/Kg	1		11/10/15 14:45

Surrogates

1,4-Difluorobenzene (surr)	92.8	72-119		%	1		11/10/15 14:45
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Batch Information

Analytical Batch: VFC12816
Analytical Method: SW8021B
Analyst: KAS
Analytical Date/Time: 11/10/15 14:45
Container ID: 1156474005-B

Prep Batch: VXX28253
Prep Method: SW5035A
Prep Date/Time: 11/02/15 16:30
Prep Initial Wt./Vol.: 96.059 g
Prep Extract Vol: 36.7413 mL



Results of RV13

Client Sample ID: RV13
Client Project ID: RAVN ANC
Lab Sample ID: 1156474005
Lab Project ID: 1156474

Collection Date: 11/02/15 16:30
Received Date: 11/02/15 17:01
Matrix: Soil/Solid (dry weight)
Solids (%):87.8
Location:

Results by Volatile GC/MS

Table with 8 columns: Parameter, Result Qual, LOQ/CL, DL, Units, DF, Allowable Limits, Date Analyzed. Lists various chemical compounds and their detection results.



Results of RV13

Client Sample ID: **RV13**
 Client Project ID: **RAVN ANC**
 Lab Sample ID: 1156474005
 Lab Project ID: 1156474

Collection Date: 11/02/15 16:30
 Received Date: 11/02/15 17:01
 Matrix: Soil/Solid (dry weight)
 Solids (%):87.8
 Location:

Results by Volatile GC/MS

<u>Parameter</u>	<u>Result Qual</u>	<u>LOQ/CL</u>	<u>DL</u>	<u>Units</u>	<u>DF</u>	<u>Allowable Limits</u>	<u>Date Analyzed</u>
Chloroform	10.9 U	21.8	6.80	ug/Kg	1		11/06/15 19:54
Chloromethane	10.9 U	21.8	6.80	ug/Kg	1		11/06/15 19:54
cis-1,2-Dichloroethene	10.9 U	21.8	6.80	ug/Kg	1		11/06/15 19:54
cis-1,3-Dichloropropene	10.9 U	21.8	6.80	ug/Kg	1		11/06/15 19:54
Dibromochloromethane	10.9 U	21.8	6.80	ug/Kg	1		11/06/15 19:54
Dibromomethane	10.9 U	21.8	6.80	ug/Kg	1		11/06/15 19:54
Dichlorodifluoromethane	21.8 U	43.6	13.1	ug/Kg	1		11/06/15 19:54
Ethylbenzene	15.0 J	21.8	6.80	ug/Kg	1		11/06/15 19:54
Freon-113	43.5 U	87.1	27.0	ug/Kg	1		11/06/15 19:54
Hexachlorobutadiene	21.8 U	43.6	13.1	ug/Kg	1		11/06/15 19:54
Isopropylbenzene (Cumene)	12.0 J	21.8	6.80	ug/Kg	1		11/06/15 19:54
Methylene chloride	43.5 U	87.1	27.0	ug/Kg	1		11/06/15 19:54
Methyl-t-butyl ether	43.5 U	87.1	27.0	ug/Kg	1		11/06/15 19:54
Naphthalene	37.3 J	43.6	13.1	ug/Kg	1		11/06/15 19:54
n-Butylbenzene	10.9 U	21.8	6.80	ug/Kg	1		11/06/15 19:54
n-Propylbenzene	16.1 J	21.8	6.80	ug/Kg	1		11/06/15 19:54
o-Xylene	38.3	21.8	6.80	ug/Kg	1		11/06/15 19:54
P & M -Xylene	52.3	43.6	13.1	ug/Kg	1		11/06/15 19:54
sec-Butylbenzene	14.8 J	21.8	6.80	ug/Kg	1		11/06/15 19:54
Styrene	10.9 U	21.8	6.80	ug/Kg	1		11/06/15 19:54
tert-Butylbenzene	10.9 U	21.8	6.80	ug/Kg	1		11/06/15 19:54
Tetrachloroethene	38.1	10.9	3.40	ug/Kg	1		11/06/15 19:54
Toluene	10.9 U	21.8	6.80	ug/Kg	1		11/06/15 19:54
trans-1,2-Dichloroethene	10.9 U	21.8	6.80	ug/Kg	1		11/06/15 19:54
trans-1,3-Dichloropropene	10.9 U	21.8	6.80	ug/Kg	1		11/06/15 19:54
Trichloroethene	5.45 U	10.9	3.40	ug/Kg	1		11/06/15 19:54
Trichlorofluoromethane	21.8 U	43.6	13.1	ug/Kg	1		11/06/15 19:54
Vinyl acetate	43.5 U	87.1	27.0	ug/Kg	1		11/06/15 19:54
Vinyl chloride	4.36 U	8.71	2.70	ug/Kg	1		11/06/15 19:54
Xylenes (total)	90.6	65.4	19.9	ug/Kg	1		11/06/15 19:54
Surrogates							
1,2-Dichloroethane-D4 (surr)	127	71-136		%	1		11/06/15 19:54
4-Bromofluorobenzene (surr)	120	55-151		%	1		11/06/15 19:54
Toluene-d8 (surr)	107	85-116		%	1		11/06/15 19:54

Results of RV13

Client Sample ID: **RV13**
Client Project ID: **RAVN ANC**
Lab Sample ID: 1156474005
Lab Project ID: 1156474

Collection Date: 11/02/15 16:30
Received Date: 11/02/15 17:01
Matrix: Soil/Solid (dry weight)
Solids (%):87.8
Location:

Results by Volatile GC/MS

Batch Information

Analytical Batch: VMS15420
Analytical Method: SW8260B
Analyst: ST
Analytical Date/Time: 11/06/15 19:54
Container ID: 1156474005-B

Prep Batch: VXX28246
Prep Method: SW5035A
Prep Date/Time: 11/02/15 16:30
Prep Initial Wt./Vol.: 96.059 g
Prep Extract Vol: 36.7413 mL



Results of RV14

Client Sample ID: RV14
Client Project ID: RAVN ANC
Lab Sample ID: 1156474006
Lab Project ID: 1156474

Collection Date: 11/02/15 16:25
Received Date: 11/02/15 17:01
Matrix: Soil/Solid (dry weight)
Solids (%):86.0
Location:

Results by Semivolatile Organic Fuels

<u>Parameter</u>	<u>Result Qual</u>	<u>LOQ/CL</u>	<u>DL</u>	<u>Units</u>	<u>DF</u>	<u>Allowable Limits</u>	<u>Date Analyzed</u>
Diesel Range Organics	197	91.8	28.5	mg/Kg	4		11/06/15 03:31
Surrogates							
5a Androstane (surr)	84.7	50-150		%	4		11/06/15 03:31

Batch Information

Analytical Batch: XFC12195
Analytical Method: AK102
Analyst: NLL
Analytical Date/Time: 11/06/15 03:31
Container ID: 1156474006-A

Prep Batch: XXX34563
Prep Method: SW3550C
Prep Date/Time: 11/04/15 09:39
Prep Initial Wt./Vol.: 30.399 g
Prep Extract Vol: 1 mL

<u>Parameter</u>	<u>Result Qual</u>	<u>LOQ/CL</u>	<u>DL</u>	<u>Units</u>	<u>DF</u>	<u>Allowable Limits</u>	<u>Date Analyzed</u>
Residual Range Organics	406	91.8	28.5	mg/Kg	4		11/06/15 03:31
Surrogates							
n-Triacontane-d62 (surr)	89.8	50-150		%	4		11/06/15 03:31

Batch Information

Analytical Batch: XFC12195
Analytical Method: AK103
Analyst: NLL
Analytical Date/Time: 11/06/15 03:31
Container ID: 1156474006-A

Prep Batch: XXX34563
Prep Method: SW3550C
Prep Date/Time: 11/04/15 09:39
Prep Initial Wt./Vol.: 30.399 g
Prep Extract Vol: 1 mL



Results of RV14

Client Sample ID: RV14
Client Project ID: RAVN ANC
Lab Sample ID: 1156474006
Lab Project ID: 1156474

Collection Date: 11/02/15 16:25
Received Date: 11/02/15 17:01
Matrix: Soil/Solid (dry weight)
Solids (%):86.0
Location:

Results by Volatile Fuels

Table with 8 columns: Parameter, Result Qual, LOQ/CL, DL, Units, DF, Allowable Limits, Date Analyzed. Row: Gasoline Range Organics, 3.56, 2.51, 0.754, mg/Kg, 1, 11/10/15 15:04

Surrogates

Table with 8 columns: Parameter, Result Qual, LOQ/CL, DL, Units, DF, Allowable Limits, Date Analyzed. Row: 4-Bromofluorobenzene (surr), 131, 50-150, %, 1, 11/10/15 15:04

Batch Information

Analytical Batch: VFC12816
Analytical Method: AK101
Analyst: KAS
Analytical Date/Time: 11/10/15 15:04
Container ID: 1156474006-B

Prep Batch: VXX28253
Prep Method: SW5035A
Prep Date/Time: 11/02/15 16:25
Prep Initial Wt./Vol.: 85.66 g
Prep Extract Vol: 37.006 mL

Table with 8 columns: Parameter, Result Qual, LOQ/CL, DL, Units, DF, Allowable Limits, Date Analyzed. Rows: Benzene, Ethylbenzene, o-Xylene, P & M -Xylene, Toluene

Surrogates

Table with 8 columns: Parameter, Result Qual, LOQ/CL, DL, Units, DF, Allowable Limits, Date Analyzed. Row: 1,4-Difluorobenzene (surr), 93.8, 72-119, %, 1, 11/10/15 15:04

Batch Information

Analytical Batch: VFC12816
Analytical Method: SW8021B
Analyst: KAS
Analytical Date/Time: 11/10/15 15:04
Container ID: 1156474006-B

Prep Batch: VXX28253
Prep Method: SW5035A
Prep Date/Time: 11/02/15 16:25
Prep Initial Wt./Vol.: 85.66 g
Prep Extract Vol: 37.006 mL



Results of RVX

Client Sample ID: **RVX**
 Client Project ID: **RAVN ANC**
 Lab Sample ID: 1156474007
 Lab Project ID: 1156474

Collection Date: 11/02/15 15:00
 Received Date: 11/02/15 17:01
 Matrix: Soil/Solid (dry weight)
 Solids (%):87.9
 Location:

Results by Polynuclear Aromatics GC/MS

<u>Parameter</u>	<u>Result Qual</u>	<u>LOQ/CL</u>	<u>DL</u>	<u>Units</u>	<u>DF</u>	<u>Allowable Limits</u>	<u>Date Analyzed</u>
1-Methylnaphthalene	72.8	28.0	8.41	ug/Kg	5		11/13/15 03:45
2-Methylnaphthalene	21.9 J	28.0	8.41	ug/Kg	5		11/13/15 03:45
Acenaphthene	14.0 U	28.0	8.41	ug/Kg	5		11/13/15 03:45
Acenaphthylene	14.0 U	28.0	8.41	ug/Kg	5		11/13/15 03:45
Anthracene	13.8 J	28.0	8.41	ug/Kg	5		11/13/15 03:45
Benzo(a)Anthracene	58.4	28.0	8.41	ug/Kg	5		11/13/15 03:45
Benzo[a]pyrene	93.9	28.0	8.41	ug/Kg	5		11/13/15 03:45
Benzo[b]Fluoranthene	195	28.0	8.41	ug/Kg	5		11/13/15 03:45
Benzo[g,h,i]perylene	181	28.0	8.41	ug/Kg	5		11/13/15 03:45
Benzo[k]fluoranthene	14.0 U	28.0	8.41	ug/Kg	5		11/13/15 03:45
Chrysene	88.1	28.0	8.41	ug/Kg	5		11/13/15 03:45
Dibenzo[a,h]anthracene	33.0	28.0	8.41	ug/Kg	5		11/13/15 03:45
Fluoranthene	90.1	28.0	8.41	ug/Kg	5		11/13/15 03:45
Fluorene	12.7 J	28.0	8.41	ug/Kg	5		11/13/15 03:45
Indeno[1,2,3-c,d] pyrene	119	28.0	8.41	ug/Kg	5		11/13/15 03:45
Naphthalene	11.7 J	28.0	8.41	ug/Kg	5		11/13/15 03:45
Phenanthrene	50.2	28.0	8.41	ug/Kg	5		11/13/15 03:45
Pyrene	93.6	28.0	8.41	ug/Kg	5		11/13/15 03:45
Surrogates							
2-Fluorobiphenyl (surr)	69.1	46-115		%	5		11/13/15 03:45
Terphenyl-d14 (surr)	101	58-113		%	5		11/13/15 03:45

Batch Information

Analytical Batch: XMS9074
 Analytical Method: 8270D SIMS (PAH)
 Analyst: NRB
 Analytical Date/Time: 11/13/15 03:45
 Container ID: 1156474007-A

Prep Batch: XXX34621
 Prep Method: SW3550C
 Prep Date/Time: 11/12/15 10:10
 Prep Initial Wt./Vol.: 22.835 g
 Prep Extract Vol: 1 mL



Results of RVX

Client Sample ID: **RVX**
Client Project ID: **RAVN ANC**
Lab Sample ID: 1156474007
Lab Project ID: 1156474

Collection Date: 11/02/15 15:00
Received Date: 11/02/15 17:01
Matrix: Soil/Solid (dry weight)
Solids (%):87.9
Location:

Results by Semivolatile Organic Fuels

<u>Parameter</u>	<u>Result Qual</u>	<u>LOQ/CL</u>	<u>DL</u>	<u>Units</u>	<u>DF</u>	<u>Allowable Limits</u>	<u>Date Analyzed</u>
Diesel Range Organics	114	90.5	28.1	mg/Kg	4		11/06/15 03:41

Surrogates

5a Androstane (surr)	81.7	50-150		%	4		11/06/15 03:41
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Batch Information

Analytical Batch: XFC12195
Analytical Method: AK102
Analyst: NLL
Analytical Date/Time: 11/06/15 03:41
Container ID: 1156474007-A

Prep Batch: XXX34563
Prep Method: SW3550C
Prep Date/Time: 11/04/15 09:39
Prep Initial Wt./Vol.: 30.171 g
Prep Extract Vol: 1 mL

<u>Parameter</u>	<u>Result Qual</u>	<u>LOQ/CL</u>	<u>DL</u>	<u>Units</u>	<u>DF</u>	<u>Allowable Limits</u>	<u>Date Analyzed</u>
Residual Range Organics	286	90.5	28.1	mg/Kg	4		11/06/15 03:41

Surrogates

n-Triacontane-d62 (surr)	84.3	50-150		%	4		11/06/15 03:41
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Batch Information

Analytical Batch: XFC12195
Analytical Method: AK103
Analyst: NLL
Analytical Date/Time: 11/06/15 03:41
Container ID: 1156474007-A

Prep Batch: XXX34563
Prep Method: SW3550C
Prep Date/Time: 11/04/15 09:39
Prep Initial Wt./Vol.: 30.171 g
Prep Extract Vol: 1 mL



Results of RVX

Client Sample ID: **RVX**
Client Project ID: **RAVN ANC**
Lab Sample ID: 1156474007
Lab Project ID: 1156474

Collection Date: 11/02/15 15:00
Received Date: 11/02/15 17:01
Matrix: Soil/Solid (dry weight)
Solids (%):87.9
Location:

Results by Volatile Fuels

<u>Parameter</u>	<u>Result Qual</u>	<u>LOQ/CL</u>	<u>DL</u>	<u>Units</u>	<u>DF</u>	<u>Allowable Limits</u>	<u>Date Analyzed</u>
Gasoline Range Organics	2.47 J	2.48	0.745	mg/Kg	1		11/10/15 15:23

Surrogates

4-Bromofluorobenzene (surr)	109	50-150		%	1		11/10/15 15:23
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Batch Information

Analytical Batch: VFC12816
Analytical Method: AK101
Analyst: KAS
Analytical Date/Time: 11/10/15 15:23
Container ID: 1156474007-B

Prep Batch: VXX28253
Prep Method: SW5035A
Prep Date/Time: 11/02/15 15:00
Prep Initial Wt./Vol.: 79.158 g
Prep Extract Vol: 34.5746 mL

<u>Parameter</u>	<u>Result Qual</u>	<u>LOQ/CL</u>	<u>DL</u>	<u>Units</u>	<u>DF</u>	<u>Allowable Limits</u>	<u>Date Analyzed</u>
Benzene	6.20 U	12.4	3.98	ug/Kg	1		11/10/15 15:23
Ethylbenzene	21.4 J	24.8	7.75	ug/Kg	1		11/10/15 15:23
o-Xylene	86.7	24.8	7.75	ug/Kg	1		11/10/15 15:23
P & M -Xylene	89.4	49.7	14.9	ug/Kg	1		11/10/15 15:23
Toluene	8.20 J	24.8	7.75	ug/Kg	1		11/10/15 15:23

Surrogates

1,4-Difluorobenzene (surr)	91.5	72-119		%	1		11/10/15 15:23
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Batch Information

Analytical Batch: VFC12816
Analytical Method: SW8021B
Analyst: KAS
Analytical Date/Time: 11/10/15 15:23
Container ID: 1156474007-B

Prep Batch: VXX28253
Prep Method: SW5035A
Prep Date/Time: 11/02/15 15:00
Prep Initial Wt./Vol.: 79.158 g
Prep Extract Vol: 34.5746 mL



Results of RVX

Client Sample ID: **RVX**
 Client Project ID: **RAVN ANC**
 Lab Sample ID: 1156474007
 Lab Project ID: 1156474

Collection Date: 11/02/15 15:00
 Received Date: 11/02/15 17:01
 Matrix: Soil/Solid (dry weight)
 Solids (%):87.9
 Location:

Results by Volatile GC/MS

<u>Parameter</u>	<u>Result Qual</u>	<u>LOQ/CL</u>	<u>DL</u>	<u>Units</u>	<u>DF</u>	<u>Allowable Limits</u>	<u>Date Analyzed</u>
1,1,1,2-Tetrachloroethane	12.4 U	24.8	7.75	ug/Kg	1		11/06/15 20:10
1,1,1-Trichloroethane	9.19 J	24.8	7.75	ug/Kg	1		11/06/15 20:10
1,1,2,2-Tetrachloroethane	6.20 U	12.4	3.88	ug/Kg	1		11/06/15 20:10
1,1,2-Trichloroethane	4.97 U	9.94	3.08	ug/Kg	1		11/06/15 20:10
1,1-Dichloroethane	12.4 U	24.8	7.75	ug/Kg	1		11/06/15 20:10
1,1-Dichloroethene	12.4 U	24.8	7.75	ug/Kg	1		11/06/15 20:10
1,1-Dichloropropene	12.4 U	24.8	7.75	ug/Kg	1		11/06/15 20:10
1,2,3-Trichlorobenzene	24.9 U	49.7	14.9	ug/Kg	1		11/06/15 20:10
1,2,3-Trichloropropane	12.4 U	24.8	7.75	ug/Kg	1		11/06/15 20:10
1,2,4-Trichlorobenzene	12.4 U	24.8	7.75	ug/Kg	1		11/06/15 20:10
1,2,4-Trimethylbenzene	134	49.7	14.9	ug/Kg	1		11/06/15 20:10
1,2-Dibromo-3-chloropropane	49.7 U	99.4	30.8	ug/Kg	1		11/06/15 20:10
1,2-Dibromoethane	4.97 U	9.94	3.08	ug/Kg	1		11/06/15 20:10
1,2-Dichlorobenzene	12.4 U	24.8	7.75	ug/Kg	1		11/06/15 20:10
1,2-Dichloroethane	4.97 U	9.94	3.08	ug/Kg	1		11/06/15 20:10
1,2-Dichloropropane	4.97 U	9.94	3.08	ug/Kg	1		11/06/15 20:10
1,3,5-Trimethylbenzene	57.6	24.8	7.75	ug/Kg	1		11/06/15 20:10
1,3-Dichlorobenzene	12.4 U	24.8	7.75	ug/Kg	1		11/06/15 20:10
1,3-Dichloropropane	4.97 U	9.94	3.08	ug/Kg	1		11/06/15 20:10
1,4-Dichlorobenzene	12.4 U	24.8	7.75	ug/Kg	1		11/06/15 20:10
2,2-Dichloropropane	12.4 U	24.8	7.75	ug/Kg	1		11/06/15 20:10
2-Butanone (MEK)	124 U	248	77.5	ug/Kg	1		11/06/15 20:10
2-Chlorotoluene	12.4 U	24.8	7.75	ug/Kg	1		11/06/15 20:10
2-Hexanone	124 U	248	77.5	ug/Kg	1		11/06/15 20:10
4-Chlorotoluene	12.4 U	24.8	7.75	ug/Kg	1		11/06/15 20:10
4-Isopropyltoluene	16.1 J	24.8	7.75	ug/Kg	1		11/06/15 20:10
4-Methyl-2-pentanone (MIBK)	124 U	248	77.5	ug/Kg	1		11/06/15 20:10
Benzene	6.20 U	12.4	3.88	ug/Kg	1		11/06/15 20:10
Bromobenzene	12.4 U	24.8	7.75	ug/Kg	1		11/06/15 20:10
Bromochloromethane	12.4 U	24.8	7.75	ug/Kg	1		11/06/15 20:10
Bromodichloromethane	12.4 U	24.8	7.75	ug/Kg	1		11/06/15 20:10
Bromoform	12.4 U	24.8	7.75	ug/Kg	1		11/06/15 20:10
Bromomethane	99.5 U	199	61.6	ug/Kg	1		11/06/15 20:10
Carbon disulfide	49.7 U	99.4	30.8	ug/Kg	1		11/06/15 20:10
Carbon tetrachloride	6.20 U	12.4	3.88	ug/Kg	1		11/06/15 20:10
Chlorobenzene	12.4 U	24.8	7.75	ug/Kg	1		11/06/15 20:10
Chloroethane	99.5 U	199	61.6	ug/Kg	1		11/06/15 20:10

Print Date: 11/18/2015 12:28:27PM

J flagging is activated



Results of RVX

Client Sample ID: **RVX**
 Client Project ID: **RAVN ANC**
 Lab Sample ID: 1156474007
 Lab Project ID: 1156474

Collection Date: 11/02/15 15:00
 Received Date: 11/02/15 17:01
 Matrix: Soil/Solid (dry weight)
 Solids (%):87.9
 Location:

Results by Volatile GC/MS

<u>Parameter</u>	<u>Result Qual</u>	<u>LOQ/CL</u>	<u>DL</u>	<u>Units</u>	<u>DF</u>	<u>Allowable Limits</u>	<u>Date Analyzed</u>
Chloroform	12.4 U	24.8	7.75	ug/Kg	1		11/06/15 20:10
Chloromethane	12.4 U	24.8	7.75	ug/Kg	1		11/06/15 20:10
cis-1,2-Dichloroethene	12.4 U	24.8	7.75	ug/Kg	1		11/06/15 20:10
cis-1,3-Dichloropropene	12.4 U	24.8	7.75	ug/Kg	1		11/06/15 20:10
Dibromochloromethane	12.4 U	24.8	7.75	ug/Kg	1		11/06/15 20:10
Dibromomethane	12.4 U	24.8	7.75	ug/Kg	1		11/06/15 20:10
Dichlorodifluoromethane	24.9 U	49.7	14.9	ug/Kg	1		11/06/15 20:10
Ethylbenzene	19.6 J	24.8	7.75	ug/Kg	1		11/06/15 20:10
Freon-113	49.7 U	99.4	30.8	ug/Kg	1		11/06/15 20:10
Hexachlorobutadiene	24.9 U	49.7	14.9	ug/Kg	1		11/06/15 20:10
Isopropylbenzene (Cumene)	15.2 J	24.8	7.75	ug/Kg	1		11/06/15 20:10
Methylene chloride	49.7 U	99.4	30.8	ug/Kg	1		11/06/15 20:10
Methyl-t-butyl ether	49.7 U	99.4	30.8	ug/Kg	1		11/06/15 20:10
Naphthalene	73.3	49.7	14.9	ug/Kg	1		11/06/15 20:10
n-Butylbenzene	12.4 U	24.8	7.75	ug/Kg	1		11/06/15 20:10
n-Propylbenzene	22.9 J	24.8	7.75	ug/Kg	1		11/06/15 20:10
o-Xylene	49.9	24.8	7.75	ug/Kg	1		11/06/15 20:10
P & M -Xylene	67.6	49.7	14.9	ug/Kg	1		11/06/15 20:10
sec-Butylbenzene	21.4 J	24.8	7.75	ug/Kg	1		11/06/15 20:10
Styrene	12.4 U	24.8	7.75	ug/Kg	1		11/06/15 20:10
tert-Butylbenzene	12.4 U	24.8	7.75	ug/Kg	1		11/06/15 20:10
Tetrachloroethene	39.5	12.4	3.88	ug/Kg	1		11/06/15 20:10
Toluene	12.4 U	24.8	7.75	ug/Kg	1		11/06/15 20:10
trans-1,2-Dichloroethene	12.4 U	24.8	7.75	ug/Kg	1		11/06/15 20:10
trans-1,3-Dichloropropene	12.4 U	24.8	7.75	ug/Kg	1		11/06/15 20:10
Trichloroethene	6.20 U	12.4	3.88	ug/Kg	1		11/06/15 20:10
Trichlorofluoromethane	24.9 U	49.7	14.9	ug/Kg	1		11/06/15 20:10
Vinyl acetate	49.7 U	99.4	30.8	ug/Kg	1		11/06/15 20:10
Vinyl chloride	4.97 U	9.94	3.08	ug/Kg	1		11/06/15 20:10
Xylenes (total)	118	74.5	22.7	ug/Kg	1		11/06/15 20:10
Surrogates							
1,2-Dichloroethane-D4 (surr)	121	71-136		%	1		11/06/15 20:10
4-Bromofluorobenzene (surr)	116	55-151		%	1		11/06/15 20:10
Toluene-d8 (surr)	103	85-116		%	1		11/06/15 20:10

Results of RVX

Client Sample ID: **RVX**
Client Project ID: **RAVN ANC**
Lab Sample ID: 1156474007
Lab Project ID: 1156474

Collection Date: 11/02/15 15:00
Received Date: 11/02/15 17:01
Matrix: Soil/Solid (dry weight)
Solids (%):87.9
Location:

Results by Volatile GC/MS

Batch Information

Analytical Batch: VMS15420
Analytical Method: SW8260B
Analyst: ST
Analytical Date/Time: 11/06/15 20:10
Container ID: 1156474007-B

Prep Batch: VXX28246
Prep Method: SW5035A
Prep Date/Time: 11/02/15 15:00
Prep Initial Wt./Vol.: 79.158 g
Prep Extract Vol: 34.5746 mL



Results of RV21

Client Sample ID: RV21
Client Project ID: RAVN ANC
Lab Sample ID: 1156474008
Lab Project ID: 1156474

Collection Date: 11/02/15 16:15
Received Date: 11/02/15 17:01
Matrix: Soil/Solid (dry weight)
Solids (%):84.9
Location:

Results by Semivolatile Organic Fuels

<u>Parameter</u>	<u>Result Qual</u>	<u>LOQ/CL</u>	<u>DL</u>	<u>Units</u>	<u>DF</u>	<u>Allowable Limits</u>	<u>Date Analyzed</u>
Diesel Range Organics	7.35 J	23.2	7.20	mg/Kg	1		11/05/15 16:35

Surrogates

5a Androstane (surr)	91.6	50-150		%	1		11/05/15 16:35
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Batch Information

Analytical Batch: XFC12195
Analytical Method: AK102
Analyst: NLL
Analytical Date/Time: 11/05/15 16:35
Container ID: 1156474008-A

Prep Batch: XXX34563
Prep Method: SW3550C
Prep Date/Time: 11/04/15 09:39
Prep Initial Wt./Vol.: 30.413 g
Prep Extract Vol: 1 mL

<u>Parameter</u>	<u>Result Qual</u>	<u>LOQ/CL</u>	<u>DL</u>	<u>Units</u>	<u>DF</u>	<u>Allowable Limits</u>	<u>Date Analyzed</u>
Residual Range Organics	38.2	23.2	7.20	mg/Kg	1		11/05/15 16:35

Surrogates

n-Triacontane-d62 (surr)	98.2	50-150		%	1		11/05/15 16:35
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Batch Information

Analytical Batch: XFC12195
Analytical Method: AK103
Analyst: NLL
Analytical Date/Time: 11/05/15 16:35
Container ID: 1156474008-A

Prep Batch: XXX34563
Prep Method: SW3550C
Prep Date/Time: 11/04/15 09:39
Prep Initial Wt./Vol.: 30.413 g
Prep Extract Vol: 1 mL



Results of RV21

Client Sample ID: RV21
Client Project ID: RAVN ANC
Lab Sample ID: 1156474008
Lab Project ID: 1156474

Collection Date: 11/02/15 16:15
Received Date: 11/02/15 17:01
Matrix: Soil/Solid (dry weight)
Solids (%):84.9
Location:

Results by Volatile Fuels

Table with 8 columns: Parameter, Result Qual, LOQ/CL, DL, Units, DF, Allowable Limits, Date Analyzed. Row: Gasoline Range Organics, 0.862 J, 2.46, 0.737, mg/Kg, 1, 11/10/15 15:42

Surrogates

Table with 8 columns: Parameter, Result Qual, LOQ/CL, DL, Units, DF, Allowable Limits, Date Analyzed. Row: 4-Bromofluorobenzene (surr), 121, 50-150, %, 1, 11/10/15 15:42

Batch Information

Analytical Batch: VFC12816
Analytical Method: AK101
Analyst: KAS
Analytical Date/Time: 11/10/15 15:42
Container ID: 1156474008-B

Prep Batch: VXX28253
Prep Method: SW5035A
Prep Date/Time: 11/02/15 16:15
Prep Initial Wt./Vol.: 94.074 g
Prep Extract Vol: 39.2177 mL

Table with 8 columns: Parameter, Result Qual, LOQ/CL, DL, Units, DF, Allowable Limits, Date Analyzed. Rows: Benzene, Ethylbenzene, o-Xylene, P & M -Xylene, Toluene

Surrogates

Table with 8 columns: Parameter, Result Qual, LOQ/CL, DL, Units, DF, Allowable Limits, Date Analyzed. Row: 1,4-Difluorobenzene (surr), 92.7, 72-119, %, 1, 11/10/15 15:42

Batch Information

Analytical Batch: VFC12816
Analytical Method: SW8021B
Analyst: KAS
Analytical Date/Time: 11/10/15 15:42
Container ID: 1156474008-B

Prep Batch: VXX28253
Prep Method: SW5035A
Prep Date/Time: 11/02/15 16:15
Prep Initial Wt./Vol.: 94.074 g
Prep Extract Vol: 39.2177 mL



Results of RV23

Client Sample ID: **RV23**
Client Project ID: **RAVN ANC**
Lab Sample ID: 1156474009
Lab Project ID: 1156474

Collection Date: 11/02/15 16:10
Received Date: 11/02/15 17:01
Matrix: Soil/Solid (dry weight)
Solids (%):93.4
Location:

Results by Semivolatile Organic Fuels

<u>Parameter</u>	<u>Result Qual</u>	<u>LOQ/CL</u>	<u>DL</u>	<u>Units</u>	<u>DF</u>	<u>Allowable Limits</u>	<u>Date Analyzed</u>
Diesel Range Organics	10.6 U	21.2	6.58	mg/Kg	1		11/05/15 16:45

Surrogates

5a Androstane (surr)	90.5	50-150		%	1		11/05/15 16:45
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Batch Information

Analytical Batch: XFC12195
Analytical Method: AK102
Analyst: NLL
Analytical Date/Time: 11/05/15 16:45
Container ID: 1156474009-A

Prep Batch: XXX34563
Prep Method: SW3550C
Prep Date/Time: 11/04/15 09:39
Prep Initial Wt./Vol.: 30.285 g
Prep Extract Vol: 1 mL

<u>Parameter</u>	<u>Result Qual</u>	<u>LOQ/CL</u>	<u>DL</u>	<u>Units</u>	<u>DF</u>	<u>Allowable Limits</u>	<u>Date Analyzed</u>
Residual Range Organics	10.6 U	21.2	6.58	mg/Kg	1		11/05/15 16:45

Surrogates

n-Triacontane-d62 (surr)	101	50-150		%	1		11/05/15 16:45
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Batch Information

Analytical Batch: XFC12195
Analytical Method: AK103
Analyst: NLL
Analytical Date/Time: 11/05/15 16:45
Container ID: 1156474009-A

Prep Batch: XXX34563
Prep Method: SW3550C
Prep Date/Time: 11/04/15 09:39
Prep Initial Wt./Vol.: 30.285 g
Prep Extract Vol: 1 mL



Results of RV23

Client Sample ID: **RV23**
Client Project ID: **RAVN ANC**
Lab Sample ID: 1156474009
Lab Project ID: 1156474

Collection Date: 11/02/15 16:10
Received Date: 11/02/15 17:01
Matrix: Soil/Solid (dry weight)
Solids (%):93.4
Location:

Results by Volatile Fuels

<u>Parameter</u>	<u>Result Qual</u>	<u>LOQ/CL</u>	<u>DL</u>	<u>Units</u>	<u>DF</u>	<u>Allowable Limits</u>	<u>Date Analyzed</u>
Gasoline Range Organics	1.94	1.83	0.549	mg/Kg	1		11/10/15 16:38

Surrogates

4-Bromofluorobenzene (surr)	111	50-150		%	1		11/10/15 16:38
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Batch Information

Analytical Batch: VFC12816
Analytical Method: AK101
Analyst: KAS
Analytical Date/Time: 11/10/15 16:38
Container ID: 1156474009-B

Prep Batch: VXX28253
Prep Method: SW5035A
Prep Date/Time: 11/02/15 16:10
Prep Initial Wt./Vol.: 90.783 g
Prep Extract Vol: 31.0275 mL

<u>Parameter</u>	<u>Result Qual</u>	<u>LOQ/CL</u>	<u>DL</u>	<u>Units</u>	<u>DF</u>	<u>Allowable Limits</u>	<u>Date Analyzed</u>
Benzene	4.39 J	9.15	2.93	ug/Kg	1		11/10/15 16:38
Ethylbenzene	122	18.3	5.71	ug/Kg	1		11/10/15 16:38
o-Xylene	95.0	18.3	5.71	ug/Kg	1		11/10/15 16:38
P & M -Xylene	381	36.6	11.0	ug/Kg	1		11/10/15 16:38
Toluene	37.7	18.3	5.71	ug/Kg	1		11/10/15 16:38

Surrogates

1,4-Difluorobenzene (surr)	92.6	72-119		%	1		11/10/15 16:38
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Batch Information

Analytical Batch: VFC12816
Analytical Method: SW8021B
Analyst: KAS
Analytical Date/Time: 11/10/15 16:38
Container ID: 1156474009-B

Prep Batch: VXX28253
Prep Method: SW5035A
Prep Date/Time: 11/02/15 16:10
Prep Initial Wt./Vol.: 90.783 g
Prep Extract Vol: 31.0275 mL



Results of RV24

Client Sample ID: RV24
Client Project ID: RAVN ANC
Lab Sample ID: 1156474010
Lab Project ID: 1156474

Collection Date: 11/02/15 16:20
Received Date: 11/02/15 17:01
Matrix: Soil/Solid (dry weight)
Solids (%):86.4
Location:

Results by Polynuclear Aromatics GC/MS

Table with 8 columns: Parameter, Result Qual, LOQ/CL, DL, Units, DF, Allowable Limits, Date Analyzed. Lists various polynuclear aromatic hydrocarbons and their detection results.

Batch Information

Analytical Batch: XMS9074
Analytical Method: 8270D SIMS (PAH)
Analyst: NRB
Analytical Date/Time: 11/13/15 02:29
Container ID: 1156474010-A

Prep Batch: XXX34621
Prep Method: SW3550C
Prep Date/Time: 11/12/15 10:10
Prep Initial Wt./Vol.: 22.884 g
Prep Extract Vol: 1 mL



Results of **RV24**

Client Sample ID: **RV24**
Client Project ID: **RAVN ANC**
Lab Sample ID: 1156474010
Lab Project ID: 1156474

Collection Date: 11/02/15 16:20
Received Date: 11/02/15 17:01
Matrix: Soil/Solid (dry weight)
Solids (%):86.4
Location:

Results by **Semivolatile Organic Fuels**

<u>Parameter</u>	<u>Result Qual</u>	<u>LOQ/CL</u>	<u>DL</u>	<u>Units</u>	<u>DF</u>	<u>Allowable Limits</u>	<u>Date Analyzed</u>
Diesel Range Organics	11.1 J	23.0	7.14	mg/Kg	1		11/05/15 16:55

Surrogates

5a Androstane (surr)	95.3	50-150		%	1		11/05/15 16:55
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Batch Information

Analytical Batch: XFC12195
Analytical Method: AK102
Analyst: NLL
Analytical Date/Time: 11/05/15 16:55
Container ID: 1156474010-A

Prep Batch: XXX34563
Prep Method: SW3550C
Prep Date/Time: 11/04/15 09:39
Prep Initial Wt./Vol.: 30.183 g
Prep Extract Vol: 1 mL

<u>Parameter</u>	<u>Result Qual</u>	<u>LOQ/CL</u>	<u>DL</u>	<u>Units</u>	<u>DF</u>	<u>Allowable Limits</u>	<u>Date Analyzed</u>
Residual Range Organics	16.8 J	23.0	7.14	mg/Kg	1		11/05/15 16:55

Surrogates

n-Triacontane-d62 (surr)	103	50-150		%	1		11/05/15 16:55
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Batch Information

Analytical Batch: XFC12195
Analytical Method: AK103
Analyst: NLL
Analytical Date/Time: 11/05/15 16:55
Container ID: 1156474010-A

Prep Batch: XXX34563
Prep Method: SW3550C
Prep Date/Time: 11/04/15 09:39
Prep Initial Wt./Vol.: 30.183 g
Prep Extract Vol: 1 mL



Results of RV24

Client Sample ID: RV24
Client Project ID: RAVN ANC
Lab Sample ID: 1156474010
Lab Project ID: 1156474

Collection Date: 11/02/15 16:20
Received Date: 11/02/15 17:01
Matrix: Soil/Solid (dry weight)
Solids (%):86.4
Location:

Results by Volatile Fuels

Table with 8 columns: Parameter, Result Qual, LOQ/CL, DL, Units, DF, Allowable Limits, Date Analyzed. Row: Gasoline Range Organics, 3.51, 2.37, 0.712, mg/Kg, 1, 11/10/15 16:57

Surrogates

Table with 8 columns: Parameter, Result Qual, LOQ/CL, DL, Units, DF, Allowable Limits, Date Analyzed. Row: 4-Bromofluorobenzene (surr), 121, 50-150, %, 1, 11/10/15 16:57

Batch Information

Analytical Batch: VFC12816
Analytical Method: AK101
Analyst: KAS
Analytical Date/Time: 11/10/15 16:57
Container ID: 1156474010-B

Prep Batch: VXX28253
Prep Method: SW5035A
Prep Date/Time: 11/02/15 16:20
Prep Initial Wt./Vol.: 91.516 g
Prep Extract Vol: 37.4917 mL

Table with 8 columns: Parameter, Result Qual, LOQ/CL, DL, Units, DF, Allowable Limits, Date Analyzed. Rows: Benzene, Ethylbenzene, o-Xylene, P & M -Xylene, Toluene

Surrogates

Table with 8 columns: Parameter, Result Qual, LOQ/CL, DL, Units, DF, Allowable Limits, Date Analyzed. Row: 1,4-Difluorobenzene (surr), 91.5, 72-119, %, 1, 11/10/15 16:57

Batch Information

Analytical Batch: VFC12816
Analytical Method: SW8021B
Analyst: KAS
Analytical Date/Time: 11/10/15 16:57
Container ID: 1156474010-B

Prep Batch: VXX28253
Prep Method: SW5035A
Prep Date/Time: 11/02/15 16:20
Prep Initial Wt./Vol.: 91.516 g
Prep Extract Vol: 37.4917 mL



Results of RV24

Client Sample ID: RV24
Client Project ID: RAVN ANC
Lab Sample ID: 1156474010
Lab Project ID: 1156474

Collection Date: 11/02/15 16:20
Received Date: 11/02/15 17:01
Matrix: Soil/Solid (dry weight)
Solids (%):86.4
Location:

Results by Volatile GC/MS

<u>Parameter</u>	<u>Result Qual</u>	<u>LOQ/CL</u>	<u>DL</u>	<u>Units</u>	<u>DF</u>	<u>Allowable Limits</u>	<u>Date Analyzed</u>
1,1,1,2-Tetrachloroethane	11.9 U	23.7	7.40	ug/Kg	1		11/06/15 20:25
1,1,1-Trichloroethane	11.9 U	23.7	7.40	ug/Kg	1		11/06/15 20:25
1,1,2,2-Tetrachloroethane	5.95 U	11.9	3.70	ug/Kg	1		11/06/15 20:25
1,1,2-Trichloroethane	4.75 U	9.49	2.94	ug/Kg	1		11/06/15 20:25
1,1-Dichloroethane	11.9 U	23.7	7.40	ug/Kg	1		11/06/15 20:25
1,1-Dichloroethene	11.9 U	23.7	7.40	ug/Kg	1		11/06/15 20:25
1,1-Dichloropropene	11.9 U	23.7	7.40	ug/Kg	1		11/06/15 20:25
1,2,3-Trichlorobenzene	23.7 U	47.4	14.2	ug/Kg	1		11/06/15 20:25
1,2,3-Trichloropropane	11.9 U	23.7	7.40	ug/Kg	1		11/06/15 20:25
1,2,4-Trichlorobenzene	11.9 U	23.7	7.40	ug/Kg	1		11/06/15 20:25
1,2,4-Trimethylbenzene	118	47.4	14.2	ug/Kg	1		11/06/15 20:25
1,2-Dibromo-3-chloropropane	47.5 U	94.9	29.4	ug/Kg	1		11/06/15 20:25
1,2-Dibromoethane	4.75 U	9.49	2.94	ug/Kg	1		11/06/15 20:25
1,2-Dichlorobenzene	11.9 U	23.7	7.40	ug/Kg	1		11/06/15 20:25
1,2-Dichloroethane	4.75 U	9.49	2.94	ug/Kg	1		11/06/15 20:25
1,2-Dichloropropane	4.75 U	9.49	2.94	ug/Kg	1		11/06/15 20:25
1,3,5-Trimethylbenzene	43.2	23.7	7.40	ug/Kg	1		11/06/15 20:25
1,3-Dichlorobenzene	11.9 U	23.7	7.40	ug/Kg	1		11/06/15 20:25
1,3-Dichloropropane	4.75 U	9.49	2.94	ug/Kg	1		11/06/15 20:25
1,4-Dichlorobenzene	11.9 U	23.7	7.40	ug/Kg	1		11/06/15 20:25
2,2-Dichloropropane	11.9 U	23.7	7.40	ug/Kg	1		11/06/15 20:25
2-Butanone (MEK)	119 U	237	74.0	ug/Kg	1		11/06/15 20:25
2-Chlorotoluene	11.9 U	23.7	7.40	ug/Kg	1		11/06/15 20:25
2-Hexanone	119 U	237	74.0	ug/Kg	1		11/06/15 20:25
4-Chlorotoluene	11.9 U	23.7	7.40	ug/Kg	1		11/06/15 20:25
4-Isopropyltoluene	16.1 J	23.7	7.40	ug/Kg	1		11/06/15 20:25
4-Methyl-2-pentanone (MIBK)	119 U	237	74.0	ug/Kg	1		11/06/15 20:25
Benzene	7.83 J	11.9	3.70	ug/Kg	1		11/06/15 20:25
Bromobenzene	11.9 U	23.7	7.40	ug/Kg	1		11/06/15 20:25
Bromochloromethane	11.9 U	23.7	7.40	ug/Kg	1		11/06/15 20:25
Bromodichloromethane	11.9 U	23.7	7.40	ug/Kg	1		11/06/15 20:25
Bromoform	11.9 U	23.7	7.40	ug/Kg	1		11/06/15 20:25
Bromomethane	95.0 U	190	58.8	ug/Kg	1		11/06/15 20:25
Carbon disulfide	47.5 U	94.9	29.4	ug/Kg	1		11/06/15 20:25
Carbon tetrachloride	5.95 U	11.9	3.70	ug/Kg	1		11/06/15 20:25
Chlorobenzene	11.9 U	23.7	7.40	ug/Kg	1		11/06/15 20:25
Chloroethane	95.0 U	190	58.8	ug/Kg	1		11/06/15 20:25

Print Date: 11/18/2015 12:28:27PM

J flagging is activated



Results of RV24

Client Sample ID: **RV24**
 Client Project ID: **RAVN ANC**
 Lab Sample ID: 1156474010
 Lab Project ID: 1156474

Collection Date: 11/02/15 16:20
 Received Date: 11/02/15 17:01
 Matrix: Soil/Solid (dry weight)
 Solids (%):86.4
 Location:

Results by Volatile GC/MS

<u>Parameter</u>	<u>Result Qual</u>	<u>LOQ/CL</u>	<u>DL</u>	<u>Units</u>	<u>DF</u>	<u>Allowable Limits</u>	<u>Date Analyzed</u>
Chloroform	11.9 U	23.7	7.40	ug/Kg	1		11/06/15 20:25
Chloromethane	11.9 U	23.7	7.40	ug/Kg	1		11/06/15 20:25
cis-1,2-Dichloroethene	11.9 U	23.7	7.40	ug/Kg	1		11/06/15 20:25
cis-1,3-Dichloropropene	11.9 U	23.7	7.40	ug/Kg	1		11/06/15 20:25
Dibromochloromethane	11.9 U	23.7	7.40	ug/Kg	1		11/06/15 20:25
Dibromomethane	11.9 U	23.7	7.40	ug/Kg	1		11/06/15 20:25
Dichlorodifluoromethane	23.7 U	47.4	14.2	ug/Kg	1		11/06/15 20:25
Ethylbenzene	64.3	23.7	7.40	ug/Kg	1		11/06/15 20:25
Freon-113	47.5 U	94.9	29.4	ug/Kg	1		11/06/15 20:25
Hexachlorobutadiene	23.7 U	47.4	14.2	ug/Kg	1		11/06/15 20:25
Isopropylbenzene (Cumene)	17.3 J	23.7	7.40	ug/Kg	1		11/06/15 20:25
Methylene chloride	47.5 U	94.9	29.4	ug/Kg	1		11/06/15 20:25
Methyl-t-butyl ether	47.5 U	94.9	29.4	ug/Kg	1		11/06/15 20:25
Naphthalene	23.7 U	47.4	14.2	ug/Kg	1		11/06/15 20:25
n-Butylbenzene	11.9 U	23.7	7.40	ug/Kg	1		11/06/15 20:25
n-Propylbenzene	22.5 J	23.7	7.40	ug/Kg	1		11/06/15 20:25
o-Xylene	42.5	23.7	7.40	ug/Kg	1		11/06/15 20:25
P & M -Xylene	127	47.4	14.2	ug/Kg	1		11/06/15 20:25
sec-Butylbenzene	17.8 J	23.7	7.40	ug/Kg	1		11/06/15 20:25
Styrene	11.9 U	23.7	7.40	ug/Kg	1		11/06/15 20:25
tert-Butylbenzene	11.9 U	23.7	7.40	ug/Kg	1		11/06/15 20:25
Tetrachloroethene	14.9	11.9	3.70	ug/Kg	1		11/06/15 20:25
Toluene	8.07 J	23.7	7.40	ug/Kg	1		11/06/15 20:25
trans-1,2-Dichloroethene	11.9 U	23.7	7.40	ug/Kg	1		11/06/15 20:25
trans-1,3-Dichloropropene	11.9 U	23.7	7.40	ug/Kg	1		11/06/15 20:25
Trichloroethene	17.3	11.9	3.70	ug/Kg	1		11/06/15 20:25
Trichlorofluoromethane	23.7 U	47.4	14.2	ug/Kg	1		11/06/15 20:25
Vinyl acetate	47.5 U	94.9	29.4	ug/Kg	1		11/06/15 20:25
Vinyl chloride	4.75 U	9.49	2.94	ug/Kg	1		11/06/15 20:25
Xylenes (total)	170	71.2	21.6	ug/Kg	1		11/06/15 20:25
Surrogates							
1,2-Dichloroethane-D4 (surr)	128	71-136		%	1		11/06/15 20:25
4-Bromofluorobenzene (surr)	120	55-151		%	1		11/06/15 20:25
Toluene-d8 (surr)	105	85-116		%	1		11/06/15 20:25

Results of RV24

Client Sample ID: **RV24**
Client Project ID: **RAVN ANC**
Lab Sample ID: 1156474010
Lab Project ID: 1156474

Collection Date: 11/02/15 16:20
Received Date: 11/02/15 17:01
Matrix: Soil/Solid (dry weight)
Solids (%):86.4
Location:

Results by Volatile GC/MS

Batch Information

Analytical Batch: VMS15420
Analytical Method: SW8260B
Analyst: ST
Analytical Date/Time: 11/06/15 20:25
Container ID: 1156474010-B

Prep Batch: VXX28246
Prep Method: SW5035A
Prep Date/Time: 11/02/15 16:20
Prep Initial Wt./Vol.: 91.516 g
Prep Extract Vol: 37.4917 mL



Results of **RV25**

Client Sample ID: **RV25**
Client Project ID: **RAVN ANC**
Lab Sample ID: 1156474011
Lab Project ID: 1156474

Collection Date: 11/02/15 16:05
Received Date: 11/02/15 17:01
Matrix: Soil/Solid (dry weight)
Solids (%):88.9
Location:

Results by **Semivolatile Organic Fuels**

<u>Parameter</u>	<u>Result Qual</u>	<u>LOQ/CL</u>	<u>DL</u>	<u>Units</u>	<u>DF</u>	<u>Allowable Limits</u>	<u>Date Analyzed</u>
Diesel Range Organics	22.1	22.1	6.86	mg/Kg	1		11/05/15 21:52

Surrogates

5a Androstane (surr)	81.4	50-150		%	1		11/05/15 21:52
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Batch Information

Analytical Batch: XFC12195
Analytical Method: AK102
Analyst: NLL
Analytical Date/Time: 11/05/15 21:52
Container ID: 1156474011-A

Prep Batch: XXX34567
Prep Method: SW3550C
Prep Date/Time: 11/04/15 14:27
Prep Initial Wt./Vol.: 30.472 g
Prep Extract Vol: 1 mL

<u>Parameter</u>	<u>Result Qual</u>	<u>LOQ/CL</u>	<u>DL</u>	<u>Units</u>	<u>DF</u>	<u>Allowable Limits</u>	<u>Date Analyzed</u>
Residual Range Organics	14.7 J	22.1	6.86	mg/Kg	1		11/05/15 21:52

Surrogates

n-Triacontane-d62 (surr)	92	50-150		%	1		11/05/15 21:52
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Batch Information

Analytical Batch: XFC12195
Analytical Method: AK103
Analyst: NLL
Analytical Date/Time: 11/05/15 21:52
Container ID: 1156474011-A

Prep Batch: XXX34567
Prep Method: SW3550C
Prep Date/Time: 11/04/15 14:27
Prep Initial Wt./Vol.: 30.472 g
Prep Extract Vol: 1 mL



Results of **RV25**

Client Sample ID: **RV25**
Client Project ID: **RAVN ANC**
Lab Sample ID: 1156474011
Lab Project ID: 1156474

Collection Date: 11/02/15 16:05
Received Date: 11/02/15 17:01
Matrix: Soil/Solid (dry weight)
Solids (%):88.9
Location:

Results by **Volatile Fuels**

<u>Parameter</u>	<u>Result Qual</u>	<u>LOQ/CL</u>	<u>DL</u>	<u>Units</u>	<u>DF</u>	<u>Allowable Limits</u>	<u>Date Analyzed</u>
Gasoline Range Organics	1.84 J	2.07	0.621	mg/Kg	1		11/10/15 17:16

Surrogates

4-Bromofluorobenzene (surr)	123	50-150		%	1		11/10/15 17:16
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Batch Information

Analytical Batch: VFC12816
Analytical Method: AK101
Analyst: KAS
Analytical Date/Time: 11/10/15 17:16
Container ID: 1156474011-B

Prep Batch: VXX28253
Prep Method: SW5035A
Prep Date/Time: 11/02/15 16:05
Prep Initial Wt./Vol.: 96.957 g
Prep Extract Vol: 35.7188 mL

<u>Parameter</u>	<u>Result Qual</u>	<u>LOQ/CL</u>	<u>DL</u>	<u>Units</u>	<u>DF</u>	<u>Allowable Limits</u>	<u>Date Analyzed</u>
Benzene	5.20 U	10.4	3.31	ug/Kg	1		11/10/15 17:16
Ethylbenzene	9.94 J	20.7	6.46	ug/Kg	1		11/10/15 17:16
o-Xylene	20.7	20.7	6.46	ug/Kg	1		11/10/15 17:16
P & M -Xylene	54.9	41.4	12.4	ug/Kg	1		11/10/15 17:16
Toluene	12.4 J	20.7	6.46	ug/Kg	1		11/10/15 17:16

Surrogates

1,4-Difluorobenzene (surr)	91.3	72-119		%	1		11/10/15 17:16
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Batch Information

Analytical Batch: VFC12816
Analytical Method: SW8021B
Analyst: KAS
Analytical Date/Time: 11/10/15 17:16
Container ID: 1156474011-B

Prep Batch: VXX28253
Prep Method: SW5035A
Prep Date/Time: 11/02/15 16:05
Prep Initial Wt./Vol.: 96.957 g
Prep Extract Vol: 35.7188 mL



Results of Trip Blank

Client Sample ID: **Trip Blank**
Client Project ID: **RAVN ANC**
Lab Sample ID: 1156474012
Lab Project ID: 1156474

Collection Date: 11/02/15 15:45
Received Date: 11/02/15 17:01
Matrix: Soil/Solid (dry weight)
Solids (%):
Location:

Results by Volatile Fuels

<u>Parameter</u>	<u>Result Qual</u>	<u>LOQ/CL</u>	<u>DL</u>	<u>Units</u>	<u>DF</u>	<u>Allowable Limits</u>	<u>Date Analyzed</u>
Gasoline Range Organics	1.24 U	2.48	0.744	mg/Kg	1		11/09/15 13:26

Surrogates

4-Bromofluorobenzene (surr)	89.6	50-150		%	1		11/09/15 13:26
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Batch Information

Analytical Batch: VFC12813
Analytical Method: AK101
Analyst: CRD
Analytical Date/Time: 11/09/15 13:26
Container ID: 1156474012-A

Prep Batch: VXX28247
Prep Method: SW5035A
Prep Date/Time: 11/02/15 15:45
Prep Initial Wt./Vol.: 50.431 g
Prep Extract Vol: 25 mL

<u>Parameter</u>	<u>Result Qual</u>	<u>LOQ/CL</u>	<u>DL</u>	<u>Units</u>	<u>DF</u>	<u>Allowable Limits</u>	<u>Date Analyzed</u>
Benzene	6.20 U	12.4	3.97	ug/Kg	1		11/09/15 13:26
Ethylbenzene	12.4 U	24.8	7.73	ug/Kg	1		11/09/15 13:26
o-Xylene	12.4 U	24.8	7.73	ug/Kg	1		11/09/15 13:26
P & M -Xylene	24.8 U	49.6	14.9	ug/Kg	1		11/09/15 13:26
Toluene	12.4 U	24.8	7.73	ug/Kg	1		11/09/15 13:26

Surrogates

1,4-Difluorobenzene (surr)	86.8	72-119		%	1		11/09/15 13:26
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Batch Information

Analytical Batch: VFC12813
Analytical Method: SW8021B
Analyst: CRD
Analytical Date/Time: 11/09/15 13:26
Container ID: 1156474012-A

Prep Batch: VXX28247
Prep Method: SW5035A
Prep Date/Time: 11/02/15 15:45
Prep Initial Wt./Vol.: 50.431 g
Prep Extract Vol: 25 mL



Method Blank

Blank ID: MB for HBN 1724423 [SPT/9785]

Matrix: Soil/Solid (dry weight)

Blank Lab ID: 1302394

QC for Samples:

1156474001, 1156474002, 1156474003, 1156474004, 1156474005, 1156474006, 1156474007, 1156474008, 1156474009, 1156474010, 1156474011

Results by SM21 2540G

<u>Parameter</u>	<u>Results</u>	<u>LOQ/CL</u>	<u>DL</u>	<u>Units</u>
Total Solids	100			%

Batch Information

Analytical Batch: SPT9785

Analytical Method: SM21 2540G

Instrument:

Analyst: RJA

Analytical Date/Time: 11/3/2015 5:56:00PM

Print Date: 11/18/2015 12:28:32PM



Duplicate Sample Summary

Original Sample ID: 1156474001

Duplicate Sample ID: 1302395

QC for Samples:

1156474001, 1156474002, 1156474003, 1156474004, 1156474005, 1156474006, 1156474007, 1156474008, 1156474009, 1156474010, 1156474011

Analysis Date: 11/03/2015 17:56

Matrix: Soil/Solid (dry weight)

Results by SM21 2540G

<u>NAME</u>	<u>Original</u>	<u>Duplicate</u>	<u>Units</u>	<u>RPD (%)</u>	<u>RPD CL</u>
Total Solids	86.9	86.8	%	0.01	(< 15)

Batch Information

Analytical Batch: SPT9785

Analytical Method: SM21 2540G

Instrument:

Analyst: RJA

Print Date: 11/18/2015 12:28:33PM



Method Blank

Blank ID: MB for HBN 1724897 [VXX/28246]
Blank Lab ID: 1303297

Matrix: Soil/Solid (dry weight)

QC for Samples:
1156474003, 1156474005, 1156474007, 1156474010

Results by SW8260B

<u>Parameter</u>	<u>Results</u>	<u>LOQ/CL</u>	<u>DL</u>	<u>Units</u>
1,1,1,2-Tetrachloroethane	12.5U	25.0	7.80	ug/Kg
1,1,1-Trichloroethane	12.5U	25.0	7.80	ug/Kg
1,1,2,2-Tetrachloroethane	6.25U	12.5	3.90	ug/Kg
1,1,2-Trichloroethane	5.00U	10.0	3.10	ug/Kg
1,1-Dichloroethane	12.5U	25.0	7.80	ug/Kg
1,1-Dichloroethene	12.5U	25.0	7.80	ug/Kg
1,1-Dichloropropene	12.5U	25.0	7.80	ug/Kg
1,2,3-Trichlorobenzene	25.0U	50.0	15.0	ug/Kg
1,2,3-Trichloropropane	12.5U	25.0	7.80	ug/Kg
1,2,4-Trichlorobenzene	12.5U	25.0	7.80	ug/Kg
1,2,4-Trimethylbenzene	25.0U	50.0	15.0	ug/Kg
1,2-Dibromo-3-chloropropane	50.0U	100	31.0	ug/Kg
1,2-Dibromoethane	5.00U	10.0	3.10	ug/Kg
1,2-Dichlorobenzene	12.5U	25.0	7.80	ug/Kg
1,2-Dichloroethane	5.00U	10.0	3.10	ug/Kg
1,2-Dichloropropane	5.00U	10.0	3.10	ug/Kg
1,3,5-Trimethylbenzene	12.5U	25.0	7.80	ug/Kg
1,3-Dichlorobenzene	8.00J	25.0	7.80	ug/Kg
1,3-Dichloropropane	5.00U	10.0	3.10	ug/Kg
1,4-Dichlorobenzene	12.5U	25.0	7.80	ug/Kg
2,2-Dichloropropane	12.5U	25.0	7.80	ug/Kg
2-Butanone (MEK)	125U	250	78.0	ug/Kg
2-Chlorotoluene	12.5U	25.0	7.80	ug/Kg
2-Hexanone	125U	250	78.0	ug/Kg
4-Chlorotoluene	12.5U	25.0	7.80	ug/Kg
4-Isopropyltoluene	12.5U	25.0	7.80	ug/Kg
4-Methyl-2-pentanone (MIBK)	125U	250	78.0	ug/Kg
Benzene	6.25U	12.5	3.90	ug/Kg
Bromobenzene	12.5U	25.0	7.80	ug/Kg
Bromochloromethane	12.5U	25.0	7.80	ug/Kg
Bromodichloromethane	12.5U	25.0	7.80	ug/Kg
Bromoform	12.5U	25.0	7.80	ug/Kg
Bromomethane	100U	200	62.0	ug/Kg
Carbon disulfide	50.0U	100	31.0	ug/Kg
Carbon tetrachloride	6.25U	12.5	3.90	ug/Kg
Chlorobenzene	12.5U	25.0	7.80	ug/Kg
Chloroethane	100U	200	62.0	ug/Kg
Chloroform	12.5U	25.0	7.80	ug/Kg

Print Date: 11/18/2015 12:28:34PM



Method Blank

Blank ID: MB for HBN 1724897 [VXX/28246]

Blank Lab ID: 1303297

QC for Samples:

1156474003, 1156474005, 1156474007, 1156474010

Matrix: Soil/Solid (dry weight)

Results by SW8260B

<u>Parameter</u>	<u>Results</u>	<u>LOQ/CL</u>	<u>DL</u>	<u>Units</u>
Chloromethane	12.5U	25.0	7.80	ug/Kg
cis-1,2-Dichloroethene	12.5U	25.0	7.80	ug/Kg
cis-1,3-Dichloropropene	12.5U	25.0	7.80	ug/Kg
Dibromochloromethane	12.5U	25.0	7.80	ug/Kg
Dibromomethane	12.5U	25.0	7.80	ug/Kg
Dichlorodifluoromethane	25.0U	50.0	15.0	ug/Kg
Ethylbenzene	12.5U	25.0	7.80	ug/Kg
Freon-113	50.0U	100	31.0	ug/Kg
Hexachlorobutadiene	25.0U	50.0	15.0	ug/Kg
Isopropylbenzene (Cumene)	12.5U	25.0	7.80	ug/Kg
Methylene chloride	50.0U	100	31.0	ug/Kg
Methyl-t-butyl ether	50.0U	100	31.0	ug/Kg
Naphthalene	25.0U	50.0	15.0	ug/Kg
n-Butylbenzene	12.5U	25.0	7.80	ug/Kg
n-Propylbenzene	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
sec-Butylbenzene	12.5U	25.0	7.80	ug/Kg
Styrene	12.5U	25.0	7.80	ug/Kg
tert-Butylbenzene	12.5U	25.0	7.80	ug/Kg
Tetrachloroethene	6.25U	12.5	3.90	ug/Kg
Toluene	12.5U	25.0	7.80	ug/Kg
trans-1,2-Dichloroethene	12.5U	25.0	7.80	ug/Kg
trans-1,3-Dichloropropene	12.5U	25.0	7.80	ug/Kg
Trichloroethene	6.25U	12.5	3.90	ug/Kg
Trichlorofluoromethane	25.0U	50.0	15.0	ug/Kg
Vinyl acetate	50.0U	100	31.0	ug/Kg
Vinyl chloride	5.00U	10.0	3.10	ug/Kg
Xylenes (total)	37.5U	75.0	22.8	ug/Kg
Surrogates				
1,2-Dichloroethane-D4 (surr)	123	71-136		%
4-Bromofluorobenzene (surr)	105	55-151		%
Toluene-d8 (surr)	100	85-116		%

Print Date: 11/18/2015 12:28:34PM



Method Blank

Blank ID: MB for HBN 1724897 [VXX/28246]
Blank Lab ID: 1303297

Matrix: Soil/Solid (dry weight)

QC for Samples:
1156474003, 1156474005, 1156474007, 1156474010

Results by SW8260B

<u>Parameter</u>	<u>Results</u>	<u>LOQ/CL</u>	<u>DL</u>	<u>Units</u>
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Batch Information

Analytical Batch: VMS15420
Analytical Method: SW8260B
Instrument: Agilent 7890-75MS
Analyst: ST
Analytical Date/Time: 11/6/2015 2:18:00PM

Prep Batch: VXX28246
Prep Method: SW5035A
Prep Date/Time: 11/6/2015 8:00:00AM
Prep Initial Wt./Vol.: 50 g
Prep Extract Vol: 25 mL

Print Date: 11/18/2015 12:28:34PM



Blank Spike Summary

Blank Spike ID: LCS for HBN 1156474 [VXX28246]

Blank Spike Lab ID: 1303298

Date Analyzed: 11/06/2015 15:12

Matrix: Soil/Solid (dry weight)

QC for Samples: 1156474003, 1156474005, 1156474007, 1156474010

Results by SW8260B

Parameter	Blank Spike (ug/Kg)			CL
	Spike	Result	Rec (%)	
1,1,1,2-Tetrachloroethane	750	666	89	(78-125)
1,1,1-Trichloroethane	750	830	111	(73-130)
1,1,2,2-Tetrachloroethane	750	721	96	(70-124)
1,1,2-Trichloroethane	750	655	87	(78-121)
1,1-Dichloroethane	750	832	111	(76-125)
1,1-Dichloroethene	750	811	108	(70-131)
1,1-Dichloropropene	750	787	105	(76-125)
1,2,3-Trichlorobenzene	750	761	101	(66-130)
1,2,3-Trichloropropane	750	737	98	(73-125)
1,2,4-Trichlorobenzene	750	811	108	(67-129)
1,2,4-Trimethylbenzene	750	717	96	(75-123)
1,2-Dibromo-3-chloropropane	750	742	99	(61-132)
1,2-Dibromoethane	750	651	87	(78-122)
1,2-Dichlorobenzene	750	741	99	(78-121)
1,2-Dichloroethane	750	818	109	(73-128)
1,2-Dichloropropane	750	783	104	(76-123)
1,3,5-Trimethylbenzene	750	714	95	(73-124)
1,3-Dichlorobenzene	750	714	95	(77-121)
1,3-Dichloropropane	750	670	89	(77-121)
1,4-Dichlorobenzene	750	755	101	(75-120)
2,2-Dichloropropane	750	836	111	(67-133)
2-Butanone (MEK)	2250	2120	94	(51-148)
2-Chlorotoluene	750	699	93	(75-122)
2-Hexanone	2250	2170	97	(53-145)
4-Chlorotoluene	750	699	93	(72-124)
4-Isopropyltoluene	750	761	101	(73-127)
4-Methyl-2-pentanone (MIBK)	2250	2270	101	(65-135)
Benzene	750	770	103	(77-121)
Bromobenzene	750	761	101	(78-121)
Bromochloromethane	750	801	107	(78-125)
Bromodichloromethane	750	877	117	(75-127)
Bromoform	750	672	90	(67-132)
Bromomethane	750	707	94	(53-143)
Carbon disulfide	1130	1320	118	(63-132)

Print Date: 11/18/2015 12:28:35PM



Blank Spike Summary

Blank Spike ID: LCS for HBN 1156474 [VXX28246]

Blank Spike Lab ID: 1303298

Date Analyzed: 11/06/2015 15:12

Matrix: Soil/Solid (dry weight)

QC for Samples: 1156474003, 1156474005, 1156474007, 1156474010

Results by SW8260B

Parameter	Blank Spike (ug/Kg)			CL
	Spike	Result	Rec (%)	
Carbon tetrachloride	750	815	109	(70-135)
Chlorobenzene	750	763	102	(79-120)
Chloroethane	750	855	114	(59-139)
Chloroform	750	823	110	(78-123)
Chloromethane	750	844	113	(50-136)
cis-1,2-Dichloroethene	750	826	110	(77-123)
cis-1,3-Dichloropropene	750	785	105	(74-126)
Dibromochloromethane	750	687	92	(74-126)
Dibromomethane	750	809	108	(78-125)
Dichlorodifluoromethane	750	846	113	(29-149)
Ethylbenzene	750	759	101	(76-122)
Freon-113	1130	1160	104	(66-136)
Hexachlorobutadiene	750	859	115	(61-135)
Isopropylbenzene (Cumene)	750	705	94	(68-134)
Methylene chloride	750	734	98	(70-128)
Methyl-t-butyl ether	1130	1220	109	(73-125)
Naphthalene	750	683	91	(62-129)
n-Butylbenzene	750	756	101	(70-128)
n-Propylbenzene	750	708	94	(73-125)
o-Xylene	750	759	101	(77-123)
P & M -Xylene	1500	1530	102	(77-124)
sec-Butylbenzene	750	762	102	(73-126)
Styrene	750	761	101	(76-124)
tert-Butylbenzene	750	757	101	(73-125)
Tetrachloroethene	750	635	85	(73-128)
Toluene	750	773	103	(77-121)
trans-1,2-Dichloroethene	750	848	113	(74-125)
trans-1,3-Dichloropropene	750	670	89	(71-130)
Trichloroethene	750	773	103	(77-123)
Trichlorofluoromethane	750	863	115	(62-140)
Vinyl acetate	750	725	97	(50-151)
Vinyl chloride	750	864	115	(56-135)
Xylenes (total)	2250	2280	102	(78-124)

Print Date: 11/18/2015 12:28:35PM

Blank Spike Summary

Blank Spike ID: LCS for HBN 1156474 [VXX28246]

Blank Spike Lab ID: 1303298

Date Analyzed: 11/06/2015 15:12

Matrix: Soil/Solid (dry weight)

QC for Samples: 1156474003, 1156474005, 1156474007, 1156474010

Results by SW8260B

Parameter	Blank Spike (%)			CL
	Spike	Result	Rec (%)	
Surrogates				
1,2-Dichloroethane-D4 (surr)	750	119	119	(71-136)
4-Bromofluorobenzene (surr)	750	98.3	98	(55-151)
Toluene-d8 (surr)	750	95.4	95	(85-116)

Batch Information

Analytical Batch: **VMS15420**

Analytical Method: **SW8260B**

Instrument: **Agilent 7890-75MS**

Analyst: **ST**

Prep Batch: **VXX28246**

Prep Method: **SW5035A**

Prep Date/Time: **11/06/2015 08:00**

Spike Init Wt./Vol.: 750 ug/Kg Extract Vol: 25 mL

Dupe Init Wt./Vol.: Extract Vol:

Print Date: 11/18/2015 12:28:35PM



Matrix Spike Summary

Original Sample ID: 1158836027
 MS Sample ID: 1303299 MS
 MSD Sample ID: 1303300 MSD

Analysis Date: 11/06/2015 16:59
 Analysis Date: 11/06/2015 15:39
 Analysis Date: 11/06/2015 15:55
 Matrix: Soil/Solid (dry weight)

