2012 WATER MONITORING REPORT

EUREKA LODGE
MILE 128 GLENN HIGHWAY, ALASKA

ADEC File Number 210.38.006
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ACRONYMS AND ABBREVIATIONS

AAC ..... Alaska Administrative Code
ADEC..... Alaska Department of Environmental Conservation
AK101 ..... Alaska Method AK 101
AK102 ..... Alaska Method AK 102
AST..... Above-ground storage tank
bgs..... Below ground surface
BTEX ..... Benzene, toluene, ethylbenzene, and total xylenes
°C..... Degrees Celsius
CPD ..... Crowley Petroleum Distribution, Inc.
COC..... Chain-of-custody
DRO..... Diesel-range organics
DTW..... Depth-to-water
EPA..... United States Environmental Protection Agency
ESC ..... ESC Lab Sciences, Inc.
GRO..... Gasoline-range organics
mg/L..... Milligrams per liter
MLFA ..... Michael L. Foster & Associates
OASIS..... OASIS Environmental, Inc., an ERM Company
PAH ..... Polynuclear aromatic hydrocarbon
QA/QC ..... Quality assurance/quality control
QAR..... Quality Assurance Report
TAH..... Total aromatic hydrocarbons
TAqH..... Total aqueous hydrocarbons

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1. INTRODUCTION

This water monitoring report presents the results of groundwater and surface water sampling activities conducted by OASIS Environmental, Inc., an ERM Company (OASIS) in July 2012 at the Eureka Lodge aboveground storage tank (AST) site located near Glennallen, Alaska,

Monitoring activities were conducted in accordance with the work plan *2012 Groundwater and Surface Water Monitoring Work Plan* dated June 4, 2012, as approved by the Alaska Department of Environmental Conservation (ADEC; OASIS 2012). The ADEC file number for the site is 210.38.006. This report was prepared in accordance with Title 18 of the Alaska Administrative Code, Chapter 75 (18 AAC 75), Article 3, entitled *Oil and Hazardous Substance Pollution Control Regulations, Discharge Reporting, Cleanup, and Disposal of Oil and Other Hazardous Substances*, revised as of October 9, 2008 (ADEC 2008) and *Site Characterization Work Plan and Reporting Guidance for Investigation of Contaminated Sites* (ADEC 2009).

The primary objective of the monitoring activities was to evaluate the nature and extent of petroleum hydrocarbon impact to subsurface soil, groundwater, and surface water resulting from a spill of supreme unleaded gasoline during supply truck to tank filling operations.

The ADEC-qualified persons conducting the sample collection activities for OASIS were Ms. Sarah Christiansen. Mrs. Elsie King evaluated analytical data. Ms. Christiansen and Mr. Richard Girouard conducted data interpretation and reporting.

This document outlines the technical and analytical approaches employed during fieldwork and characterizes actual contaminants detected. This document includes site background information (Section 2); investigation activities (Section 3); site observations and analytical results (Section 4); conclusions (Section 5); and references (Section 6).

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2. SITE BACKGROUND

2.1. Site Location and Description

Eureka Lodge is located at mile 128 of the Glenn Highway, and 30 miles west of Glennallen, Alaska (Figure 1). The above ground storage tanks are located at approximately 61°56'17.39" north latitude and -147°10'20.73" west longitude, on the north side of the Glenn Highway, east of the Lodge (Figure 2). The site is located within Bureau of Land Management Public Land Survey Section 1, Township 21 North, Range 12 East, Seward Meridian.

2.2. Site Operations and History

The building and fuel tanks are owned and operated by the Eureka Lodge (Mr. and Mrs. Jim and Darla Fimpel). The fuel tanks are filled as needed by CPD Alaska, LLC (CPD). There are two fuel ASTs at the site: a west tank, with an 8,000-gallon capacity utilized for regular unleaded gasoline, and a 6,000-gallon duel compartment east tank comprised of a 2,000-gallon northern compartment used for supreme unleaded and a 4,000-gallon southern compartment used for diesel fuel. Both tanks are skid mounted.

2.3. Previous Site Investigations

2.3.1. June 2010 Removal

On June 11, 2010, during normal filling operations, CPD overfilled one of two ASTs located at the Eureka Lodge. A total of ten gallons of supreme unleaded were reported as spilled. CDP contacted Michael L. Foster & Associates, Inc. (MLFA) and an initial removal of impacted soil was conducted on June 15 and 16, 2010.

On June 15 and 16, 2010, MLFA and CPD hand-excavated and removed impacted soil from adjacent to and below the East Tank to a depth ranging from 11 to 18 inches below ground surface (bgs). Depth of excavation was limited by harder soils located beyond 18 inches bgs. Field observations and analytical results indicated that not all fuel-impacted soil was removed and that impact from a previous release event was encountered.

After conducting the June 2010 removal, MLFA collected soil samples from the excavation floor near the release center and at the north and south excavation extents. Analytical results from the excavation floor indicate gasoline-range organics (GRO), diesel-range organics (DRO), and benzene, toluene, ethyl-benzene, and total xylenes (BTEX) remain present above the associated ADEC Method Two cleanup concentrations. A total of nine super-sacks containing 13 tons of soil were shipped to Alaska Soil Recycling in Anchorage, Alaska for thermal remediation. The excavation was not backfilled; instead it was kept open but covered in anticipation of the need for further excavation and removal work.

2.3.2. September Removal

On September 28 and 29, 2010, MLFA returned to the site under contract to CPD and conducted additional soil excavation and remedial activities. The east tank and an adjacent shed were moved temporarily to gain access to contaminated soil. MLFA excavated approximately 57 cubic yards (86 tons) of contaminated soil. The excavation material consisted primarily of fill material comprised of dry, brownish/grey silt and silty gravel from the surface to six feet bgs. Dark, grey moist silt was encountered below 6 feet bgs. Groundwater was not encountered during excavation activities. The excavation ranged from four feet bgs on the northern side to seven feet bgs throughout the remainder of the excavation. The excavation averaged 12 feet wide by 23 feet long. The excavation continued on the west wall until further excavation may have affected the stability of the adjacent AST. Excavation sidewall and floor confirmation samples collected prior to back fill contained up to 21.2 milligrams per kilogram (mg/kg) benzene, 604 mg/kg GRO, 19.2 mg/kg ethylbenzene, 84.7 mg/kg xylenes, and 10,900 mg/kg DRO.

The excavation was backfilled with clean material on September 30, 2010. Polyethylene sheeting was placed along the excavation walls prior to backfilling to delineate the clean backfill extents. ADEC assigned spill number 10239916202 to the site and transferred site administration from Spill Prevention and Response Program (SPAR) to the Contaminated Sites program within ADEC.

2.3.3. June 2011 Field Activities

In 2011, OASIS conducted field activities to further characterize the impact to soil, groundwater, and surface water. A total of eight borings were advanced to a depth of 20' bgs and sampled. Two of the borings from the south had analytical results indicating elevated levels of DRO and benzene. SB-02/MW-01 had a DRO concentration of 4,000 mg/kg and a benzene concentration of 0.049 mg/kg. SB-03 had a benzene concentration of 18 mg/kg. Three of these borings were completed as monitoring wells to collect groundwater samples. However, MW-1 and MW-3 were dry and could not be sampled. Analytical results from the groundwater sample collected from MW-02 and the surface water samples collected from the nearby lake, showed that analyte concentrations were below ADEC cleanup levels. Analytical results for two surface water samples collected at the northern unnamed lake indicated no impact to surface water. A sheen test conducted on shoreline sediments did not produce sheen.

2.4. Project Scope and Objectives

The scope of the project is to monitor for potential petroleum hydrocarbon impact to groundwater and surface water at the Eureka Lodge Fuel Tank Site (Figure 2). OASIS's approach complies with ADEC criteria for implementing this objective. The following tasks were performed to meet these objectives:

- Collect groundwater samples from the three monitoring wells installed in 2011.

- Collect one surface water sample at the south shore of the unnamed lake and one sample from the on-site drinking water system intake.
- Conduct an elevation survey to determine the relative elevation of groundwater in each well and the surface water elevation of the unnamed lake to the north.
- Prepare a report detailing the field results, and off-site analytical data as compared to relevant ADEC groundwater, and surface water criteria.

2.5. Regulatory Standards

Groundwater monitoring results for samples collected from the monitoring wells will be compared to 18 AAC 75.345, Table C Groundwater Cleanup Levels. Surface water samples will be collected and evaluated against Alaska Water Quality Standards found in 18 AAC 70.020(b)(5)(A)(iii); Pollutant: Petroleum Hydrocarbons, Oils and grease, for Fresh Water Uses; Water Supply: aquaculture. The surface water samples will also be compared against the drinking water criteria listed in the Alaska Water Quality Criteria Manual for Toxic and Other Deleterious Organic and Inorganic Substances. Pertinent ADEC groundwater, and surface water cleanup levels or evaluation criteria are summarized in Table 1.

TABLE 1: ADEC CLEANUP LEVELS

Contaminant of Concern	**ADEC Groundwater Cleanup Level** (mg/L)	**ADEC Surface Water Quality Standards** (mg/L)
GRO	2.2	--
DRO	1.5	--
Benzene	0.005	0.005
Toluene	1.0	1.0
Ethylbenzene	0.7	0.7
Total Xylenes	10	10
TAH	--	0.01
TAqH	--	0.015

Key:
ADEC = Alaska Department of Environmental Conservation
BTEX = Benzene, toluene, ethylbenzene, and xylenes
DRO = Diesel-range organics
GRO = Gasoline-range organics
mg/L = Milligrams per liter
PAH = Polynuclear aromatic hydrocarbon
TAH = Total aromatic hydrocarbons
TAqH = Total aqueous hydrocarbons

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3. SITE ASSESSMENT ACTIVITIES

This section describes field activities conducted in support of the Eureka Lodge site assessment objectives. Deviations from the work plan include the following:

- Monitoring well purge techniques were modified due to limited groundwater recharge in the monitoring wells.
- Sample bottles for PAH analysis were not completely filled due to limited groundwater volume in the wells.
- The sample location for the drinking water system was different than that depicted in the work plan. The sample was collected from inside the well house located just east of the lodge. This location is consistent with the 2011 sample location.

A summary of sample collection and analyses by date, time, location, and matrix is provided in Table 1. Figure 3 depicts the sample analytical results from MW-1, MW-2, and MW-3, and the surface water sample locations and associated analytical results.

Relative groundwater and surface water elevations, based on an arbitrary elevation datum, are presented in Table 2. Field gathered water quality parameters are presented in Table 3. Table 4 presents the groundwater analytical results, and Table 5 presents the surface water analytical results.

Field notes and field-generated forms are included as Appendix A.

3.1. Groundwater Sampling

Prior to sampling, each well was gauged for depth-to-groundwater (DTW). No free-phase hydrocarbons were encountered at any of the well locations. Table 2 presents groundwater elevation calculations for the permanent monitoring wells.

After recording the DTW measurements, wells were purged, however, limited recharge preventing purging with minimum drawdown in the three monitoring wells. No significant recharge occurred in the wells after 5 hours. The field team monitored and recorded readings for pH, temperature, specific conductivity, and dissolved oxygen (Appendix A). Readings for each field-gathered water quality parameter, including field observations of groundwater color and odor, are presented in Table 4.

After purging to the extent possible given the limited recharge, samples were collected for laboratory analysis. All groundwater samples were submitted for GRO, DRO, BTEX, and poly aromatic hydrocarbons (PAH) analysis, however there was insufficient volume from MW-1 to conduct the PAH analysis.

Water samples were collected directly into laboratory provided and, as appropriate, pre-preserved sample containers. Sample containers were labeled with field sample identification numbers, the date and times of collection, and analyses requested.

Duplicate samples were collected at a frequency of 10% per method for QA/QC purposes. Laboratory prepared trip blanks accompanied all BTEX and GRO samples from the laboratory, to the field, and back to the laboratory.

Field personnel placed all groundwater samples into a cooler with gel ice, maintaining the required temperature range of 4°C ± 2°C. Chain-of-Custody (COC) procedures were followed. Table 1 summarizes the groundwater samples collected, locations, and requested analyses.

Laboratory analytical results are discussed in Section 4.

3.2. Surface Water Sampling

The field team collected one surface water sample from the south shore of the unnamed lake located approximately 40 feet north of the ASTs and one sample from inside the well house located just east of the lodge building (Figure 2). The sample was collected from a point just prior to the water entering the drinking water treatment system. Field parameters for the surface water were taken from sample location SW-02 at the edge of the unnamed lake. Before sampling the south shoreline of the unnamed lake, the soil was evaluated for sheen, with no sheen noted by the field team. Samples were analyzed for GRO, DRO, BTEX, and PAHs. The concentrations of total aromatic hydrocarbons (TAH) and total aqueous hydrocarbons (TAqH) were calculated using the BTEX and PAH results and is presented in Table 5.

Field personnel placed all surface water samples into a cooler with gel ice, maintaining the required temperature range of 4°C ± 2°C. COC procedures were followed. Table 1 summarizes the surface water samples collected, locations, and requested analyses.

Laboratory analytical results are discussed in Section 4.

3.2.1. Monitoring Well Survey

The surface water elevation of the unnamed lake to the north at the time of sampling was surveyed. When the monitoring wells were installed, the tops of the PVC casings were surveyed using an arbitrary elevation datum and this was used to determine the surface water elevation. DTW measurements were collected from the monitoring wells to compare with the surface water elevation. In addition, groundwater gradient and flow direction are discussed in Section 4.

4. SITE OBSERVATIONS AND ANALYTICAL RESULTS

This section presents a discussion of field observations and the analytical results of soil, groundwater, and surface water sampling. A summary of samples collected and analyses performed is presented in Table 1. Survey data is presented in Table 2. Field-gathered water quality data are summarized in Table 3. Groundwater and surface water analytical results along with the regulatory standards used to evaluate the analytical data are presented in Tables 4 and 5 and included on Figure 4.

Laboratory analytical results are provided in Appendix B. The completed Quality Assurance Report (QAR) and a completed ADEC checklist (ADEC 2010a) are included as Appendix C.

4.1. Field Observations

4.1.1. Groundwater Table Observations

Groundwater was present in all three wells. However, MW1 and MW-2, located south and east of the ASTs, appeared to be frozen at depths of 8.04 ft and 6.86 ft, respectively. MW-3, located north of the ASTs, contained water to a depth of 19.35 ft bgs. The groundwater elevations of the three monitoring wells are lower than the surface water elevation of the unnamed lake to the north. Based on the groundwater elevations measured in the three wells, the apparent groundwater flow direction is to the southwest.

No separate-phase hydrocarbons were observed in any of the wells during purging and sampling.

4.2. Laboratory Analytical Results

4.2.1. Analytical Methods

Groundwater and surface water analytical results are summarized in Tables 4 and 5, and on Figure 4. All samples were submitted to the project laboratory, TestAmerica in Anchorage in accordance with standard COC procedures outlined in the work plan. Duplicate samples were collected at a frequency of 10% per method and matrix for QA/QC purposes. All samples were preserved and stored at a temperature of 4°C ± 2°C for laboratory analysis.

Groundwater and surface water samples were analyzed for the following site assessment target analytes using the methods specified:

- GRO/BTEX (AK101/EPA SW8260B); and,
- DRO (AK102).
- PAHs (EPA SW8270C with select ion monitoring [SIM]).

4.2.2. Groundwater Sampling Analytical Results

Groundwater was present at all three permanent groundwater wells (MW-1, MW-2, and MW-3) installed at the site. Groundwater analytical results are presented in Table 4 and summarized on Figure 4.

All samples were analyzed for GRO, DRO, BTEX. In addition, MW-2 and MW-3 were analyzed for PAHs. MW-1 did not have sufficient water for PAH analysis. The analytical results were reported as not detected for most analytes. DRO was detected in all three wells but at estimated concentrations that were well below their respective ADEC groundwater cleanup levels. In addition to DRO, total xylenes were detected in MW-2 and in MW-3, and phenanthrene was detected in MW-2. The reported concentrations for total xylenes and phenanthrene did not exceed their respective cleanup levels. The results also did not exceed ADEC surface water quality standards. There is no numerical surface water quality standard established for DRO.