QC for Samples: 1156474003, 1156474005, 1156474007, 1156474010

Results by SW8260B

Parameter	Sample	Matrix Spike (ug/Kg)			Spike Duplicate (ug/Kg)			CL	RPD (%)	RPD CL
		Spike	Result	Rec (%)	Spike	Result	Rec (%)			
1,1,1,2-Tetrachloroethane	20.9U	991	1007	102	991	984	99	78-125	2.30	(< 20)
1,1,1-Trichloroethane	20.9U	991	1068	108	991	1050	106	73-130	1.60	(< 20)
1,1,2,2-Tetrachloroethane	10.4U	991	987	100	991	1013	102	70-124	2.60	(< 20)
1,1,2-Trichloroethane	8.35U	991	1011	102	991	993	100	78-121	1.70	(< 20)
1,1-Dichloroethane	20.9U	991	1066	108	991	1046	106	76-125	1.90	(< 20)
1,1-Dichloroethene	20.9U	991	1090	110	991	1050	106	70-131	3.80	(< 20)
1,1-Dichloropropene	20.9U	991	1035	104	991	1021	103	76-125	1.30	(< 20)
1,2,3-Trichlorobenzene	41.7U	991	1008	102	991	1106	112	66-130	9.30	(< 20)
1,2,3-Trichloropropane	20.9U	991	1011	102	991	1029	104	73-125	1.80	(< 20)
1,2,4-Trichlorobenzene	20.9U	991	1055	106	991	1102	111	67-129	4.40	(< 20)
1,2,4-Trimethylbenzene	41.7U	991	999	101	991	980	99	75-123	1.90	(< 20)
1,2-Dibromo-3-chloropropane	83.5U	991	1016	103	991	1126	114	61-132	10.10	(< 20)
1,2-Dibromoethane	8.35U	991	981	99	991	993	100	78-122	1.20	(< 20)
1,2-Dichlorobenzene	20.9U	991	1034	104	991	1035	104	78-121	0.03	(< 20)
1,2-Dichloroethane	8.35U	991	1042	105	991	1034	104	73-128	0.89	(< 20)
1,2-Dichloropropane	8.35U	991	1025	103	991	1022	103	76-123	0.23	(< 20)
1,3,5-Trimethylbenzene	20.9U	991	999	101	991	984	99	73-124	1.40	(< 20)
1,3-Dichlorobenzene	20.9U	991	998	101	991	986	100	77-121	1.20	(< 20)
1,3-Dichloropropane	8.35U	991	982	99	991	994	100	77-121	1.10	(< 20)
1,4-Dichlorobenzene	20.9U	991	1067	108	991	1052	106	75-120	1.40	(< 20)
2,2-Dichloropropane	20.9U	991	1070	108	991	1048	106	67-133	2.20	(< 20)
2-Butanone (MEK)	209U	2969	2570	87	2969	3228	108	51-148	22.60	* (< 20)
2-Chlorotoluene	20.9U	991	989	100	991	979	99	75-122	1.00	(< 20)
2-Hexanone	209U	2969	2782	94	2969	3122	105	53-145	11.60	(< 20)
4-Chlorotoluene	20.9U	991	978	99	991	975	99	72-124	0.24	(< 20)
4-Isopropyltoluene	20.9U	991	1009	102	991	978	99	73-127	3.20	(< 20)
4-Methyl-2-pentanone (MIBK)	209U	2969	2723	91	2969	3005	101	65-135	9.90	(< 20)
Benzene	10.4U	991	1026	104	991	1015	103	77-121	1.00	(< 20)
Bromobenzene	20.9U	991	1063	107	991	1025	103	78-121	3.70	(< 20)
Bromochloromethane	20.9U	991	1021	103	991	1009	102	78-125	1.20	(< 20)
Bromodichloromethane	20.9U	991	1123	113	991	1109	112	75-127	1.30	(< 20)
Bromoform	20.9U	991	998	101	991	984	99	67-132	1.40	(< 20)
Bromomethane	167U	991	910	92	991	880	89	53-143	3.30	(< 20)
Carbon disulfide	83.5U	1491	1784	120	1491	1702	115	63-132	4.40	(< 20)
Carbon tetrachloride	10.4U	991	1062	107	991	1041	105	70-135	2.00	(< 20)
Chlorobenzene	20.9U	991	1069	108	991	1055	107	79-120	1.30	(< 20)
Chloroethane	167U	991	1028	104	991	994	100	59-139	3.30	(< 20)

Print Date: 11/18/2015 12:28:36PM



Matrix Spike Summary

Original Sample ID: 1158836027
 MS Sample ID: 1303299 MS
 MSD Sample ID: 1303300 MSD

Analysis Date: 11/06/2015 16:59
 Analysis Date: 11/06/2015 15:39
 Analysis Date: 11/06/2015 15:55
 Matrix: Soil/Solid (dry weight)

QC for Samples: 1156474003, 1156474005, 1156474007, 1156474010

Results by SW8260B

Parameter	Sample	Matrix Spike (ug/Kg)			Spike Duplicate (ug/Kg)			CL	RPD (%)	RPD CL
		Spike	Result	Rec (%)	Spike	Result	Rec (%)			
Chloroform	20.9U	991	1062	107	991	1040	105	78-123	2.10	(< 20)
Chloromethane	20.9U	991	1018	103	991	975	99	50-136	4.10	(< 20)
cis-1,2-Dichloroethene	20.9U	991	1076	109	991	1016	103	77-123	5.70	(< 20)
cis-1,3-Dichloropropene	20.9U	991	1020	103	991	1011	102	74-126	0.85	(< 20)
Dibromochloromethane	20.9U	991	1002	101	991	999	101	74-126	0.30	(< 20)
Dibromomethane	20.9U	991	1026	104	991	1015	102	78-125	1.10	(< 20)
Dichlorodifluoromethane	41.7U	991	952	96	991	894	90	29-149	6.20	(< 20)
Ethylbenzene	20.9U	991	1083	109	991	1069	108	76-122	1.40	(< 20)
Freon-113	83.5U	1491	1596	108	1491	1561	105	66-136	3.00	(< 20)
Hexachlorobutadiene	41.7U	991	1072	108	991	1036	105	61-135	3.30	(< 20)
Isopropylbenzene (Cumene)	20.9U	991	993	100	991	977	99	68-134	1.60	(< 20)
Methylene chloride	83.5U	991	939	95	991	907	92	70-128	3.50	(< 20)
Methyl-t-butyl ether	83.5U	1491	1596	107	1491	1631	110	73-125	2.10	(< 20)
Naphthalene	41.7U	991	954	96	991	1080	109	62-129	12.30	(< 20)
n-Butylbenzene	20.9U	991	1019	103	991	962	97	70-128	5.80	(< 20)
n-Propylbenzene	20.9U	991	992	100	991	966	98	73-125	2.60	(< 20)
o-Xylene	20.9U	991	1073	108	991	1073	108	77-123	0.09	(< 20)
P & M -Xylene	41.7U	1984	2171	110	1984	2160	109	77-124	0.73	(< 20)
sec-Butylbenzene	20.9U	991	1023	103	991	972	98	73-126	5.10	(< 20)
Styrene	20.9U	991	1086	110	991	1069	108	76-124	1.60	(< 20)
tert-Butylbenzene	20.9U	991	1028	104	991	984	99	73-125	4.40	(< 20)
Tetrachloroethene	10.4U	991	979	99	991	979	99	73-128	0.03	(< 20)
Toluene	20.9U	991	1099	111	991	1092	110	77-121	0.63	(< 20)
trans-1,2-Dichloroethene	20.9U	991	1117	113	991	1089	110	74-125	2.50	(< 20)
trans-1,3-Dichloropropene	20.9U	991	993	100	991	996	101	71-130	0.30	(< 20)
Trichloroethene	10.4U	991	1020	103	991	1013	102	77-123	0.58	(< 20)
Trichlorofluoromethane	41.7U	991	1036	105	991	979	99	62-140	5.60	(< 20)
Vinyl acetate	83.5U	991	957	97	991	975	99	50-151	2.00	(< 20)
Vinyl chloride	8.35U	991	1026	104	991	973	98	56-135	5.30	(< 20)
Xylenes (total)	62.5U	2969	3251	109	2969	3228	109	78-124	0.52	(< 20)
Surrogates										
1,2-Dichloroethane-D4 (surr)		991	1099	111	991	1086	110	71-136	1.20	
4-Bromofluorobenzene (surr)		2641	2254	85	2641	2230	84	55-151	0.96	
Toluene-d8 (surr)		991	989	100	991	984	99	85-116	0.50	

Print Date: 11/18/2015 12:28:36PM



Matrix Spike Summary

Original Sample ID: 1158836027
MS Sample ID: 1303299 MS
MSD Sample ID: 1303300 MSD

Analysis Date:
Analysis Date: 11/06/2015 15:39
Analysis Date: 11/06/2015 15:55
Matrix: Soil/Solid (dry weight)

QC for Samples: 1156474003, 1156474005, 1156474007, 1156474010

Results by SW8260B

Parameter	Sample	Matrix Spike (%)			Spike Duplicate (%)			CL	RPD (%)	RPD CL
		Spike	Result	Rec (%)	Spike	Result	Rec (%)			

Batch Information

Analytical Batch: VMS15420
Analytical Method: SW8260B
Instrument: Agilent 7890-75MS
Analyst: ST
Analytical Date/Time: 11/6/2015 3:39:00PM

Prep Batch: VXX28246
Prep Method: Vol. Extraction SW8260 Field Extracted L
Prep Date/Time: 11/6/2015 8:00:00AM
Prep Initial Wt./Vol.: 44.42g
Prep Extract Vol: 25.00mL

Print Date: 11/18/2015 12:28:36PM



Method Blank

Blank ID: MB for HBN 1724969 [VXX/28247]
Blank Lab ID: 1303447

Matrix: Soil/Solid (dry weight)

QC for Samples:
1156474012

Results by AK101

<u>Parameter</u>	<u>Results</u>	<u>LOQ/CL</u>	<u>DL</u>	<u>Units</u>
Gasoline Range Organics	1.25U	2.50	0.750	mg/Kg
Surrogates				
4-Bromofluorobenzene (surr)	92	50-150		%

Batch Information

Analytical Batch: VFC12813
Analytical Method: AK101
Instrument: Agilent 7890 PID/FID
Analyst: CRD
Analytical Date/Time: 11/9/2015 11:14:00AM

Prep Batch: VXX28247
Prep Method: SW5035A
Prep Date/Time: 11/9/2015 8:00:00AM
Prep Initial Wt./Vol.: 50 g
Prep Extract Vol: 25 mL

Print Date: 11/18/2015 12:28:36PM



Blank Spike Summary

Blank Spike ID: LCS for HBN 1156474 [VXX28247]
Blank Spike Lab ID: 1303450
Date Analyzed: 11/09/2015 12:11

Spike Duplicate ID: LCSD for HBN 1156474 [VXX28247]
Spike Duplicate Lab ID: 1303451
Matrix: Soil/Solid (dry weight)

QC for Samples: 1156474012

Results by AK101

Parameter	Blank Spike (mg/Kg)			Spike Duplicate (mg/Kg)			CL	RPD (%)	RPD CL
	Spike	Result	Rec (%)	Spike	Result	Rec (%)			
Gasoline Range Organics	12.5	10.5	84	12.5	10.2	82	(60-120)	2.50	(< 20)

Surrogates

4-Bromofluorobenzene (surr)	1.25	92.6	93	1.25	91	91	(50-150)	1.70	
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Batch Information

Analytical Batch: VFC12813
Analytical Method: AK101
Instrument: Agilent 7890 PID/FID
Analyst: CRD

Prep Batch: VXX28247
Prep Method: SW5035A
Prep Date/Time: 11/09/2015 08:00
Spike Init Wt./Vol.: 12.5 mg/Kg Extract Vol: 25 mL
Dupe Init Wt./Vol.: 12.5 mg/Kg Extract Vol: 25 mL

Print Date: 11/18/2015 12:28:37PM



Method Blank

Blank ID: MB for HBN 1724969 [VXX/28247]
Blank Lab ID: 1303447

Matrix: Soil/Solid (dry weight)

QC for Samples:
1156474012

Results by SW8021B

<u>Parameter</u>	<u>Results</u>	<u>LOQ/CL</u>	<u>DL</u>	<u>Units</u>
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)	94.2	72-119		%
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Batch Information

Analytical Batch: VFC12813
Analytical Method: SW8021B
Instrument: Agilent 7890 PID/FID
Analyst: CRD
Analytical Date/Time: 11/9/2015 11:14:00AM

Prep Batch: VXX28247
Prep Method: SW5035A
Prep Date/Time: 11/9/2015 8:00:00AM
Prep Initial Wt./Vol.: 50 g
Prep Extract Vol: 25 mL

Print Date: 11/18/2015 12:28:38PM



Blank Spike Summary

Blank Spike ID: LCS for HBN 1156474 [VXX28247]
 Blank Spike Lab ID: 1303448
 Date Analyzed: 11/09/2015 11:33

Spike Duplicate ID: LCSD for HBN 1156474
 [VXX28247]
 Spike Duplicate Lab ID: 1303449
 Matrix: Soil/Solid (dry weight)

QC for Samples: 1156474012

Results by SW8021B

Parameter	Blank Spike (ug/Kg)			Spike Duplicate (ug/Kg)			CL	RPD (%)	RPD CL
	Spike	Result	Rec (%)	Spike	Result	Rec (%)			
Benzene	1250	1420	114	1250	1410	112	(75-125)	1.10	(< 20)
Ethylbenzene	1250	1360	109	1250	1350	108	(75-125)	1.00	(< 20)
o-Xylene	1250	1290	103	1250	1280	102	(75-125)	0.97	(< 20)
P & M -Xylene	2500	2660	107	2500	2650	106	(80-125)	0.70	(< 20)
Toluene	1250	1400	112	1250	1390	111	(70-125)	1.10	(< 20)
Surrogates									
1,4-Difluorobenzene (surr)	1250	100	100	1250	99.3	99	(72-119)	0.80	

Batch Information

Analytical Batch: **VFC12813**
 Analytical Method: **SW8021B**
 Instrument: **Agilent 7890 PID/FID**
 Analyst: **CRD**

Prep Batch: **VXX28247**
 Prep Method: **SW5035A**
 Prep Date/Time: **11/09/2015 08:00**
 Spike Init Wt./Vol.: 1250 ug/Kg Extract Vol: 25 mL
 Dupe Init Wt./Vol.: 1250 ug/Kg Extract Vol: 25 mL

Print Date: 11/18/2015 12:28:40PM



Matrix Spike Summary

Original Sample ID: 1158845001
MS Sample ID: 1303452 MS
MSD Sample ID: 1303453 MSD

Analysis Date: 11/09/2015 13:45
Analysis Date: 11/09/2015 14:04
Analysis Date: 11/09/2015 14:23
Matrix: Soil/Solid (dry weight)

QC for Samples: 1156474012

Results by SW8021B

Parameter	Sample	Matrix Spike (ug/Kg)			Spike Duplicate (ug/Kg)			CL	RPD (%)	RPD CL
		Spike	Result	Rec (%)	Spike	Result	Rec (%)			
Benzene	4.67U	783	898	115	783	896	115	75-125	0.24	(< 20)
Ethylbenzene	70.4	783	765	89	783	767	89	75-125	0.18	(< 20)
o-Xylene	641	783	1220	75 *	783	1262	79	75-125	2.60	(< 20)
P & M -Xylene	215	1569	1792	101	1569	1824	103	80-125	1.70	(< 20)
Toluene	9.35U	783	814	104	783	811	104	70-125	0.35	(< 20)
Surrogates										
1,4-Difluorobenzene (surr)		783	754	96	783	755	97	72-119	0.25	

Batch Information

Analytical Batch: VFC12813
Analytical Method: SW8021B
Instrument: Agilent 7890 PID/FID
Analyst: CRD
Analytical Date/Time: 11/9/2015 2:04:00PM

Prep Batch: VXX28247
Prep Method: AK101 Extraction (S)
Prep Date/Time: 11/9/2015 8:00:00AM
Prep Initial Wt./Vol.: 84.68g
Prep Extract Vol: 25.00mL

Print Date: 11/18/2015 12:28:41PM



Method Blank

Blank ID: MB for HBN 1725008 [VXX/28253]

Matrix: Soil/Solid (dry weight)

Blank Lab ID: 1303651

QC for Samples:

1156474001, 1156474002, 1156474003, 1156474004, 1156474005, 1156474006, 1156474007, 1156474008, 1156474009, 1156474010, 1156474011

Results by AK101

<u>Parameter</u>	<u>Results</u>	<u>LOQ/CL</u>	<u>DL</u>	<u>Units</u>
Gasoline Range Organics	1.25U	2.50	0.750	mg/Kg
Surrogates				
4-Bromofluorobenzene (surr)	84.4	50-150		%

Batch Information

Analytical Batch: VFC12816

Analytical Method: AK101

Instrument: Agilent 7890 PID/FID

Analyst: KAS

Analytical Date/Time: 11/10/2015 10:16:00AM

Prep Batch: VXX28253

Prep Method: SW5035A

Prep Date/Time: 11/10/2015 8:00:00AM

Prep Initial Wt./Vol.: 50 g

Prep Extract Vol: 25 mL

Print Date: 11/18/2015 12:28:42PM



Blank Spike Summary

Blank Spike ID: LCS for HBN 1156474 [VXX28253]
 Blank Spike Lab ID: 1303652
 Date Analyzed: 11/10/2015 10:40

Spike Duplicate ID: LCSD for HBN 1156474 [VXX28253]
 Spike Duplicate Lab ID: 1303653
 Matrix: Soil/Solid (dry weight)

QC for Samples: 1156474001, 1156474002, 1156474003, 1156474004, 1156474005, 1156474006, 1156474007, 1156474008, 1156474009, 1156474010, 1156474011

Results by AK101

Parameter	Blank Spike (mg/Kg)			Spike Duplicate (mg/Kg)			CL	RPD (%)	RPD CL
	Spike	Result	Rec (%)	Spike	Result	Rec (%)			
Gasoline Range Organics	12.5	12.3	99	12.5	12.2	98	(60-120)	0.99	(< 20)

Surrogates

4-Bromofluorobenzene (surr)	1.25	93.3	93	1.25	93.3	93	(50-150)	0.04	
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Batch Information

Analytical Batch: VFC12816
 Analytical Method: AK101
 Instrument: Agilent 7890 PID/FID
 Analyst: KAS

Prep Batch: VXX28253
 Prep Method: SW5035A
 Prep Date/Time: 11/10/2015 08:00
 Spike Init Wt./Vol.: 12.5 mg/Kg Extract Vol: 25 mL
 Dupe Init Wt./Vol.: 12.5 mg/Kg Extract Vol: 25 mL

Print Date: 11/18/2015 12:28:44PM



Blank Spike Summary

Blank Spike ID: LCS for HBN 1156474 [VXX28253]
Blank Spike Lab ID: 1303654
Date Analyzed: 11/10/2015 11:18

Spike Duplicate ID: LCSD for HBN 1156474 [VXX28253]
Spike Duplicate Lab ID: 1303655
Matrix: Soil/Solid (dry weight)

QC for Samples: 1156474001, 1156474002, 1156474003, 1156474004, 1156474005, 1156474006, 1156474007, 1156474008, 1156474009, 1156474010, 1156474011

Results by AK101

Parameter	Blank Spike (mg/Kg)			Spike Duplicate (mg/Kg)			CL	RPD (%)	RPD CL
	Spike	Result	Rec (%)	Spike	Result	Rec (%)			
Gasoline Range Organics	12.5	10.0	80	12.5	10.1	81	(60-120)	1.10	(< 20)

Surrogates

4-Bromofluorobenzene (surr)	1.25	93.1	93	1.25	92.7	93	(50-150)	0.50	
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Batch Information

Analytical Batch: VFC12816
Analytical Method: AK101
Instrument: Agilent 7890 PID/FID
Analyst: KAS

Prep Batch: VXX28253
Prep Method: SW5035A
Prep Date/Time: 11/10/2015 08:00
Spike Init Wt./Vol.: 12.5 mg/Kg Extract Vol: 25 mL
Dupe Init Wt./Vol.: 12.5 mg/Kg Extract Vol: 25 mL

Print Date: 11/18/2015 12:28:44PM



Matrix Spike Summary

Original Sample ID: 1303778
MS Sample ID: 1303763 MS
MSD Sample ID: 1303764 MSD

Analysis Date: 11/10/2015 17:35
Analysis Date: 11/10/2015 17:54
Analysis Date: 11/10/2015 18:13
Matrix: Soil/Solid (dry weight)

QC for Samples: 1156474001, 1156474002, 1156474003, 1156474004, 1156474005, 1156474006, 1156474007, 1156474008, 1156474009, 1156474010, 1156474011

Results by AK101

Parameter	Sample	Matrix Spike (mg/Kg)			Spike Duplicate (mg/Kg)			CL	RPD (%)	RPD CL
		Spike	Result	Rec (%)	Spike	Result	Rec (%)			
Gasoline Range Organics	0.670J	5.10	4.08	67	5.10	4.18	69	60-120	2.40	(< 20)
Surrogates										
4-Bromofluorobenzene (surr)		0.510		50	0.510	0.250	0.494	50-150	1.70	

Batch Information

Analytical Batch: VFC12816
Analytical Method: AK101
Instrument: Agilent 7890 PID/FID
Analyst: KAS
Analytical Date/Time: 11/10/2015 5:54:00PM

Prep Batch: VXX28253
Prep Method: AK101 Extraction (S)
Prep Date/Time: 11/10/2015 8:00:00AM
Prep Initial Wt./Vol.: 122.62g
Prep Extract Vol: 25.00mL

Print Date: 11/18/2015 12:28:45PM



Method Blank

Blank ID: MB for HBN 1725008 [VXX/28253]
Blank Lab ID: 1303651

Matrix: Soil/Solid (dry weight)

QC for Samples:

1156474001, 1156474002, 1156474003, 1156474004, 1156474005, 1156474006, 1156474007, 1156474008, 1156474009, 1156474010, 1156474011

Results by SW8021B

<u>Parameter</u>	<u>Results</u>	<u>LOQ/CL</u>	<u>DL</u>	<u>Units</u>
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	11.0J	25.0	7.80	ug/Kg

Surrogates

1,4-Difluorobenzene (surr)	89.8	72-119	%
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Batch Information

Analytical Batch: VFC12816
Analytical Method: SW8021B
Instrument: Agilent 7890 PID/FID
Analyst: KAS
Analytical Date/Time: 11/10/2015 10:16:00AM

Prep Batch: VXX28253
Prep Method: SW5035A
Prep Date/Time: 11/10/2015 8:00:00AM
Prep Initial Wt./Vol.: 50 g
Prep Extract Vol: 25 mL

Print Date: 11/18/2015 12:28:46PM

Blank Spike Summary

Blank Spike ID: LCS for HBN 1156474 [VXX28253]
 Blank Spike Lab ID: 1303652
 Date Analyzed: 11/10/2015 10:40

Spike Duplicate ID: LCSD for HBN 1156474 [VXX28253]
 Spike Duplicate Lab ID: 1303653
 Matrix: Soil/Solid (dry weight)

QC for Samples: 1156474001, 1156474002, 1156474003, 1156474004, 1156474005, 1156474006, 1156474007, 1156474008, 1156474009, 1156474010, 1156474011

Results by SW8021B

Parameter	Blank Spike (ug/Kg)			Spike Duplicate (ug/Kg)			CL	RPD (%)	RPD CL
	Spike	Result	Rec (%)	Spike	Result	Rec (%)			
Benzene	1250	1410	113	1250	1390	111	(75-125)	1.70	(< 20)
Ethylbenzene	1250	1360	109	1250	1360	109	(75-125)	0.33	(< 20)
o-Xylene	1250	1310	105	1250	1310	105	(75-125)	0.02	(< 20)
P & M -Xylene	2500	2700	108	2500	2710	109	(80-125)	0.58	(< 20)
Toluene	1250	1330	107	1250	1340	107	(70-125)	0.22	(< 20)
Surrogates									
1,4-Difluorobenzene (surr)	1250	98.7	99	1250	98.2	98	(72-119)	0.59	

Batch Information

Analytical Batch: **VFC12816**
 Analytical Method: **SW8021B**
 Instrument: **Agilent 7890 PID/FID**
 Analyst: **KAS**

Prep Batch: **VXX28253**
 Prep Method: **SW5035A**
 Prep Date/Time: **11/10/2015 08:00**
 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: 1156474001
MS Sample ID: 1303656 MS
MSD Sample ID: 1303657 MSD

Analysis Date: 11/10/2015 12:52
Analysis Date: 11/10/2015 13:11
Analysis Date: 11/10/2015 13:30
Matrix: Soil/Solid (dry weight)

QC for Samples: 1156474001, 1156474002, 1156474003, 1156474004, 1156474005, 1156474006, 1156474007, 1156474008, 1156474009, 1156474010, 1156474011

Results by SW8021B

Parameter	Sample	Matrix Spike (ug/Kg)			Spike Duplicate (ug/Kg)			CL	RPD (%)	RPD CL
		Spike	Result	Rec (%)	Spike	Result	Rec (%)			
Benzene	6.10U	843	947	112	843	972	115	75-125	2.50	(< 20)
Ethylbenzene	12.2U	843	884	105	843	907	107	75-125	2.50	(< 20)
o-Xylene	61.8	843	867	95	843	906	100	75-125	4.50	(< 20)
P & M -Xylene	25.9J	1692	1749	102	1692	1830	107	80-125	4.30	(< 20)
Toluene	12.2U	843	900	107	843	910	108	70-125	1.30	(< 20)
Surrogates										
1,4-Difluorobenzene (surr)		843	846	100	843	845	100	72-119	0.04	

Batch Information

Analytical Batch: VFC12816
Analytical Method: SW8021B
Instrument: Agilent 7890 PID/FID
Analyst: KAS
Analytical Date/Time: 11/10/2015 1:11:00PM

Prep Batch: VXX28253
Prep Method: AK101 Extraction (S)
Prep Date/Time: 11/10/2015 8:00:00AM
Prep Initial Wt./Vol.: 85.30g
Prep Extract Vol: 25.00mL

Print Date: 11/18/2015 12:28:49PM



Method Blank

Blank ID: MB for HBN 1725016 [VXX/28255]
Blank Lab ID: 1303687

Matrix: Soil/Solid (dry weight)

QC for Samples:
1156474003

Results by SW8260B

<u>Parameter</u>	<u>Results</u>	<u>LOQ/CL</u>	<u>DL</u>	<u>Units</u>
Tetrachloroethene	6.25U	12.5	3.90	ug/Kg
Surrogates				
1,2-Dichloroethane-D4 (surr)	117	71-136		%
4-Bromofluorobenzene (surr)	107	55-151		%
Toluene-d8 (surr)	102	85-116		%

Batch Information

Analytical Batch: VMS15424
Analytical Method: SW8260B
Instrument: VQA 7890/5975 GC/MS
Analyst: ST
Analytical Date/Time: 11/10/2015 2:16:00PM

Prep Batch: VXX28255
Prep Method: SW5035A
Prep Date/Time: 11/10/2015 8:00:00AM
Prep Initial Wt./Vol.: 50 g
Prep Extract Vol: 25 mL

Print Date: 11/18/2015 12:28:50PM

Blank Spike Summary

Blank Spike ID: LCS for HBN 1156474 [VXX28255]
Blank Spike Lab ID: 1303688
Date Analyzed: 11/10/2015 15:13

Matrix: Soil/Solid (dry weight)

QC for Samples: 1156474003

Results by SW8260B

Parameter	Blank Spike (ug/Kg)			CL (73-128)
	Spike	Result	Rec (%)	
Tetrachloroethene	750	731	97	
Surrogates				
1,2-Dichloroethane-D4 (surr)	750	120	120	(71-136)
4-Bromofluorobenzene (surr)	750	107	107	(55-151)
Toluene-d8 (surr)	750	101	101	(85-116)

Batch Information

Analytical Batch: **VMS15424**
Analytical Method: **SW8260B**
Instrument: **VQA 7890/5975 GC/MS**
Analyst: **ST**

Prep Batch: **VXX28255**
Prep Method: **SW5035A**
Prep Date/Time: **11/10/2015 08:00**
Spike Init Wt./Vol.: 750 ug/Kg Extract Vol: 25 mL
Dupe Init Wt./Vol.: Extract Vol:



Matrix Spike Summary

Original Sample ID: 1158836022
MS Sample ID: 1303689 MS
MSD Sample ID: 1303690 MSD

Analysis Date: 11/10/2015 18:33
Analysis Date: 11/10/2015 15:54
Analysis Date: 11/10/2015 16:09
Matrix: Soil/Solid (dry weight)

QC for Samples: 1156474003

Results by SW8260B

Parameter	Sample	Matrix Spike (ug/Kg)			Spike Duplicate (ug/Kg)			CL	RPD (%)	RPD CL
		Spike	Result	Rec (%)	Spike	Result	Rec (%)			
Tetrachloroethene	10.1U	872	861	99	872	863	99	73-128	0.17	(< 20)
Surrogates										
1,2-Dichloroethane-D4 (surr)		872	961	110	872	926	106	71-136	3.50	
4-Bromofluorobenzene (surr)		2331	1853	80	2331	1914	82	55-151	3.60	
Toluene-d8 (surr)		872	879	101	872	838	96	85-116	4.70	

Batch Information

Analytical Batch: VMS15424
Analytical Method: SW8260B
Instrument: VQA 7890/5975 GC/MS
Analyst: ST
Analytical Date/Time: 11/10/2015 3:54:00PM

Prep Batch: VXX28255
Prep Method: Vol. Extraction SW8260 Field Extracted L
Prep Date/Time: 11/10/2015 8:00:00AM
Prep Initial Wt./Vol.: 52.71g
Prep Extract Vol: 25.00mL

Print Date: 11/18/2015 12:28:52PM



Method Blank

Blank ID: MB for HBN 1724418 [XXX/34563]
Blank Lab ID: 1302372

Matrix: Soil/Solid (dry weight)

QC for Samples:

1156474001, 1156474002, 1156474003, 1156474004, 1156474005, 1156474006, 1156474007, 1156474008, 1156474009, 1156474010

Results by AK102

<u>Parameter</u>	<u>Results</u>	<u>LOQ/CL</u>	<u>DL</u>	<u>Units</u>
Diesel Range Organics	10.0U	20.0	6.20	mg/Kg
Surrogates				
5a Androstane (surr)	87.2	60-120		%

Batch Information

Analytical Batch: XFC12195
Analytical Method: AK102
Instrument: HP 6890 Series II FID SV D R
Analyst: NLL
Analytical Date/Time: 11/5/2015 2:46:00PM

Prep Batch: XXX34563
Prep Method: SW3550C
Prep Date/Time: 11/4/2015 9:39:12AM
Prep Initial Wt./Vol.: 30 g
Prep Extract Vol: 1 mL

Print Date: 11/18/2015 12:28:52PM



Blank Spike Summary

Blank Spike ID: LCS for HBN 1156474 [XXX34563]
 Blank Spike Lab ID: 1302373
 Date Analyzed: 11/05/2015 14:56

Spike Duplicate ID: LCSD for HBN 1156474
 [XXX34563]
 Spike Duplicate Lab ID: 1302374
 Matrix: Soil/Solid (dry weight)

QC for Samples: 1156474001, 1156474002, 1156474003, 1156474004, 1156474005, 1156474006, 1156474007,
 1156474008, 1156474009, 1156474010

Results by AK102

Parameter	Blank Spike (mg/Kg)			Spike Duplicate (mg/Kg)			CL	RPD (%)	RPD CL
	Spike	Result	Rec (%)	Spike	Result	Rec (%)			
Diesel Range Organics	167	164	98	167	179	107	(75-125)	8.70	(< 20)

Surrogates

5a Androstane (surr)	3.33	102	102	3.33	113	113	(60-120)	11.00	
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Batch Information

Analytical Batch: **XFC12195**
 Analytical Method: **AK102**
 Instrument: **HP 6890 Series II FID SV D R**
 Analyst: **NLL**

Prep Batch: **XXX34563**
 Prep Method: **SW3550C**
 Prep Date/Time: **11/04/2015 09:39**
 Spike Init Wt./Vol.: 167 mg/Kg Extract Vol: 1 mL
 Dupe Init Wt./Vol.: 167 mg/Kg Extract Vol: 1 mL

Print Date: 11/18/2015 12:28:54PM



Method Blank

Blank ID: MB for HBN 1724418 [XXX/34563]
Blank Lab ID: 1302372

Matrix: Soil/Solid (dry weight)

QC for Samples:

1156474001, 1156474002, 1156474003, 1156474004, 1156474005, 1156474006, 1156474007, 1156474008, 1156474009, 1156474010

Results by AK103

<u>Parameter</u>	<u>Results</u>	<u>LOQ/CL</u>	<u>DL</u>	<u>Units</u>
Residual Range Organics	10.0U	20.0	6.20	mg/Kg
Surrogates				
n-Triacontane-d62 (surr)	97.5	60-120		%

Batch Information

Analytical Batch: XFC12195
Analytical Method: AK103
Instrument: HP 6890 Series II FID SV D R
Analyst: NLL
Analytical Date/Time: 11/5/2015 2:46:00PM

Prep Batch: XXX34563
Prep Method: SW3550C
Prep Date/Time: 11/4/2015 9:39:12AM
Prep Initial Wt./Vol.: 30 g
Prep Extract Vol: 1 mL

Print Date: 11/18/2015 12:28:56PM



Blank Spike Summary

Blank Spike ID: LCS for HBN 1156474 [XXX34563]
Blank Spike Lab ID: 1302373
Date Analyzed: 11/05/2015 14:56

Spike Duplicate ID: LCSD for HBN 1156474 [XXX34563]
Spike Duplicate Lab ID: 1302374
Matrix: Soil/Solid (dry weight)

QC for Samples: 1156474001, 1156474002, 1156474003, 1156474004, 1156474005, 1156474006, 1156474007, 1156474008, 1156474009, 1156474010

Results by AK103

Parameter	Blank Spike (mg/Kg)			Spike Duplicate (mg/Kg)			CL	RPD (%)	RPD CL
	Spike	Result	Rec (%)	Spike	Result	Rec (%)			
Residual Range Organics	167	188	113	167	195	117	(60-120)	4.00	(< 20)

Surrogates

n-Triacontane-d62 (surr)	3.33	101	101	3.33	105	105	(60-120)	3.60	
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Batch Information

Analytical Batch: XFC12195
Analytical Method: AK103
Instrument: HP 6890 Series II FID SV D R
Analyst: NLL

Prep Batch: XXX34563
Prep Method: SW3550C
Prep Date/Time: 11/04/2015 09:39
Spike Init Wt./Vol.: 167 mg/Kg Extract Vol: 1 mL
Dupe Init Wt./Vol.: 167 mg/Kg Extract Vol: 1 mL

Print Date: 11/18/2015 12:28:56PM



Method Blank

Blank ID: MB for HBN 1724439 [XXX/34567]
Blank Lab ID: 1302464

Matrix: Soil/Solid (dry weight)

QC for Samples:
1156474011

Results by AK102

<u>Parameter</u>	<u>Results</u>	<u>LOQ/CL</u>	<u>DL</u>	<u>Units</u>
Diesel Range Organics	10.0U	20.0	6.20	mg/Kg
Surrogates				
5a Androstane (surr)	84.7	60-120		%

Batch Information

Analytical Batch: XFC12195
Analytical Method: AK102
Instrument: HP 6890 Series II FID SV D R
Analyst: NLL
Analytical Date/Time: 11/5/2015 9:23:00PM

Prep Batch: XXX34567
Prep Method: SW3550C
Prep Date/Time: 11/4/2015 2:27:03PM
Prep Initial Wt./Vol.: 30 g
Prep Extract Vol: 1 mL

Print Date: 11/18/2015 12:28:58PM



Blank Spike Summary

Blank Spike ID: LCS for HBN 1156474 [XXX34567]
Blank Spike Lab ID: 1302465
Date Analyzed: 11/05/2015 21:33

Spike Duplicate ID: LCSD for HBN 1156474 [XXX34567]
Spike Duplicate Lab ID: 1302466
Matrix: Soil/Solid (dry weight)

QC for Samples: 1156474011

Results by AK102

Parameter	Blank Spike (mg/Kg)			Spike Duplicate (mg/Kg)			CL	RPD (%)	RPD CL
	Spike	Result	Rec (%)	Spike	Result	Rec (%)			
Diesel Range Organics	167	175	105	167	170	102	(75-125)	3.20	(< 20)

Surrogates

5a Androstane (surr)	3.33	100	100	3.33	108	108	(60-120)	7.60	
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Batch Information

Analytical Batch: **XFC12195**
Analytical Method: **AK102**
Instrument: **HP 6890 Series II FID SV D R**
Analyst: **NLL**

Prep Batch: **XXX34567**
Prep Method: **SW3550C**
Prep Date/Time: **11/04/2015 14:27**
Spike Init Wt./Vol.: 167 mg/Kg Extract Vol: 1 mL
Dupe Init Wt./Vol.: 167 mg/Kg Extract Vol: 1 mL

Print Date: 11/18/2015 12:28:59PM



Method Blank

Blank ID: MB for HBN 1724439 [XXX/34567]
Blank Lab ID: 1302464

Matrix: Soil/Solid (dry weight)

QC for Samples:
1156474011

Results by AK103

<u>Parameter</u>	<u>Results</u>	<u>LOQ/CL</u>	<u>DL</u>	<u>Units</u>
Residual Range Organics	10.0U	20.0	6.20	mg/Kg
Surrogates				
n-Triacontane-d62 (surr)	97.6	60-120		%

Batch Information

Analytical Batch: XFC12195
Analytical Method: AK103
Instrument: HP 6890 Series II FID SV D R
Analyst: NLL
Analytical Date/Time: 11/5/2015 9:23:00PM

Prep Batch: XXX34567
Prep Method: SW3550C
Prep Date/Time: 11/4/2015 2:27:03PM
Prep Initial Wt./Vol.: 30 g
Prep Extract Vol: 1 mL

Print Date: 11/18/2015 12:29:00PM



Blank Spike Summary

Blank Spike ID: LCS for HBN 1156474 [XXX34567]
Blank Spike Lab ID: 1302465
Date Analyzed: 11/05/2015 21:33

Spike Duplicate ID: LCSD for HBN 1156474 [XXX34567]
Spike Duplicate Lab ID: 1302466
Matrix: Soil/Solid (dry weight)

QC for Samples: 1156474011

Results by AK103

Parameter	Blank Spike (mg/Kg)			Spike Duplicate (mg/Kg)			CL	RPD (%)	RPD CL
	Spike	Result	Rec (%)	Spike	Result	Rec (%)			
Residual Range Organics	167	199	119	167	184	110	(60-120)	7.80	(< 20)

Surrogates

n-Triacontane-d62 (surr)	3.33	95.7	96	3.33	100	100	(60-120)	4.40	
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Batch Information

Analytical Batch: **XFC12195**
Analytical Method: **AK103**
Instrument: **HP 6890 Series II FID SV D R**
Analyst: **NLL**

Prep Batch: **XXX34567**
Prep Method: **SW3550C**
Prep Date/Time: **11/04/2015 14:27**
Spike Init Wt./Vol.: 167 mg/Kg Extract Vol: 1 mL
Dupe Init Wt./Vol.: 167 mg/Kg Extract Vol: 1 mL

Print Date: 11/18/2015 12:29:00PM



Method Blank

Blank ID: MB for HBN 1725056 [XXX/34621]
Blank Lab ID: 1303872

Matrix: Soil/Solid (dry weight)

QC for Samples:
1156474003, 1156474005, 1156474007, 1156474010

Results by 8270D SIMS (PAH)

<u>Parameter</u>	<u>Results</u>	<u>LOQ/CL</u>	<u>DL</u>	<u>Units</u>
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)	77.5	46-115		%
Terphenyl-d14 (surr)	108	58-113		%

Batch Information

Analytical Batch: XMS9074
Analytical Method: 8270D SIMS (PAH)
Instrument: HP 6890/5973 MS SVQA
Analyst: NRB
Analytical Date/Time: 11/13/2015 12:44:00AM

Prep Batch: XXX34621
Prep Method: SW3550C
Prep Date/Time: 11/12/2015 10:10:22AM
Prep Initial Wt./Vol.: 22.5 g
Prep Extract Vol: 1 mL

Print Date: 11/18/2015 12:29:01PM



Blank Spike Summary

Blank Spike ID: LCS for HBN 1156474 [XXX34621]

Blank Spike Lab ID: 1303873

Date Analyzed: 11/13/2015 00:59

Matrix: Soil/Solid (dry weight)

QC for Samples: 1156474003, 1156474005, 1156474007, 1156474010

Results by 8270D SIMS (PAH)

Parameter	Blank Spike (ug/Kg)			CL
	Spike	Result	Rec (%)	
1-Methylnaphthalene	22.2	13.8	62	(43-111)
2-Methylnaphthalene	22.2	13.1	59	(39-114)
Acenaphthene	22.2	14.6	66	(44-111)
Acenaphthylene	22.2	12.8	58	(39-116)
Anthracene	22.2	14.6	66	(50-114)
Benzo(a)Anthracene	22.2	18.0	81	(54-122)
Benzo[a]pyrene	22.2	14.6	66	(50-125)
Benzo[b]Fluoranthene	22.2	18.1	81	(53-128)
Benzo[g,h,i]perylene	22.2	19.1	86	(49-127)
Benzo[k]fluoranthene	22.2	19.1	86	(56-123)
Chrysene	22.2	19.1	86	(57-118)
Dibenzo[a,h]anthracene	22.2	19.6	88	(50-129)
Fluoranthene	22.2	17.6	79	(55-119)
Fluorene	22.2	17.4	78	(47-114)
Indeno[1,2,3-c,d] pyrene	22.2	19.0	86	(49-130)
Naphthalene	22.2	13.1	59	(38-111)
Phenanthrene	22.2	18.8	84	(49-113)
Pyrene	22.2	18.6	84	(55-117)
Surrogates				
2-Fluorobiphenyl (surr)	22.2	75.5	76	(46-115)
Terphenyl-d14 (surr)	22.2	109	109	(58-113)

Batch Information

Analytical Batch: XMS9074

Analytical Method: 8270D SIMS (PAH)

Instrument: HP 6890/5973 MS SVQA

Analyst: NRB

Prep Batch: XXX34621

Prep Method: SW3550C

Prep Date/Time: 11/12/2015 10:10

Spike Init Wt./Vol.: 22.2 ug/Kg Extract Vol: 1 mL

Dupe Init Wt./Vol.: Extract Vol:

Print Date: 11/18/2015 12:29:02PM

Matrix Spike Summary

Original Sample ID: 1158836017
 MS Sample ID: 1303876 MS
 MSD Sample ID: 1303877 MSD

Analysis Date: 11/13/2015 1:14
 Analysis Date: 11/13/2015 1:29
 Analysis Date: 11/13/2015 1:44
 Matrix: Soil/Solid (dry weight)

QC for Samples: 1156474003, 1156474005, 1156474007, 1156474010

Results by 8270D SIMS (PAH)

Parameter	Sample	Matrix Spike (ug/Kg)			Spike Duplicate (ug/Kg)			CL	RPD (%)	RPD CL
		Spike	Result	Rec (%)	Spike	Result	Rec (%)			
1-Methylnaphthalene	2.74U	24.4	15.3	63	24.7	16.5	67	43-111	8.20	(< 20)
2-Methylnaphthalene	2.74U	24.4	14.6	60	24.7	16.2	66	39-114	9.80	(< 20)
Acenaphthene	2.74U	24.4	16.4	67	24.7	17.3	70	44-111	5.40	(< 20)
Acenaphthylene	2.74U	24.4	16.9	69	24.7	17.5	71	39-116	3.90	(< 20)
Anthracene	2.74U	24.4	18.3	75	24.7	18.9	76	50-114	2.90	(< 20)
Benzo(a)Anthracene	2.74U	24.4	19.4	80	24.7	19.1	78	54-122	1.80	(< 20)
Benzo(a)pyrene	2.74U	24.4	19.6	80	24.7	20.0	81	50-125	2.00	(< 20)
Benzo[b]Fluoranthene	2.74U	24.4	19.3	80	24.7	20.3	82	53-128	4.70	(< 20)
Benzo[g,h,i]perylene	2.74U	24.4	17.4	72	24.7	18.0	73	49-127	2.90	(< 20)
Benzo[k]fluoranthene	2.74U	24.4	18.7	76	24.7	17.8	72	56-123	4.80	(< 20)
Chrysene	2.74U	24.4	19.0	78	24.7	19.0	77	57-118	0.04	(< 20)
Dibenzo[a,h]anthracene	2.74U	24.4	17.9	73	24.7	18.3	74	50-129	2.50	(< 20)
Fluoranthene	2.74U	24.4	18.7	76	24.7	18.4	75	55-119	1.40	(< 20)
Fluorene	2.74U	24.4	18.2	75	24.7	19.3	78	47-114	5.60	(< 20)
Indeno[1,2,3-c,d] pyrene	2.74U	24.4	17.1	70	24.7	17.7	72	49-130	3.30	(< 20)
Naphthalene	2.74U	24.4	14.2	58	24.7	15.9	64	38-111	10.90	(< 20)
Phenanthrene	2.74U	24.4	19.6	80	24.7	20.0	81	49-113	2.50	(< 20)
Pyrene	2.74U	24.4	19.7	81	24.7	19.4	79	55-117	1.50	(< 20)
Surrogates										
2-Fluorobiphenyl (surr)		24.4	18.7	77	24.7	19.9	81	46-115	6.30	
Terphenyl-d14 (surr)		24.4	25.3	103	24.7	25.3	102	58-113	0.35	

Batch Information

Analytical Batch: XMS9074
 Analytical Method: 8270D SIMS (PAH)
 Instrument: HP 6890/5973 MS SVQA
 Analyst: NRB
 Analytical Date/Time: 11/13/2015 1:29:00AM

Prep Batch: XXX34621
 Prep Method: Sonication Extraction Soil 8270 PAH SIM
 Prep Date/Time: 11/12/2015 10:10:22AM
 Prep Initial Wt./Vol.: 22.91g
 Prep Extract Vol: 1.00mL



SGS North America Inc.
CHAIN OF CUSTODY RECORD

1156474



Locations Nationwide
aska Maryland
w. Jersey New York
rth Carolina Indiana
st Virginia Kentucky
www.us.sgs.com

CLIENT: Restoration Science & Engineering (RSE) Instructions: Sections 1 - 5 must be filled out. Omissions may delay the onset of analysis. Page 1 of 2

CONTACT: Nick Brammer PHONE NO: PROJECT PWSID/ PERMIT#: PRESERVATIVE

PROJECT NAME: RAVN ANC E-MAIL: RSE QUOTE #: RSE P.O. #: 15-454

RESERVED for lab use	SAMPLE IDENTIFICATION	DATE mm/dd/yy	TIME HH:MM	MATRIX/MATRIX CODE	Section 3						REMARKS/LOC ID							
					Type	#	C	O	N	T		A	I	N	E	R	S	
① AB	RV1	11/21/15	1545	S	Geo/Brx	2	X											
② AB	RV2		1550	S	Geo/Brx	2	X											
③ AT	RV3		1555	S	Geo/Brx	2	X											
④ AB	RV4		1558	S	Geo/Brx	2	X											
⑤ AT	RV13		1630	S	Geo/Brx	2	X											
⑥ AB	RV14		1625	S	Geo/Brx	2	X											
⑦ AT	RVX		1500	S	Geo/Brx	2	X											
⑧ AB	RV21		1615	S	Geo/Brx	2	X											
⑨ AT	RV23		1610	S	Geo/Brx	2	X											
⑩ AT	RV24		1670	S	Geo/Brx	2	X											

Section 2

Relinquished By: (1) [Signature] Date 11/21/15 Time 1701 Received By:

Relinquished By: (2) Date Time Received By:

Relinquished By: (3) Date Time Received By:

Relinquished By: (4) Date 11/21/15 Time 17:01 Received For Laboratory By: [Signature]

Section 5

Section 4 DOD Project? Yes No Data Deliverable Requirements:

Cooler ID: Requested Turnaround Time and/or Special Instructions:

Temp Blank °C: 0.37 238 or Ambient [] Chain of Custody Seal: (Circle) INTACT BROKEN ABSENT

(See attached Sample Receipt Form) (See attached Sample Receipt Form)



1156474



1 1 5 6 4 7 4

SAMPLE RECEIPT FORM

Review Criteria:	Yes	N/A	No	Comments/Action Taken:
Were custody seals intact? Note # & location, if applicable. COC accompanied samples?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<i>Exemption permitted if sampler hand carries/delivers.</i>
Temperature blank compliant* (i.e., 0-6°C after CF)? <i>If >6°C, were samples collected <8 hours ago?</i> <i>If <0°C, were all sample containers ice free?</i> Cooler ID: <u>1</u> @ <u>0.3</u> w/ Therm.ID: <u>238</u> Cooler ID: _____ @ _____ w/ Therm.ID: _____ Cooler ID: _____ @ _____ w/ Therm.ID: _____ Cooler ID: _____ @ _____ w/ Therm.ID: _____ Cooler ID: _____ @ _____ w/ Therm.ID: _____ If samples are received <u>without</u> 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 <u>nor</u> cooler temp can be obtained, note "ambient" or "chilled."	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<i>Exemption permitted if chilled & collected <8 hrs ago.</i> <i>Note: Identify containers received at non-compliant temperature. Use form FS-0029 if more space is needed.</i>
Delivery method (specify all that apply): <input checked="" type="checkbox"/> Client (hand carried) <input type="checkbox"/> USPS <input type="checkbox"/> Lynden <input type="checkbox"/> AK Air <input type="checkbox"/> Alert Courier <input type="checkbox"/> UPS <input type="checkbox"/> FedEx <input type="checkbox"/> RAVN <input type="checkbox"/> C&D Delivery <input type="checkbox"/> Carfile <input type="checkbox"/> Pen Air <input type="checkbox"/> Warp Speed <input type="checkbox"/> Other: _____ → For WO# with airbills, was the WO# & airbill info recorded in the Front Counter eLog?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
	Yes	N/A	No	
Were samples received within hold time? Do samples match COC* (i.e., sample IDs, dates/times collected)? Were analyses requested unambiguous?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<i>Note: Refer to form F-083 "Sample Guide" for hold times.</i> <i>Note: If times differ <1hr, record details and login per COC.</i>
Were samples in good condition (no leaks/cracks/breakage)? Packing material used (specify all that apply): <input type="checkbox"/> Bubble Wrap <input type="checkbox"/> Separate plastic bags <input type="checkbox"/> Vermiculite <input type="checkbox"/> Other:	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Were proper containers (type/mass/volume/preservative*) used? Were Trip Blanks (i.e., VOAs, LL-Hg) in cooler with samples? Were all VOA vials free of headspace (i.e., bubbles ≤6 mm)? Were all soil VOAs field extracted with MeOH+BFB?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> <i>Exemption permitted for metals (e.g., 200.8/6020A).</i>
For preserved waters (other than VOA vials, LL-Mercury or microbiological analyses), was pH verified and compliant ? If pH was adjusted, were bottles flagged (i.e., stickers)?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
For special handling (e.g., "MI" soils, foreign soils, lab filter for dissolved..., lab extract for volatiles, Ref Lab, limited volume), were bottles/paperwork flagged (e.g., sticker)?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
For RUSH/SHORT Hold Time , were COC/Bottles flagged accordingly? Was Rush/Short HT email sent, if applicable?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
For SITE-SPECIFIC QC, e.g. BMS/BMSD/BDUP , were containers / paperwork flagged accordingly?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
For any question answered "No," has the PM been notified and the problem resolved (or paperwork put in their bin)?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	SRF Completed by: KPV 11/2/15 PM notified:
Was PEER REVIEW of <i>sample numbering/labeling completed</i> ?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Peer Reviewed by: VDL
Additional notes (if applicable):				

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



Sample Containers and Preservatives

<u>Container Id</u>	<u>Preservative</u>	<u>Container Condition</u>	<u>Container Id</u>	<u>Preservative</u>	<u>Container Condition</u>
1156474001-A	No Preservative Required	OK			
1156474001-B	Methanol field pres. 4 C	OK			
1156474002-A	No Preservative Required	OK			
1156474002-B	Methanol field pres. 4 C	OK			
1156474003-A	No Preservative Required	OK			
1156474003-B	Methanol field pres. 4 C	OK			
1156474004-A	No Preservative Required	OK			
1156474004-B	Methanol field pres. 4 C	OK			
1156474005-A	No Preservative Required	OK			
1156474005-B	Methanol field pres. 4 C	OK			
1156474006-A	No Preservative Required	OK			
1156474006-B	Methanol field pres. 4 C	OK			
1156474007-A	No Preservative Required	OK			
1156474007-B	Methanol field pres. 4 C	OK			
1156474008-A	No Preservative Required	OK			
1156474008-B	Methanol field pres. 4 C	OK			
1156474009-A	No Preservative Required	OK			
1156474009-B	Methanol field pres. 4 C	OK			
1156474010-A	No Preservative Required	OK			
1156474010-B	Methanol field pres. 4 C	OK			
1156474011-A	No Preservative Required	OK			
1156474011-B	Methanol field pres. 4 C	OK			
1156474012-A	Methanol field pres. 4 C	OK			

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 that an inappropriate container was submitted.

OK - The container was received at an acceptable pH for the analysis requested.

PA - The container was received outside of the acceptable pH for the analysis requested. Preservative was added upon receipt and the container is now at the correct pH. See the Sample Receipt Form for details on the amount and lot # of the preservative added.

PH - The container was received outside of the acceptable pH for the analysis requested. Preservative was added upon receipt, but was insufficient to bring the container to the correct pH for the analysis requested. See the Sample Receipt Form for details on the amount and lot # of the preservative added.

BU - The container was received with headspace greater than 6mm.

Laboratory Data Review Checklist

Completed by:

Title: Date:

CS Report Name: Report Date:

Consultant Firm:

Laboratory Name: Laboratory Report Number:

ADEC File Number: 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:

- 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:

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 ($4^{\circ} \pm 2^{\circ} \text{C}$)?
 Yes No NA (Please explain.) Comments:

- 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:

Review of the sample receipt form indicated the 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 discrepancies with the samples.

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

Data quality and usability was not affected.

4. Case Narrative

- a. Present and understandable?
 Yes No NA (Please explain.) Comments:

The case narrative is present and understandable on page 2 of the lab report.

- b. Discrepancies, errors or QC failures identified by the lab?
 Yes No NA (Please explain.) Comments:

The case narrative notes one LCS recovery for Trichlorofluoromethane and several MS/MSDs did not meet QC goals. Corrective actions for these are noted in the case narrative and described subsequently in this document.

- c. Were all corrective actions documented?
 Yes No NA (Please explain.) Comments:

No Corrective actions were required.

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

There is no effect on data quality and usability.

5. Samples Results

- a. Correct analyses performed/reported as requested on COC?
 Yes No NA (Please explain.) Comments:

The correct analyses were performed and reported as requested on the COC.

b. All applicable holding times met?

Yes No NA (Please explain.)

Comments:

Holding times were met for all samples according to the lab method.

c. All soils reported on a dry weight basis?

Yes No NA (Please explain.)

Comments:

Sample weights are reported on a dry weight basis on each page of the report describing the target sample.

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:

SGS refers to the PQL as the LOQ and reports data below the PQL but above the detection limit (DL) as estimated results with a "J". Constituents that were analyzed for but not detected are reported as a value equal to 2 times the DL and flagged with a "U". All PQLs were below the cleanup level.

e. Data quality or usability affected?

Comments:

There is no effect on data quality or usability.

6. QC Samples

a. Method Blank

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

Yes No NA (Please explain.)

Comments:

There is one method blank for each requested analyses.

ii. All method blank results less than PQL?

Yes No NA (Please explain.)

Comments:

All method blank results are less than the LOQ (PQL).

iii. If above PQL, what samples are affected?

Comments:

No method blank samples were reported above the LOQ (PQL).

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

Yes No NA (Please explain.)

Comments:

No method blank samples were reported above the LOQ (PQL).

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

Data quality or usability was not affected.

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:

LCS and LCSDs were performed for AK 101, AK 102, AK 103 and, SW8021B analyses. LCS was performed for 8260B analysis, but not LCSD

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

Yes No NA (Please explain.) Comments:

Metals analysis was not performed

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 was performed for 8260B resulted in a recovery of Trichlorofluoromethane associated with soil samples that did not meet QC goals, these analytes were not detected above the DL in the associated samples.

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:

MS/MSDs failed to meet QC goals for multiple analytes. MS/MSDs were not carried out on samples originating from the project site and are not likely to reflect matrix conditions associated with samples from this project.

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

No samples were affected

Comments:

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

Yes No NA (Please explain.) Comments:

No data was flagged as a result LCS/LCSD failures

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

Comments:

Data quality or usability was 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:

Surrogate recoveries are reported for all organic analyses.

- 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:

All percent recoveries for organic analyses are reported and within method and laboratory limits.

- 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:

There were no reported surrogate recovery QC failures.

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

Data quality or usability 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:

A trip blank for soil samples was included.

- 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:

Trip blank was clearly indicated on the COC.

- iii. All results less than PQL?
 Yes No NA (Please explain.) Comments:

All trip blank results were less than the PQL.

- iv. If above PQL, what samples are affected?

No affected samples.

Comments:

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

Comments:

Data quality and usability not affected.

e. Field Duplicate

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

Yes No NA (Please explain.)

Comments:

One Field Duplicate was collected. RV-X2 was a field duplicate of RV-96-1 and RV-X3 is a duplicate of RV-54.

ii. Submitted blind to lab?

Yes No NA (Please explain.)

Comments:

Field Duplicates was submitted to the lab blind.

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

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

Where R_1 = Sample Concentration

R_2 = Field Duplicate Concentration

Yes No NA (Please explain.)

Comments:

All RPDs were less than 50%

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

Comments:

Data quality and usability was not affected.

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

Yes No NA (Please explain.)

Comments:

All equipment used in sampling was dedicated and disposable, or was cleaned inalconox solution and rinsed with Deionized water prior to sampling. Equipment was not re-used during the sampling event. Based on previous experience, and equipment blank was not determined necessary.

i. All results less than PQL?

Yes No NA (Please explain.)

Comments:

There are no decontamination or equipment blanks

ii. If above PQL, what samples are affected?

Comments:

There are no decontamination equipment blanks

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

Data quality or usability was not affected.

Comments:

7. Other Data Flags/Qualifiers (ACOE, AFCEE, Lab Specific, etc.)

a. Defined and appropriate?

Yes No NA (Please explain.)

Comments:

Data flags and qualifiers are defined appropriately. Page 3 of the lab report describes the qualifiers used.



Laboratory Report of Analysis

To: Restoration Science & Eng
911 West 8th Ave Suite 100
Anchorage, AK 99501
(907)278-1023

Report Number: **1156548**

Client Project: **15-1454 RAVN Cleanup**

Dear Nick Braman,

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 Chuck 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.

Chuck Homestead
Project Manager
Charles.Homestead@sgs.com

Date

Print Date: 11/17/2015 4:19:51PM

Case Narrative

SGS Client: **Restoration Science & Eng**
SGS Project: **1156548**
Project Name/Site: **15-1454 RAVN Cleanup**
Project Contact: **Nick Braman**

Refer to sample receipt form for information on sample condition.

LCS for HBN 1725016 [VXX/28255 (1303688) LCS

8260B –LCS recovery for Trichlorofluoromethane does not meet QC criteria (145%). This analyte was not detected above the LOQ in the associated samples.

1156565002MS (1302986) MS

8270D SIM - MS recovery for several analytes does not meet QC criteria. See LCS for accuracy requirements.

1156565002MSD (1302987) MSD

8270D SIM - MS/MSD RPD for several analytes does not meet QC criteria. See LCS/LCSD RPD for precision requirements.

1158836027MSD (1303300) MSD

8260B —MS/MSD RPD for 2-Butanone (MEK) do not meet QC criteria. This analyte was not detected above the LOQ in the associated samples.

1158836022MSD (1303690) MSD

8260B —MS/MSD RPD for Chloroethane do not meet QC criteria. This analyte was not detected above the LOQ in the associated samples.

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

Print Date: 11/17/2015 4:19:52PM

Report of Manual Integrations

<u>Laboratory ID</u>	<u>Client Sample ID</u>	<u>Analytical Batch</u>	<u>Analyte</u>	<u>Reason</u>
8270D SIMS (PAH)				
1302986	1156565002MS	XMS9067	Benzo[b]Fluoranthene	SP
SW8260B				
1156548008	RV-121	VMS15420	4-Isopropyltoluene	SP
1156548009	RV-119	VMS15420	4-Isopropyltoluene	SP
1156548019	RV-X3	VMS15420	4-Isopropyltoluene	SP
1156548020	RV-54	VMS15420	4-Isopropyltoluene	SP

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, indemnification 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

<u>Client Sample ID</u>	<u>Lab Sample ID</u>	<u>Collected</u>	<u>Received</u>	<u>Matrix</u>
RV-93	1156548001	11/03/2015	11/04/2015	Soil/Solid (dry weight)
RV-96-1	1156548002	11/03/2015	11/04/2015	Soil/Solid (dry weight)
RV-X2	1156548003	11/03/2015	11/04/2015	Soil/Solid (dry weight)
RV-97	1156548004	11/03/2015	11/04/2015	Soil/Solid (dry weight)
RV-108	1156548005	11/03/2015	11/04/2015	Soil/Solid (dry weight)
RV-110	1156548006	11/03/2015	11/04/2015	Soil/Solid (dry weight)
RV-117	1156548007	11/03/2015	11/04/2015	Solid/Soil (Wet Weight)
RV-121	1156548008	11/04/2015	11/04/2015	Soil/Solid (dry weight)
RV-119	1156548009	11/04/2015	11/04/2015	Soil/Solid (dry weight)
Trip Blank	1156548010	11/03/2015	11/04/2015	Soil/Solid (dry weight)
RV-65	1156548011	11/04/2015	11/04/2015	Soil/Solid (dry weight)
RV-68	1156548012	11/04/2015	11/04/2015	Soil/Solid (dry weight)
RV-70	1156548013	11/04/2015	11/04/2015	Soil/Solid (dry weight)
RV-81	1156548014	11/04/2015	11/04/2015	Soil/Solid (dry weight)
RV-84	1156548015	11/04/2015	11/04/2015	Soil/Solid (dry weight)
RV-37	1156548016	11/04/2015	11/04/2015	Soil/Solid (dry weight)
RV-42	1156548017	11/04/2015	11/04/2015	Soil/Solid (dry weight)
RV-45	1156548018	11/04/2015	11/04/2015	Soil/Solid (dry weight)
RV-X3	1156548019	11/04/2015	11/04/2015	Soil/Solid (dry weight)
RV-54	1156548020	11/04/2015	11/04/2015	Soil/Solid (dry weight)
RV-61	1156548021	11/04/2015	11/04/2015	Soil/Solid (dry weight)

<u>Method</u>	<u>Method Description</u>
8270D SIMS (PAH)	8270 PAH SIM Semi-Volatiles GC/MS
AK101	AK101/8021 Combo. (S)
SW8021B	AK101/8021 Combo. (S)
AK102	Diesel/Residual Range Organics
AK103	Diesel/Residual Range Organics
AK101	Gasoline Range Organics (S)
SM21 2540G	Percent Solids SM2540G
SW8260B	VOC 8260 (S) Field Extracted

Print Date: 11/17/2015 4:19:55PM

Detectable Results Summary

Client Sample ID: **RV-93**
 Lab Sample ID: 1156548001
Semivolatile Organic Fuels

Volatile Fuels

<u>Parameter</u>	<u>Result</u>	<u>Units</u>
Diesel Range Organics	79.9	mg/Kg
Residual Range Organics	165	mg/Kg
Gasoline Range Organics	0.879J	mg/Kg
o-Xylene	5.75J	ug/Kg
P & M -Xylene	19.4J	ug/Kg
Toluene	6.83J	ug/Kg

Client Sample ID: **RV-96-1**
 Lab Sample ID: 1156548002
Semivolatile Organic Fuels

Volatile Fuels

<u>Parameter</u>	<u>Result</u>	<u>Units</u>
Diesel Range Organics	30.8	mg/Kg
Residual Range Organics	90.8	mg/Kg
Gasoline Range Organics	1.54J	mg/Kg
o-Xylene	30.3	ug/Kg
P & M -Xylene	16.6J	ug/Kg

Client Sample ID: **RV-X2**
 Lab Sample ID: 1156548003
Semivolatile Organic Fuels

Volatile Fuels

<u>Parameter</u>	<u>Result</u>	<u>Units</u>
Diesel Range Organics	31.6	mg/Kg
Residual Range Organics	89.7	mg/Kg
Gasoline Range Organics	1.28J	mg/Kg
o-Xylene	25.6	ug/Kg

Client Sample ID: **RV-97**
 Lab Sample ID: 1156548004
Semivolatile Organic Fuels

Client Sample ID: **RV-108**
 Lab Sample ID: 1156548005
Semivolatile Organic Fuels

Volatile Fuels

<u>Parameter</u>	<u>Result</u>	<u>Units</u>
Residual Range Organics	26.5	mg/Kg

<u>Parameter</u>	<u>Result</u>	<u>Units</u>
Diesel Range Organics	49.0	mg/Kg
Residual Range Organics	200	mg/Kg
Gasoline Range Organics	0.528J	mg/Kg

Client Sample ID: **RV-110**
 Lab Sample ID: 1156548006
Semivolatile Organic Fuels

<u>Parameter</u>	<u>Result</u>	<u>Units</u>
Diesel Range Organics	34.4	mg/Kg
Residual Range Organics	168	mg/Kg

Detectable Results Summary

Client Sample ID: **RV-121**
 Lab Sample ID: 1156548008
Semivolatile Organic Fuels
Volatile Fuels
Volatile GC/MS

<u>Parameter</u>	<u>Result</u>	<u>Units</u>
Diesel Range Organics	20.4J	mg/Kg
Gasoline Range Organics	2.01	mg/Kg
1,1,1-Trichloroethane	7.33J	ug/Kg
1,1-Dichloroethane	9.11J	ug/Kg
1,2,4-Trimethylbenzene	88.5	ug/Kg
1,3,5-Trimethylbenzene	33.3	ug/Kg
2-Butanone (MEK)	157J	ug/Kg
2-Hexanone	69.1J	ug/Kg
4-Isopropyltoluene	12.5J	ug/Kg
Benzene	7.52J	ug/Kg
Ethylbenzene	86.3	ug/Kg
Isopropylbenzene (Cumene)	13.1J	ug/Kg
n-Propylbenzene	19.6J	ug/Kg
o-Xylene	102	ug/Kg
P & M -Xylene	220	ug/Kg
sec-Butylbenzene	13.3J	ug/Kg
tert-Butylbenzene	7.92J	ug/Kg
Tetrachloroethene	28.3	ug/Kg
Toluene	14.5J	ug/Kg
Trichloroethene	18.8	ug/Kg
Xylenes (total)	322	ug/Kg

Client Sample ID: **RV-119**
 Lab Sample ID: 1156548009
Semivolatile Organic Fuels
Volatile Fuels
Volatile GC/MS

<u>Parameter</u>	<u>Result</u>	<u>Units</u>
Diesel Range Organics	10.4J	mg/Kg
Residual Range Organics	39.6	mg/Kg
Gasoline Range Organics	2.73J	mg/Kg
1,1,1-Trichloroethane	17.6J	ug/Kg
1,1-Dichloroethane	15.5J	ug/Kg
1,2,4-Trimethylbenzene	86.7	ug/Kg
1,3,5-Trimethylbenzene	41.8	ug/Kg
4-Isopropyltoluene	14.9J	ug/Kg
Benzene	9.86J	ug/Kg
Ethylbenzene	44.2	ug/Kg
Isopropylbenzene (Cumene)	17.3J	ug/Kg
n-Propylbenzene	21.2J	ug/Kg
o-Xylene	59.2	ug/Kg
P & M -Xylene	141	ug/Kg
sec-Butylbenzene	18.2J	ug/Kg
Tetrachloroethene	88.8	ug/Kg
Trichloroethene	52.9	ug/Kg
Xylenes (total)	200	ug/Kg

Detectable Results Summary

Client Sample ID: **Trip Blank**

Lab Sample ID: 1156548010

Volatile GC/MS

<u>Parameter</u>	<u>Result</u>	<u>Units</u>
Toluene	8.91J	ug/Kg

Client Sample ID: **RV-65**

Lab Sample ID: 1156548011

Semivolatile Organic Fuels

Volatile Fuels

<u>Parameter</u>	<u>Result</u>	<u>Units</u>
Diesel Range Organics	25.6	mg/Kg
Ethylbenzene	18.9J	ug/Kg
Gasoline Range Organics	0.958J	mg/Kg
o-Xylene	33.4	ug/Kg
P & M -Xylene	74.2	ug/Kg
Toluene	11.7J	ug/Kg

Client Sample ID: **RV-68**

Lab Sample ID: 1156548012

Semivolatile Organic Fuels

Volatile Fuels

<u>Parameter</u>	<u>Result</u>	<u>Units</u>
Residual Range Organics	14.4J	mg/Kg
Gasoline Range Organics	1.26J	mg/Kg
o-Xylene	25.9	ug/Kg
P & M -Xylene	16.7J	ug/Kg

Client Sample ID: **RV-70**

Lab Sample ID: 1156548013

Semivolatile Organic Fuels

Volatile Fuels

<u>Parameter</u>	<u>Result</u>	<u>Units</u>
Residual Range Organics	21.6J	mg/Kg
Gasoline Range Organics	1.03J	mg/Kg

Client Sample ID: **RV-81**

Lab Sample ID: 1156548014

Semivolatile Organic Fuels

Volatile Fuels

<u>Parameter</u>	<u>Result</u>	<u>Units</u>
Diesel Range Organics	57.6	mg/Kg
Residual Range Organics	12.1J	mg/Kg
Ethylbenzene	14.0J	ug/Kg
Gasoline Range Organics	1.32J	mg/Kg
o-Xylene	12.5J	ug/Kg
P & M -Xylene	34.6J	ug/Kg

Client Sample ID: **RV-37**

Lab Sample ID: 1156548016

Semivolatile Organic Fuels

Volatile Fuels

<u>Parameter</u>	<u>Result</u>	<u>Units</u>
Diesel Range Organics	52.8	mg/Kg
Residual Range Organics	43.7	mg/Kg
Ethylbenzene	21.5J	ug/Kg
Gasoline Range Organics	2.32J	mg/Kg
o-Xylene	76.1	ug/Kg
P & M -Xylene	71.0	ug/Kg