4.2.3. Surface Water Sampling Results

GRO and PAH results were reported as not detected. DRO was detected in the lake water sample and the field duplicate sample at concentrations below the ADEC groundwater cleanup level (again, there is no numerical surface water quality standard established for DRO). Toluene and total xylenes were also detected in the surface water samples, however, these compounds were also detected in the trip blank at similar concentrations and the detections may have been the result of sample contamination. Regardless of the origin of these compounds, the results were below ADEC surface water quality stands.

Analytical results are summarized in Table 5 and on Figure 4.

5. CONCLUSIONS AND RECOMMENDATIONS

Site assessment activities were conducted by OASIS at the Eureka Lodge AST site located near Glennallen, Alaska in July 2012. Three monitoring wells and two surface water samples were collected.

5.1. Conclusions

Groundwater

The analytical results for the groundwater samples collected from the three monitoring wells in July 2012 indicate that the groundwater at the site is not impacted by petroleum hydrocarbons above ADEC cleanup levels. Only three target analytes were detected above reporting limits, DRO, phenanthrene, and total xylenes, all at concentrations below their respective ADEC Table C groundwater cleanup levels. In addition, the shallow groundwater at the site does not appear to be a productive aquifer as evidenced by the lack of measurable recharge in the monitoring wells during the sampling activities.

Measured elevations for both the groundwater and the surface of the lake indicate that groundwater at the release location does not flow towards the lake. In addition, the groundwater appears to freeze during the winter and no movement would occur during frozen conditions.

Surface Water

Analytical results for samples from the two surface water sample locations to the north of the ASTs indicate that there is no petroleum hydrocarbon impact to the surface water above ADEC water quality standards. DRO was detected at low concentrations in the samples. Toluene and total xylenes were also detected but these may have been caused by sample contamination. No other target analytes were detected above reporting limits. All of the results were below ADEC water quality standards for drinking water. Also, a sheen test conducted on the south shore of the unnamed lake was negative for sheen.

The origin of the DRO detected in the surface water is uncertain. The June 2010 release was of gasoline, not diesel fuel. Although some of the hydrocarbon compounds found in gasoline will quantify as DRO when analyzed, if the reported DRO was from gasoline one would expect to see detections of GRO in addition to the DRO. However, GRO was not detected in either the groundwater or the surface water during this monitoring event. Further, gasoline contains BTEX and only two of these compounds were detected and at very low concentrations. Given this, it does not appear that the DRO detected in the lake is from the gasoline release.

It is possible that some or all of the reported DRO is of biogenic origin and not from petroleum hydrocarbons. The surface soils around the lake contain tundra peat which is known to contain compounds that add to the reported DRO concentration when analyzed by AK102. In addition, PAH compounds, which are typically found in diesel

fuel, were not detected in the surface water. This suggests that the detected DRO could be biogenic.

5.2. Recommendations

The groundwater and surface water sample results show that water at the site is not impacted as a result of the June 2010 gasoline spill. No further action appears warranted at the site as a result of this release.

6. REFERENCES

Alaska Department of Environmental Conservation (ADEC) 2008. Alaska Administrative Code*, Title 18, Environmental Conservation Chapter 75, Oil and Other Hazardous Substances Pollution Control.* October 9.

ADEC. 2009. *Site Characterization Work Plan and Reporting Guidance for Investigation of Contaminated Sites*. September 23.

OASIS Environmental, an ERM Company. (OASIS). 2012. *2012 Groundwater and Surface Water Monitoring Work Plan, Eureka Lodge, Alaska*.

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TABLES

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TABLE 1
SAMPLE COLLECTION SUMMARY
2012 Eureka Lodge Water Monitoring
Crowley Maritime Corporation
Mile 128 Glenn Highway, Alaska

Location	Sample No. (11-EUR-)	Duplicate	MS/MSD	Sample Date	Sample Time	Laboratory Analysis			
						GRO (AK 101)	BTEX (EPA8260B)	DRO (AK 102)	PAH (EPA 8270-SIM)
Groundwater Samples									
MW-1	12-ERK-MW01			7/31/2012	1215	✓(1)	✓(1)	✓	✗
MW-2	12-ERK-MW02			7/31/2012	1145	✓(1)	✓(1)	✓	✓
MW-3	12-ERK-MW03			7/31/2012	1300	✓(1)	✓(1)	✓	✓
Surface Water Samples									
Well House	12-ERK-SW01	✓		7/31/2012	1600	✓(1)	✓(1)	✓	✓
Lake	12-ERK-SW02		✓	7/31/2012	1430	✓(1)	✓(1)	✓	✓
QA Samples									
--	Trip Blank (520543)			7/31/2012	2300	✓	✓	NA	NA

Notes: (1) = associated with Trip Blank 520543
✓ = Sample taken
✗ = Insufficient sample volume, samples not taken

Key:

DRO = Diesel-range organics
EPA = United States Environmental Protection Agency
GRO = Gasoline-range organics
MS/MSD = Matrix spike/duplicate matrix spike
NA = not assigned
PAH = Polynuclear aromatic hydrocarbons
QA = quality assurance trip blanks for volatile fraction
SIM = Selective ion monitoring

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TABLE 2
GROUNDWATER SURFACE WATER ELEVATION DATA
2012 Eureka Lodge Water Monitoring
Crowley Maritime Corporation
Mile 128 Glenn Highway, Alaska

Well ID	MP Elevation (feet)	Gauge Date	Depth to Product (feet BTOC)	Depth to Water (feet BTOC)	Actual Product Thickness (feet)	Water Elevation (feet MSL)	Higher or Lower Than Lake Elevation?
Permanent Wells							
MW-1	88.66	6/7/2011	*Dry*				
		6/8/2011	*Dry*				--
		6/9/2011	*Dry*				--
		7/31/2012	--	*5.71*	--	*82.95*	lower
MW-2	90.81	6/7/2011	--	18.28	--	72.53	lower
		6/8/2011	--	18.42	--	72.39	lower
		6/9/2011	--	13.11	--	77.70	lower
		7/31/2012	--	4.05	--	86.76	lower
MW-3	89.73	6/7/2011	*Dry*				--
		6/8/2011	*Dry*				--
		6/9/2011	*Dry*				--
		7/31/2012	--	*4.38*	--	*85.35*	lower

Lake Elevation - July 31, 2012:	**92.47**

Key:
-- = Not applicable
BTOC = Below top of casing, a.k.a. below measuring point
MP = Measuring point (a.k.a. PVC Elevation/top of casing)
MSL = Mean seal level

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TABLE 3
FIELD-COLLECTED GROUNDWATER QUALITY PARAMETERS
2012 Eureka Lodge Water Monitoring
Crowley Maritime Corporation
Mile 128 Glenn Highway, Alaska

Location	Purge/Sample Date	Color	Odor	pH	Temperature (°C)	Conductivity (mS/cm)	DO (mg/L)	ORP (mV)
Groundwater								
MW-1	7/31/2012	Clear	None	6.50	2.62	554	1.78	284.70
MW-2	7/31/2012	Clear	None	5.40	5.60	87	6.03	135.0
MW-3	7/31/2012	Clear	None	6.62	4.32	360	5.29	152.0
Surface Water								
SW-02	7/31/2012	Clear	None	6.42	15.21	--	7.92	-17.2

Key:

°C = Degrees Celsius

DO = Dissolved oxygen

mS/cm = Millisiemens per centimeter

mg/L = Milligrams per liter

mV = Millivolts

ORP = Oxidation-reduction potential

-- = Reading could not be taken

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TABLE 4
GROUNDWATER SAMPLE ANALYTICAL RESULTS SUMMARY
2012 Eureka Lodge Water Monitoring
Crowley Maritime Corporation
Mile 128 Glenn Highway, Alaska

Sample ID:	ADEC Groundwater Cleanup Levels [(1)] (mg/L)	12-ERK-MW01	12-ERK-MW02	12-ERK-MW03	TRIP BLANK
Sample Date:		**7/31/2012**	**7/31/2012**	**7/31/2012**	**7/31/2012**
ADEC Fuels (AK 101, AK 102; mg/L)					
Gasoline Range Organics	2.2	ND (0.0149)	ND (0.0149)	ND (0.0149)	ND (0.0149)
Diesel Range Organics	1.5	**0.289 J**	**0.225** J,VB	**0.263** J	--
BTEX (EPA 8260B; mg/L)					
Benzene	0.005	ND (0.000064)	ND (0.000064)	ND (0.000064)	ND (0.000064)
Toluene	1.0	ND (0.0000566)	ND (0.0000566)	ND (0.0000566)	**0.000840** J, VB
Ethylbenzene	0.7	ND (0.0000504)	ND (0.0000504)	ND (0.0000504)	ND (0.0000504)
Total Xylenes	10	**0.000180** J,VB	**0.000140** J,VB	ND (0.000136)	**0.000470** J, VB
PAHs (EPA 8270; mg/L)					
Anthracene	11	--	ND (0.000504)	ND (0.0000215)	--
Acenaphthylene	2.2	--	ND (0.000504)	ND (0.0000215)	--
Acenaphthene	2.2	--	ND (0.000504)	ND (0.0000215)	--
Benzo(a)anthracene	0.0012	--	ND (0.000504)	ND (0.0000108)	--
Benzo(a)pyrene	0.0002	--	ND (0.000504)	ND (0.0000215)	--
Benzo(b)fluoranthene	0.0012	--	ND (0.000504)	ND (0.0000215)	--
Benzo(g,h,I)perylene	1.1	--	ND (0.000504)	ND (0.0000215)	--
Benzo(k)fluoranthene	0.012	--	ND (0.000504)	ND (0.0000215)	--
Chrysene	0.12	--	ND (0.000504)	ND (0.0000129)	--
Dibenzo(a,h) anthracene	0.00012	--	ND (0.000504)	ND (0.0000431)	--
Fluoranthene	1.5	--	ND (0.000504)	ND (0.0000108)	--
Fluorene	1.5	--	ND (0.000504)	ND (0.0000129)	--
Indeno(1,2,3-c,d) pyrene	0.0012	--	ND (0.000504)	ND (0.0000431)	--
Napthalene	0.73	--	ND (0.000504)	ND (0.0000215)	--
Phenanthrene	11	--	**0.000126** J	ND (0.0000108)	--
Pyrene	1.1	--	ND (0.000504)	ND (0.0000215)	--
1-Methylnaphthalene	0.15	--	ND (0.000504)	ND (0.0000215)	--
2-Methylnaphthalene	2.9	--	ND (0.000504)	ND (0.0000215)	--

Notes:
Results above ADEC cleanup values are underlined and bolded.
[(1)] 18 AAC 75.345, Table C
Key:
-- = Not analyzed
ADEC = Alaska Department of Environmental Conservation
AK = Alaska
B = Result is considered estimated, biased high, due to contamination in the associated method blank.
BTEX = Benzene, toluene, ethylbenzene, and total xylenes
EPA = United States Environmental Protection Agency
J = Result is less than reporting limit (RL) but greater than or equal to the method detection limit (MDL) and result is estimated
mg/L = Milligrams per Liter
ND = Not detected at the associated reported MDL limit
PAH = Polynuclear aromatic hydrocarbons
V = Qualifier flag added by ERM

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TABLE 5
SURFACE WATER SAMPLE ANALYTICAL RESULTS SUMMARY
2012 Eureka Lodge Water Monitoring
Crowley Maritime Corporation
Mile 128 Glenn Highway, Alaska

Location:	ADEC Water Quality Standard [1] (mg/L)	Surface Water Intake		Lake Surface Water	TRIP BLANK
Sample ID (11-EUR-):		12-ERK-SW01	12-ERK-FD01	12-ERK-SW02	TRIP BLANK
Sample Date:		7/31/2012	7/31/2012	7/31/2012	7/31/2012
ADEC Fuels (AK 101, AK 102; mg/L)					
Gasoline Range Organics	2.2[2]	ND (0.0149)	ND (0.0149)	ND (0.0149)	ND (0.0149)
Diesel Range Organics	1.5[2]	**0.266** J,VB	**0.151** J	**0.156** J	--
BTEX (EPA 8260B; mg/L)					
Benzene	0.005	ND (0.000064)	ND (0.000064)	ND (0.000064)	ND (0.000064)
Toluene	1.0	**0.000150** J,VB	**0.000120** J,VB	ND (0.0000566)	**0.000840** J, VB
Ethylbenzene	0.7	ND (0.0000504)	ND (0.0000504)	ND (0.0000504)	ND (0.0000504)
Total Xylenes	10	**0.000190** J,VB	ND (0.000136)	**0.000460** J,VB	**0.000470** J, VB
PAHs (EPA 8270-SIM; mg/L)					
Anthracene	11	ND (0.0000228)	ND (0.000211)	ND (0.0000189)	--
Acenaphthylene	2.2	ND (0.0000228)	ND (0.000211)	ND (0.0000189)	--
Acenaphthene	2.2	ND (0.0000228)	ND (0.000211)	ND (0.0000189)	--
Benzo (a) anthracene	0.0012	ND (0.0000114)	ND (0.0000105)	ND (0.0000095)	--
Benzo (a) pyrene	0.0002	ND (0.0000228)	ND (0.000211)	ND (0.0000189)	--
Benzo (b) fluoranthene	0.0012	ND (0.0000228)	ND (0.000211)	ND (0.0000189)	--
Benzo (g,h,I) perylene	1.1	ND (0.0000228)	ND (0.000211)	ND (0.0000189)	--
Benzo (k) fluoranthene	0.012	ND (0.0000228)	ND (0.000211)	ND (0.0000189)	--
Chrysene	0.12	ND (0.0000137)	ND (0.0000126)	ND (0.0000114)	--
Dibenzo (a,h) anthracene	0.00012	ND (0.0000456)	ND (0.0000421)	ND (0.0000189)	--
Fluoranthene	1.5	ND (0.0000114)	ND (0.0000105)	ND (0.0000095)	--
Fluorene	1.5	ND (0.0000137)	ND (0.000126)	ND (0.0000114)	--
Indeno(1,2,3-c,d) pyrene	0.0012	ND (0.0000456)	ND (0.0000421)	ND (0.0000378)	--
Napthalene	0.73	ND (0.0000228)	ND (0.000211)	ND (0.0000189)	--
Phenanthrene	11	ND (0.0000114)	ND (0.0000105)	ND (0.0000095)	--
Pyrene	1.1	ND (0.0000228)	ND (0.000211)	ND (0.0000189)	--
1-Methylnaphthalene	0.15	ND (0.0000228)	ND (0.000211)	ND (0.0000189)	--
2-Methylnaphthalene	2.9	ND (0.0000228)	ND (0.000211)	ND (0.0000189)	--
Surface Water Quality (mg/L)					
TAH[3] (sum of BTEX)	0.010	ND (0.0004544)	ND (0.0003704)	ND (0.0007244)	0.0014244
TAqH[3] (BTEX + PAH)	0.015	ND (0.0009126)	ND (0.0029457)	ND (0.0010214)	--

Notes:
Results above ADEC cleanup values are underlined and bolded.
[1] 18 AAC 70.020(b), Drinking Water
[2] 18 AAC 75.345, Table C, Groundwater Cleanup Levels
[3] 18 AAC 70.020(b), Aquaculture
Key:
-- = Not analyzed
ADEC = Alaska Department of Environmental Conservation
AK = Alaska
B = Result is considered estimated, biased high, due to contamination in the associated method blank.
BTEX = Benzene, toluene, ethylbenzene, and total xylenes
EPA = United States Environmental Protection Agency
J = Result is less than reporting limit (RL) but greater than or equal to the method detection limit (MDL) and result is estimated
mg/L = Milligrams per Liter
ND = Not detected at the associated reported MDL limit
PAH = Polynuclear aromatic hydrocarbons
SIM = Selected-ion monitoring
TAH = Total aromatic hydrocarbons
TAqH =Total aqueous hydrocarbons
V = Qualifier flag added by ERM