Client Sample ID: **RV-42**

Lab Sample ID: 1156548017

Semivolatile Organic Fuels

Volatile Fuels

<u>Parameter</u>	<u>Result</u>	<u>Units</u>
Diesel Range Organics	10.2J	mg/Kg
Residual Range Organics	65.8	mg/Kg
Gasoline Range Organics	2.23J	mg/Kg
P & M -Xylene	39.9J	ug/Kg

Detectable Results Summary

Client Sample ID: **RV-45**
 Lab Sample ID: 1156548018
Semivolatile Organic Fuels
Volatile Fuels

<u>Parameter</u>	<u>Result</u>	<u>Units</u>
Residual Range Organics	10.3J	mg/Kg
Gasoline Range Organics	0.762J	mg/Kg

Client Sample ID: **RV-X3**
 Lab Sample ID: 1156548019
Polynuclear Aromatics GC/MS

Semivolatile Organic Fuels

Volatile Fuels
Volatile GC/MS

<u>Parameter</u>	<u>Result</u>	<u>Units</u>
1-Methylnaphthalene	2.45J	ug/Kg
Naphthalene	18.2	ug/Kg
Diesel Range Organics	43.8	mg/Kg
Residual Range Organics	30.2	mg/Kg
Gasoline Range Organics	3.10	mg/Kg
1,1,1-Trichloroethane	11.4J	ug/Kg
1,1-Dichloroethane	10.9J	ug/Kg
1,2,4-Trimethylbenzene	201	ug/Kg
1,3,5-Trimethylbenzene	75.8	ug/Kg
2-Butanone (MEK)	180J	ug/Kg
2-Hexanone	351	ug/Kg
4-Isopropyltoluene	23.6J	ug/Kg
Benzene	9.64J	ug/Kg
Ethylbenzene	84.7	ug/Kg
Isopropylbenzene (Cumene)	21.6J	ug/Kg
Naphthalene	35.0J	ug/Kg
n-Propylbenzene	34.2	ug/Kg
o-Xylene	138	ug/Kg
P & M -Xylene	196	ug/Kg
sec-Butylbenzene	22.1J	ug/Kg
Tetrachloroethene	72.8	ug/Kg
Toluene	13.7J	ug/Kg
Trichloroethene	30.9	ug/Kg
Xylenes (total)	334	ug/Kg

Detectable Results Summary

Client Sample ID: **RV-54**

Lab Sample ID: 1156548020

Polynuclear Aromatics GC/MS

<u>Parameter</u>	<u>Result</u>	<u>Units</u>
1-Methylnaphthalene	6.30	ug/Kg
2-Methylnaphthalene	7.03	ug/Kg
Naphthalene	20.4	ug/Kg

Semivolatile Organic Fuels

Diesel Range Organics	44.0	mg/Kg
Residual Range Organics	25.8	mg/Kg

Volatile Fuels

Volatile GC/MS

Gasoline Range Organics	3.98	mg/Kg
1,1,1-Trichloroethane	11.0J	ug/Kg
1,1-Dichloroethane	10.5J	ug/Kg
1,2,4-Trimethylbenzene	194	ug/Kg
1,3,5-Trimethylbenzene	71.9	ug/Kg
2-Butanone (MEK)	191J	ug/Kg
2-Hexanone	345	ug/Kg
4-Isopropyltoluene	22.7J	ug/Kg
Benzene	9.55J	ug/Kg
Ethylbenzene	88.6	ug/Kg
Isopropylbenzene (Cumene)	21.0J	ug/Kg
Naphthalene	41.1J	ug/Kg
n-Propylbenzene	32.7	ug/Kg
o-Xylene	142	ug/Kg
P & M -Xylene	203	ug/Kg
sec-Butylbenzene	20.8J	ug/Kg
Tetrachloroethene	73.6	ug/Kg
Toluene	14.1J	ug/Kg
Trichloroethene	30.6	ug/Kg
Xylenes (total)	345	ug/Kg

Client Sample ID: **RV-61**

Lab Sample ID: 1156548021

Semivolatile Organic Fuels

<u>Parameter</u>	<u>Result</u>	<u>Units</u>
Diesel Range Organics	17.0J	mg/Kg
Residual Range Organics	8.33J	mg/Kg

Volatile Fuels

Benzene	5.10J	ug/Kg
Ethylbenzene	36.1	ug/Kg
Gasoline Range Organics	2.08J	mg/Kg
o-Xylene	109	ug/Kg
P & M -Xylene	83.6	ug/Kg
Toluene	12.0J	ug/Kg



Results of **RV-93**

Client Sample ID: **RV-93**
Client Project ID: **15-1454 RAVN Cleanup**
Lab Sample ID: 1156548001
Lab Project ID: 1156548

Collection Date: 11/03/15 15:05
Received Date: 11/04/15 15:22
Matrix: Soil/Solid (dry weight)
Solids (%):92.1
Location:

Results by **Semivolatile Organic Fuels**

<u>Parameter</u>	<u>Result Qual</u>	<u>LOQ/CL</u>	<u>DL</u>	<u>Units</u>	<u>DF</u>	<u>Allowable Limits</u>	<u>Date Analyzed</u>
Diesel Range Organics	79.9	21.7	6.72	mg/Kg	1		11/06/15 12:15

Surrogates

5a Androstane (surr)	86.6	50-150		%	1		11/06/15 12:15
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Batch Information

Analytical Batch: XFC12196
Analytical Method: AK102
Analyst: NLL
Analytical Date/Time: 11/06/15 12:15
Container ID: 1156548001-A

Prep Batch: XXX34580
Prep Method: SW3550C
Prep Date/Time: 11/05/15 11:28
Prep Initial Wt./Vol.: 30.032 g
Prep Extract Vol: 1 mL

<u>Parameter</u>	<u>Result Qual</u>	<u>LOQ/CL</u>	<u>DL</u>	<u>Units</u>	<u>DF</u>	<u>Allowable Limits</u>	<u>Date Analyzed</u>
Residual Range Organics	165	21.7	6.72	mg/Kg	1		11/06/15 12:15

Surrogates

n-Triacontane-d62 (surr)	95.6	50-150		%	1		11/06/15 12:15
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Batch Information

Analytical Batch: XFC12196
Analytical Method: AK103
Analyst: NLL
Analytical Date/Time: 11/06/15 12:15
Container ID: 1156548001-A

Prep Batch: XXX34580
Prep Method: SW3550C
Prep Date/Time: 11/05/15 11:28
Prep Initial Wt./Vol.: 30.032 g
Prep Extract Vol: 1 mL



Results of RV-93

Client Sample ID: **RV-93**
Client Project ID: **15-1454 RAVN Cleanup**
Lab Sample ID: 1156548001
Lab Project ID: 1156548

Collection Date: 11/03/15 15:05
Received Date: 11/04/15 15:22
Matrix: Soil/Solid (dry weight)
Solids (%):92.1
Location:

Results by Volatile Fuels

<u>Parameter</u>	<u>Result Qual</u>	<u>LOQ/CL</u>	<u>DL</u>	<u>Units</u>	<u>DF</u>	<u>Allowable Limits</u>	<u>Date Analyzed</u>
Gasoline Range Organics	0.879 J	1.80	0.539	mg/Kg	1		11/10/15 20:41

Surrogates

4-Bromofluorobenzene (surr)	116	50-150		%	1		11/10/15 20:41
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Batch Information

Analytical Batch: VFC12815
Analytical Method: AK101
Analyst: KAS
Analytical Date/Time: 11/10/15 20:41
Container ID: 1156548001-B

Prep Batch: VXX28251
Prep Method: SW5035A
Prep Date/Time: 11/03/15 15:05
Prep Initial Wt./Vol.: 98.957 g
Prep Extract Vol: 32.7812 mL

<u>Parameter</u>	<u>Result Qual</u>	<u>LOQ/CL</u>	<u>DL</u>	<u>Units</u>	<u>DF</u>	<u>Allowable Limits</u>	<u>Date Analyzed</u>
Benzene	4.50 U	8.99	2.88	ug/Kg	1		11/10/15 20:41
Ethylbenzene	9.00 U	18.0	5.61	ug/Kg	1		11/10/15 20:41
o-Xylene	5.75 J	18.0	5.61	ug/Kg	1		11/10/15 20:41
P & M -Xylene	19.4 J	36.0	10.8	ug/Kg	1		11/10/15 20:41
Toluene	6.83 J	18.0	5.61	ug/Kg	1		11/10/15 20:41

Surrogates

1,4-Difluorobenzene (surr)	90	72-119		%	1		11/10/15 20:41
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Batch Information

Analytical Batch: VFC12815
Analytical Method: SW8021B
Analyst: KAS
Analytical Date/Time: 11/10/15 20:41
Container ID: 1156548001-B

Prep Batch: VXX28251
Prep Method: SW5035A
Prep Date/Time: 11/03/15 15:05
Prep Initial Wt./Vol.: 98.957 g
Prep Extract Vol: 32.7812 mL



Results of **RV-96-1**

Client Sample ID: **RV-96-1**
Client Project ID: **15-1454 RAVN Cleanup**
Lab Sample ID: 1156548002
Lab Project ID: 1156548

Collection Date: 11/03/15 14:52
Received Date: 11/04/15 15:21
Matrix: Soil/Solid (dry weight)
Solids (%):88.2
Location:

Results by **Semivolatile Organic Fuels**

<u>Parameter</u>	<u>Result Qual</u>	<u>LOQ/CL</u>	<u>DL</u>	<u>Units</u>	<u>DF</u>	<u>Allowable Limits</u>	<u>Date Analyzed</u>
Diesel Range Organics	30.8	22.4	6.96	mg/Kg	1		11/06/15 12:24

Surrogates

5a Androstane (surr)	88.2	50-150		%	1		11/06/15 12:24
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Batch Information

Analytical Batch: XFC12196
Analytical Method: AK102
Analyst: NLL
Analytical Date/Time: 11/06/15 12:24
Container ID: 1156548002-A

Prep Batch: XXX34580
Prep Method: SW3550C
Prep Date/Time: 11/05/15 11:28
Prep Initial Wt./Vol.: 30.302 g
Prep Extract Vol: 1 mL

<u>Parameter</u>	<u>Result Qual</u>	<u>LOQ/CL</u>	<u>DL</u>	<u>Units</u>	<u>DF</u>	<u>Allowable Limits</u>	<u>Date Analyzed</u>
Residual Range Organics	90.8	22.4	6.96	mg/Kg	1		11/06/15 12:24

Surrogates

n-Triacontane-d62 (surr)	90.9	50-150		%	1		11/06/15 12:24
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Batch Information

Analytical Batch: XFC12196
Analytical Method: AK103
Analyst: NLL
Analytical Date/Time: 11/06/15 12:24
Container ID: 1156548002-A

Prep Batch: XXX34580
Prep Method: SW3550C
Prep Date/Time: 11/05/15 11:28
Prep Initial Wt./Vol.: 30.302 g
Prep Extract Vol: 1 mL



Results of RV-96-1

Client Sample ID: RV-96-1
Client Project ID: 15-1454 RAVN Cleanup
Lab Sample ID: 1156548002
Lab Project ID: 1156548

Collection Date: 11/03/15 14:52
Received Date: 11/04/15 15:21
Matrix: Soil/Solid (dry weight)
Solids (%):88.2
Location:

Results by Volatile Fuels

Table with 8 columns: Parameter, Result Qual, LOQ/CL, DL, Units, DF, Allowable Limits, Date Analyzed. Row: Gasoline Range Organics, 1.54 J, 2.55, 0.765, mg/Kg, 1, 11/10/15 21:00

Surrogates

Table with 8 columns: Parameter, Result Qual, LOQ/CL, DL, Units, DF, Allowable Limits, Date Analyzed. Row: 4-Bromofluorobenzene (surr), 131, 50-150, %, 1, 11/10/15 21:00

Batch Information

Analytical Batch: VFC12815
Analytical Method: AK101
Analyst: KAS
Analytical Date/Time: 11/10/15 21:00
Container ID: 1156548002-B

Prep Batch: VXX28251
Prep Method: SW5035A
Prep Date/Time: 11/03/15 14:52
Prep Initial Wt./Vol.: 75.27 g
Prep Extract Vol: 33.8672 mL

Table with 8 columns: Parameter, Result Qual, LOQ/CL, DL, Units, DF, Allowable Limits, Date Analyzed. Rows: Benzene, Ethylbenzene, o-Xylene, P & M -Xylene, Toluene

Surrogates

Table with 8 columns: Parameter, Result Qual, LOQ/CL, DL, Units, DF, Allowable Limits, Date Analyzed. Row: 1,4-Difluorobenzene (surr), 90.4, 72-119, %, 1, 11/10/15 21:00

Batch Information

Analytical Batch: VFC12815
Analytical Method: SW8021B
Analyst: KAS
Analytical Date/Time: 11/10/15 21:00
Container ID: 1156548002-B

Prep Batch: VXX28251
Prep Method: SW5035A
Prep Date/Time: 11/03/15 14:52
Prep Initial Wt./Vol.: 75.27 g
Prep Extract Vol: 33.8672 mL



Results of **RV-X2**

Client Sample ID: **RV-X2**
Client Project ID: **15-1454 RAVN Cleanup**
Lab Sample ID: 1156548003
Lab Project ID: 1156548

Collection Date: 11/03/15 12:52
Received Date: 11/04/15 15:21
Matrix: Soil/Solid (dry weight)
Solids (%):88.4
Location:

Results by **Semivolatile Organic Fuels**

<u>Parameter</u>	<u>Result Qual</u>	<u>LOQ/CL</u>	<u>DL</u>	<u>Units</u>	<u>DF</u>	<u>Allowable Limits</u>	<u>Date Analyzed</u>
Diesel Range Organics	31.6	22.5	6.98	mg/Kg	1		11/06/15 12:34

Surrogates

5a Androstane (surr)	100	50-150		%	1		11/06/15 12:34
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Batch Information

Analytical Batch: XFC12196
Analytical Method: AK102
Analyst: NLL
Analytical Date/Time: 11/06/15 12:34
Container ID: 1156548003-A

Prep Batch: XXX34580
Prep Method: SW3550C
Prep Date/Time: 11/05/15 11:28
Prep Initial Wt./Vol.: 30.149 g
Prep Extract Vol: 1 mL

<u>Parameter</u>	<u>Result Qual</u>	<u>LOQ/CL</u>	<u>DL</u>	<u>Units</u>	<u>DF</u>	<u>Allowable Limits</u>	<u>Date Analyzed</u>
Residual Range Organics	89.7	22.5	6.98	mg/Kg	1		11/06/15 12:34

Surrogates

n-Triacontane-d62 (surr)	105	50-150		%	1		11/06/15 12:34
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Batch Information

Analytical Batch: XFC12196
Analytical Method: AK103
Analyst: NLL
Analytical Date/Time: 11/06/15 12:34
Container ID: 1156548003-A

Prep Batch: XXX34580
Prep Method: SW3550C
Prep Date/Time: 11/05/15 11:28
Prep Initial Wt./Vol.: 30.149 g
Prep Extract Vol: 1 mL



Results of RV-X2

Client Sample ID: RV-X2
Client Project ID: 15-1454 RAVN Cleanup
Lab Sample ID: 1156548003
Lab Project ID: 1156548

Collection Date: 11/03/15 12:52
Received Date: 11/04/15 15:21
Matrix: Soil/Solid (dry weight)
Solids (%):88.4
Location:

Results by Volatile Fuels

Table with 8 columns: Parameter, Result Qual, LOQ/CL, DL, Units, DF, Allowable Limits, Date Analyzed. Row: Gasoline Range Organics, 1.28 J, 2.33, 0.698, mg/Kg, 1, 11/10/15 21:18

Surrogates

Table with 8 columns: Parameter, Result Qual, LOQ/CL, DL, Units, DF, Allowable Limits, Date Analyzed. Row: 4-Bromofluorobenzene (surr), 131, 50-150, %, 1, 11/10/15 21:18

Batch Information

Analytical Batch: VFC12815
Analytical Method: AK101
Analyst: KAS
Analytical Date/Time: 11/10/15 21:18
Container ID: 1156548003-B

Prep Batch: VXX28251
Prep Method: SW5035A
Prep Date/Time: 11/03/15 12:52
Prep Initial Wt./Vol.: 84.895 g
Prep Extract Vol: 34.8846 mL

Table with 8 columns: Parameter, Result Qual, LOQ/CL, DL, Units, DF, Allowable Limits, Date Analyzed. Rows: Benzene, Ethylbenzene, o-Xylene, P & M -Xylene, Toluene

Surrogates

Table with 8 columns: Parameter, Result Qual, LOQ/CL, DL, Units, DF, Allowable Limits, Date Analyzed. Row: 1,4-Difluorobenzene (surr), 90.9, 72-119, %, 1, 11/10/15 21:18

Batch Information

Analytical Batch: VFC12815
Analytical Method: SW8021B
Analyst: KAS
Analytical Date/Time: 11/10/15 21:18
Container ID: 1156548003-B

Prep Batch: VXX28251
Prep Method: SW5035A
Prep Date/Time: 11/03/15 12:52
Prep Initial Wt./Vol.: 84.895 g
Prep Extract Vol: 34.8846 mL



Results of **RV-97**

Client Sample ID: **RV-97**
Client Project ID: **15-1454 RAVN Cleanup**
Lab Sample ID: 1156548004
Lab Project ID: 1156548

Collection Date: 11/03/15 15:01
Received Date: 11/04/15 15:21
Matrix: Soil/Solid (dry weight)
Solids (%):85.8
Location:

Results by **Semivolatile Organic Fuels**

<u>Parameter</u>	<u>Result Qual</u>	<u>LOQ/CL</u>	<u>DL</u>	<u>Units</u>	<u>DF</u>	<u>Allowable Limits</u>	<u>Date Analyzed</u>
Diesel Range Organics	11.5 U	23.0	7.12	mg/Kg	1		11/06/15 12:44

Surrogates

5a Androstane (surr)	86.6	50-150		%	1		11/06/15 12:44
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Batch Information

Analytical Batch: XFC12196
Analytical Method: AK102
Analyst: NLL
Analytical Date/Time: 11/06/15 12:44
Container ID: 1156548004-A

Prep Batch: XXX34580
Prep Method: SW3550C
Prep Date/Time: 11/05/15 11:28
Prep Initial Wt./Vol.: 30.436 g
Prep Extract Vol: 1 mL

<u>Parameter</u>	<u>Result Qual</u>	<u>LOQ/CL</u>	<u>DL</u>	<u>Units</u>	<u>DF</u>	<u>Allowable Limits</u>	<u>Date Analyzed</u>
Residual Range Organics	26.5	23.0	7.12	mg/Kg	1		11/06/15 12:44

Surrogates

n-Triacontane-d62 (surr)	94.6	50-150		%	1		11/06/15 12:44
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Batch Information

Analytical Batch: XFC12196
Analytical Method: AK103
Analyst: NLL
Analytical Date/Time: 11/06/15 12:44
Container ID: 1156548004-A

Prep Batch: XXX34580
Prep Method: SW3550C
Prep Date/Time: 11/05/15 11:28
Prep Initial Wt./Vol.: 30.436 g
Prep Extract Vol: 1 mL



Results of **RV-97**

Client Sample ID: **RV-97**
Client Project ID: **15-1454 RAVN Cleanup**
Lab Sample ID: 1156548004
Lab Project ID: 1156548

Collection Date: 11/03/15 15:01
Received Date: 11/04/15 15:21
Matrix: Soil/Solid (dry weight)
Solids (%):85.8
Location:

Results by **Volatile Fuels**

<u>Parameter</u>	<u>Result Qual</u>	<u>LOQ/CL</u>	<u>DL</u>	<u>Units</u>	<u>DF</u>	<u>Allowable Limits</u>	<u>Date Analyzed</u>
Gasoline Range Organics	1.19 U	2.38	0.713	mg/Kg	1		11/11/15 02:39

Surrogates

4-Bromofluorobenzene (surr)	112	50-150		%	1		11/11/15 02:39
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Batch Information

Analytical Batch: VFC12815
Analytical Method: AK101
Analyst: KAS
Analytical Date/Time: 11/11/15 02:39
Container ID: 1156548004-B

Prep Batch: VXX28252
Prep Method: SW5035A
Prep Date/Time: 11/03/15 15:01
Prep Initial Wt./Vol.: 93.862 g
Prep Extract Vol: 38.2971 mL

<u>Parameter</u>	<u>Result Qual</u>	<u>LOQ/CL</u>	<u>DL</u>	<u>Units</u>	<u>DF</u>	<u>Allowable Limits</u>	<u>Date Analyzed</u>
Benzene	5.95 U	11.9	3.80	ug/Kg	1		11/11/15 02:39
Ethylbenzene	11.9 U	23.8	7.42	ug/Kg	1		11/11/15 02:39
o-Xylene	11.9 U	23.8	7.42	ug/Kg	1		11/11/15 02:39
P & M -Xylene	23.8 U	47.5	14.3	ug/Kg	1		11/11/15 02:39
Toluene	11.9 U	23.8	7.42	ug/Kg	1		11/11/15 02:39

Surrogates

1,4-Difluorobenzene (surr)	90.2	72-119		%	1		11/11/15 02:39
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Batch Information

Analytical Batch: VFC12815
Analytical Method: SW8021B
Analyst: KAS
Analytical Date/Time: 11/11/15 02:39
Container ID: 1156548004-B

Prep Batch: VXX28252
Prep Method: SW5035A
Prep Date/Time: 11/03/15 15:01
Prep Initial Wt./Vol.: 93.862 g
Prep Extract Vol: 38.2971 mL



Results of RV-108

Client Sample ID: RV-108
Client Project ID: 15-1454 RAVN Cleanup
Lab Sample ID: 1156548005
Lab Project ID: 1156548

Collection Date: 11/03/15 16:30
Received Date: 11/04/15 15:21
Matrix: Soil/Solid (dry weight)
Solids (%):93.7
Location:

Results by Semivolatile Organic Fuels

Table with 8 columns: Parameter, Result Qual, LOQ/CL, DL, Units, DF, Allowable Limits, Date Analyzed. Rows include Diesel Range Organics and Surrogates (5a Androstane).

Batch Information

Analytical Batch: XFC12196
Analytical Method: AK102
Analyst: NLL
Analytical Date/Time: 11/06/15 12:54
Container ID: 1156548005-A
Prep Batch: XXX34580
Prep Method: SW3550C
Prep Date/Time: 11/05/15 11:28
Prep Initial Wt./Vol.: 30.058 g
Prep Extract Vol: 1 mL

Table with 8 columns: Parameter, Result Qual, LOQ/CL, DL, Units, DF, Allowable Limits, Date Analyzed. Rows include Residual Range Organics and Surrogates (n-Triacontane-d62).

Batch Information

Analytical Batch: XFC12196
Analytical Method: AK103
Analyst: NLL
Analytical Date/Time: 11/06/15 12:54
Container ID: 1156548005-A
Prep Batch: XXX34580
Prep Method: SW3550C
Prep Date/Time: 11/05/15 11:28
Prep Initial Wt./Vol.: 30.058 g
Prep Extract Vol: 1 mL



Results of RV-108

Client Sample ID: RV-108
Client Project ID: 15-1454 RAVN Cleanup
Lab Sample ID: 1156548005
Lab Project ID: 1156548

Collection Date: 11/03/15 16:30
Received Date: 11/04/15 15:21
Matrix: Soil/Solid (dry weight)
Solids (%):93.7
Location:

Results by Volatile Fuels

Table with 8 columns: Parameter, Result Qual, LOQ/CL, DL, Units, DF, Allowable Limits, Date Analyzed. Row: Gasoline Range Organics, 0.528 J, 1.73, 0.518, mg/Kg, 1, 11/11/15 02:58

Surrogates

Table with 8 columns: Parameter, Result Qual, LOQ/CL, DL, Units, DF, Allowable Limits, Date Analyzed. Row: 4-Bromofluorobenzene (surr), 107, 50-150, %, 1, 11/11/15 02:58

Batch Information

Analytical Batch: VFC12815
Analytical Method: AK101
Analyst: KAS
Analytical Date/Time: 11/11/15 02:58
Container ID: 1156548005-B

Prep Batch: VXX28252
Prep Method: SW5035A
Prep Date/Time: 11/03/15 16:30
Prep Initial Wt./Vol.: 95.671 g
Prep Extract Vol: 30.9821 mL

Table with 8 columns: Parameter, Result Qual, LOQ/CL, DL, Units, DF, Allowable Limits, Date Analyzed. Rows: Benzene, Ethylbenzene, o-Xylene, P & M -Xylene, Toluene

Surrogates

Table with 8 columns: Parameter, Result Qual, LOQ/CL, DL, Units, DF, Allowable Limits, Date Analyzed. Row: 1,4-Difluorobenzene (surr), 90.6, 72-119, %, 1, 11/11/15 02:58

Batch Information

Analytical Batch: VFC12815
Analytical Method: SW8021B
Analyst: KAS
Analytical Date/Time: 11/11/15 02:58
Container ID: 1156548005-B

Prep Batch: VXX28252
Prep Method: SW5035A
Prep Date/Time: 11/03/15 16:30
Prep Initial Wt./Vol.: 95.671 g
Prep Extract Vol: 30.9821 mL



Results of RV-110

Client Sample ID: RV-110
Client Project ID: 15-1454 RAVN Cleanup
Lab Sample ID: 1156548006
Lab Project ID: 1156548

Collection Date: 11/03/15 16:35
Received Date: 11/04/15 15:21
Matrix: Soil/Solid (dry weight)
Solids (%):88.1
Location:

Results by Semivolatile Organic Fuels

Table with 8 columns: Parameter, Result Qual, LOQ/CL, DL, Units, DF, Allowable Limits, Date Analyzed. Rows include Diesel Range Organics and Surrogates (5a Androstane).

Batch Information

Analytical Batch: XFC12196
Analytical Method: AK102
Analyst: NLL
Analytical Date/Time: 11/06/15 13:04
Container ID: 1156548006-A
Prep Batch: XXX34580
Prep Method: SW3550C
Prep Date/Time: 11/05/15 11:28
Prep Initial Wt./Vol.: 30.393 g
Prep Extract Vol: 1 mL

Table with 8 columns: Parameter, Result Qual, LOQ/CL, DL, Units, DF, Allowable Limits, Date Analyzed. Rows include Residual Range Organics and Surrogates (n-Triacontane-d62).

Batch Information

Analytical Batch: XFC12196
Analytical Method: AK103
Analyst: NLL
Analytical Date/Time: 11/06/15 13:04
Container ID: 1156548006-A
Prep Batch: XXX34580
Prep Method: SW3550C
Prep Date/Time: 11/05/15 11:28
Prep Initial Wt./Vol.: 30.393 g
Prep Extract Vol: 1 mL



Results of RV-110

Client Sample ID: RV-110
Client Project ID: 15-1454 RAVN Cleanup
Lab Sample ID: 1156548006
Lab Project ID: 1156548

Collection Date: 11/03/15 16:35
Received Date: 11/04/15 15:21
Matrix: Soil/Solid (dry weight)
Solids (%):88.1
Location:

Results by Volatile Fuels

Table with 8 columns: Parameter, Result Qual, LOQ/CL, DL, Units, DF, Allowable Limits, Date Analyzed. Row: Gasoline Range Organics, 1.17 U, 2.34, 0.702, mg/Kg, 1, 11/11/15 03:17

Surrogates

Table with 8 columns: Parameter, Result Qual, LOQ/CL, DL, Units, DF, Allowable Limits, Date Analyzed. Row: 4-Bromofluorobenzene (surr), 115, 50-150, %, 1, 11/11/15 03:17

Batch Information

Analytical Batch: VFC12815
Analytical Method: AK101
Analyst: KAS
Analytical Date/Time: 11/11/15 03:17
Container ID: 1156548006-B

Prep Batch: VXX28252
Prep Method: SW5035A
Prep Date/Time: 11/03/15 16:35
Prep Initial Wt./Vol.: 85.244 g
Prep Extract Vol: 35.1613 mL

Table with 8 columns: Parameter, Result Qual, LOQ/CL, DL, Units, DF, Allowable Limits, Date Analyzed. Rows: Benzene, Ethylbenzene, o-Xylene, P & M -Xylene, Toluene

Surrogates

Table with 8 columns: Parameter, Result Qual, LOQ/CL, DL, Units, DF, Allowable Limits, Date Analyzed. Row: 1,4-Difluorobenzene (surr), 90.8, 72-119, %, 1, 11/11/15 03:17

Batch Information

Analytical Batch: VFC12815
Analytical Method: SW8021B
Analyst: KAS
Analytical Date/Time: 11/11/15 03:17
Container ID: 1156548006-B

Prep Batch: VXX28252
Prep Method: SW5035A
Prep Date/Time: 11/03/15 16:35
Prep Initial Wt./Vol.: 85.244 g
Prep Extract Vol: 35.1613 mL

**Results of RV-121**

Client Sample ID: **RV-121**
 Client Project ID: **15-1454 RAVN Cleanup**
 Lab Sample ID: 1156548008
 Lab Project ID: 1156548

Collection Date: 11/04/15 11:30
 Received Date: 11/04/15 15:21
 Matrix: Soil/Solid (dry weight)
 Solids (%):91.5
 Location:

Results by Polynuclear Aromatics GC/MS

<u>Parameter</u>	<u>Result Qual</u>	<u>LOQ/CL</u>	<u>DL</u>	<u>Units</u>	<u>DF</u>	<u>Allowable Limits</u>	<u>Date Analyzed</u>
1-Methylnaphthalene	2.72 U	5.44	1.63	ug/Kg	1		11/10/15 16:21
2-Methylnaphthalene	2.72 U	5.44	1.63	ug/Kg	1		11/10/15 16:21
Acenaphthene	2.72 U	5.44	1.63	ug/Kg	1		11/10/15 16:21
Acenaphthylene	2.72 U	5.44	1.63	ug/Kg	1		11/10/15 16:21
Anthracene	2.72 U	5.44	1.63	ug/Kg	1		11/10/15 16:21
Benzo(a)Anthracene	2.72 U	5.44	1.63	ug/Kg	1		11/10/15 16:21
Benzo[a]pyrene	2.72 U	5.44	1.63	ug/Kg	1		11/10/15 16:21
Benzo[b]Fluoranthene	2.72 U	5.44	1.63	ug/Kg	1		11/10/15 16:21
Benzo[g,h,i]perylene	2.72 U	5.44	1.63	ug/Kg	1		11/10/15 16:21
Benzo[k]fluoranthene	2.72 U	5.44	1.63	ug/Kg	1		11/10/15 16:21
Chrysene	2.72 U	5.44	1.63	ug/Kg	1		11/10/15 16:21
Dibenzo[a,h]anthracene	2.72 U	5.44	1.63	ug/Kg	1		11/10/15 16:21
Fluoranthene	2.72 U	5.44	1.63	ug/Kg	1		11/10/15 16:21
Fluorene	2.72 U	5.44	1.63	ug/Kg	1		11/10/15 16:21
Indeno[1,2,3-c,d] pyrene	2.72 U	5.44	1.63	ug/Kg	1		11/10/15 16:21
Naphthalene	2.72 U	5.44	1.63	ug/Kg	1		11/10/15 16:21
Phenanthrene	2.72 U	5.44	1.63	ug/Kg	1		11/10/15 16:21
Pyrene	2.72 U	5.44	1.63	ug/Kg	1		11/10/15 16:21
Surrogates							
2-Fluorobiphenyl (surr)	80.4	46-115		%	1		11/10/15 16:21
Terphenyl-d14 (surr)	95.4	58-113		%	1		11/10/15 16:21

Batch Information

Analytical Batch: XMS9067
 Analytical Method: 8270D SIMS (PAH)
 Analyst: NRB
 Analytical Date/Time: 11/10/15 16:21
 Container ID: 1156548008-A

Prep Batch: XXX34588
 Prep Method: SW3550C
 Prep Date/Time: 11/06/15 12:06
 Prep Initial Wt./Vol.: 22.617 g
 Prep Extract Vol: 1 mL



Results of RV-121

Client Sample ID: RV-121
Client Project ID: 15-1454 RAVN Cleanup
Lab Sample ID: 1156548008
Lab Project ID: 1156548

Collection Date: 11/04/15 11:30
Received Date: 11/04/15 15:21
Matrix: Soil/Solid (dry weight)
Solids (%):91.5
Location:

Results by Semivolatile Organic Fuels

Table with 8 columns: Parameter, Result Qual, LOQ/CL, DL, Units, DF, Allowable Limits, Date Analyzed. Row: Diesel Range Organics, 20.4 J, 21.7, 6.74, mg/Kg, 1, 11/06/15 13:14

Surrogates

Table with 8 columns: Parameter, Result Qual, LOQ/CL, DL, Units, DF, Allowable Limits, Date Analyzed. Row: 5a Androstane (surr), 83.3, 50-150, %, 1, 11/06/15 13:14

Batch Information

Analytical Batch: XFC12196
Analytical Method: AK102
Analyst: NLL
Analytical Date/Time: 11/06/15 13:14
Container ID: 1156548008-A

Prep Batch: XXX34580
Prep Method: SW3550C
Prep Date/Time: 11/05/15 11:28
Prep Initial Wt./Vol.: 30.174 g
Prep Extract Vol: 1 mL

Table with 8 columns: Parameter, Result Qual, LOQ/CL, DL, Units, DF, Allowable Limits, Date Analyzed. Row: Residual Range Organics, 10.9 U, 21.7, 6.74, mg/Kg, 1, 11/06/15 13:14

Surrogates

Table with 8 columns: Parameter, Result Qual, LOQ/CL, DL, Units, DF, Allowable Limits, Date Analyzed. Row: n-Triacontane-d62 (surr), 88.5, 50-150, %, 1, 11/06/15 13:14

Batch Information

Analytical Batch: XFC12196
Analytical Method: AK103
Analyst: NLL
Analytical Date/Time: 11/06/15 13:14
Container ID: 1156548008-A

Prep Batch: XXX34580
Prep Method: SW3550C
Prep Date/Time: 11/05/15 11:28
Prep Initial Wt./Vol.: 30.174 g
Prep Extract Vol: 1 mL



Results of **RV-121**

Client Sample ID: **RV-121**
Client Project ID: **15-1454 RAVN Cleanup**
Lab Sample ID: 1156548008
Lab Project ID: 1156548

Collection Date: 11/04/15 11:30
Received Date: 11/04/15 15:21
Matrix: Soil/Solid (dry weight)
Solids (%):91.5
Location:

Results by **Volatile Fuels**

<u>Parameter</u>	<u>Result</u>	<u>Qual</u>	<u>LOQ/CL</u>	<u>DL</u>	<u>Units</u>	<u>DF</u>	<u>Allowable Limits</u>	<u>Date Analyzed</u>
Gasoline Range Organics	2.01		1.98	0.594	mg/Kg	1		11/11/15 03:35
Surrogates								
4-Bromofluorobenzene (surr)	112		50-150		%	1		11/11/15 03:35

Batch Information

Analytical Batch: VFC12815
Analytical Method: AK101
Analyst: KAS
Analytical Date/Time: 11/11/15 03:35
Container ID: 1156548008-B

Prep Batch: VXX28252
Prep Method: SW5035A
Prep Date/Time: 11/04/15 11:30
Prep Initial Wt./Vol.: 90.23 g
Prep Extract Vol: 32.6847 mL



Results of RV-121

Client Sample ID: RV-121
Client Project ID: 15-1454 RAVN Cleanup
Lab Sample ID: 1156548008
Lab Project ID: 1156548

Collection Date: 11/04/15 11:30
Received Date: 11/04/15 15:21
Matrix: Soil/Solid (dry weight)
Solids (%):91.5
Location:

Results by Volatile GC/MS

Table with 8 columns: Parameter, Result Qual, LOQ/CL, DL, Units, DF, Allowable Limits, Date Analyzed. Lists various chemical compounds and their detection results.



Results of RV-121

Client Sample ID: **RV-121**
 Client Project ID: **15-1454 RAVN Cleanup**
 Lab Sample ID: 1156548008
 Lab Project ID: 1156548

Collection Date: 11/04/15 11:30
 Received Date: 11/04/15 15:21
 Matrix: Soil/Solid (dry weight)
 Solids (%):91.5
 Location:

Results by Volatile GC/MS

<u>Parameter</u>	<u>Result Qual</u>	<u>LOQ/CL</u>	<u>DL</u>	<u>Units</u>	<u>DF</u>	<u>Allowable Limits</u>	<u>Date Analyzed</u>
Chloroform	9.90 U	19.8	6.18	ug/Kg	1		11/06/15 20:41
Chloromethane	9.90 U	19.8	6.18	ug/Kg	1		11/06/15 20:41
cis-1,2-Dichloroethene	9.90 U	19.8	6.18	ug/Kg	1		11/06/15 20:41
cis-1,3-Dichloropropene	9.90 U	19.8	6.18	ug/Kg	1		11/06/15 20:41
Dibromochloromethane	9.90 U	19.8	6.18	ug/Kg	1		11/06/15 20:41
Dibromomethane	9.90 U	19.8	6.18	ug/Kg	1		11/06/15 20:41
Dichlorodifluoromethane	19.8 U	39.6	11.9	ug/Kg	1		11/06/15 20:41
Ethylbenzene	86.3	19.8	6.18	ug/Kg	1		11/06/15 20:41
Freon-113	39.6 U	79.2	24.5	ug/Kg	1		11/06/15 20:41
Hexachlorobutadiene	19.8 U	39.6	11.9	ug/Kg	1		11/06/15 20:41
Isopropylbenzene (Cumene)	13.1 J	19.8	6.18	ug/Kg	1		11/06/15 20:41
Methylene chloride	39.6 U	79.2	24.5	ug/Kg	1		11/06/15 20:41
Methyl-t-butyl ether	39.6 U	79.2	24.5	ug/Kg	1		11/06/15 20:41
Naphthalene	19.8 U	39.6	11.9	ug/Kg	1		11/06/15 20:41
n-Butylbenzene	9.90 U	19.8	6.18	ug/Kg	1		11/06/15 20:41
n-Propylbenzene	19.6 J	19.8	6.18	ug/Kg	1		11/06/15 20:41
o-Xylene	102	19.8	6.18	ug/Kg	1		11/06/15 20:41
P & M -Xylene	220	39.6	11.9	ug/Kg	1		11/06/15 20:41
sec-Butylbenzene	13.3 J	19.8	6.18	ug/Kg	1		11/06/15 20:41
Styrene	9.90 U	19.8	6.18	ug/Kg	1		11/06/15 20:41
tert-Butylbenzene	7.92 J	19.8	6.18	ug/Kg	1		11/06/15 20:41
Tetrachloroethene	28.3	9.90	3.09	ug/Kg	1		11/06/15 20:41
Toluene	14.5 J	19.8	6.18	ug/Kg	1		11/06/15 20:41
trans-1,2-Dichloroethene	9.90 U	19.8	6.18	ug/Kg	1		11/06/15 20:41
trans-1,3-Dichloropropene	9.90 U	19.8	6.18	ug/Kg	1		11/06/15 20:41
Trichloroethene	18.8	9.90	3.09	ug/Kg	1		11/06/15 20:41
Trichlorofluoromethane	19.8 U	39.6	11.9	ug/Kg	1		11/06/15 20:41
Vinyl acetate	39.6 U	79.2	24.5	ug/Kg	1		11/06/15 20:41
Vinyl chloride	3.96 U	7.92	2.45	ug/Kg	1		11/06/15 20:41
Xylenes (total)	322	59.4	18.1	ug/Kg	1		11/06/15 20:41
Surrogates							
1,2-Dichloroethane-D4 (surr)	123	71-136		%	1		11/06/15 20:41
4-Bromofluorobenzene (surr)	106	55-151		%	1		11/06/15 20:41
Toluene-d8 (surr)	99.1	85-116		%	1		11/06/15 20:41



Results of RV-121

Client Sample ID: **RV-121**
Client Project ID: **15-1454 RAVN Cleanup**
Lab Sample ID: 1156548008
Lab Project ID: 1156548

Collection Date: 11/04/15 11:30
Received Date: 11/04/15 15:21
Matrix: Soil/Solid (dry weight)
Solids (%):91.5
Location:

Results by Volatile GC/MS

Batch Information

Analytical Batch: VMS15420
Analytical Method: SW8260B
Analyst: ST
Analytical Date/Time: 11/06/15 20:41
Container ID: 1156548008-B

Prep Batch: VXX28246
Prep Method: SW5035A
Prep Date/Time: 11/04/15 11:30
Prep Initial Wt./Vol.: 90.23 g
Prep Extract Vol: 32.6847 mL



Results of RV-119

Client Sample ID: RV-119
Client Project ID: 15-1454 RAVN Cleanup
Lab Sample ID: 1156548009
Lab Project ID: 1156548

Collection Date: 11/04/15 11:40
Received Date: 11/04/15 15:21
Matrix: Soil/Solid (dry weight)
Solids (%):85.1
Location:

Results by Polynuclear Aromatics GC/MS

Table with 8 columns: Parameter, Result Qual, LOQ/CL, DL, Units, DF, Allowable Limits, Date Analyzed. Lists various polynuclear aromatic hydrocarbons and their surrogate compounds with associated values.

Batch Information

Analytical Batch: XMS9067
Analytical Method: 8270D SIMS (PAH)
Analyst: NRB
Analytical Date/Time: 11/10/15 16:36
Container ID: 1156548009-A

Prep Batch: XXX34588
Prep Method: SW3550C
Prep Date/Time: 11/06/15 12:06
Prep Initial Wt./Vol.: 22.521 g
Prep Extract Vol: 1 mL



Results of RV-119

Client Sample ID: RV-119
Client Project ID: 15-1454 RAVN Cleanup
Lab Sample ID: 1156548009
Lab Project ID: 1156548

Collection Date: 11/04/15 11:40
Received Date: 11/04/15 15:21
Matrix: Soil/Solid (dry weight)
Solids (%):85.1
Location:

Results by Semivolatile Organic Fuels

Table with 8 columns: Parameter, Result Qual, LOQ/CL, DL, Units, DF, Allowable Limits, Date Analyzed. Rows include Diesel Range Organics and Surrogates (5a Androstane).

Batch Information

Analytical Batch: XFC12196
Analytical Method: AK102
Analyst: NLL
Analytical Date/Time: 11/06/15 13:24
Container ID: 1156548009-A

Prep Batch: XXX34580
Prep Method: SW3550C
Prep Date/Time: 11/05/15 11:28
Prep Initial Wt./Vol.: 30.436 g
Prep Extract Vol: 1 mL

Table with 8 columns: Parameter, Result Qual, LOQ/CL, DL, Units, DF, Allowable Limits, Date Analyzed. Rows include Residual Range Organics and Surrogates (n-Triacontane-d62).

Batch Information

Analytical Batch: XFC12196
Analytical Method: AK103
Analyst: NLL
Analytical Date/Time: 11/06/15 13:24
Container ID: 1156548009-A

Prep Batch: XXX34580
Prep Method: SW3550C
Prep Date/Time: 11/05/15 11:28
Prep Initial Wt./Vol.: 30.436 g
Prep Extract Vol: 1 mL



Results of RV-119

Client Sample ID: **RV-119**
Client Project ID: **15-1454 RAVN Cleanup**
Lab Sample ID: 1156548009
Lab Project ID: 1156548

Collection Date: 11/04/15 11:40
Received Date: 11/04/15 15:21
Matrix: Soil/Solid (dry weight)
Solids (%):85.1
Location:

Results by Volatile Fuels

<u>Parameter</u>	<u>Result Qual</u>	<u>LOQ/CL</u>	<u>DL</u>	<u>Units</u>	<u>DF</u>	<u>Allowable Limits</u>	<u>Date Analyzed</u>
Gasoline Range Organics	2.73 J	2.99	0.897	mg/Kg	1		11/11/15 04:32
Surrogates							
4-Bromofluorobenzene (surr)	125	50-150		%	1		11/11/15 04:32

Batch Information

Analytical Batch: VFC12815
Analytical Method: AK101
Analyst: KAS
Analytical Date/Time: 11/11/15 04:32
Container ID: 1156548009-B

Prep Batch: VXX28252
Prep Method: SW5035A
Prep Date/Time: 11/04/15 11:40
Prep Initial Wt./Vol.: 69.455 g
Prep Extract Vol: 35.338 mL



Results of RV-119

Client Sample ID: RV-119
Client Project ID: 15-1454 RAVN Cleanup
Lab Sample ID: 1156548009
Lab Project ID: 1156548

Collection Date: 11/04/15 11:40
Received Date: 11/04/15 15:21
Matrix: Soil/Solid (dry weight)
Solids (%):85.1
Location:

Results by Volatile GC/MS

Table with 8 columns: Parameter, Result Qual, LOQ/CL, DL, Units, DF, Allowable Limits, Date Analyzed. Lists various chemical compounds and their detection results.



Results of RV-119

Client Sample ID: RV-119
Client Project ID: 15-1454 RAVN Cleanup
Lab Sample ID: 1156548009
Lab Project ID: 1156548

Collection Date: 11/04/15 11:40
Received Date: 11/04/15 15:21
Matrix: Soil/Solid (dry weight)
Solids (%):85.1
Location:

Results by Volatile GC/MS

Table with 8 columns: Parameter, Result Qual, LOQ/CL, DL, Units, DF, Allowable Limits, Date Analyzed. Lists various chemical compounds and their detection results.

Results of RV-119

Client Sample ID: **RV-119**
Client Project ID: **15-1454 RAVN Cleanup**
Lab Sample ID: 1156548009
Lab Project ID: 1156548

Collection Date: 11/04/15 11:40
Received Date: 11/04/15 15:21
Matrix: Soil/Solid (dry weight)
Solids (%):85.1
Location:

Results by Volatile GC/MS

Batch Information

Analytical Batch: VMS15420
Analytical Method: SW8260B
Analyst: ST
Analytical Date/Time: 11/06/15 20:57
Container ID: 1156548009-B

Prep Batch: VXX28246
Prep Method: SW5035A
Prep Date/Time: 11/04/15 11:40
Prep Initial Wt./Vol.: 69.455 g
Prep Extract Vol: 35.338 mL



Results of Trip Blank

Client Sample ID: **Trip Blank**
Client Project ID: **15-1454 RAVN Cleanup**
Lab Sample ID: 1156548010
Lab Project ID: 1156548

Collection Date: 11/03/15 12:52
Received Date: 11/04/15 15:21
Matrix: Soil/Solid (dry weight)
Solids (%):
Location:

Results by Volatile Fuels

<u>Parameter</u>	<u>Result Qual</u>	<u>LOQ/CL</u>	<u>DL</u>	<u>Units</u>	<u>DF</u>	<u>Allowable Limits</u>	<u>Date Analyzed</u>
Gasoline Range Organics	1.24 U	2.47	0.742	mg/Kg	1		11/10/15 14:05
Surrogates							
4-Bromofluorobenzene (surr)	99.7	50-150		%	1		11/10/15 14:05

Batch Information

Analytical Batch: VFC12815
Analytical Method: AK101
Analyst: KAS
Analytical Date/Time: 11/10/15 14:05
Container ID: 1156548010-A

Prep Batch: VXX28251
Prep Method: SW5035A
Prep Date/Time: 11/03/15 12:52
Prep Initial Wt./Vol.: 50.514 g
Prep Extract Vol: 25 mL



Results of Trip Blank

Client Sample ID: **Trip Blank**
 Client Project ID: **15-1454 RAVN Cleanup**
 Lab Sample ID: 1156548010
 Lab Project ID: 1156548

Collection Date: 11/03/15 12:52
 Received Date: 11/04/15 15:21
 Matrix: Soil/Solid (dry weight)
 Solids (%):
 Location:

Results by Volatile GC/MS

<u>Parameter</u>	<u>Result Qual</u>	<u>LOQ/CL</u>	<u>DL</u>	<u>Units</u>	<u>DF</u>	<u>Allowable Limits</u>	<u>Date Analyzed</u>
1,1,1,2-Tetrachloroethane	12.4 U	24.7	7.72	ug/Kg	1		11/10/15 16:57
1,1,1-Trichloroethane	12.4 U	24.7	7.72	ug/Kg	1		11/10/15 16:57
1,1,2,2-Tetrachloroethane	6.20 U	12.4	3.86	ug/Kg	1		11/10/15 16:57
1,1,2-Trichloroethane	4.95 U	9.90	3.07	ug/Kg	1		11/10/15 16:57
1,1-Dichloroethane	12.4 U	24.7	7.72	ug/Kg	1		11/10/15 16:57
1,1-Dichloroethene	12.4 U	24.7	7.72	ug/Kg	1		11/10/15 16:57
1,1-Dichloropropene	12.4 U	24.7	7.72	ug/Kg	1		11/10/15 16:57
1,2,3-Trichlorobenzene	24.8 U	49.5	14.8	ug/Kg	1		11/10/15 16:57
1,2,3-Trichloropropane	12.4 U	24.7	7.72	ug/Kg	1		11/10/15 16:57
1,2,4-Trichlorobenzene	12.4 U	24.7	7.72	ug/Kg	1		11/10/15 16:57
1,2,4-Trimethylbenzene	24.8 U	49.5	14.8	ug/Kg	1		11/10/15 16:57
1,2-Dibromo-3-chloropropane	49.5 U	99.0	30.7	ug/Kg	1		11/10/15 16:57
1,2-Dibromoethane	4.95 U	9.90	3.07	ug/Kg	1		11/10/15 16:57
1,2-Dichlorobenzene	12.4 U	24.7	7.72	ug/Kg	1		11/10/15 16:57
1,2-Dichloroethane	4.95 U	9.90	3.07	ug/Kg	1		11/10/15 16:57
1,2-Dichloropropane	4.95 U	9.90	3.07	ug/Kg	1		11/10/15 16:57
1,3,5-Trimethylbenzene	12.4 U	24.7	7.72	ug/Kg	1		11/10/15 16:57
1,3-Dichlorobenzene	12.4 U	24.7	7.72	ug/Kg	1		11/10/15 16:57
1,3-Dichloropropane	4.95 U	9.90	3.07	ug/Kg	1		11/10/15 16:57
1,4-Dichlorobenzene	12.4 U	24.7	7.72	ug/Kg	1		11/10/15 16:57
2,2-Dichloropropane	12.4 U	24.7	7.72	ug/Kg	1		11/10/15 16:57
2-Butanone (MEK)	124 U	247	77.2	ug/Kg	1		11/10/15 16:57
2-Chlorotoluene	12.4 U	24.7	7.72	ug/Kg	1		11/10/15 16:57
2-Hexanone	124 U	247	77.2	ug/Kg	1		11/10/15 16:57
4-Chlorotoluene	12.4 U	24.7	7.72	ug/Kg	1		11/10/15 16:57
4-Isopropyltoluene	12.4 U	24.7	7.72	ug/Kg	1		11/10/15 16:57
4-Methyl-2-pentanone (MIBK)	124 U	247	77.2	ug/Kg	1		11/10/15 16:57
Benzene	6.20 U	12.4	3.86	ug/Kg	1		11/10/15 16:57
Bromobenzene	12.4 U	24.7	7.72	ug/Kg	1		11/10/15 16:57
Bromochloromethane	12.4 U	24.7	7.72	ug/Kg	1		11/10/15 16:57
Bromodichloromethane	12.4 U	24.7	7.72	ug/Kg	1		11/10/15 16:57
Bromoform	12.4 U	24.7	7.72	ug/Kg	1		11/10/15 16:57
Bromomethane	99.0 U	198	61.4	ug/Kg	1		11/10/15 16:57
Carbon disulfide	49.5 U	99.0	30.7	ug/Kg	1		11/10/15 16:57
Carbon tetrachloride	6.20 U	12.4	3.86	ug/Kg	1		11/10/15 16:57
Chlorobenzene	12.4 U	24.7	7.72	ug/Kg	1		11/10/15 16:57
Chloroethane	99.0 U	198	61.4	ug/Kg	1		11/10/15 16:57

Print Date: 11/17/2015 4:19:57PM

J flagging is activated



Results of Trip Blank

Client Sample ID: **Trip Blank**
 Client Project ID: **15-1454 RAVN Cleanup**
 Lab Sample ID: 1156548010
 Lab Project ID: 1156548

Collection Date: 11/03/15 12:52
 Received Date: 11/04/15 15:21
 Matrix: Soil/Solid (dry weight)
 Solids (%):
 Location:

Results by Volatile GC/MS

<u>Parameter</u>	<u>Result Qual</u>	<u>LOQ/CL</u>	<u>DL</u>	<u>Units</u>	<u>DF</u>	<u>Allowable Limits</u>	<u>Date Analyzed</u>
Chloroform	12.4 U	24.7	7.72	ug/Kg	1		11/10/15 16:57
Chloromethane	12.4 U	24.7	7.72	ug/Kg	1		11/10/15 16:57
cis-1,2-Dichloroethene	12.4 U	24.7	7.72	ug/Kg	1		11/10/15 16:57
cis-1,3-Dichloropropene	12.4 U	24.7	7.72	ug/Kg	1		11/10/15 16:57
Dibromochloromethane	12.4 U	24.7	7.72	ug/Kg	1		11/10/15 16:57
Dibromomethane	12.4 U	24.7	7.72	ug/Kg	1		11/10/15 16:57
Dichlorodifluoromethane	24.8 U	49.5	14.8	ug/Kg	1		11/10/15 16:57
Ethylbenzene	12.4 U	24.7	7.72	ug/Kg	1		11/10/15 16:57
Freon-113	49.5 U	99.0	30.7	ug/Kg	1		11/10/15 16:57
Hexachlorobutadiene	24.8 U	49.5	14.8	ug/Kg	1		11/10/15 16:57
Isopropylbenzene (Cumene)	12.4 U	24.7	7.72	ug/Kg	1		11/10/15 16:57
Methylene chloride	49.5 U	99.0	30.7	ug/Kg	1		11/10/15 16:57
Methyl-t-butyl ether	49.5 U	99.0	30.7	ug/Kg	1		11/10/15 16:57
Naphthalene	24.8 U	49.5	14.8	ug/Kg	1		11/10/15 16:57
n-Butylbenzene	12.4 U	24.7	7.72	ug/Kg	1		11/10/15 16:57
n-Propylbenzene	12.4 U	24.7	7.72	ug/Kg	1		11/10/15 16:57
o-Xylene	12.4 U	24.7	7.72	ug/Kg	1		11/10/15 16:57
P & M -Xylene	24.8 U	49.5	14.8	ug/Kg	1		11/10/15 16:57
sec-Butylbenzene	12.4 U	24.7	7.72	ug/Kg	1		11/10/15 16:57
Styrene	12.4 U	24.7	7.72	ug/Kg	1		11/10/15 16:57
tert-Butylbenzene	12.4 U	24.7	7.72	ug/Kg	1		11/10/15 16:57
Tetrachloroethene	6.20 U	12.4	3.86	ug/Kg	1		11/10/15 16:57
Toluene	8.91 J	24.7	7.72	ug/Kg	1		11/10/15 16:57
trans-1,2-Dichloroethene	12.4 U	24.7	7.72	ug/Kg	1		11/10/15 16:57
trans-1,3-Dichloropropene	12.4 U	24.7	7.72	ug/Kg	1		11/10/15 16:57
Trichloroethene	6.20 U	12.4	3.86	ug/Kg	1		11/10/15 16:57
Trichlorofluoromethane	24.8 U	49.5	14.8	ug/Kg	1		11/10/15 16:57
Vinyl acetate	49.5 U	99.0	30.7	ug/Kg	1		11/10/15 16:57
Vinyl chloride	4.95 U	9.90	3.07	ug/Kg	1		11/10/15 16:57
Xylenes (total)	37.1 U	74.2	22.6	ug/Kg	1		11/10/15 16:57
Surrogates							
1,2-Dichloroethane-D4 (surr)	110	71-136		%	1		11/10/15 16:57
4-Bromofluorobenzene (surr)	109	55-151		%	1		11/10/15 16:57
Toluene-d8 (surr)	94.3	85-116		%	1		11/10/15 16:57

Results of Trip Blank

Client Sample ID: **Trip Blank**
Client Project ID: **15-1454 RAVN Cleanup**
Lab Sample ID: 1156548010
Lab Project ID: 1156548

Collection Date: 11/03/15 12:52
Received Date: 11/04/15 15:21
Matrix: Soil/Solid (dry weight)
Solids (%):
Location:

Results by Volatile GC/MS

Batch Information

Analytical Batch: VMS15424
Analytical Method: SW8260B
Analyst: ST
Analytical Date/Time: 11/10/15 16:57
Container ID: 1156548010-A

Prep Batch: VXX28255
Prep Method: SW5035A
Prep Date/Time: 11/03/15 12:52
Prep Initial Wt./Vol.: 50.514 g
Prep Extract Vol: 25 mL



Results of **RV-65**

Client Sample ID: **RV-65**
Client Project ID: **15-1454 RAVN Cleanup**
Lab Sample ID: 1156548011
Lab Project ID: 1156548

Collection Date: 11/04/15 12:12
Received Date: 11/04/15 15:21
Matrix: Soil/Solid (dry weight)
Solids (%):93.1
Location:

Results by **Semivolatile Organic Fuels**

<u>Parameter</u>	<u>Result Qual</u>	<u>LOQ/CL</u>	<u>DL</u>	<u>Units</u>	<u>DF</u>	<u>Allowable Limits</u>	<u>Date Analyzed</u>
Diesel Range Organics	25.6	21.1	6.55	mg/Kg	1		11/06/15 13:34

Surrogates

5a Androstane (surr)	80.2	50-150		%	1		11/06/15 13:34
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Batch Information

Analytical Batch: XFC12196
Analytical Method: AK102
Analyst: NLL
Analytical Date/Time: 11/06/15 13:34
Container ID: 1156548011-A

Prep Batch: XXX34580
Prep Method: SW3550C
Prep Date/Time: 11/05/15 11:28
Prep Initial Wt./Vol.: 30.483 g
Prep Extract Vol: 1 mL

<u>Parameter</u>	<u>Result Qual</u>	<u>LOQ/CL</u>	<u>DL</u>	<u>Units</u>	<u>DF</u>	<u>Allowable Limits</u>	<u>Date Analyzed</u>
Residual Range Organics	10.6 U	21.1	6.55	mg/Kg	1		11/06/15 13:34

Surrogates

n-Triacontane-d62 (surr)	84.2	50-150		%	1		11/06/15 13:34
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Batch Information

Analytical Batch: XFC12196
Analytical Method: AK103
Analyst: NLL
Analytical Date/Time: 11/06/15 13:34
Container ID: 1156548011-A

Prep Batch: XXX34580
Prep Method: SW3550C
Prep Date/Time: 11/05/15 11:28
Prep Initial Wt./Vol.: 30.483 g
Prep Extract Vol: 1 mL



Results of RV-65

Client Sample ID: RV-65
Client Project ID: 15-1454 RAVN Cleanup
Lab Sample ID: 1156548011
Lab Project ID: 1156548

Collection Date: 11/04/15 12:12
Received Date: 11/04/15 15:21
Matrix: Soil/Solid (dry weight)
Solids (%):93.1
Location:

Results by Volatile Fuels

Table with 8 columns: Parameter, Result Qual, LOQ/CL, DL, Units, DF, Allowable Limits, Date Analyzed. Row: Gasoline Range Organics, 0.958 J, 1.95, 0.586, mg/Kg, 1, 11/11/15 04:51

Surrogates

Table with 8 columns: Parameter, Result Qual, LOQ/CL, DL, Units, DF, Allowable Limits, Date Analyzed. Row: 4-Bromofluorobenzene (surr), 115, 50-150, %, 1, 11/11/15 04:51

Batch Information

Analytical Batch: VFC12815
Analytical Method: AK101
Analyst: KAS
Analytical Date/Time: 11/11/15 04:51
Container ID: 1156548011-B

Prep Batch: VXX28252
Prep Method: SW5035A
Prep Date/Time: 11/04/15 12:12
Prep Initial Wt./Vol.: 84.787 g
Prep Extract Vol: 30.8301 mL

Table with 8 columns: Parameter, Result Qual, LOQ/CL, DL, Units, DF, Allowable Limits, Date Analyzed. Rows: Benzene, Ethylbenzene, o-Xylene, P & M -Xylene, Toluene

Surrogates

Table with 8 columns: Parameter, Result Qual, LOQ/CL, DL, Units, DF, Allowable Limits, Date Analyzed. Row: 1,4-Difluorobenzene (surr), 88.8, 72-119, %, 1, 11/11/15 04:51

Batch Information

Analytical Batch: VFC12815
Analytical Method: SW8021B
Analyst: KAS
Analytical Date/Time: 11/11/15 04:51
Container ID: 1156548011-B

Prep Batch: VXX28252
Prep Method: SW5035A
Prep Date/Time: 11/04/15 12:12
Prep Initial Wt./Vol.: 84.787 g
Prep Extract Vol: 30.8301 mL



Results of **RV-68**

Client Sample ID: **RV-68**
Client Project ID: **15-1454 RAVN Cleanup**
Lab Sample ID: 1156548012
Lab Project ID: 1156548

Collection Date: 11/04/15 12:24
Received Date: 11/04/15 15:21
Matrix: Soil/Solid (dry weight)
Solids (%):90.9
Location:

Results by **Semivolatile Organic Fuels**

<u>Parameter</u>	<u>Result Qual</u>	<u>LOQ/CL</u>	<u>DL</u>	<u>Units</u>	<u>DF</u>	<u>Allowable Limits</u>	<u>Date Analyzed</u>
Diesel Range Organics	10.9 U	21.7	6.73	mg/Kg	1		11/06/15 13:44

Surrogates

5a Androstane (surr)	83.7	50-150		%	1		11/06/15 13:44
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Batch Information

Analytical Batch: XFC12196
Analytical Method: AK102
Analyst: NLL
Analytical Date/Time: 11/06/15 13:44
Container ID: 1156548012-A

Prep Batch: XXX34580
Prep Method: SW3550C
Prep Date/Time: 11/05/15 11:28
Prep Initial Wt./Vol.: 30.378 g
Prep Extract Vol: 1 mL

<u>Parameter</u>	<u>Result Qual</u>	<u>LOQ/CL</u>	<u>DL</u>	<u>Units</u>	<u>DF</u>	<u>Allowable Limits</u>	<u>Date Analyzed</u>
Residual Range Organics	14.4 J	21.7	6.73	mg/Kg	1		11/06/15 13:44

Surrogates

n-Triacontane-d62 (surr)	87.5	50-150		%	1		11/06/15 13:44
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Batch Information

Analytical Batch: XFC12196
Analytical Method: AK103
Analyst: NLL
Analytical Date/Time: 11/06/15 13:44
Container ID: 1156548012-A

Prep Batch: XXX34580
Prep Method: SW3550C
Prep Date/Time: 11/05/15 11:28
Prep Initial Wt./Vol.: 30.378 g
Prep Extract Vol: 1 mL



Results of RV-68

Client Sample ID: RV-68
Client Project ID: 15-1454 RAVN Cleanup
Lab Sample ID: 1156548012
Lab Project ID: 1156548

Collection Date: 11/04/15 12:24
Received Date: 11/04/15 15:21
Matrix: Soil/Solid (dry weight)
Solids (%):90.9
Location:

Results by Volatile Fuels

Table with 8 columns: Parameter, Result Qual, LOQ/CL, DL, Units, DF, Allowable Limits, Date Analyzed. Row: Gasoline Range Organics, 1.26 J, 2.04, 0.613, mg/Kg, 1, 11/11/15 05:10

Surrogates

Table with 8 columns: Parameter, Result Qual, LOQ/CL, DL, Units, DF, Allowable Limits, Date Analyzed. Row: 4-Bromofluorobenzene (surr), 129, 50-150, %, 1, 11/11/15 05:10

Batch Information

Analytical Batch: VFC12815
Analytical Method: AK101
Analyst: KAS
Analytical Date/Time: 11/11/15 05:10
Container ID: 1156548012-B

Prep Batch: VXX28252
Prep Method: SW5035A
Prep Date/Time: 11/04/15 12:24
Prep Initial Wt./Vol.: 89.019 g
Prep Extract Vol: 33.0666 mL

Table with 8 columns: Parameter, Result Qual, LOQ/CL, DL, Units, DF, Allowable Limits, Date Analyzed. Rows: Benzene, Ethylbenzene, o-Xylene, P & M -Xylene, Toluene

Surrogates

Table with 8 columns: Parameter, Result Qual, LOQ/CL, DL, Units, DF, Allowable Limits, Date Analyzed. Row: 1,4-Difluorobenzene (surr), 91, 72-119, %, 1, 11/11/15 05:10

Batch Information

Analytical Batch: VFC12815
Analytical Method: SW8021B
Analyst: KAS
Analytical Date/Time: 11/11/15 05:10
Container ID: 1156548012-B

Prep Batch: VXX28252
Prep Method: SW5035A
Prep Date/Time: 11/04/15 12:24
Prep Initial Wt./Vol.: 89.019 g
Prep Extract Vol: 33.0666 mL



Results of RV-70

Client Sample ID: RV-70
Client Project ID: 15-1454 RAVN Cleanup
Lab Sample ID: 1156548013
Lab Project ID: 1156548

Collection Date: 11/04/15 13:13
Received Date: 11/04/15 15:21
Matrix: Soil/Solid (dry weight)
Solids (%):85.7
Location:

Results by Semivolatile Organic Fuels

Table with 8 columns: Parameter, Result Qual, LOQ/CL, DL, Units, DF, Allowable Limits, Date Analyzed. Row: Diesel Range Organics, 11.5 U, 23.0, 7.14, mg/Kg, 1, 11/06/15 13:54

Surrogates

Table with 8 columns: Parameter, Result Qual, LOQ/CL, DL, Units, DF, Allowable Limits, Date Analyzed. Row: 5a Androstane (surr), 89.6, 50-150, %, 1, 11/06/15 13:54

Batch Information

Analytical Batch: XFC12196
Analytical Method: AK102
Analyst: NLL
Analytical Date/Time: 11/06/15 13:54
Container ID: 1156548013-A

Prep Batch: XXX34580
Prep Method: SW3550C
Prep Date/Time: 11/05/15 11:28
Prep Initial Wt./Vol.: 30.369 g
Prep Extract Vol: 1 mL

Table with 8 columns: Parameter, Result Qual, LOQ/CL, DL, Units, DF, Allowable Limits, Date Analyzed. Row: Residual Range Organics, 21.6 J, 23.0, 7.14, mg/Kg, 1, 11/06/15 13:54

Surrogates

Table with 8 columns: Parameter, Result Qual, LOQ/CL, DL, Units, DF, Allowable Limits, Date Analyzed. Row: n-Triacontane-d62 (surr), 95.2, 50-150, %, 1, 11/06/15 13:54

Batch Information

Analytical Batch: XFC12196
Analytical Method: AK103
Analyst: NLL
Analytical Date/Time: 11/06/15 13:54
Container ID: 1156548013-A

Prep Batch: XXX34580
Prep Method: SW3550C
Prep Date/Time: 11/05/15 11:28
Prep Initial Wt./Vol.: 30.369 g
Prep Extract Vol: 1 mL



Results of RV-70

Client Sample ID: RV-70
Client Project ID: 15-1454 RAVN Cleanup
Lab Sample ID: 1156548013
Lab Project ID: 1156548

Collection Date: 11/04/15 13:13
Received Date: 11/04/15 15:21
Matrix: Soil/Solid (dry weight)
Solids (%):85.7
Location:

Results by Volatile Fuels

Table with 8 columns: Parameter, Result Qual, LOQ/CL, DL, Units, DF, Allowable Limits, Date Analyzed. Row: Gasoline Range Organics, 1.03 J, 2.62, 0.786, mg/Kg, 1, 11/11/15 05:28

Surrogates

Table with 8 columns: Parameter, Result Qual, LOQ/CL, DL, Units, DF, Allowable Limits, Date Analyzed. Row: 4-Bromofluorobenzene (surr), 113, 50-150, %, 1, 11/11/15 05:28

Batch Information

Analytical Batch: VFC12815
Analytical Method: AK101
Analyst: KAS
Analytical Date/Time: 11/11/15 05:28
Container ID: 1156548013-B

Prep Batch: VXX28252
Prep Method: SW5035A
Prep Date/Time: 11/04/15 13:13
Prep Initial Wt./Vol.: 81.629 g
Prep Extract Vol: 36.6556 mL

Table with 8 columns: Parameter, Result Qual, LOQ/CL, DL, Units, DF, Allowable Limits, Date Analyzed. Rows: Benzene, Ethylbenzene, o-Xylene, P & M -Xylene, Toluene

Surrogates

Table with 8 columns: Parameter, Result Qual, LOQ/CL, DL, Units, DF, Allowable Limits, Date Analyzed. Row: 1,4-Difluorobenzene (surr), 90.8, 72-119, %, 1, 11/11/15 05:28

Batch Information

Analytical Batch: VFC12815
Analytical Method: SW8021B
Analyst: KAS
Analytical Date/Time: 11/11/15 05:28
Container ID: 1156548013-B

Prep Batch: VXX28252
Prep Method: SW5035A
Prep Date/Time: 11/04/15 13:13
Prep Initial Wt./Vol.: 81.629 g
Prep Extract Vol: 36.6556 mL



Results of RV-81

Client Sample ID: RV-81
Client Project ID: 15-1454 RAVN Cleanup
Lab Sample ID: 1156548014
Lab Project ID: 1156548

Collection Date: 11/04/15 14:07
Received Date: 11/04/15 15:21
Matrix: Soil/Solid (dry weight)
Solids (%):85.5
Location:

Results by Semivolatile Organic Fuels

<u>Parameter</u>	<u>Result Qual</u>	<u>LOQ/CL</u>	<u>DL</u>	<u>Units</u>	<u>DF</u>	<u>Allowable Limits</u>	<u>Date Analyzed</u>
Diesel Range Organics	57.6	23.4	7.24	mg/Kg	1		11/06/15 14:04

Surrogates

5a Androstane (surr)	93.1	50-150		%	1		11/06/15 14:04
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Batch Information

Analytical Batch: XFC12196
Analytical Method: AK102
Analyst: NLL
Analytical Date/Time: 11/06/15 14:04
Container ID: 1156548014-A

Prep Batch: XXX34580
Prep Method: SW3550C
Prep Date/Time: 11/05/15 11:28
Prep Initial Wt./Vol.: 30.042 g
Prep Extract Vol: 1 mL

<u>Parameter</u>	<u>Result Qual</u>	<u>LOQ/CL</u>	<u>DL</u>	<u>Units</u>	<u>DF</u>	<u>Allowable Limits</u>	<u>Date Analyzed</u>
Residual Range Organics	12.1 J	23.4	7.24	mg/Kg	1		11/06/15 14:04

Surrogates

n-Triacontane-d62 (surr)	99.3	50-150		%	1		11/06/15 14:04
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Batch Information

Analytical Batch: XFC12196
Analytical Method: AK103
Analyst: NLL
Analytical Date/Time: 11/06/15 14:04
Container ID: 1156548014-A