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FIGURES

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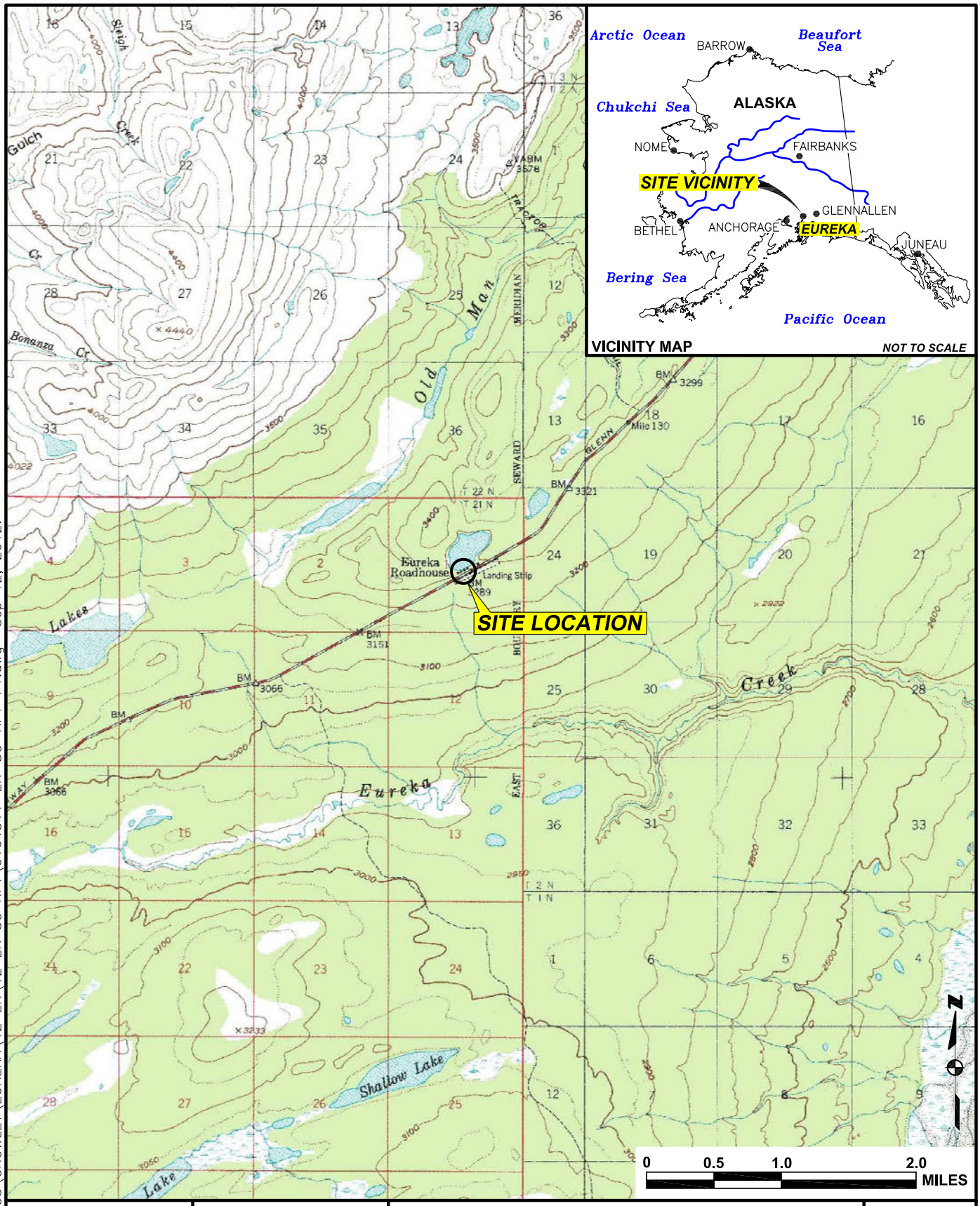

V:\PROJECT DRAWINGS\CROWLEY\EUREKA\12 EK\12 EK SC RPT\0164311-EK-SC-RPT-F1.dwg Sep 12, 2012.

oasis ENVIRONMENTAL

DATE: SEPT. 2012
CHKD: S.M.C.
DRAWN: D.R.F.
PROJ. No.: 0164311

825 W. 8th Ave., Anchorage, AK 99501, (907) 258-4880

SITE LOCATION MAP

EUREKA LODGE
2012 WATER MONITORING REPORT
CROWLEY MARITIME CORPORATION
Mile Post 128 – Glenn Highway, Alaska

FIGURE

1

SOURCE: NATIONAL GEOGRAPHIC TOPO SOFTWARE PROGRAM 2007.

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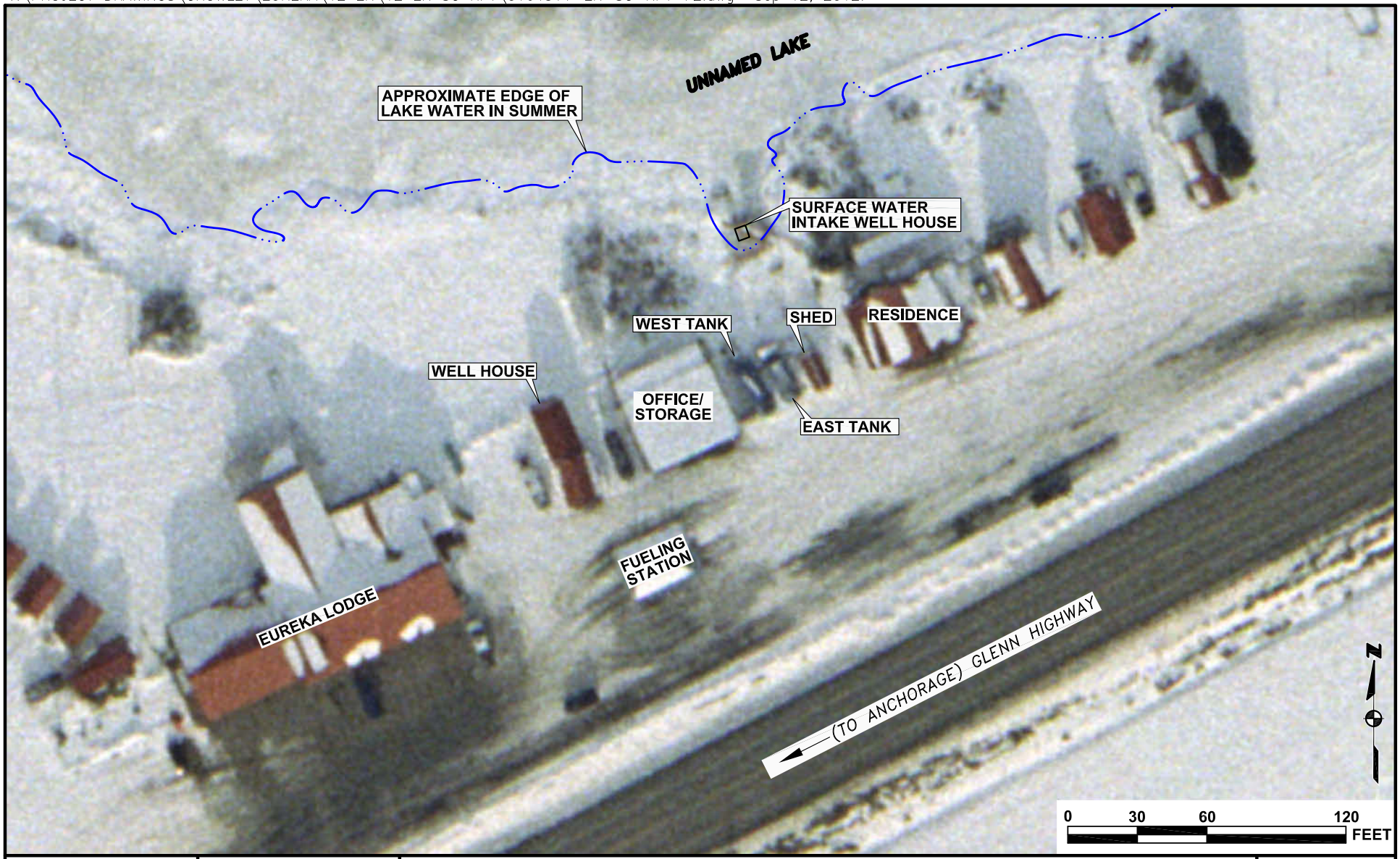

oasis ENVIRONMENTAL

DATE: SEPT. 2012
CHKD: S.M.C.
DRAWN: D.R.F.
PROJ. No.: 0164311

825 W. 8th Ave., Anchorage, AK 99501, (907) 258-4880

SITE PLAN

EUREKA LODGE
2012 WATER MONITORING REPORT
CROWLEY MARITIME CORPORATION
Mile Post 128 – Glenn Highway, Alaska

FIGURE

2

SOURCE: EUREKA_LODGE10-18-04.TIFF DATED 10/18/0404 PROVIDED BY AERO-METRIC.

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LEGEND

◔	MONITORING WELL LOCATION
GRO	GASOLINE–RANGE ORGANICS
DRO	DIESEL–RANGE ORGANICS
BTEX	BENZENE, TOLUENE, ETHYLBENZENE, AND TOTAL XYLENES
PAHs	POLYAROMATIC HYDROCARBONS
TAH	TOTAL AROMATIC HYDROCARBONS
TAqH	TOTAL AQUEOUS HYDROCARBONS
ND	NOT DETECTED
mg/L	MILLIGRAMS PER LITER
'	FEET

NOTE: ELEVATION IS BASED ON A FIELD–ESTABLISHED ARBITRARY DATUM OF 100 FEET.

*SAMPLE COLLECTED FROM SPIGOT IN WELL HOUSE.

UNNAMED LAKE

*SURFACE WATER INTAKE WELL HOUSE

WELL HOUSE

SHORELINE

SURFACE WATER INTAKE (mg/L)		
DATE	7/31/12	
SAMPLE ID	12–ERK–SW01	12–ERK–FD01
	PRIMARY	DUPLICATE
GRO	ND	ND
DRO	0.266 J,B	0.151 J
B	ND	ND
T	0.000150 J,B	0.000120 J,B
E	ND	ND
X	0.000190 J,B	ND
PAHs	ND	ND
TAH	ND	ND
TAqH	ND	ND

LAKE SURFACE WATER (mg/L)	
DATE	7/31/12
ELEVATION	92.47'
SAMPLE ID	12–ERK–SW02
	PRIMARY
GRO	ND
DRO	0.156 J
B	ND
T	ND
E	ND
X	0.000460 J,B
PAHs	ND
TAH	ND
TAqH	ND

MW-3 (mg/L)	
DATE	7/31/12
ELEVATION	89.73'
SAMPLE ID	12–ERK–MW03
	PRIMARY
GRO	ND
DRO	0.263 J
B	ND
T	ND
E	ND
X	ND
PAHs	ND

RESIDENCE

Apparent Groundwater Flow Direction

WEST TANK

EAST TANK

SHED

MW-2 (mg/L)	
DATE	7/31/12
ELEVATION	90.81'
SAMPLE ID	12–ERK–MW02
	PRIMARY
GRO	ND
DRO	0.225 J,B
B	ND
T	ND
E	ND
X	0.000140 J,B
PHENANTHRENE	0.000126

MW-1 (mg/L)	
DATE	7/31/12
ELEVATION	88.66'
SAMPLE ID	12–ERK–MW01
	PRIMARY
GRO	ND
DRO	0.289 J
B	ND
T	ND
E	ND
X	0.000180 J,B
PAHs	--

OFFICE/ STORAGE

N

0 5 10 20 FEET

FIGURE 3

GROUNDWATER AND SURFACE WATER ANALYTICAL RESULTS

EUREKA LODGE
2012 WATER MONITORING REPORT
CROWLEY MARITIME CORPORATION
Mile Post 128 – Glenn Highway, Alaska

DATE: SEPT. 2012
CHKD: S.M.C.
DRAWN: D.R.F.
PROJ. No.: 0164311

825 W. 8th Ave., Anchorage, AK 99501, (907) 258–4880

oasis ENVIRONMENTAL

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APPENDIX A

Field Notes and Field Generated Forms

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S. Christiansen Crowley 11/31/2012
Eureka Water Partly cloudy 50°

0915 Arrive onsite. Walk around.
Met with Darla (Eureka Lodge owner)
1020 MW01 has really bad recharge
Stop sampling let recharge
1045 Move onto MW02
Same thing well has awful recharge.
Call Brad & ask how to proceed
1100 Not going to stabalize MW01
& MW02.
1115 Filled BTEX/GRO VIALS Then well
went dry. Moved onto MW01
~~12~~1145 Filled BTEX/GRO & DRO Before
well went dry. Moved on to MW03
1245 Started Stabalizing. Was able
to Stabalize before getting sample
well had a 15 ft water column
Made it easier to get enough sample
1330 Went to lunch
1400 Went out to SW02 to sample
~~1500~~ Took MS/MSD
1500 Went back to MW-02. Filled DROs
& part of PAH before well went dry
1515 Back to MW-01. Still dry
1600 Started setting up survey inst.

Sarah

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TBM MW02
BS 5.53
IH 7.12

Surface water 7.12

1545 Went to wellhouse West of office building/storage to collect water before filtration system & from a faucet.

1600 Collected duplicate sample @ SW01

List of samples taken

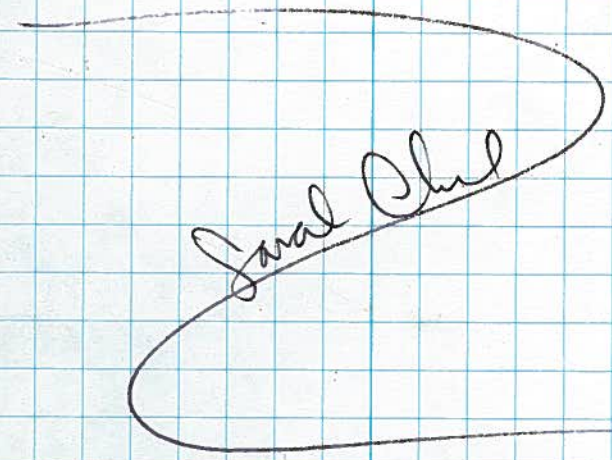
MW01 ID: 12-ERK-MW01 @ 1215
MW02 ID: 12 ERK-MW02 @ 1145
MW03 ID: 12-ERK-MW03 @ 1300
SW01 ID: 12-ERK-SW01 @ 1600
SW02 ID: 12-ERK-SW02 @ 1430 ms/msd
FD01 (Duplicate of SW01)
ID: 12-ERK-FD01 @ 2200

1645 Collected more sample from MW02 for PAH. MW01 was still dry. After talking to Brad Authier & waiting for over 6 hours for wells to recharge after 1800 going to stop trying

to Sample & pack up.

1800 Both wells completely dry. Conduct shovel sheen test & no sheen was visible. Cannot find 55 gallon drum to dump waste in. So label a 5 gallon bucket with "do not dispose" & contact information & place between ~~two~~ East tanks. Let Darla (Eureka lodge owner) about bucket.

1845 Start driving back to Anchorage



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Low-Flow Groundwater Sampling with Minimal Drawdown Worksheet

Well ID: MW01
Project #: 0164311
Date: 7/31/12
Project Name: Crowley Eureka Water
Start Time: 945
Site:
End Time: ~~1800~~ 1915
Field Team: S. Christiansen
Sample ID: 12-ERK-MW01 Time: 1215 primary dup split ms/msd
Sample ID: Time: primary dup split ms/msd
Weather Conditions: partly cloudy

Depth to Top of Product (ft BTOC):
Depth to Oil/Water Interface* (ft BTOC):
* Note: Same as depth to water
Depth to Water (ft BTOC): 5.71
Total Depth (ft BTOC): 8.04
Final Depth (ft BTOC):

Criteria for Stable Parameters

Parameter	Working Range		Stability Criteria	Notes
Temperature	>0.00 °C		± 0.3 °C	
pH	0-14		± 0.1	
Conductivity	0-99999 µS/cm		± 3%	
ORP	± 1999 mV		10	
Dissolved Oxygen	0-19.99 mg/L		± 10%	
Turbidity	0-800 NTU			

Sensory Observations

Color: Clear, Amber, Tan, Brown, Grey, Milky White, Other:
Odor: None, Low, Medium, High, Very Strong, H2S, Fuel Like, Chemical ?, Unknown
Turbidity: None, Low, Medium, High, Very Turbid, Heavy Silts

Instrument Observations

Flow Rate (ml/min)	Time	Temp °C	Spec. Cond. (mS/cm^C)	Conductivity (µS/cm)	Salinity	DO (mg/L)	pH	ORP (mV)	Color	Odor	Water Level (ft BTOC)	Draw-down
180	1016	2.62	0.960	554		1.78	6.50	284.7	Clear	no	7.76	
	NMS										7.60	

Notes: Drawdown should be less than 0.3 feet while sampling. Minimal drawdown shall be achieved and measured by pumping at a low rate (approximately 0.1 to 0.5 liter/minute) and continually measuring water levels in the well. Note that site's hyrogeology may make it difficult to achieve this specification.