Prep Batch: XXX34580
Prep Method: SW3550C
Prep Date/Time: 11/05/15 11:28
Prep Initial Wt./Vol.: 30.042 g
Prep Extract Vol: 1 mL



Results of RV-81

Client Sample ID: RV-81
Client Project ID: 15-1454 RAVN Cleanup
Lab Sample ID: 1156548014
Lab Project ID: 1156548

Collection Date: 11/04/15 14:07
Received Date: 11/04/15 15:21
Matrix: Soil/Solid (dry weight)
Solids (%):85.5
Location:

Results by Volatile Fuels

Table with 8 columns: Parameter, Result Qual, LOQ/CL, DL, Units, DF, Allowable Limits, Date Analyzed. Row: Gasoline Range Organics, 1.32 J, 2.50, 0.751, mg/Kg, 1, 11/11/15 05:47

Surrogates

Table with 8 columns: Parameter, Result Qual, LOQ/CL, DL, Units, DF, Allowable Limits, Date Analyzed. Row: 4-Bromofluorobenzene (surr), 122, 50-150, %, 1, 11/11/15 05:47

Batch Information

Analytical Batch: VFC12815
Analytical Method: AK101
Analyst: KAS
Analytical Date/Time: 11/11/15 05:47
Container ID: 1156548014-B

Prep Batch: VXX28252
Prep Method: SW5035A
Prep Date/Time: 11/04/15 14:07
Prep Initial Wt./Vol.: 88.152 g
Prep Extract Vol: 37.761 mL

Table with 8 columns: Parameter, Result Qual, LOQ/CL, DL, Units, DF, Allowable Limits, Date Analyzed. Rows: Benzene, Ethylbenzene, o-Xylene, P & M -Xylene, Toluene

Surrogates

Table with 8 columns: Parameter, Result Qual, LOQ/CL, DL, Units, DF, Allowable Limits, Date Analyzed. Row: 1,4-Difluorobenzene (surr), 90, 72-119, %, 1, 11/11/15 05:47

Batch Information

Analytical Batch: VFC12815
Analytical Method: SW8021B
Analyst: KAS
Analytical Date/Time: 11/11/15 05:47
Container ID: 1156548014-B

Prep Batch: VXX28252
Prep Method: SW5035A
Prep Date/Time: 11/04/15 14:07
Prep Initial Wt./Vol.: 88.152 g
Prep Extract Vol: 37.761 mL



Results of **RV-84**

Client Sample ID: **RV-84**
Client Project ID: **15-1454 RAVN Cleanup**
Lab Sample ID: 1156548015
Lab Project ID: 1156548

Collection Date: 11/04/15 14:14
Received Date: 11/04/15 15:21
Matrix: Soil/Solid (dry weight)
Solids (%):89.0
Location:

Results by **Semivolatile Organic Fuels**

<u>Parameter</u>	<u>Result Qual</u>	<u>LOQ/CL</u>	<u>DL</u>	<u>Units</u>	<u>DF</u>	<u>Allowable Limits</u>	<u>Date Analyzed</u>
Diesel Range Organics	11.2 U	22.4	6.95	mg/Kg	1		11/06/15 14:13

Surrogates

5a Androstane (surr)	87.6	50-150		%	1		11/06/15 14:13
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Batch Information

Analytical Batch: XFC12196
Analytical Method: AK102
Analyst: NLL
Analytical Date/Time: 11/06/15 14:13
Container ID: 1156548015-A

Prep Batch: XXX34580
Prep Method: SW3550C
Prep Date/Time: 11/05/15 11:28
Prep Initial Wt./Vol.: 30.052 g
Prep Extract Vol: 1 mL

<u>Parameter</u>	<u>Result Qual</u>	<u>LOQ/CL</u>	<u>DL</u>	<u>Units</u>	<u>DF</u>	<u>Allowable Limits</u>	<u>Date Analyzed</u>
Residual Range Organics	11.2 U	22.4	6.95	mg/Kg	1		11/06/15 14:13

Surrogates

n-Triacontane-d62 (surr)	95.2	50-150		%	1		11/06/15 14:13
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Batch Information

Analytical Batch: XFC12196
Analytical Method: AK103
Analyst: NLL
Analytical Date/Time: 11/06/15 14:13
Container ID: 1156548015-A

Prep Batch: XXX34580
Prep Method: SW3550C
Prep Date/Time: 11/05/15 11:28
Prep Initial Wt./Vol.: 30.052 g
Prep Extract Vol: 1 mL



Results of RV-84

Client Sample ID: RV-84
Client Project ID: 15-1454 RAVN Cleanup
Lab Sample ID: 1156548015
Lab Project ID: 1156548

Collection Date: 11/04/15 14:14
Received Date: 11/04/15 15:21
Matrix: Soil/Solid (dry weight)
Solids (%):89.0
Location:

Results by Volatile Fuels

Table with 8 columns: Parameter, Result Qual, LOQ/CL, DL, Units, DF, Allowable Limits, Date Analyzed. Row: Gasoline Range Organics, 1.16 U, 2.32, 0.696, mg/Kg, 1, 11/11/15 06:06

Surrogates

Table with 8 columns: Parameter, Result Qual, LOQ/CL, DL, Units, DF, Allowable Limits, Date Analyzed. Row: 4-Bromofluorobenzene (surr), 144, 50-150, %, 1, 11/11/15 06:06

Batch Information

Analytical Batch: VFC12815
Analytical Method: AK101
Analyst: KAS
Analytical Date/Time: 11/11/15 06:06
Container ID: 1156548015-B

Prep Batch: VXX28252
Prep Method: SW5035A
Prep Date/Time: 11/04/15 14:14
Prep Initial Wt./Vol.: 82.468 g
Prep Extract Vol: 34.0577 mL

Table with 8 columns: Parameter, Result Qual, LOQ/CL, DL, Units, DF, Allowable Limits, Date Analyzed. Rows: Benzene, Ethylbenzene, o-Xylene, P & M -Xylene, Toluene

Surrogates

Table with 8 columns: Parameter, Result Qual, LOQ/CL, DL, Units, DF, Allowable Limits, Date Analyzed. Row: 1,4-Difluorobenzene (surr), 90.2, 72-119, %, 1, 11/11/15 06:06

Batch Information

Analytical Batch: VFC12815
Analytical Method: SW8021B
Analyst: KAS
Analytical Date/Time: 11/11/15 06:06
Container ID: 1156548015-B

Prep Batch: VXX28252
Prep Method: SW5035A
Prep Date/Time: 11/04/15 14:14
Prep Initial Wt./Vol.: 82.468 g
Prep Extract Vol: 34.0577 mL



Results of RV-37

Client Sample ID: RV-37
Client Project ID: 15-1454 RAVN Cleanup
Lab Sample ID: 1156548016
Lab Project ID: 1156548

Collection Date: 11/04/15 14:23
Received Date: 11/04/15 15:21
Matrix: Soil/Solid (dry weight)
Solids (%):80.1
Location:

Results by Semivolatile Organic Fuels

Table with 8 columns: Parameter, Result Qual, LOQ/CL, DL, Units, DF, Allowable Limits, Date Analyzed. Row 1: Diesel Range Organics, 52.8, 24.7, 7.66, mg/Kg, 1, 11/06/15 14:23

Surrogates

Table with 8 columns: Parameter, Result Qual, LOQ/CL, DL, Units, DF, Allowable Limits, Date Analyzed. Row 1: 5a Androstane (surr), 81.3, 50-150, %, 1, 11/06/15 14:23

Batch Information

Analytical Batch: XFC12196
Analytical Method: AK102
Analyst: NLL
Analytical Date/Time: 11/06/15 14:23
Container ID: 1156548016-A

Prep Batch: XXX34580
Prep Method: SW3550C
Prep Date/Time: 11/05/15 11:28
Prep Initial Wt./Vol.: 30.293 g
Prep Extract Vol: 1 mL

Table with 8 columns: Parameter, Result Qual, LOQ/CL, DL, Units, DF, Allowable Limits, Date Analyzed. Row 1: Residual Range Organics, 43.7, 24.7, 7.66, mg/Kg, 1, 11/06/15 14:23

Surrogates

Table with 8 columns: Parameter, Result Qual, LOQ/CL, DL, Units, DF, Allowable Limits, Date Analyzed. Row 1: n-Triacontane-d62 (surr), 88.2, 50-150, %, 1, 11/06/15 14:23

Batch Information

Analytical Batch: XFC12196
Analytical Method: AK103
Analyst: NLL
Analytical Date/Time: 11/06/15 14:23
Container ID: 1156548016-A

Prep Batch: XXX34580
Prep Method: SW3550C
Prep Date/Time: 11/05/15 11:28
Prep Initial Wt./Vol.: 30.293 g
Prep Extract Vol: 1 mL



Results of RV-37

Client Sample ID: RV-37
Client Project ID: 15-1454 RAVN Cleanup
Lab Sample ID: 1156548016
Lab Project ID: 1156548

Collection Date: 11/04/15 14:23
Received Date: 11/04/15 15:21
Matrix: Soil/Solid (dry weight)
Solids (%):80.1
Location:

Results by Volatile Fuels

Table with 8 columns: Parameter, Result Qual, LOQ/CL, DL, Units, DF, Allowable Limits, Date Analyzed. Row: Gasoline Range Organics, 2.32 J, 3.03, 0.910, mg/Kg, 1, 11/11/15 06:25

Surrogates

Table with 8 columns: Parameter, Result Qual, LOQ/CL, DL, Units, DF, Allowable Limits, Date Analyzed. Row: 4-Bromofluorobenzene (surr), 107, 50-150, %, 1, 11/11/15 06:25

Batch Information

Analytical Batch: VFC12815
Analytical Method: AK101
Analyst: KAS
Analytical Date/Time: 11/11/15 06:25
Container ID: 1156548016-B

Prep Batch: VXX28252
Prep Method: SW5035A
Prep Date/Time: 11/04/15 14:23
Prep Initial Wt./Vol.: 86.868 g
Prep Extract Vol: 42.2434 mL

Table with 8 columns: Parameter, Result Qual, LOQ/CL, DL, Units, DF, Allowable Limits, Date Analyzed. Rows: Benzene, Ethylbenzene, o-Xylene, P & M -Xylene, Toluene

Surrogates

Table with 8 columns: Parameter, Result Qual, LOQ/CL, DL, Units, DF, Allowable Limits, Date Analyzed. Row: 1,4-Difluorobenzene (surr), 89.8, 72-119, %, 1, 11/11/15 06:25

Batch Information

Analytical Batch: VFC12815
Analytical Method: SW8021B
Analyst: KAS
Analytical Date/Time: 11/11/15 06:25
Container ID: 1156548016-B

Prep Batch: VXX28252
Prep Method: SW5035A
Prep Date/Time: 11/04/15 14:23
Prep Initial Wt./Vol.: 86.868 g
Prep Extract Vol: 42.2434 mL



Results of **RV-42**

Client Sample ID: **RV-42**
Client Project ID: **15-1454 RAVN Cleanup**
Lab Sample ID: 1156548017
Lab Project ID: 1156548

Collection Date: 11/04/15 14:30
Received Date: 11/04/15 15:21
Matrix: Soil/Solid (dry weight)
Solids (%):83.7
Location:

Results by **Semivolatile Organic Fuels**

<u>Parameter</u>	<u>Result Qual</u>	<u>LOQ/CL</u>	<u>DL</u>	<u>Units</u>	<u>DF</u>	<u>Allowable Limits</u>	<u>Date Analyzed</u>
Diesel Range Organics	10.2 J	23.7	7.34	mg/Kg	1		11/06/15 14:33

Surrogates

5a Androstane (surr)	94.1	50-150		%	1		11/06/15 14:33
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Batch Information

Analytical Batch: XFC12196
Analytical Method: AK102
Analyst: NLL
Analytical Date/Time: 11/06/15 14:33
Container ID: 1156548017-A

Prep Batch: XXX34580
Prep Method: SW3550C
Prep Date/Time: 11/05/15 11:28
Prep Initial Wt./Vol.: 30.308 g
Prep Extract Vol: 1 mL

<u>Parameter</u>	<u>Result Qual</u>	<u>LOQ/CL</u>	<u>DL</u>	<u>Units</u>	<u>DF</u>	<u>Allowable Limits</u>	<u>Date Analyzed</u>
Residual Range Organics	65.8	23.7	7.34	mg/Kg	1		11/06/15 14:33

Surrogates

n-Triacontane-d62 (surr)	100	50-150		%	1		11/06/15 14:33
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Batch Information

Analytical Batch: XFC12196
Analytical Method: AK103
Analyst: NLL
Analytical Date/Time: 11/06/15 14:33
Container ID: 1156548017-A

Prep Batch: XXX34580
Prep Method: SW3550C
Prep Date/Time: 11/05/15 11:28
Prep Initial Wt./Vol.: 30.308 g
Prep Extract Vol: 1 mL



Results of RV-42

Client Sample ID: RV-42
Client Project ID: 15-1454 RAVN Cleanup
Lab Sample ID: 1156548017
Lab Project ID: 1156548

Collection Date: 11/04/15 14:30
Received Date: 11/04/15 15:21
Matrix: Soil/Solid (dry weight)
Solids (%):83.7
Location:

Results by Volatile Fuels

Table with 8 columns: Parameter, Result Qual, LOQ/CL, DL, Units, DF, Allowable Limits, Date Analyzed. Row: Gasoline Range Organics, 2.23 J, 3.12, 0.936, mg/Kg, 1, 11/11/15 06:44

Surrogates

Table with 8 columns: Parameter, Result Qual, LOQ/CL, DL, Units, DF, Allowable Limits, Date Analyzed. Row: 4-Bromofluorobenzene (surr), 98.8, 50-150, %, 1, 11/11/15 06:44

Batch Information

Analytical Batch: VFC12815
Analytical Method: AK101
Analyst: KAS
Analytical Date/Time: 11/11/15 06:44
Container ID: 1156548017-B

Prep Batch: VXX28252
Prep Method: SW5035A
Prep Date/Time: 11/04/15 14:30
Prep Initial Wt./Vol.: 69.714 g
Prep Extract Vol: 36.3964 mL

Table with 8 columns: Parameter, Result Qual, LOQ/CL, DL, Units, DF, Allowable Limits, Date Analyzed. Rows: Benzene, Ethylbenzene, o-Xylene, P & M -Xylene, Toluene

Surrogates

Table with 8 columns: Parameter, Result Qual, LOQ/CL, DL, Units, DF, Allowable Limits, Date Analyzed. Row: 1,4-Difluorobenzene (surr), 90.5, 72-119, %, 1, 11/11/15 06:44

Batch Information

Analytical Batch: VFC12815
Analytical Method: SW8021B
Analyst: KAS
Analytical Date/Time: 11/11/15 06:44
Container ID: 1156548017-B

Prep Batch: VXX28252
Prep Method: SW5035A
Prep Date/Time: 11/04/15 14:30
Prep Initial Wt./Vol.: 69.714 g
Prep Extract Vol: 36.3964 mL



Results of RV-45

Client Sample ID: RV-45
Client Project ID: 15-1454 RAVN Cleanup
Lab Sample ID: 1156548018
Lab Project ID: 1156548

Collection Date: 11/04/15 14:38
Received Date: 11/04/15 15:21
Matrix: Soil/Solid (dry weight)
Solids (%):85.4
Location:

Results by Semivolatile Organic Fuels

Table with 8 columns: Parameter, Result Qual, LOQ/CL, DL, Units, DF, Allowable Limits, Date Analyzed. Row: Diesel Range Organics, 11.7 U, 23.3, 7.21, mg/Kg, 1, 11/06/15 15:03

Surrogates

Table with 8 columns: Parameter, Result Qual, LOQ/CL, DL, Units, DF, Allowable Limits, Date Analyzed. Row: 5a Androstane (surr), 81.4, 50-150, %, 1, 11/06/15 15:03

Batch Information

Analytical Batch: XFC12196
Analytical Method: AK102
Analyst: NLL
Analytical Date/Time: 11/06/15 15:03
Container ID: 1156548018-A

Prep Batch: XXX34580
Prep Method: SW3550C
Prep Date/Time: 11/05/15 11:28
Prep Initial Wt./Vol.: 30.223 g
Prep Extract Vol: 1 mL

Table with 8 columns: Parameter, Result Qual, LOQ/CL, DL, Units, DF, Allowable Limits, Date Analyzed. Row: Residual Range Organics, 10.3 J, 23.3, 7.21, mg/Kg, 1, 11/06/15 15:03

Surrogates

Table with 8 columns: Parameter, Result Qual, LOQ/CL, DL, Units, DF, Allowable Limits, Date Analyzed. Row: n-Triacontane-d62 (surr), 84.4, 50-150, %, 1, 11/06/15 15:03

Batch Information

Analytical Batch: XFC12196
Analytical Method: AK103
Analyst: NLL
Analytical Date/Time: 11/06/15 15:03
Container ID: 1156548018-A

Prep Batch: XXX34580
Prep Method: SW3550C
Prep Date/Time: 11/05/15 11:28
Prep Initial Wt./Vol.: 30.223 g
Prep Extract Vol: 1 mL



Results of RV-45

Client Sample ID: RV-45
Client Project ID: 15-1454 RAVN Cleanup
Lab Sample ID: 1156548018
Lab Project ID: 1156548

Collection Date: 11/04/15 14:38
Received Date: 11/04/15 15:21
Matrix: Soil/Solid (dry weight)
Solids (%):85.4
Location:

Results by Volatile Fuels

Table with 8 columns: Parameter, Result Qual, LOQ/CL, DL, Units, DF, Allowable Limits, Date Analyzed. Row: Gasoline Range Organics, 0.762 J, 2.43, 0.729, mg/Kg, 1, 11/11/15 07:03

Surrogates

Table with 8 columns: Parameter, Result Qual, LOQ/CL, DL, Units, DF, Allowable Limits, Date Analyzed. Row: 4-Bromofluorobenzene (surr), 118, 50-150, %, 1, 11/11/15 07:03

Batch Information

Analytical Batch: VFC12815
Analytical Method: AK101
Analyst: KAS
Analytical Date/Time: 11/11/15 07:03
Container ID: 1156548018-B

Prep Batch: VXX28252
Prep Method: SW5035A
Prep Date/Time: 11/04/15 14:38
Prep Initial Wt./Vol.: 92.994 g
Prep Extract Vol: 38.5957 mL

Table with 8 columns: Parameter, Result Qual, LOQ/CL, DL, Units, DF, Allowable Limits, Date Analyzed. Rows: Benzene, Ethylbenzene, o-Xylene, P & M -Xylene, Toluene

Surrogates

Table with 8 columns: Parameter, Result Qual, LOQ/CL, DL, Units, DF, Allowable Limits, Date Analyzed. Row: 1,4-Difluorobenzene (surr), 89.9, 72-119, %, 1, 11/11/15 07:03

Batch Information

Analytical Batch: VFC12815
Analytical Method: SW8021B
Analyst: KAS
Analytical Date/Time: 11/11/15 07:03
Container ID: 1156548018-B

Prep Batch: VXX28252
Prep Method: SW5035A
Prep Date/Time: 11/04/15 14:38
Prep Initial Wt./Vol.: 92.994 g
Prep Extract Vol: 38.5957 mL



Results of RV-X3

Client Sample ID: RV-X3
Client Project ID: 15-1454 RAVN Cleanup
Lab Sample ID: 1156548019
Lab Project ID: 1156548

Collection Date: 11/04/15 11:35
Received Date: 11/04/15 15:21
Matrix: Soil/Solid (dry weight)
Solids (%):89.1
Location:

Results by Polynuclear Aromatics GC/MS

Table with 8 columns: Parameter, Result Qual, LOQ/CL, DL, Units, DF, Allowable Limits, Date Analyzed. Lists various polynuclear aromatic hydrocarbons and their detection results.

Batch Information

Analytical Batch: XMS9067
Analytical Method: 8270D SIMS (PAH)
Analyst: NRB
Analytical Date/Time: 11/10/15 16:51
Container ID: 1156548019-A

Prep Batch: XXX34588
Prep Method: SW3550C
Prep Date/Time: 11/06/15 12:06
Prep Initial Wt./Vol.: 22.574 g
Prep Extract Vol: 1 mL



Results of **RV-X3**

Client Sample ID: **RV-X3**
Client Project ID: **15-1454 RAVN Cleanup**
Lab Sample ID: 1156548019
Lab Project ID: 1156548

Collection Date: 11/04/15 11:35
Received Date: 11/04/15 15:21
Matrix: Soil/Solid (dry weight)
Solids (%):89.1
Location:

Results by **Semivolatile Organic Fuels**

<u>Parameter</u>	<u>Result Qual</u>	<u>LOQ/CL</u>	<u>DL</u>	<u>Units</u>	<u>DF</u>	<u>Allowable Limits</u>	<u>Date Analyzed</u>
Diesel Range Organics	43.8	22.1	6.87	mg/Kg	1		11/06/15 15:13

Surrogates

5a Androstane (surr)	91.2	50-150		%	1		11/06/15 15:13
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Batch Information

Analytical Batch: XFC12196
Analytical Method: AK102
Analyst: NLL
Analytical Date/Time: 11/06/15 15:13
Container ID: 1156548019-A

Prep Batch: XXX34580
Prep Method: SW3550C
Prep Date/Time: 11/05/15 11:28
Prep Initial Wt./Vol.: 30.395 g
Prep Extract Vol: 1 mL

<u>Parameter</u>	<u>Result Qual</u>	<u>LOQ/CL</u>	<u>DL</u>	<u>Units</u>	<u>DF</u>	<u>Allowable Limits</u>	<u>Date Analyzed</u>
Residual Range Organics	30.2	22.1	6.87	mg/Kg	1		11/06/15 15:13

Surrogates

n-Triacontane-d62 (surr)	97.7	50-150		%	1		11/06/15 15:13
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Batch Information

Analytical Batch: XFC12196
Analytical Method: AK103
Analyst: NLL
Analytical Date/Time: 11/06/15 15:13
Container ID: 1156548019-A

Prep Batch: XXX34580
Prep Method: SW3550C
Prep Date/Time: 11/05/15 11:28
Prep Initial Wt./Vol.: 30.395 g
Prep Extract Vol: 1 mL



Results of RV-X3

Client Sample ID: **RV-X3**
Client Project ID: **15-1454 RAVN Cleanup**
Lab Sample ID: 1156548019
Lab Project ID: 1156548

Collection Date: 11/04/15 11:35
Received Date: 11/04/15 15:21
Matrix: Soil/Solid (dry weight)
Solids (%):89.1
Location:

Results by Volatile Fuels

<u>Parameter</u>	<u>Result Qual</u>	<u>LOQ/CL</u>	<u>DL</u>	<u>Units</u>	<u>DF</u>	<u>Allowable Limits</u>	<u>Date Analyzed</u>
Gasoline Range Organics	3.10	2.54	0.761	mg/Kg	1		11/11/15 07:21
Surrogates							
4-Bromofluorobenzene (surr)	126	50-150		%	1		11/11/15 07:21

Batch Information

Analytical Batch: VFC12815
Analytical Method: AK101
Analyst: KAS
Analytical Date/Time: 11/11/15 07:21
Container ID: 1156548019-B

Prep Batch: VXX28252
Prep Method: SW5035A
Prep Date/Time: 11/04/15 11:35
Prep Initial Wt./Vol.: 72.757 g
Prep Extract Vol: 32.9038 mL



Results of RV-X3

Client Sample ID: RV-X3
Client Project ID: 15-1454 RAVN Cleanup
Lab Sample ID: 1156548019
Lab Project ID: 1156548

Collection Date: 11/04/15 11:35
Received Date: 11/04/15 15:21
Matrix: Soil/Solid (dry weight)
Solids (%):89.1
Location:

Results by Volatile GC/MS

Table with 8 columns: Parameter, Result Qual, LOQ/CL, DL, Units, DF, Allowable Limits, Date Analyzed. Lists various chemical compounds and their detection results.



Results of RV-X3

Client Sample ID: **RV-X3**
 Client Project ID: **15-1454 RAVN Cleanup**
 Lab Sample ID: 1156548019
 Lab Project ID: 1156548

Collection Date: 11/04/15 11:35
 Received Date: 11/04/15 15:21
 Matrix: Soil/Solid (dry weight)
 Solids (%):89.1
 Location:

Results by Volatile GC/MS

<u>Parameter</u>	<u>Result Qual</u>	<u>LOQ/CL</u>	<u>DL</u>	<u>Units</u>	<u>DF</u>	<u>Allowable Limits</u>	<u>Date Analyzed</u>
Chloroform	12.7 U	25.4	7.91	ug/Kg	1		11/06/15 21:29
Chloromethane	12.7 U	25.4	7.91	ug/Kg	1		11/06/15 21:29
cis-1,2-Dichloroethene	12.7 U	25.4	7.91	ug/Kg	1		11/06/15 21:29
cis-1,3-Dichloropropene	12.7 U	25.4	7.91	ug/Kg	1		11/06/15 21:29
Dibromochloromethane	12.7 U	25.4	7.91	ug/Kg	1		11/06/15 21:29
Dibromomethane	12.7 U	25.4	7.91	ug/Kg	1		11/06/15 21:29
Dichlorodifluoromethane	25.4 U	50.7	15.2	ug/Kg	1		11/06/15 21:29
Ethylbenzene	84.7	25.4	7.91	ug/Kg	1		11/06/15 21:29
Freon-113	50.5 U	101	31.5	ug/Kg	1		11/06/15 21:29
Hexachlorobutadiene	25.4 U	50.7	15.2	ug/Kg	1		11/06/15 21:29
Isopropylbenzene (Cumene)	21.6 J	25.4	7.91	ug/Kg	1		11/06/15 21:29
Methylene chloride	50.5 U	101	31.5	ug/Kg	1		11/06/15 21:29
Methyl-t-butyl ether	50.5 U	101	31.5	ug/Kg	1		11/06/15 21:29
Naphthalene	35.0 J	50.7	15.2	ug/Kg	1		11/06/15 21:29
n-Butylbenzene	12.7 U	25.4	7.91	ug/Kg	1		11/06/15 21:29
n-Propylbenzene	34.2	25.4	7.91	ug/Kg	1		11/06/15 21:29
o-Xylene	138	25.4	7.91	ug/Kg	1		11/06/15 21:29
P & M -Xylene	196	50.7	15.2	ug/Kg	1		11/06/15 21:29
sec-Butylbenzene	22.1 J	25.4	7.91	ug/Kg	1		11/06/15 21:29
Styrene	12.7 U	25.4	7.91	ug/Kg	1		11/06/15 21:29
tert-Butylbenzene	12.7 U	25.4	7.91	ug/Kg	1		11/06/15 21:29
Tetrachloroethene	72.8	12.7	3.96	ug/Kg	1		11/06/15 21:29
Toluene	13.7 J	25.4	7.91	ug/Kg	1		11/06/15 21:29
trans-1,2-Dichloroethene	12.7 U	25.4	7.91	ug/Kg	1		11/06/15 21:29
trans-1,3-Dichloropropene	12.7 U	25.4	7.91	ug/Kg	1		11/06/15 21:29
Trichloroethene	30.9	12.7	3.96	ug/Kg	1		11/06/15 21:29
Trichlorofluoromethane	25.4 U	50.7	15.2	ug/Kg	1		11/06/15 21:29
Vinyl acetate	50.5 U	101	31.5	ug/Kg	1		11/06/15 21:29
Vinyl chloride	5.05 U	10.1	3.15	ug/Kg	1		11/06/15 21:29
Xylenes (total)	334	76.1	23.1	ug/Kg	1		11/06/15 21:29
Surrogates							
1,2-Dichloroethane-D4 (surr)	127	71-136		%	1		11/06/15 21:29
4-Bromofluorobenzene (surr)	118	55-151		%	1		11/06/15 21:29
Toluene-d8 (surr)	101	85-116		%	1		11/06/15 21:29

Results of RV-X3

Client Sample ID: **RV-X3**
Client Project ID: **15-1454 RAVN Cleanup**
Lab Sample ID: 1156548019
Lab Project ID: 1156548

Collection Date: 11/04/15 11:35
Received Date: 11/04/15 15:21
Matrix: Soil/Solid (dry weight)
Solids (%):89.1
Location:

Results by Volatile GC/MS

Batch Information

Analytical Batch: VMS15420
Analytical Method: SW8260B
Analyst: ST
Analytical Date/Time: 11/06/15 21:29
Container ID: 1156548019-B

Prep Batch: VXX28246
Prep Method: SW5035A
Prep Date/Time: 11/04/15 11:35
Prep Initial Wt./Vol.: 72.757 g
Prep Extract Vol: 32.9038 mL



Results of RV-54

Client Sample ID: RV-54
Client Project ID: 15-1454 RAVN Cleanup
Lab Sample ID: 1156548020
Lab Project ID: 1156548

Collection Date: 11/04/15 14:35
Received Date: 11/04/15 15:21
Matrix: Soil/Solid (dry weight)
Solids (%):88.7
Location:

Results by Polynuclear Aromatics GC/MS

Table with 8 columns: Parameter, Result Qual, LOQ/CL, DL, Units, DF, Allowable Limits, Date Analyzed. Lists various polynuclear aromatic hydrocarbons and their detection results.

Batch Information

Analytical Batch: XMS9067
Analytical Method: 8270D SIMS (PAH)
Analyst: NRB
Analytical Date/Time: 11/10/15 17:06
Container ID: 1156548020-A

Prep Batch: XXX34588
Prep Method: SW3550C
Prep Date/Time: 11/06/15 12:06
Prep Initial Wt./Vol.: 22.892 g
Prep Extract Vol: 1 mL



Results of **RV-54**

Client Sample ID: **RV-54**
Client Project ID: **15-1454 RAVN Cleanup**
Lab Sample ID: 1156548020
Lab Project ID: 1156548

Collection Date: 11/04/15 14:35
Received Date: 11/04/15 15:21
Matrix: Soil/Solid (dry weight)
Solids (%):88.7
Location:

Results by **Semivolatile Organic Fuels**

<u>Parameter</u>	<u>Result Qual</u>	<u>LOQ/CL</u>	<u>DL</u>	<u>Units</u>	<u>DF</u>	<u>Allowable Limits</u>	<u>Date Analyzed</u>
Diesel Range Organics	44.0	22.2	6.88	mg/Kg	1		11/06/15 15:23

Surrogates

5a Androstane (surr)	87.6	50-150		%	1		11/06/15 15:23
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Batch Information

Analytical Batch: XFC12196
Analytical Method: AK102
Analyst: NLL
Analytical Date/Time: 11/06/15 15:23
Container ID: 1156548020-A

Prep Batch: XXX34580
Prep Method: SW3550C
Prep Date/Time: 11/05/15 11:28
Prep Initial Wt./Vol.: 30.454 g
Prep Extract Vol: 1 mL

<u>Parameter</u>	<u>Result Qual</u>	<u>LOQ/CL</u>	<u>DL</u>	<u>Units</u>	<u>DF</u>	<u>Allowable Limits</u>	<u>Date Analyzed</u>
Residual Range Organics	25.8	22.2	6.88	mg/Kg	1		11/06/15 15:23

Surrogates

n-Triacontane-d62 (surr)	91.3	50-150		%	1		11/06/15 15:23
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Batch Information

Analytical Batch: XFC12196
Analytical Method: AK103
Analyst: NLL
Analytical Date/Time: 11/06/15 15:23
Container ID: 1156548020-A

Prep Batch: XXX34580
Prep Method: SW3550C
Prep Date/Time: 11/05/15 11:28
Prep Initial Wt./Vol.: 30.454 g
Prep Extract Vol: 1 mL



Results of RV-54

Client Sample ID: **RV-54**
Client Project ID: **15-1454 RAVN Cleanup**
Lab Sample ID: 1156548020
Lab Project ID: 1156548

Collection Date: 11/04/15 14:35
Received Date: 11/04/15 15:21
Matrix: Soil/Solid (dry weight)
Solids (%):88.7
Location:

Results by Volatile Fuels

<u>Parameter</u>	<u>Result Qual</u>	<u>LOQ/CL</u>	<u>DL</u>	<u>Units</u>	<u>DF</u>	<u>Allowable Limits</u>	<u>Date Analyzed</u>
Gasoline Range Organics	3.98	2.39	0.717	mg/Kg	1		11/11/15 14:27
Surrogates							
4-Bromofluorobenzene (surr)	125	50-150		%	1		11/11/15 14:27

Batch Information

Analytical Batch: VFC12819
Analytical Method: AK101
Analyst: KAS
Analytical Date/Time: 11/11/15 14:27
Container ID: 1156548020-B

Prep Batch: VXX28260
Prep Method: SW5035A
Prep Date/Time: 11/04/15 14:35
Prep Initial Wt./Vol.: 80.276 g
Prep Extract Vol: 34.034 mL



Results of RV-54

Client Sample ID: RV-54
Client Project ID: 15-1454 RAVN Cleanup
Lab Sample ID: 1156548020
Lab Project ID: 1156548

Collection Date: 11/04/15 14:35
Received Date: 11/04/15 15:21
Matrix: Soil/Solid (dry weight)
Solids (%):88.7
Location:

Results by Volatile GC/MS

Table with 8 columns: Parameter, Result Qual, LOQ/CL, DL, Units, DF, Allowable Limits, Date Analyzed. Lists various chemical compounds and their detection results.



Results of RV-54

Client Sample ID: **RV-54**
 Client Project ID: **15-1454 RAVN Cleanup**
 Lab Sample ID: 1156548020
 Lab Project ID: 1156548

Collection Date: 11/04/15 14:35
 Received Date: 11/04/15 15:21
 Matrix: Soil/Solid (dry weight)
 Solids (%):88.7
 Location:

Results by Volatile GC/MS

<u>Parameter</u>	<u>Result Qual</u>	<u>LOQ/CL</u>	<u>DL</u>	<u>Units</u>	<u>DF</u>	<u>Allowable Limits</u>	<u>Date Analyzed</u>
Chloroform	11.9 U	23.9	7.45	ug/Kg	1		11/06/15 21:45
Chloromethane	11.9 U	23.9	7.45	ug/Kg	1		11/06/15 21:45
cis-1,2-Dichloroethene	11.9 U	23.9	7.45	ug/Kg	1		11/06/15 21:45
cis-1,3-Dichloropropene	11.9 U	23.9	7.45	ug/Kg	1		11/06/15 21:45
Dibromochloromethane	11.9 U	23.9	7.45	ug/Kg	1		11/06/15 21:45
Dibromomethane	11.9 U	23.9	7.45	ug/Kg	1		11/06/15 21:45
Dichlorodifluoromethane	23.9 U	47.8	14.3	ug/Kg	1		11/06/15 21:45
Ethylbenzene	88.6	23.9	7.45	ug/Kg	1		11/06/15 21:45
Freon-113	47.8 U	95.5	29.6	ug/Kg	1		11/06/15 21:45
Hexachlorobutadiene	23.9 U	47.8	14.3	ug/Kg	1		11/06/15 21:45
Isopropylbenzene (Cumene)	21.0 J	23.9	7.45	ug/Kg	1		11/06/15 21:45
Methylene chloride	47.8 U	95.5	29.6	ug/Kg	1		11/06/15 21:45
Methyl-t-butyl ether	47.8 U	95.5	29.6	ug/Kg	1		11/06/15 21:45
Naphthalene	41.1 J	47.8	14.3	ug/Kg	1		11/06/15 21:45
n-Butylbenzene	11.9 U	23.9	7.45	ug/Kg	1		11/06/15 21:45
n-Propylbenzene	32.7	23.9	7.45	ug/Kg	1		11/06/15 21:45
o-Xylene	142	23.9	7.45	ug/Kg	1		11/06/15 21:45
P & M -Xylene	203	47.8	14.3	ug/Kg	1		11/06/15 21:45
sec-Butylbenzene	20.8 J	23.9	7.45	ug/Kg	1		11/06/15 21:45
Styrene	11.9 U	23.9	7.45	ug/Kg	1		11/06/15 21:45
tert-Butylbenzene	11.9 U	23.9	7.45	ug/Kg	1		11/06/15 21:45
Tetrachloroethene	73.6	11.9	3.73	ug/Kg	1		11/06/15 21:45
Toluene	14.1 J	23.9	7.45	ug/Kg	1		11/06/15 21:45
trans-1,2-Dichloroethene	11.9 U	23.9	7.45	ug/Kg	1		11/06/15 21:45
trans-1,3-Dichloropropene	11.9 U	23.9	7.45	ug/Kg	1		11/06/15 21:45
Trichloroethene	30.6	11.9	3.73	ug/Kg	1		11/06/15 21:45
Trichlorofluoromethane	23.9 U	47.8	14.3	ug/Kg	1		11/06/15 21:45
Vinyl acetate	47.8 U	95.5	29.6	ug/Kg	1		11/06/15 21:45
Vinyl chloride	4.78 U	9.55	2.96	ug/Kg	1		11/06/15 21:45
Xylenes (total)	345	71.7	21.8	ug/Kg	1		11/06/15 21:45
Surrogates							
1,2-Dichloroethane-D4 (surr)	123	71-136		%	1		11/06/15 21:45
4-Bromofluorobenzene (surr)	119	55-151		%	1		11/06/15 21:45
Toluene-d8 (surr)	102	85-116		%	1		11/06/15 21:45

Results of RV-54

Client Sample ID: **RV-54**
Client Project ID: **15-1454 RAVN Cleanup**
Lab Sample ID: 1156548020
Lab Project ID: 1156548

Collection Date: 11/04/15 14:35
Received Date: 11/04/15 15:21
Matrix: Soil/Solid (dry weight)
Solids (%):88.7
Location:

Results by Volatile GC/MS

Batch Information

Analytical Batch: VMS15420
Analytical Method: SW8260B
Analyst: ST
Analytical Date/Time: 11/06/15 21:45
Container ID: 1156548020-B

Prep Batch: VXX28246
Prep Method: SW5035A
Prep Date/Time: 11/04/15 14:35
Prep Initial Wt./Vol.: 80.276 g
Prep Extract Vol: 34.034 mL



Results of RV-61

Client Sample ID: RV-61
Client Project ID: 15-1454 RAVN Cleanup
Lab Sample ID: 1156548021
Lab Project ID: 1156548

Collection Date: 11/04/15 14:52
Received Date: 11/04/15 15:21
Matrix: Soil/Solid (dry weight)
Solids (%):89.0
Location:

Results by Semivolatile Organic Fuels

Table with 8 columns: Parameter, Result Qual, LOQ/CL, DL, Units, DF, Allowable Limits, Date Analyzed. Row: Diesel Range Organics, 17.0 J, 22.3, 6.92, mg/Kg, 1, 11/06/15 15:33

Surrogates

Table with 8 columns: Parameter, Result Qual, LOQ/CL, DL, Units, DF, Allowable Limits, Date Analyzed. Row: 5a Androstane (surr), 92.1, 50-150, %, 1, 11/06/15 15:33

Batch Information

Analytical Batch: XFC12196
Analytical Method: AK102
Analyst: NLL
Analytical Date/Time: 11/06/15 15:33
Container ID: 1156548021-A

Prep Batch: XXX34580
Prep Method: SW3550C
Prep Date/Time: 11/05/15 11:28
Prep Initial Wt./Vol.: 30.188 g
Prep Extract Vol: 1 mL

Table with 8 columns: Parameter, Result Qual, LOQ/CL, DL, Units, DF, Allowable Limits, Date Analyzed. Row: Residual Range Organics, 8.33 J, 22.3, 6.92, mg/Kg, 1, 11/06/15 15:33

Surrogates

Table with 8 columns: Parameter, Result Qual, LOQ/CL, DL, Units, DF, Allowable Limits, Date Analyzed. Row: n-Triacontane-d62 (surr), 96.7, 50-150, %, 1, 11/06/15 15:33

Batch Information

Analytical Batch: XFC12196
Analytical Method: AK103
Analyst: NLL
Analytical Date/Time: 11/06/15 15:33
Container ID: 1156548021-A

Prep Batch: XXX34580
Prep Method: SW3550C
Prep Date/Time: 11/05/15 11:28
Prep Initial Wt./Vol.: 30.188 g
Prep Extract Vol: 1 mL



Results of RV-61

Client Sample ID: RV-61
Client Project ID: 15-1454 RAVN Cleanup
Lab Sample ID: 1156548021
Lab Project ID: 1156548

Collection Date: 11/04/15 14:52
Received Date: 11/04/15 15:21
Matrix: Soil/Solid (dry weight)
Solids (%):89.0
Location:

Results by Volatile Fuels

Table with 8 columns: Parameter, Result Qual, LOQ/CL, DL, Units, DF, Allowable Limits, Date Analyzed. Row: Gasoline Range Organics, 2.08 J, 2.32, 0.695, mg/Kg, 1, 11/11/15 00:49

Surrogates

Table with 8 columns: Parameter, Result Qual, LOQ/CL, DL, Units, DF, Allowable Limits, Date Analyzed. Row: 4-Bromofluorobenzene (surr), 109, 50-150, %, 1, 11/11/15 00:49

Batch Information

Analytical Batch: VFC12816
Analytical Method: AK101
Analyst: KAS
Analytical Date/Time: 11/11/15 00:49
Container ID: 1156548021-B

Prep Batch: VXX28254
Prep Method: SW5035A
Prep Date/Time: 11/04/15 14:52
Prep Initial Wt./Vol.: 82.63 g
Prep Extract Vol: 34.076 mL

Table with 8 columns: Parameter, Result Qual, LOQ/CL, DL, Units, DF, Allowable Limits, Date Analyzed. Rows: Benzene, Ethylbenzene, o-Xylene, P & M -Xylene, Toluene

Surrogates

Table with 8 columns: Parameter, Result Qual, LOQ/CL, DL, Units, DF, Allowable Limits, Date Analyzed. Row: 1,4-Difluorobenzene (surr), 89.8, 72-119, %, 1, 11/11/15 00:49

Batch Information

Analytical Batch: VFC12816
Analytical Method: SW8021B
Analyst: KAS
Analytical Date/Time: 11/11/15 00:49
Container ID: 1156548021-B

Prep Batch: VXX28254
Prep Method: SW5035A
Prep Date/Time: 11/04/15 14:52
Prep Initial Wt./Vol.: 82.63 g
Prep Extract Vol: 34.076 mL



Method Blank

Blank ID: MB for HBN 1724569 [SPT/9787]

Matrix: Soil/Solid (dry weight)

Blank Lab ID: 1302848

QC for Samples:

1156548001, 1156548002, 1156548003, 1156548004, 1156548005, 1156548006, 1156548008, 1156548009, 1156548011, 1156548012, 1156548013, 1156548014, 1156548015, 1156548016, 1156548017, 1156548018, 1156548019, 1156548020, 1156548021

Results by SM21 2540G

<u>Parameter</u>	<u>Results</u>	<u>LOQ/CL</u>	<u>DL</u>	<u>Units</u>
Total Solids	100			%

Batch Information

Analytical Batch: SPT9787

Analytical Method: SM21 2540G

Instrument:

Analyst: RJA

Analytical Date/Time: 11/5/2015 4:15:00PM

Print Date: 11/17/2015 4:20:03PM



Duplicate Sample Summary

Original Sample ID: 1156548001

Duplicate Sample ID: 1302849

QC for Samples:

1156548001, 1156548002

Analysis Date: 11/05/2015 16:15

Matrix: Soil/Solid (dry weight)

Results by SM21 2540G

<u>NAME</u>	<u>Original</u>	<u>Duplicate</u>	<u>Units</u>	<u>RPD (%)</u>	<u>RPD CL</u>
Total Solids	92.1	92.7	%	0.56	(< 15)

Batch Information

Analytical Batch: SPT9787

Analytical Method: SM21 2540G

Instrument:

Analyst: RJA

Print Date: 11/17/2015 4:20:04PM

Duplicate Sample Summary

Original Sample ID: 1156548002

Duplicate Sample ID: 1302850

Analysis Date: 11/05/2015 16:15

Matrix: Soil/Solid (dry weight)

QC for Samples:

1156548002, 1156548003, 1156548004, 1156548005, 1156548006, 1156548008, 1156548009, 1156548011, 1156548012, 1156548013, 1156548014, 1156548015, 1156548016, 1156548017, 1156548018, 1156548019,

Results by SM21 2540G

<u>NAME</u>	<u>Original</u>	<u>Duplicate</u>	<u>Units</u>	<u>RPD (%)</u>	<u>RPD CL</u>
Total Solids	88.2	88.7	%	0.54	(< 15)

Batch Information

Analytical Batch: SPT9787

Analytical Method: SM21 2540G

Instrument:

Analyst: RJA

Print Date: 11/17/2015 4:20:04PM



Method Blank

Blank ID: MB for HBN 1724897 [VXX/28246]

Blank Lab ID: 1303297

QC for Samples:

1156548008, 1156548009, 1156548019, 1156548020

Matrix: Soil/Solid (dry weight)

Results by SW8260B

<u>Parameter</u>	<u>Results</u>	<u>LOQ/CL</u>	<u>DL</u>	<u>Units</u>
1,1,1,2-Tetrachloroethane	12.5U	25.0	7.80	ug/Kg
1,1,1-Trichloroethane	12.5U	25.0	7.80	ug/Kg
1,1,2,2-Tetrachloroethane	6.25U	12.5	3.90	ug/Kg
1,1,2-Trichloroethane	5.00U	10.0	3.10	ug/Kg
1,1-Dichloroethane	12.5U	25.0	7.80	ug/Kg
1,1-Dichloroethene	12.5U	25.0	7.80	ug/Kg
1,1-Dichloropropene	12.5U	25.0	7.80	ug/Kg
1,2,3-Trichlorobenzene	25.0U	50.0	15.0	ug/Kg
1,2,3-Trichloropropane	12.5U	25.0	7.80	ug/Kg
1,2,4-Trichlorobenzene	12.5U	25.0	7.80	ug/Kg
1,2,4-Trimethylbenzene	25.0U	50.0	15.0	ug/Kg
1,2-Dibromo-3-chloropropane	50.0U	100	31.0	ug/Kg
1,2-Dibromoethane	5.00U	10.0	3.10	ug/Kg
1,2-Dichlorobenzene	12.5U	25.0	7.80	ug/Kg
1,2-Dichloroethane	5.00U	10.0	3.10	ug/Kg
1,2-Dichloropropane	5.00U	10.0	3.10	ug/Kg
1,3,5-Trimethylbenzene	12.5U	25.0	7.80	ug/Kg
1,3-Dichlorobenzene	8.00J	25.0	7.80	ug/Kg
1,3-Dichloropropane	5.00U	10.0	3.10	ug/Kg
1,4-Dichlorobenzene	12.5U	25.0	7.80	ug/Kg
2,2-Dichloropropane	12.5U	25.0	7.80	ug/Kg
2-Butanone (MEK)	125U	250	78.0	ug/Kg
2-Chlorotoluene	12.5U	25.0	7.80	ug/Kg
2-Hexanone	125U	250	78.0	ug/Kg
4-Chlorotoluene	12.5U	25.0	7.80	ug/Kg
4-Isopropyltoluene	12.5U	25.0	7.80	ug/Kg
4-Methyl-2-pentanone (MIBK)	125U	250	78.0	ug/Kg
Benzene	6.25U	12.5	3.90	ug/Kg
Bromobenzene	12.5U	25.0	7.80	ug/Kg
Bromochloromethane	12.5U	25.0	7.80	ug/Kg
Bromodichloromethane	12.5U	25.0	7.80	ug/Kg
Bromoform	12.5U	25.0	7.80	ug/Kg
Bromomethane	100U	200	62.0	ug/Kg
Carbon disulfide	50.0U	100	31.0	ug/Kg
Carbon tetrachloride	6.25U	12.5	3.90	ug/Kg
Chlorobenzene	12.5U	25.0	7.80	ug/Kg
Chloroethane	100U	200	62.0	ug/Kg
Chloroform	12.5U	25.0	7.80	ug/Kg

Print Date: 11/17/2015 4:20:07PM



Method Blank

Blank ID: MB for HBN 1724897 [VXX/28246]

Blank Lab ID: 1303297

QC for Samples:

1156548008, 1156548009, 1156548019, 1156548020

Matrix: Soil/Solid (dry weight)

Results by SW8260B

<u>Parameter</u>	<u>Results</u>	<u>LOQ/CL</u>	<u>DL</u>	<u>Units</u>
Chloromethane	12.5U	25.0	7.80	ug/Kg
cis-1,2-Dichloroethene	12.5U	25.0	7.80	ug/Kg
cis-1,3-Dichloropropene	12.5U	25.0	7.80	ug/Kg
Dibromochloromethane	12.5U	25.0	7.80	ug/Kg
Dibromomethane	12.5U	25.0	7.80	ug/Kg
Dichlorodifluoromethane	25.0U	50.0	15.0	ug/Kg
Ethylbenzene	12.5U	25.0	7.80	ug/Kg
Freon-113	50.0U	100	31.0	ug/Kg
Hexachlorobutadiene	25.0U	50.0	15.0	ug/Kg
Isopropylbenzene (Cumene)	12.5U	25.0	7.80	ug/Kg
Methylene chloride	50.0U	100	31.0	ug/Kg
Methyl-t-butyl ether	50.0U	100	31.0	ug/Kg
Naphthalene	25.0U	50.0	15.0	ug/Kg
n-Butylbenzene	12.5U	25.0	7.80	ug/Kg
n-Propylbenzene	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
sec-Butylbenzene	12.5U	25.0	7.80	ug/Kg
Styrene	12.5U	25.0	7.80	ug/Kg
tert-Butylbenzene	12.5U	25.0	7.80	ug/Kg
Tetrachloroethene	6.25U	12.5	3.90	ug/Kg
Toluene	12.5U	25.0	7.80	ug/Kg
trans-1,2-Dichloroethene	12.5U	25.0	7.80	ug/Kg
trans-1,3-Dichloropropene	12.5U	25.0	7.80	ug/Kg
Trichloroethene	6.25U	12.5	3.90	ug/Kg
Trichlorofluoromethane	25.0U	50.0	15.0	ug/Kg
Vinyl acetate	50.0U	100	31.0	ug/Kg
Vinyl chloride	5.00U	10.0	3.10	ug/Kg
Xylenes (total)	37.5U	75.0	22.8	ug/Kg
Surrogates				
1,2-Dichloroethane-D4 (surr)	123	71-136		%
4-Bromofluorobenzene (surr)	105	55-151		%
Toluene-d8 (surr)	100	85-116		%

Print Date: 11/17/2015 4:20:07PM



Method Blank

Blank ID: MB for HBN 1724897 [VXX/28246]
Blank Lab ID: 1303297

Matrix: Soil/Solid (dry weight)

QC for Samples:
1156548008, 1156548009, 1156548019, 1156548020

Results by SW8260B

<u>Parameter</u>	<u>Results</u>	<u>LOQ/CL</u>	<u>DL</u>	<u>Units</u>
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Batch Information

Analytical Batch: VMS15420
Analytical Method: SW8260B
Instrument: Agilent 7890-75MS
Analyst: ST
Analytical Date/Time: 11/6/2015 2:18:00PM

Prep Batch: VXX28246
Prep Method: SW5035A
Prep Date/Time: 11/6/2015 8:00:00AM
Prep Initial Wt./Vol.: 50 g
Prep Extract Vol: 25 mL

Print Date: 11/17/2015 4:20:07PM

Blank Spike Summary

Blank Spike ID: LCS for HBN 1156548 [VXX28246]

Blank Spike Lab ID: 1303298

Date Analyzed: 11/06/2015 15:12

Matrix: Soil/Solid (dry weight)

QC for Samples: 1156548008, 1156548009, 1156548019, 1156548020

Results by SW8260B

Parameter	Blank Spike (ug/Kg)			CL
	Spike	Result	Rec (%)	
1,1,1,2-Tetrachloroethane	750	666	89	(78-125)
1,1,1-Trichloroethane	750	830	111	(73-130)
1,1,2,2-Tetrachloroethane	750	721	96	(70-124)
1,1,2-Trichloroethane	750	655	87	(78-121)
1,1-Dichloroethane	750	832	111	(76-125)
1,1-Dichloroethene	750	811	108	(70-131)
1,1-Dichloropropene	750	787	105	(76-125)
1,2,3-Trichlorobenzene	750	761	101	(66-130)
1,2,3-Trichloropropane	750	737	98	(73-125)
1,2,4-Trichlorobenzene	750	811	108	(67-129)
1,2,4-Trimethylbenzene	750	717	96	(75-123)
1,2-Dibromo-3-chloropropane	750	742	99	(61-132)
1,2-Dibromoethane	750	651	87	(78-122)
1,2-Dichlorobenzene	750	741	99	(78-121)
1,2-Dichloroethane	750	818	109	(73-128)
1,2-Dichloropropane	750	783	104	(76-123)
1,3,5-Trimethylbenzene	750	714	95	(73-124)
1,3-Dichlorobenzene	750	714	95	(77-121)
1,3-Dichloropropane	750	670	89	(77-121)
1,4-Dichlorobenzene	750	755	101	(75-120)
2,2-Dichloropropane	750	836	111	(67-133)
2-Butanone (MEK)	2250	2120	94	(51-148)
2-Chlorotoluene	750	699	93	(75-122)
2-Hexanone	2250	2170	97	(53-145)
4-Chlorotoluene	750	699	93	(72-124)
4-Isopropyltoluene	750	761	101	(73-127)
4-Methyl-2-pentanone (MIBK)	2250	2270	101	(65-135)
Benzene	750	770	103	(77-121)
Bromobenzene	750	761	101	(78-121)
Bromochloromethane	750	801	107	(78-125)
Bromodichloromethane	750	877	117	(75-127)
Bromoform	750	672	90	(67-132)
Bromomethane	750	707	94	(53-143)
Carbon disulfide	1130	1320	118	(63-132)

Print Date: 11/17/2015 4:20:09PM



Blank Spike Summary

Blank Spike ID: LCS for HBN 1156548 [VXX28246]

Blank Spike Lab ID: 1303298

Date Analyzed: 11/06/2015 15:12

Matrix: Soil/Solid (dry weight)

QC for Samples: 1156548008, 1156548009, 1156548019, 1156548020

Results by SW8260B

Parameter	Blank Spike (ug/Kg)			CL
	Spike	Result	Rec (%)	
Carbon tetrachloride	750	815	109	(70-135)
Chlorobenzene	750	763	102	(79-120)
Chloroethane	750	855	114	(59-139)
Chloroform	750	823	110	(78-123)
Chloromethane	750	844	113	(50-136)
cis-1,2-Dichloroethene	750	826	110	(77-123)
cis-1,3-Dichloropropene	750	785	105	(74-126)
Dibromochloromethane	750	687	92	(74-126)
Dibromomethane	750	809	108	(78-125)
Dichlorodifluoromethane	750	846	113	(29-149)
Ethylbenzene	750	759	101	(76-122)
Freon-113	1130	1160	104	(66-136)
Hexachlorobutadiene	750	859	115	(61-135)
Isopropylbenzene (Cumene)	750	705	94	(68-134)
Methylene chloride	750	734	98	(70-128)
Methyl-t-butyl ether	1130	1220	109	(73-125)
Naphthalene	750	683	91	(62-129)
n-Butylbenzene	750	756	101	(70-128)
n-Propylbenzene	750	708	94	(73-125)
o-Xylene	750	759	101	(77-123)
P & M -Xylene	1500	1530	102	(77-124)
sec-Butylbenzene	750	762	102	(73-126)
Styrene	750	761	101	(76-124)
tert-Butylbenzene	750	757	101	(73-125)
Tetrachloroethene	750	635	85	(73-128)
Toluene	750	773	103	(77-121)
trans-1,2-Dichloroethene	750	848	113	(74-125)
trans-1,3-Dichloropropene	750	670	89	(71-130)
Trichloroethene	750	773	103	(77-123)
Trichlorofluoromethane	750	863	115	(62-140)
Vinyl acetate	750	725	97	(50-151)
Vinyl chloride	750	864	115	(56-135)
Xylenes (total)	2250	2280	102	(78-124)

Print Date: 11/17/2015 4:20:09PM

Blank Spike Summary

Blank Spike ID: LCS for HBN 1156548 [VXX28246]

Blank Spike Lab ID: 1303298

Date Analyzed: 11/06/2015 15:12

Matrix: Soil/Solid (dry weight)

QC for Samples: 1156548008, 1156548009, 1156548019, 1156548020

Results by SW8260B

Parameter	Blank Spike (%)			CL
	Spike	Result	Rec (%)	
Surrogates				
1,2-Dichloroethane-D4 (surr)	750	119	119	(71-136)
4-Bromofluorobenzene (surr)	750	98.3	98	(55-151)
Toluene-d8 (surr)	750	95.4	95	(85-116)

Batch Information

Analytical Batch: **VMS15420**

Analytical Method: **SW8260B**

Instrument: **Agilent 7890-75MS**

Analyst: **ST**

Prep Batch: **VXX28246**

Prep Method: **SW5035A**

Prep Date/Time: **11/06/2015 08:00**

Spike Init Wt./Vol.: 750 ug/Kg Extract Vol: 25 mL

Dupe Init Wt./Vol.: Extract Vol:



Matrix Spike Summary

Original Sample ID: 1158836027
 MS Sample ID: 1303299 MS
 MSD Sample ID: 1303300 MSD

Analysis Date: 11/06/2015 16:59
 Analysis Date: 11/06/2015 15:39
 Analysis Date: 11/06/2015 15:55
 Matrix: Soil/Solid (dry weight)

QC for Samples: 1156548008, 1156548009, 1156548019, 1156548020

Results by SW8260B

Parameter	Sample	Matrix Spike (ug/Kg)			Spike Duplicate (ug/Kg)			CL	RPD (%)	RPD CL
		Spike	Result	Rec (%)	Spike	Result	Rec (%)			
1,1,1,2-Tetrachloroethane	20.9U	991	1007	102	991	984	99	78-125	2.30	(< 20)
1,1,1-Trichloroethane	20.9U	991	1068	108	991	1050	106	73-130	1.60	(< 20)
1,1,2,2-Tetrachloroethane	10.4U	991	987	100	991	1013	102	70-124	2.60	(< 20)
1,1,2-Trichloroethane	8.35U	991	1011	102	991	993	100	78-121	1.70	(< 20)
1,1-Dichloroethane	20.9U	991	1066	108	991	1046	106	76-125	1.90	(< 20)
1,1-Dichloroethene	20.9U	991	1090	110	991	1050	106	70-131	3.80	(< 20)
1,1-Dichloropropene	20.9U	991	1035	104	991	1021	103	76-125	1.30	(< 20)
1,2,3-Trichlorobenzene	41.7U	991	1008	102	991	1106	112	66-130	9.30	(< 20)
1,2,3-Trichloropropane	20.9U	991	1011	102	991	1029	104	73-125	1.80	(< 20)
1,2,4-Trichlorobenzene	20.9U	991	1055	106	991	1102	111	67-129	4.40	(< 20)
1,2,4-Trimethylbenzene	41.7U	991	999	101	991	980	99	75-123	1.90	(< 20)
1,2-Dibromo-3-chloropropane	83.5U	991	1016	103	991	1126	114	61-132	10.10	(< 20)
1,2-Dibromoethane	8.35U	991	981	99	991	993	100	78-122	1.20	(< 20)
1,2-Dichlorobenzene	20.9U	991	1034	104	991	1035	104	78-121	0.03	(< 20)
1,2-Dichloroethane	8.35U	991	1042	105	991	1034	104	73-128	0.89	(< 20)
1,2-Dichloropropane	8.35U	991	1025	103	991	1022	103	76-123	0.23	(< 20)
1,3,5-Trimethylbenzene	20.9U	991	999	101	991	984	99	73-124	1.40	(< 20)
1,3-Dichlorobenzene	20.9U	991	998	101	991	986	100	77-121	1.20	(< 20)
1,3-Dichloropropane	8.35U	991	982	99	991	994	100	77-121	1.10	(< 20)
1,4-Dichlorobenzene	20.9U	991	1067	108	991	1052	106	75-120	1.40	(< 20)
2,2-Dichloropropane	20.9U	991	1070	108	991	1048	106	67-133	2.20	(< 20)
2-Butanone (MEK)	209U	2969	2570	87	2969	3228	108	51-148	22.60	* (< 20)
2-Chlorotoluene	20.9U	991	989	100	991	979	99	75-122	1.00	(< 20)
2-Hexanone	209U	2969	2782	94	2969	3122	105	53-145	11.60	(< 20)
4-Chlorotoluene	20.9U	991	978	99	991	975	99	72-124	0.24	(< 20)
4-Isopropyltoluene	20.9U	991	1009	102	991	978	99	73-127	3.20	(< 20)
4-Methyl-2-pentanone (MIBK)	209U	2969	2723	91	2969	3005	101	65-135	9.90	(< 20)
Benzene	10.4U	991	1026	104	991	1015	103	77-121	1.00	(< 20)
Bromobenzene	20.9U	991	1063	107	991	1025	103	78-121	3.70	(< 20)
Bromochloromethane	20.9U	991	1021	103	991	1009	102	78-125	1.20	(< 20)
Bromodichloromethane	20.9U	991	1123	113	991	1109	112	75-127	1.30	(< 20)
Bromoform	20.9U	991	998	101	991	984	99	67-132	1.40	(< 20)
Bromomethane	167U	991	910	92	991	880	89	53-143	3.30	(< 20)
Carbon disulfide	83.5U	1491	1784	120	1491	1702	115	63-132	4.40	(< 20)
Carbon tetrachloride	10.4U	991	1062	107	991	1041	105	70-135	2.00	(< 20)
Chlorobenzene	20.9U	991	1069	108	991	1055	107	79-120	1.30	(< 20)
Chloroethane	167U	991	1028	104	991	994	100	59-139	3.30	(< 20)

Print Date: 11/17/2015 4:20:10PM



Matrix Spike Summary

Original Sample ID: 1158836027
 MS Sample ID: 1303299 MS
 MSD Sample ID: 1303300 MSD

Analysis Date: 11/06/2015 16:59
 Analysis Date: 11/06/2015 15:39
 Analysis Date: 11/06/2015 15:55
 Matrix: Soil/Solid (dry weight)

QC for Samples: 1156548008, 1156548009, 1156548019, 1156548020

Results by SW8260B

Parameter	Sample	Matrix Spike (ug/Kg)			Spike Duplicate (ug/Kg)			CL	RPD (%)	RPD CL
		Spike	Result	Rec (%)	Spike	Result	Rec (%)			
Chloroform	20.9U	991	1062	107	991	1040	105	78-123	2.10	(< 20)
Chloromethane	20.9U	991	1018	103	991	975	99	50-136	4.10	(< 20)
cis-1,2-Dichloroethene	20.9U	991	1076	109	991	1016	103	77-123	5.70	(< 20)
cis-1,3-Dichloropropene	20.9U	991	1020	103	991	1011	102	74-126	0.85	(< 20)
Dibromochloromethane	20.9U	991	1002	101	991	999	101	74-126	0.30	(< 20)
Dibromomethane	20.9U	991	1026	104	991	1015	102	78-125	1.10	(< 20)
Dichlorodifluoromethane	41.7U	991	952	96	991	894	90	29-149	6.20	(< 20)
Ethylbenzene	20.9U	991	1083	109	991	1069	108	76-122	1.40	(< 20)
Freon-113	83.5U	1491	1596	108	1491	1561	105	66-136	3.00	(< 20)
Hexachlorobutadiene	41.7U	991	1072	108	991	1036	105	61-135	3.30	(< 20)
Isopropylbenzene (Cumene)	20.9U	991	993	100	991	977	99	68-134	1.60	(< 20)
Methylene chloride	83.5U	991	939	95	991	907	92	70-128	3.50	(< 20)
Methyl-t-butyl ether	83.5U	1491	1596	107	1491	1631	110	73-125	2.10	(< 20)
Naphthalene	41.7U	991	954	96	991	1080	109	62-129	12.30	(< 20)
n-Butylbenzene	20.9U	991	1019	103	991	962	97	70-128	5.80	(< 20)
n-Propylbenzene	20.9U	991	992	100	991	966	98	73-125	2.60	(< 20)
o-Xylene	20.9U	991	1073	108	991	1073	108	77-123	0.09	(< 20)
P & M -Xylene	41.7U	1984	2171	110	1984	2160	109	77-124	0.73	(< 20)
sec-Butylbenzene	20.9U	991	1023	103	991	972	98	73-126	5.10	(< 20)
Styrene	20.9U	991	1086	110	991	1069	108	76-124	1.60	(< 20)
tert-Butylbenzene	20.9U	991	1028	104	991	984	99	73-125	4.40	(< 20)
Tetrachloroethene	10.4U	991	979	99	991	979	99	73-128	0.03	(< 20)
Toluene	20.9U	991	1099	111	991	1092	110	77-121	0.63	(< 20)
trans-1,2-Dichloroethene	20.9U	991	1117	113	991	1089	110	74-125	2.50	(< 20)
trans-1,3-Dichloropropene	20.9U	991	993	100	991	996	101	71-130	0.30	(< 20)
Trichloroethene	10.4U	991	1020	103	991	1013	102	77-123	0.58	(< 20)
Trichlorofluoromethane	41.7U	991	1036	105	991	979	99	62-140	5.60	(< 20)
Vinyl acetate	83.5U	991	957	97	991	975	99	50-151	2.00	(< 20)
Vinyl chloride	8.35U	991	1026	104	991	973	98	56-135	5.30	(< 20)
Xylenes (total)	62.5U	2969	3251	109	2969	3228	109	78-124	0.52	(< 20)
Surrogates										
1,2-Dichloroethane-D4 (surr)		991	1099	111	991	1086	110	71-136	1.20	
4-Bromofluorobenzene (surr)		2641	2254	85	2641	2230	84	55-151	0.96	
Toluene-d8 (surr)		991	989	100	991	984	99	85-116	0.50	

Print Date: 11/17/2015 4:20:10PM



Matrix Spike Summary

Original Sample ID: 1158836027
MS Sample ID: 1303299 MS
MSD Sample ID: 1303300 MSD

Analysis Date:
Analysis Date: 11/06/2015 15:39
Analysis Date: 11/06/2015 15:55
Matrix: Soil/Solid (dry weight)

QC for Samples: 1156548008, 1156548009, 1156548019, 1156548020

Results by SW8260B

Parameter	Sample	Matrix Spike (%)			Spike Duplicate (%)			CL	RPD (%)	RPD CL
		Spike	Result	Rec (%)	Spike	Result	Rec (%)			

Batch Information

Analytical Batch: VMS15420
Analytical Method: SW8260B
Instrument: Agilent 7890-75MS
Analyst: ST
Analytical Date/Time: 11/6/2015 3:39:00PM

Prep Batch: VXX28246
Prep Method: Vol. Extraction SW8260 Field Extracted L
Prep Date/Time: 11/6/2015 8:00:00AM
Prep Initial Wt./Vol.: 44.42g
Prep Extract Vol: 25.00mL

Print Date: 11/17/2015 4:20:10PM



Method Blank

Blank ID: MB for HBN 1725005 [VXX/28251]
Blank Lab ID: 1303633

Matrix: Soil/Solid (dry weight)

QC for Samples:
1156548001, 1156548002, 1156548003, 1156548010

Results by AK101

<u>Parameter</u>	<u>Results</u>	<u>LOQ/CL</u>	<u>DL</u>	<u>Units</u>
Benzene	0.00625U	0.0125	0.00400	mg/Kg
Ethylbenzene	0.0125U	0.0250	0.00780	mg/Kg
Gasoline Range Organics	1.12J	2.50	0.750	mg/Kg
o-Xylene	0.0125U	0.0250	0.00780	mg/Kg
P & M -Xylene	0.0250U	0.0500	0.0150	mg/Kg
Toluene	0.0100J	0.0250	0.00780	mg/Kg
Surrogates				
1,4-Difluorobenzene (surr)	92	72-119		%
4-Bromofluorobenzene (surr)	99.8	50-150		%

Batch Information

Analytical Batch: VFC12815
Analytical Method: AK101
Instrument: Agilent 7890A PID/FID
Analyst: KAS
Analytical Date/Time: 11/10/2015 12:11:00PM

Prep Batch: VXX28251
Prep Method: SW5035A
Prep Date/Time: 11/10/2015 8:00:00AM
Prep Initial Wt./Vol.: 50 g
Prep Extract Vol: 25 mL

Print Date: 11/17/2015 4:20:11PM

Blank Spike Summary

Blank Spike ID: LCS for HBN 1156548 [VXX28251]
 Blank Spike Lab ID: 1303634
 Date Analyzed: 11/10/2015 12:30

Spike Duplicate ID: LCSD for HBN 1156548 [VXX28251]
 Spike Duplicate Lab ID: 1303635
 Matrix: Soil/Solid (dry weight)

QC for Samples: 1156548001, 1156548002, 1156548003, 1156548010

Results by AK101

Parameter	Blank Spike (mg/Kg)			Spike Duplicate (mg/Kg)			CL	RPD (%)	RPD CL
	Spike	Result	Rec (%)	Spike	Result	Rec (%)			
Benzene	1.25	1.30	104	1.25	1.26	101	(75-125)	2.80	(< 20)
Ethylbenzene	1.25	1.30	104	1.25	1.27	101	(75-125)	2.90	(< 20)
o-Xylene	1.25	1.29	103	1.25	1.26	101	(75-125)	2.50	(< 20)
P & M -Xylene	2.50	2.63	105	2.50	2.55	102	(80-125)	2.90	(< 20)
Toluene	1.25	1.29	103	1.25	1.25	100	(70-125)	3.00	(< 20)
Surrogates									
1,4-Difluorobenzene (surr)	1.25	93.3	93	1.25	93.8	94	(72-119)	0.49	

Batch Information

Analytical Batch: **VFC12815**
 Analytical Method: **AK101**
 Instrument: **Agilent 7890A PID/FID**
 Analyst: **KAS**

Prep Batch: **VXX28251**
 Prep Method: **SW5035A**
 Prep Date/Time: **11/10/2015 08:00**
 Spike Init Wt./Vol.: 1.25 mg/Kg Extract Vol: 25 mL
 Dupe Init Wt./Vol.: 1.25 mg/Kg Extract Vol: 25 mL



Blank Spike Summary

Blank Spike ID: LCS for HBN 1156548 [VXX28251]
Blank Spike Lab ID: 1303636
Date Analyzed: 11/10/2015 13:08

Spike Duplicate ID: LCSD for HBN 1156548 [VXX28251]
Spike Duplicate Lab ID: 1303637
Matrix: Soil/Solid (dry weight)