Analyses	# of Bottles Collected	Bottle Type (preservative)
Gro/BTEX	3	HCl
dro	2	HCl
doc		
pah		
lead		
edb		

Comments: not enough water to keep the water level the same

Signed: Sarah Christiansen Date: 7/31/12
Signed/reviewer Date:

Low-Flow Groundwater Sampling with Minimal Drawdown Worksheet

Project # : 016H311
Project Name: Crowley Eureka Water
Site:
Field Team: S. Christiansen
Sample ID: 12-ERK-MW02 Time: 1145 (primary) dup split ms/msd
Sample ID: Time: primary dup split ms/msd

Well ID: MW02
Date: 7/31
Start Time: 1045
End Time: 1800

Weather Conditions: partly cloudy

Depth to Top of Product (ft BTOC):
Depth to Oil/Water Interface* (ft BTOC):
* Note: Same as depth to water

Depth to Water (ft BTOC): 4.05
Total Depth (ft BTOC): 6.86
Final Depth (ft BTOC):

Criteria for Stable Parameters

Parameter	Working Range		Stability Criteria	Notes
Temperature	>0.00 °C		± 0.3 °C	
pH	0-14		± 0.1	
Conductivity	0-99999 µS/cm		± 3%	
ORP	± 1999 mV		10	
Dissolved Oxygen	0-19.99 mg/L		± 10%	
Turbidity	0-800 NTU			

Sensory Observations

Color: Clear, Amber, Tan, Brown, Grey, Milky White, Other:
Odor: None, Low, Medium, High, Very Strong, H2S, Fuel Like, Chemical ?, Unknown
Turbidity: None, Low, Medium, High, Very Turbid, Heavy Silts

Instrument Observations

Flow Rate (ml/min)	Time	Temp °C	Spec. Cond. (mS/cm^c)	Conductivity (µS/cm)	Salinity	DO (mg/L)	pH	ORP (mV)	Color	Odor	Water Level (ft BTOC)	Draw-down
130	1056										~~5.75~~	
110	1059	5.60	0.139	87		6.03	5.40	135			5.95	

Notes: Drawdown should be less than 0.3 feet while sampling. Minimal drawdown shall be achieved and measured by pumping at a low rate (approximately 0.1 to 0.5 liter/minute) and continually measuring water levels in the well. Note that site's hyrogeology may make it difficult to achieve this specification.

Analyses	# of Bottles Collected	Bottle Type (preservative)
Gro	3	HCl
dro	2	HCl
doc		
pah		
lead		
edb		

Comments: well recharge was terrible-had to skip stabilization in order to get sample analyses

Signed: [signature] Date: 7/31/12

Signed/reviewer Date:

Low-Flow Groundwater Sampling with Minimal Drawdown Worksheet

Well ID: MW02
Project # : 0164311
Date: 7/31/12
Project Name: Crowley Aurora
Start Time: 1245
Site:
End Time: 1315
Field Team: S. Christiansen
Sample ID: 12-ERK-MW03 Time: 1300 (primary) dup split ms/msd
Sample ID: Time: primary dup split ms/msd

Weather Conditions: partly cloudy

Depth to Top of Product (ft BTOC):
Depth to Oil/Water Interface* (ft BTOC):
* Note: Same as depth to water

Depth to Water (ft BTOC): 4.88
Total Depth (ft BTOC): 19.35
Final Depth (ft BTOC):

Criteria for Stable Parameters

Parameter	Working Range		Stability Criteria	Notes
Temperature	>0.00 °C		± 0.3 °C	
pH	0-14		± 0.1	
Conductivity	0-99999 µS/cm		± 3%	
ORP	± 1999 mV		10	
Dissolved Oxygen	0-19.99 mg/L		± 10%	
Turbidity	0-800 NTU			

Sensory Observations

Color: Clear, Amber, Tan, Brown, Grey, Milky White, Other:
Odor: None, Low, Medium, High, Very Strong, H2S, Fuel Like, Chemical ?, Unknown
Turbidity: None, Low, Medium, High, Very Turbid, Heavy Silts

Instrument Observations

Flow Rate (ml/min)	Time	Temp °C	Spec. Cond. (mS/cm^C)	Conductivity (µS/cm)	Salinity	DO (mg/L)	pH	ORP (mV)	Color	Odor	Water Level (ft BTOC)	Draw-down
90	1245	5.702	.594	372		5.68	6.67	160	Clear	NA	5.35	
90	1248	4.80	.600	368		5.74	6.66	158			5.60	
	1251	4.72	.589	367		5.77	6.66	156			6.11	
	1254	4.38	.604	364		5.94	6.64	154			6.59	
		4.16	.601	362		5.79	6.63	153				
		4.32	.595	360		5.79	6.62	152				
AFTER SAMPLING			1315								10.01	

Notes: Drawdown should be less than 0.3 feet while sampling. Minimal drawdown shall be achieved and measured by pumping at a low rate (approximately 0.1 to 0.5 liter/minute) and continually measuring water levels in the well. Note that site's hyrogeology may make it difficult to achieve this specification.

Analyses	# of Bottles Collected	Bottle Type (preservative)	Comments:
Gro	3	HCl	
dro	2	HCl	
doc			
pah	2		
lead			
edb			

Signed: Sarah Christ
Date: 7/31/12

Signed/reviewer
Date:

Surface Water Sampling Worksheet

Project # : 0164311
Project Name: Crowley Eureka Water
Site:
Field Team: S. Christiansen
Location SW01
Date: 7/31/12
Start Time: 1545
End Time: 1630

Sample ID: 12-ERK-SW01 Time: 1600 (primary) dup split ms/msd
Sample ID: 12-ERK-FD01 Time: 2200 primary (dup) split ms/msd
Weather Conditions: ~~Part~~ Sunny

Sensory Observations (circle all that apply)

Color: Clear, Amber, Tan, Brown, Grey, Milky White, Other:
Odor: None, Low, Medium, High, Very Strong, H2S, Fuel Like, Chemical ?, Unknown
Turbidity: None, Low, Medium, High, Very Turbid, Heavy Silts

Marine	Lake/Pond	Seep/Spring
Brackish	River	Emergent Vegetation
Fresh Water	Stream/Creek	Submerged Vegetation

Instrument Observations

Temp (° C)	Spec. Cond. (mS/cm^{C})	Conductivity (µS/cm)	DO (mg/L)	pH	ORP (mV)

Sample Depth	Total Depth	Flow Direction	Velocity (ft/sec)

Location Diagram/Notes

Did not take sample from surface water intake as shown in Fig 3 of WP. Took it from the well house ~~West~~ of office/storage before it went into filtration system. Took it from faucet

Analyses	# of Bottles Collected	Bottle Type (preservative)	Comments:
GRO	6	HCl	
DRO	4	HCl	
PAH	4		

Signed: Sarah Christiansen Date: 7/31/12
Signed/reviewer: Date:

Surface Water Sampling Worksheet

Project #: 0164311
Project Name: Eureka
Site: Crowley
Field Team: S. Christiansen
Location: SW-02
Date: 7/31/12
Start Time: 1415
End Time: 1500

Sample ID: 12-ERK-SW02 Time: 1430 (primary) dup split ms/msd
Sample ID: Time: primary dup split (ms/msd)
Weather Conditions: partly Cloudy/Sunny

Sensory Observations (circle all that apply)

Color: Clear, (Amber), Tan, Brown, Grey, Milky White, Other:
Odor: (None) Low, Medium, High, Very Strong, H2S, Fuel Like, Chemical ?, Unknown
Turbidity: None, (Low) Medium, High, Very Turbid, Heavy Silts

Marine	(Lake/Pond)	Seep/Spring
Brackish	River	Emergent Vegetation
Fresh Water	Stream/Creek	Submerged Vegetation

Instrument Observations

Temp (°C)	Spec. Cond. (mS/cm)	Conductivity (µS/cm)	DO (mg/L)	pH	ORP (mV)
~~15.51~~ 15.21	NOT WORKING		7.92	6.42	-17.2

Sample Depth	Total Depth	Flow Direction	Velocity (ft/sec)
1 ft	2.5 ft		

Location Diagram/Notes

Analyses	# of Bottles Collected	Bottle Type (preservative)	Comments:
~~BTEX~~	9	HCl	YSI WASN't WORKING right recalibrated & still wasn't working for conductivity
DRO	6	HCl	
PAH	4		

Signed: Sarah Christiansen Date: 7/31/12
Signed/reviewer: Date:

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APPENDIX B

TestAmerica Analytical Results

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TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

ANALYTICAL REPORT

TestAmerica Laboratories, Inc.
TestAmerica Anchorage
2000 West International Airport Road Suite A10
Anchorage, AK 99502-1119
Tel: (907) 563-9200

TestAmerica Job ID: AVH0002
Client Project/Site: 0164311
Client Project Description: Crowley Eureka Water
Revision: 1

For:
Oasis Environmental, Inc.
825 W 8th Ave, ste 200
Anchorage, AK/USA 99501-4427

Attn: Rick Girouard

Johanna Dreher

Authorized for release by:
9/21/2012 1:23:37 PM

Johanna L Dreher
Client Services Manager
johanna.dreher@testamericainc.com

This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

Results relate only to the items tested and the sample(s) as received by the laboratory.

Table of Contents

Definitions/Glossary

Client: Oasis Environmental, Inc.
Project/Site: 0164311

TestAmerica Job ID: AVH0002

Qualifiers

GCMS Volatiles

Qualifier	Qualifier Description
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.
M8	The MS and/or MSD were below the acceptance limits. See Blank Spike (LCS).
R2	The RPD exceeded the acceptance limit.

Semivolatiles

Qualifier	Qualifier Description
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

Fuels

Qualifier	Qualifier Description
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
☼	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CNF	Contains no Free Liquid
DL, RA, RE, IN	Indicates a Dilution, Reanalysis, Re-extraction, or additional Initial metals/anion analysis of the sample
EDL	Estimated Detection Limit
EPA	United States Environmental Protection Agency
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
ND	Not detected at the reporting limit (or MDL or EDL if shown)
PQL	Practical Quantitation Limit
QC	Quality Control
RL	Reporting Limit
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)

Client: Oasis Environmental, Inc.
Project/Site: 0164311

TestAmerica Job ID: AVH0002

Job ID: AVH0002

Laboratory: TestAmerica Anchorage

Narrative

Revised Report issued on 09/21/12
MDL values added for all analytes.

Receipt
All samples were received in good condition within temperature requirements at all laboratories.

Except:

The following samples containers for 8270 PAH SIM analysis were submitted with limited volume:

Sample 12-ERK-MW01 (AVH0002-01)
Sample 12-ERK-MW02 (AVH0002-02)

Subcontracted
PAH samples were subcontracted to TestAmerica Spokane from TestAmerica Anchorage.

8270 PAH SIM
There was not enough sample volume to run samples 12-ERK-MW01 (AVH0002-01) and 12-ERK-MW02 (AVH0002-02).

Detection Summary

Client: Oasis Environmental, Inc.
Project/Site: 0164311

TestAmerica Job ID: AVH0002

Client Sample ID: 12-ERK-MW01 — Lab Sample ID: AVH0002-01

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Xylenes (total)	0.180	J	3.00	0.136	ug/l	1.00		AK101-MS/EPA 8260B	Total
Diesel Range Organics	0.289	J	0.420	0.126	mg/l	1.00		AK 102	Total

Client Sample ID: 12-ERK-MW02 — Lab Sample ID: AVH0002-02

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Xylenes (total)	0.140	J	3.00	0.136	ug/l	1.00		AK101-MS/EPA 8260B	Total
Phenanthrene	0.126	J	0.504	0.0252	ug/l	1.00		EPA 8270 mod.	Total
Diesel Range Organics	0.225	J	0.424	0.127	mg/l	1.00		AK 102	Total

Client Sample ID: 12-ERK-MW03 — Lab Sample ID: AVH0002-03

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Diesel Range Organics	0.263	J	0.420	0.126	mg/l	1.00		AK 102	Total

Client Sample ID: 12-ERK-SW01 — Lab Sample ID: AVH0002-04

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Toluene	0.150	J	1.00	0.0566	ug/l	1.00		AK101-MS/EPA 8260B	Total
Xylenes (total)	0.190	J	3.00	0.136	ug/l	1.00		AK101-MS/EPA 8260B	Total
Diesel Range Organics	0.266	J	0.420	0.126	mg/l	1.00		AK 102	Total

Client Sample ID: 12-ERK-SW02 — Lab Sample ID: AVH0002-05

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Xylenes (total)	0.460	J	3.00	0.136	ug/l	1.00		AK101-MS/EPA 8260B	Total
Diesel Range Organics	0.156	J	0.410	0.123	mg/l	1.00		AK 102	Total

Client Sample ID: 12-ERK-FD01 — Lab Sample ID: AVH0002-06

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Toluene	0.120	J	1.00	0.0566	ug/l	1.00		AK101-MS/EPA 8260B	Total
Diesel Range Organics	0.151	J	0.407	0.122	mg/l	1.00		AK 102	Total

Client Sample ID: TB-1 — Lab Sample ID: AVH0002-07

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Toluene	0.840	J	1.00	0.0566	ug/l	1.00		AK101-MS/EPA 8260B	Total
Xylenes (total)	0.470	J	3.00	0.136	ug/l	1.00		AK101-MS/EPA 8260B	Total

Client Sample ID: 12-ERK-MW01

Lab Sample ID: AVH0002-01

Date Collected: 07/31/12 12:15

Matrix: Water

Date Received: 08/01/12 13:25

Method: AK101-MS/EPA 8260B - Gasoline Range Organics (C6-C10) by AK101-MS and BTEX by EPA Method 8260B

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics	ND		50.0	14.9	ug/l		08/02/12 12:25	08/02/12 21:36	1.00
Benzene	ND		0.500	0.0640	ug/l		08/02/12 12:25	08/02/12 21:36	1.00
Toluene	ND		1.00	0.0566	ug/l		08/02/12 12:25	08/02/12 21:36	1.00
Ethylbenzene	ND		1.00	0.0504	ug/l		08/02/12 12:25	08/02/12 21:36	1.00
Xylenes (total)	**0.180**	**J**	3.00	0.136	ug/l		08/02/12 12:25	08/02/12 21:36	1.00

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-BFB	*106*		*92.5 - 111*	*08/02/12 12:25*	*08/02/12 21:36*	*1.00*
Dibromofluoromethane	*93.8*		*82.4 - 115*	*08/02/12 12:25*	*08/02/12 21:36*	*1.00*
Toluene-d8	*90.8*		*78.4 - 116*	*08/02/12 12:25*	*08/02/12 21:36*	*1.00*

Method: AK 102 - Diesel Range Organics (C10-C25) per AK102

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Diesel Range Organics	**0.289**	**J**	0.420	0.126	mg/l		08/06/12 08:26	08/06/12 14:00	1.00

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1-Chlorooctadecane	*73.2*		*50 - 150*	*08/06/12 08:26*	*08/06/12 14:00*	*1.00*

Client Sample ID: 12-ERK-MW02

Lab Sample ID: AVH0002-02

Date Collected: 07/31/12 11:45

Matrix: Water

Date Received: 08/01/12 13:25

Method: AK101-MS/EPA 8260B - Gasoline Range Organics (C6-C10) by AK101-MS and BTEX by EPA Method 8260B

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics	ND		50.0	14.9	ug/l		08/02/12 12:25	08/03/12 00:15	1.00
Benzene	ND		0.500	0.0640	ug/l		08/02/12 12:25	08/03/12 00:15	1.00
Toluene	ND		1.00	0.0566	ug/l		08/02/12 12:25	08/03/12 00:15	1.00
Ethylbenzene	ND		1.00	0.0504	ug/l		08/02/12 12:25	08/03/12 00:15	1.00
Xylenes (total)	**0.140**	**J**	3.00	0.136	ug/l		08/02/12 12:25	08/03/12 00:15	1.00

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-BFB	*107*		*92.5 - 111*	*08/02/12 12:25*	*08/03/12 00:15*	*1.00*
Dibromofluoromethane	*94.7*		*82.4 - 115*	*08/02/12 12:25*	*08/03/12 00:15*	*1.00*
Toluene-d8	*91.2*		*78.4 - 116*	*08/02/12 12:25*	*08/03/12 00:15*	*1.00*

Method: EPA 8270 mod. - Polynuclear Aromatic Compounds by GC/MS with Selected Ion Monitoring

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Naphthalene	ND		0.504	0.0504	ug/l		08/03/12 08:05	08/08/12 15:31	1.00
2-Methylnaphthalene	ND		0.504	0.0504	ug/l		08/03/12 08:05	08/08/12 15:31	1.00
1-Methylnapthalene	ND		0.504	0.0504	ug/l		08/03/12 08:05	08/08/12 15:31	1.00
Acenaphthylene	ND		0.504	0.0504	ug/l		08/03/12 08:05	08/08/12 15:31	1.00
Acenaphthene	ND		0.504	0.0504	ug/l		08/03/12 08:05	08/08/12 15:31	1.00
Fluorene	ND		0.504	0.0302	ug/l		08/03/12 08:05	08/08/12 15:31	1.00
Phenanthrene	**0.126**	**J**	0.504	0.0252	ug/l		08/03/12 08:05	08/08/12 15:31	1.00
Anthracene	ND		0.504	0.0504	ug/l		08/03/12 08:05	08/08/12 15:31	1.00
Fluoranthene	ND		0.504	0.0252	ug/l		08/03/12 08:05	08/08/12 15:31	1.00
Pyrene	ND		0.504	0.0504	ug/l		08/03/12 08:05	08/08/12 15:31	1.00
Benzo (a) anthracene	ND		0.504	0.0252	ug/l		08/03/12 08:05	08/08/12 15:31	1.00
Chrysene	ND		0.504	0.0302	ug/l		08/03/12 08:05	08/08/12 15:31	1.00
Benzo (b) fluoranthene	ND		0.504	0.0504	ug/l		08/03/12 08:05	08/08/12 15:31	1.00
Benzo (k) fluoranthene	ND		0.504	0.0504	ug/l		08/03/12 08:05	08/08/12 15:31	1.00
Benzo (a) pyrene	ND		0.504	0.0504	ug/l		08/03/12 08:05	08/08/12 15:31	1.00

Client Sample ID: 12-ERK-MW02

Lab Sample ID: AVH0002-02

Date Collected: 07/31/12 11:45

Matrix: Water

Date Received: 08/01/12 13:25

Method: EPA 8270 mod. - Polynuclear Aromatic Compounds by GC/MS with Selected Ion Monitoring (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Indeno (1,2,3-cd) pyrene	ND		0.504	0.101	ug/l		08/03/12 08:05	08/08/12 15:31	1.00
Dibenzo (a,h) anthracene	ND		0.504	0.101	ug/l		08/03/12 08:05	08/08/12 15:31	1.00
Benzo (ghi) perylene	ND		0.504	0.0504	ug/l		08/03/12 08:05	08/08/12 15:31	1.00

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Nitrobenzene-d5	*66.6*		*31.6 - 137*	*08/03/12 08:05*	*08/08/12 15:31*	*1.00*
2-FBP	*64.7*		*35.1 - 129*	*08/03/12 08:05*	*08/08/12 15:31*	*1.00*
p-Terphenyl-d14	*92.3*		*0 - 149*	*08/03/12 08:05*	*08/08/12 15:31*	*1.00*

Method: AK 102 - Diesel Range Organics (C10-C25) per AK102

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Diesel Range Organics	**0.225**	**J**	0.424	0.127	mg/l		08/06/12 08:26	08/06/12 14:32	1.00

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1-Chlorooctadecane	*59.9*		*50 - 150*	*08/06/12 08:26*	*08/06/12 14:32*	*1.00*

Client Sample ID: 12-ERK-MW03

Lab Sample ID: AVH0002-03

Date Collected: 07/31/12 13:00

Matrix: Water

Date Received: 08/01/12 13:25

Method: AK101-MS/EPA 8260B - Gasoline Range Organics (C6-C10) by AK101-MS and BTEX by EPA Method 8260B

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics	ND		50.0	14.9	ug/l		08/02/12 12:25	08/03/12 00:47	1.00
Benzene	ND		0.500	0.0640	ug/l		08/02/12 12:25	08/03/12 00:47	1.00
Toluene	ND		1.00	0.0566	ug/l		08/02/12 12:25	08/03/12 00:47	1.00
Ethylbenzene	ND		1.00	0.0504	ug/l		08/02/12 12:25	08/03/12 00:47	1.00
Xylenes (total)	ND		3.00	0.136	ug/l		08/02/12 12:25	08/03/12 00:47	1.00

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-BFB	*107*		*92.5 - 111*	*08/02/12 12:25*	*08/03/12 00:47*	*1.00*
Dibromofluoromethane	*93.9*		*82.4 - 115*	*08/02/12 12:25*	*08/03/12 00:47*	*1.00*
Toluene-d8	*90.9*		*78.4 - 116*	*08/02/12 12:25*	*08/03/12 00:47*	*1.00*

Method: EPA 8270 mod. - Polynuclear Aromatic Compounds by GC/MS with Selected Ion Monitoring

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Naphthalene	ND		0.215	0.0215	ug/l		08/03/12 08:05	08/08/12 10:40	1.00
2-Methylnaphthalene	ND		0.215	0.0215	ug/l		08/03/12 08:05	08/08/12 10:40	1.00
1-Methylnapthalene	ND		0.215	0.0215	ug/l		08/03/12 08:05	08/08/12 10:40	1.00
Acenaphthylene	ND		0.215	0.0215	ug/l		08/03/12 08:05	08/08/12 10:40	1.00
Acenaphthene	ND		0.215	0.0215	ug/l		08/03/12 08:05	08/08/12 10:40	1.00
Fluorene	ND		0.215	0.0129	ug/l		08/03/12 08:05	08/08/12 10:40	1.00
Phenanthrene	ND		0.215	0.0108	ug/l		08/03/12 08:05	08/08/12 10:40	1.00
Anthracene	ND		0.215	0.0215	ug/l		08/03/12 08:05	08/08/12 10:40	1.00
Fluoranthene	ND		0.215	0.0108	ug/l		08/03/12 08:05	08/08/12 10:40	1.00
Pyrene	ND		0.215	0.0215	ug/l		08/03/12 08:05	08/08/12 10:40	1.00
Benzo (a) anthracene	ND		0.215	0.0108	ug/l		08/03/12 08:05	08/08/12 10:40	1.00
Chrysene	ND		0.215	0.0129	ug/l		08/03/12 08:05	08/08/12 10:40	1.00
Benzo (b) fluoranthene	ND		0.215	0.0215	ug/l		08/03/12 08:05	08/08/12 10:40	1.00
Benzo (k) fluoranthene	ND		0.215	0.0215	ug/l		08/03/12 08:05	08/08/12 10:40	1.00
Benzo (a) pyrene	ND		0.215	0.0215	ug/l		08/03/12 08:05	08/08/12 10:40	1.00
Indeno (1,2,3-cd) pyrene	ND		0.215	0.0431	ug/l		08/03/12 08:05	08/08/12 10:40	1.00
Dibenzo (a,h) anthracene	ND		0.215	0.0431	ug/l		08/03/12 08:05	08/08/12 10:40	1.00

Client Sample ID: 12-ERK-MW03

Lab Sample ID: AVH0002-03

Date Collected: 07/31/12 13:00

Matrix: Water

Date Received: 08/01/12 13:25

Method: EPA 8270 mod. - Polynuclear Aromatic Compounds by GC/MS with Selected Ion Monitoring (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzo (ghi) perylene	ND		0.215	0.0215	ug/l		08/03/12 08:05	08/08/12 10:40	1.00

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Nitrobenzene-d5	*49.9*		*31.6 - 137*	*08/03/12 08:05*	*08/08/12 10:40*	*1.00*
2-FBP	*51.7*		*35.1 - 129*	*08/03/12 08:05*	*08/08/12 10:40*	*1.00*
p-Terphenyl-d14	*38.5*		*0 - 149*	*08/03/12 08:05*	*08/08/12 10:40*	*1.00*

Method: AK 102 - Diesel Range Organics (C10-C25) per AK102

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Diesel Range Organics	**0.263**	**J**	0.420	0.126	mg/l		08/06/12 08:26	08/06/12 14:32	1.00

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1-Chlorooctadecane	*91.2*		*50 - 150*	*08/06/12 08:26*	*08/06/12 14:32*	*1.00*

Client Sample ID: 12-ERK-SW01

Lab Sample ID: AVH0002-04

Date Collected: 07/31/12 16:00

Matrix: Water

Date Received: 08/01/12 13:25

Method: AK101-MS/EPA 8260B - Gasoline Range Organics (C6-C10) by AK101-MS and BTEX by EPA Method 8260B

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics	ND		50.0	14.9	ug/l		08/02/12 12:25	08/02/12 21:04	1.00
Benzene	ND		0.500	0.0640	ug/l		08/02/12 12:25	08/02/12 21:04	1.00
Toluene	**0.150**	**J**	1.00	0.0566	ug/l		08/02/12 12:25	08/02/12 21:04	1.00
Ethylbenzene	ND		1.00	0.0504	ug/l		08/02/12 12:25	08/02/12 21:04	1.00
Xylenes (total)	**0.190**	**J**	3.00	0.136	ug/l		08/02/12 12:25	08/02/12 21:04	1.00

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-BFB	*105*		*92.5 - 111*	*08/02/12 12:25*	*08/02/12 21:04*	*1.00*
Dibromofluoromethane	*96.5*		*82.4 - 115*	*08/02/12 12:25*	*08/02/12 21:04*	*1.00*
Toluene-d8	*90.9*		*78.4 - 116*	*08/02/12 12:25*	*08/02/12 21:04*	*1.00*

Method: EPA 8270 mod. - Polynuclear Aromatic Compounds by GC/MS with Selected Ion Monitoring

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Naphthalene	ND		0.228	0.0228	ug/l		08/03/12 08:05	08/08/12 11:04	1.00
2-Methylnaphthalene	ND		0.228	0.0228	ug/l		08/03/12 08:05	08/08/12 11:04	1.00
1-Methylnapthalene	ND		0.228	0.0228	ug/l		08/03/12 08:05	08/08/12 11:04	1.00
Acenaphthylene	ND		0.228	0.0228	ug/l		08/03/12 08:05	08/08/12 11:04	1.00
Acenaphthene	ND		0.228	0.0228	ug/l		08/03/12 08:05	08/08/12 11:04	1.00
Fluorene	ND		0.228	0.0137	ug/l		08/03/12 08:05	08/08/12 11:04	1.00
Phenanthrene	ND		0.228	0.0114	ug/l		08/03/12 08:05	08/08/12 11:04	1.00
Anthracene	ND		0.228	0.0228	ug/l		08/03/12 08:05	08/08/12 11:04	1.00
Fluoranthene	ND		0.228	0.0114	ug/l		08/03/12 08:05	08/08/12 11:04	1.00
Pyrene	ND		0.228	0.0228	ug/l		08/03/12 08:05	08/08/12 11:04	1.00
Benzo (a) anthracene	ND		0.228	0.0114	ug/l		08/03/12 08:05	08/08/12 11:04	1.00
Chrysene	ND		0.228	0.0137	ug/l		08/03/12 08:05	08/08/12 11:04	1.00
Benzo (b) fluoranthene	ND		0.228	0.0228	ug/l		08/03/12 08:05	08/08/12 11:04	1.00
Benzo (k) fluoranthene	ND		0.228	0.0228	ug/l		08/03/12 08:05	08/08/12 11:04	1.00
Benzo (a) pyrene	ND		0.228	0.0228	ug/l		08/03/12 08:05	08/08/12 11:04	1.00
Indeno (1,2,3-cd) pyrene	ND		0.228	0.0456	ug/l		08/03/12 08:05	08/08/12 11:04	1.00
Dibenzo (a,h) anthracene	ND		0.228	0.0456	ug/l		08/03/12 08:05	08/08/12 11:04	1.00
Benzo (ghi) perylene	ND		0.228	0.0228	ug/l		08/03/12 08:05	08/08/12 11:04	1.00

Client Sample ID: 12-ERK-SW01

Lab Sample ID: AVH0002-04

Date Collected: 07/31/12 16:00

Matrix: Water

Date Received: 08/01/12 13:25

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Nitrobenzene-d5	*40.6*		*31.6 - 137*	*08/03/12 08:05*	*08/08/12 11:04*	*1.00*
2-FBP	*41.5*		*35.1 - 129*	*08/03/12 08:05*	*08/08/12 11:04*	*1.00*
p-Terphenyl-d14	*48.3*		*0 - 149*	*08/03/12 08:05*	*08/08/12 11:04*	*1.00*

Method: AK 102 - Diesel Range Organics (C10-C25) per AK102

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Diesel Range Organics	**0.266**	**J**	0.420	0.126	mg/l		08/06/12 08:26	08/06/12 15:04	1.00

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1-Chlorooctadecane	*92.0*		*50 - 150*	*08/06/12 08:26*	*08/06/12 15:04*	*1.00*

Client Sample ID: 12-ERK-SW02

Lab Sample ID: AVH0002-05

Date Collected: 07/31/12 14:30

Matrix: Water

Date Received: 08/01/12 13:25

Method: AK101-MS/EPA 8260B - Gasoline Range Organics (C6-C10) by AK101-MS and BTEX by EPA Method 8260B

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics	ND		50.0	14.9	ug/l		08/02/12 12:25	08/02/12 18:57	1.00
Benzene	ND		0.500	0.0640	ug/l		08/02/12 12:25	08/02/12 18:57	1.00
Toluene	ND		1.00	0.0566	ug/l		08/02/12 12:25	08/02/12 18:57	1.00
Ethylbenzene	ND		1.00	0.0504	ug/l		08/02/12 12:25	08/02/12 18:57	1.00
Xylenes (total)	**0.460**	**J**	3.00	0.136	ug/l		08/02/12 12:25	08/02/12 18:57	1.00

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-BFB	*107*		*92.5 - 111*	*08/02/12 12:25*	*08/02/12 18:57*	*1.00*
Dibromofluoromethane	*96.5*		*82.4 - 115*	*08/02/12 12:25*	*08/02/12 18:57*	*1.00*
Toluene-d8	*90.8*		*78.4 - 116*	*08/02/12 12:25*	*08/02/12 18:57*	*1.00*

Method: AK 102 - Diesel Range Organics (C10-C25) per AK102

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Diesel Range Organics	**0.156**	**J**	0.410	0.123	mg/l		08/06/12 08:26	08/06/12 14:00	1.00

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1-Chlorooctadecane	*77.8*		*50 - 150*	*08/06/12 08:26*	*08/06/12 14:00*	*1.00*

Client Sample ID: 12-ERK-FD01

Lab Sample ID: AVH0002-06

Date Collected: 07/31/12 22:00

Matrix: Water

Date Received: 08/01/12 13:25

Method: AK101-MS/EPA 8260B - Gasoline Range Organics (C6-C10) by AK101-MS and BTEX by EPA Method 8260B

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics	ND		50.0	14.9	ug/l		08/02/12 12:25	08/03/12 01:19	1.00
Benzene	ND		0.500	0.0640	ug/l		08/02/12 12:25	08/03/12 01:19	1.00
Toluene	**0.120**	**J**	1.00	0.0566	ug/l		08/02/12 12:25	08/03/12 01:19	1.00
Ethylbenzene	ND		1.00	0.0504	ug/l		08/02/12 12:25	08/03/12 01:19	1.00
Xylenes (total)	ND		3.00	0.136	ug/l		08/02/12 12:25	08/03/12 01:19	1.00