QC for Samples: 1156548001, 1156548002, 1156548003, 1156548010

Results by AK101

Parameter	Blank Spike (mg/Kg)			Spike Duplicate (mg/Kg)			CL	RPD (%)	RPD CL
	Spike	Result	Rec (%)	Spike	Result	Rec (%)			
Gasoline Range Organics	12.5	11.5	92	12.5	11.8	94	(60-120)	2.30	(< 20)

Surrogates

4-Bromofluorobenzene (surr)	1.25	103	103	1.25	103	103	(50-150)	0.00	
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Batch Information

Analytical Batch: VFC12815
Analytical Method: AK101
Instrument: Agilent 7890A PID/FID
Analyst: KAS

Prep Batch: VXX28251
Prep Method: SW5035A
Prep Date/Time: 11/10/2015 08:00
Spike Init Wt./Vol.: 12.5 mg/Kg Extract Vol: 25 mL
Dupe Init Wt./Vol.: 12.5 mg/Kg Extract Vol: 25 mL

Print Date: 11/17/2015 4:20:13PM



Matrix Spike Summary

Original Sample ID: 1158860005
MS Sample ID: 1303638 MS
MSD Sample ID: 1303639 MSD

Analysis Date: 11/10/2015 15:01
Analysis Date: 11/10/2015 15:20
Analysis Date: 11/10/2015 15:39
Matrix: Soil/Solid (dry weight)

QC for Samples: 1156548001, 1156548002, 1156548003, 1156548010

Results by AK101

Parameter	Sample	Matrix Spike (mg/Kg)			Spike Duplicate (mg/Kg)			CL	RPD (%)	RPD CL
		Spike	Result	Rec (%)	Spike	Result	Rec (%)			
Benzene	0.00930U	1.40	1.49	105	1.40	1.48	105	75-125	0.21	(< 20)
Ethylbenzene	0.0186U	1.40	1.49	105	1.40	1.49	106	75-125	0.32	(< 20)
o-Xylene	0.0186U	1.40	1.46	104	1.40	1.48	104	75-125	0.73	(< 20)
P & M -Xylene	0.0372U	2.82	2.98	105	2.82	3.00	106	80-125	0.72	(< 20)
Toluene	0.0186U	1.40	1.48	104	1.40	1.46	104	70-125	0.27	(< 20)
Surrogates										
1,4-Difluorobenzene (surr)		1.40	1.32	94	1.40	1.33	95	72-119	1.10	

Batch Information

Analytical Batch: VFC12815
Analytical Method: AK101
Instrument: Agilent 7890A PID/FID
Analyst: KAS
Analytical Date/Time: 11/10/2015 3:20:00PM

Prep Batch: VXX28251
Prep Method: AK101 Extraction (S)
Prep Date/Time: 11/10/2015 8:00:00AM
Prep Initial Wt./Vol.: 52.33g
Prep Extract Vol: 25.00mL

Print Date: 11/17/2015 4:20:14PM



Method Blank

Blank ID: MB for HBN 1725005 [VXX/28251]
Blank Lab ID: 1303633

Matrix: Soil/Solid (dry weight)

QC for Samples:
1156548001, 1156548002, 1156548003, 1156548010

Results by SW8021B

<u>Parameter</u>	<u>Results</u>	<u>LOQ/CL</u>	<u>DL</u>	<u>Units</u>
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	10.0J	25.0	7.80	ug/Kg

Surrogates

1,4-Difluorobenzene (surr)	92	72-119	%
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Batch Information

Analytical Batch: VFC12815
Analytical Method: SW8021B
Instrument: Agilent 7890A PID/FID
Analyst: KAS
Analytical Date/Time: 11/10/2015 12:11:00PM

Prep Batch: VXX28251
Prep Method: SW5035A
Prep Date/Time: 11/10/2015 8:00:00AM
Prep Initial Wt./Vol.: 50 g
Prep Extract Vol: 25 mL

Print Date: 11/17/2015 4:20:15PM



Blank Spike Summary

Blank Spike ID: LCS for HBN 1156548 [VXX28251]
 Blank Spike Lab ID: 1303634
 Date Analyzed: 11/10/2015 12:30

Spike Duplicate ID: LCSD for HBN 1156548 [VXX28251]
 Spike Duplicate Lab ID: 1303635
 Matrix: Soil/Solid (dry weight)

QC for Samples: 1156548001, 1156548002, 1156548003, 1156548010

Results by SW8021B

Parameter	Blank Spike (ug/Kg)			Spike Duplicate (ug/Kg)			CL	RPD (%)	RPD CL
	Spike	Result	Rec (%)	Spike	Result	Rec (%)			
Benzene	1250	1300	104	1250	1260	101	(75-125)	2.80	(< 20)
Ethylbenzene	1250	1300	104	1250	1270	101	(75-125)	2.90	(< 20)
o-Xylene	1250	1290	103	1250	1260	101	(75-125)	2.50	(< 20)
P & M -Xylene	2500	2630	105	2500	2550	102	(80-125)	2.90	(< 20)
Toluene	1250	1290	103	1250	1250	100	(70-125)	3.00	(< 20)
Surrogates									
1,4-Difluorobenzene (surr)	1250	93.3	93	1250	93.8	94	(72-119)	0.49	

Batch Information

Analytical Batch: **VFC12815**
 Analytical Method: **SW8021B**
 Instrument: **Agilent 7890A PID/FID**
 Analyst: **KAS**

Prep Batch: **VXX28251**
 Prep Method: **SW5035A**
 Prep Date/Time: **11/10/2015 08:00**
 Spike Init Wt./Vol.: 1250 ug/Kg Extract Vol: 25 mL
 Dupe Init Wt./Vol.: 1250 ug/Kg Extract Vol: 25 mL

Print Date: 11/17/2015 4:20:16PM



Matrix Spike Summary

Original Sample ID: 1158860005
MS Sample ID: 1303638 MS
MSD Sample ID: 1303639 MSD

Analysis Date: 11/10/2015 15:01
Analysis Date: 11/10/2015 15:20
Analysis Date: 11/10/2015 15:39
Matrix: Soil/Solid (dry weight)

QC for Samples: 1156548001, 1156548002, 1156548003, 1156548010

Results by SW8021B

Parameter	Sample	Matrix Spike (ug/Kg)			Spike Duplicate (ug/Kg)			CL	RPD (%)	RPD CL
		Spike	Result	Rec (%)	Spike	Result	Rec (%)			
Benzene	9.30U	1405	1488	105	1405	1476	105	75-125	0.21	(< 20)
Ethylbenzene	18.6U	1405	1488	105	1405	1488	106	75-125	0.32	(< 20)
o-Xylene	18.6U	1405	1464	104	1405	1476	104	75-125	0.73	(< 20)
P & M -Xylene	37.2U	2822	2975	105	2822	2999	106	80-125	0.72	(< 20)
Toluene	18.6U	1405	1476	104	1405	1464	104	70-125	0.27	(< 20)
Surrogates										
1,4-Difluorobenzene (surr)		1405	1322	94	1405	1334	95	72-119	1.10	

Batch Information

Analytical Batch: VFC12815
Analytical Method: SW8021B
Instrument: Agilent 7890A PID/FID
Analyst: KAS
Analytical Date/Time: 11/10/2015 3:20:00PM

Prep Batch: VXX28251
Prep Method: AK101 Extraction (S)
Prep Date/Time: 11/10/2015 8:00:00AM
Prep Initial Wt./Vol.: 52.33g
Prep Extract Vol: 25.00mL

Print Date: 11/17/2015 4:20:17PM



Method Blank

Blank ID: MB for HBN 1725007 [VXX/28252]
Blank Lab ID: 1303644

Matrix: Soil/Solid (dry weight)

QC for Samples:

1156548004, 1156548005, 1156548006, 1156548008, 1156548009, 1156548011, 1156548012, 1156548013, 1156548014, 1156548015, 1156548016, 1156548017, 1156548018, 1156548019

Results by AK101

<u>Parameter</u>	<u>Results</u>	<u>LOQ/CL</u>	<u>DL</u>	<u>Units</u>
Benzene	0.00625U	0.0125	0.00400	mg/Kg
Ethylbenzene	0.0125U	0.0250	0.00780	mg/Kg
Gasoline Range Organics	1.25U	2.50	0.750	mg/Kg
o-Xylene	0.0125U	0.0250	0.00780	mg/Kg
P & M -Xylene	0.0250U	0.0500	0.0150	mg/Kg
Toluene	0.0125U	0.0250	0.00780	mg/Kg

Surrogates

1,4-Difluorobenzene (surr)	91	72-119	%
4-Bromofluorobenzene (surr)	99.7	50-150	%

Batch Information

Analytical Batch: VFC12815
Analytical Method: AK101
Instrument: Agilent 7890A PID/FID
Analyst: KAS
Analytical Date/Time: 11/10/2015 10:34:00PM

Prep Batch: VXX28252
Prep Method: SW5035A
Prep Date/Time: 11/10/2015 8:00:00AM
Prep Initial Wt./Vol.: 50 g
Prep Extract Vol: 25 mL

Print Date: 11/17/2015 4:20:18PM

Blank Spike Summary

Blank Spike ID: LCS for HBN 1156548 [VXX28252]
 Blank Spike Lab ID: 1303645
 Date Analyzed: 11/10/2015 22:53

Spike Duplicate ID: LCSD for HBN 1156548 [VXX28252]
 Spike Duplicate Lab ID: 1303646
 Matrix: Soil/Solid (dry weight)

QC for Samples: 1156548004, 1156548005, 1156548006, 1156548008, 1156548009, 1156548011, 1156548012, 1156548013, 1156548014, 1156548015, 1156548016, 1156548017, 1156548018, 1156548019

Results by AK101

Parameter	Blank Spike (mg/Kg)			Spike Duplicate (mg/Kg)			CL	RPD (%)	RPD CL
	Spike	Result	Rec (%)	Spike	Result	Rec (%)			
Benzene	1.25	1.27	102	1.25	1.25	100	(75-125)	1.60	(< 20)
Ethylbenzene	1.25	1.32	105	1.25	1.29	104	(75-125)	1.60	(< 20)
o-Xylene	1.25	1.31	105	1.25	1.29	103	(75-125)	1.20	(< 20)
P & M -Xylene	2.50	2.65	106	2.50	2.61	104	(80-125)	1.60	(< 20)
Toluene	1.25	1.28	103	1.25	1.26	101	(70-125)	1.80	(< 20)
Surrogates									
1,4-Difluorobenzene (surr)	1.25	93.3	93	1.25	94.5	95	(72-119)	1.30	

Batch Information

Analytical Batch: **VFC12815**
 Analytical Method: **AK101**
 Instrument: **Agilent 7890A PID/FID**
 Analyst: **KAS**

Prep Batch: **VXX28252**
 Prep Method: **SW5035A**
 Prep Date/Time: **11/10/2015 08:00**
 Spike Init Wt./Vol.: 1.25 mg/Kg Extract Vol: 25 mL
 Dupe Init Wt./Vol.: 1.25 mg/Kg Extract Vol: 25 mL



Blank Spike Summary

Blank Spike ID: LCS for HBN 1156548 [VXX28252]
 Blank Spike Lab ID: 1303647
 Date Analyzed: 11/10/2015 23:31

Spike Duplicate ID: LCSD for HBN 1156548 [VXX28252]
 Spike Duplicate Lab ID: 1303648
 Matrix: Soil/Solid (dry weight)

QC for Samples: 1156548004, 1156548005, 1156548006, 1156548008, 1156548009, 1156548011, 1156548012, 1156548013, 1156548014, 1156548015, 1156548016, 1156548017, 1156548018, 1156548019

Results by AK101

Parameter	Blank Spike (mg/Kg)			Spike Duplicate (mg/Kg)			CL	RPD (%)	RPD CL
	Spike	Result	Rec (%)	Spike	Result	Rec (%)			
Gasoline Range Organics	12.5	11.5	92	12.5	11.6	93	(60-120)	0.41	(< 20)

Surrogates

4-Bromofluorobenzene (surr)	1.25	102	102	1.25	102	102	(50-150)	0.10	
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Batch Information

Analytical Batch: VFC12815
 Analytical Method: AK101
 Instrument: Agilent 7890A PID/FID
 Analyst: KAS

Prep Batch: VXX28252
 Prep Method: SW5035A
 Prep Date/Time: 11/10/2015 08:00
 Spike Init Wt./Vol.: 12.5 mg/Kg Extract Vol: 25 mL
 Dupe Init Wt./Vol.: 12.5 mg/Kg Extract Vol: 25 mL

Print Date: 11/17/2015 4:20:20PM



Matrix Spike Summary

Original Sample ID: 1158861002
MS Sample ID: 1303649 MS
MSD Sample ID: 1303650 MSD

Analysis Date: 11/11/2015 1:43
Analysis Date: 11/11/2015 2:01
Analysis Date: 11/11/2015 2:20
Matrix: Soil/Solid (dry weight)

QC for Samples: 1156548004, 1156548005, 1156548006, 1156548008, 1156548009, 1156548011, 1156548012, 1156548013, 1156548014, 1156548015, 1156548016, 1156548017, 1156548018, 1156548019

Results by AK101

Parameter	Sample	Matrix Spike (mg/Kg)			Spike Duplicate (mg/Kg)			CL	RPD (%)	RPD CL
		Spike	Result	Rec (%)	Spike	Result	Rec (%)			
Benzene	0.00725U	1.16	1.20	103	1.16	1.18	102	75-125	0.91	(< 20)
Ethylbenzene	0.0145U	1.16	1.21	104	1.16	1.20	103	75-125	1.10	(< 20)
o-Xylene	0.0145U	1.16	1.20	103	1.16	1.18	102	75-125	0.72	(< 20)
P & M -Xylene	0.0290U	2.31	2.44	105	2.31	2.40	104	80-125	1.20	(< 20)
Toluene	0.0145U	1.16	1.18	102	1.16	1.17	101	70-125	0.87	(< 20)
Surrogates										
1,4-Difluorobenzene (surr)		1.16	1.08	93	1.16	1.07	93	72-119	0.26	

Batch Information

Analytical Batch: VFC12815
Analytical Method: AK101
Instrument: Agilent 7890A PID/FID
Analyst: KAS
Analytical Date/Time: 11/11/2015 2:01:00AM

Prep Batch: VXX28252
Prep Method: AK101 Extraction (S)
Prep Date/Time: 11/10/2015 8:00:00AM
Prep Initial Wt./Vol.: 60.28g
Prep Extract Vol: 25.00mL

Print Date: 11/17/2015 4:20:21PM



Method Blank

Blank ID: MB for HBN 1725007 [VXX/28252]
Blank Lab ID: 1303644

Matrix: Soil/Solid (dry weight)

QC for Samples:

1156548004, 1156548005, 1156548006, 1156548008, 1156548009, 1156548011, 1156548012, 1156548013, 1156548014, 1156548015, 1156548016, 1156548017, 1156548018, 1156548019

Results by SW8021B

<u>Parameter</u>	<u>Results</u>	<u>LOQ/CL</u>	<u>DL</u>	<u>Units</u>
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)	91	72-119	%
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Batch Information

Analytical Batch: VFC12815
Analytical Method: SW8021B
Instrument: Agilent 7890A PID/FID
Analyst: KAS
Analytical Date/Time: 11/10/2015 10:34:00PM

Prep Batch: VXX28252
Prep Method: SW5035A
Prep Date/Time: 11/10/2015 8:00:00AM
Prep Initial Wt./Vol.: 50 g
Prep Extract Vol: 25 mL

Print Date: 11/17/2015 4:20:22PM

Blank Spike Summary

Blank Spike ID: LCS for HBN 1156548 [VXX28252]
 Blank Spike Lab ID: 1303645
 Date Analyzed: 11/10/2015 22:53

Spike Duplicate ID: LCSD for HBN 1156548 [VXX28252]
 Spike Duplicate Lab ID: 1303646
 Matrix: Soil/Solid (dry weight)

QC for Samples: 1156548004, 1156548005, 1156548006, 1156548008, 1156548009, 1156548011, 1156548012, 1156548013, 1156548014, 1156548015, 1156548016, 1156548017, 1156548018, 1156548019

Results by SW8021B

Parameter	Blank Spike (ug/Kg)			Spike Duplicate (ug/Kg)			CL	RPD (%)	RPD CL
	Spike	Result	Rec (%)	Spike	Result	Rec (%)			
Benzene	1250	1270	102	1250	1250	100	(75-125)	1.60	(< 20)
Ethylbenzene	1250	1320	105	1250	1290	104	(75-125)	1.60	(< 20)
o-Xylene	1250	1310	105	1250	1290	103	(75-125)	1.20	(< 20)
P & M -Xylene	2500	2650	106	2500	2610	104	(80-125)	1.60	(< 20)
Toluene	1250	1280	103	1250	1260	101	(70-125)	1.80	(< 20)
Surrogates									
1,4-Difluorobenzene (surr)	1250	93.3	93	1250	94.5	95	(72-119)	1.30	

Batch Information

Analytical Batch: **VFC12815**
 Analytical Method: **SW8021B**
 Instrument: **Agilent 7890A PID/FID**
 Analyst: **KAS**

Prep Batch: **VXX28252**
 Prep Method: **SW5035A**
 Prep Date/Time: **11/10/2015 08:00**
 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: 1158861002
MS Sample ID: 1303649 MS
MSD Sample ID: 1303650 MSD

Analysis Date: 11/11/2015 1:43
Analysis Date: 11/11/2015 2:01
Analysis Date: 11/11/2015 2:20
Matrix: Soil/Solid (dry weight)

QC for Samples: 1156548004, 1156548005, 1156548006, 1156548008, 1156548009, 1156548011, 1156548012, 1156548013, 1156548014, 1156548015, 1156548016, 1156548017, 1156548018, 1156548019

Results by SW8021B

Parameter	Sample	Matrix Spike (ug/Kg)			Spike Duplicate (ug/Kg)			CL	RPD (%)	RPD CL
		Spike	Result	Rec (%)	Spike	Result	Rec (%)			
Benzene	7.25U	1162	1196	103	1162	1184	102	75-125	0.91	(< 20)
Ethylbenzene	14.5U	1162	1207	104	1162	1196	103	75-125	1.10	(< 20)
o-Xylene	14.5U	1162	1196	103	1162	1184	102	75-125	0.72	(< 20)
P & M -Xylene	29.1U	2313	2436	105	2313	2402	104	80-125	1.20	(< 20)
Toluene	14.5U	1162	1184	102	1162	1173	101	70-125	0.87	(< 20)
Surrogates										
1,4-Difluorobenzene (surr)		1162	1077	93	1162	1074	93	72-119	0.26	

Batch Information

Analytical Batch: VFC12815
Analytical Method: SW8021B
Instrument: Agilent 7890A PID/FID
Analyst: KAS
Analytical Date/Time: 11/11/2015 2:01:00AM

Prep Batch: VXX28252
Prep Method: AK101 Extraction (S)
Prep Date/Time: 11/10/2015 8:00:00AM
Prep Initial Wt./Vol.: 60.28g
Prep Extract Vol: 25.00mL

Print Date: 11/17/2015 4:20:26PM



Method Blank

Blank ID: MB for HBN 1725009 [VXX/28254]

Blank Lab ID: 1303658

QC for Samples:

1156548021

Matrix: Soil/Solid (dry weight)

Results by AK101

<u>Parameter</u>	<u>Results</u>	<u>LOQ/CL</u>	<u>DL</u>	<u>Units</u>
Gasoline Range Organics	1.25U	2.50	0.750	mg/Kg
Surrogates				
4-Bromofluorobenzene (surr)	83.3	50-150		%

Batch Information

Analytical Batch: VFC12816

Analytical Method: AK101

Instrument: Agilent 7890 PID/FID

Analyst: KAS

Analytical Date/Time: 11/10/2015 9:21:00PM

Prep Batch: VXX28254

Prep Method: SW5035A

Prep Date/Time: 11/10/2015 8:00:00AM

Prep Initial Wt./Vol.: 50 g

Prep Extract Vol: 25 mL

Print Date: 11/17/2015 4:20:27PM



Blank Spike Summary

Blank Spike ID: LCS for HBN 1156548 [VXX28254]
Blank Spike Lab ID: 1303661
Date Analyzed: 11/10/2015 22:18

Spike Duplicate ID: LCSD for HBN 1156548 [VXX28254]
Spike Duplicate Lab ID: 1303662
Matrix: Soil/Solid (dry weight)

QC for Samples: 1156548021

Results by AK101

Parameter	Blank Spike (mg/Kg)			Spike Duplicate (mg/Kg)			CL	RPD (%)	RPD CL
	Spike	Result	Rec (%)	Spike	Result	Rec (%)			
Gasoline Range Organics	12.5	11.4	91	12.5	11.2	90	(60-120)	1.90	(< 20)

Surrogates

4-Bromofluorobenzene (surr)	1.25	93.7	94	1.25	92.9	93	(50-150)	0.86	
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Batch Information

Analytical Batch: VFC12816
Analytical Method: AK101
Instrument: Agilent 7890 PID/FID
Analyst: KAS

Prep Batch: VXX28254
Prep Method: SW5035A
Prep Date/Time: 11/10/2015 08:00
Spike Init Wt./Vol.: 12.5 mg/Kg Extract Vol: 25 mL
Dupe Init Wt./Vol.: 12.5 mg/Kg Extract Vol: 25 mL

Print Date: 11/17/2015 4:20:28PM



Method Blank

Blank ID: MB for HBN 1725009 [VXX/28254]

Blank Lab ID: 1303658

QC for Samples:

1156548021

Matrix: Soil/Solid (dry weight)

Results by SW8021B

<u>Parameter</u>	<u>Results</u>	<u>LOQ/CL</u>	<u>DL</u>	<u>Units</u>
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)	95.7	72-119		%
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Batch Information

Analytical Batch: VFC12816
Analytical Method: SW8021B
Instrument: Agilent 7890 PID/FID
Analyst: KAS
Analytical Date/Time: 11/10/2015 9:21:00PM

Prep Batch: VXX28254
Prep Method: SW5035A
Prep Date/Time: 11/10/2015 8:00:00AM
Prep Initial Wt./Vol.: 50 g
Prep Extract Vol: 25 mL

Print Date: 11/17/2015 4:20:29PM



Blank Spike Summary

Blank Spike ID: LCS for HBN 1156548 [VXX28254]
 Blank Spike Lab ID: 1303659
 Date Analyzed: 11/10/2015 21:40

Spike Duplicate ID: LCSD for HBN 1156548 [VXX28254]
 Spike Duplicate Lab ID: 1303660
 Matrix: Soil/Solid (dry weight)

QC for Samples: 1156548021

Results by SW8021B

Parameter	Blank Spike (ug/Kg)			Spike Duplicate (ug/Kg)			CL	RPD (%)	RPD CL
	Spike	Result	Rec (%)	Spike	Result	Rec (%)			
Benzene	1250	1400	112	1250	1370	110	(75-125)	2.40	(< 20)
Ethylbenzene	1250	1370	110	1250	1350	108	(75-125)	1.80	(< 20)
o-Xylene	1250	1310	105	1250	1300	104	(75-125)	1.10	(< 20)
P & M -Xylene	2500	2720	109	2500	2690	107	(80-125)	1.40	(< 20)
Toluene	1250	1340	107	1250	1310	105	(70-125)	2.10	(< 20)
Surrogates									
1,4-Difluorobenzene (surr)	1250	99.8	100	1250	100	100	(72-119)	0.46	

Batch Information

Analytical Batch: **VFC12816**
 Analytical Method: **SW8021B**
 Instrument: **Agilent 7890 PID/FID**
 Analyst: **KAS**

Prep Batch: **VXX28254**
 Prep Method: **SW5035A**
 Prep Date/Time: **11/10/2015 08:00**
 Spike Init Wt./Vol.: 1250 ug/Kg Extract Vol: 25 mL
 Dupe Init Wt./Vol.: 1250 ug/Kg Extract Vol: 25 mL

Print Date: 11/17/2015 4:20:30PM



Matrix Spike Summary

Original Sample ID: 1158861001
MS Sample ID: 1303663 MS
MSD Sample ID: 1303664 MSD

Analysis Date: 11/10/2015 23:52
Analysis Date: 11/11/2015 0:11
Analysis Date: 11/11/2015 0:30
Matrix: Soil/Solid (dry weight)

QC for Samples: 1156548021

Results by SW8021B

Parameter	Sample	Matrix Spike (ug/Kg)			Spike Duplicate (ug/Kg)			CL	RPD (%)	RPD CL
		Spike	Result	Rec (%)	Spike	Result	Rec (%)			
Benzene	5.80U	924	1048	113	924	1050	114	75-125	0.19	(< 20)
Ethylbenzene	11.6U	924	1039	113	924	1035	112	75-125	0.43	(< 20)
o-Xylene	11.6U	924	997	108	924	991	107	75-125	0.50	(< 20)
P & M -Xylene	23.3U	1851	2059	112	1851	2048	111	80-125	0.53	(< 20)
Toluene	11.6U	924	1013	110	924	1011	109	70-125	0.18	(< 20)
Surrogates										
1,4-Difluorobenzene (surr)		924	901	98	924	909	98	72-119	0.84	

Batch Information

Analytical Batch: VFC12816
Analytical Method: SW8021B
Instrument: Agilent 7890 PID/FID
Analyst: KAS
Analytical Date/Time: 11/11/2015 12:11:00AM

Prep Batch: VXX28254
Prep Method: AK101 Extraction (S)
Prep Date/Time: 11/10/2015 8:00:00AM
Prep Initial Wt./Vol.: 74.09g
Prep Extract Vol: 25.00mL

Print Date: 11/17/2015 4:20:31PM



Method Blank

Blank ID: MB for HBN 1725016 [VXX/28255]

Blank Lab ID: 1303687

QC for Samples:

1156548010

Matrix: Soil/Solid (dry weight)

Results by SW8260B

<u>Parameter</u>	<u>Results</u>	<u>LOQ/CL</u>	<u>DL</u>	<u>Units</u>
1,1,1,2-Tetrachloroethane	12.5U	25.0	7.80	ug/Kg
1,1,1-Trichloroethane	12.5U	25.0	7.80	ug/Kg
1,1,2,2-Tetrachloroethane	6.25U	12.5	3.90	ug/Kg
1,1,2-Trichloroethane	5.00U	10.0	3.10	ug/Kg
1,1-Dichloroethane	12.5U	25.0	7.80	ug/Kg
1,1-Dichloroethene	12.5U	25.0	7.80	ug/Kg
1,1-Dichloropropene	12.5U	25.0	7.80	ug/Kg
1,2,3-Trichlorobenzene	25.0U	50.0	15.0	ug/Kg
1,2,3-Trichloropropane	12.5U	25.0	7.80	ug/Kg
1,2,4-Trichlorobenzene	12.5U	25.0	7.80	ug/Kg
1,2,4-Trimethylbenzene	25.0U	50.0	15.0	ug/Kg
1,2-Dibromo-3-chloropropane	50.0U	100	31.0	ug/Kg
1,2-Dibromoethane	5.00U	10.0	3.10	ug/Kg
1,2-Dichlorobenzene	12.5U	25.0	7.80	ug/Kg
1,2-Dichloroethane	5.00U	10.0	3.10	ug/Kg
1,2-Dichloropropane	5.00U	10.0	3.10	ug/Kg
1,3,5-Trimethylbenzene	12.5U	25.0	7.80	ug/Kg
1,3-Dichlorobenzene	12.5U	25.0	7.80	ug/Kg
1,3-Dichloropropane	5.00U	10.0	3.10	ug/Kg
1,4-Dichlorobenzene	12.5U	25.0	7.80	ug/Kg
2,2-Dichloropropane	12.5U	25.0	7.80	ug/Kg
2-Butanone (MEK)	125U	250	78.0	ug/Kg
2-Chlorotoluene	12.5U	25.0	7.80	ug/Kg
2-Hexanone	125U	250	78.0	ug/Kg
4-Chlorotoluene	12.5U	25.0	7.80	ug/Kg
4-Isopropyltoluene	12.5U	25.0	7.80	ug/Kg
4-Methyl-2-pentanone (MIBK)	125U	250	78.0	ug/Kg
Benzene	6.25U	12.5	3.90	ug/Kg
Bromobenzene	12.5U	25.0	7.80	ug/Kg
Bromochloromethane	12.5U	25.0	7.80	ug/Kg
Bromodichloromethane	12.5U	25.0	7.80	ug/Kg
Bromoform	12.5U	25.0	7.80	ug/Kg
Bromomethane	100U	200	62.0	ug/Kg
Carbon disulfide	50.0U	100	31.0	ug/Kg
Carbon tetrachloride	6.25U	12.5	3.90	ug/Kg
Chlorobenzene	12.5U	25.0	7.80	ug/Kg
Chloroethane	100U	200	62.0	ug/Kg
Chloroform	12.5U	25.0	7.80	ug/Kg

Print Date: 11/17/2015 4:20:32PM



Method Blank

Blank ID: MB for HBN 1725016 [VXX/28255]

Blank Lab ID: 1303687

QC for Samples:

1156548010

Matrix: Soil/Solid (dry weight)

Results by SW8260B

<u>Parameter</u>	<u>Results</u>	<u>LOQ/CL</u>	<u>DL</u>	<u>Units</u>
Chloromethane	12.5U	25.0	7.80	ug/Kg
cis-1,2-Dichloroethene	12.5U	25.0	7.80	ug/Kg
cis-1,3-Dichloropropene	12.5U	25.0	7.80	ug/Kg
Dibromochloromethane	12.5U	25.0	7.80	ug/Kg
Dibromomethane	12.5U	25.0	7.80	ug/Kg
Dichlorodifluoromethane	25.0U	50.0	15.0	ug/Kg
Ethylbenzene	12.5U	25.0	7.80	ug/Kg
Freon-113	50.0U	100	31.0	ug/Kg
Hexachlorobutadiene	25.0U	50.0	15.0	ug/Kg
Isopropylbenzene (Cumene)	12.5U	25.0	7.80	ug/Kg
Methylene chloride	50.0U	100	31.0	ug/Kg
Methyl-t-butyl ether	50.0U	100	31.0	ug/Kg
Naphthalene	25.0U	50.0	15.0	ug/Kg
n-Butylbenzene	12.5U	25.0	7.80	ug/Kg
n-Propylbenzene	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
sec-Butylbenzene	12.5U	25.0	7.80	ug/Kg
Styrene	12.5U	25.0	7.80	ug/Kg
tert-Butylbenzene	12.5U	25.0	7.80	ug/Kg
Tetrachloroethene	6.25U	12.5	3.90	ug/Kg
Toluene	9.25J	25.0	7.80	ug/Kg
trans-1,2-Dichloroethene	12.5U	25.0	7.80	ug/Kg
trans-1,3-Dichloropropene	12.5U	25.0	7.80	ug/Kg
Trichloroethene	6.25U	12.5	3.90	ug/Kg
Trichlorofluoromethane	25.0U	50.0	15.0	ug/Kg
Vinyl acetate	50.0U	100	31.0	ug/Kg
Vinyl chloride	5.00U	10.0	3.10	ug/Kg
Xylenes (total)	37.5U	75.0	22.8	ug/Kg
Surrogates				
1,2-Dichloroethane-D4 (surr)	117	71-136		%
4-Bromofluorobenzene (surr)	107	55-151		%
Toluene-d8 (surr)	102	85-116		%

Print Date: 11/17/2015 4:20:32PM



Method Blank

Blank ID: MB for HBN 1725016 [VXX/28255]
Blank Lab ID: 1303687

Matrix: Soil/Solid (dry weight)

QC for Samples:
1156548010

Results by SW8260B

<u>Parameter</u>	<u>Results</u>	<u>LOQ/CL</u>	<u>DL</u>	<u>Units</u>
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Batch Information

Analytical Batch: VMS15424
Analytical Method: SW8260B
Instrument: VQA 7890/5975 GC/MS
Analyst: ST
Analytical Date/Time: 11/10/2015 2:16:00PM

Prep Batch: VXX28255
Prep Method: SW5035A
Prep Date/Time: 11/10/2015 8:00:00AM
Prep Initial Wt./Vol.: 50 g
Prep Extract Vol: 25 mL

Print Date: 11/17/2015 4:20:32PM

Blank Spike Summary

Blank Spike ID: LCS for HBN 1156548 [VXX28255]

Blank Spike Lab ID: 1303688

Date Analyzed: 11/10/2015 15:13

Matrix: Soil/Solid (dry weight)

QC for Samples: 1156548010

Results by SW8260B

Parameter	Blank Spike (ug/Kg)			CL
	Spike	Result	Rec (%)	
1,1,1,2-Tetrachloroethane	750	744	99	(78-125)
1,1,1-Trichloroethane	750	915	122	(73-130)
1,1,2,2-Tetrachloroethane	750	806	107	(70-124)
1,1,2-Trichloroethane	750	759	101	(78-121)
1,1-Dichloroethane	750	875	117	(76-125)
1,1-Dichloroethene	750	886	118	(70-131)
1,1-Dichloropropene	750	811	108	(76-125)
1,2,3-Trichlorobenzene	750	664	89	(66-130)
1,2,3-Trichloropropane	750	820	109	(73-125)
1,2,4-Trichlorobenzene	750	683	91	(67-129)
1,2,4-Trimethylbenzene	750	752	100	(75-123)
1,2-Dibromo-3-chloropropane	750	773	103	(61-132)
1,2-Dibromoethane	750	728	97	(78-122)
1,2-Dichlorobenzene	750	780	104	(78-121)
1,2-Dichloroethane	750	816	109	(73-128)
1,2-Dichloropropane	750	836	112	(76-123)
1,3,5-Trimethylbenzene	750	728	97	(73-124)
1,3-Dichlorobenzene	750	757	101	(77-121)
1,3-Dichloropropane	750	711	95	(77-121)
1,4-Dichlorobenzene	750	772	103	(75-120)
2,2-Dichloropropane	750	904	121	(67-133)
2-Butanone (MEK)	2250	2630	117	(51-148)
2-Chlorotoluene	750	813	108	(75-122)
2-Hexanone	2250	2500	111	(53-145)
4-Chlorotoluene	750	754	101	(72-124)
4-Isopropyltoluene	750	778	104	(73-127)
4-Methyl-2-pentanone (MIBK)	2250	2800	124	(65-135)
Benzene	750	836	112	(77-121)
Bromobenzene	750	837	112	(78-121)
Bromochloromethane	750	901	120	(78-125)
Bromodichloromethane	750	888	118	(75-127)
Bromoform	750	837	112	(67-132)
Bromomethane	750	776	103	(53-143)
Carbon disulfide	1130	1310	116	(63-132)

Print Date: 11/17/2015 4:20:34PM



Blank Spike Summary

Blank Spike ID: LCS for HBN 1156548 [VXX28255]

Blank Spike Lab ID: 1303688

Date Analyzed: 11/10/2015 15:13

Matrix: Soil/Solid (dry weight)

QC for Samples: 1156548010

Results by SW8260B

Parameter	Blank Spike (ug/Kg)			CL
	Spike	Result	Rec (%)	
Carbon tetrachloride	750	825	110	(70-135)
Chlorobenzene	750	802	107	(79-120)
Chloroethane	750	900	120	(59-139)
Chloroform	750	861	115	(78-123)
Chloromethane	750	910	121	(50-136)
cis-1,2-Dichloroethene	750	805	107	(77-123)
cis-1,3-Dichloropropene	750	934	125	(74-126)
Dibromochloromethane	750	768	102	(74-126)
Dibromomethane	750	827	110	(78-125)
Dichlorodifluoromethane	750	989	132	(29-149)
Ethylbenzene	750	817	109	(76-122)
Freon-113	1130	1210	107	(66-136)
Hexachlorobutadiene	750	770	103	(61-135)
Isopropylbenzene (Cumene)	750	739	99	(68-134)
Methylene chloride	750	797	106	(70-128)
Methyl-t-butyl ether	1130	1330	118	(73-125)
Naphthalene	750	597	80	(62-129)
n-Butylbenzene	750	787	105	(70-128)
n-Propylbenzene	750	767	102	(73-125)
o-Xylene	750	823	110	(77-123)
P & M -Xylene	1500	1640	110	(77-124)
sec-Butylbenzene	750	796	106	(73-126)
Styrene	750	814	109	(76-124)
tert-Butylbenzene	750	772	103	(73-125)
Tetrachloroethene	750	731	97	(73-128)
Toluene	750	745	99	(77-121)
trans-1,2-Dichloroethene	750	836	112	(74-125)
trans-1,3-Dichloropropene	750	756	101	(71-130)
Trichloroethene	750	793	106	(77-123)
Trichlorofluoromethane	750	1090	145	* (62-140)
Vinyl acetate	750	860	115	(50-151)
Vinyl chloride	750	892	119	(56-135)
Xylenes (total)	2250	2470	110	(78-124)

Print Date: 11/17/2015 4:20:34PM

Blank Spike Summary

Blank Spike ID: LCS for HBN 1156548 [VXX28255]
Blank Spike Lab ID: 1303688
Date Analyzed: 11/10/2015 15:13

Matrix: Soil/Solid (dry weight)

QC for Samples: 1156548010

Results by SW8260B

Parameter	Blank Spike (%)			CL
	Spike	Result	Rec (%)	
Surrogates				
1,2-Dichloroethane-D4 (surr)	750	120	120	(71-136)
4-Bromofluorobenzene (surr)	750	107	107	(55-151)
Toluene-d8 (surr)	750	101	101	(85-116)

Batch Information

Analytical Batch: **VMS15424**
Analytical Method: **SW8260B**
Instrument: **VQA 7890/5975 GC/MS**
Analyst: **ST**

Prep Batch: **VXX28255**
Prep Method: **SW5035A**
Prep Date/Time: **11/10/2015 08:00**
Spike Init Wt./Vol.: 750 ug/Kg Extract Vol: 25 mL
Dupe Init Wt./Vol.: Extract Vol:

Print Date: 11/17/2015 4:20:34PM



Matrix Spike Summary

Original Sample ID: 1158836022
 MS Sample ID: 1303689 MS
 MSD Sample ID: 1303690 MSD

Analysis Date: 11/10/2015 18:33
 Analysis Date: 11/10/2015 15:54
 Analysis Date: 11/10/2015 16:09
 Matrix: Soil/Solid (dry weight)

QC for Samples: 1156548010

Results by SW8260B

Parameter	Sample	Matrix Spike (ug/Kg)			Spike Duplicate (ug/Kg)			CL	RPD (%)	RPD CL
		Spike	Result	Rec (%)	Spike	Result	Rec (%)			
1,1,1,2-Tetrachloroethane	20.2U	872	882	101	872	850	98	78-125	3.60	(< 20)
1,1,1-Trichloroethane	20.2U	872	1011	116	872	977	112	73-130	3.50	(< 20)
1,1,2,2-Tetrachloroethane	10.1U	872	867	99	872	908	104	70-124	4.50	(< 20)
1,1,2-Trichloroethane	8.10U	872	880	101	872	880	101	78-121	0.07	(< 20)
1,1-Dichloroethane	20.2U	872	915	105	872	933	107	76-125	1.90	(< 20)
1,1-Dichloroethene	20.2U	872	1002	115	872	953	109	70-131	5.10	(< 20)
1,1-Dichloropropene	20.2U	872	880	101	872	888	102	76-125	0.92	(< 20)
1,2,3-Trichlorobenzene	40.4U	872	894	103	872	947	109	66-130	5.70	(< 20)
1,2,3-Trichloropropane	20.2U	872	917	105	872	946	108	73-125	3.10	(< 20)
1,2,4-Trichlorobenzene	20.2U	872	923	106	872	926	106	67-129	0.41	(< 20)
1,2,4-Trimethylbenzene	40.4U	872	867	99	872	879	101	75-123	1.20	(< 20)
1,2-Dibromo-3-chloropropane	81.0U	872	860	99	872	947	109	61-132	9.60	(< 20)
1,2-Dibromoethane	8.10U	872	886	101	872	892	102	78-122	0.69	(< 20)
1,2-Dichlorobenzene	20.2U	872	907	104	872	902	103	78-121	0.61	(< 20)
1,2-Dichloroethane	8.10U	872	926	106	872	888	102	73-128	4.10	(< 20)
1,2-Dichloropropane	8.10U	872	951	109	872	894	103	76-123	6.10	(< 20)
1,3,5-Trimethylbenzene	20.2U	872	863	99	872	876	100	73-124	1.50	(< 20)
1,3-Dichlorobenzene	20.2U	872	917	105	872	917	105	77-121	0.13	(< 20)
1,3-Dichloropropane	8.10U	872	890	102	872	885	101	77-121	0.49	(< 20)
1,4-Dichlorobenzene	20.2U	872	930	107	872	940	108	75-120	1.10	(< 20)
2,2-Dichloropropane	20.2U	872	951	109	872	923	106	67-133	3.00	(< 20)
2-Butanone (MEK)	202U	2613	2638	101	2613	2908	111	51-148	9.90	(< 20)
2-Chlorotoluene	20.2U	872	853	98	872	853	98	75-122	0.07	(< 20)
2-Hexanone	202U	2613	2785	106	2613	2908	111	53-145	4.20	(< 20)
4-Chlorotoluene	20.2U	872	859	98	872	867	99	72-124	1.00	(< 20)
4-Isopropyltoluene	20.2U	872	881	101	872	904	104	73-127	2.60	(< 20)
4-Methyl-2-pentanone (MIBK)	202U	2613	3067	117	2613	3043	116	65-135	1.00	(< 20)
Benzene	10.1U	872	877	100	872	890	102	77-121	1.50	(< 20)
Bromobenzene	20.2U	872	930	107	872	942	108	78-121	1.30	(< 20)
Bromochloromethane	20.2U	872	945	108	872	926	106	78-125	2.00	(< 20)
Bromodichloromethane	20.2U	872	1004	115	872	931	107	75-127	7.40	(< 20)
Bromoform	20.2U	872	980	112	872	988	113	67-132	0.77	(< 20)
Bromomethane	162U	872	896	103	872	821	94	53-143	8.60	(< 20)
Carbon disulfide	81.0U	1313	1497	115	1313	1399	107	63-132	7.10	(< 20)
Carbon tetrachloride	10.1U	872	917	105	872	883	101	70-135	3.70	(< 20)
Chlorobenzene	20.2U	872	935	107	872	937	107	79-120	0.25	(< 20)
Chloroethane	162U	872	1120	128	872	896	103	59-139	22.30	* (< 20)

Print Date: 11/17/2015 4:20:35PM



Matrix Spike Summary

Original Sample ID: 1158836022
 MS Sample ID: 1303689 MS
 MSD Sample ID: 1303690 MSD

Analysis Date: 11/10/2015 18:33
 Analysis Date: 11/10/2015 15:54
 Analysis Date: 11/10/2015 16:09
 Matrix: Soil/Solid (dry weight)

QC for Samples: 1156548010

Results by SW8260B

Parameter	Sample	Matrix Spike (ug/Kg)			Spike Duplicate (ug/Kg)			CL	RPD (%)	RPD CL
		Spike	Result	Rec (%)	Spike	Result	Rec (%)			
Chloroform	20.2U	872	917	105	872	906	104	78-123	1.20	(< 20)
Chloromethane	20.2U	872	1032	118	872	952	109	50-136	8.00	(< 20)
cis-1,2-Dichloroethene	20.2U	872	896	103	872	913	105	77-123	1.90	(< 20)
cis-1,3-Dichloropropene	20.2U	872	1022	117	872	939	107	74-126	8.50	(< 20)
Dibromochloromethane	20.2U	872	902	103	872	888	102	74-126	1.50	(< 20)
Dibromomethane	20.2U	872	928	106	872	888	102	78-125	4.30	(< 20)
Dichlorodifluoromethane	40.4U	872	1031	118	872	961	110	29-149	7.00	(< 20)
Ethylbenzene	20.2U	872	971	111	872	925	106	76-122	4.80	(< 20)
Freon-113	81.0U	1313	1301	99	1313	1239	94	66-136	5.20	(< 20)
Hexachlorobutadiene	40.4U	872	948	109	872	915	105	61-135	3.50	(< 20)
Isopropylbenzene (Cumene)	20.2U	872	891	102	872	871	100	68-134	2.20	(< 20)
Methylene chloride	81.0U	872	849	97	872	853	98	70-128	0.41	(< 20)
Methyl-t-butyl ether	81.0U	1313	1374	105	1313	1411	108	73-125	2.40	(< 20)
Naphthalene	40.4U	872	849	97	872	896	103	62-129	5.40	(< 20)
n-Butylbenzene	20.2U	872	923	106	872	860	99	70-128	6.90	(< 20)
n-Propylbenzene	20.2U	872	876	100	872	874	100	73-125	0.27	(< 20)
o-Xylene	20.2U	872	915	105	872	952	109	77-123	3.90	(< 20)
P & M -Xylene	40.4U	1742	1939	111	1742	1877	108	77-124	3.00	(< 20)
sec-Butylbenzene	20.2U	872	906	104	872	914	105	73-126	1.10	(< 20)
Styrene	20.2U	872	940	108	872	956	110	76-124	1.80	(< 20)
tert-Butylbenzene	20.2U	872	901	103	872	902	103	73-125	0.13	(< 20)
Tetrachloroethene	10.1U	872	861	99	872	863	99	73-128	0.17	(< 20)
Toluene	17.0J	872	885	99	872	874	98	77-121	1.20	(< 20)
trans-1,2-Dichloroethene	20.2U	872	904	104	872	923	106	74-125	2.00	(< 20)
trans-1,3-Dichloropropene	20.2U	872	899	103	872	879	101	71-130	2.40	(< 20)
Trichloroethene	10.1U	872	931	107	872	894	102	77-123	4.00	(< 20)
Trichlorofluoromethane	40.4U	872	1212	139	872	1007	115	62-140	18.40	(< 20)
Vinyl acetate	81.0U	872	885	101	872	918	105	50-151	3.70	(< 20)
Vinyl chloride	8.10U	872	1006	115	872	919	105	56-135	8.90	(< 20)
Xylenes (total)	60.5U	2613	2859	109	2613	2834	108	78-124	0.70	(< 20)
Surrogates										
1,2-Dichloroethane-D4 (surr)		872	961	110	872	926	106	71-136	3.50	
4-Bromofluorobenzene (surr)		2331	1853	80	2331	1914	82	55-151	3.60	
Toluene-d8 (surr)		872	879	101	872	838	96	85-116	4.70	

Print Date: 11/17/2015 4:20:35PM



Matrix Spike Summary

Original Sample ID: 1158836022
MS Sample ID: 1303689 MS
MSD Sample ID: 1303690 MSD

Analysis Date:
Analysis Date: 11/10/2015 15:54
Analysis Date: 11/10/2015 16:09
Matrix: Soil/Solid (dry weight)

QC for Samples: 1156548010

Results by SW8260B

Parameter	Sample	Matrix Spike (%)			Spike Duplicate (%)			CL	RPD (%)	RPD CL
		Spike	Result	Rec (%)	Spike	Result	Rec (%)			

Batch Information

Analytical Batch: VMS15424
Analytical Method: SW8260B
Instrument: VQA 7890/5975 GC/MS
Analyst: ST
Analytical Date/Time: 11/10/2015 3:54:00PM

Prep Batch: VXX28255
Prep Method: Vol. Extraction SW8260 Field Extracted L
Prep Date/Time: 11/10/2015 8:00:00AM
Prep Initial Wt./Vol.: 52.71g
Prep Extract Vol: 25.00mL

Print Date: 11/17/2015 4:20:35PM



Method Blank

Blank ID: MB for HBN 1725065 [VXX/28260]
Blank Lab ID: 1303905

Matrix: Soil/Solid (dry weight)

QC for Samples:
1156548020

Results by AK101

<u>Parameter</u>	<u>Results</u>	<u>LOQ/CL</u>	<u>DL</u>	<u>Units</u>
Gasoline Range Organics	1.12J	2.50	0.750	mg/Kg
Surrogates				
1,4-Difluorobenzene (surr)	91.4	72-119		%
4-Bromofluorobenzene (surr)	88.2	50-150		%

Batch Information

Analytical Batch: VFC12819
Analytical Method: AK101
Instrument: Agilent 7890 PID/FID
Analyst: KAS
Analytical Date/Time: 11/11/2015 11:18:00AM

Prep Batch: VXX28260
Prep Method: SW5035A
Prep Date/Time: 11/11/2015 8:00:00AM
Prep Initial Wt./Vol.: 50 g
Prep Extract Vol: 25 mL

Print Date: 11/17/2015 4:20:35PM



Blank Spike Summary

Blank Spike ID: LCS for HBN 1156548 [VXX28260]
Blank Spike Lab ID: 1303908
Date Analyzed: 11/11/2015 12:15

Spike Duplicate ID: LCSD for HBN 1156548 [VXX28260]
Spike Duplicate Lab ID: 1303909
Matrix: Soil/Solid (dry weight)

QC for Samples: 1156548020

Results by AK101

Parameter	Blank Spike (mg/Kg)			Spike Duplicate (mg/Kg)			CL	RPD (%)	RPD CL
	Spike	Result	Rec (%)	Spike	Result	Rec (%)			
Gasoline Range Organics	12.5	11.4	91	12.5	11.1	89	(60-120)	1.90	(< 20)

Surrogates

4-Bromofluorobenzene (surr)	1.25	90	90	1.25	91.9	92	(50-150)	2.10	
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Batch Information

Analytical Batch: **VFC12819**
Analytical Method: **AK101**
Instrument: **Agilent 7890 PID/FID**
Analyst: **KAS**

Prep Batch: **VXX28260**
Prep Method: **SW5035A**
Prep Date/Time: **11/11/2015 08:00**
Spike Init Wt./Vol.: 12.5 mg/Kg Extract Vol: 25 mL
Dupe Init Wt./Vol.: 12.5 mg/Kg Extract Vol: 25 mL

Print Date: 11/17/2015 4:20:37PM



Method Blank

Blank ID: MB for HBN 1724500 [XXX/34580]
Blank Lab ID: 1302729

Matrix: Soil/Solid (dry weight)

QC for Samples:

1156548001, 1156548002, 1156548003, 1156548004, 1156548005, 1156548006, 1156548008, 1156548009, 1156548011, 1156548012, 1156548013, 1156548014, 1156548015, 1156548016, 1156548017, 1156548018, 1156548019, 1156548020, 1156548021

Results by AK102

<u>Parameter</u>	<u>Results</u>	<u>LOQ/CL</u>	<u>DL</u>	<u>Units</u>
Diesel Range Organics	10.0U	20.0	6.20	mg/Kg
Surrogates				
5a Androstane (surr)	92.8	60-120		%

Batch Information

Analytical Batch: XFC12196
Analytical Method: AK102
Instrument: HP 6890 Series II FID SV D R
Analyst: NLL
Analytical Date/Time: 11/6/2015 11:45:00AM

Prep Batch: XXX34580
Prep Method: SW3550C
Prep Date/Time: 11/5/2015 11:28:54AM
Prep Initial Wt./Vol.: 30 g
Prep Extract Vol: 1 mL

Print Date: 11/17/2015 4:20:38PM

Blank Spike Summary

Blank Spike ID: LCS for HBN 1156548 [XXX34580]
 Blank Spike Lab ID: 1302730
 Date Analyzed: 11/06/2015 11:55

Spike Duplicate ID: LCSD for HBN 1156548 [XXX34580]
 Spike Duplicate Lab ID: 1302731
 Matrix: Soil/Solid (dry weight)

QC for Samples: 1156548001, 1156548002, 1156548003, 1156548004, 1156548005, 1156548006, 1156548008, 1156548009, 1156548011, 1156548012, 1156548013, 1156548014, 1156548015, 1156548016, 1156548017, 1156548018, 1156548019, 1156548020, 1156548021

Results by AK102

Parameter	Blank Spike (mg/Kg)			Spike Duplicate (mg/Kg)			CL	RPD (%)	RPD CL
	Spike	Result	Rec (%)	Spike	Result	Rec (%)			
Diesel Range Organics	167	161	97	167	149	89	(75-125)	7.60	(< 20)

Surrogates

5a Androstane (surr)	3.33	100	100	3.33	95.1	95	(60-120)	5.00	
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Batch Information

Analytical Batch: **XFC12196**
 Analytical Method: **AK102**
 Instrument: **HP 6890 Series II FID SV D R**
 Analyst: **NLL**

Prep Batch: **XXX34580**
 Prep Method: **SW3550C**
 Prep Date/Time: **11/05/2015 11:28**
 Spike Init Wt./Vol.: 167 mg/Kg Extract Vol: 1 mL
 Dupe Init Wt./Vol.: 167 mg/Kg Extract Vol: 1 mL



Method Blank

Blank ID: MB for HBN 1724500 [XXX/34580]
Blank Lab ID: 1302729

Matrix: Soil/Solid (dry weight)

QC for Samples:

1156548001, 1156548002, 1156548003, 1156548004, 1156548005, 1156548006, 1156548008, 1156548009, 1156548011, 1156548012, 1156548013, 1156548014, 1156548015, 1156548016, 1156548017, 1156548018, 1156548019, 1156548020, 1156548021

Results by AK103

<u>Parameter</u>	<u>Results</u>	<u>LOQ/CL</u>	<u>DL</u>	<u>Units</u>
Residual Range Organics	10.0U	20.0	6.20	mg/Kg
Surrogates				
n-Triacontane-d62 (surr)	102	60-120		%

Batch Information

Analytical Batch: XFC12196
Analytical Method: AK103
Instrument: HP 6890 Series II FID SV D R
Analyst: NLL
Analytical Date/Time: 11/6/2015 11:45:00AM

Prep Batch: XXX34580
Prep Method: SW3550C
Prep Date/Time: 11/5/2015 11:28:54AM
Prep Initial Wt./Vol.: 30 g
Prep Extract Vol: 1 mL

Print Date: 11/17/2015 4:20:41PM



Blank Spike Summary

Blank Spike ID: LCS for HBN 1156548 [XXX34580]
 Blank Spike Lab ID: 1302730
 Date Analyzed: 11/06/2015 11:55

Spike Duplicate ID: LCSD for HBN 1156548 [XXX34580]
 Spike Duplicate Lab ID: 1302731
 Matrix: Soil/Solid (dry weight)

QC for Samples: 1156548001, 1156548002, 1156548003, 1156548004, 1156548005, 1156548006, 1156548008, 1156548009, 1156548011, 1156548012, 1156548013, 1156548014, 1156548015, 1156548016, 1156548017, 1156548018, 1156548019, 1156548020, 1156548021

Results by AK103

Parameter	Blank Spike (mg/Kg)			Spike Duplicate (mg/Kg)			CL	RPD (%)	RPD CL
	Spike	Result	Rec (%)	Spike	Result	Rec (%)			
Residual Range Organics	167	171	103	167	164	98	(60-120)	4.50	(< 20)
Surrogates									
n-Triacontane-d62 (surr)	3.33	92.3	92	3.33	87.4	87	(60-120)	5.40	

Batch Information

Analytical Batch: **XFC12196**
 Analytical Method: **AK103**
 Instrument: **HP 6890 Series II FID SV D R**
 Analyst: **NLL**

Prep Batch: **XXX34580**
 Prep Method: **SW3550C**
 Prep Date/Time: **11/05/2015 11:28**
 Spike Init Wt./Vol.: 167 mg/Kg Extract Vol: 1 mL
 Dupe Init Wt./Vol.: 167 mg/Kg Extract Vol: 1 mL

Print Date: 11/17/2015 4:20:42PM



Method Blank

Blank ID: MB for HBN 1724593 [XXX/34588]
Blank Lab ID: 1302983

Matrix: Soil/Solid (dry weight)

QC for Samples:
1156548008, 1156548009, 1156548019, 1156548020

Results by 8270D SIMS (PAH)

<u>Parameter</u>	<u>Results</u>	<u>LOQ/CL</u>	<u>DL</u>	<u>Units</u>
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)	84.6	46-115		%
Terphenyl-d14 (surr)	95.7	58-113		%

Batch Information

Analytical Batch: XMS9067
Analytical Method: 8270D SIMS (PAH)
Instrument: HP 6890/5973 MS SVQA
Analyst: NRB
Analytical Date/Time: 11/10/2015 3:36:00PM

Prep Batch: XXX34588
Prep Method: SW3550C
Prep Date/Time: 11/6/2015 12:06:01PM
Prep Initial Wt./Vol.: 22.5 g
Prep Extract Vol: 1 mL

Print Date: 11/17/2015 4:20:43PM



Blank Spike Summary

Blank Spike ID: LCS for HBN 1156548 [XXX34588]
 Blank Spike Lab ID: 1302984
 Date Analyzed: 11/10/2015 15:51

Spike Duplicate ID: LCSD for HBN 1156548 [XXX34588]
 Spike Duplicate Lab ID: 1302985
 Matrix: Soil/Solid (dry weight)

QC for Samples: 1156548008, 1156548009, 1156548019, 1156548020

Results by 8270D SIMS (PAH)

Parameter	Blank Spike (ug/Kg)			Spike Duplicate (ug/Kg)			CL	RPD (%)	RPD CL
	Spike	Result	Rec (%)	Spike	Result	Rec (%)			
1-Methylnaphthalene	22.2	14.5	65	22.2	16.0	72	(43-111)	9.90	(< 20)
2-Methylnaphthalene	22.2	14.5	65	22.2	15.8	71	(39-114)	8.40	(< 20)
Acenaphthene	22.2	15.3	69	22.2	16.3	74	(44-111)	6.80	(< 20)
Acenaphthylene	22.2	15.4	70	22.2	16.2	73	(39-116)	4.70	(< 20)
Anthracene	22.2	16.5	74	22.2	16.3	73	(50-114)	1.40	(< 20)
Benzo(a)Anthracene	22.2	20.1	90	22.2	20.3	91	(54-122)	1.20	(< 20)
Benzo[a]pyrene	22.2	17.1	77	22.2	16.8	76	(50-125)	1.60	(< 20)
Benzo[b]Fluoranthene	22.2	20.1	90	22.2	20.8	94	(53-128)	3.60	(< 20)
Benzo[g,h,i]perylene	22.2	17.7	80	22.2	17.9	81	(49-127)	1.60	(< 20)
Benzo[k]fluoranthene	22.2	18.3	82	22.2	18.5	83	(56-123)	1.10	(< 20)
Chrysene	22.2	19.2	86	22.2	19.8	89	(57-118)	3.10	(< 20)
Dibenzo[a,h]anthracene	22.2	17.6	79	22.2	18.1	81	(50-129)	2.70	(< 20)
Fluoranthene	22.2	18.9	85	22.2	19.7	89	(55-119)	4.30	(< 20)
Fluorene	22.2	17.4	78	22.2	18.2	82	(47-114)	4.90	(< 20)
Indeno[1,2,3-c,d] pyrene	22.2	17.4	78	22.2	17.8	80	(49-130)	2.00	(< 20)
Naphthalene	22.2	14.1	63	22.2	15.3	69	(38-111)	8.50	(< 20)
Phenanthrene	22.2	19.8	89	22.2	20.6	93	(49-113)	4.20	(< 20)
Pyrene	22.2	20.0	90	22.2	20.9	94	(55-117)	4.40	(< 20)
Surrogates									
2-Fluorobiphenyl (surr)	22.2	80.7	81	22.2	89	89	(46-115)	9.80	
Terphenyl-d14 (surr)	22.2	98.2	98	22.2	103	103	(58-113)	4.90	

Batch Information

Analytical Batch: XMS9067
 Analytical Method: 8270D SIMS (PAH)
 Instrument: HP 6890/5973 MS SVQA
 Analyst: NRB

Prep Batch: XXX34588
 Prep Method: SW3550C
 Prep Date/Time: 11/06/2015 12:06
 Spike Init Wt./Vol.: 22.2 ug/Kg Extract Vol: 1 mL
 Dupe Init Wt./Vol.: 22.2 ug/Kg Extract Vol: 1 mL

Print Date: 11/17/2015 4:20:44PM



Matrix Spike Summary

Original Sample ID: 1156565002
 MS Sample ID: 1302986 MS
 MSD Sample ID: 1302987 MSD

Analysis Date: 11/10/2015 17:21
 Analysis Date: 11/10/2015 17:36
 Analysis Date: 11/10/2015 17:51
 Matrix: Soil/Solid (dry weight)

QC for Samples: 1156548008, 1156548009, 1156548019, 1156548020

Results by 8270D SIMS (PAH)

Parameter	Sample	Matrix Spike (ug/Kg)			Spike Duplicate (ug/Kg)			CL	RPD (%)	RPD CL
		Spike	Result	Rec (%)	Spike	Result	Rec (%)			
1-Methylnaphthalene	2.63U	23.2	16.0	69	23.6	15.7	67	43-111	0.84	(< 20)
2-Methylnaphthalene	2.63U	23.2	15.9	68	23.6	16.1	68	39-114	1.30	(< 20)
Acenaphthene	2.63U	23.2	16.1	69	23.6	16.6	70	44-111	2.90	(< 20)
Acenaphthylene	2.63U	23.2	17.1	74	23.6	17.7	75	39-116	3.20	(< 20)
Anthracene	2.63U	23.2	20.4	88	23.6	19.9	84	50-114	2.30	(< 20)
Benzo(a)Anthracene	2.63U	23.2	98.3	424 *	23.6	21.6	92	54-122	128.00 *	(< 20)
Benzo(a)pyrene	1.88J	23.2	114	484 *	23.6	21.4	83	50-125	137.00 *	(< 20)
Benzo(b)Fluoranthene	13.2U	23.2	168	724 *	23.6	23.1J	98	53-128	152.00 *	(< 20)
Benzo(g,h,i)perylene	2.19J	23.2	67.4	282 *	23.6	19.8	75	49-127	109.00 *	(< 20)
Benzo(k)fluoranthene	2.63U	23.2	13.4	58	23.6	18.2	77	56-123	30.40 *	(< 20)
Chrysene	1.83J	23.2	103	437 *	23.6	19.4	74	57-118	137.00 *	(< 20)
Dibenzo(a,h)anthracene	2.63U	23.2	33.8	146 *	23.6	18.5	79	50-129	58.30 *	(< 20)
Fluoranthene	13.2U	23.2	127	549 *	23.6	20.0J	85	55-119	146.00 *	(< 20)
Fluorene	2.63U	23.2	18.2	79	23.6	18.8	80	47-114	3.10	(< 20)
Indeno[1,2,3-c,d] pyrene	1.81J	23.2	64.0	269 *	23.6	19.0	73	49-130	108.00 *	(< 20)
Naphthalene	2.63U	23.2	15.1	65	23.6	15.2	64	38-111	0.81	(< 20)
Phenanthrene	2.63U	23.2	39.3	169 *	23.6	21.8	92	49-113	57.20 *	(< 20)
Pyrene	13.2U	23.2	127	545 *	23.6	21.1J	89	55-117	143.00 *	(< 20)
Surrogates										
2-Fluorobiphenyl (surr)		23.2	19.3	83	23.6	20.1	85	46-115	4.60	
Terphenyl-d14 (surr)		23.2	22.0	95	23.6	24.6	104	58-113	11.00	

Batch Information

Analytical Batch: XMS9067
 Analytical Method: 8270D SIMS (PAH)
 Instrument: HP 6890/5973 MS SVQA
 Analyst: NRB
 Analytical Date/Time: 11/10/2015 5:36:00PM

Prep Batch: XXX34588
 Prep Method: Sonication Extraction Soil 8270 PAH SIM
 Prep Date/Time: 11/6/2015 12:06:01PM
 Prep Initial Wt./Vol.: 22.97g
 Prep Extract Vol: 1.00mL

Print Date: 11/17/2015 4:20:45PM



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CLIENT: Restoration Science & Engineering (RSE)
 CONTACT: Nick Baran
 PROJECT: RAVA Cleanup
 REPORTS TO: RSE
 INVOICE TO: RSE
 PHONE NO: 15-1454
 QUOTE #: P.O. #: 15-1454

Instructions: Sections 1 - 5 must be filled out. Omissions may delay the onset of analysis.

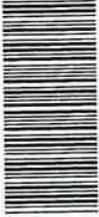
Page 1 of 3

Section 1		Section 2		Section 3		Section 4		Section 5	
RESERVED for lab use	SAMPLE IDENTIFICATION	DATE mm/dd/yy	TIME HH:MM	MATRIX/MATRIX CODE	Type C = COMP G = GRAB M = Multi I = Incremental S = Soils	#	CONTAINER	Preservative	REMARKS/LOC ID
	RV-93	11/3/15	15:05	Soil	G	2			
	RV-96-1	"	14:52	"	G	2			
	RV-X2	"	12:52	"	G	2			
	RV-97	"	15:01	"	G	2			
	RV-108	"	16:30	"	G	2			
	RV-110	"	16:35	"	G	2			
	RV-117	"	16:46	"	G	2			
	RV-121	11/4/15	11:30	"	G	2			
	RV-119	11/4/15	11:40	"	G	2			
	Tab Blank	-	-	"	-	1			
Relinquished By: (1)		Date	Time	Received By:					
Relinquished By: (2)		Date	Time	Received By:					
Relinquished By: (3)		Date	Time	Received By:					
Relinquished By: (4)		Date	Time	Received For Laboratory By:					

Temp Blank °C: 8 # D2 or Ambient []
 Chain of Custody Seal: (Circle) INTACT BROKEN ABSENT
 (See attached Sample Receipt Form)

Requested Turnaround Time and/or Special Instructions:
 Data Deliverable Requirements:
 Cooler ID:
 DOD Project? Yes No

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CLIENT: Restoration Science & Engineering (RSE)

CONTACT: Nick Berman PHONE NO: _____

PROJECT PWSID/ PERMIT#: _____

NAME: KAVN cleanup

REPORTS TO: RSE E-MAIL: _____

INVOICE TO: RSE QUOTE #: _____ P.O. #: 15-1454

Section 1

Section 2

Section 3

Section 4

Section 5

Instructions: Sections 1 - 5 must be filled out. Omissions may delay the onset of analysis.

Page 2 of 3

RESERVED for lab use	SAMPLE IDENTIFICATION	DATE mm/dd/yy	TIME HH:MM	MATRIX/MATRIX CODE	# CONTAINERS										REMARKS/LOC ID			
					Type	Geo/BTEX	Ak101/80216	Old/Red	Ak102/Ak103	PAH 8260	VOC 8270	Metal	Preservative					
	RV-65	11/4/15	12:12	Soil	2	G	X	X	X	X	X	X	X					
	RV-68	11/4/15	12:24	"	2	G	X	X	X	X	X	X	X					
	RV-70	"	13:13	"	2	G	X	X	X	X	X	X	X					
	RV-81	11/4/15	14:07	"	2	G	X	X	X	X	X	X	X					
	RV-84	"	14:14	"	2	G	X	X	X	X	X	X	X					
	RV-32	"	14:23	"	2	G	X	X	X	X	X	X	X					
	RV-42	"	14:30	"	2	G	X	X	X	X	X	X	X					
	RV-45	"	14:38	"	2	G	X	X	X	X	X	X	X					
	RV-X3	"	11:35	"	2	G	X	X	X	X	X	X	X					
	RV-54	"	14:35	"	2	G	X	X	X	X	X	X	X					

Section 4

Section 5

Relinquished By: (1) [Signature] Date: 11/4 Time: 15:25

Relinquished By: (2) [Signature] Date: _____ Time: _____

Relinquished By: (3) [Signature] Date: _____ Time: _____

Relinquished By: (4) [Signature] Date: 11/4/15 Time: 15:25

Temp Blank °C: _____ or Ambient []

Chain of Custody Seal: (Circle) INTACT BROKEN ABSENT

Requested Turnaround Time and/or Special Instructions:

Data Deliverable Requirements:

Requested Turnaround Time and/or Special Instructions:

Temp Blank °C: _____ or Ambient []

Chain of Custody Seal: (Circle) INTACT BROKEN ABSENT

(See attached Sample Receipt Form)

(See attached Sample Receipt Form)



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Page 3 of 3

Section 1 CLIENT: <i>Restoration Science & Engineering</i> CONTACT: <i>Nick Birge</i> PROJECT: <i>RAVN Closure</i> NAME: <i>VSE</i> REPORTS TO: <i>RSE</i> INVOICE TO: <i>RSE</i> QUOTE #: <i>15-1454</i> P.O. #: <i>15-1454</i>		Section 3 Preservative # CONTAINERS Type C = COMP G = GRAB W = Multi-Incre-mental S = Soils		Section 4 DOD Project? Yes No Cooler ID: Requested Turnaround Time and/or Special Instructions:		Section 5 Relinquished By: (1) <i>[Signature]</i> Relinquished By: (2) <i>[Signature]</i> Relinquished By: (3) <i>[Signature]</i> Relinquished By: (4) <i>[Signature]</i>		Data Deliverable Requirements: Chain of Custody Seal: (Circle) INTACT <input type="checkbox"/> BROKEN <input type="checkbox"/> ABSENT <input type="checkbox"/> Temp Blank °C: _____ or Ambient [] (See attached Sample Receipt Form)	
PHONE NO: PROJECT PWSID/ PERMIT#: E-MAIL: MATRIX/MATRIX CODE TIME HH:MM DATE mm/dd/yy SAMPLE IDENTIFICATION RESERVED for lab use R-U-61 11/4/15 14:52 Soil		GAO 187x AK101/B0216 OTO/RAO AK02/AK103 PAH B260 VOC B270 X X 2		Section 4 DOD Project? Yes No Cooler ID: Requested Turnaround Time and/or Special Instructions:		Received By: Received By: Received By: Received For Laboratory By:		REMARKS/LOC ID	

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CLIENT: Restoration Science & Engineering (RSE)

CONTACT: Nick Barron PHONE NO: _____

PROJECT PWSID/ PERMIT#: _____
NAME: RAVN Cleanup

REPORTS TO: RSE E-MAIL: _____

INVOICE TO: RSE QUOTE #: _____

P.O. #: 15-1454

Instructions: Sections 1 - 5 must be filled out.
Omissions may delay the onset of analysis.

Section 1		Section 3		Section 4		Section 5	
RESERVED for lab use	SAMPLE IDENTIFICATION	DATE mm/dd/yy	TIME HH:MM	MATRIX/ MATRIX CODE	#	Type	CONTAINER S
(1) AB	RV-65	11/4/15	12:12	Soil	2	G	Geo/BTX
(2) AB	RV-68	11/4/15	12:24	"	2	G	AK101/80216
(3) AB	RV-70	"	13:13	"	2	G	AK102/AK103
(4) AB	RV-81	11/4/15	14:07	"	2	G	PAH 8260
(5) AB	RV-84	"	14:14	"	2	G	VOC 8270
(6) AB	RV-37	"	14:23	"	2	G	
(7) AB	RV-42	"	14:30	"	2	G	
(8) AB	RV-45	"	14:38	"	2	G	
(9) AB	RV-x3	"	14:35	"	2	G	
(10) AB	RV-54	"	14:35	"	2	G	

Relinquished By: (1)	Date	Time	Received By:
<u>[Signature]</u>	11/4	15:25	<u>[Signature]</u>
Relinquished By: (2)	Date	Time	Received By:
<u>[Signature]</u>			<u>[Signature]</u>
Relinquished By: (3)	Date	Time	Received By:
<u>[Signature]</u>			<u>[Signature]</u>
Relinquished By: (4)	Date	Time	Received For Laboratory By:
<u>[Signature]</u>	11/4/15	15:25	<u>[Signature]</u>

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CLIENT: Restoration Science & Engineering

CONTACT: Nick Brown

PROJECT NAME: RAVN Clean

REPORTS TO: VSE

INVOICE TO: RSE

PHONE NO:

PROJECT PWSID/ PERMIT#:

E-MAIL:

QUOTE #:

P.O. #: 15-1454

RESERVED for lab use

SAMPLE IDENTIFICATION

DATE mm/dd/yy

TIME HH:MM

MATRIX/ MATRIX CODE

Section 1

Section 2

Section 3

Section 4

Section 5

Instructions: Sections 1 - 5 must be filled out. Omissions may delay the onset of analysis.

Preservative

REMARKS/ LOC ID

Chain of Custody Seal: (Circle)

Temp Blank °C: _____ or Ambient []

INTACT **BROKEN** **ABSENT**

(See attached Sample Receipt Form)

(See attached Sample Receipt Form)

Requested Turnaround Time and/or Special Instructions:

Relinquished By: (1) [Signature] **Date** 11/4 **Time** 5:25

Relinquished By: (2) [Signature] **Date** [Signature] **Time** [Signature]

Relinquished By: (3) [Signature] **Date** [Signature] **Time** [Signature]

Relinquished By: (4) [Signature] **Date** 11/4/15 **Time** 1:52 P

Section 4 **DOD Project?** Yes No **Data Deliverable Requirements:**

Cooler ID:

Section 3 **Type**
C = COMP
G = GRAB
M = Multi
Incr-mental
Soils

**C** **O** **N** **T** **A** **I** **N** **E** **R** **S**

CONTAINER

Section 4 **DOD Project?** Yes No **Data Deliverable Requirements:**

Cooler ID:

Section 5 **Requested Turnaround Time and/or Special Instructions:**

Chain of Custody Seal: (Circle)

Temp Blank °C: _____ or Ambient []

INTACT **BROKEN** **ABSENT**

(See attached Sample Receipt Form)

(See attached Sample Receipt Form)

Requested Turnaround Time and/or Special Instructions:

Relinquished By: (1) [Signature] **Date** 11/4 **Time** 5:25

Relinquished By: (2) [Signature] **Date** [Signature] **Time** [Signature]

Relinquished By: (3) [Signature] **Date** [Signature] **Time** [Signature]

Relinquished By: (4) [Signature] **Date** 11/4/15 **Time** 1:52 P



Returned Bottles Inventory

Name of individual returning bottles:

Nick B

Date Received:

11/05/15

Client Name:

Restoration Sci + Eng

Received by:

EDJ

Project Name:

RAIN Cleanup

SGS PM:

Chuck

HDPE/Nalgene:	1-L					
	500-ml					
	250-ml or 8-oz					
	125-ml or 4-oz					
	60-ml or 2-oz					
	other					
amber glass:	1-L					
	500-ml					
	250-ml or 8-oz					
	125-ml or 4-oz with or without septa	10				
	40-ml VOA vial	4				
	other					
Subtotal:						

Note: Returned bottles (regardless of size/pres.) are billed back at \$4/bottle unless otherwise quoted.

Amount to Invoice Client \$:

56

wo#:

1156548



1156548



1 1 5 6 5 4 8

SAMPLE RECEIPT FORM

Review Criteria:	Yes	N/A	No	Comments/Action Taken:
Were custody seals intact? Note # & location, if applicable. COC accompanied samples?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<i>Exemption permitted if sampler hand carries/delivers.</i>
Temperature blank compliant* (i.e., 0-6°C after CF)? <i>If >6°C, were samples collected <8 hours ago?</i> <i>If <0°C, were all sample containers ice free?</i> Cooler ID: <u>1</u> @ <u>.8</u> w/ Therm.ID: <u>D2</u> Cooler ID: _____ @ _____ w/ Therm.ID: _____ Cooler ID: _____ @ _____ w/ Therm.ID: _____ Cooler ID: _____ @ _____ w/ Therm.ID: _____ Cooler ID: _____ @ _____ w/ Therm.ID: _____ If samples are received <u>without</u> 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 <u>nor</u> cooler temp can be obtained, note "ambient" or "chilled."	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<i>Exemption permitted if chilled & collected <8 hrs ago.</i> <i>Note: Identify containers received at non-compliant temperature. Use form FS-0029 if more space is needed.</i>
Delivery method (specify all that apply): <input checked="" type="checkbox"/> Client (hand carried) <input type="checkbox"/> USPS <input type="checkbox"/> Lynden <input type="checkbox"/> AK Air <input type="checkbox"/> Alert Courier <input type="checkbox"/> UPS <input type="checkbox"/> FedEx <input type="checkbox"/> RAVN <input type="checkbox"/> C&D Delivery <input type="checkbox"/> Carlife <input type="checkbox"/> Pen Air <input type="checkbox"/> Warp Speed <input type="checkbox"/> Other: _____ → For WO# with airbills, was the WO# & airbill info recorded in the Front Counter eLog?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
	Yes	N/A	No	
Were samples received within hold time? Do samples match COC* (i.e., sample IDs, dates/times collected)? Were analyses requested unambiguous?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<i>Note: Refer to form F-083 "Sample Guide" for hold times.</i> <i>Note: If times differ <1hr, record details and login per COC.</i>
Were samples in good condition (no leaks/cracks/breakage)? Packing material used (specify all that apply): <input type="checkbox"/> Bubble Wrap <input type="checkbox"/> Separate plastic bags <input type="checkbox"/> Vermiculite <input type="checkbox"/> Other:	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Were proper containers (type/mass/volume/preservative*) used? Were Trip Blanks (i.e., VOAs, LL-Hg) in cooler with samples? Were all VOA vials free of headspace (i.e., bubbles ≤6 mm)? Were all soil VOAs field extracted with MeOH+BFB?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> <i>Exemption permitted for metals (e.g., 200.8/6020A).</i>
For preserved waters (other than VOA vials, LL-Mercury or microbiological analyses), was pH verified and compliant ? If pH was adjusted, were bottles flagged (i.e., stickers)?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
For special handling (e.g., "MI" soils, foreign soils, lab filter for dissolved..., lab extract for volatiles, Ref Lab, limited volume), were bottles/paperwork flagged (e.g., sticker)?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
For RUSH/SHORT Hold Time , were COC/Bottles flagged accordingly? Was Rush/Short HT email sent, if applicable?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
For SITE-SPECIFIC QC, e.g. BMS/BMSD/BDUP , were containers / paperwork flagged accordingly?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
For any question answered "No," has the PM been notified and the problem resolved (or paperwork put in their bin)?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	SRF Completed by: EDJ PM notified:
Was PEER REVIEW of <i>sample numbering/labeling completed</i> ?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Peer Reviewed by: DC
Additional notes (if applicable):				

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



Sample Containers and Preservatives

<u>Container Id</u>	<u>Preservative</u>	<u>Container Condition</u>	<u>Container Id</u>	<u>Preservative</u>	<u>Container Condition</u>
1156548001-A	No Preservative Required	OK			
1156548001-B	Methanol field pres. 4 C	OK			
1156548002-A	No Preservative Required	OK			
1156548002-B	Methanol field pres. 4 C	OK			
1156548003-A	No Preservative Required	OK			
1156548003-B	Methanol field pres. 4 C	OK			
1156548004-A	No Preservative Required	OK			
1156548004-B	Methanol field pres. 4 C	OK			
1156548005-A	No Preservative Required	OK			
1156548005-B	Methanol field pres. 4 C	OK			
1156548006-A	No Preservative Required	OK			
1156548006-B	Methanol field pres. 4 C	OK			
1156548007-A	No Preservative Required	OK			
1156548007-B	Methanol field pres. 4 C	OK			
1156548008-A	No Preservative Required	OK			
1156548008-B	Methanol field pres. 4 C	OK			
1156548009-A	No Preservative Required	OK			
1156548009-B	Methanol field pres. 4 C	OK			
1156548010-A	Methanol field pres. 4 C	OK			
1156548011-A	No Preservative Required	OK			
1156548011-B	Methanol field pres. 4 C	OK			
1156548012-A	No Preservative Required	OK			
1156548012-B	Methanol field pres. 4 C	OK			
1156548013-A	No Preservative Required	OK			
1156548013-B	Methanol field pres. 4 C	OK			
1156548014-A	No Preservative Required	OK			
1156548014-B	Methanol field pres. 4 C	OK			
1156548015-A	No Preservative Required	OK			
1156548015-B	Methanol field pres. 4 C	OK			
1156548016-A	No Preservative Required	OK			
1156548016-B	Methanol field pres. 4 C	OK			
1156548017-A	No Preservative Required	OK			
1156548017-B	Methanol field pres. 4 C	OK			
1156548018-A	No Preservative Required	OK			
1156548018-B	Methanol field pres. 4 C	OK			
1156548019-A	No Preservative Required	OK			
1156548019-B	Methanol field pres. 4 C	OK			
1156548020-A	No Preservative Required	OK			
1156548020-B	Methanol field pres. 4 C	OK			
1156548021-A	No Preservative Required	OK			
1156548021-B	Methanol field pres. 4 C	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 that an inappropriate container was submitted.

OK - The container was received at an acceptable pH for the analysis requested.

PA - The container was received outside of the acceptable pH for the analysis requested. Preservative was added upon receipt and the container is now at the correct pH. See the Sample Receipt Form for details on the amount and lot # of the preservative added.

PH - The container was received outside of the acceptable pH for the analysis requested. Preservative was added upon receipt, but was insufficient to bring the container to the correct pH for the analysis requested. See the Sample Receipt Form for details on the amount and lot # of the preservative added.

BU - The container was received with headspace greater than 6mm.

Laboratory Data Review Checklist

Completed by:

Title: Date:

CS Report Name: Report Date:

Consultant Firm:

Laboratory Name: Laboratory Report Number:

ADEC File Number: 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:

- 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:

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 ($4^{\circ} \pm 2^{\circ} \text{C}$)?
 Yes No NA (Please explain.) Comments:

- 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:

Review of the sample receipt form indicated the 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:

SGS noted that samples do not match the COC, a sample may have not matched the sample label and the COC

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

Data quality and usability was not affected.

4. Case Narrative

- a. Present and understandable?
 Yes No NA (Please explain.) Comments:

The case narrative is present and understandable on page 2 of the lab report.

- b. Discrepancies, errors or QC failures identified by the lab?
 Yes No NA (Please explain.) Comments:

The case narrative notes a single QC failure associated with an LCS recovery for chloroethane that was greater than QC criteria, and multiple internal standard recoveries associated with the MS/MSDs did not meet QC goals. Corrective actions for these are noted in the case narrative and described subsequently in this document.

- c. Were all corrective actions documented?
 Yes No NA (Please explain.) Comments:

No Corrective actions were required.

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

There is no effect on data quality and usability.

5. Samples Results

- a. Correct analyses performed/reported as requested on COC?
 Yes No NA (Please explain.) Comments:

The correct analyses were performed and reported as requested on the COC.

b. All applicable holding times met?

Yes No NA (Please explain.)

Comments:

Holding times were met for all samples according to the lab method.

c. All soils reported on a dry weight basis?

Yes No NA (Please explain.)

Comments:

Sample weights are reported on a dry weight basis on each page of the report describing the target sample.

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:

SGS refers to the PQL as the LOQ and reports data below the PQL but above the detection limit (DL) as estimated results with a "J". Constituents that were analyzed for but not detected are reported as a value equal to 2 times the DL and flagged with a "U". All PQLs were below the cleanup level.

e. Data quality or usability affected?

Comments:

There is no effect on data quality or usability.

6. QC Samples

a. Method Blank

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

Yes No NA (Please explain.)

Comments:

There is one method blank for each requested analyses.

ii. All method blank results less than PQL?

Yes No NA (Please explain.)

Comments:

All method blank results are less than the LOQ (PQL).

iii. If above PQL, what samples are affected?

Comments:

No method blank samples were reported above the LOQ (PQL).

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

Yes No NA (Please explain.)

Comments:

No method blank samples were reported above the LOQ (PQL).

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

Data quality or usability was not affected.

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:

LCS and LCSDs were performed for AK 101, AK 102, and AK 103 analyses. LCS were performed for 8260B analyses, but not an LCSD.

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

Yes No NA (Please explain.) Comments:

Metals analysis was not performed

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 was performed for 8260B resulted in a recovery of trichlorofluoroethane of 145%, greater than QC goals. This analyte was not detected above the DL in the associated samples.

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:

The lab reported two sets of LCS/LCSD results for SW8260B associated with water samples. One met QC criteria and the other failed to meet QC criteria for the RPD associated with chloromethane, this analyte was not detected above the LOQ in the associated samples. MS/MSDs failed to meet QC goals for multiple analytes. MS/MSDs were not carried out on samples originating from the project site and are not likely to reflect matrix conditions associated with samples from this project.

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

No samples were affected

Comments:

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

Yes No NA (Please explain.) Comments:

No data was flagged as a result LCS/LCSD failures

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

Comments:

c. Surrogates – Organics Only

- i. Are surrogate recoveries reported for organic analyses – field, QC and laboratory samples?
 Yes No NA (Please explain.) Comments:

Surrogate recoveries are reported for all organic analyses.

- 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:

All percent recoveries for organic analyses are reported and within method and laboratory limits.

- 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:

There were no reported surrogate recovery QC failures.

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

Data quality or usability 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:

A trip blank for soil samples was included.

- 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:

No trip blank were in cooler with samples.

- iii. All results less than PQL?
 Yes No NA (Please explain.) Comments:

All trip blank results were less than the PQL.

- iv. If above PQL, what samples are affected?

Comments:

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

Comments:

Data quality and usability not affected.

e. Field Duplicate

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

Yes No NA (Please explain.)

Comments:

Field Duplicate R-Y was collected in association with sample RV-108, but results for all analytes were not detectable.

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)

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

Where R₁ = Sample Concentration

R₂ = Field Duplicate Concentration

Yes No NA (Please explain.)

Comments:

Field Duplicate R-Y was collected in association with sample RV-108, but results for all analytes were not detectable.

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

Comments:

Data quality and usability was not affected.

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

Yes No NA (Please explain.)

Comments:

All equipment used in sampling was dedicated and disposable, or was cleaned inalconox solution and rinsed with Deionized water prior to sampling. Equipment was not re-used during the sampling event. Based on previous experience, and equipment blank was not determined necessary.

i. All results less than PQL?

Yes No NA (Please explain.)

Comments:

There are no decontamination or equipment blanks

ii. If above PQL, what samples are affected?

Comments:

There are no decontamination equipment blanks

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

Data quality or usability was not affected.

Comments:

7. Other Data Flags/Qualifiers (ACOE, AFCEE, Lab Specific, etc.)

a. Defined and appropriate?

Yes No NA (Please explain.)

Comments:

Data flags and qualifiers are defined appropriately. Page 3 of the lab report describes the qualifiers used.



Laboratory Report of Analysis

To: Restoration Science & Eng
911 West 8th Ave Suite 100
Anchorage, AK 99501
(907)278-1023

Report Number: **1156886**

Client Project: **NRC RAVN CLEANUP**

Dear Nick Braman,

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 Chuck 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.

Chuck Homestead
Project Manager
Charles.Homestead@sgs.com

Date

Print Date: 12/16/2015 9:26:24AM

Case Narrative

SGS Client: **Restoration Science & Eng**
SGS Project: **1156886**
Project Name/Site: **NRC RAVN CLEANUP**
Project Contact: **Nick Braman**

Refer to sample receipt form for information on sample condition.

LCS for HBN 1726051 [VXX/28334 (1306758) LCS

8260B – LCS recovery for chloroethane does not meet QC criteria (142%). This analyte was not detected above the LOQ in the associated samples.

1156928001MS (1306519) MS

8260B –MS recoveries for several analytes do not meet QC criteria. Refer to LCS for accuracy.

8260B –MS/MSD RPD for several analytes do not meet QC criteria. These analytes were not detected above the LOQ in the associated samples.

1156886007MS (1306759) MS

8260B –MS recoveries for several analytes do not meet QC criteria. Refer to LCS for accuracy.

1156928001MSD (1306520) MSD

8260B –MSD recoveries for several analytes do not meet QC criteria. Refer to LCS for accuracy.

1156886007MSD (1306760) MSD

8260B –MSD recoveries for several analytes do not meet QC criteria. Refer to LCS for accuracy.

RV-3-1(1156886015MSD) (1307013) MSD

8260B –MS/MSD RPD for several analytes do not meet QC criteria. These analytes were not detected above the LOQ in the associated samples.

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

Print Date: 12/16/2015 9:26:24AM

Report of Manual Integrations

<u>Laboratory ID</u>	<u>Client Sample ID</u>	<u>Analytical Batch</u>	<u>Analyte</u>	<u>Reason</u>
SW8260B				
1156886005	RV-21	VMS15456	4-Isopropyltoluene	SP
1156886006	RV-67	VMS15456	4-Isopropyltoluene	SP
1156886007	RV-70	VMS15465	4-Isopropyltoluene	SP
1156886008	RV-89	VMS15456	4-Isopropyltoluene	SP
1156886013	RV-125	VMS15465	4-Isopropyltoluene	SP
1156886015	RV-3-1	VMS15465	Naphthalene	SP

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, indemnification 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

<u>Client Sample ID</u>	<u>Lab Sample ID</u>	<u>Collected</u>	<u>Received</u>	<u>Matrix</u>
RV-1	1156886001	11/25/2015	11/25/2015	Soil/Solid (dry weight)
RV-19	1156886002	11/25/2015	11/25/2015	Soil/Solid (dry weight)
RV-6A	1156886003	11/25/2015	11/25/2015	Soil/Solid (dry weight)
RV-56	1156886004	11/25/2015	11/25/2015	Soil/Solid (dry weight)
RV-21	1156886005	11/25/2015	11/25/2015	Soil/Solid (dry weight)
RV-67	1156886006	11/25/2015	11/25/2015	Soil/Solid (dry weight)
RV-70	1156886007	11/25/2015	11/25/2015	Soil/Solid (dry weight)
RV-89	1156886008	11/25/2015	11/25/2015	Soil/Solid (dry weight)
RV-93	1156886009	11/25/2015	11/25/2015	Soil/Solid (dry weight)
RV-96	1156886010	11/25/2015	11/25/2015	Soil/Solid (dry weight)
RV-108	1156886011	11/25/2015	11/25/2015	Soil/Solid (dry weight)
RV-110	1156886012	11/25/2015	11/25/2015	Soil/Solid (dry weight)
RV-125	1156886013	11/25/2015	11/25/2015	Soil/Solid (dry weight)
RV-Y	1156886014	11/25/2015	11/25/2015	Soil/Solid (dry weight)
RV-3-1	1156886015	11/25/2015	11/25/2015	Soil/Solid (dry weight)
Trip Blank	1156886016	11/25/2015	11/25/2015	Solid/Soil (Wet Weight)

Method

AK102

AK103

SM21 2540G

SW8260B

Method Description

Diesel/Residual Range Organics

Diesel/Residual Range Organics

Percent Solids SM2540G

VOC 8260 (S) Field Extracted

Detectable Results Summary

Client Sample ID: **RV-1**
 Lab Sample ID: 1156886001
Volatile GC/MS

<u>Parameter</u>	<u>Result</u>	<u>Units</u>
1,1,1-Trichloroethane	55.0	ug/Kg
Tetrachloroethene	819	ug/Kg

Client Sample ID: **RV-19**
 Lab Sample ID: 1156886002
Volatile GC/MS

<u>Parameter</u>	<u>Result</u>	<u>Units</u>
1,2,4-Trimethylbenzene	161	ug/Kg
1,3,5-Trimethylbenzene	60.6	ug/Kg
4-Isopropyltoluene	38.5	ug/Kg
cis-1,2-Dichloroethene	11.6J	ug/Kg
Isopropylbenzene (Cumene)	16.4J	ug/Kg
Naphthalene	190	ug/Kg
n-Propylbenzene	32.0	ug/Kg
o-Xylene	49.8	ug/Kg
P & M -Xylene	98.3	ug/Kg
Tetrachloroethene	90.5	ug/Kg
Toluene	19.9J	ug/Kg
Xylenes (total)	148	ug/Kg

Client Sample ID: **RV-6A**
 Lab Sample ID: 1156886003
Volatile GC/MS

<u>Parameter</u>	<u>Result</u>	<u>Units</u>
1,2,4-Trimethylbenzene	19.7J	ug/Kg
1,3,5-Trimethylbenzene	12.3J	ug/Kg
o-Xylene	14.0J	ug/Kg
P & M -Xylene	38.7J	ug/Kg
Tetrachloroethene	253	ug/Kg
Toluene	38.2	ug/Kg
Trichloroethene	67.4	ug/Kg
Xylenes (total)	52.7J	ug/Kg

Client Sample ID: **RV-56**
 Lab Sample ID: 1156886004
Volatile GC/MS

<u>Parameter</u>	<u>Result</u>	<u>Units</u>
1,1-Dichloroethane	18.1J	ug/Kg
1,2,4-Trimethylbenzene	197	ug/Kg
1,3,5-Trimethylbenzene	56.5	ug/Kg
4-Isopropyltoluene	32.9	ug/Kg
Naphthalene	80.4	ug/Kg
n-Propylbenzene	20.1J	ug/Kg
o-Xylene	68.2	ug/Kg
P & M -Xylene	58.8	ug/Kg
Tetrachloroethene	120	ug/Kg
Xylenes (total)	127	ug/Kg

Detectable Results Summary

Client Sample ID: **RV-21**
 Lab Sample ID: 1156886005
Volatile GC/MS

<u>Parameter</u>	<u>Result</u>	<u>Units</u>
1,2,4-Trimethylbenzene	91.2	ug/Kg
1,3,5-Trimethylbenzene	92.1	ug/Kg
4-Isopropyltoluene	16.7J	ug/Kg
Isopropylbenzene (Cumene)	21.3J	ug/Kg
Naphthalene	240	ug/Kg
n-Propylbenzene	38.3	ug/Kg
o-Xylene	17.9J	ug/Kg
P & M -Xylene	73.7	ug/Kg
sec-Butylbenzene	21.1J	ug/Kg
Tetrachloroethene	13.6	ug/Kg
trans-1,2-Dichloroethene	15.3J	ug/Kg
Trichloroethene	37.6	ug/Kg
Xylenes (total)	91.6	ug/Kg

Client Sample ID: **RV-67**
 Lab Sample ID: 1156886006
Volatile GC/MS

<u>Parameter</u>	<u>Result</u>	<u>Units</u>
1,1,1-Trichloroethane	10.4J	ug/Kg
1,2,4-Trimethylbenzene	201	ug/Kg
1,2-Dibromoethane	13.9	ug/Kg
1,3,5-Trimethylbenzene	45.7	ug/Kg
2-Butanone (MEK)	64.8J	ug/Kg
2-Hexanone	74.9J	ug/Kg
4-Isopropyltoluene	16.7J	ug/Kg
Isopropylbenzene (Cumene)	12.6J	ug/Kg
Naphthalene	247	ug/Kg
n-Propylbenzene	27.5	ug/Kg
o-Xylene	55.7	ug/Kg
P & M -Xylene	81.7	ug/Kg
sec-Butylbenzene	20.1	ug/Kg
Tetrachloroethene	148	ug/Kg
Toluene	29.0	ug/Kg
Trichloroethene	16.9	ug/Kg
Xylenes (total)	137	ug/Kg

Detectable Results Summary

Client Sample ID: **RV-70**
 Lab Sample ID: 1156886007
Volatile GC/MS

<u>Parameter</u>	<u>Result</u>	<u>Units</u>
1,2,4-Trimethylbenzene	196	ug/Kg
1,3,5-Trimethylbenzene	87.2	ug/Kg
4-Isopropyltoluene	25.1J	ug/Kg
Isopropylbenzene (Cumene)	21.1J	ug/Kg
Naphthalene	266	ug/Kg
n-Propylbenzene	42.5	ug/Kg
o-Xylene	51.1	ug/Kg
P & M -Xylene	63.3	ug/Kg
sec-Butylbenzene	30.6	ug/Kg
Tetrachloroethene	65.2	ug/Kg
Toluene	26.3J	ug/Kg
Trichloroethene	11.6J	ug/Kg
Xylenes (total)	114	ug/Kg

Client Sample ID: **RV-89**
 Lab Sample ID: 1156886008
Volatile GC/MS

<u>Parameter</u>	<u>Result</u>	<u>Units</u>
1,2,4-Trimethylbenzene	281	ug/Kg
1,3,5-Trimethylbenzene	121	ug/Kg
4-Isopropyltoluene	15.6J	ug/Kg
cis-1,2-Dichloroethene	46.2	ug/Kg
Isopropylbenzene (Cumene)	28.2	ug/Kg
Naphthalene	120	ug/Kg
n-Propylbenzene	43.3	ug/Kg
o-Xylene	69.0	ug/Kg
P & M -Xylene	154	ug/Kg
sec-Butylbenzene	22.0J	ug/Kg
Toluene	14.6J	ug/Kg
Trichloroethene	11.9J	ug/Kg
Xylenes (total)	223	ug/Kg

Client Sample ID: **RV-93**
 Lab Sample ID: 1156886009
Volatile GC/MS

<u>Parameter</u>	<u>Result</u>	<u>Units</u>
Tetrachloroethene	20.8	ug/Kg
Toluene	11.6J	ug/Kg
Trichloroethene	20.8	ug/Kg

Client Sample ID: **RV-96**
 Lab Sample ID: 1156886010
Volatile GC/MS

<u>Parameter</u>	<u>Result</u>	<u>Units</u>
Tetrachloroethene	19.1	ug/Kg
Trichloroethene	10.4J	ug/Kg

Detectable Results Summary

Client Sample ID: **RV-125**
 Lab Sample ID: 1156886013
Volatile GC/MS

<u>Parameter</u>	<u>Result</u>	<u>Units</u>
1,2,4-Trimethylbenzene	108	ug/Kg
1,3,5-Trimethylbenzene	27.5	ug/Kg
4-Isopropyltoluene	18.1J	ug/Kg
Chlorobenzene	9.70J	ug/Kg
Ethylbenzene	34.8	ug/Kg
Isopropylbenzene (Cumene)	11.9J	ug/Kg
n-Propylbenzene	18.3J	ug/Kg
o-Xylene	20.2J	ug/Kg
P & M -Xylene	64.9	ug/Kg
sec-Butylbenzene	18.3J	ug/Kg
tert-Butylbenzene	11.9J	ug/Kg
Tetrachloroethene	17.0	ug/Kg
Toluene	8.89J	ug/Kg
Trichloroethene	11.0J	ug/Kg
Xylenes (total)	85.1	ug/Kg

Client Sample ID: **RV-Y**
 Lab Sample ID: 1156886014
Volatile GC/MS

<u>Parameter</u>	<u>Result</u>	<u>Units</u>
1,2,4-Trichlorobenzene	10.5J	ug/Kg
1,3,5-Trimethylbenzene	4.73J	ug/Kg
4-Isopropyltoluene	10.3J	ug/Kg
Ethylbenzene	4.58J	ug/Kg
Isopropylbenzene (Cumene)	6.30J	ug/Kg
n-Butylbenzene	39.7	ug/Kg
n-Propylbenzene	6.16J	ug/Kg
P & M -Xylene	9.60J	ug/Kg
sec-Butylbenzene	9.88J	ug/Kg
tert-Butylbenzene	7.30J	ug/Kg
Xylenes (total)	14.0J	ug/Kg

Client Sample ID: **RV-3-1**
 Lab Sample ID: 1156886015
Semivolatile Organic Fuels

Volatile GC/MS

<u>Parameter</u>	<u>Result</u>	<u>Units</u>
Diesel Range Organics	4880	mg/Kg
Residual Range Organics	1980	mg/Kg
1,1,1-Trichloroethane	254	ug/Kg
1,1,2-Trichloroethane	30.1	ug/Kg
1,3,5-Trimethylbenzene	7.59J	ug/Kg
4-Methyl-2-pentanone (MIBK)	125J	ug/Kg
Naphthalene	30.8J	ug/Kg
Tetrachloroethene	1860	ug/Kg



Results of RV-1

Client Sample ID: RV-1
Client Project ID: NRC RAVN CLEANUP
Lab Sample ID: 1156886001
Lab Project ID: 1156886

Collection Date: 11/25/15 10:55
Received Date: 11/25/15 14:42
Matrix: Soil/Solid (dry weight)
Solids (%):84.6
Location:

Results by Volatile GC/MS

Table with 8 columns: Parameter, Result Qual, LOQ/CL, DL, Units, DF, Allowable Limits, Date Analyzed. Lists various chemical compounds and their detection results.

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Results of RV-1

Client Sample ID: RV-1
Client Project ID: NRC RAVN CLEANUP
Lab Sample ID: 1156886001
Lab Project ID: 1156886

Collection Date: 11/25/15 10:55
Received Date: 11/25/15 14:42
Matrix: Soil/Solid (dry weight)
Solids (%):84.6
Location:

Results by Volatile GC/MS

Table with 8 columns: Parameter, Result Qual, LOQ/CL, DL, Units, DF, Allowable Limits, Date Analyzed. Lists various chemical parameters like Chloroform, Chloromethane, etc., with their respective values and quality indicators.



Results of **RV-1**

Client Sample ID: **RV-1**
Client Project ID: **NRC RAVN CLEANUP**
Lab Sample ID: 1156886001
Lab Project ID: 1156886

Collection Date: 11/25/15 10:55
Received Date: 11/25/15 14:42
Matrix: Soil/Solid (dry weight)
Solids (%):84.6
Location:

Results by **Volatile GC/MS**

Batch Information

Analytical Batch: VMS15456
Analytical Method: SW8260B
Analyst: KAS
Analytical Date/Time: 12/03/15 18:05
Container ID: 1156886001-B

Prep Batch: VXX28323
Prep Method: SW5035A
Prep Date/Time: 11/25/15 10:55
Prep Initial Wt./Vol.: 79.163 g
Prep Extract Vol: 37.1906 mL



Results of **RV-19**

Client Sample ID: **RV-19**
Client Project ID: **NRC RAVN CLEANUP**
Lab Sample ID: 1156886002
Lab Project ID: 1156886

Collection Date: 11/25/15 12:00
Received Date: 11/25/15 14:42
Matrix: Soil/Solid (dry weight)
Solids (%):84.9
Location:

Results by **Volatile GC/MS**

<u>Parameter</u>	<u>Result Qual</u>	<u>LOQ/CL</u>	<u>DL</u>	<u>Units</u>	<u>DF</u>	<u>Allowable Limits</u>	<u>Date Analyzed</u>
1,1,1,2-Tetrachloroethane	13.4 U	26.9	8.40	ug/Kg	1		12/03/15 18:21
1,1,1-Trichloroethane	13.4 U	26.9	8.40	ug/Kg	1		12/03/15 18:21
1,1,2,2-Tetrachloroethane	6.75 U	13.5	4.20	ug/Kg	1		12/03/15 18:21
1,1,2-Trichloroethane	5.40 U	10.8	3.34	ug/Kg	1		12/03/15 18:21
1,1-Dichloroethane	13.4 U	26.9	8.40	ug/Kg	1		12/03/15 18:21
1,1-Dichloroethene	13.4 U	26.9	8.40	ug/Kg	1		12/03/15 18:21
1,1-Dichloropropene	13.4 U	26.9	8.40	ug/Kg	1		12/03/15 18:21
1,2,3-Trichlorobenzene	26.9 U	53.8	16.2	ug/Kg	1		12/03/15 18:21
1,2,3-Trichloropropane	13.4 U	26.9	8.40	ug/Kg	1		12/03/15 18:21
1,2,4-Trichlorobenzene	13.4 U	26.9	8.40	ug/Kg	1		12/03/15 18:21
1,2,4-Trimethylbenzene	161	53.8	16.2	ug/Kg	1		12/03/15 18:21
1,2-Dibromo-3-chloropropane	54.0 U	108	33.4	ug/Kg	1		12/03/15 18:21
1,2-Dibromoethane	5.40 U	10.8	3.34	ug/Kg	1		12/03/15 18:21
1,2-Dichlorobenzene	13.4 U	26.9	8.40	ug/Kg	1		12/03/15 18:21
1,2-Dichloroethane	5.40 U	10.8	3.34	ug/Kg	1		12/03/15 18:21
1,2-Dichloropropane	5.40 U	10.8	3.34	ug/Kg	1		12/03/15 18:21
1,3,5-Trimethylbenzene	60.6	26.9	8.40	ug/Kg	1		12/03/15 18:21
1,3-Dichlorobenzene	13.4 U	26.9	8.40	ug/Kg	1		12/03/15 18:21
1,3-Dichloropropane	5.40 U	10.8	3.34	ug/Kg	1		12/03/15 18:21
1,4-Dichlorobenzene	13.4 U	26.9	8.40	ug/Kg	1		12/03/15 18:21
2,2-Dichloropropane	13.4 U	26.9	8.40	ug/Kg	1		12/03/15 18:21
2-Butanone (MEK)	135 U	269	84.0	ug/Kg	1		12/03/15 18:21
2-Chlorotoluene	13.4 U	26.9	8.40	ug/Kg	1		12/03/15 18:21
2-Hexanone	135 U	269	84.0	ug/Kg	1		12/03/15 18:21
4-Chlorotoluene	13.4 U	26.9	8.40	ug/Kg	1		12/03/15 18:21
4-Isopropyltoluene	38.5	26.9	8.40	ug/Kg	1		12/03/15 18:21
4-Methyl-2-pentanone (MIBK)	135 U	269	84.0	ug/Kg	1		12/03/15 18:21
Benzene	6.75 U	13.5	4.20	ug/Kg	1		12/03/15 18:21
Bromobenzene	13.4 U	26.9	8.40	ug/Kg	1		12/03/15 18:21
Bromochloromethane	13.4 U	26.9	8.40	ug/Kg	1		12/03/15 18:21
Bromodichloromethane	13.4 U	26.9	8.40	ug/Kg	1		12/03/15 18:21
Bromoform	13.4 U	26.9	8.40	ug/Kg	1		12/03/15 18:21
Bromomethane	108 U	215	66.8	ug/Kg	1		12/03/15 18:21
Carbon disulfide	54.0 U	108	33.4	ug/Kg	1		12/03/15 18:21
Carbon tetrachloride	6.75 U	13.5	4.20	ug/Kg	1		12/03/15 18:21
Chlorobenzene	13.4 U	26.9	8.40	ug/Kg	1		12/03/15 18:21
Chloroethane	108 U	215	66.8	ug/Kg	1		12/03/15 18:21

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Results of **RV-19**

Client Sample ID: **RV-19**
Client Project ID: **NRC RAVN CLEANUP**
Lab Sample ID: 1156886002
Lab Project ID: 1156886

Collection Date: 11/25/15 12:00
Received Date: 11/25/15 14:42
Matrix: Soil/Solid (dry weight)
Solids (%):84.9
Location:

Results by **Volatile GC/MS**

<u>Parameter</u>	<u>Result Qual</u>	<u>LOQ/CL</u>	<u>DL</u>	<u>Units</u>	<u>DF</u>	<u>Allowable Limits</u>	<u>Date Analyzed</u>
Chloroform	13.4 U	26.9	8.40	ug/Kg	1		12/03/15 18:21
Chloromethane	13.4 U	26.9	8.40	ug/Kg	1		12/03/15 18:21
cis-1,2-Dichloroethene	11.6 J	26.9	8.40	ug/Kg	1		12/03/15 18:21
cis-1,3-Dichloropropene	13.4 U	26.9	8.40	ug/Kg	1		12/03/15 18:21
Dibromochloromethane	13.4 U	26.9	8.40	ug/Kg	1		12/03/15 18:21
Dibromomethane	13.4 U	26.9	8.40	ug/Kg	1		12/03/15 18:21
Dichlorodifluoromethane	26.9 U	53.8	16.2	ug/Kg	1		12/03/15 18:21
Ethylbenzene	13.4 U	26.9	8.40	ug/Kg	1		12/03/15 18:21
Freon-113	54.0 U	108	33.4	ug/Kg	1		12/03/15 18:21
Hexachlorobutadiene	26.9 U	53.8	16.2	ug/Kg	1		12/03/15 18:21
Isopropylbenzene (Cumene)	16.4 J	26.9	8.40	ug/Kg	1		12/03/15 18:21
Methylene chloride	54.0 U	108	33.4	ug/Kg	1		12/03/15 18:21
Methyl-t-butyl ether	54.0 U	108	33.4	ug/Kg	1		12/03/15 18:21
Naphthalene	190	53.8	16.2	ug/Kg	1		12/03/15 18:21
n-Butylbenzene	13.4 U	26.9	8.40	ug/Kg	1		12/03/15 18:21
n-Propylbenzene	32.0	26.9	8.40	ug/Kg	1		12/03/15 18:21
o-Xylene	49.8	26.9	8.40	ug/Kg	1		12/03/15 18:21
P & M -Xylene	98.3	53.8	16.2	ug/Kg	1		12/03/15 18:21
sec-Butylbenzene	13.4 U	26.9	8.40	ug/Kg	1		12/03/15 18:21
Styrene	13.4 U	26.9	8.40	ug/Kg	1		12/03/15 18:21
tert-Butylbenzene	13.4 U	26.9	8.40	ug/Kg	1		12/03/15 18:21
Tetrachloroethene	90.5	13.5	4.20	ug/Kg	1		12/03/15 18:21
Toluene	19.9 J	26.9	8.40	ug/Kg	1		12/03/15 18:21
trans-1,2-Dichloroethene	13.4 U	26.9	8.40	ug/Kg	1		12/03/15 18:21
trans-1,3-Dichloropropene	13.4 U	26.9	8.40	ug/Kg	1		12/03/15 18:21
Trichloroethene	6.75 U	13.5	4.20	ug/Kg	1		12/03/15 18:21
Trichlorofluoromethane	26.9 U	53.8	16.2	ug/Kg	1		12/03/15 18:21
Vinyl acetate	54.0 U	108	33.4	ug/Kg	1		12/03/15 18:21
Vinyl chloride	5.40 U	10.8	3.34	ug/Kg	1		12/03/15 18:21
Xylenes (total)	148	80.8	24.6	ug/Kg	1		12/03/15 18:21
Surrogates							
1,2-Dichloroethane-D4 (surr)	115	71-136		%	1		12/03/15 18:21
4-Bromofluorobenzene (surr)	112	55-151		%	1		12/03/15 18:21
Toluene-d8 (surr)	97	85-116		%	1		12/03/15 18:21



Results of **RV-19**

Client Sample ID: **RV-19**
Client Project ID: **NRC RAVN CLEANUP**
Lab Sample ID: 1156886002
Lab Project ID: 1156886

Collection Date: 11/25/15 12:00
Received Date: 11/25/15 14:42
Matrix: Soil/Solid (dry weight)
Solids (%):84.9
Location:

Results by **Volatile GC/MS**

Batch Information

Analytical Batch: VMS15456
Analytical Method: SW8260B
Analyst: KAS
Analytical Date/Time: 12/03/15 18:21
Container ID: 1156886002-B

Prep Batch: VXX28323
Prep Method: SW5035A
Prep Date/Time: 11/25/15 12:00
Prep Initial Wt./Vol.: 81.849 g
Prep Extract Vol: 37.3978 mL



Results of **RV-6A**

Client Sample ID: **RV-6A**
Client Project ID: **NRC RAVN CLEANUP**
Lab Sample ID: 1156886003
Lab Project ID: 1156886

Collection Date: 11/25/15 11:00
Received Date: 11/25/15 14:42
Matrix: Soil/Solid (dry weight)
Solids (%):87.6
Location:

Results by **Volatile GC/MS**

Parameter	Result Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
1,1,1,2-Tetrachloroethane	10.8 U	21.6	6.74	ug/Kg	1		12/03/15 18:37
1,1,1-Trichloroethane	10.8 U	21.6	6.74	ug/Kg	1		12/03/15 18:37
1,1,2,2-Tetrachloroethane	5.40 U	10.8	3.37	ug/Kg	1		12/03/15 18:37
1,1,2-Trichloroethane	4.32 U	8.64	2.68	ug/Kg	1		12/03/15 18:37
1,1-Dichloroethane	10.8 U	21.6	6.74	ug/Kg	1		12/03/15 18:37
1,1-Dichloroethene	10.8 U	21.6	6.74	ug/Kg	1		12/03/15 18:37
1,1-Dichloropropene	10.8 U	21.6	6.74	ug/Kg	1		12/03/15 18:37
1,2,3-Trichlorobenzene	21.6 U	43.2	13.0	ug/Kg	1		12/03/15 18:37
1,2,3-Trichloropropane	10.8 U	21.6	6.74	ug/Kg	1		12/03/15 18:37
1,2,4-Trichlorobenzene	10.8 U	21.6	6.74	ug/Kg	1		12/03/15 18:37
1,2,4-Trimethylbenzene	19.7 J	43.2	13.0	ug/Kg	1		12/03/15 18:37
1,2-Dibromo-3-chloropropane	43.2 U	86.4	26.8	ug/Kg	1		12/03/15 18:37
1,2-Dibromoethane	4.32 U	8.64	2.68	ug/Kg	1		12/03/15 18:37
1,2-Dichlorobenzene	10.8 U	21.6	6.74	ug/Kg	1		12/03/15 18:37
1,2-Dichloroethane	4.32 U	8.64	2.68	ug/Kg	1		12/03/15 18:37
1,2-Dichloropropane	4.32 U	8.64	2.68	ug/Kg	1		12/03/15 18:37
1,3,5-Trimethylbenzene	12.3 J	21.6	6.74	ug/Kg	1		12/03/15 18:37
1,3-Dichlorobenzene	10.8 U	21.6	6.74	ug/Kg	1		12/03/15 18:37
1,3-Dichloropropane	4.32 U	8.64	2.68	ug/Kg	1		12/03/15 18:37
1,4-Dichlorobenzene	10.8 U	21.6	6.74	ug/Kg	1		12/03/15 18:37
2,2-Dichloropropane	10.8 U	21.6	6.74	ug/Kg	1		12/03/15 18:37
2-Butanone (MEK)	108 U	216	67.4	ug/Kg	1		12/03/15 18:37
2-Chlorotoluene	10.8 U	21.6	6.74	ug/Kg	1		12/03/15 18:37
2-Hexanone	108 U	216	67.4	ug/Kg	1		12/03/15 18:37
4-Chlorotoluene	10.8 U	21.6	6.74	ug/Kg	1		12/03/15 18:37
4-Isopropyltoluene	10.8 U	21.6	6.74	ug/Kg	1		12/03/15 18:37
4-Methyl-2-pentanone (MIBK)	108 U	216	67.4	ug/Kg	1		12/03/15 18:37
Benzene	5.40 U	10.8	3.37	ug/Kg	1		12/03/15 18:37
Bromobenzene	10.8 U	21.6	6.74	ug/Kg	1		12/03/15 18:37
Bromochloromethane	10.8 U	21.6	6.74	ug/Kg	1		12/03/15 18:37
Bromodichloromethane	10.8 U	21.6	6.74	ug/Kg	1		12/03/15 18:37
Bromoform	10.8 U	21.6	6.74	ug/Kg	1		12/03/15 18:37
Bromomethane	86.5 U	173	53.6	ug/Kg	1		12/03/15 18:37
Carbon disulfide	43.2 U	86.4	26.8	ug/Kg	1		12/03/15 18:37
Carbon tetrachloride	5.40 U	10.8	3.37	ug/Kg	1		12/03/15 18:37
Chlorobenzene	10.8 U	21.6	6.74	ug/Kg	1		12/03/15 18:37
Chloroethane	86.5 U	173	53.6	ug/Kg	1		12/03/15 18:37

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Results of **RV-6A**

Client Sample ID: **RV-6A**
Client Project ID: **NRC RAVN CLEANUP**
Lab Sample ID: 1156886003
Lab Project ID: 1156886

Collection Date: 11/25/15 11:00
Received Date: 11/25/15 14:42
Matrix: Soil/Solid (dry weight)
Solids (%):87.6
Location:

Results by **Volatile GC/MS**

<u>Parameter</u>	<u>Result Qual</u>	<u>LOQ/CL</u>	<u>DL</u>	<u>Units</u>	<u>DF</u>	<u>Allowable Limits</u>	<u>Date Analyzed</u>
Chloroform	10.8 U	21.6	6.74	ug/Kg	1		12/03/15 18:37
Chloromethane	10.8 U	21.6	6.74	ug/Kg	1		12/03/15 18:37
cis-1,2-Dichloroethene	10.8 U	21.6	6.74	ug/Kg	1		12/03/15 18:37
cis-1,3-Dichloropropene	10.8 U	21.6	6.74	ug/Kg	1		12/03/15 18:37
Dibromochloromethane	10.8 U	21.6	6.74	ug/Kg	1		12/03/15 18:37
Dibromomethane	10.8 U	21.6	6.74	ug/Kg	1		12/03/15 18:37
Dichlorodifluoromethane	21.6 U	43.2	13.0	ug/Kg	1		12/03/15 18:37
Ethylbenzene	10.8 U	21.6	6.74	ug/Kg	1		12/03/15 18:37
Freon-113	43.2 U	86.4	26.8	ug/Kg	1		12/03/15 18:37
Hexachlorobutadiene	21.6 U	43.2	13.0	ug/Kg	1		12/03/15 18:37
Isopropylbenzene (Cumene)	10.8 U	21.6	6.74	ug/Kg	1		12/03/15 18:37
Methylene chloride	43.2 U	86.4	26.8	ug/Kg	1		12/03/15 18:37
Methyl-t-butyl ether	43.2 U	86.4	26.8	ug/Kg	1		12/03/15 18:37
Naphthalene	21.6 U	43.2	13.0	ug/Kg	1		12/03/15 18:37
n-Butylbenzene	10.8 U	21.6	6.74	ug/Kg	1		12/03/15 18:37
n-Propylbenzene	10.8 U	21.6	6.74	ug/Kg	1		12/03/15 18:37
o-Xylene	14.0 J	21.6	6.74	ug/Kg	1		12/03/15 18:37
P & M -Xylene	38.7 J	43.2	13.0	ug/Kg	1		12/03/15 18:37
sec-Butylbenzene	10.8 U	21.6	6.74	ug/Kg	1		12/03/15 18:37
Styrene	10.8 U	21.6	6.74	ug/Kg	1		12/03/15 18:37
tert-Butylbenzene	10.8 U	21.6	6.74	ug/Kg	1		12/03/15 18:37
Tetrachloroethene	253	10.8	3.37	ug/Kg	1		12/03/15 18:37
Toluene	38.2	21.6	6.74	ug/Kg	1		12/03/15 18:37
trans-1,2-Dichloroethene	10.8 U	21.6	6.74	ug/Kg	1		12/03/15 18:37
trans-1,3-Dichloropropene	10.8 U	21.6	6.74	ug/Kg	1		12/03/15 18:37
Trichloroethene	67.4	10.8	3.37	ug/Kg	1		12/03/15 18:37
Trichlorofluoromethane	21.6 U	43.2	13.0	ug/Kg	1		12/03/15 18:37
Vinyl acetate	43.2 U	86.4	26.8	ug/Kg	1		12/03/15 18:37
Vinyl chloride	4.32 U	8.64	2.68	ug/Kg	1		12/03/15 18:37
Xylenes (total)	52.7 J	64.8	19.7	ug/Kg	1		12/03/15 18:37
Surrogates							
1,2-Dichloroethane-D4 (surr)	113	71-136		%	1		12/03/15 18:37
4-Bromofluorobenzene (surr)	110	55-151		%	1		12/03/15 18:37
Toluene-d8 (surr)	101	85-116		%	1		12/03/15 18:37



Results of **RV-6A**

Client Sample ID: **RV-6A**
Client Project ID: **NRC RAVN CLEANUP**
Lab Sample ID: 1156886003
Lab Project ID: 1156886

Collection Date: 11/25/15 11:00
Received Date: 11/25/15 14:42
Matrix: Soil/Solid (dry weight)
Solids (%):87.6
Location:

Results by **Volatile GC/MS**

Batch Information

Analytical Batch: VMS15456
Analytical Method: SW8260B
Analyst: KAS
Analytical Date/Time: 12/03/15 18:37
Container ID: 1156886003-B

Prep Batch: VXX28323
Prep Method: SW5035A
Prep Date/Time: 11/25/15 11:00
Prep Initial Wt./Vol.: 98.384 g
Prep Extract Vol: 37.2319 mL



Results of **RV-56**

Client Sample ID: **RV-56**
Client Project ID: **NRC RAVN CLEANUP**
Lab Sample ID: 1156886004
Lab Project ID: 1156886

Collection Date: 11/25/15 11:10
Received Date: 11/25/15 14:42
Matrix: Soil/Solid (dry weight)
Solids (%):82.2
Location:

Results by **Volatile GC/MS**

<u>Parameter</u>	<u>Result Qual</u>	<u>LOQ/CL</u>	<u>DL</u>	<u>Units</u>	<u>DF</u>	<u>Allowable Limits</u>	<u>Date Analyzed</u>
1,1,1,2-Tetrachloroethane	14.6 U	29.1	9.09	ug/Kg	1		12/03/15 18:53
1,1,1-Trichloroethane	14.6 U	29.1	9.09	ug/Kg	1		12/03/15 18:53
1,1,2,2-Tetrachloroethane	7.30 U	14.6	4.54	ug/Kg	1		12/03/15 18:53
1,1,2-Trichloroethane	5.80 U	11.6	3.61	ug/Kg	1		12/03/15 18:53
1,1-Dichloroethane	18.1 J	29.1	9.09	ug/Kg	1		12/03/15 18:53
1,1-Dichloroethene	14.6 U	29.1	9.09	ug/Kg	1		12/03/15 18:53
1,1-Dichloropropene	14.6 U	29.1	9.09	ug/Kg	1		12/03/15 18:53
1,2,3-Trichlorobenzene	29.1 U	58.2	17.5	ug/Kg	1		12/03/15 18:53
1,2,3-Trichloropropane	14.6 U	29.1	9.09	ug/Kg	1		12/03/15 18:53
1,2,4-Trichlorobenzene	14.6 U	29.1	9.09	ug/Kg	1		12/03/15 18:53
1,2,4-Trimethylbenzene	197	58.2	17.5	ug/Kg	1		12/03/15 18:53
1,2-Dibromo-3-chloropropane	58.0 U	116	36.1	ug/Kg	1		12/03/15 18:53
1,2-Dibromoethane	5.80 U	11.6	3.61	ug/Kg	1		12/03/15 18:53
1,2-Dichlorobenzene	14.6 U	29.1	9.09	ug/Kg	1		12/03/15 18:53
1,2-Dichloroethane	5.80 U	11.6	3.61	ug/Kg	1		12/03/15 18:53
1,2-Dichloropropane	5.80 U	11.6	3.61	ug/Kg	1		12/03/15 18:53
1,3,5-Trimethylbenzene	56.5	29.1	9.09	ug/Kg	1		12/03/15 18:53
1,3-Dichlorobenzene	14.6 U	29.1	9.09	ug/Kg	1		12/03/15 18:53
1,3-Dichloropropane	5.80 U	11.6	3.61	ug/Kg	1		12/03/15 18:53
1,4-Dichlorobenzene	14.6 U	29.1	9.09	ug/Kg	1		12/03/15 18:53
2,2-Dichloropropane	14.6 U	29.1	9.09	ug/Kg	1		12/03/15 18:53
2-Butanone (MEK)	146 U	291	90.9	ug/Kg	1		12/03/15 18:53
2-Chlorotoluene	14.6 U	29.1	9.09	ug/Kg	1		12/03/15 18:53
2-Hexanone	146 U	291	90.9	ug/Kg	1		12/03/15 18:53
4-Chlorotoluene	14.6 U	29.1	9.09	ug/Kg	1		12/03/15 18:53
4-Isopropyltoluene	32.9	29.1	9.09	ug/Kg	1		12/03/15 18:53
4-Methyl-2-pentanone (MIBK)	146 U	291	90.9	ug/Kg	1		12/03/15 18:53
Benzene	7.30 U	14.6	4.54	ug/Kg	1		12/03/15 18:53
Bromobenzene	14.6 U	29.1	9.09	ug/Kg	1		12/03/15 18:53
Bromochloromethane	14.6 U	29.1	9.09	ug/Kg	1		12/03/15 18:53
Bromodichloromethane	14.6 U	29.1	9.09	ug/Kg	1		12/03/15 18:53
Bromoform	14.6 U	29.1	9.09	ug/Kg	1		12/03/15 18:53
Bromomethane	117 U	233	72.2	ug/Kg	1		12/03/15 18:53
Carbon disulfide	58.0 U	116	36.1	ug/Kg	1		12/03/15 18:53
Carbon tetrachloride	7.30 U	14.6	4.54	ug/Kg	1		12/03/15 18:53
Chlorobenzene	14.6 U	29.1	9.09	ug/Kg	1		12/03/15 18:53
Chloroethane	117 U	233	72.2	ug/Kg	1		12/03/15 18:53

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J flagging is activated



Results of **RV-56**

Client Sample ID: **RV-56**
Client Project ID: **NRC RAVN CLEANUP**
Lab Sample ID: 1156886004
Lab Project ID: 1156886

Collection Date: 11/25/15 11:10
Received Date: 11/25/15 14:42
Matrix: Soil/Solid (dry weight)
Solids (%):82.2
Location:

Results by **Volatile GC/MS**

<u>Parameter</u>	<u>Result Qual</u>	<u>LOQ/CL</u>	<u>DL</u>	<u>Units</u>	<u>DF</u>	<u>Allowable Limits</u>	<u>Date Analyzed</u>
Chloroform	14.6 U	29.1	9.09	ug/Kg	1		12/03/15 18:53
Chloromethane	14.6 U	29.1	9.09	ug/Kg	1		12/03/15 18:53
cis-1,2-Dichloroethene	14.6 U	29.1	9.09	ug/Kg	1		12/03/15 18:53
cis-1,3-Dichloropropene	14.6 U	29.1	9.09	ug/Kg	1		12/03/15 18:53
Dibromochloromethane	14.6 U	29.1	9.09	ug/Kg	1		12/03/15 18:53
Dibromomethane	14.6 U	29.1	9.09	ug/Kg	1		12/03/15 18:53
Dichlorodifluoromethane	29.1 U	58.2	17.5	ug/Kg	1		12/03/15 18:53
Ethylbenzene	14.6 U	29.1	9.09	ug/Kg	1		12/03/15 18:53
Freon-113	58.0 U	116	36.1	ug/Kg	1		12/03/15 18:53
Hexachlorobutadiene	29.1 U	58.2	17.5	ug/Kg	1		12/03/15 18:53
Isopropylbenzene (Cumene)	14.6 U	29.1	9.09	ug/Kg	1		12/03/15 18:53
Methylene chloride	58.0 U	116	36.1	ug/Kg	1		12/03/15 18:53
Methyl-t-butyl ether	58.0 U	116	36.1	ug/Kg	1		12/03/15 18:53
Naphthalene	80.4	58.2	17.5	ug/Kg	1		12/03/15 18:53
n-Butylbenzene	14.6 U	29.1	9.09	ug/Kg	1		12/03/15 18:53
n-Propylbenzene	20.1 J	29.1	9.09	ug/Kg	1		12/03/15 18:53
o-Xylene	68.2	29.1	9.09	ug/Kg	1		12/03/15 18:53
P & M -Xylene	58.8	58.2	17.5	ug/Kg	1		12/03/15 18:53
sec-Butylbenzene	14.6 U	29.1	9.09	ug/Kg	1		12/03/15 18:53
Styrene	14.6 U	29.1	9.09	ug/Kg	1		12/03/15 18:53
tert-Butylbenzene	14.6 U	29.1	9.09	ug/Kg	1		12/03/15 18:53
Tetrachloroethene	120	14.6	4.54	ug/Kg	1		12/03/15 18:53
Toluene	14.6 U	29.1	9.09	ug/Kg	1		12/03/15 18:53
trans-1,2-Dichloroethene	14.6 U	29.1	9.09	ug/Kg	1		12/03/15 18:53
trans-1,3-Dichloropropene	14.6 U	29.1	9.09	ug/Kg	1		12/03/15 18:53
Trichloroethene	7.30 U	14.6	4.54	ug/Kg	1		12/03/15 18:53
Trichlorofluoromethane	29.1 U	58.2	17.5	ug/Kg	1		12/03/15 18:53
Vinyl acetate	58.0 U	116	36.1	ug/Kg	1		12/03/15 18:53
Vinyl chloride	5.80 U	11.6	3.61	ug/Kg	1		12/03/15 18:53
Xylenes (total)	127	87.4	26.6	ug/Kg	1		12/03/15 18:53
Surrogates							
1,2-Dichloroethane-D4 (surr)	110	71-136		%	1		12/03/15 18:53
4-Bromofluorobenzene (surr)	112	55-151		%	1		12/03/15 18:53
Toluene-d8 (surr)	96.3	85-116		%	1		12/03/15 18:53



Results of **RV-56**

Client Sample ID: **RV-56**
Client Project ID: **NRC RAVN CLEANUP**
Lab Sample ID: 1156886004
Lab Project ID: 1156886

Collection Date: 11/25/15 11:10
Received Date: 11/25/15 14:42
Matrix: Soil/Solid (dry weight)
Solids (%):82.2
Location:

Results by **Volatile GC/MS**

Batch Information

Analytical Batch: VMS15456
Analytical Method: SW8260B
Analyst: KAS
Analytical Date/Time: 12/03/15 18:53
Container ID: 1156886004-B

Prep Batch: VXX28323
Prep Method: SW5035A
Prep Date/Time: 11/25/15 11:10
Prep Initial Wt./Vol.: 82.9 g
Prep Extract Vol: 39.716 mL



Results of RV-21

Client Sample ID: RV-21
Client Project ID: NRC RAVN CLEANUP
Lab Sample ID: 1156886005
Lab Project ID: 1156886

Collection Date: 11/25/15 11:30
Received Date: 11/25/15 14:42
Matrix: Soil/Solid (dry weight)
Solids (%):86.8
Location:

Results by Volatile GC/MS

Table with 8 columns: Parameter, Result Qual, LOQ/CL, DL, Units, DF, Allowable Limits, Date Analyzed. Lists various chemical compounds and their detection results.

Print Date: 12/16/2015 9:26:30AM

J flagging is activated



Results of **RV-21**

Client Sample ID: **RV-21**
Client Project ID: **NRC RAVN CLEANUP**
Lab Sample ID: 1156886005
Lab Project ID: 1156886

Collection Date: 11/25/15 11:30
Received Date: 11/25/15 14:42
Matrix: Soil/Solid (dry weight)
Solids (%):86.8
Location:

Results by **Volatile GC/MS**

<u>Parameter</u>	<u>Result Qual</u>	<u>LOQ/CL</u>	<u>DL</u>	<u>Units</u>	<u>DF</u>	<u>Allowable Limits</u>	<u>Date Analyzed</u>
Chloroform	12.1 U	24.2	7.56	ug/Kg	1		12/03/15 19:08
Chloromethane	12.1 U	24.2	7.56	ug/Kg	1		12/03/15 19:08
cis-1,2-Dichloroethene	12.1 U	24.2	7.56	ug/Kg	1		12/03/15 19:08
cis-1,3-Dichloropropene	12.1 U	24.2	7.56	ug/Kg	1		12/03/15 19:08
Dibromochloromethane	12.1 U	24.2	7.56	ug/Kg	1		12/03/15 19:08
Dibromomethane	12.1 U	24.2	7.56	ug/Kg	1		12/03/15 19:08
Dichlorodifluoromethane	24.3 U	48.5	14.5	ug/Kg	1		12/03/15 19:08
Ethylbenzene	12.1 U	24.2	7.56	ug/Kg	1		12/03/15 19:08
Freon-113	48.5 U	97.0	30.1	ug/Kg	1		12/03/15 19:08
Hexachlorobutadiene	24.3 U	48.5	14.5	ug/Kg	1		12/03/15 19:08
Isopropylbenzene (Cumene)	21.3 J	24.2	7.56	ug/Kg	1		12/03/15 19:08
Methylene chloride	48.5 U	97.0	30.1	ug/Kg	1		12/03/15 19:08
Methyl-t-butyl ether	48.5 U	97.0	30.1	ug/Kg	1		12/03/15 19:08
Naphthalene	240	48.5	14.5	ug/Kg	1		12/03/15 19:08
n-Butylbenzene	12.1 U	24.2	7.56	ug/Kg	1		12/03/15 19:08
n-Propylbenzene	38.3	24.2	7.56	ug/Kg	1		12/03/15 19:08
o-Xylene	17.9 J	24.2	7.56	ug/Kg	1		12/03/15 19:08
P & M -Xylene	73.7	48.5	14.5	ug/Kg	1		12/03/15 19:08
sec-Butylbenzene	21.1 J	24.2	7.56	ug/Kg	1		12/03/15 19:08
Styrene	12.1 U	24.2	7.56	ug/Kg	1		12/03/15 19:08
tert-Butylbenzene	12.1 U	24.2	7.56	ug/Kg	1		12/03/15 19:08
Tetrachloroethene	13.6	12.1	3.78	ug/Kg	1		12/03/15 19:08
Toluene	12.1 U	24.2	7.56	ug/Kg	1		12/03/15 19:08
trans-1,2-Dichloroethene	15.3 J	24.2	7.56	ug/Kg	1		12/03/15 19:08
trans-1,3-Dichloropropene	12.1 U	24.2	7.56	ug/Kg	1		12/03/15 19:08
Trichloroethene	37.6	12.1	3.78	ug/Kg	1		12/03/15 19:08
Trichlorofluoromethane	24.3 U	48.5	14.5	ug/Kg	1		12/03/15 19:08
Vinyl acetate	48.5 U	97.0	30.1	ug/Kg	1		12/03/15 19:08
Vinyl chloride	4.85 U	9.70	3.01	ug/Kg	1		12/03/15 19:08
Xylenes (total)	91.6	72.7	22.1	ug/Kg	1		12/03/15 19:08
Surrogates							
1,2-Dichloroethane-D4 (surr)	121	71-136		%	1		12/03/15 19:08
4-Bromofluorobenzene (surr)	115	55-151		%	1		12/03/15 19:08
Toluene-d8 (surr)	97.9	85-116		%	1		12/03/15 19:08



Results of **RV-21**

Client Sample ID: **RV-21**
Client Project ID: **NRC RAVN CLEANUP**
Lab Sample ID: 1156886005
Lab Project ID: 1156886

Collection Date: 11/25/15 11:30
Received Date: 11/25/15 14:42
Matrix: Soil/Solid (dry weight)
Solids (%):86.8
Location:

Results by **Volatile GC/MS**

Batch Information

Analytical Batch: VMS15456
Analytical Method: SW8260B
Analyst: KAS
Analytical Date/Time: 12/03/15 19:08
Container ID: 1156886005-B

Prep Batch: VXX28323
Prep Method: SW5035A
Prep Date/Time: 11/25/15 11:30
Prep Initial Wt./Vol.: 86.379 g
Prep Extract Vol: 36.3683 mL



Results of **RV-67**

Client Sample ID: **RV-67**
Client Project ID: **NRC RAVN CLEANUP**
Lab Sample ID: 1156886006
Lab Project ID: 1156886

Collection Date: 11/25/15 11:15
Received Date: 11/25/15 14:42
Matrix: Soil/Solid (dry weight)
Solids (%):91.6
Location:

Results by **Volatile GC/MS**

Parameter	Result Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
1,1,1,2-Tetrachloroethane	9.30 U	18.6	5.80	ug/Kg	1		12/03/15 19:24
1,1,1-Trichloroethane	10.4 J	18.6	5.80	ug/Kg	1		12/03/15 19:24
1,1,2,2-Tetrachloroethane	4.64 U	9.29	2.90	ug/Kg	1		12/03/15 19:24
1,1,2-Trichloroethane	3.71 U	7.43	2.30	ug/Kg	1		12/03/15 19:24
1,1-Dichloroethane	9.30 U	18.6	5.80	ug/Kg	1		12/03/15 19:24
1,1-Dichloroethene	9.30 U	18.6	5.80	ug/Kg	1		12/03/15 19:24
1,1-Dichloropropene	9.30 U	18.6	5.80	ug/Kg	1		12/03/15 19:24
1,2,3-Trichlorobenzene	18.6 U	37.2	11.1	ug/Kg	1		12/03/15 19:24
1,2,3-Trichloropropane	9.30 U	18.6	5.80	ug/Kg	1		12/03/15 19:24
1,2,4-Trichlorobenzene	9.30 U	18.6	5.80	ug/Kg	1		12/03/15 19:24
1,2,4-Trimethylbenzene	201	37.2	11.1	ug/Kg	1		12/03/15 19:24
1,2-Dibromo-3-chloropropane	37.1 U	74.3	23.0	ug/Kg	1		12/03/15 19:24
1,2-Dibromoethane	13.9	7.43	2.30	ug/Kg	1		12/03/15 19:24
1,2-Dichlorobenzene	9.30 U	18.6	5.80	ug/Kg	1		12/03/15 19:24
1,2-Dichloroethane	3.71 U	7.43	2.30	ug/Kg	1		12/03/15 19:24
1,2-Dichloropropane	3.71 U	7.43	2.30	ug/Kg	1		12/03/15 19:24
1,3,5-Trimethylbenzene	45.7	18.6	5.80	ug/Kg	1		12/03/15 19:24
1,3-Dichlorobenzene	9.30 U	18.6	5.80	ug/Kg	1		12/03/15 19:24
1,3-Dichloropropane	3.71 U	7.43	2.30	ug/Kg	1		12/03/15 19:24
1,4-Dichlorobenzene	9.30 U	18.6	5.80	ug/Kg	1		12/03/15 19:24
2,2-Dichloropropane	9.30 U	18.6	5.80	ug/Kg	1		12/03/15 19:24
2-Butanone (MEK)	64.8 J	186	58.0	ug/Kg	1		12/03/15 19:24
2-Chlorotoluene	9.30 U	18.6	5.80	ug/Kg	1		12/03/15 19:24
2-Hexanone	74.9 J	186	58.0	ug/Kg	1		12/03/15 19:24
4-Chlorotoluene	9.30 U	18.6	5.80	ug/Kg	1		12/03/15 19:24
4-Isopropyltoluene	16.7 J	18.6	5.80	ug/Kg	1		12/03/15 19:24
4-Methyl-2-pentanone (MIBK)	93.0 U	186	58.0	ug/Kg	1		12/03/15 19:24
Benzene	4.64 U	9.29	2.90	ug/Kg	1		12/03/15 19:24
Bromobenzene	9.30 U	18.6	5.80	ug/Kg	1		12/03/15 19:24
Bromochloromethane	9.30 U	18.6	5.80	ug/Kg	1		12/03/15 19:24
Bromodichloromethane	9.30 U	18.6	5.80	ug/Kg	1		12/03/15 19:24
Bromoform	9.30 U	18.6	5.80	ug/Kg	1		12/03/15 19:24
Bromomethane	74.5 U	149	46.1	ug/Kg	1		12/03/15 19:24
Carbon disulfide	37.1 U	74.3	23.0	ug/Kg	1		12/03/15 19:24
Carbon tetrachloride	4.64 U	9.29	2.90	ug/Kg	1		12/03/15 19:24
Chlorobenzene	9.30 U	18.6	5.80	ug/Kg	1		12/03/15 19:24
Chloroethane	74.5 U	149	46.1	ug/Kg	1		12/03/15 19:24

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J flagging is activated



Results of **RV-67**

Client Sample ID: **RV-67**
Client Project ID: **NRC RAVN CLEANUP**
Lab Sample ID: 1156886006
Lab Project ID: 1156886

Collection Date: 11/25/15 11:15
Received Date: 11/25/15 14:42
Matrix: Soil/Solid (dry weight)
Solids (%):91.6
Location:

Results by **Volatile GC/MS**

Parameter	Result Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Chloroform	9.30 U	18.6	5.80	ug/Kg	1		12/03/15 19:24
Chloromethane	9.30 U	18.6	5.80	ug/Kg	1		12/03/15 19:24
cis-1,2-Dichloroethene	9.30 U	18.6	5.80	ug/Kg	1		12/03/15 19:24
cis-1,3-Dichloropropene	9.30 U	18.6	5.80	ug/Kg	1		12/03/15 19:24
Dibromochloromethane	9.30 U	18.6	5.80	ug/Kg	1		12/03/15 19:24
Dibromomethane	9.30 U	18.6	5.80	ug/Kg	1		12/03/15 19:24
Dichlorodifluoromethane	18.6 U	37.2	11.1	ug/Kg	1		12/03/15 19:24
Ethylbenzene	9.30 U	18.6	5.80	ug/Kg	1		12/03/15 19:24
Freon-113	37.1 U	74.3	23.0	ug/Kg	1		12/03/15 19:24
Hexachlorobutadiene	18.6 U	37.2	11.1	ug/Kg	1		12/03/15 19:24
Isopropylbenzene (Cumene)	12.6 J	18.6	5.80	ug/Kg	1		12/03/15 19:24
Methylene chloride	37.1 U	74.3	23.0	ug/Kg	1		12/03/15 19:24
Methyl-t-butyl ether	37.1 U	74.3	23.0	ug/Kg	1		12/03/15 19:24
Naphthalene	247	37.2	11.1	ug/Kg	1		12/03/15 19:24
n-Butylbenzene	9.30 U	18.6	5.80	ug/Kg	1		12/03/15 19:24
n-Propylbenzene	27.5	18.6	5.80	ug/Kg	1		12/03/15 19:24
o-Xylene	55.7	18.6	5.80	ug/Kg	1		12/03/15 19:24
P & M -Xylene	81.7	37.2	11.1	ug/Kg	1		12/03/15 19:24
sec-Butylbenzene	20.1	18.6	5.80	ug/Kg	1		12/03/15 19:24
Styrene	9.30 U	18.6	5.80	ug/Kg	1		12/03/15 19:24
tert-Butylbenzene	9.30 U	18.6	5.80	ug/Kg	1		12/03/15 19:24
Tetrachloroethene	148	9.29	2.90	ug/Kg	1		12/03/15 19:24
Toluene	29.0	18.6	5.80	ug/Kg	1		12/03/15 19:24
trans-1,2-Dichloroethene	9.30 U	18.6	5.80	ug/Kg	1		12/03/15 19:24
trans-1,3-Dichloropropene	9.30 U	18.6	5.80	ug/Kg	1		12/03/15 19:24
Trichloroethene	16.9	9.29	2.90	ug/Kg	1		12/03/15 19:24
Trichlorofluoromethane	18.6 U	37.2	11.1	ug/Kg	1		12/03/15 19:24
Vinyl acetate	37.1 U	74.3	23.0	ug/Kg	1		12/03/15 19:24
Vinyl chloride	3.71 U	7.43	2.30	ug/Kg	1		12/03/15 19:24
Xylenes (total)	137	55.7	16.9	ug/Kg	1		12/03/15 19:24
Surrogates							
1,2-Dichloroethane-D4 (surr)	115	71-136		%	1		12/03/15 19:24
4-Bromofluorobenzene (surr)	124	55-151		%	1		12/03/15 19:24
Toluene-d8 (surr)	92.8	85-116		%	1		12/03/15 19:24

Results of RV-67

Client Sample ID: **RV-67**
Client Project ID: **NRC RAVN CLEANUP**
Lab Sample ID: 1156886006
Lab Project ID: 1156886

Collection Date: 11/25/15 11:15
Received Date: 11/25/15 14:42
Matrix: Soil/Solid (dry weight)
Solids (%):91.6
Location:

Results by Volatile GC/MS

Batch Information

Analytical Batch: VMS15456
Analytical Method: SW8260B
Analyst: KAS
Analytical Date/Time: 12/03/15 19:24
Container ID: 1156886006-B

Prep Batch: VXX28323
Prep Method: SW5035A
Prep Date/Time: 11/25/15 11:15
Prep Initial Wt./Vol.: 97.659 g
Prep Extract Vol: 33.2297 mL



Results of RV-70

Client Sample ID: RV-70
Client Project ID: NRC RAVN CLEANUP
Lab Sample ID: 1156886007
Lab Project ID: 1156886

Collection Date: 11/25/15 11:20
Received Date: 11/25/15 14:42
Matrix: Soil/Solid (dry weight)
Solids (%):77.1
Location:

Results by Volatile GC/MS

Table with 8 columns: Parameter, Result Qual, LOQ/CL, DL, Units, DF, Allowable Limits, Date Analyzed. Lists various chemical compounds and their detection results.