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-BFB	*106*		*92.5 - 111*	*08/02/12 12:25*	*08/03/12 01:19*	*1.00*
Dibromofluoromethane	*98.1*		*82.4 - 115*	*08/02/12 12:25*	*08/03/12 01:19*	*1.00*
Toluene-d8	*90.7*		*78.4 - 116*	*08/02/12 12:25*	*08/03/12 01:19*	*1.00*

Client: Oasis Environmental, Inc.
Project/Site: 0164311

TestAmerica Job ID: AVH0002

Client Sample ID: 12-ERK-FD01

Date Collected: 07/31/12 22:00
Date Received: 08/01/12 13:25

Lab Sample ID: AVH0002-06
Matrix: Water

Method: EPA 8270 mod. - Polynuclear Aromatic Compounds by GC/MS with Selected Ion Monitoring

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Naphthalene	ND		0.211	0.0211	ug/l		08/03/12 08:05	08/08/12 12:41	1.00
2-Methylnaphthalene	ND		0.211	0.0211	ug/l		08/03/12 08:05	08/08/12 12:41	1.00
1-Methylnapthalene	ND		0.211	0.0211	ug/l		08/03/12 08:05	08/08/12 12:41	1.00
Acenaphthylene	ND		0.211	0.0211	ug/l		08/03/12 08:05	08/08/12 12:41	1.00
Acenaphthene	ND		0.211	0.0211	ug/l		08/03/12 08:05	08/08/12 12:41	1.00
Fluorene	ND		0.211	0.0126	ug/l		08/03/12 08:05	08/08/12 12:41	1.00
Phenanthrene	ND		0.211	0.0105	ug/l		08/03/12 08:05	08/08/12 12:41	1.00
Anthracene	ND		0.211	0.0211	ug/l		08/03/12 08:05	08/08/12 12:41	1.00
Fluoranthene	ND		0.211	0.0105	ug/l		08/03/12 08:05	08/08/12 12:41	1.00
Pyrene	ND		0.211	0.0211	ug/l		08/03/12 08:05	08/08/12 12:41	1.00
Benzo (a) anthracene	ND		0.211	0.0105	ug/l		08/03/12 08:05	08/08/12 12:41	1.00
Chrysene	ND		0.211	0.0126	ug/l		08/03/12 08:05	08/08/12 12:41	1.00
Benzo (b) fluoranthene	ND		0.211	0.0211	ug/l		08/03/12 08:05	08/08/12 12:41	1.00
Benzo (k) fluoranthene	ND		0.211	0.0211	ug/l		08/03/12 08:05	08/08/12 12:41	1.00
Benzo (a) pyrene	ND		0.211	0.0211	ug/l		08/03/12 08:05	08/08/12 12:41	1.00
Indeno (1,2,3-cd) pyrene	ND		0.211	0.0421	ug/l		08/03/12 08:05	08/08/12 12:41	1.00
Dibenzo (a,h) anthracene	ND		0.211	0.0421	ug/l		08/03/12 08:05	08/08/12 12:41	1.00
Benzo (ghi) perylene	ND		0.211	0.0211	ug/l		08/03/12 08:05	08/08/12 12:41	1.00

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Nitrobenzene-d5	*68.7*		*31.6 - 137*	*08/03/12 08:05*	*08/08/12 12:41*	*1.00*
2-FBP	*67.6*		*35.1 - 129*	*08/03/12 08:05*	*08/08/12 12:41*	*1.00*
p-Terphenyl-d14	*68.8*		*0 - 149*	*08/03/12 08:05*	*08/08/12 12:41*	*1.00*

Method: AK 102 - Diesel Range Organics (C10-C25) per AK102

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Diesel Range Organics	**0.151**	**J**	0.407	0.122	mg/l		08/06/12 08:26	08/06/12 15:04	1.00

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1-Chlorooctadecane	*101*		*50 - 150*	*08/06/12 08:26*	*08/06/12 15:04*	*1.00*

Client Sample ID: TB-1

Date Collected: 07/31/12 23:00
Date Received: 08/01/12 13:25

Lab Sample ID: AVH0002-07
Matrix: Water

Method: AK101-MS/EPA 8260B - Gasoline Range Organics (C6-C10) by AK101-MS and BTEX by EPA Method 8260B

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics	ND		50.0	14.9	ug/l		08/02/12 12:25	08/02/12 17:22	1.00
Benzene	ND		0.500	0.0640	ug/l		08/02/12 12:25	08/02/12 17:22	1.00
Toluene	**0.840**	**J**	1.00	0.0566	ug/l		08/02/12 12:25	08/02/12 17:22	1.00
Ethylbenzene	ND		1.00	0.0504	ug/l		08/02/12 12:25	08/02/12 17:22	1.00
Xylenes (total)	**0.470**	**J**	3.00	0.136	ug/l		08/02/12 12:25	08/02/12 17:22	1.00

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-BFB	*104*		*92.5 - 111*	*08/02/12 12:25*	*08/02/12 17:22*	*1.00*
Dibromofluoromethane	*95.2*		*82.4 - 115*	*08/02/12 12:25*	*08/02/12 17:22*	*1.00*
Toluene-d8	*90.9*		*78.4 - 116*	*08/02/12 12:25*	*08/02/12 17:22*	*1.00*

Surrogate Summary

Client: Oasis Environmental, Inc.
Project/Site: 0164311

TestAmerica Job ID: AVH0002

Method: AK101-MS/EPA 8260B - Gasoline Range Organics (C6-C10) by AK101-MS and BTEX by EPA Method 8260B

Matrix: Water **Prep Type: Total**

		Percent Surrogate Recovery (Acceptance Limits)		
		4-BFB	DBFM	Toluene-d8
Lab Sample ID	Client Sample ID	(92.5-111)	(82.4-115)	(78.4-116)
12H0009-BLK1	Method Blank	104	97.0	91.5
12H0009-DUP1	12-ERK-SW02	106	95.7	91.9
12H0009-MS1	12-ERK-SW02	108	100	91.9
12H0009-MSD1	12-ERK-SW02	108	93.9	91.7
AVH0002-01	12-ERK-MW01	106	93.8	90.8
AVH0002-02	12-ERK-MW02	107	94.7	91.2
AVH0002-03	12-ERK-MW03	107	93.9	90.9
AVH0002-04	12-ERK-SW01	105	96.5	90.9
AVH0002-05	12-ERK-SW02	107	96.5	90.8
AVH0002-06	12-ERK-FD01	106	98.1	90.7
AVH0002-07	TB-1	104	95.2	90.9

Surrogate Legend

4-BFB = 4-BFB

DBFM = Dibromofluoromethane

Toluene-d8 = Toluene-d8

Method: AK101-MS/EPA 8260B - Gasoline Range Organics (C6-C10) by AK101-MS and BTEX by EPA Method 8260B

Matrix: Water **Prep Type: Total**

		Percent Surrogate Recovery (Acceptance Limits)		
		4-BFB	DBFM	Toluene-d8
Lab Sample ID	Client Sample ID	(60-120)	(60-120)	(60-120)
12H0009-BS1	Lab Control Sample	107	95.5	92.0
12H0009-BS2	Lab Control Sample	105	94.8	92.3
12H0009-BSD1	Lab Control Sample Dup	106	96.8	91.7
12H0009-BSD2	Lab Control Sample Dup	105	94.3	91.4

Surrogate Legend

4-BFB = 4-BFB

DBFM = Dibromofluoromethane

Toluene-d8 = Toluene-d8

Method: EPA 8270 mod. - Polynuclear Aromatic Compounds by GC/MS with Selected Ion Monitoring

Matrix: Water **Prep Type: Total**

		Percent Surrogate Recovery (Acceptance Limits)		
		NBZ	2-FBP	Terphenyl-d
Lab Sample ID	Client Sample ID	(31.6-137)	(35.1-129)	(0-149)
12H0009-DUP1	12-ERK-SW02	52.8	52.0	27.8
12H0009-MS1	12-ERK-SW02	68.2	68.4	82.0
12H0009-MSD1	12-ERK-SW02	71.8	69.0	88.0
12H0036-BLK1	Method Blank	82.0	79.2	97.8
12H0036-BS1	Lab Control Sample	79.0	77.0	89.6
AVH0002-02	12-ERK-MW02	66.6	64.7	92.3
AVH0002-03	12-ERK-MW03	49.9	51.7	38.5
AVH0002-04	12-ERK-SW01	40.6	41.5	48.3
AVH0002-06	12-ERK-FD01	68.7	67.6	68.8

Surrogate Summary

Client: Oasis Environmental, Inc.
Project/Site: 0164311

TestAmerica Job ID: AVH0002

Surrogate Legend

NBZ = Nitrobenzene-d5

2-FBP = 2-FBP

p-Terphenyl-d14 = p-Terphenyl-d14

Method: AK 102 - Diesel Range Organics (C10-C25) per AK102

Matrix: Water **Prep Type: Total**

		Percent Surrogate Recovery (Acceptance Limits)							
		1COD							
Lab Sample ID	Client Sample ID	(50-150)							
12H0018-BLK1	Method Blank	62.4							
12H0018-DUP1	12-ERK-SW02	78.0							
12H0018-MS1	12-ERK-SW02	100							
12H0018-MSD1	12-ERK-SW02	88.2							
AVH0002-01	12-ERK-MW01	73.2							
AVH0002-02	12-ERK-MW02	59.9							
AVH0002-03	12-ERK-MW03	91.2							
AVH0002-04	12-ERK-SW01	92.0							
AVH0002-05	12-ERK-SW02	77.8							
AVH0002-06	12-ERK-FD01	101							

Surrogate Legend

1COD = 1-Chlorooctadecane

Method: AK 102 - Diesel Range Organics (C10-C25) per AK102

Matrix: Water **Prep Type: Total**

		Percent Surrogate Recovery (Acceptance Limits)							
		1COD							
Lab Sample ID	Client Sample ID	(60-120)							
12H0018-BS1	Lab Control Sample	96.8							
12H0018-BSD1	Lab Control Sample Dup	104							

Surrogate Legend

1COD = 1-Chlorooctadecane

Method: AK101-MS/EPA 8260B - Gasoline Range Organics (C6-C10) by AK101-MS and BTEX by EPA Method 8260B

Lab Sample ID: 12H0009-BLK1 — **Client Sample ID: Method Blank**
Matrix: Water — **Prep Type: Total**
Analysis Batch: V000482 — **Prep Batch: 12H0009_P**

Analyte	Blank Result	Blank Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics	ND		50.0	14.9	ug/l		08/02/12 12:25	08/02/12 13:08	1.00
Benzene	ND		0.500	0.0640	ug/l		08/02/12 12:25	08/02/12 13:08	1.00
Toluene	0.130	J	1.00	0.0566	ug/l		08/02/12 12:25	08/02/12 13:08	1.00
Ethylbenzene	ND		1.00	0.0504	ug/l		08/02/12 12:25	08/02/12 13:08	1.00
Xylenes (total)	0.270	J	3.00	0.136	ug/l		08/02/12 12:25	08/02/12 13:08	1.00

Surrogate	*Blank %Recovery*	*Blank Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-BFB	*104*		*92.5 - 111*	*08/02/12 12:25*	*08/02/12 13:08*	*1.00*
Dibromofluoromethane	*97.0*		*82.4 - 115*	*08/02/12 12:25*	*08/02/12 13:08*	*1.00*
Toluene-d8	*91.5*		*78.4 - 116*	*08/02/12 12:25*	*08/02/12 13:08*	*1.00*

Lab Sample ID: 12H0009-BS1 — **Client Sample ID: Lab Control Sample**
Matrix: Water — **Prep Type: Total**
Analysis Batch: V000482 — **Prep Batch: 12H0009_P**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Benzene	20.0	19.9		ug/l		99.7	70 - 130
Toluene	20.0	19.6		ug/l		98.0	70 - 130
Ethylbenzene	20.0	19.6		ug/l		98.1	70 - 130
Xylenes (total)	60.0	59.0		ug/l		98.3	70 - 130

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
4-BFB	*107*		*60 - 120*
Dibromofluoromethane	*95.5*		*60 - 120*
Toluene-d8	*92.0*		*60 - 120*

Lab Sample ID: 12H0009-BS2 — **Client Sample ID: Lab Control Sample**
Matrix: Water — **Prep Type: Total**
Analysis Batch: V000482 — **Prep Batch: 12H0009_P**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Gasoline Range Organics	500	418		ug/l		83.6	60 - 120

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
4-BFB	*105*		*60 - 120*
Dibromofluoromethane	*94.8*		*60 - 120*
Toluene-d8	*92.3*		*60 - 120*

Lab Sample ID: 12H0009-BSD1 — **Client Sample ID: Lab Control Sample Dup**
Matrix: Water — **Prep Type: Total**
Analysis Batch: V000482 — **Prep Batch: 12H0009_P**

Analyte	Spike Added	LCS Dup Result	LCS Dup Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Benzene	20.0	19.8		ug/l		98.8	70 - 130	0.856	20
Toluene	20.0	19.7		ug/l		98.6	70 - 130	0.661	20
Ethylbenzene	20.0	19.6		ug/l		98.0	70 - 130	0.102	20
Xylenes (total)	60.0	59.0		ug/l		98.3	70 - 130	0.033	20

Method: AK101-MS/EPA 8260B - Gasoline Range Organics (C6-C10) by AK101-MS and BTEX by EPA Method 8260B (Continued)

Lab Sample ID: 12H0009-BSD1
Matrix: Water
Analysis Batch: V000482

Client Sample ID: Lab Control Sample Dup
Prep Type: Total
Prep Batch: 12H0009_P

Surrogate	LCS Dup %Recovery	LCS Dup Qualifier	Limits
4-BFB	106		60 - 120
Dibromofluoromethane	96.8		60 - 120
Toluene-d8	91.7		60 - 120

Lab Sample ID: 12H0009-BSD2
Matrix: Water
Analysis Batch: V000482

Client Sample ID: Lab Control Sample Dup
Prep Type: Total
Prep Batch: 12H0009_P

Analyte			Spike Added	LCS Dup Result	LCS Dup Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Gasoline Range Organics			500	459		ug/l		91.9	60 - 120	9.36	20

Surrogate	LCS Dup %Recovery	LCS Dup Qualifier	Limits
4-BFB	105		60 - 120
Dibromofluoromethane	94.3		60 - 120
Toluene-d8	91.4		60 - 120

Lab Sample ID: 12H0009-MS1
Matrix: Water
Analysis Batch: V000482

Client Sample ID: 12-ERK-SW02
Prep Type: Total
Prep Batch: 12H0009_P

Analyte	Sample Result	Sample Qualifier	Spike Added	Matrix Spike Result	Matrix Spike Qualifier	Unit	D	%Rec	%Rec. Limits
Benzene	ND		20.0	14.2		ug/l		71.2	70 - 130
Toluene	ND		20.0	14.0	M8	ug/l		69.8	70 - 130
Ethylbenzene	ND		20.0	13.7	M8	ug/l		68.6	70 - 130
Xylenes (total)	0.460	J	60.0	40.8	M8	ug/l		67.3	70 - 130

Surrogate	Matrix Spike %Recovery	Matrix Spike Qualifier	Limits
4-BFB	108		92.5 - 111
Dibromofluoromethane	100		82.4 - 115
Toluene-d8	91.9		78.4 - 116

Lab Sample ID: 12H0009-MSD1
Matrix: Water
Analysis Batch: V000482

Client Sample ID: 12-ERK-SW02
Prep Type: Total
Prep Batch: 12H0009_P

Analyte	Sample Result	Sample Qualifier	Spike Added	trix Spike Dup Result	Matrix Spike Dup Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Benzene	ND		20.0	18.6	R2	ug/l		92.8	70 - 130	26.3	20
Toluene	ND		20.0	18.0	R2	ug/l		89.8	70 - 130	25.1	20
Ethylbenzene	ND		20.0	17.7	R2	ug/l		88.6	70 - 130	25.5	20
Xylenes (total)	0.460	J	60.0	53.2	R2	ug/l		88.0	70 - 130	26.4	20

Surrogate	Matrix Spike Dup %Recovery	Matrix Spike Dup Qualifier	Limits
4-BFB	108		92.5 - 111
Dibromofluoromethane	93.9		82.4 - 115
Toluene-d8	91.7		78.4 - 116