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Results of **RV-70**

Client Sample ID: **RV-70**
Client Project ID: **NRC RAVN CLEANUP**
Lab Sample ID: 1156886007
Lab Project ID: 1156886

Collection Date: 11/25/15 11:20
Received Date: 11/25/15 14:42
Matrix: Soil/Solid (dry weight)
Solids (%):77.1
Location:

Results by **Volatile GC/MS**

Parameter	Result Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Chloroform	15.3 U	30.6	9.55	ug/Kg	1		12/04/15 14:08
Chloromethane	15.3 U	30.6	9.55	ug/Kg	1		12/04/15 14:08
cis-1,2-Dichloroethene	15.3 U	30.6	9.55	ug/Kg	1		12/04/15 14:08
cis-1,3-Dichloropropene	15.3 U	30.6	9.55	ug/Kg	1		12/04/15 14:08
Dibromochloromethane	15.3 U	30.6	9.55	ug/Kg	1		12/04/15 14:08
Dibromomethane	15.3 U	30.6	9.55	ug/Kg	1		12/04/15 14:08
Dichlorodifluoromethane	30.6 U	61.2	18.4	ug/Kg	1		12/04/15 14:08
Ethylbenzene	15.3 U	30.6	9.55	ug/Kg	1		12/04/15 14:08
Freon-113	61.0 U	122	37.9	ug/Kg	1		12/04/15 14:08
Hexachlorobutadiene	30.6 U	61.2	18.4	ug/Kg	1		12/04/15 14:08
Isopropylbenzene (Cumene)	21.1 J	30.6	9.55	ug/Kg	1		12/04/15 14:08
Methylene chloride	61.0 U	122	37.9	ug/Kg	1		12/04/15 14:08
Methyl-t-butyl ether	61.0 U	122	37.9	ug/Kg	1		12/04/15 14:08
Naphthalene	266	61.2	18.4	ug/Kg	1		12/04/15 14:08
n-Butylbenzene	15.3 U	30.6	9.55	ug/Kg	1		12/04/15 14:08
n-Propylbenzene	42.5	30.6	9.55	ug/Kg	1		12/04/15 14:08
o-Xylene	51.1	30.6	9.55	ug/Kg	1		12/04/15 14:08
P & M -Xylene	63.3	61.2	18.4	ug/Kg	1		12/04/15 14:08
sec-Butylbenzene	30.6	30.6	9.55	ug/Kg	1		12/04/15 14:08
Styrene	15.3 U	30.6	9.55	ug/Kg	1		12/04/15 14:08
tert-Butylbenzene	15.3 U	30.6	9.55	ug/Kg	1		12/04/15 14:08
Tetrachloroethene	65.2	15.3	4.77	ug/Kg	1		12/04/15 14:08
Toluene	26.3 J	30.6	9.55	ug/Kg	1		12/04/15 14:08
trans-1,2-Dichloroethene	15.3 U	30.6	9.55	ug/Kg	1		12/04/15 14:08
trans-1,3-Dichloropropene	15.3 U	30.6	9.55	ug/Kg	1		12/04/15 14:08
Trichloroethene	11.6 J	15.3	4.77	ug/Kg	1		12/04/15 14:08
Trichlorofluoromethane	30.6 U	61.2	18.4	ug/Kg	1		12/04/15 14:08
Vinyl acetate	61.0 U	122	37.9	ug/Kg	1		12/04/15 14:08
Vinyl chloride	6.10 U	12.2	3.79	ug/Kg	1		12/04/15 14:08
Xylenes (total)	114	91.8	27.9	ug/Kg	1		12/04/15 14:08
Surrogates							
1,2-Dichloroethane-D4 (surr)	106	71-136		%	1		12/04/15 14:08
4-Bromofluorobenzene (surr)	108	55-151		%	1		12/04/15 14:08
Toluene-d8 (surr)	101	85-116		%	1		12/04/15 14:08



Results of **RV-70**

Client Sample ID: **RV-70**
Client Project ID: **NRC RAVN CLEANUP**
Lab Sample ID: 1156886007
Lab Project ID: 1156886

Collection Date: 11/25/15 11:20
Received Date: 11/25/15 14:42
Matrix: Soil/Solid (dry weight)
Solids (%):77.1
Location:

Results by **Volatile GC/MS**

Batch Information

Analytical Batch: VMS15465
Analytical Method: SW8260B
Analyst: KAS
Analytical Date/Time: 12/04/15 14:08
Container ID: 1156886007-B

Prep Batch: VXX28334
Prep Method: SW5035A
Prep Date/Time: 11/25/15 11:20
Prep Initial Wt./Vol.: 103.107 g
Prep Extract Vol: 48.6324 mL



Results of **RV-89**

Client Sample ID: **RV-89**
Client Project ID: **NRC RAVN CLEANUP**
Lab Sample ID: 1156886008
Lab Project ID: 1156886

Collection Date: 11/25/15 12:30
Received Date: 11/25/15 14:42
Matrix: Soil/Solid (dry weight)
Solids (%):85.2
Location:

Results by **Volatile GC/MS**

Parameter	Result Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
1,1,1,2-Tetrachloroethane	12.4 U	24.7	7.72	ug/Kg	1		12/03/15 19:56
1,1,1-Trichloroethane	12.4 U	24.7	7.72	ug/Kg	1		12/03/15 19:56
1,1,2,2-Tetrachloroethane	6.20 U	12.4	3.86	ug/Kg	1		12/03/15 19:56
1,1,2-Trichloroethane	4.95 U	9.89	3.07	ug/Kg	1		12/03/15 19:56
1,1-Dichloroethane	12.4 U	24.7	7.72	ug/Kg	1		12/03/15 19:56
1,1-Dichloroethene	12.4 U	24.7	7.72	ug/Kg	1		12/03/15 19:56
1,1-Dichloropropene	12.4 U	24.7	7.72	ug/Kg	1		12/03/15 19:56
1,2,3-Trichlorobenzene	24.8 U	49.5	14.8	ug/Kg	1		12/03/15 19:56
1,2,3-Trichloropropane	12.4 U	24.7	7.72	ug/Kg	1		12/03/15 19:56
1,2,4-Trichlorobenzene	12.4 U	24.7	7.72	ug/Kg	1		12/03/15 19:56
1,2,4-Trimethylbenzene	281	49.5	14.8	ug/Kg	1		12/03/15 19:56
1,2-Dibromo-3-chloropropane	49.5 U	98.9	30.7	ug/Kg	1		12/03/15 19:56
1,2-Dibromoethane	4.95 U	9.89	3.07	ug/Kg	1		12/03/15 19:56
1,2-Dichlorobenzene	12.4 U	24.7	7.72	ug/Kg	1		12/03/15 19:56
1,2-Dichloroethane	4.95 U	9.89	3.07	ug/Kg	1		12/03/15 19:56
1,2-Dichloropropane	4.95 U	9.89	3.07	ug/Kg	1		12/03/15 19:56
1,3,5-Trimethylbenzene	121	24.7	7.72	ug/Kg	1		12/03/15 19:56
1,3-Dichlorobenzene	12.4 U	24.7	7.72	ug/Kg	1		12/03/15 19:56
1,3-Dichloropropane	4.95 U	9.89	3.07	ug/Kg	1		12/03/15 19:56
1,4-Dichlorobenzene	12.4 U	24.7	7.72	ug/Kg	1		12/03/15 19:56
2,2-Dichloropropane	12.4 U	24.7	7.72	ug/Kg	1		12/03/15 19:56
2-Butanone (MEK)	124 U	247	77.2	ug/Kg	1		12/03/15 19:56
2-Chlorotoluene	12.4 U	24.7	7.72	ug/Kg	1		12/03/15 19:56
2-Hexanone	124 U	247	77.2	ug/Kg	1		12/03/15 19:56
4-Chlorotoluene	12.4 U	24.7	7.72	ug/Kg	1		12/03/15 19:56
4-Isopropyltoluene	15.6 J	24.7	7.72	ug/Kg	1		12/03/15 19:56
4-Methyl-2-pentanone (MIBK)	124 U	247	77.2	ug/Kg	1		12/03/15 19:56
Benzene	6.20 U	12.4	3.86	ug/Kg	1		12/03/15 19:56
Bromobenzene	12.4 U	24.7	7.72	ug/Kg	1		12/03/15 19:56
Bromochloromethane	12.4 U	24.7	7.72	ug/Kg	1		12/03/15 19:56
Bromodichloromethane	12.4 U	24.7	7.72	ug/Kg	1		12/03/15 19:56
Bromoform	12.4 U	24.7	7.72	ug/Kg	1		12/03/15 19:56
Bromomethane	99.0 U	198	61.3	ug/Kg	1		12/03/15 19:56
Carbon disulfide	49.5 U	98.9	30.7	ug/Kg	1		12/03/15 19:56
Carbon tetrachloride	6.20 U	12.4	3.86	ug/Kg	1		12/03/15 19:56
Chlorobenzene	12.4 U	24.7	7.72	ug/Kg	1		12/03/15 19:56
Chloroethane	99.0 U	198	61.3	ug/Kg	1		12/03/15 19:56

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J flagging is activated



Results of **RV-89**

Client Sample ID: **RV-89**
Client Project ID: **NRC RAVN CLEANUP**
Lab Sample ID: 1156886008
Lab Project ID: 1156886

Collection Date: 11/25/15 12:30
Received Date: 11/25/15 14:42
Matrix: Soil/Solid (dry weight)
Solids (%):85.2
Location:

Results by **Volatile GC/MS**

<u>Parameter</u>	<u>Result Qual</u>	<u>LOQ/CL</u>	<u>DL</u>	<u>Units</u>	<u>DF</u>	<u>Allowable Limits</u>	<u>Date Analyzed</u>
Chloroform	12.4 U	24.7	7.72	ug/Kg	1		12/03/15 19:56
Chloromethane	12.4 U	24.7	7.72	ug/Kg	1		12/03/15 19:56
cis-1,2-Dichloroethene	46.2	24.7	7.72	ug/Kg	1		12/03/15 19:56
cis-1,3-Dichloropropene	12.4 U	24.7	7.72	ug/Kg	1		12/03/15 19:56
Dibromochloromethane	12.4 U	24.7	7.72	ug/Kg	1		12/03/15 19:56
Dibromomethane	12.4 U	24.7	7.72	ug/Kg	1		12/03/15 19:56
Dichlorodifluoromethane	24.8 U	49.5	14.8	ug/Kg	1		12/03/15 19:56
Ethylbenzene	12.4 U	24.7	7.72	ug/Kg	1		12/03/15 19:56
Freon-113	49.5 U	98.9	30.7	ug/Kg	1		12/03/15 19:56
Hexachlorobutadiene	24.8 U	49.5	14.8	ug/Kg	1		12/03/15 19:56
Isopropylbenzene (Cumene)	28.2	24.7	7.72	ug/Kg	1		12/03/15 19:56
Methylene chloride	49.5 U	98.9	30.7	ug/Kg	1		12/03/15 19:56
Methyl-t-butyl ether	49.5 U	98.9	30.7	ug/Kg	1		12/03/15 19:56
Naphthalene	120	49.5	14.8	ug/Kg	1		12/03/15 19:56
n-Butylbenzene	12.4 U	24.7	7.72	ug/Kg	1		12/03/15 19:56
n-Propylbenzene	43.3	24.7	7.72	ug/Kg	1		12/03/15 19:56
o-Xylene	69.0	24.7	7.72	ug/Kg	1		12/03/15 19:56
P & M -Xylene	154	49.5	14.8	ug/Kg	1		12/03/15 19:56
sec-Butylbenzene	22.0 J	24.7	7.72	ug/Kg	1		12/03/15 19:56
Styrene	12.4 U	24.7	7.72	ug/Kg	1		12/03/15 19:56
tert-Butylbenzene	12.4 U	24.7	7.72	ug/Kg	1		12/03/15 19:56
Tetrachloroethene	6.20 U	12.4	3.86	ug/Kg	1		12/03/15 19:56
Toluene	14.6 J	24.7	7.72	ug/Kg	1		12/03/15 19:56
trans-1,2-Dichloroethene	12.4 U	24.7	7.72	ug/Kg	1		12/03/15 19:56
trans-1,3-Dichloropropene	12.4 U	24.7	7.72	ug/Kg	1		12/03/15 19:56
Trichloroethene	11.9 J	12.4	3.86	ug/Kg	1		12/03/15 19:56
Trichlorofluoromethane	24.8 U	49.5	14.8	ug/Kg	1		12/03/15 19:56
Vinyl acetate	49.5 U	98.9	30.7	ug/Kg	1		12/03/15 19:56
Vinyl chloride	4.95 U	9.89	3.07	ug/Kg	1		12/03/15 19:56
Xylenes (total)	223	74.2	22.6	ug/Kg	1		12/03/15 19:56
Surrogates							
1,2-Dichloroethane-D4 (surr)	112	71-136		%	1		12/03/15 19:56
4-Bromofluorobenzene (surr)	110	55-151		%	1		12/03/15 19:56
Toluene-d8 (surr)	94.4	85-116		%	1		12/03/15 19:56

Results of RV-89

Client Sample ID: **RV-89**
Client Project ID: **NRC RAVN CLEANUP**
Lab Sample ID: 1156886008
Lab Project ID: 1156886

Collection Date: 11/25/15 12:30
Received Date: 11/25/15 14:42
Matrix: Soil/Solid (dry weight)
Solids (%):85.2
Location:

Results by Volatile GC/MS

Batch Information

Analytical Batch: VMS15456
Analytical Method: SW8260B
Analyst: KAS
Analytical Date/Time: 12/03/15 19:56
Container ID: 1156886008-B

Prep Batch: VXX28323
Prep Method: SW5035A
Prep Date/Time: 11/25/15 12:30
Prep Initial Wt./Vol.: 91.611 g
Prep Extract Vol: 38.5886 mL



Results of **RV-93**

Client Sample ID: **RV-93**
Client Project ID: **NRC RAVN CLEANUP**
Lab Sample ID: 1156886009
Lab Project ID: 1156886

Collection Date: 11/25/15 12:10
Received Date: 11/25/15 14:42
Matrix: Soil/Solid (dry weight)
Solids (%):83.4
Location:

Results by **Volatile GC/MS**

<u>Parameter</u>	<u>Result Qual</u>	<u>LOQ/CL</u>	<u>DL</u>	<u>Units</u>	<u>DF</u>	<u>Allowable Limits</u>	<u>Date Analyzed</u>
1,1,1,2-Tetrachloroethane	9.65 U	19.3	6.01	ug/Kg	1		12/03/15 20:12
1,1,1-Trichloroethane	9.65 U	19.3	6.01	ug/Kg	1		12/03/15 20:12
1,1,2,2-Tetrachloroethane	4.82 U	9.63	3.00	ug/Kg	1		12/03/15 20:12
1,1,2-Trichloroethane	3.85 U	7.70	2.39	ug/Kg	1		12/03/15 20:12
1,1-Dichloroethane	9.65 U	19.3	6.01	ug/Kg	1		12/03/15 20:12
1,1-Dichloroethene	9.65 U	19.3	6.01	ug/Kg	1		12/03/15 20:12
1,1-Dichloropropene	9.65 U	19.3	6.01	ug/Kg	1		12/03/15 20:12
1,2,3-Trichlorobenzene	19.3 U	38.5	11.6	ug/Kg	1		12/03/15 20:12
1,2,3-Trichloropropane	9.65 U	19.3	6.01	ug/Kg	1		12/03/15 20:12
1,2,4-Trichlorobenzene	9.65 U	19.3	6.01	ug/Kg	1		12/03/15 20:12
1,2,4-Trimethylbenzene	19.3 U	38.5	11.6	ug/Kg	1		12/03/15 20:12
1,2-Dibromo-3-chloropropane	38.5 U	77.0	23.9	ug/Kg	1		12/03/15 20:12
1,2-Dibromoethane	3.85 U	7.70	2.39	ug/Kg	1		12/03/15 20:12
1,2-Dichlorobenzene	9.65 U	19.3	6.01	ug/Kg	1		12/03/15 20:12
1,2-Dichloroethane	3.85 U	7.70	2.39	ug/Kg	1		12/03/15 20:12
1,2-Dichloropropane	3.85 U	7.70	2.39	ug/Kg	1		12/03/15 20:12
1,3,5-Trimethylbenzene	9.65 U	19.3	6.01	ug/Kg	1		12/03/15 20:12
1,3-Dichlorobenzene	9.65 U	19.3	6.01	ug/Kg	1		12/03/15 20:12
1,3-Dichloropropane	3.85 U	7.70	2.39	ug/Kg	1		12/03/15 20:12
1,4-Dichlorobenzene	9.65 U	19.3	6.01	ug/Kg	1		12/03/15 20:12
2,2-Dichloropropane	9.65 U	19.3	6.01	ug/Kg	1		12/03/15 20:12
2-Butanone (MEK)	96.5 U	193	60.1	ug/Kg	1		12/03/15 20:12
2-Chlorotoluene	9.65 U	19.3	6.01	ug/Kg	1		12/03/15 20:12
2-Hexanone	96.5 U	193	60.1	ug/Kg	1		12/03/15 20:12
4-Chlorotoluene	9.65 U	19.3	6.01	ug/Kg	1		12/03/15 20:12
4-Isopropyltoluene	9.65 U	19.3	6.01	ug/Kg	1		12/03/15 20:12
4-Methyl-2-pentanone (MIBK)	96.5 U	193	60.1	ug/Kg	1		12/03/15 20:12
Benzene	4.82 U	9.63	3.00	ug/Kg	1		12/03/15 20:12
Bromobenzene	9.65 U	19.3	6.01	ug/Kg	1		12/03/15 20:12
Bromochloromethane	9.65 U	19.3	6.01	ug/Kg	1		12/03/15 20:12
Bromodichloromethane	9.65 U	19.3	6.01	ug/Kg	1		12/03/15 20:12
Bromoform	9.65 U	19.3	6.01	ug/Kg	1		12/03/15 20:12
Bromomethane	77.0 U	154	47.7	ug/Kg	1		12/03/15 20:12
Carbon disulfide	38.5 U	77.0	23.9	ug/Kg	1		12/03/15 20:12
Carbon tetrachloride	4.82 U	9.63	3.00	ug/Kg	1		12/03/15 20:12
Chlorobenzene	9.65 U	19.3	6.01	ug/Kg	1		12/03/15 20:12
Chloroethane	77.0 U	154	47.7	ug/Kg	1		12/03/15 20:12

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J flagging is activated



Results of **RV-93**

Client Sample ID: **RV-93**
Client Project ID: **NRC RAVN CLEANUP**
Lab Sample ID: 1156886009
Lab Project ID: 1156886

Collection Date: 11/25/15 12:10
Received Date: 11/25/15 14:42
Matrix: Soil/Solid (dry weight)
Solids (%):83.4
Location:

Results by **Volatile GC/MS**

<u>Parameter</u>	<u>Result Qual</u>	<u>LOQ/CL</u>	<u>DL</u>	<u>Units</u>	<u>DF</u>	<u>Allowable Limits</u>	<u>Date Analyzed</u>
Chloroform	9.65 U	19.3	6.01	ug/Kg	1		12/03/15 20:12
Chloromethane	9.65 U	19.3	6.01	ug/Kg	1		12/03/15 20:12
cis-1,2-Dichloroethene	9.65 U	19.3	6.01	ug/Kg	1		12/03/15 20:12
cis-1,3-Dichloropropene	9.65 U	19.3	6.01	ug/Kg	1		12/03/15 20:12
Dibromochloromethane	9.65 U	19.3	6.01	ug/Kg	1		12/03/15 20:12
Dibromomethane	9.65 U	19.3	6.01	ug/Kg	1		12/03/15 20:12
Dichlorodifluoromethane	19.3 U	38.5	11.6	ug/Kg	1		12/03/15 20:12
Ethylbenzene	9.65 U	19.3	6.01	ug/Kg	1		12/03/15 20:12
Freon-113	38.5 U	77.0	23.9	ug/Kg	1		12/03/15 20:12
Hexachlorobutadiene	19.3 U	38.5	11.6	ug/Kg	1		12/03/15 20:12
Isopropylbenzene (Cumene)	9.65 U	19.3	6.01	ug/Kg	1		12/03/15 20:12
Methylene chloride	38.5 U	77.0	23.9	ug/Kg	1		12/03/15 20:12
Methyl-t-butyl ether	38.5 U	77.0	23.9	ug/Kg	1		12/03/15 20:12
Naphthalene	19.3 U	38.5	11.6	ug/Kg	1		12/03/15 20:12
n-Butylbenzene	9.65 U	19.3	6.01	ug/Kg	1		12/03/15 20:12
n-Propylbenzene	9.65 U	19.3	6.01	ug/Kg	1		12/03/15 20:12
o-Xylene	9.65 U	19.3	6.01	ug/Kg	1		12/03/15 20:12
P & M -Xylene	19.3 U	38.5	11.6	ug/Kg	1		12/03/15 20:12
sec-Butylbenzene	9.65 U	19.3	6.01	ug/Kg	1		12/03/15 20:12
Styrene	9.65 U	19.3	6.01	ug/Kg	1		12/03/15 20:12
tert-Butylbenzene	9.65 U	19.3	6.01	ug/Kg	1		12/03/15 20:12
Tetrachloroethene	20.8	9.63	3.00	ug/Kg	1		12/03/15 20:12
Toluene	11.6 J	19.3	6.01	ug/Kg	1		12/03/15 20:12
trans-1,2-Dichloroethene	9.65 U	19.3	6.01	ug/Kg	1		12/03/15 20:12
trans-1,3-Dichloropropene	9.65 U	19.3	6.01	ug/Kg	1		12/03/15 20:12
Trichloroethene	20.8	9.63	3.00	ug/Kg	1		12/03/15 20:12
Trichlorofluoromethane	19.3 U	38.5	11.6	ug/Kg	1		12/03/15 20:12
Vinyl acetate	38.5 U	77.0	23.9	ug/Kg	1		12/03/15 20:12
Vinyl chloride	3.85 U	7.70	2.39	ug/Kg	1		12/03/15 20:12
Xylenes (total)	28.9 U	57.8	17.6	ug/Kg	1		12/03/15 20:12
Surrogates							
1,2-Dichloroethane-D4 (surr)	114	71-136		%	1		12/03/15 20:12
4-Bromofluorobenzene (surr)	123	55-151		%	1		12/03/15 20:12
Toluene-d8 (surr)	93.8	85-116		%	1		12/03/15 20:12



Results of **RV-93**

Client Sample ID: **RV-93**
Client Project ID: **NRC RAVN CLEANUP**
Lab Sample ID: 1156886009
Lab Project ID: 1156886

Collection Date: 11/25/15 12:10
Received Date: 11/25/15 14:42
Matrix: Soil/Solid (dry weight)
Solids (%):83.4
Location:

Results by **Volatile GC/MS**

Batch Information

Analytical Batch: VMS15456
Analytical Method: SW8260B
Analyst: KAS
Analytical Date/Time: 12/03/15 20:12
Container ID: 1156886009-B

Prep Batch: VXX28323
Prep Method: SW5035A
Prep Date/Time: 11/25/15 12:10
Prep Initial Wt./Vol.: 160.599 g
Prep Extract Vol: 51.595 mL



Results of **RV-96**

Client Sample ID: **RV-96**
Client Project ID: **NRC RAVN CLEANUP**
Lab Sample ID: 1156886010
Lab Project ID: 1156886

Collection Date: 11/25/15 12:40
Received Date: 11/25/15 14:42
Matrix: Soil/Solid (dry weight)
Solids (%):80.4
Location:

Results by **Volatile GC/MS**

Parameter	Result Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
1,1,1,2-Tetrachloroethane	15.7 U	31.4	9.79	ug/Kg	1		12/04/15 14:40
1,1,1-Trichloroethane	15.7 U	31.4	9.79	ug/Kg	1		12/04/15 14:40
1,1,2,2-Tetrachloroethane	7.85 U	15.7	4.89	ug/Kg	1		12/04/15 14:40
1,1,2-Trichloroethane	6.30 U	12.6	3.89	ug/Kg	1		12/04/15 14:40
1,1-Dichloroethane	15.7 U	31.4	9.79	ug/Kg	1		12/04/15 14:40
1,1-Dichloroethene	15.7 U	31.4	9.79	ug/Kg	1		12/04/15 14:40
1,1-Dichloropropene	15.7 U	31.4	9.79	ug/Kg	1		12/04/15 14:40
1,2,3-Trichlorobenzene	31.4 U	62.8	18.8	ug/Kg	1		12/04/15 14:40
1,2,3-Trichloropropane	15.7 U	31.4	9.79	ug/Kg	1		12/04/15 14:40
1,2,4-Trichlorobenzene	15.7 U	31.4	9.79	ug/Kg	1		12/04/15 14:40
1,2,4-Trimethylbenzene	31.4 U	62.8	18.8	ug/Kg	1		12/04/15 14:40
1,2-Dibromo-3-chloropropane	63.0 U	126	38.9	ug/Kg	1		12/04/15 14:40
1,2-Dibromoethane	6.30 U	12.6	3.89	ug/Kg	1		12/04/15 14:40
1,2-Dichlorobenzene	15.7 U	31.4	9.79	ug/Kg	1		12/04/15 14:40
1,2-Dichloroethane	6.30 U	12.6	3.89	ug/Kg	1		12/04/15 14:40
1,2-Dichloropropane	6.30 U	12.6	3.89	ug/Kg	1		12/04/15 14:40
1,3,5-Trimethylbenzene	15.7 U	31.4	9.79	ug/Kg	1		12/04/15 14:40
1,3-Dichlorobenzene	15.7 U	31.4	9.79	ug/Kg	1		12/04/15 14:40
1,3-Dichloropropane	6.30 U	12.6	3.89	ug/Kg	1		12/04/15 14:40
1,4-Dichlorobenzene	15.7 U	31.4	9.79	ug/Kg	1		12/04/15 14:40
2,2-Dichloropropane	15.7 U	31.4	9.79	ug/Kg	1		12/04/15 14:40
2-Butanone (MEK)	157 U	314	97.9	ug/Kg	1		12/04/15 14:40
2-Chlorotoluene	15.7 U	31.4	9.79	ug/Kg	1		12/04/15 14:40
2-Hexanone	157 U	314	97.9	ug/Kg	1		12/04/15 14:40
4-Chlorotoluene	15.7 U	31.4	9.79	ug/Kg	1		12/04/15 14:40
4-Isopropyltoluene	15.7 U	31.4	9.79	ug/Kg	1		12/04/15 14:40
4-Methyl-2-pentanone (MIBK)	157 U	314	97.9	ug/Kg	1		12/04/15 14:40
Benzene	7.85 U	15.7	4.89	ug/Kg	1		12/04/15 14:40
Bromobenzene	15.7 U	31.4	9.79	ug/Kg	1		12/04/15 14:40
Bromochloromethane	15.7 U	31.4	9.79	ug/Kg	1		12/04/15 14:40
Bromodichloromethane	15.7 U	31.4	9.79	ug/Kg	1		12/04/15 14:40
Bromoform	15.7 U	31.4	9.79	ug/Kg	1		12/04/15 14:40
Bromomethane	126 U	251	77.8	ug/Kg	1		12/04/15 14:40
Carbon disulfide	63.0 U	126	38.9	ug/Kg	1		12/04/15 14:40
Carbon tetrachloride	7.85 U	15.7	4.89	ug/Kg	1		12/04/15 14:40
Chlorobenzene	15.7 U	31.4	9.79	ug/Kg	1		12/04/15 14:40
Chloroethane	126 U	251	77.8	ug/Kg	1		12/04/15 14:40

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J flagging is activated



Results of **RV-96**

Client Sample ID: **RV-96**
Client Project ID: **NRC RAVN CLEANUP**
Lab Sample ID: 1156886010
Lab Project ID: 1156886

Collection Date: 11/25/15 12:40
Received Date: 11/25/15 14:42
Matrix: Soil/Solid (dry weight)
Solids (%):80.4
Location:

Results by **Volatile GC/MS**

<u>Parameter</u>	<u>Result Qual</u>	<u>LOQ/CL</u>	<u>DL</u>	<u>Units</u>	<u>DF</u>	<u>Allowable Limits</u>	<u>Date Analyzed</u>
Chloroform	15.7 U	31.4	9.79	ug/Kg	1		12/04/15 14:40
Chloromethane	15.7 U	31.4	9.79	ug/Kg	1		12/04/15 14:40
cis-1,2-Dichloroethene	15.7 U	31.4	9.79	ug/Kg	1		12/04/15 14:40
cis-1,3-Dichloropropene	15.7 U	31.4	9.79	ug/Kg	1		12/04/15 14:40
Dibromochloromethane	15.7 U	31.4	9.79	ug/Kg	1		12/04/15 14:40
Dibromomethane	15.7 U	31.4	9.79	ug/Kg	1		12/04/15 14:40
Dichlorodifluoromethane	31.4 U	62.8	18.8	ug/Kg	1		12/04/15 14:40
Ethylbenzene	15.7 U	31.4	9.79	ug/Kg	1		12/04/15 14:40
Freon-113	63.0 U	126	38.9	ug/Kg	1		12/04/15 14:40
Hexachlorobutadiene	31.4 U	62.8	18.8	ug/Kg	1		12/04/15 14:40
Isopropylbenzene (Cumene)	15.7 U	31.4	9.79	ug/Kg	1		12/04/15 14:40
Methylene chloride	63.0 U	126	38.9	ug/Kg	1		12/04/15 14:40
Methyl-t-butyl ether	63.0 U	126	38.9	ug/Kg	1		12/04/15 14:40
Naphthalene	31.4 U	62.8	18.8	ug/Kg	1		12/04/15 14:40
n-Butylbenzene	15.7 U	31.4	9.79	ug/Kg	1		12/04/15 14:40
n-Propylbenzene	15.7 U	31.4	9.79	ug/Kg	1		12/04/15 14:40
o-Xylene	15.7 U	31.4	9.79	ug/Kg	1		12/04/15 14:40
P & M -Xylene	31.4 U	62.8	18.8	ug/Kg	1		12/04/15 14:40
sec-Butylbenzene	15.7 U	31.4	9.79	ug/Kg	1		12/04/15 14:40
Styrene	15.7 U	31.4	9.79	ug/Kg	1		12/04/15 14:40
tert-Butylbenzene	15.7 U	31.4	9.79	ug/Kg	1		12/04/15 14:40
Tetrachloroethene	19.1	15.7	4.89	ug/Kg	1		12/04/15 14:40
Toluene	15.7 U	31.4	9.79	ug/Kg	1		12/04/15 14:40
trans-1,2-Dichloroethene	15.7 U	31.4	9.79	ug/Kg	1		12/04/15 14:40
trans-1,3-Dichloropropene	15.7 U	31.4	9.79	ug/Kg	1		12/04/15 14:40
Trichloroethene	10.4 J	15.7	4.89	ug/Kg	1		12/04/15 14:40
Trichlorofluoromethane	31.4 U	62.8	18.8	ug/Kg	1		12/04/15 14:40
Vinyl acetate	63.0 U	126	38.9	ug/Kg	1		12/04/15 14:40
Vinyl chloride	6.30 U	12.6	3.89	ug/Kg	1		12/04/15 14:40
Xylenes (total)	47.0 U	94.1	28.6	ug/Kg	1		12/04/15 14:40
Surrogates							
1,2-Dichloroethane-D4 (surr)	117	71-136		%	1		12/04/15 14:40
4-Bromofluorobenzene (surr)	123	55-151		%	1		12/04/15 14:40
Toluene-d8 (surr)	103	85-116		%	1		12/04/15 14:40

Results of RV-96

Client Sample ID: **RV-96**
Client Project ID: **NRC RAVN CLEANUP**
Lab Sample ID: 1156886010
Lab Project ID: 1156886

Collection Date: 11/25/15 12:40
Received Date: 11/25/15 14:42
Matrix: Soil/Solid (dry weight)
Solids (%):80.4
Location:

Results by Volatile GC/MS

Batch Information

Analytical Batch: VMS15465
Analytical Method: SW8260B
Analyst: KAS
Analytical Date/Time: 12/04/15 14:40
Container ID: 1156886010-B

Prep Batch: VXX28334
Prep Method: SW5035A
Prep Date/Time: 11/25/15 12:40
Prep Initial Wt./Vol.: 81.204 g
Prep Extract Vol: 40.9496 mL



Results of **RV-108**

Client Sample ID: **RV-108**
Client Project ID: **NRC RAVN CLEANUP**
Lab Sample ID: 1156886011
Lab Project ID: 1156886

Collection Date: 11/25/15 13:00
Received Date: 11/25/15 14:42
Matrix: Soil/Solid (dry weight)
Solids (%):88.9
Location:

Results by **Volatile GC/MS**

<u>Parameter</u>	<u>Result Qual</u>	<u>LOQ/CL</u>	<u>DL</u>	<u>Units</u>	<u>DF</u>	<u>Allowable Limits</u>	<u>Date Analyzed</u>
1,1,1,2-Tetrachloroethane	7.25 U	14.5	4.52	ug/Kg	1		12/04/15 14:56
1,1,1-Trichloroethane	7.25 U	14.5	4.52	ug/Kg	1		12/04/15 14:56
1,1,2,2-Tetrachloroethane	3.62 U	7.24	2.26	ug/Kg	1		12/04/15 14:56
1,1,2-Trichloroethane	2.90 U	5.79	1.80	ug/Kg	1		12/04/15 14:56
1,1-Dichloroethane	7.25 U	14.5	4.52	ug/Kg	1		12/04/15 14:56
1,1-Dichloroethene	7.25 U	14.5	4.52	ug/Kg	1		12/04/15 14:56
1,1-Dichloropropene	7.25 U	14.5	4.52	ug/Kg	1		12/04/15 14:56
1,2,3-Trichlorobenzene	14.5 U	29.0	8.69	ug/Kg	1		12/04/15 14:56
1,2,3-Trichloropropane	7.25 U	14.5	4.52	ug/Kg	1		12/04/15 14:56
1,2,4-Trichlorobenzene	7.25 U	14.5	4.52	ug/Kg	1		12/04/15 14:56
1,2,4-Trimethylbenzene	14.5 U	29.0	8.69	ug/Kg	1		12/04/15 14:56
1,2-Dibromo-3-chloropropane	28.9 U	57.9	18.0	ug/Kg	1		12/04/15 14:56
1,2-Dibromoethane	2.90 U	5.79	1.80	ug/Kg	1		12/04/15 14:56
1,2-Dichlorobenzene	7.25 U	14.5	4.52	ug/Kg	1		12/04/15 14:56
1,2-Dichloroethane	2.90 U	5.79	1.80	ug/Kg	1		12/04/15 14:56
1,2-Dichloropropane	2.90 U	5.79	1.80	ug/Kg	1		12/04/15 14:56
1,3,5-Trimethylbenzene	7.25 U	14.5	4.52	ug/Kg	1		12/04/15 14:56
1,3-Dichlorobenzene	7.25 U	14.5	4.52	ug/Kg	1		12/04/15 14:56
1,3-Dichloropropane	2.90 U	5.79	1.80	ug/Kg	1		12/04/15 14:56
1,4-Dichlorobenzene	7.25 U	14.5	4.52	ug/Kg	1		12/04/15 14:56
2,2-Dichloropropane	7.25 U	14.5	4.52	ug/Kg	1		12/04/15 14:56
2-Butanone (MEK)	72.5 U	145	45.2	ug/Kg	1		12/04/15 14:56
2-Chlorotoluene	7.25 U	14.5	4.52	ug/Kg	1		12/04/15 14:56
2-Hexanone	72.5 U	145	45.2	ug/Kg	1		12/04/15 14:56
4-Chlorotoluene	7.25 U	14.5	4.52	ug/Kg	1		12/04/15 14:56
4-Isopropyltoluene	7.25 U	14.5	4.52	ug/Kg	1		12/04/15 14:56
4-Methyl-2-pentanone (MIBK)	72.5 U	145	45.2	ug/Kg	1		12/04/15 14:56
Benzene	3.62 U	7.24	2.26	ug/Kg	1		12/04/15 14:56
Bromobenzene	7.25 U	14.5	4.52	ug/Kg	1		12/04/15 14:56
Bromochloromethane	7.25 U	14.5	4.52	ug/Kg	1		12/04/15 14:56
Bromodichloromethane	7.25 U	14.5	4.52	ug/Kg	1		12/04/15 14:56
Bromoform	7.25 U	14.5	4.52	ug/Kg	1		12/04/15 14:56
Bromomethane	58.0 U	116	35.9	ug/Kg	1		12/04/15 14:56
Carbon disulfide	28.9 U	57.9	18.0	ug/Kg	1		12/04/15 14:56
Carbon tetrachloride	3.62 U	7.24	2.26	ug/Kg	1		12/04/15 14:56
Chlorobenzene	7.25 U	14.5	4.52	ug/Kg	1		12/04/15 14:56
Chloroethane	58.0 U	116	35.9	ug/Kg	1		12/04/15 14:56

Print Date: 12/16/2015 9:26:30AM

J flagging is activated



Results of **RV-108**

Client Sample ID: **RV-108**
Client Project ID: **NRC RAVN CLEANUP**
Lab Sample ID: 1156886011
Lab Project ID: 1156886

Collection Date: 11/25/15 13:00
Received Date: 11/25/15 14:42
Matrix: Soil/Solid (dry weight)
Solids (%):88.9
Location:

Results by **Volatile GC/MS**

Parameter	Result Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Chloroform	7.25 U	14.5	4.52	ug/Kg	1		12/04/15 14:56
Chloromethane	7.25 U	14.5	4.52	ug/Kg	1		12/04/15 14:56
cis-1,2-Dichloroethene	7.25 U	14.5	4.52	ug/Kg	1		12/04/15 14:56
cis-1,3-Dichloropropene	7.25 U	14.5	4.52	ug/Kg	1		12/04/15 14:56
Dibromochloromethane	7.25 U	14.5	4.52	ug/Kg	1		12/04/15 14:56
Dibromomethane	7.25 U	14.5	4.52	ug/Kg	1		12/04/15 14:56
Dichlorodifluoromethane	14.5 U	29.0	8.69	ug/Kg	1		12/04/15 14:56
Ethylbenzene	7.25 U	14.5	4.52	ug/Kg	1		12/04/15 14:56
Freon-113	28.9 U	57.9	18.0	ug/Kg	1		12/04/15 14:56
Hexachlorobutadiene	14.5 U	29.0	8.69	ug/Kg	1		12/04/15 14:56
Isopropylbenzene (Cumene)	7.25 U	14.5	4.52	ug/Kg	1		12/04/15 14:56
Methylene chloride	28.9 U	57.9	18.0	ug/Kg	1		12/04/15 14:56
Methyl-t-butyl ether	28.9 U	57.9	18.0	ug/Kg	1		12/04/15 14:56
Naphthalene	14.5 U	29.0	8.69	ug/Kg	1		12/04/15 14:56
n-Butylbenzene	7.25 U	14.5	4.52	ug/Kg	1		12/04/15 14:56
n-Propylbenzene	7.25 U	14.5	4.52	ug/Kg	1		12/04/15 14:56
o-Xylene	7.25 U	14.5	4.52	ug/Kg	1		12/04/15 14:56
P & M -Xylene	14.5 U	29.0	8.69	ug/Kg	1		12/04/15 14:56
sec-Butylbenzene	7.25 U	14.5	4.52	ug/Kg	1		12/04/15 14:56
Styrene	7.25 U	14.5	4.52	ug/Kg	1		12/04/15 14:56
tert-Butylbenzene	7.25 U	14.5	4.52	ug/Kg	1		12/04/15 14:56
Tetrachloroethene	3.62 U	7.24	2.26	ug/Kg	1		12/04/15 14:56
Toluene	7.25 U	14.5	4.52	ug/Kg	1		12/04/15 14:56
trans-1,2-Dichloroethene	7.25 U	14.5	4.52	ug/Kg	1		12/04/15 14:56
trans-1,3-Dichloropropene	7.25 U	14.5	4.52	ug/Kg	1		12/04/15 14:56
Trichloroethene	3.62 U	7.24	2.26	ug/Kg	1		12/04/15 14:56
Trichlorofluoromethane	14.5 U	29.0	8.69	ug/Kg	1		12/04/15 14:56
Vinyl acetate	28.9 U	57.9	18.0	ug/Kg	1		12/04/15 14:56
Vinyl chloride	2.90 U	5.79	1.80	ug/Kg	1		12/04/15 14:56
Xylenes (total)	21.8 U	43.5	13.2	ug/Kg	1		12/04/15 14:56
Surrogates							
1,2-Dichloroethane-D4 (surr)	112	71-136		%	1		12/04/15 14:56
4-Bromofluorobenzene (surr)	133	55-151		%	1		12/04/15 14:56
Toluene-d8 (surr)	93	85-116		%	1		12/04/15 14:56



Results of **RV-108**

Client Sample ID: **RV-108**
Client Project ID: **NRC RAVN CLEANUP**
Lab Sample ID: 1156886011
Lab Project ID: 1156886

Collection Date: 11/25/15 13:00
Received Date: 11/25/15 14:42
Matrix: Soil/Solid (dry weight)
Solids (%):88.9
Location:

Results by **Volatile GC/MS**

Batch Information

Analytical Batch: VMS15465
Analytical Method: SW8260B
Analyst: KAS
Analytical Date/Time: 12/04/15 14:56
Container ID: 1156886011-B

Prep Batch: VXX28334
Prep Method: SW5035A
Prep Date/Time: 11/25/15 13:00
Prep Initial Wt./Vol.: 170.559 g
Prep Extract Vol: 43.9268 mL



Results of **RV-110**

Client Sample ID: **RV-110**
Client Project ID: **NRC RAVN CLEANUP**
Lab Sample ID: 1156886012
Lab Project ID: 1156886

Collection Date: 11/25/15 13:10
Received Date: 11/25/15 14:42
Matrix: Soil/Solid (dry weight)
Solids (%):68.9
Location:

Results by **Volatile GC/MS**

<u>Parameter</u>	<u>Result Qual</u>	<u>LOQ/CL</u>	<u>DL</u>	<u>Units</u>	<u>DF</u>	<u>Allowable Limits</u>	<u>Date Analyzed</u>
1,1,1,2-Tetrachloroethane	17.4 U	34.8	10.8	ug/Kg	1		12/04/15 15:12
1,1,1-Trichloroethane	17.4 U	34.8	10.8	ug/Kg	1		12/04/15 15:12
1,1,2,2-Tetrachloroethane	8.70 U	17.4	5.42	ug/Kg	1		12/04/15 15:12
1,1,2-Trichloroethane	6.95 U	13.9	4.31	ug/Kg	1		12/04/15 15:12
1,1-Dichloroethane	17.4 U	34.8	10.8	ug/Kg	1		12/04/15 15:12
1,1-Dichloroethene	17.4 U	34.8	10.8	ug/Kg	1		12/04/15 15:12
1,1-Dichloropropene	17.4 U	34.8	10.8	ug/Kg	1		12/04/15 15:12
1,2,3-Trichlorobenzene	34.8 U	69.5	20.9	ug/Kg	1		12/04/15 15:12
1,2,3-Trichloropropane	17.4 U	34.8	10.8	ug/Kg	1		12/04/15 15:12
1,2,4-Trichlorobenzene	17.4 U	34.8	10.8	ug/Kg	1		12/04/15 15:12
1,2,4-Trimethylbenzene	34.8 U	69.5	20.9	ug/Kg	1		12/04/15 15:12
1,2-Dibromo-3-chloropropane	69.5 U	139	43.1	ug/Kg	1		12/04/15 15:12
1,2-Dibromoethane	6.95 U	13.9	4.31	ug/Kg	1		12/04/15 15:12
1,2-Dichlorobenzene	17.4 U	34.8	10.8	ug/Kg	1		12/04/15 15:12
1,2-Dichloroethane	6.95 U	13.9	4.31	ug/Kg	1		12/04/15 15:12
1,2-Dichloropropane	6.95 U	13.9	4.31	ug/Kg	1		12/04/15 15:12
1,3,5-Trimethylbenzene	17.4 U	34.8	10.8	ug/Kg	1		12/04/15 15:12
1,3-Dichlorobenzene	17.4 U	34.8	10.8	ug/Kg	1		12/04/15 15:12
1,3-Dichloropropane	6.95 U	13.9	4.31	ug/Kg	1		12/04/15 15:12
1,4-Dichlorobenzene	17.4 U	34.8	10.8	ug/Kg	1		12/04/15 15:12
2,2-Dichloropropane	17.4 U	34.8	10.8	ug/Kg	1		12/04/15 15:12
2-Butanone (MEK)	174 U	348	108	ug/Kg	1		12/04/15 15:12
2-Chlorotoluene	17.4 U	34.8	10.8	ug/Kg	1		12/04/15 15:12
2-Hexanone	174 U	348	108	ug/Kg	1		12/04/15 15:12
4-Chlorotoluene	17.4 U	34.8	10.8	ug/Kg	1		12/04/15 15:12
4-Isopropyltoluene	17.4 U	34.8	10.8	ug/Kg	1		12/04/15 15:12
4-Methyl-2-pentanone (MIBK)	174 U	348	108	ug/Kg	1		12/04/15 15:12
Benzene	8.70 U	17.4	5.42	ug/Kg	1		12/04/15 15:12
Bromobenzene	17.4 U	34.8	10.8	ug/Kg	1		12/04/15 15:12
Bromochloromethane	17.4 U	34.8	10.8	ug/Kg	1		12/04/15 15:12
Bromodichloromethane	17.4 U	34.8	10.8	ug/Kg	1		12/04/15 15:12
Bromoform	17.4 U	34.8	10.8	ug/Kg	1		12/04/15 15:12
Bromomethane	139 U	278	86.2	ug/Kg	1		12/04/15 15:12
Carbon disulfide	69.5 U	139	43.1	ug/Kg	1		12/04/15 15:12
Carbon tetrachloride	8.70 U	17.4	5.42	ug/Kg	1		12/04/15 15:12
Chlorobenzene	17.4 U	34.8	10.8	ug/Kg	1		12/04/15 15:12
Chloroethane	139 U	278	86.2	ug/Kg	1		12/04/15 15:12

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Results of **RV-110**

Client Sample ID: **RV-110**
Client Project ID: **NRC RAVN CLEANUP**
Lab Sample ID: 1156886012
Lab Project ID: 1156886

Collection Date: 11/25/15 13:10
Received Date: 11/25/15 14:42
Matrix: Soil/Solid (dry weight)
Solids (%):68.9
Location:

Results by **Volatile GC/MS**

<u>Parameter</u>	<u>Result Qual</u>	<u>LOQ/CL</u>	<u>DL</u>	<u>Units</u>	<u>DF</u>	<u>Allowable Limits</u>	<u>Date Analyzed</u>
Chloroform	17.4 U	34.8	10.8	ug/Kg	1		12/04/15 15:12
Chloromethane	17.4 U	34.8	10.8	ug/Kg	1		12/04/15 15:12
cis-1,2-Dichloroethene	17.4 U	34.8	10.8	ug/Kg	1		12/04/15 15:12
cis-1,3-Dichloropropene	17.4 U	34.8	10.8	ug/Kg	1		12/04/15 15:12
Dibromochloromethane	17.4 U	34.8	10.8	ug/Kg	1		12/04/15 15:12
Dibromomethane	17.4 U	34.8	10.8	ug/Kg	1		12/04/15 15:12
Dichlorodifluoromethane	34.8 U	69.5	20.9	ug/Kg	1		12/04/15 15:12
Ethylbenzene	17.4 U	34.8	10.8	ug/Kg	1		12/04/15 15:12
Freon-113	69.5 U	139	43.1	ug/Kg	1		12/04/15 15:12
Hexachlorobutadiene	34.8 U	69.5	20.9	ug/Kg	1		12/04/15 15:12
Isopropylbenzene (Cumene)	17.4 U	34.8	10.8	ug/Kg	1		12/04/15 15:12
Methylene chloride	69.5 U	139	43.1	ug/Kg	1		12/04/15 15:12
Methyl-t-butyl ether	69.5 U	139	43.1	ug/Kg	1		12/04/15 15:12
Naphthalene	34.8 U	69.5	20.9	ug/Kg	1		12/04/15 15:12
n-Butylbenzene	17.4 U	34.8	10.8	ug/Kg	1		12/04/15 15:12
n-Propylbenzene	17.4 U	34.8	10.8	ug/Kg	1		12/04/15 15:12
o-Xylene	17.4 U	34.8	10.8	ug/Kg	1		12/04/15 15:12
P & M -Xylene	34.8 U	69.5	20.9	ug/Kg	1		12/04/15 15:12
sec-Butylbenzene	17.4 U	34.8	10.8	ug/Kg	1		12/04/15 15:12
Styrene	17.4 U	34.8	10.8	ug/Kg	1		12/04/15 15:12
tert-Butylbenzene	17.4 U	34.8	10.8	ug/Kg	1		12/04/15 15:12
Tetrachloroethene	8.70 U	17.4	5.42	ug/Kg	1		12/04/15 15:12
Toluene	17.4 U	34.8	10.8	ug/Kg	1		12/04/15 15:12
trans-1,2-Dichloroethene	17.4 U	34.8	10.8	ug/Kg	1		12/04/15 15:12
trans-1,3-Dichloropropene	17.4 U	34.8	10.8	ug/Kg	1		12/04/15 15:12
Trichloroethene	8.70 U	17.4	5.42	ug/Kg	1		12/04/15 15:12
Trichlorofluoromethane	34.8 U	69.5	20.9	ug/Kg	1		12/04/15 15:12
Vinyl acetate	69.5 U	139	43.1	ug/Kg	1		12/04/15 15:12
Vinyl chloride	6.95 U	13.9	4.31	ug/Kg	1		12/04/15 15:12
Xylenes (total)	52.0 U	104	31.7	ug/Kg	1		12/04/15 15:12
Surrogates							
1,2-Dichloroethane-D4 (surr)	112	71-136		%	1		12/04/15 15:12
4-Bromofluorobenzene (surr)	121	55-151		%	1		12/04/15 15:12
Toluene-d8 (surr)	96.1	85-116		%	1		12/04/15 15:12



Results of **RV-110**

Client Sample ID: **RV-110**
Client Project ID: **NRC RAVN CLEANUP**
Lab Sample ID: 1156886012
Lab Project ID: 1156886

Collection Date: 11/25/15 13:10
Received Date: 11/25/15 14:42
Matrix: Soil/Solid (dry weight)
Solids (%):68.9
Location:

Results by **Volatile GC/MS**

Batch Information

Analytical Batch: VMS15465
Analytical Method: SW8260B
Analyst: KAS
Analytical Date/Time: 12/04/15 15:12
Container ID:

Prep Batch: VXX28334
Prep Method: SW5035A
Prep Date/Time: 11/25/15 13:10
Prep Initial Wt./Vol.: 149.46 g
Prep Extract Vol: 71.5425 mL



Results of RV-125

Client Sample ID: RV-125
Client Project ID: NRC RAVN CLEANUP
Lab Sample ID: 1156886013
Lab Project ID: 1156886

Collection Date: 11/25/15 10:50
Received Date: 11/25/15 14:42
Matrix: Soil/Solid (dry weight)
Solids (%):81.9
Location:

Results by Volatile GC/MS

Table with 8 columns: Parameter, Result Qual, LOQ/CL, DL, Units, DF, Allowable Limits, Date Analyzed. Lists various chemical compounds and their detection results.

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Results of **RV-125**

Client Sample ID: **RV-125**
Client Project ID: **NRC RAVN CLEANUP**
Lab Sample ID: 1156886013
Lab Project ID: 1156886

Collection Date: 11/25/15 10:50
Received Date: 11/25/15 14:42
Matrix: Soil/Solid (dry weight)
Solids (%):81.9
Location:

Results by **Volatile GC/MS**

<u>Parameter</u>	<u>Result Qual</u>	<u>LOQ/CL</u>	<u>DL</u>	<u>Units</u>	<u>DF</u>	<u>Allowable Limits</u>	<u>Date Analyzed</u>
Chloroform	13.4 U	26.9	8.41	ug/Kg	1		12/04/15 15:28
Chloromethane	13.4 U	26.9	8.41	ug/Kg	1		12/04/15 15:28
cis-1,2-Dichloroethene	13.4 U	26.9	8.41	ug/Kg	1		12/04/15 15:28
cis-1,3-Dichloropropene	13.4 U	26.9	8.41	ug/Kg	1		12/04/15 15:28
Dibromochloromethane	13.4 U	26.9	8.41	ug/Kg	1		12/04/15 15:28
Dibromomethane	13.4 U	26.9	8.41	ug/Kg	1		12/04/15 15:28
Dichlorodifluoromethane	26.9 U	53.9	16.2	ug/Kg	1		12/04/15 15:28
Ethylbenzene	34.8	26.9	8.41	ug/Kg	1		12/04/15 15:28
Freon-113	54.0 U	108	33.4	ug/Kg	1		12/04/15 15:28
Hexachlorobutadiene	26.9 U	53.9	16.2	ug/Kg	1		12/04/15 15:28
Isopropylbenzene (Cumene)	11.9 J	26.9	8.41	ug/Kg	1		12/04/15 15:28
Methylene chloride	54.0 U	108	33.4	ug/Kg	1		12/04/15 15:28
Methyl-t-butyl ether	54.0 U	108	33.4	ug/Kg	1		12/04/15 15:28
Naphthalene	26.9 U	53.9	16.2	ug/Kg	1		12/04/15 15:28
n-Butylbenzene	13.4 U	26.9	8.41	ug/Kg	1		12/04/15 15:28
n-Propylbenzene	18.3 J	26.9	8.41	ug/Kg	1		12/04/15 15:28
o-Xylene	20.2 J	26.9	8.41	ug/Kg	1		12/04/15 15:28
P & M -Xylene	64.9	53.9	16.2	ug/Kg	1		12/04/15 15:28
sec-Butylbenzene	18.3 J	26.9	8.41	ug/Kg	1		12/04/15 15:28
Styrene	13.4 U	26.9	8.41	ug/Kg	1		12/04/15 15:28
tert-Butylbenzene	11.9 J	26.9	8.41	ug/Kg	1		12/04/15 15:28
Tetrachloroethene	17.0	13.5	4.20	ug/Kg	1		12/04/15 15:28
Toluene	8.89 J	26.9	8.41	ug/Kg	1		12/04/15 15:28
trans-1,2-Dichloroethene	13.4 U	26.9	8.41	ug/Kg	1		12/04/15 15:28
trans-1,3-Dichloropropene	13.4 U	26.9	8.41	ug/Kg	1		12/04/15 15:28
Trichloroethene	11.0 J	13.5	4.20	ug/Kg	1		12/04/15 15:28
Trichlorofluoromethane	26.9 U	53.9	16.2	ug/Kg	1		12/04/15 15:28
Vinyl acetate	54.0 U	108	33.4	ug/Kg	1		12/04/15 15:28
Vinyl chloride	5.40 U	10.8	3.34	ug/Kg	1		12/04/15 15:28
Xylenes (total)	85.1	80.8	24.6	ug/Kg	1		12/04/15 15:28
Surrogates							
1,2-Dichloroethane-D4 (surr)	115	71-136		%	1		12/04/15 15:28
4-Bromofluorobenzene (surr)	126	55-151		%	1		12/04/15 15:28
Toluene-d8 (surr)	102	85-116		%	1		12/04/15 15:28



Results of **RV-125**

Client Sample ID: **RV-125**
Client Project ID: **NRC RAVN CLEANUP**
Lab Sample ID: 1156886013
Lab Project ID: 1156886

Collection Date: 11/25/15 10:50
Received Date: 11/25/15 14:42
Matrix: Soil/Solid (dry weight)
Solids (%):81.9
Location:

Results by **Volatile GC/MS**

Batch Information

Analytical Batch: VMS15465
Analytical Method: SW8260B
Analyst: KAS
Analytical Date/Time: 12/04/15 15:28
Container ID: 1156886013-B

Prep Batch: VXX28334
Prep Method: SW5035A
Prep Date/Time: 11/25/15 10:50
Prep Initial Wt./Vol.: 95.976 g
Prep Extract Vol: 42.3625 mL



Results of RV-Y

Client Sample ID: RV-Y
Client Project ID: NRC RAVN CLEANUP
Lab Sample ID: 1156886014
Lab Project ID: 1156886

Collection Date: 11/25/15 08:00
Received Date: 11/25/15 14:42
Matrix: Soil/Solid (dry weight)
Solids (%):90.0
Location:

Results by Volatile GC/MS

Table with 8 columns: Parameter, Result Qual, LOQ/CL, DL, Units, DF, Allowable Limits, Date Analyzed. Lists various chemical compounds and their detection results.

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Results of RV-Y

Client Sample ID: RV-Y
Client Project ID: NRC RAVN CLEANUP
Lab Sample ID: 1156886014
Lab Project ID: 1156886

Collection Date: 11/25/15 08:00
Received Date: 11/25/15 14:42
Matrix: Soil/Solid (dry weight)
Solids (%):90.0
Location:

Results by Volatile GC/MS

Table with 8 columns: Parameter, Result Qual, LOQ/CL, DL, Units, DF, Allowable Limits, Date Analyzed. Lists various chemical parameters like Chloroform, Chloromethane, etc., with their respective values and quality indicators.



Results of **RV-Y**

Client Sample ID: **RV-Y**
Client Project ID: **NRC RAVN CLEANUP**
Lab Sample ID: 1156886014
Lab Project ID: 1156886

Collection Date: 11/25/15 08:00
Received Date: 11/25/15 14:42
Matrix: Soil/Solid (dry weight)
Solids (%):90.0
Location:

Results by **Volatile GC/MS**

Batch Information

Analytical Batch: VMS15465
Analytical Method: SW8260B
Analyst: KAS
Analytical Date/Time: 12/04/15 15:44
Container ID: 1156886014-B

Prep Batch: VXX28334
Prep Method: SW5035A
Prep Date/Time: 11/25/15 08:00
Prep Initial Wt./Vol.: 157.868 g
Prep Extract Vol: 40.7183 mL



Results of **RV-3-1**

Client Sample ID: **RV-3-1**
Client Project ID: **NRC RAVN CLEANUP**
Lab Sample ID: 1156886015
Lab Project ID: 1156886

Collection Date: 11/25/15 13:30
Received Date: 11/25/15 14:42
Matrix: Soil/Solid (dry weight)
Solids (%):85.4
Location:

Results by **Semivolatile Organic Fuels**

<u>Parameter</u>	<u>Result Qual</u>	<u>LOQ/CL</u>	<u>DL</u>	<u>Units</u>	<u>DF</u>	<u>Allowable Limits</u>	<u>Date Analyzed</u>
Diesel Range Organics	4880	117	36.2	mg/Kg	5		12/01/15 17:03
Surrogates							
5a Androstane (surr)	109	50-150		%	5		12/01/15 17:03

Batch Information

Analytical Batch: XFC12216
Analytical Method: AK102
Analyst: NLL
Analytical Date/Time: 12/01/15 17:03
Container ID: 1156886015-A

Prep Batch: XXX34689
Prep Method: SW3550C
Prep Date/Time: 11/30/15 13:42
Prep Initial Wt./Vol.: 30.07 g
Prep Extract Vol: 1 mL

<u>Parameter</u>	<u>Result Qual</u>	<u>LOQ/CL</u>	<u>DL</u>	<u>Units</u>	<u>DF</u>	<u>Allowable Limits</u>	<u>Date Analyzed</u>
Residual Range Organics	1980	117	36.2	mg/Kg	5		12/01/15 17:03
Surrogates							
n-Triacontane-d62 (surr)	107	50-150		%	5		12/01/15 17:03

Batch Information

Analytical Batch: XFC12216
Analytical Method: AK103
Analyst: NLL
Analytical Date/Time: 12/01/15 17:03
Container ID: 1156886015-A

Prep Batch: XXX34689
Prep Method: SW3550C
Prep Date/Time: 11/30/15 13:42
Prep Initial Wt./Vol.: 30.07 g
Prep Extract Vol: 1 mL



Results of RV-3-1

Client Sample ID: RV-3-1
Client Project ID: NRC RAVN CLEANUP
Lab Sample ID: 1156886015
Lab Project ID: 1156886

Collection Date: 11/25/15 13:30
Received Date: 11/25/15 14:42
Matrix: Soil/Solid (dry weight)
Solids (%):85.4
Location:

Results by Volatile GC/MS

Table with 8 columns: Parameter, Result Qual, LOQ/CL, DL, Units, DF, Allowable Limits, Date Analyzed. Lists various chemical compounds and their detection results.

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J flagging is activated



Results of RV-3-1

Client Sample ID: RV-3-1
Client Project ID: NRC RAVN CLEANUP
Lab Sample ID: 1156886015
Lab Project ID: 1156886

Collection Date: 11/25/15 13:30
Received Date: 11/25/15 14:42
Matrix: Soil/Solid (dry weight)
Solids (%):85.4
Location:

Results by Volatile GC/MS

Table with 8 columns: Parameter, Result Qual, LOQ/CL, DL, Units, DF, Allowable Limits, Date Analyzed. Lists various chemical parameters like Chloroform, Chloromethane, etc., with their respective values and quality indicators.



Results of **RV-3-1**

Client Sample ID: **RV-3-1**
Client Project ID: **NRC RAVN CLEANUP**
Lab Sample ID: 1156886015
Lab Project ID: 1156886

Collection Date: 11/25/15 13:30
Received Date: 11/25/15 14:42
Matrix: Soil/Solid (dry weight)
Solids (%):85.4
Location:

Results by **Volatile GC/MS**

Batch Information

Analytical Batch: VMS15465
Analytical Method: SW8260B
Analyst: KAS
Analytical Date/Time: 12/04/15 16:00
Container ID: 1156886015-B

Prep Batch: VXX28334
Prep Method: SW5035A
Prep Date/Time: 11/25/15 13:30
Prep Initial Wt./Vol.: 96.45 g
Prep Extract Vol: 39.0772 mL

Analytical Batch: VMS15471
Analytical Method: SW8260B
Analyst: KAS
Analytical Date/Time: 12/09/15 19:47
Container ID: 1156886015-B

Prep Batch: VXX28345
Prep Method: SW5035A
Prep Date/Time: 11/25/15 13:30
Prep Initial Wt./Vol.: 96.45 g
Prep Extract Vol: 39.0772 mL



Results of Trip Blank

Client Sample ID: Trip Blank
Client Project ID: NRC RAVN CLEANUP
Lab Sample ID: 1156886016
Lab Project ID: 1156886

Collection Date: 11/25/15 08:00
Received Date: 11/25/15 14:42
Matrix: Solid/Soil (Wet Weight)
Solids (%):
Location:

Results by Volatile GC/MS

Table with 8 columns: Parameter, Result Qual, LOQ/CL, DL, Units, DF, Allowable Limits, Date Analyzed. Lists various chemical compounds and their detection results.

Print Date: 12/16/2015 9:26:30AM

J flagging is activated



Results of Trip Blank

Client Sample ID: **Trip Blank**
 Client Project ID: **NRC RAVN CLEANUP**
 Lab Sample ID: 1156886016
 Lab Project ID: 1156886

Collection Date: 11/25/15 08:00
 Received Date: 11/25/15 14:42
 Matrix: Solid/Soil (Wet Weight)
 Solids (%):
 Location:

Results by Volatile GC/MS

Parameter	Result Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Chloroform	12.2 U	24.4	7.61	ug/Kg	1		12/03/15 15:26
Chloromethane	12.2 U	24.4	7.61	ug/Kg	1		12/03/15 15:26
cis-1,2-Dichloroethene	12.2 U	24.4	7.61	ug/Kg	1		12/03/15 15:26
cis-1,3-Dichloropropene	12.2 U	24.4	7.61	ug/Kg	1		12/03/15 15:26
Dibromochloromethane	12.2 U	24.4	7.61	ug/Kg	1		12/03/15 15:26
Dibromomethane	12.2 U	24.4	7.61	ug/Kg	1		12/03/15 15:26
Dichlorodifluoromethane	24.4 U	48.8	14.6	ug/Kg	1		12/03/15 15:26
Ethylbenzene	12.2 U	24.4	7.61	ug/Kg	1		12/03/15 15:26
Freon-113	48.8 U	97.5	30.2	ug/Kg	1		12/03/15 15:26
Hexachlorobutadiene	24.4 U	48.8	14.6	ug/Kg	1		12/03/15 15:26
Isopropylbenzene (Cumene)	12.2 U	24.4	7.61	ug/Kg	1		12/03/15 15:26
Methylene chloride	48.8 U	97.5	30.2	ug/Kg	1		12/03/15 15:26
Methyl-t-butyl ether	48.8 U	97.5	30.2	ug/Kg	1		12/03/15 15:26
Naphthalene	24.4 U	48.8	14.6	ug/Kg	1		12/03/15 15:26
n-Butylbenzene	12.2 U	24.4	7.61	ug/Kg	1		12/03/15 15:26
n-Propylbenzene	12.2 U	24.4	7.61	ug/Kg	1		12/03/15 15:26
o-Xylene	12.2 U	24.4	7.61	ug/Kg	1		12/03/15 15:26
P & M -Xylene	24.4 U	48.8	14.6	ug/Kg	1		12/03/15 15:26
sec-Butylbenzene	12.2 U	24.4	7.61	ug/Kg	1		12/03/15 15:26
Styrene	12.2 U	24.4	7.61	ug/Kg	1		12/03/15 15:26
tert-Butylbenzene	12.2 U	24.4	7.61	ug/Kg	1		12/03/15 15:26
Tetrachloroethene	6.10 U	12.2	3.80	ug/Kg	1		12/03/15 15:26
Toluene	12.2 U	24.4	7.61	ug/Kg	1		12/03/15 15:26
trans-1,2-Dichloroethene	12.2 U	24.4	7.61	ug/Kg	1		12/03/15 15:26
trans-1,3-Dichloropropene	12.2 U	24.4	7.61	ug/Kg	1		12/03/15 15:26
Trichloroethene	6.10 U	12.2	3.80	ug/Kg	1		12/03/15 15:26
Trichlorofluoromethane	24.4 U	48.8	14.6	ug/Kg	1		12/03/15 15:26
Vinyl acetate	48.8 U	97.5	30.2	ug/Kg	1		12/03/15 15:26
Vinyl chloride	4.88 U	9.75	3.02	ug/Kg	1		12/03/15 15:26
Xylenes (total)	36.5 U	73.1	22.2	ug/Kg	1		12/03/15 15:26
Surrogates							
1,2-Dichloroethane-D4 (surr)	113	71-136		%	1		12/03/15 15:26
4-Bromofluorobenzene (surr)	110	55-151		%	1		12/03/15 15:26
Toluene-d8 (surr)	92.9	85-116		%	1		12/03/15 15:26



Results of Trip Blank

Client Sample ID: **Trip Blank**
Client Project ID: **NRC RAVN CLEANUP**
Lab Sample ID: 1156886016
Lab Project ID: 1156886

Collection Date: 11/25/15 08:00
Received Date: 11/25/15 14:42
Matrix: Solid/Soil (Wet Weight)
Solids (%):
Location:

Results by Volatile GC/MS

Batch Information

Analytical Batch: VMS15456
Analytical Method: SW8260B
Analyst: KAS
Analytical Date/Time: 12/03/15 15:26
Container ID: 1156886016-A

Prep Batch: VXX28323
Prep Method: SW5035A
Prep Date/Time: 11/25/15 08:00
Prep Initial Wt./Vol.: 51.268 g
Prep Extract Vol: 25 mL



Method Blank

Blank ID: MB for HBN 1725753 [SPT/9801]

Matrix: Soil/Solid (dry weight)

Blank Lab ID: 1305932

QC for Samples:

1156886001, 1156886002, 1156886003, 1156886004, 1156886005, 1156886006, 1156886007, 1156886008, 1156886009, 1156886010, 1156886011, 1156886012

Results by SM21 2540G

<u>Parameter</u>	<u>Results</u>	<u>LOQ/CL</u>	<u>DL</u>	<u>Units</u>
Total Solids	100			%

Batch Information

Analytical Batch: SPT9801

Analytical Method: SM21 2540G

Instrument:

Analyst: RJA

Analytical Date/Time: 11/30/2015 4:39:00PM

Print Date: 12/16/2015 9:26:32AM



Duplicate Sample Summary

Original Sample ID: 1156886001

Duplicate Sample ID: 1305933

QC for Samples:

1156886001, 1156886002, 1156886003, 1156886004, 1156886005, 1156886006, 1156886007, 1156886008, 1156886009, 1156886010, 1156886011

Analysis Date: 11/30/2015 16:39

Matrix: Soil/Solid (dry weight)

Results by SM21 2540G

<u>NAME</u>	<u>Original</u>	<u>Duplicate</u>	<u>Units</u>	<u>RPD (%)</u>	<u>RPD CL</u>
Total Solids	84.6	85.3	%	0.77	(< 15)

Batch Information

Analytical Batch: SPT9801

Analytical Method: SM21 2540G

Instrument:

Analyst: RJA

Print Date: 12/16/2015 9:26:33AM



Duplicate Sample Summary

Original Sample ID: 1156886011

Duplicate Sample ID: 1305934

Analysis Date: 11/30/2015 16:39

Matrix: Soil/Solid (dry weight)

QC for Samples:

1156886002, 1156886003, 1156886004, 1156886005, 1156886006, 1156886007, 1156886008, 1156886009, 1156886010, 1156886011, 1156886012

Results by SM21 2540G

<u>NAME</u>	<u>Original</u>	<u>Duplicate</u>	<u>Units</u>	<u>RPD (%)</u>	<u>RPD CL</u>
Total Solids	88.9	89.5	%	0.67	(< 15)

Batch Information

Analytical Batch: SPT9801

Analytical Method: SM21 2540G

Instrument:

Analyst: RJA

Print Date: 12/16/2015 9:26:33AM



Method Blank

Blank ID: MB for HBN 1725801 [SPT/9803]
Blank Lab ID: 1306093

Matrix: Soil/Solid (dry weight)

QC for Samples:
1156886013, 1156886014, 1156886015

Results by SM21 2540G

<u>Parameter</u>	<u>Results</u>	<u>LOQ/CL</u>	<u>DL</u>	<u>Units</u>
Total Solids	100			%

Batch Information

Analytical Batch: SPT9803
Analytical Method: SM21 2540G
Instrument:
Analyst: RJA
Analytical Date/Time: 12/1/2015 4:40:00PM

Print Date: 12/16/2015 9:26:35AM



Duplicate Sample Summary

Original Sample ID: 1156903001

Duplicate Sample ID: 1306094

QC for Samples:

1156886013, 1156886014, 1156886015

Analysis Date: 12/01/2015 16:40

Matrix: Soil/Solid (dry weight)

Results by SM21 2540G

<u>NAME</u>	<u>Original</u>	<u>Duplicate</u>	<u>Units</u>	<u>RPD (%)</u>	<u>RPD CL</u>
Total Solids	93.0	92.2	%	0.87	(< 15)

Batch Information

Analytical Batch: SPT9803

Analytical Method: SM21 2540G

Instrument:

Analyst: RJA

Print Date: 12/16/2015 9:26:36AM



Method Blank

Blank ID: MB for HBN 1725988 [VXX/28323]

Matrix: Soil/Solid (dry weight)

Blank Lab ID: 1306517

QC for Samples:

1156886001, 1156886002, 1156886003, 1156886004, 1156886005, 1156886006, 1156886008, 1156886009, 1156886016

Results by SW8260B

<u>Parameter</u>	<u>Results</u>	<u>LOQ/CL</u>	<u>DL</u>	<u>Units</u>
1,1,1,2-Tetrachloroethane	12.5U	25.0	7.80	ug/Kg
1,1,1-Trichloroethane	12.5U	25.0	7.80	ug/Kg
1,1,2,2-Tetrachloroethane	6.25U	12.5	3.90	ug/Kg
1,1,2-Trichloroethane	5.00U	10.0	3.10	ug/Kg
1,1-Dichloroethane	12.5U	25.0	7.80	ug/Kg
1,1-Dichloroethene	12.5U	25.0	7.80	ug/Kg
1,1-Dichloropropene	12.5U	25.0	7.80	ug/Kg
1,2,3-Trichlorobenzene	25.0U	50.0	15.0	ug/Kg
1,2,3-Trichloropropane	12.5U	25.0	7.80	ug/Kg
1,2,4-Trichlorobenzene	12.5U	25.0	7.80	ug/Kg
1,2,4-Trimethylbenzene	25.0U	50.0	15.0	ug/Kg
1,2-Dibromo-3-chloropropane	50.0U	100	31.0	ug/Kg
1,2-Dibromoethane	5.00U	10.0	3.10	ug/Kg
1,2-Dichlorobenzene	12.5U	25.0	7.80	ug/Kg
1,2-Dichloroethane	5.00U	10.0	3.10	ug/Kg
1,2-Dichloropropane	5.00U	10.0	3.10	ug/Kg
1,3,5-Trimethylbenzene	12.5U	25.0	7.80	ug/Kg
1,3-Dichlorobenzene	12.5U	25.0	7.80	ug/Kg
1,3-Dichloropropane	5.00U	10.0	3.10	ug/Kg
1,4-Dichlorobenzene	12.5U	25.0	7.80	ug/Kg
2,2-Dichloropropane	12.5U	25.0	7.80	ug/Kg
2-Butanone (MEK)	125U	250	78.0	ug/Kg
2-Chlorotoluene	12.5U	25.0	7.80	ug/Kg
2-Hexanone	125U	250	78.0	ug/Kg
4-Chlorotoluene	12.5U	25.0	7.80	ug/Kg
4-Isopropyltoluene	12.5U	25.0	7.80	ug/Kg
4-Methyl-2-pentanone (MIBK)	125U	250	78.0	ug/Kg
Benzene	6.25U	12.5	3.90	ug/Kg
Bromobenzene	12.5U	25.0	7.80	ug/Kg
Bromochloromethane	12.5U	25.0	7.80	ug/Kg
Bromodichloromethane	12.5U	25.0	7.80	ug/Kg
Bromoform	12.5U	25.0	7.80	ug/Kg
Bromomethane	100U	200	62.0	ug/Kg
Carbon disulfide	50.0U	100	31.0	ug/Kg
Carbon tetrachloride	6.25U	12.5	3.90	ug/Kg
Chlorobenzene	12.5U	25.0	7.80	ug/Kg
Chloroethane	100U	200	62.0	ug/Kg
Chloroform	12.5U	25.0	7.80	ug/Kg

Print Date: 12/16/2015 9:26:38AM



Method Blank

Blank ID: MB for HBN 1725988 [VXX/28323]

Matrix: Soil/Solid (dry weight)

Blank Lab ID: 1306517

QC for Samples:

1156886001, 1156886002, 1156886003, 1156886004, 1156886005, 1156886006, 1156886008, 1156886009, 1156886016

Results by SW8260B

<u>Parameter</u>	<u>Results</u>	<u>LOQ/CL</u>	<u>DL</u>	<u>Units</u>
Chloromethane	12.5U	25.0	7.80	ug/Kg
cis-1,2-Dichloroethene	12.5U	25.0	7.80	ug/Kg
cis-1,3-Dichloropropene	12.5U	25.0	7.80	ug/Kg
Dibromochloromethane	12.5U	25.0	7.80	ug/Kg
Dibromomethane	12.5U	25.0	7.80	ug/Kg
Dichlorodifluoromethane	25.0U	50.0	15.0	ug/Kg
Ethylbenzene	12.5U	25.0	7.80	ug/Kg
Freon-113	50.0U	100	31.0	ug/Kg
Hexachlorobutadiene	25.0U	50.0	15.0	ug/Kg
Isopropylbenzene (Cumene)	12.5U	25.0	7.80	ug/Kg
Methylene chloride	50.0U	100	31.0	ug/Kg
Methyl-t-butyl ether	50.0U	100	31.0	ug/Kg
Naphthalene	25.0U	50.0	15.0	ug/Kg
n-Butylbenzene	12.5U	25.0	7.80	ug/Kg
n-Propylbenzene	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
sec-Butylbenzene	12.5U	25.0	7.80	ug/Kg
Styrene	12.5U	25.0	7.80	ug/Kg
tert-Butylbenzene	12.5U	25.0	7.80	ug/Kg
Tetrachloroethene	6.25U	12.5	3.90	ug/Kg
Toluene	12.5U	25.0	7.80	ug/Kg
trans-1,2-Dichloroethene	12.5U	25.0	7.80	ug/Kg
trans-1,3-Dichloropropene	12.5U	25.0	7.80	ug/Kg
Trichloroethene	6.25U	12.5	3.90	ug/Kg
Trichlorofluoromethane	25.0U	50.0	15.0	ug/Kg
Vinyl acetate	50.0U	100	31.0	ug/Kg
Vinyl chloride	5.00U	10.0	3.10	ug/Kg
Xylenes (total)	37.5U	75.0	22.8	ug/Kg
Surrogates				
1,2-Dichloroethane-D4 (surr)	108	71-136		%
4-Bromofluorobenzene (surr)	104	55-151		%
Toluene-d8 (surr)	98.3	85-116		%

Print Date: 12/16/2015 9:26:38AM



Method Blank

Blank ID: MB for HBN 1725988 [VXX/28323]
Blank Lab ID: 1306517

Matrix: Soil/Solid (dry weight)

QC for Samples:

1156886001, 1156886002, 1156886003, 1156886004, 1156886005, 1156886006, 1156886008, 1156886009, 1156886016

Results by SW8260B

<u>Parameter</u>	<u>Results</u>	<u>LOQ/CL</u>	<u>DL</u>	<u>Units</u>
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Batch Information

Analytical Batch: VMS15456
Analytical Method: SW8260B
Instrument: VQA 7890/5975 GC/MS
Analyst: KAS
Analytical Date/Time: 12/3/2015 11:39:00AM

Prep Batch: VXX28323
Prep Method: SW5035A
Prep Date/Time: 12/3/2015 8:00:00AM
Prep Initial Wt./Vol.: 50 g
Prep Extract Vol: 25 mL

Print Date: 12/16/2015 9:26:38AM



Blank Spike Summary

Blank Spike ID: LCS for HBN 1156886 [VXX28323]

Blank Spike Lab ID: 1306518

Date Analyzed: 12/03/2015 13:00

Matrix: Soil/Solid (dry weight)

QC for Samples: 1156886001, 1156886002, 1156886003, 1156886004, 1156886005, 1156886006, 1156886008, 1156886009, 1156886016

Results by SW8260B

Parameter	Blank Spike (ug/Kg)			CL
	Spike	Result	Rec (%)	
1,1,1,2-Tetrachloroethane	750	808	108	(78-125)
1,1,1-Trichloroethane	750	845	113	(73-130)
1,1,2,2-Tetrachloroethane	750	725	97	(70-124)
1,1,2-Trichloroethane	750	845	113	(78-121)
1,1-Dichloroethane	750	829	111	(76-125)
1,1-Dichloroethene	750	777	104	(70-131)
1,1-Dichloropropene	750	883	118	(76-125)
1,2,3-Trichlorobenzene	750	743	99	(66-130)
1,2,3-Trichloropropane	750	759	101	(73-125)
1,2,4-Trichlorobenzene	750	799	107	(67-129)
1,2,4-Trimethylbenzene	750	821	110	(75-123)
1,2-Dibromo-3-chloropropane	750	747	100	(61-132)
1,2-Dibromoethane	750	741	99	(78-122)
1,2-Dichlorobenzene	750	822	110	(78-121)
1,2-Dichloroethane	750	757	101	(73-128)
1,2-Dichloropropane	750	755	101	(76-123)
1,3,5-Trimethylbenzene	750	827	110	(73-124)
1,3-Dichlorobenzene	750	808	108	(77-121)
1,3-Dichloropropane	750	751	100	(77-121)
1,4-Dichlorobenzene	750	823	110	(75-120)
2,2-Dichloropropane	750	919	123	(67-133)
2-Butanone (MEK)	2250	2070	92	(51-148)
2-Chlorotoluene	750	809	108	(75-122)
2-Hexanone	2250	2300	102	(53-145)
4-Chlorotoluene	750	814	109	(72-124)
4-Isopropyltoluene	750	862	115	(73-127)
4-Methyl-2-pentanone (MIBK)	2250	1950	87	(65-135)
Benzene	750	816	109	(77-121)
Bromobenzene	750	800	107	(78-121)
Bromochloromethane	750	795	106	(78-125)
Bromodichloromethane	750	791	105	(75-127)
Bromoform	750	708	94	(67-132)
Bromomethane	750	948	126	(53-143)
Carbon disulfide	1130	1220	108	(63-132)

Print Date: 12/16/2015 9:26:39AM



Blank Spike Summary

Blank Spike ID: LCS for HBN 1156886 [VXX28323]

Blank Spike Lab ID: 1306518

Date Analyzed: 12/03/2015 13:00

Matrix: Soil/Solid (dry weight)

QC for Samples: 1156886001, 1156886002, 1156886003, 1156886004, 1156886005, 1156886006, 1156886008, 1156886009, 1156886016

Results by SW8260B

Parameter	Blank Spike (ug/Kg)			CL
	Spike	Result	Rec (%)	
Carbon tetrachloride	750	850	113	(70-135)
Chlorobenzene	750	767	102	(79-120)
Chloroethane	750	1030	137	(59-139)
Chloroform	750	810	108	(78-123)
Chloromethane	750	878	117	(50-136)
cis-1,2-Dichloroethene	750	836	112	(77-123)
cis-1,3-Dichloropropene	750	834	111	(74-126)
Dibromochloromethane	750	792	106	(74-126)
Dibromomethane	750	694	93	(78-125)
Dichlorodifluoromethane	750	839	112	(29-149)
Ethylbenzene	750	857	114	(76-122)
Freon-113	1130	1360	121	(66-136)
Hexachlorobutadiene	750	788	105	(61-135)
Isopropylbenzene (Cumene)	750	867	116	(68-134)
Methylene chloride	750	869	116	(70-128)
Methyl-t-butyl ether	1130	1090	97	(73-125)
Naphthalene	750	707	94	(62-129)
n-Butylbenzene	750	811	108	(70-128)
n-Propylbenzene	750	862	115	(73-125)
o-Xylene	750	829	111	(77-123)
P & M -Xylene	1500	1690	112	(77-124)
sec-Butylbenzene	750	879	117	(73-126)
Styrene	750	823	110	(76-124)
tert-Butylbenzene	750	849	113	(73-125)
Tetrachloroethene	750	880	117	(73-128)
Toluene	750	835	111	(77-121)
trans-1,2-Dichloroethene	750	787	105	(74-125)
trans-1,3-Dichloropropene	750	772	103	(71-130)
Trichloroethene	750	836	111	(77-123)
Trichlorofluoromethane	750	874	117	(62-140)
Vinyl acetate	750	804	107	(50-151)
Vinyl chloride	750	837	112	(56-135)
Xylenes (total)	2250	2510	112	(78-124)

Print Date: 12/16/2015 9:26:39AM



Blank Spike Summary

Blank Spike ID: LCS for HBN 1156886 [VXX28323]

Blank Spike Lab ID: 1306518

Date Analyzed: 12/03/2015 13:00

Matrix: Soil/Solid (dry weight)

QC for Samples: 1156886001, 1156886002, 1156886003, 1156886004, 1156886005, 1156886006, 1156886008, 1156886009, 1156886016

Results by SW8260B

Parameter	Blank Spike (%)			CL
	Spike	Result	Rec (%)	
Surrogates				
1,2-Dichloroethane-D4 (surr)	750	107	107	(71-136)
4-Bromofluorobenzene (surr)	750	106	106	(55-151)
Toluene-d8 (surr)	750	100	100	(85-116)

Batch Information

Analytical Batch: **VMS15456**

Analytical Method: **SW8260B**

Instrument: **VQA 7890/5975 GC/MS**

Analyst: **KAS**

Prep Batch: **VXX28323**

Prep Method: **SW5035A**

Prep Date/Time: **12/03/2015 08:00**

Spike Init Wt./Vol.: 750 ug/Kg Extract Vol: 25 mL

Dupe Init Wt./Vol.: Extract Vol:

Print Date: 12/16/2015 9:26:39AM



Matrix Spike Summary

Original Sample ID: 1156928001
 MS Sample ID: 1306519 MS
 MSD Sample ID: 1306520 MSD

Analysis Date: 12/03/2015 15:58
 Analysis Date: 12/03/2015 13:50
 Analysis Date: 12/03/2015 14:06
 Matrix: Soil/Solid (dry weight)

QC for Samples: 1156886001, 1156886002, 1156886003, 1156886004, 1156886005, 1156886006, 1156886008, 1156886009, 1156886016

Results by SW8260B

Parameter	Sample	Matrix Spike (ug/Kg)			Spike Duplicate (ug/Kg)			CL	RPD (%)	RPD CL
		Spike	Result	Rec (%)	Spike	Result	Rec (%)			
1,1,1,2-Tetrachloroethane	10.7U	443	464	105	443	482	109	78-125	3.70	(< 20)
1,1,1-Trichloroethane	10.7U	443	493	111	443	501	113	73-130	1.60	(< 20)
1,1,2,2-Tetrachloroethane	5.35U	443	398	90	443	478	108	70-124	18.50	(< 20)
1,1,2-Trichloroethane	4.28U	443	489	111	443	516	117	78-121	5.40	(< 20)
1,1-Dichloroethane	10.7U	443	497	112	443	501	113	76-125	0.59	(< 20)
1,1-Dichloroethene	10.7U	443	486	110	443	502	113	70-131	3.20	(< 20)
1,1-Dichloropropene	10.7U	443	508	115	443	518	117	76-125	1.80	(< 20)
1,2,3-Trichlorobenzene	21.4U	443	647	146 *	443	502	113	66-130	25.20	* (< 20)
1,2,3-Trichloropropane	10.7U	443	420	95	443	505	114	73-125	18.40	(< 20)
1,2,4-Trichlorobenzene	10.7U	443	618	140 *	443	486	110	67-129	23.90	* (< 20)
1,2,4-Trimethylbenzene	18.6J	443	468	102	443	495	108	75-123	5.70	(< 20)
1,2-Dibromo-3-chloropropane	42.8U	443	459	104	443	525	119	61-132	13.50	(< 20)
1,2-Dibromoethane	4.28U	443	430	97	443	453	102	78-122	5.10	(< 20)
1,2-Dichlorobenzene	10.7U	443	467	106	443	479	108	78-121	2.60	(< 20)
1,2-Dichloroethane	4.28U	443	450	102	443	453	102	73-128	0.82	(< 20)
1,2-Dichloropropane	4.28U	443	441	100	443	442	100	76-123	0.30	(< 20)
1,3,5-Trimethylbenzene	8.13J	443	459	102	443	496	110	73-124	7.90	(< 20)
1,3-Dichlorobenzene	10.7U	443	447	101	443	471	107	77-121	5.10	(< 20)
1,3-Dichloropropane	4.28U	443	438	99	443	459	104	77-121	4.50	(< 20)
1,4-Dichlorobenzene	10.7U	443	453	102	443	481	109	75-120	6.00	(< 20)
2,2-Dichloropropane	10.7U	443	524	119	443	531	120	67-133	1.40	(< 20)
2-Butanone (MEK)	107U	1325	1359	102	1325	1552	117	51-148	13.10	(< 20)
2-Chlorotoluene	10.7U	443	444	100	443	475	107	75-122	6.60	(< 20)
2-Hexanone	107U	1325	1450	109	1325	1586	119	53-145	9.20	(< 20)
4-Chlorotoluene	10.7U	443	446	101	443	485	110	72-124	8.40	(< 20)
4-Isopropyltoluene	10.7U	443	492	111	443	496	112	73-127	0.93	(< 20)
4-Methyl-2-pentanone (MIBK)	107U	1325	1382	104	1325	1404	106	65-135	1.70	(< 20)
Benzene	5.35U	443	477	108	443	481	109	77-121	0.89	(< 20)
Bromobenzene	10.7U	443	433	98	443	508	115	78-121	16.10	(< 20)
Bromochloromethane	10.7U	443	467	106	443	459	104	78-125	1.90	(< 20)
Bromodichloromethane	10.7U	443	462	105	443	463	105	75-127	0.16	(< 20)
Bromoform	10.7U	443	421	95	443	433	98	67-132	2.60	(< 20)
Bromomethane	85.5U	443	520	117	443	508	115	53-143	2.10	(< 20)
Carbon disulfide	42.8U	664	767	116	664	776	117	63-132	1.10	(< 20)
Carbon tetrachloride	5.35U	443	497	112	443	503	114	70-135	1.20	(< 20)
Chlorobenzene	10.7U	443	436	99	443	444	100	79-120	1.80	(< 20)
Chloroethane	85.5U	443	580	131	443	563	127	59-139	3.10	(< 20)

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Matrix Spike Summary

Original Sample ID: 1156928001
 MS Sample ID: 1306519 MS
 MSD Sample ID: 1306520 MSD

Analysis Date: 12/03/2015 15:58
 Analysis Date: 12/03/2015 13:50
 Analysis Date: 12/03/2015 14:06
 Matrix: Soil/Solid (dry weight)

QC for Samples: 1156886001, 1156886002, 1156886003, 1156886004, 1156886005, 1156886006, 1156886008, 1156886009, 1156886016

Results by SW8260B

Parameter	Sample	Matrix Spike (ug/Kg)			Spike Duplicate (ug/Kg)			CL	RPD (%)	RPD CL
		Spike	Result	Rec (%)	Spike	Result	Rec (%)			
Chloroform	10.7U	443	471	107	443	473	107	78-123	0.41	(< 20)
Chloromethane	10.7U	443	523	118	443	514	116	50-136	1.70	(< 20)
cis-1,2-Dichloroethene	10.7U	443	501	113	443	486	110	77-123	3.00	(< 20)
cis-1,3-Dichloropropene	10.7U	443	484	109	443	487	110	74-126	0.67	(< 20)
Dibromochloromethane	10.7U	443	460	104	443	479	108	74-126	4.10	(< 20)
Dibromomethane	10.7U	443	427	96	443	450	102	78-125	5.30	(< 20)
Dichlorodifluoromethane	21.4U	443	482	109	443	478	108	29-149	0.74	(< 20)
Ethylbenzene	10.7U	443	482	109	443	488	110	76-122	1.20	(< 20)
Freon-113	42.8U	664	828	125	664	840	127	66-136	1.60	(< 20)
Hexachlorobutadiene	21.4U	443	426	96	443	336	76	61-135	23.40	* (< 20)
Isopropylbenzene (Cumene)	10.7U	443	486	110	443	477	108	68-134	1.90	(< 20)
Methylene chloride	42.8U	443	448	101	443	446	101	70-128	0.59	(< 20)
Methyl-t-butyl ether	42.8U	664	680	102	664	692	104	73-125	1.80	(< 20)
Naphthalene	217	443	699	109	443	664	101	62-129	5.00	(< 20)
n-Butylbenzene	10.7U	443	476	107	443	435	98	70-128	8.90	(< 20)
n-Propylbenzene	10.7U	443	464	105	443	507	115	73-125	8.90	(< 20)
o-Xylene	10.7U	443	470	106	443	473	107	77-123	0.69	(< 20)
P & M -Xylene	21.4U	884	959	108	884	967	109	77-124	0.87	(< 20)
sec-Butylbenzene	10.7U	443	495	112	443	499	113	73-126	0.92	(< 20)
Styrene	10.7U	443	459	104	443	460	104	76-124	0.26	(< 20)
tert-Butylbenzene	10.7U	443	473	107	443	495	112	73-125	4.50	(< 20)
Tetrachloroethene	5.35U	443	502	114	443	504	114	73-128	0.41	(< 20)
Toluene	10.7U	443	476	108	443	497	112	77-121	4.20	(< 20)
trans-1,2-Dichloroethene	10.7U	443	472	107	443	475	107	74-125	0.47	(< 20)
trans-1,3-Dichloropropene	10.7U	443	447	101	443	468	106	71-130	4.40	(< 20)
Trichloroethene	5.35U	443	486	110	443	493	111	77-123	1.40	(< 20)
Trichlorofluoromethane	21.4U	443	572	129	443	575	130	62-140	0.44	(< 20)
Vinyl acetate	42.8U	443	492	111	443	501	113	50-151	1.60	(< 20)
Vinyl chloride	4.28U	443	497	112	443	494	112	56-135	0.54	(< 20)
Xylenes (total)	32.1U	1325	1427	108	1325	1438	109	78-124	0.81	(< 20)
Surrogates										
1,2-Dichloroethane-D4 (surr)		443	490	111	443	503	114	71-136	2.60	
4-Bromofluorobenzene (surr)		1178	946	80	1178	1101	93	55-151	15.20	
Toluene-d8 (surr)		443	436	99	443	461	104	85-116	5.60	

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Matrix Spike Summary

Original Sample ID: 1156928001
MS Sample ID: 1306519 MS
MSD Sample ID: 1306520 MSD

Analysis Date:
Analysis Date: 12/03/2015 13:50
Analysis Date: 12/03/2015 14:06
Matrix: Soil/Solid (dry weight)

QC for Samples: 1156886001, 1156886002, 1156886003, 1156886004, 1156886005, 1156886006, 1156886008, 1156886009, 1156886016

Results by SW8260B

Parameter	Sample	Matrix Spike (%)			Spike Duplicate (%)			CL	RPD (%)	RPD CL
		Spike	Result	Rec (%)	Spike	Result	Rec (%)			

Batch Information

Analytical Batch: VMS15456
Analytical Method: SW8260B
Instrument: VQA 7890/5975 GC/MS
Analyst: KAS
Analytical Date/Time: 12/3/2015 1:50:00PM

Prep Batch: VXX28323
Prep Method: Vol. Extraction SW8260 Field Extracted L
Prep Date/Time: 12/3/2015 8:00:00AM
Prep Initial Wt./Vol.: 95.98g
Prep Extract Vol: 25.00mL

Print Date: 12/16/2015 9:26:40AM



Method Blank

Blank ID: MB for HBN 1726051 [VXX/28334]
Blank Lab ID: 1306757

Matrix: Soil/Solid (dry weight)

QC for Samples:

1156886007, 1156886010, 1156886011, 1156886012, 1156886013, 1156886014, 1156886015

Results by SW8260B

<u>Parameter</u>	<u>Results</u>	<u>LOQ/CL</u>	<u>DL</u>	<u>Units</u>
1,1,1,2-Tetrachloroethane	12.5U	25.0	7.80	ug/Kg
1,1,1-Trichloroethane	12.5U	25.0	7.80	ug/Kg
1,1,2,2-Tetrachloroethane	6.25U	12.5	3.90	ug/Kg
1,1,2-Trichloroethane	5.00U	10.0	3.10	ug/Kg
1,1-Dichloroethane	12.5U	25.0	7.80	ug/Kg
1,1-Dichloroethene	12.5U	25.0	7.80	ug/Kg
1,1-Dichloropropene	12.5U	25.0	7.80	ug/Kg
1,2,3-Trichlorobenzene	25.0U	50.0	15.0	ug/Kg
1,2,3-Trichloropropane	12.5U	25.0	7.80	ug/Kg
1,2,4-Trichlorobenzene	12.5U	25.0	7.80	ug/Kg
1,2,4-Trimethylbenzene	25.0U	50.0	15.0	ug/Kg
1,2-Dibromo-3-chloropropane	50.0U	100	31.0	ug/Kg
1,2-Dibromoethane	5.00U	10.0	3.10	ug/Kg
1,2-Dichlorobenzene	12.5U	25.0	7.80	ug/Kg
1,2-Dichloroethane	5.00U	10.0	3.10	ug/Kg
1,2-Dichloropropane	5.00U	10.0	3.10	ug/Kg
1,3,5-Trimethylbenzene	12.5U	25.0	7.80	ug/Kg
1,3-Dichlorobenzene	12.5U	25.0	7.80	ug/Kg
1,3-Dichloropropane	5.00U	10.0	3.10	ug/Kg
1,4-Dichlorobenzene	12.5U	25.0	7.80	ug/Kg
2,2-Dichloropropane	12.5U	25.0	7.80	ug/Kg
2-Butanone (MEK)	125U	250	78.0	ug/Kg
2-Chlorotoluene	12.5U	25.0	7.80	ug/Kg
2-Hexanone	125U	250	78.0	ug/Kg
4-Chlorotoluene	12.5U	25.0	7.80	ug/Kg
4-Isopropyltoluene	12.5U	25.0	7.80	ug/Kg
4-Methyl-2-pentanone (MIBK)	125U	250	78.0	ug/Kg
Benzene	6.25U	12.5	3.90	ug/Kg
Bromobenzene	12.5U	25.0	7.80	ug/Kg
Bromochloromethane	12.5U	25.0	7.80	ug/Kg
Bromodichloromethane	12.5U	25.0	7.80	ug/Kg
Bromoform	12.5U	25.0	7.80	ug/Kg
Bromomethane	100U	200	62.0	ug/Kg
Carbon disulfide	50.0U	100	31.0	ug/Kg
Carbon tetrachloride	6.25U	12.5	3.90	ug/Kg
Chlorobenzene	12.5U	25.0	7.80	ug/Kg
Chloroethane	100U	200	62.0	ug/Kg
Chloroform	12.5U	25.0	7.80	ug/Kg

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Method Blank

Blank ID: MB for HBN 1726051 [VXX/28334]
Blank Lab ID: 1306757

Matrix: Soil/Solid (dry weight)

QC for Samples:

1156886007, 1156886010, 1156886011, 1156886012, 1156886013, 1156886014, 1156886015

Results by SW8260B

<u>Parameter</u>	<u>Results</u>	<u>LOQ/CL</u>	<u>DL</u>	<u>Units</u>
Chloromethane	12.5U	25.0	7.80	ug/Kg
cis-1,2-Dichloroethene	12.5U	25.0	7.80	ug/Kg
cis-1,3-Dichloropropene	12.5U	25.0	7.80	ug/Kg
Dibromochloromethane	12.5U	25.0	7.80	ug/Kg
Dibromomethane	12.5U	25.0	7.80	ug/Kg
Dichlorodifluoromethane	25.0U	50.0	15.0	ug/Kg
Ethylbenzene	12.5U	25.0	7.80	ug/Kg
Freon-113	50.0U	100	31.0	ug/Kg
Hexachlorobutadiene	25.0U	50.0	15.0	ug/Kg
Isopropylbenzene (Cumene)	12.5U	25.0	7.80	ug/Kg
Methylene chloride	50.0U	100	31.0	ug/Kg
Methyl-t-butyl ether	50.0U	100	31.0	ug/Kg
Naphthalene	25.0U	50.0	15.0	ug/Kg
n-Butylbenzene	12.5U	25.0	7.80	ug/Kg
n-Propylbenzene	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
sec-Butylbenzene	12.5U	25.0	7.80	ug/Kg
Styrene	12.5U	25.0	7.80	ug/Kg
tert-Butylbenzene	12.5U	25.0	7.80	ug/Kg
Tetrachloroethene	6.25U	12.5	3.90	ug/Kg
Toluene	12.5U	25.0	7.80	ug/Kg
trans-1,2-Dichloroethene	12.5U	25.0	7.80	ug/Kg
trans-1,3-Dichloropropene	12.5U	25.0	7.80	ug/Kg
Trichloroethene	6.25U	12.5	3.90	ug/Kg
Trichlorofluoromethane	25.0U	50.0	15.0	ug/Kg
Vinyl acetate	50.0U	100	31.0	ug/Kg
Vinyl chloride	5.00U	10.0	3.10	ug/Kg
Xylenes (total)	37.5U	75.0	22.8	ug/Kg
Surrogates				
1,2-Dichloroethane-D4 (surr)	110	71-136		%
4-Bromofluorobenzene (surr)	111	55-151		%
Toluene-d8 (surr)	102	85-116		%

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Method Blank

Blank ID: MB for HBN 1726051 [VXX/28334]
Blank Lab ID: 1306757

Matrix: Soil/Solid (dry weight)

QC for Samples:

1156886007, 1156886010, 1156886011, 1156886012, 1156886013, 1156886014, 1156886015

Results by SW8260B

<u>Parameter</u>	<u>Results</u>	<u>LOQ/CL</u>	<u>DL</u>	<u>Units</u>
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Batch Information

Analytical Batch: VMS15465
Analytical Method: SW8260B
Instrument: VQA 7890/5975 GC/MS
Analyst: KAS
Analytical Date/Time: 12/4/2015 9:59:00AM

Prep Batch: VXX28334
Prep Method: SW5035A
Prep Date/Time: 12/4/2015 8:00:00AM
Prep Initial Wt./Vol.: 50 g
Prep Extract Vol: 25 mL

Print Date: 12/16/2015 9:26:41AM



Blank Spike Summary

Blank Spike ID: LCS for HBN 1156886 [VXX28334]

Blank Spike Lab ID: 1306758

Date Analyzed: 12/04/2015 11:28

Matrix: Soil/Solid (dry weight)

QC for Samples: 1156886007, 1156886010, 1156886011, 1156886012, 1156886013, 1156886014, 1156886015

Results by SW8260B

Parameter	Blank Spike (ug/Kg)			CL
	Spike	Result	Rec (%)	
1,1,1,2-Tetrachloroethane	750	792	106	(78-125)
1,1,1-Trichloroethane	750	821	109	(73-130)
1,1,2,2-Tetrachloroethane	750	726	97	(70-124)
1,1,2-Trichloroethane	750	830	111	(78-121)
1,1-Dichloroethane	750	810	108	(76-125)
1,1-Dichloroethene	750	763	102	(70-131)
1,1-Dichloropropene	750	864	115	(76-125)
1,2,3-Trichlorobenzene	750	725	97	(66-130)
1,2,3-Trichloropropane	750	763	102	(73-125)
1,2,4-Trichlorobenzene	750	763	102	(67-129)
1,2,4-Trimethylbenzene	750	818	109	(75-123)
1,2-Dibromo-3-chloropropane	750	748	100	(61-132)
1,2-Dibromoethane	750	729	97	(78-122)
1,2-Dichlorobenzene	750	808	108	(78-121)
1,2-Dichloroethane	750	751	100	(73-128)
1,2-Dichloropropane	750	752	100	(76-123)
1,3,5-Trimethylbenzene	750	833	111	(73-124)
1,3-Dichlorobenzene	750	808	108	(77-121)
1,3-Dichloropropane	750	740	99	(77-121)
1,4-Dichlorobenzene	750	826	110	(75-120)
2,2-Dichloropropane	750	864	115	(67-133)
2-Butanone (MEK)	2250	2270	101	(51-148)
2-Chlorotoluene	750	809	108	(75-122)
2-Hexanone	2250	2400	106	(53-145)
4-Chlorotoluene	750	817	109	(72-124)
4-Isopropyltoluene	750	870	116	(73-127)
4-Methyl-2-pentanone (MIBK)	2250	2050	91	(65-135)
Benzene	750	808	108	(77-121)
Bromobenzene	750	822	110	(78-121)
Bromochloromethane	750	782	104	(78-125)
Bromodichloromethane	750	783	104	(75-127)
Bromoform	750	693	92	(67-132)
Bromomethane	750	944	126	(53-143)
Carbon disulfide	1130	1170	104	(63-132)

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Blank Spike Summary

Blank Spike ID: LCS for HBN 1156886 [VXX28334]

Blank Spike Lab ID: 1306758

Date Analyzed: 12/04/2015 11:28

Matrix: Soil/Solid (dry weight)

QC for Samples: 1156886007, 1156886010, 1156886011, 1156886012, 1156886013, 1156886014, 1156886015

Results by SW8260B

Parameter	Blank Spike (ug/Kg)			CL
	Spike	Result	Rec (%)	
Carbon tetrachloride	750	829	111	(70-135)
Chlorobenzene	750	737	98	(79-120)
Chloroethane	750	1060	142 *	(59-139)
Chloroform	750	794	106	(78-123)
Chloromethane	750	865	115	(50-136)
cis-1,2-Dichloroethene	750	806	108	(77-123)
cis-1,3-Dichloropropene	750	823	110	(74-126)
Dibromochloromethane	750	774	103	(74-126)
Dibromomethane	750	698	93	(78-125)
Dichlorodifluoromethane	750	802	107	(29-149)
Ethylbenzene	750	848	113	(76-122)
Freon-113	1130	1340	119	(66-136)
Hexachlorobutadiene	750	741	99	(61-135)
Isopropylbenzene (Cumene)	750	865	115	(68-134)
Methylene chloride	750	863	115	(70-128)
Methyl-t-butyl ether	1130	1090	97	(73-125)
Naphthalene	750	705	94	(62-129)
n-Butylbenzene	750	791	105	(70-128)
n-Propylbenzene	750	869	116	(73-125)
o-Xylene	750	814	109	(77-123)
P & M -Xylene	1500	1680	112	(77-124)
sec-Butylbenzene	750	886	118	(73-126)
Styrene	750	797	106	(76-124)
tert-Butylbenzene	750	855	114	(73-125)
Tetrachloroethene	750	850	113	(73-128)
Toluene	750	809	108	(77-121)
trans-1,2-Dichloroethene	750	840	112	(74-125)
trans-1,3-Dichloropropene	750	743	99	(71-130)
Trichloroethene	750	828	110	(77-123)
Trichlorofluoromethane	750	905	121	(62-140)
Vinyl acetate	750	821	109	(50-151)
Vinyl chloride	750	806	108	(56-135)
Xylenes (total)	2250	2500	111	(78-124)

Print Date: 12/16/2015 9:26:42AM



Blank Spike Summary

Blank Spike ID: LCS for HBN 1156886 [VXX28334]
Blank Spike Lab ID: 1306758
Date Analyzed: 12/04/2015 11:28

Matrix: Soil/Solid (dry weight)

QC for Samples: 1156886007, 1156886010, 1156886011, 1156886012, 1156886013, 1156886014, 1156886015

Results by SW8260B

Parameter	Blank Spike (%)			CL
	Spike	Result	Rec (%)	
Surrogates				
1,2-Dichloroethane-D4 (surr)	750	106	106	(71-136)
4-Bromofluorobenzene (surr)	750	105	105	(55-151)
Toluene-d8 (surr)	750	96.3	96	(85-116)

Batch Information

Analytical Batch: **VMS15465**
Analytical Method: **SW8260B**
Instrument: **VQA 7890/5975 GC/MS**
Analyst: **KAS**

Prep Batch: **VXX28334**
Prep Method: **SW5035A**
Prep Date/Time: **12/04/2015 08:00**
Spike Init Wt./Vol.: 750 ug/Kg Extract Vol: 25 mL
Dupe Init Wt./Vol.: Extract Vol:

Print Date: 12/16/2015 9:26:42AM



Matrix Spike Summary

Original Sample ID: 1156886007
 MS Sample ID: 1306759 MS
 MSD Sample ID: 1306760 MSD

Analysis Date: 12/04/2015 14:08
 Analysis Date: 12/04/2015 13:20
 Analysis Date: 12/04/2015 13:36
 Matrix: Soil/Solid (dry weight)

QC for Samples: 1156886007, 1156886010, 1156886011, 1156886012, 1156886013, 1156886014, 1156886015

Results by SW8260B

Parameter	Sample	Matrix Spike (ug/Kg)			Spike Duplicate (ug/Kg)			CL	RPD (%)	RPD CL
		Spike	Result	Rec (%)	Spike	Result	Rec (%)			
1,1,1,2-Tetrachloroethane	15.3U	472	498	106	472	519	110	78-125	4.10	(< 20)
1,1,1-Trichloroethane	15.3U	472	550	117	472	528	112	73-130	4.10	(< 20)
1,1,2,2-Tetrachloroethane	7.65U	472	459	97	472	475	101	70-124	3.30	(< 20)
1,1,2-Trichloroethane	6.10U	472	511	108	472	558	118	78-121	8.80	(< 20)
1,1-Dichloroethane	15.3U	472	576	122	472	541	115	76-125	6.30	(< 20)
1,1-Dichloroethene	15.3U	472	532	113	472	541	115	70-131	1.80	(< 20)
1,1-Dichloropropene	15.3U	472	555	118	472	555	118	76-125	0.00	(< 20)
1,2,3-Trichlorobenzene	30.6U	472	636	135 *	472	732	155 *	66-130	14.00	(< 20)
1,2,3-Trichloropropane	15.3U	472	489	104	472	502	107	73-125	2.80	(< 20)
1,2,4-Trichlorobenzene	15.3U	472	625	132 *	472	669	142 *	67-129	6.90	(< 20)
1,2,4-Trimethylbenzene	196	472	580	81	472	572	80	75-123	1.50	(< 20)
1,2-Dibromo-3-chloropropane	61.0U	472	558	118	472	575	122	61-132	3.20	(< 20)
1,2-Dibromoethane	6.10U	472	442	94	472	480	102	78-122	8.20	(< 20)
1,2-Dichlorobenzene	15.3U	472	529	112	472	533	113	78-121	0.83	(< 20)
1,2-Dichloroethane	6.10U	472	502	106	472	490	104	73-128	2.40	(< 20)
1,2-Dichloropropane	6.10U	472	486	103	472	482	102	76-123	0.81	(< 20)
1,3,5-Trimethylbenzene	87.2	472	538	96	472	538	96	73-124	0.09	(< 20)
1,3-Dichlorobenzene	15.3U	472	506	107	472	505	107	77-121	0.28	(< 20)
1,3-Dichloropropane	6.10U	472	454	96	472	493	105	77-121	8.30	(< 20)
1,4-Dichlorobenzene	15.3U	472	515	109	472	524	111	75-120	1.90	(< 20)
2,2-Dichloropropane	15.3U	472	594	126	472	565	120	67-133	4.80	(< 20)
2-Butanone (MEK)	153U	1414	1518	108	1414	1855	131	51-148	19.90	(< 20)
2-Chlorotoluene	15.3U	472	501	106	472	502	106	75-122	0.28	(< 20)
2-Hexanone	153U	1414	1725	122	1414	1842	130	53-145	6.60	(< 20)
4-Chlorotoluene	15.3U	472	508	108	472	506	107	72-124	0.56	(< 20)
4-Isopropyltoluene	25.1J	472	538	109	472	536	108	73-127	0.41	(< 20)
4-Methyl-2-pentanone (MIBK)	153U	1414	1647	116	1414	1621	114	65-135	1.60	(< 20)
Benzene	7.65U	472	521	111	472	523	111	77-121	0.30	(< 20)
Bromobenzene	15.3U	472	515	109	472	501	106	78-121	2.70	(< 20)
Bromochloromethane	15.3U	472	532	113	472	501	106	78-125	5.80	(< 20)
Bromodichloromethane	15.3U	472	515	109	472	499	106	75-127	3.00	(< 20)
Bromoform	15.3U	472	447	95	472	470	100	67-132	4.80	(< 20)
Bromomethane	123U	472	585	124	472	556	118	53-143	5.20	(< 20)
Carbon disulfide	61.0U	708	824	116	708	825	117	63-132	0.08	(< 20)
Carbon tetrachloride	7.65U	472	555	118	472	532	113	70-135	4.10	(< 20)
Chlorobenzene	15.3U	472	493	104	472	488	103	79-120	0.99	(< 20)
Chloroethane	123U	472	717	152 *	472	625	133	59-139	13.60	(< 20)

Print Date: 12/16/2015 9:26:43AM



Matrix Spike Summary

Original Sample ID: 1156886007
 MS Sample ID: 1306759 MS
 MSD Sample ID: 1306760 MSD

Analysis Date: 12/04/2015 14:08
 Analysis Date: 12/04/2015 13:20
 Analysis Date: 12/04/2015 13:36
 Matrix: Soil/Solid (dry weight)

QC for Samples: 1156886007, 1156886010, 1156886011, 1156886012, 1156886013, 1156886014, 1156886015

Results by SW8260B

Parameter	Sample	Matrix Spike (ug/Kg)			Spike Duplicate (ug/Kg)			CL	RPD (%)	RPD CL
		Spike	Result	Rec (%)	Spike	Result	Rec (%)			
Chloroform	15.3U	472	542	115	472	515	109	78-123	5.30	(< 20)
Chloromethane	15.3U	472	629	133	472	575	122	50-136	9.20	(< 20)
cis-1,2-Dichloroethene	15.3U	472	572	121	472	532	113	77-123	7.10	(< 20)
cis-1,3-Dichloropropene	15.3U	472	529	112	472	532	113	74-126	0.59	(< 20)
Dibromochloromethane	15.3U	472	476	101	472	506	107	74-126	6.10	(< 20)
Dibromomethane	15.3U	472	516	109	472	492	104	78-125	4.80	(< 20)
Dichlorodifluoromethane	30.6U	472	621	132	472	567	120	29-149	9.10	(< 20)
Ethylbenzene	15.3U	472	554	117	472	549	116	76-122	0.88	(< 20)
Freon-113	61.0U	708	917	130	708	925	131	66-136	0.80	(< 20)
Hexachlorobutadiene	30.6U	472	497	105	472	502	106	61-135	0.95	(< 20)
Isopropylbenzene (Cumene)	21.1J	472	563	115	472	549	112	68-134	2.40	(< 20)
Methylene chloride	61.0U	472	520	110	472	489	104	70-128	6.20	(< 20)
Methyl-t-butyl ether	61.0U	708	751	106	708	761	108	73-125	1.40	(< 20)
Naphthalene	266	472	720	96	472	821	118	62-129	13.10	(< 20)
n-Butylbenzene	15.3U	472	519	110	472	498	105	70-128	4.30	(< 20)
n-Propylbenzene	42.5	472	540	105	472	533	104	73-125	1.30	(< 20)
o-Xylene	51.1	472	558	107	472	553	106	77-123	0.94	(< 20)
P & M -Xylene	63.3	943	1104	110	943	1096	109	77-124	0.73	(< 20)
sec-Butylbenzene	30.6	472	532	106	472	530	106	73-126	0.38	(< 20)
Styrene	15.3U	472	528	112	472	527	112	76-124	0.18	(< 20)
tert-Butylbenzene	15.3U	472	511	108	472	499	106	73-125	2.50	(< 20)
Tetrachloroethene	65.2	472	567	106	472	580	109	73-128	2.40	(< 20)
Toluene	26.3J	472	537	108	472	536	108	77-121	0.29	(< 20)
trans-1,2-Dichloroethene	15.3U	472	538	114	472	503	107	74-125	6.90	(< 20)
trans-1,3-Dichloropropene	15.3U	472	460	98	472	490	104	71-130	6.20	(< 20)
Trichloroethene	11.6J	472	534	111	472	534	111	77-123	0.00	(< 20)
Trichlorofluoromethane	30.6U	472	656	139	472	620	131	62-140	5.70	(< 20)
Vinyl acetate	61.0U	472	543	115	472	556	118	50-151	2.50	(< 20)
Vinyl chloride	6.10U	472	573	122	472	536	114	56-135	6.80	(< 20)
Xylenes (total)	114	1414	1660	109	1414	1647	108	78-124	0.80	(< 20)
Surrogates										
1,2-Dichloroethane-D4 (surr)		472	507	108	472	493	105	71-136	2.90	
4-Bromofluorobenzene (surr)		1258	895	71	1258	895	71	55-151	0.11	
Toluene-d8 (surr)		472	466	99	472	466	99	85-116	0.03	

Print Date: 12/16/2015 9:26:43AM



Matrix Spike Summary

Original Sample ID: 1156886007
MS Sample ID: 1306759 MS
MSD Sample ID: 1306760 MSD

Analysis Date:
Analysis Date: 12/04/2015 13:20
Analysis Date: 12/04/2015 13:36
Matrix: Soil/Solid (dry weight)

QC for Samples: 1156886007, 1156886010, 1156886011, 1156886012, 1156886013, 1156886014, 1156886015

Results by SW8260B

Parameter	Sample	Matrix Spike (%)			Spike Duplicate (%)			CL	RPD (%)	RPD CL
		Spike	Result	Rec (%)	Spike	Result	Rec (%)			

Batch Information

Analytical Batch: VMS15465
Analytical Method: SW8260B
Instrument: VQA 7890/5975 GC/MS
Analyst: KAS
Analytical Date/Time: 12/4/2015 1:20:00PM

Prep Batch: VXX28334
Prep Method: Vol. Extraction SW8260 Field Extracted L
Prep Date/Time: 12/4/2015 8:00:00AM
Prep Initial Wt./Vol.: 103.11g
Prep Extract Vol: 25.00mL

Print Date: 12/16/2015 9:26:43AM



Method Blank

Blank ID: MB for HBN 1726119 [VXX/28345]
Blank Lab ID: 1307010

Matrix: Soil/Solid (dry weight)

QC for Samples:
1156886015

Results by SW8260B

<u>Parameter</u>	<u>Results</u>	<u>LOQ/CL</u>	<u>DL</u>	<u>Units</u>
Tetrachloroethene	6.25U	12.5	3.90	ug/Kg
Surrogates				
1,2-Dichloroethane-D4 (surr)	107	71-136		%
4-Bromofluorobenzene (surr)	112	55-151		%
Toluene-d8 (surr)	103	85-116		%

Batch Information

Analytical Batch: VMS15471
Analytical Method: SW8260B
Instrument: Agilent 7890-75MS
Analyst: KAS
Analytical Date/Time: 12/9/2015 4:40:00PM

Prep Batch: VXX28345
Prep Method: SW5035A
Prep Date/Time: 12/9/2015 8:00:00AM
Prep Initial Wt./Vol.: 50 g
Prep Extract Vol: 25 mL

Print Date: 12/16/2015 9:26:44AM



Blank Spike Summary

Blank Spike ID: LCS for HBN 1156886 [VXX28345]
Blank Spike Lab ID: 1307011
Date Analyzed: 12/09/2015 17:09

Matrix: Soil/Solid (dry weight)

QC for Samples: 1156886015

Results by SW8260B

Parameter	Blank Spike (ug/Kg)			CL (73-128)
	Spike	Result	Rec (%)	
Tetrachloroethene	750	697	93	
Surrogates				
1,2-Dichloroethane-D4 (surr)	750	105	105	(71-136)
4-Bromofluorobenzene (surr)	750	106	106	(55-151)
Toluene-d8 (surr)	750	99.9	100	(85-116)

Batch Information

Analytical Batch: **VMS15471**
Analytical Method: **SW8260B**
Instrument: **Agilent 7890-75MS**
Analyst: **KAS**

Prep Batch: **VXX28345**
Prep Method: **SW5035A**
Prep Date/Time: **12/09/2015 08:00**
Spike Init Wt./Vol.: 750 ug/Kg Extract Vol: 25 mL
Dupe Init Wt./Vol.: Extract Vol:

Print Date: 12/16/2015 9:26:46AM



Matrix Spike Summary

Original Sample ID: 1307034
MS Sample ID: 1307012 MS
MSD Sample ID: 1307013 MSD

Analysis Date: 12/09/2015 19:47
Analysis Date: 12/09/2015 17:40
Analysis Date: 12/09/2015 17:56
Matrix: Soil/Solid (dry weight)

QC for Samples: 1156886015

Results by SW8260B

Parameter	Sample	Matrix Spike (ug/Kg)			Spike Duplicate (ug/Kg)			CL	RPD (%)	RPD CL
		Spike	Result	Rec (%)	Spike	Result	Rec (%)			
Tetrachloroethene	1010	3890	4750	96	3890	4890	100	73-128	2.90	(< 20)
Surrogates										
1,2-Dichloroethane-D4 (surr)		3890	4250	109	3890	4200	108	71-136	1.20	
4-Bromofluorobenzene (surr)		4540	4670	103	4540	4840	107	55-151	3.50	
Toluene-d8 (surr)		3890	4050	104	3890	4250	109	85-116	4.80	

Batch Information

Analytical Batch: VMS15471
Analytical Method: SW8260B
Instrument: Agilent 7890-75MS
Analyst: KAS
Analytical Date/Time: 12/9/2015 5:40:00PM

Prep Batch: VXX28345
Prep Method: Vol. Extraction SW8260 Field Extracted L
Prep Date/Time: 12/9/2015 8:00:00AM
Prep Initial Wt./Vol.: 96.45g
Prep Extract Vol: 25.00mL

Print Date: 12/16/2015 9:26:47AM



Method Blank

Blank ID: MB for HBN 1725672 [XXX/34689]
Blank Lab ID: 1305860

Matrix: Soil/Solid (dry weight)

QC for Samples:
1156886015

Results by AK102

<u>Parameter</u>	<u>Results</u>	<u>LOQ/CL</u>	<u>DL</u>	<u>Units</u>
Diesel Range Organics	10.0U	20.0	6.20	mg/Kg
Surrogates				
5a Androstane (surr)	80	60-120		%

Batch Information

Analytical Batch: XFC12216
Analytical Method: AK102
Instrument: HP 6890 Series II FID SV D R
Analyst: NLL
Analytical Date/Time: 12/1/2015 4:33:00PM

Prep Batch: XXX34689
Prep Method: SW3550C
Prep Date/Time: 11/30/2015 1:42:32PM
Prep Initial Wt./Vol.: 30 g
Prep Extract Vol: 1 mL

Print Date: 12/16/2015 9:26:48AM



Blank Spike Summary

Blank Spike ID: LCS for HBN 1156886 [XXX34689]
Blank Spike Lab ID: 1305861
Date Analyzed: 12/01/2015 16:43

Spike Duplicate ID: LCSD for HBN 1156886
[XXX34689]
Spike Duplicate Lab ID: 1305862
Matrix: Soil/Solid (dry weight)

QC for Samples: 1156886015

Results by AK102

Parameter	Blank Spike (mg/Kg)			Spike Duplicate (mg/Kg)			CL	RPD (%)	RPD CL
	Spike	Result	Rec (%)	Spike	Result	Rec (%)			
Diesel Range Organics	167	168	101	167	162	97	(75-125)	3.90	(< 20)
Surrogates									
5a Androstane (surr)	3.33	104	104	3.33	98.9	99	(60-120)	5.40	

Batch Information

Analytical Batch: **XFC12216**
Analytical Method: **AK102**
Instrument: **HP 6890 Series II FID SV D R**
Analyst: **NLL**

Prep Batch: **XXX34689**
Prep Method: **SW3550C**
Prep Date/Time: **11/30/2015 13:42**
Spike Init Wt./Vol.: 167 mg/Kg Extract Vol: 1 mL
Dupe Init Wt./Vol.: 167 mg/Kg Extract Vol: 1 mL

Print Date: 12/16/2015 9:26:49AM



Method Blank

Blank ID: MB for HBN 1725672 [XXX/34689]

Blank Lab ID: 1305860

QC for Samples:

1156886015

Matrix: Soil/Solid (dry weight)

Results by AK103

<u>Parameter</u>	<u>Results</u>	<u>LOQ/CL</u>	<u>DL</u>	<u>Units</u>
Residual Range Organics	10.0U	20.0	6.20	mg/Kg
Surrogates				
n-Triacontane-d62 (surr)	90.6	60-120		%

Batch Information

Analytical Batch: XFC12216

Analytical Method: AK103

Instrument: HP 6890 Series II FID SV D R

Analyst: NLL

Analytical Date/Time: 12/1/2015 4:33:00PM

Prep Batch: XXX34689

Prep Method: SW3550C

Prep Date/Time: 11/30/2015 1:42:32PM

Prep Initial Wt./Vol.: 30 g

Prep Extract Vol: 1 mL

Print Date: 12/16/2015 9:26:50AM



Blank Spike Summary

Blank Spike ID: LCS for HBN 1156886 [XXX34689]
Blank Spike Lab ID: 1305861
Date Analyzed: 12/01/2015 16:43

Spike Duplicate ID: LCSD for HBN 1156886
[XXX34689]
Spike Duplicate Lab ID: 1305862
Matrix: Soil/Solid (dry weight)

QC for Samples: 1156886015

Results by AK103

Parameter	Blank Spike (mg/Kg)			Spike Duplicate (mg/Kg)			CL	RPD (%)	RPD CL
	Spike	Result	Rec (%)	Spike	Result	Rec (%)			
Residual Range Organics	167	179	107	167	174	104	(60-120)	2.70	(< 20)

Surrogates

n-Triacontane-d62 (surr)	3.33	101	101	3.33	97.9	98	(60-120)	2.80	
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Batch Information

Analytical Batch: **XFC12216**
Analytical Method: **AK103**
Instrument: **HP 6890 Series II FID SV D R**
Analyst: **NLL**

Prep Batch: **XXX34689**
Prep Method: **SW3550C**
Prep Date/Time: **11/30/2015 13:42**
Spike Init Wt./Vol.: 167 mg/Kg Extract Vol: 1 mL
Dupe Init Wt./Vol.: 167 mg/Kg Extract Vol: 1 mL

Print Date: 12/16/2015 9:26:53AM



1156886



SGS Environmental Services
200 West Potter Road
Anchorage, AK 99518
(907) 562-2343
www.sgs.com/alaska

SGS NORTH AMERICA INC. CHAIN OF CUSTODY

SECTION 1 CLIENT: <u>Restoration Science & Eng. LLC</u> CONTACT: <u>NICK BRAMAN</u> PROJECT NAME: <u>NPL RAIN CLEANUP</u> REPORTS TO: <u>RSE</u> INVOICE TO: <u>RSE</u>		PHONE #: <u>278 1023</u> PROJECT/ PWS/ PERMIT #: <u>278 1023</u> E-MAIL: <u>NBRAMAN@restsci.com</u> QUOTE #: <u>15-1454</u> P.O. #: <u>15-1454</u>		SECTION 3 INSTRUCTIONS: SECTIONS 1-5 MUST BE FILLED OUT. OMISSIONS MAY DELAY THE ONSET OF ANALYSIS.		Page of <u>22</u>											
SECTION 2 RESERVED FOR LAB USE SAMPLE IDENTIFICATION DATE TIME MATRIX CODE		# CONTAINERS SAMPLE TYPE: Comp Grab MI (Multi-incremental)		PRESERVATIVE HMC VOCs AK 102103 PR0/PR0		REMARKS/ LOC ID PR0 AK 101											
11	A-B	RV-109	11/25/15	1300	S	2	6										
12	A-B	RV-110	11/25/15	1310	S	2	6										
13	A-B	RV-125	11/25/15	1050	S	2	6										
14	A-B	RV-Y	11/25/15	0800	S	2	6										
15	A-B	RV-3-1	11/25/15	1330	S	2	6										
16	A	TRIP BANK			S	1	6										
SECTION 5 RELINQUISHED BY: (1) RELINQUISHED BY: (2) RELINQUISHED BY: (3) RELINQUISHED BY: (4)		DATE TIME RECEIVED BY:		DATE TIME RECEIVED BY:		DATE TIME RECEIVED BY:		DATE TIME RECEIVED FOR LABORATORY BY:		SECTION 4 DOD Project? COC ID: Cooler ID:		DATA DELIVERABLE REQUIREMENTS: REQUESTED TURNAROUND TIME AND/OR SPECIAL INSTRUCTIONS HOLD ALL DR0/RRO ANALYSIS EXCEPT FOR R-U-3-1		CHAIN OF CUSTODY/SEAL: (CIRCLE) INTACT <input type="checkbox"/> BROKEN <input checked="" type="checkbox"/> ABSENT <input type="checkbox"/> (See attached Sample Receipt Form)			

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F101_eCOC_Revised_2014-12-10



1156886



1 1 5 6 8 8 6

SAMPLE RECEIPT FORM

Review Criteria:	Yes	N/A	No	Comments/Action Taken:
Were custody seals intact? Note # & location, if applicable. COC accompanied samples?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<i>Exemption permitted if sampler hand carries/delivers.</i>
Temperature blank compliant* (i.e., 0-6°C after CF)? <i>If >6°C, were samples collected <8 hours ago?</i> <i>If <0°C, were all sample containers ice free?</i> Cooler ID: <u>1</u> @ <u>2.5</u> w/ Therm.ID: <u>D2</u> Cooler ID: _____ @ _____ w/ Therm.ID: _____ Cooler ID: _____ @ _____ w/ Therm.ID: _____ Cooler ID: _____ @ _____ w/ Therm.ID: _____ Cooler ID: _____ @ _____ w/ Therm.ID: _____ If samples are received <u>without</u> 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 <u>nor</u> cooler temp can be obtained, note "ambient" or "chilled."	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<i>Exemption permitted if chilled & collected <8 hrs ago.</i> <i>Note: Identify containers received at non-compliant temperature. Use form FS-0029 if more space is needed.</i>
Delivery method (specify all that apply): <input checked="" type="checkbox"/> Client (hand carried) <input type="checkbox"/> USPS <input type="checkbox"/> Lynden <input type="checkbox"/> AK Air <input type="checkbox"/> Alert Courier <input type="checkbox"/> UPS <input type="checkbox"/> FedEx <input type="checkbox"/> RAVN <input type="checkbox"/> C&D Delivery <input type="checkbox"/> Carlife <input type="checkbox"/> Pen Air <input type="checkbox"/> Warp Speed <input type="checkbox"/> Other: _____ → For WO# with airbills, was the WO# & airbill info recorded in the Front Counter eLog?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
	Yes	N/A	No	
Were samples received within hold time? Do samples match COC* (i.e., sample IDs, dates/times collected)? Were analyses requested unambiguous?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<i>Note: Refer to form F-083 "Sample Guide" for hold times.</i> <i>Note: If times differ <1hr, record details and login per COC.</i>
Were samples in good condition (no leaks/cracks/breakage)? Packing material used (specify all that apply): <input checked="" type="checkbox"/> Bubble Wrap <input type="checkbox"/> Separate plastic bags <input type="checkbox"/> Vermiculite <input type="checkbox"/> Other:	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Were proper containers (type/mass/volume/preservative*) used? Were Trip Blanks (i.e., VOAs, LL-Hg) in cooler with samples? Were all VOA vials free of headspace (i.e., bubbles ≤6 mm)? Were all soil VOAs field extracted with MeOH+BFB?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> <i>Exemption permitted for metals (e.g., 200.8/6020A).</i>
For preserved waters (other than VOA vials, LL-Mercury or microbiological analyses), was pH verified and compliant ? If pH was adjusted, were bottles flagged (i.e., stickers)?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
For special handling (e.g., "MI" soils, foreign soils, lab filter for dissolved..., lab extract for volatiles, Ref Lab, limited volume), were bottles/paperwork flagged (e.g., sticker)?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
For RUSH/SHORT Hold Time , were COC/Bottles flagged accordingly? Was Rush/Short HT email sent, if applicable?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
For SITE-SPECIFIC QC, e.g. BMS/BMSD/BDUP , were containers / paperwork flagged accordingly?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
For any question answered "No," has the PM been notified and the problem resolved (or paperwork put in their bin)?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	SRF Completed by: VDL 11/25/15 PM notified:
Was PEER REVIEW of <i>sample numbering/labeling completed</i> ?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Peer Reviewed by: EDJ
Additional notes (if applicable):				

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



Sample Containers and Preservatives

<u>Container Id</u>	<u>Preservative</u>	<u>Container Condition</u>	<u>Container Id</u>	<u>Preservative</u>	<u>Container Condition</u>
1156886001-A	No Preservative Required	OK			
1156886001-B	Methanol field pres. 4 C	OK			
1156886002-A	No Preservative Required	OK			
1156886002-B	Methanol field pres. 4 C	OK			
1156886003-A	No Preservative Required	OK			
1156886003-B	Methanol field pres. 4 C	OK			
1156886004-A	No Preservative Required	OK			
1156886004-B	Methanol field pres. 4 C	OK			
1156886005-A	No Preservative Required	OK			
1156886005-B	Methanol field pres. 4 C	OK			
1156886006-A	No Preservative Required	OK			
1156886006-B	Methanol field pres. 4 C	OK			
1156886007-A	No Preservative Required	OK			
1156886007-B	Methanol field pres. 4 C	OK			
1156886008-A	No Preservative Required	OK			
1156886008-B	Methanol field pres. 4 C	OK			
1156886009-A	No Preservative Required	OK			
1156886009-B	Methanol field pres. 4 C	OK			
1156886010-A	No Preservative Required	OK			
1156886010-B	Methanol field pres. 4 C	OK			
1156886011-A	No Preservative Required	OK			
1156886011-B	Methanol field pres. 4 C	OK			
1156886012-A	No Preservative Required	OK			
1156886012-B	Methanol field pres. 4 C	OK			
1156886013-A	No Preservative Required	OK			
1156886013-B	Methanol field pres. 4 C	OK			
1156886014-A	No Preservative Required	OK			
1156886014-B	Methanol field pres. 4 C	OK			
1156886015-A	No Preservative Required	OK			
1156886015-B	Methanol field pres. 4 C	OK			
1156886016-A	Methanol field pres. 4 C	OK			

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 that an inappropriate container was submitted.

OK - The container was received at an acceptable pH for the analysis requested.

PA - The container was received outside of the acceptable pH for the analysis requested. Preservative was added upon receipt and the container is now at the correct pH. See the Sample Receipt Form for details on the amount and lot # of the preservative added.

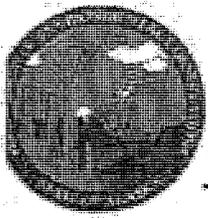
PH - The container was received outside of the acceptable pH for the analysis requested. Preservative was added upon receipt, but was insufficient to bring the container to the correct pH for the analysis requested. See the Sample Receipt Form for details on the amount and lot # of the preservative added.

BU - The container was received with headspace greater than 6mm.

ATTACHMENT F

Soil Transport Form

ASR Weigh Tickets



**ALASKA DEPARTMENT OF ENVIRONMENTAL CONSERVATION
DIVISION OF SPILL PREVENTION AND RESPONSE
Contaminated Sites and Prevention and Emergency Response Programs**

Transport, Treatment, & Disposal Approval Form for Contaminated Media

DEC HAZARD/SPILL ID #		NAME OF SPILL OR CONTAMINATED SITE	
15239929501		Jet Fuel Spill: Anchorage International Airport	
SITE OR SPILL LOCATION			
4700 Old International Airport Road, Anchorage, Alaska 99502			
CURRENT LOCATION AND TYPE OF CONTAMINATED MEDIA		SOURCE OF THE CONTAMINATION	
Soil and gravel		leaking tank / trailer	
COMPOUNDS OF CONCERN	ESTIMATED VOLUME	DATE(S) GENERATED	
hydrocarbons	50 to 100 gallons	10/21/2015	
POST TREATMENT ANALYSIS REQUIRED (such as GRO, DRO, RRO, BTEX, and/or Chlorinated Solvents)			
GRO, DRO, RRO, and BTEX			
COMMENTS			
Tank / Tanker last contained Jet Fuel. MSDS provided			

Facility Accepting the Contaminated Media

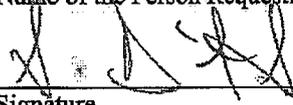
NAME OF THE FACILITY	PHYSICAL ADDRESS/PHONE NUMBER
Alaska Soil Recycling	2301 Spar Ave., Anch., AK. 99501

Responsible Party and Contractor Information

BUSINESS/NAME	ADDRESS/PHONE NUMBER
NRC Alaska, LLC.	619 E. Ship Creek, Ste. 309, Anch., AK. 99502 (907) 258-1558

S. Daniel Strucher

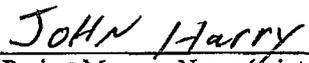
Project Manager

Name of the Person Requesting Approval (printed)

 Signature

Title/Association
 10/26/2015 (907)646-5089
 Date Phone Number

DEC USE ONLY

Based on the information provided, ADEC approves transport of the above-described media for treatment in accordance with the approved facility operations plan. The Responsible Party or their consultant must submit to the DEC Project Manager a copy of weight/volume receipts of the loads transported to the facility and a post treatment analytical report. If the media is contaminated soil, it shall be transported as a covered load in compliance with 18 AAC 60.015.


 DEC Project Manager Name (printed)

 Signature


 Project Manager Title
 10/26/15 269-7566
 Date Phone Number

ASR

A Division of Anchorage Sand & Gravel Co. Inc.
 1040 O'Malley Road, Anchorage, Alaska 99515
 Phone (907) 349-3333, Fax (907) 344-2844

ASR Received Material Total

Customer: NRC Alaska
Project: RAVN Alaska, AIA Jet Fuel

ASR Account #: 521809-1504

Date	Truck #	Ticket # (Tare)	Tare (lbs)	Ticket # (Gross)	Gross (lbs)	Net (lbs)	Tons POL	Billed Tons	2" minus Fill Mtl
10/27/15	LW66	94392	34,640	94391	94,600	59,960	29.98		
		94389	34,620	94388	91,940	57,320	28.66		
10/28/15	121	42920	38,260	42925	88,080	49,820	24.91		
10/28/15	LW66	42912	36,320	42926	93,180	56,860	28.43		
		42912	36,320	42921	99,360	63,040	31.52		
		42912	36,320	42916	99,700	63,380	31.69		
		42912	36,320	42906	93,900	57,580	28.79		
10/29/15	LW66	42935	34,380	42932	89,900	55,520	27.76		
		42935	34,380	42952	94,120	59,740	29.87		
		42935	34,380	42938	94,240	59,860	29.93		
		42935	34,380	42942	96,440	62,060	31.03		
10/29/15	121	42929	38,420	42937	93,220	54,800	27.40		
		42929	38,420	42950	89,560	51,140	25.57		
		42929	38,420	42939	93,140	54,720	27.36		
		42929	38,420	42940	86,480	48,060	24.03		
10/30/15	LW66	42957	34,480	42976	92,760	58,280	29.14		
		42957	34,480	42972	90,800	56,320	28.16		
		42957	34,480	42968	91,120	56,640	28.32		
		42957	34,480	42960	92,840	58,360	29.18		
		42957	34,480	42959	74,500	40,020	20.01		
10/30/15	120	42958	38,020	42973	89,360	51,340	25.67		
		42958	38,020	42970	87,940	49,920	24.96		
		42958	38,020	42965	98,840	60,820	30.41		
		42958	38,020	42963	89,060	51,040	25.52		
10/31/15	LW66	94416	38,100	94418	97,440	59,340	29.67		
		94416	38,100	94419	97,100	59,000	29.50		
		94416	38,100	94417	94,320	56,220	28.11		
		94416	38,100	94415	101,520	63,420	31.71		
11/2/15	LW66	42993	43,260	43006	95,220	51,960	25.98		

Customer: NRC Alaska

Project: RAVN Alaska, AIA Jet Fuel

ASR Account #: 521809-1504

Date	Truck #	Ticket # (Tare)	Tare (lbs)	Ticket # (Gross)	Gross (lbs)	Net (lbs)	Tons POL	Billed Tons	2" minus Fill Mtl
		42993	43,260	42992	98,720	55,460	27.73		
11/3/15	LW66	43012	39,480	43011	93,380	53,900	26.95		
		43012	39,480	43022	96,420	56,940	28.47		
		43012	39,480	43020	97,300	57,820	28.91		
		43012	39,480	43014	91,580	52,100	26.05		
11/4/15	LW66	43038	41,880	43039	92,320	50,440	25.22		
		43038	41,880	43037	85,560	43,680	21.84		
		43038	41,880	43034	89,020	47,140	23.57		
						0	0.00		

Total	1,022.01	0
Billed		0.00
Remaining	1,022.01	