Client: Oasis Environmental, Inc.
Project/Site: 0164311

TestAmerica Job ID: AVH0002

Method: AK101-MS/EPA 8260B - Gasoline Range Organics (C6-C10) by AK101-MS and BTEX by EPA Method 8260B (Continued)

Lab Sample ID: 12H0009-DUP1
Matrix: Water
Analysis Batch: V000482

Client Sample ID: 12-ERK-SW02
Prep Type: Total
Prep Batch: 12H0009_P

Analyte	Sample Result	Sample Qualifier		Duplicate Result	Duplicate Qualifier	Unit	D			RPD	RPD Limit
Gasoline Range Organics	ND			ND		ug/l					20
Benzene	ND			ND		ug/l					20
Toluene	ND			ND		ug/l					20
Ethylbenzene	ND			ND		ug/l					20
Xylenes (total)	0.460	J		ND		ug/l					20

Surrogate	*Duplicate %Recovery*	*Duplicate Qualifier*	*Limits*
4-BFB	*106*		*92.5 - 111*
Dibromofluoromethane	*95.7*		*82.4 - 115*
Toluene-d8	*91.9*		*78.4 - 116*

Method: EPA 8270 mod. - Polynuclear Aromatic Compounds by GC/MS with Selected Ion Monitoring

Lab Sample ID: 12H0009-DUP1
Matrix: Water
Analysis Batch: 12H0018

Client Sample ID: 12-ERK-SW02
Prep Type: Total
Prep Batch: 12H0018_P

Analyte	Sample Result	Sample Qualifier		Duplicate Result	Duplicate Qualifier	Unit	D			RPD	RPD Limit
Naphthalene				ND		ug/l					
2-Methylnaphthalene				ND		ug/l					
1-Methylnapthalene				ND		ug/l					
Acenaphthylene				ND		ug/l					
Acenaphthene				ND		ug/l					
Fluorene				ND		ug/l					
Phenanthrene				ND		ug/l					
Anthracene				ND		ug/l					
Fluoranthene				ND		ug/l					
Pyrene				ND		ug/l					
Benzo (a) anthracene				ND		ug/l					
Chrysene				ND		ug/l					
Benzo (b) fluoranthene				ND		ug/l					
Benzo (k) fluoranthene				ND		ug/l					
Benzo (a) pyrene				ND		ug/l					
Indeno (1,2,3-cd) pyrene				ND		ug/l					
Dibenzo (a,h) anthracene				ND		ug/l					
Benzo (ghi) perylene				ND		ug/l					

Surrogate	*Duplicate %Recovery*	*Duplicate Qualifier*	*Limits*
Nitrobenzene-d5	*52.8*		*31.6 - 137*
2-FBP	*52.0*		*35.1 - 129*
p-Terphenyl-d14	*27.8*		*0 - 149*

Method: EPA 8270 mod. - Polynuclear Aromatic Compounds by GC/MS with Selected Ion Monitoring (Continued)

Lab Sample ID: 12H0036-BLK1
Matrix: Water
Analysis Batch: 12H0036

Client Sample ID: Method Blank
Prep Type: Total
Prep Batch: 12H0036_P

Analyte	Blank Result	Blank Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Naphthalene	ND		0.200	0.0200	ug/l		08/07/12 08:28	08/08/12 13:06	1.00
2-Methylnaphthalene	ND		0.200	0.0200	ug/l		08/07/12 08:28	08/08/12 13:06	1.00
1-Methylnapthalene	ND		0.200	0.0200	ug/l		08/07/12 08:28	08/08/12 13:06	1.00
Acenaphthylene	ND		0.200	0.0200	ug/l		08/07/12 08:28	08/08/12 13:06	1.00
Acenaphthene	ND		0.200	0.0200	ug/l		08/07/12 08:28	08/08/12 13:06	1.00
Fluorene	ND		0.200	0.0120	ug/l		08/07/12 08:28	08/08/12 13:06	1.00
Phenanthrene	ND		0.200	0.0100	ug/l		08/07/12 08:28	08/08/12 13:06	1.00
Anthracene	ND		0.200	0.0200	ug/l		08/07/12 08:28	08/08/12 13:06	1.00
Fluoranthene	ND		0.200	0.0100	ug/l		08/07/12 08:28	08/08/12 13:06	1.00
Pyrene	ND		0.200	0.0200	ug/l		08/07/12 08:28	08/08/12 13:06	1.00
Benzo (a) anthracene	ND		0.200	0.0100	ug/l		08/07/12 08:28	08/08/12 13:06	1.00
Chrysene	ND		0.200	0.0120	ug/l		08/07/12 08:28	08/08/12 13:06	1.00
Benzo (b) fluoranthene	ND		0.200	0.0200	ug/l		08/07/12 08:28	08/08/12 13:06	1.00
Benzo (k) fluoranthene	ND		0.200	0.0200	ug/l		08/07/12 08:28	08/08/12 13:06	1.00
Benzo (a) pyrene	ND		0.200	0.0200	ug/l		08/07/12 08:28	08/08/12 13:06	1.00
Indeno (1,2,3-cd) pyrene	ND		0.200	0.0400	ug/l		08/07/12 08:28	08/08/12 13:06	1.00
Dibenzo (a,h) anthracene	ND		0.200	0.0400	ug/l		08/07/12 08:28	08/08/12 13:06	1.00
Benzo (ghi) perylene	ND		0.200	0.0200	ug/l		08/07/12 08:28	08/08/12 13:06	1.00

Surrogate	*Blank %Recovery*	*Blank Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Nitrobenzene-d5	*82.0*		*31.6 - 137*	*08/07/12 08:28*	*08/08/12 13:06*	*1.00*
2-FBP	*79.2*		*35.1 - 129*	*08/07/12 08:28*	*08/08/12 13:06*	*1.00*
p-Terphenyl-d14	*97.8*		*0 - 149*	*08/07/12 08:28*	*08/08/12 13:06*	*1.00*

Lab Sample ID: 12H0036-BS1
Matrix: Water
Analysis Batch: 12H0036

Client Sample ID: Lab Control Sample
Prep Type: Total
Prep Batch: 12H0036_P

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Naphthalene	2.00	1.29		ug/l		64.5	27.6 - 122
Fluorene	2.00	1.52		ug/l		76.0	51.7 - 98.2
Chrysene	2.00	1.57		ug/l		78.5	0 - 189
Indeno (1,2,3-cd) pyrene	2.00	1.75		ug/l		87.5	0 - 207

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
Nitrobenzene-d5	*79.0*		*31.6 - 137*
2-FBP	*77.0*		*35.1 - 129*
p-Terphenyl-d14	*89.6*		*0 - 149*

Lab Sample ID: 12H0009-MS1
Matrix: Water
Analysis Batch: 12H0036

Client Sample ID: 12-ERK-SW02
Prep Type: Total
Prep Batch: 12H0036_P

Analyte	Sample Result	Sample Qualifier	Spike Added	Matrix Spike Result	Matrix Spike Qualifier	Unit	D	%Rec	%Rec. Limits
Naphthalene	ND		3.79	2.25		ug/l		59.5	35 - 125
Fluorene	ND		3.79	2.69		ug/l		71.0	35 - 125
Chrysene	ND		3.79	2.95		ug/l		78.0	35 - 125
Indeno (1,2,3-cd) pyrene	ND		3.79	3.27		ug/l		86.5	35 - 125

Method: EPA 8270 mod. - Polynuclear Aromatic Compounds by GC/MS with Selected Ion Monitoring (Continued)

Lab Sample ID: 12H0009-MS1
Matrix: Water
Analysis Batch: 12H0036

Client Sample ID: 12-ERK-SW02
Prep Type: Total
Prep Batch: 12H0036_P

Surrogate	*Matrix Spike %Recovery*	*Matrix Spike Qualifier*	*Limits*
Nitrobenzene-d5	*68.2*		*31.6 - 137*
2-FBP	*68.4*		*35.1 - 129*
p-Terphenyl-d14	*82.0*		*0 - 149*

Lab Sample ID: 12H0009-MSD1
Matrix: Water
Analysis Batch: 12H0036

Client Sample ID: 12-ERK-SW02
Prep Type: Total
Prep Batch: 12H0036_P

Analyte	Sample Result	Sample Qualifier	Spike Added	ıtrix Spike Dup Result	Matrix Spike Dup Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Naphthalene	ND		4.01	2.59		ug/l		64.5	35 - 125	13.9	30
Fluorene	ND		4.01	2.77		ug/l		69.0	35 - 125	2.96	30
Chrysene	ND		4.01	2.89		ug/l		72.0	35 - 125	2.19	30
Indeno (1,2,3-cd) pyrene	ND		4.01	3.27		ug/l		81.5	35 - 125	0.137	30

Surrogate	*Matrix Spike Dup %Recovery*	*Matrix Spike Dup Qualifier*	*Limits*
Nitrobenzene-d5	*71.8*		*31.6 - 137*
2-FBP	*69.0*		*35.1 - 129*
p-Terphenyl-d14	*88.0*		*0 - 149*

Method: AK 102 - Diesel Range Organics (C10-C25) per AK102

Lab Sample ID: 12H0018-BLK1
Matrix: Water
Analysis Batch: V000487

Client Sample ID: Method Blank
Prep Type: Total
Prep Batch: 12H0018_P

Analyte	Blank Result	Blank Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Diesel Range Organics	0.282	J	0.500	0.150	mg/l		08/06/12 08:26	08/06/12 12:24	1.00

Surrogate	*Blank %Recovery*	*Blank Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1-Chlorooctadecane	*62.4*		*50 - 150*	*08/06/12 08:26*	*08/06/12 12:24*	*1.00*

Lab Sample ID: 12H0018-BS1
Matrix: Water
Analysis Batch: V000487

Client Sample ID: Lab Control Sample
Prep Type: Total
Prep Batch: 12H0018_P

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Diesel Range Organics	10.3	9.01		mg/l		87.5	75 - 125

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
1-Chlorooctadecane	*96.8*		*60 - 120*

Lab Sample ID: 12H0018-BSD1
Matrix: Water
Analysis Batch: V000487

Client Sample ID: Lab Control Sample Dup
Prep Type: Total
Prep Batch: 12H0018_P

Analyte	Spike Added	LCS Dup Result	LCS Dup Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Diesel Range Organics	10.3	9.26		mg/l		89.9	75 - 125	2.72	20

Method: AK 102 - Diesel Range Organics (C10-C25) per AK102 (Continued)

Lab Sample ID: 12H0018-BSD1
Matrix: Water
Analysis Batch: V000487

Client Sample ID: Lab Control Sample Dup
Prep Type: Total
Prep Batch: 12H0018_P

Surrogate	*LCS Dup %Recovery*	*LCS Dup Qualifier*	*Limits*
1-Chlorooctadecane	*104*		*60 - 120*

Lab Sample ID: 12H0018-MS1
Matrix: Water
Analysis Batch: V000488

Client Sample ID: 12-ERK-SW02
Prep Type: Total
Prep Batch: 12H0018_P

Analyte	Sample Result	Sample Qualifier	Spike Added	Matrix Spike Result	Matrix Spike Qualifier	Unit	D	%Rec	%Rec. Limits		
Diesel Range Organics	0.156	J	8.51	7.88		mg/l		90.7	75 - 125		

Surrogate	*Matrix Spike %Recovery*	*Matrix Spike Qualifier*	*Limits*
1-Chlorooctadecane	*100*		*50 - 150*

Lab Sample ID: 12H0018-MSD1
Matrix: Water
Analysis Batch: V000488

Client Sample ID: 12-ERK-SW02
Prep Type: Total
Prep Batch: 12H0018_P

Analyte	Sample Result	Sample Qualifier	Spike Added	ıtrix Spike Dup Result	Matrix Spike Dup Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Diesel Range Organics	0.156	J	8.58	6.74		mg/l		76.7	75 - 125	15.5	25

Surrogate	*Matrix Spike Dup %Recovery*	*Matrix Spike Dup Qualifier*	*Limits*
1-Chlorooctadecane	*88.2*		*50 - 150*

Lab Sample ID: 12H0018-DUP1
Matrix: Water
Analysis Batch: V000488

Client Sample ID: 12-ERK-SW02
Prep Type: Total
Prep Batch: 12H0018_P

Analyte	Sample Result	Sample Qualifier		Duplicate Result	Duplicate Qualifier	Unit	D			RPD	RPD Limit
Diesel Range Organics	0.156	J		0.140	J	mg/l				11.2	20

Surrogate	*Duplicate %Recovery*	*Duplicate Qualifier*	*Limits*
1-Chlorooctadecane	*78.0*		*50 - 150*

GCMS Volatiles

Analysis Batch: V000482

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
12H0009-BLK1	Method Blank	Total	Water	AK101-MS/EPA 8260B	12H0009_P
12H0009-BS1	Lab Control Sample	Total	Water	AK101-MS/EPA 8260B	12H0009_P
12H0009-BS2	Lab Control Sample	Total	Water	AK101-MS/EPA 8260B	12H0009_P
12H0009-BSD1	Lab Control Sample Dup	Total	Water	AK101-MS/EPA 8260B	12H0009_P
12H0009-BSD2	Lab Control Sample Dup	Total	Water	AK101-MS/EPA 8260B	12H0009_P
12H0009-DUP1	12-ERK-SW02	Total	Water	AK101-MS/EPA 8260B	12H0009_P
12H0009-MS1	12-ERK-SW02	Total	Water	AK101-MS/EPA 8260B	12H0009_P
12H0009-MSD1	12-ERK-SW02	Total	Water	AK101-MS/EPA 8260B	12H0009_P
AVH0002-01	12-ERK-MW01	Total	Water	AK101-MS/EPA 8260B	12H0009_P
AVH0002-02	12-ERK-MW02	Total	Water	AK101-MS/EPA 8260B	12H0009_P
AVH0002-03	12-ERK-MW03	Total	Water	AK101-MS/EPA 8260B	12H0009_P
AVH0002-04	12-ERK-SW01	Total	Water	AK101-MS/EPA 8260B	12H0009_P
AVH0002-05	12-ERK-SW02	Total	Water	AK101-MS/EPA 8260B	12H0009_P
AVH0002-06	12-ERK-FD01	Total	Water	AK101-MS/EPA 8260B	12H0009_P
AVH0002-07	TB-1	Total	Water	AK101-MS/EPA 8260B	12H0009_P

Prep Batch: 12H0009_P

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
12H0009-BLK1	Method Blank	Total	Water	EPA 5030B	
12H0009-BS1	Lab Control Sample	Total	Water	EPA 5030B	
12H0009-BS2	Lab Control Sample	Total	Water	EPA 5030B	
12H0009-BSD1	Lab Control Sample Dup	Total	Water	EPA 5030B	
12H0009-BSD2	Lab Control Sample Dup	Total	Water	EPA 5030B	
12H0009-DUP1	12-ERK-SW02	Total	Water	EPA 5030B	
12H0009-MS1	12-ERK-SW02	Total	Water	EPA 5030B	
12H0009-MSD1	12-ERK-SW02	Total	Water	EPA 5030B	
AVH0002-01	12-ERK-MW01	Total	Water	EPA 5030B	
AVH0002-02	12-ERK-MW02	Total	Water	EPA 5030B	
AVH0002-03	12-ERK-MW03	Total	Water	EPA 5030B	
AVH0002-04	12-ERK-SW01	Total	Water	EPA 5030B	
AVH0002-05	12-ERK-SW02	Total	Water	EPA 5030B	
AVH0002-06	12-ERK-FD01	Total	Water	EPA 5030B	
AVH0002-07	TB-1	Total	Water	EPA 5030B	

Semivolatiles

Analysis Batch: 12H0018

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
12H0009-DUP1	12-ERK-SW02	Total	Water	EPA 8270 mod.	12H0018_P
AVH0002-03	12-ERK-MW03	Total	Water	EPA 8270 mod.	12H0018_P
AVH0002-04	12-ERK-SW01	Total	Water	EPA 8270 mod.	12H0018_P

Semivolatiles (Continued)

Analysis Batch: 12H0018 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
AVH0002-06	12-ERK-FD01	Total	Water	EPA 8270 mod.	12H0018_P

Analysis Batch: 12H0036

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
12H0009-MS1	12-ERK-SW02	Total	Water	EPA 8270 mod.	12H0036_P
12H0009-MSD1	12-ERK-SW02	Total	Water	EPA 8270 mod.	12H0036_P
12H0036-BLK1	Method Blank	Total	Water	EPA 8270 mod.	12H0036_P
12H0036-BS1	Lab Control Sample	Total	Water	EPA 8270 mod.	12H0036_P
AVH0002-02	12-ERK-MW02	Total	Water	EPA 8270 mod.	12H0036_P

Prep Batch: 12H0018_P

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
12H0009-DUP1	12-ERK-SW02	Total	Water	EPA 3510/600 Series	
AVH0002-03	12-ERK-MW03	Total	Water	EPA 3510/600 Series	
AVH0002-04	12-ERK-SW01	Total	Water	EPA 3510/600 Series	
AVH0002-06	12-ERK-FD01	Total	Water	EPA 3510/600 Series	

Prep Batch: 12H0036_P

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
12H0009-MS1	12-ERK-SW02	Total	Water	EPA 3510/600 Series	
12H0009-MSD1	12-ERK-SW02	Total	Water	EPA 3510/600 Series	
12H0036-BLK1	Method Blank	Total	Water	EPA 3510/600 Series	
12H0036-BS1	Lab Control Sample	Total	Water	EPA 3510/600 Series	
AVH0002-02	12-ERK-MW02	Total	Water	EPA 3510/600 Series	

Fuels

Analysis Batch: V000487

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
12H0018-BLK1	Method Blank	Total	Water	AK 102	12H0018_P
12H0018-BS1	Lab Control Sample	Total	Water	AK 102	12H0018_P
12H0018-BSD1	Lab Control Sample Dup	Total	Water	AK 102	12H0018_P
AVH0002-01	12-ERK-MW01	Total	Water	AK 102	12H0018_P
AVH0002-02	12-ERK-MW02	Total	Water	AK 102	12H0018_P
AVH0002-04	12-ERK-SW01	Total	Water	AK 102	12H0018_P

Analysis Batch: V000488

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
12H0018-DUP1	12-ERK-SW02	Total	Water	AK 102	12H0018_P
12H0018-MS1	12-ERK-SW02	Total	Water	AK 102	12H0018_P
12H0018-MSD1	12-ERK-SW02	Total	Water	AK 102	12H0018_P
AVH0002-03	12-ERK-MW03	Total	Water	AK 102	12H0018_P
AVH0002-05	12-ERK-SW02	Total	Water	AK 102	12H0018_P
AVH0002-06	12-ERK-FD01	Total	Water	AK 102	12H0018_P

Client: Oasis Environmental, Inc.
Project/Site: 0164311

TestAmerica Job ID: AVH0002

Fuels (Continued)

Prep Batch: 12H0018_P

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
12H0018-BLK1	Method Blank	Total	Water	EPA 3510	
12H0018-BS1	Lab Control Sample	Total	Water	EPA 3510	
12H0018-BSD1	Lab Control Sample Dup	Total	Water	EPA 3510	
12H0018-DUP1	12-ERK-SW02	Total	Water	EPA 3510	
12H0018-MS1	12-ERK-SW02	Total	Water	EPA 3510	
12H0018-MSD1	12-ERK-SW02	Total	Water	EPA 3510	
AVH0002-01	12-ERK-MW01	Total	Water	EPA 3510	
AVH0002-02	12-ERK-MW02	Total	Water	EPA 3510	
AVH0002-03	12-ERK-MW03	Total	Water	EPA 3510	
AVH0002-04	12-ERK-SW01	Total	Water	EPA 3510	
AVH0002-05	12-ERK-SW02	Total	Water	EPA 3510	
AVH0002-06	12-ERK-FD01	Total	Water	EPA 3510	

Lab Chronicle

Client: Oasis Environmental, Inc.
Project/Site: 0164311

TestAmerica Job ID: AVH0002

Client Sample ID: 12-ERK-MW01

Lab Sample ID: AVH0002-01

Date Collected: 07/31/12 12:15

Matrix: Water

Date Received: 08/01/12 13:25

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total	Prep	EPA 5030B		1.00	12H0009_P	08/02/12 12:25	JMG	TAL ANC
Total	Analysis	AK101-MS/EPA 8260B		1.00	V000482	08/02/12 21:36	JMG	TAL ANC
Total	Prep	EPA 3510		0.840	12H0018_P	08/06/12 08:26	VJR	TAL ANC
Total	Analysis	AK 102		1.00	V000487	08/06/12 14:00	KDC	TAL ANC

Client Sample ID: 12-ERK-MW02

Lab Sample ID: AVH0002-02

Date Collected: 07/31/12 11:45

Matrix: Water

Date Received: 08/01/12 13:25

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total	Prep	EPA 5030B		1.00	12H0009_P	08/02/12 12:25	JMG	TAL ANC
Total	Analysis	AK101-MS/EPA 8260B		1.00	V000482	08/03/12 00:15	JMG	TAL ANC
Total	Prep	EPA 3510/600 Series		5.04	12H0036_P	08/03/12 08:05	MS	TAL SPK
Total	Analysis	EPA 8270 mod.		1.00	12H0036	08/08/12 15:31	MS	TAL SPK
Total	Prep	EPA 3510		0.847	12H0018_P	08/06/12 08:26	VJR	TAL ANC
Total	Analysis	AK 102		1.00	V000487	08/06/12 14:32	KDC	TAL ANC

Client Sample ID: 12-ERK-MW03

Lab Sample ID: AVH0002-03

Date Collected: 07/31/12 13:00

Matrix: Water

Date Received: 08/01/12 13:25

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total	Prep	EPA 5030B		1.00	12H0009_P	08/02/12 12:25	JMG	TAL ANC
Total	Analysis	AK101-MS/EPA 8260B		1.00	V000482	08/03/12 00:47	JMG	TAL ANC
Total	Prep	EPA 3510/600 Series		2.15	12H0018_P	08/03/12 08:05	MS	TAL SPK
Total	Analysis	EPA 8270 mod.		1.00	12H0018	08/08/12 10:40	MS	TAL SPK
Total	Prep	EPA 3510		0.840	12H0018_P	08/06/12 08:26	VJR	TAL ANC
Total	Analysis	AK 102		1.00	V000488	08/06/12 14:32	KDC	TAL ANC

Client Sample ID: 12-ERK-SW01

Lab Sample ID: AVH0002-04

Date Collected: 07/31/12 16:00

Matrix: Water

Date Received: 08/01/12 13:25

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total	Prep	EPA 5030B		1.00	12H0009_P	08/02/12 12:25	JMG	TAL ANC
Total	Analysis	AK101-MS/EPA 8260B		1.00	V000482	08/02/12 21:04	JMG	TAL ANC
Total	Prep	EPA 3510/600 Series		2.28	12H0018_P	08/03/12 08:05	MS	TAL SPK
Total	Analysis	EPA 8270 mod.		1.00	12H0018	08/08/12 11:04	MS	TAL SPK
Total	Prep	EPA 3510		0.840	12H0018_P	08/06/12 08:26	VJR	TAL ANC
Total	Analysis	AK 102		1.00	V000487	08/06/12 15:04	KDC	TAL ANC

Lab Chronicle

Client: Oasis Environmental, Inc.
Project/Site: 0164311

TestAmerica Job ID: AVH0002

Client Sample ID: 12-ERK-SW02

Lab Sample ID: AVH0002-05

Date Collected: 07/31/12 14:30

Matrix: Water

Date Received: 08/01/12 13:25

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total	Prep	EPA 5030B		1.00	12H0009_P	08/02/12 12:25	JMG	TAL ANC
Total	Analysis	AK101-MS/EPA 8260B		1.00	V000482	08/02/12 18:57	JMG	TAL ANC
Total	Prep	EPA 3510		0.820	12H0018_P	08/06/12 08:26	VJR	TAL ANC
Total	Analysis	AK 102		1.00	V000488	08/06/12 14:00	KDC	TAL ANC

Client Sample ID: 12-ERK-FD01

Lab Sample ID: AVH0002-06

Date Collected: 07/31/12 22:00

Matrix: Water

Date Received: 08/01/12 13:25

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total	Prep	EPA 5030B		1.00	12H0009_P	08/02/12 12:25	JMG	TAL ANC
Total	Analysis	AK101-MS/EPA 8260B		1.00	V000482	08/03/12 01:19	JMG	TAL ANC
Total	Prep	EPA 3510/600 Series		2.11	12H0018_P	08/03/12 08:05	MS	TAL SPK
Total	Analysis	EPA 8270 mod.		1.00	12H0018	08/08/12 12:41	MS	TAL SPK
Total	Prep	EPA 3510		0.813	12H0018_P	08/06/12 08:26	VJR	TAL ANC
Total	Analysis	AK 102		1.00	V000488	08/06/12 15:04	KDC	TAL ANC

Client Sample ID: TB-1

Lab Sample ID: AVH0002-07

Date Collected: 07/31/12 23:00

Matrix: Water

Date Received: 08/01/12 13:25

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total	Prep	EPA 5030B		1.00	12H0009_P	08/02/12 12:25	JMG	TAL ANC
Total	Analysis	AK101-MS/EPA 8260B		1.00	V000482	08/02/12 17:22	JMG	TAL ANC

Laboratory References:

TAL ANC = TestAmerica Anchorage, 2000 West International Airport Road Suite A10, Anchorage, AK 99502-1119, TEL (907) 563-9200

TAL SPK = TestAmerica Spokane, 11922 East 1st. Avenue, Spokane, WA 99206, TEL (509)924-9200

Certification Summary

Client: Oasis Environmental, Inc.
Project/Site: 0164311

TestAmerica Job ID: AVH0002

Laboratory: TestAmerica Anchorage

All certifications held by this laboratory are listed. Not all certifications are applicable to this report.

Authority	Program	EPA Region	Certification ID	Expiration Date
Alaska	State Program	10	AK00975	06-30-13
Alaska (UST)	State Program	10	UST-067	06-16-13

Laboratory: TestAmerica Spokane

All certifications held by this laboratory are listed. Not all certifications are applicable to this report.

Authority	Program	EPA Region	Certification ID	Expiration Date
Alaska (UST)	State Program	10	UST-071	10-31-12
Washington	State Program	10	C569	01-06-13

Method Summary

Client: Oasis Environmental, Inc.
Project/Site: 0164311

TestAmerica Job ID: AVH0002

Method	Method Description	Protocol	Laboratory
AK101-MS/EPA 8260B	Gasoline Range Organics (C6-C10) by AK101-MS and BTEX by EPA Method 8260B		TAL ANC
EPA 8270 mod.	Polynuclear Aromatic Compounds by GC/MS with Selected Ion Monitoring		TAL SPK
AK 102	Diesel Range Organics (C10-C25) per AK102		TAL ANC

Protocol References:

Laboratory References:

TAL ANC = TestAmerica Anchorage, 2000 West International Airport Road Suite A10, Anchorage, AK 99502-1119, TEL (907) 563-9200

TAL SPK = TestAmerica Spokane, 11922 East 1st. Avenue, Spokane, WA 99206, TEL (509)924-9200

Sample Summary

Client: Oasis Environmental, Inc.
Project/Site: 0164311

TestAmerica Job ID: AVH0002

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
AVH0002-01	12-ERK-MW01	Water	07/31/12 12:15	08/01/12 13:25
AVH0002-02	12-ERK-MW02	Water	07/31/12 11:45	08/01/12 13:25
AVH0002-03	12-ERK-MW03	Water	07/31/12 13:00	08/01/12 13:25
AVH0002-04	12-ERK-SW01	Water	07/31/12 16:00	08/01/12 13:25
AVH0002-05	12-ERK-SW02	Water	07/31/12 14:30	08/01/12 13:25
AVH0002-06	12-ERK-FD01	Water	07/31/12 22:00	08/01/12 13:25
AVH0002-07	TB-1	Water	07/31/12 23:00	08/01/12 13:25

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

11720 North Creek Pkwy N Suite 400, Bothell, WA 98011-8244 425-420-9200 FAX 420-9210
11922 E. First Ave, Spokane, WA 99206-5302 509-924-9200 FAX 924-9290
9405 SW Nimbus Ave,Beaverton, OR 97008-7145 503-906-9200 FAX 906-9210
2000 W International Airport Rd Ste A10, Anchorage, AK 99502-1119 907-563-9200 FAX 563-9210

CHAIN OF CUSTODY REPORT

Work Order #: AVH0002

CLIENT: OASIS Environmental
REPORT TO: Richard Grroud
ADDRESS: 825 W 8th Ave Anchorage AK 99501
PHONE: 907.258.4880 FAX:

INVOICE TO: OASIS Environmental
P.O. NUMBER: 01164311

PROJECT NAME: Crowley Eureka Water
PROJECT NUMBER: 01164311
SAMPLED BY: S. Christiansen

TURNAROUND REQUEST in Business Days *
Organic & Inorganic Analyses: (10) STD. | 7 | 5 | 4 | 3 | 2 | 1 | <1
Petroleum Hydrocarbon Analyses: (5) STD. | 4 | 3 | 2 | 1 | <1
OTHER Specify:
* Turnaround Requests less than standard may incur Rush Charges.

	CLIENT SAMPLE IDENTIFICATION	SAMPLING DATE/TIME	PRESERVATIVE		REQUESTED ANALYSES			MATRIX (W, S, O)	# OF CONT.	LOCATION/ COMMENTS	TA WO ID
					GRO BTEX	DRO	PAH				
1	12-ERK-MW01	7/31/12 1215	HCl	HCl	X	X	X		6	tmy amt in IL	01
2	12-ERK-MW02	7/31 1145			X	X	X		6		02
3	12-ERK-MW03	7/31 1300			X	X	X		7		03
4	12-ERK-SW01	7/31 1600			X	X	X		7		04
5	12-ERK-SW02	7/31 1430			X	X	X		21	MS/MSD	05
6	12-ERK-FD01	7/31 2200			X	X	X		7		06
7	TB-1	7/31 2300			X				3		07
8											
9											
10											

RELEASED BY: PRINT NAME: Sarah Christiansen FIRM: OASIS DATE: 7/31/12 TIME: 1900
RECEIVED BY: Andrew Field PRINT NAME: Andrew Pilch FIRM: TA-AK DATE: 8/1/12 TIME: 13:25
RELEASED BY: PRINT NAME: FIRM: DATE: TIME:
RECEIVED BY: PRINT NAME: FIRM: DATE: TIME:

ADDITIONAL REMARKS:
TEMP: 3.0°C
PAGE OF

Cooler 2: 3.4°C
Coolers

TAL-1000(0408)

Test America Cooler Receipt Form

(Army Corps. Compliant)

WORK ORDER # AVH0002 **CLIENT:** Oasis **PROJECT:** Crowley Eureka Water

Date /Time Cooler Arrived 08 / 1 / 12 13:25 Cooler signed for by: Andrew Pilch (Print name)

Preliminary Examination Phase:

Date cooler opened: ☒ same as date received *or* ____/____/____

Cooler opened by (print) Ada Liu (sign) [signature]

1. Delivered by ☐ ALASKA AIRLINES ☐ Fed-Ex ☐ UPS ☐ NAC ☐ LYNDEN ☒ CLIENT ☐ Other: hand.

Shipment Tracking # if applicable N/A (include copy of shipping papers in file)

2. Number of Custody Seals 4 Signed by see back Date __/__/__

Were custody seals unbroken and intact on arrival?	☑ Yes	☐ No
3. Were custody papers sealed in a plastic bag?	☑ Yes	☐ No
4. Were custody papers filled out properly (ink, signed, etc.)?	☑ Yes	☐ No
5. Did you sign the custody papers in the appropriate place?	☑ Yes	☐ No

6. Was ice used? ☑ Yes ☐ No Type of ice: ☐ blue ice ☑ gel ice ☐ real ice ☐ dry ice Condition of Ice: Soft.

Temperature 3.0 °C (**corrected**) Thermometer # Rec #5

3.4°C

7. Packing in Cooler: ☑ bubble wrap ☐ styrofoam ☐ cardboard ☒ Other: paper

8. Did samples arrive in plastic bags?	☐ Yes	☑ No	
9. Did all bottles arrive unbroken, and with labels in good condition?	☑ Yes	☐ No	
10. Are all bottle labels complete (ID, date, time, etc.)	☑ Yes	☐ No	
11. Do bottle labels and Chain of Custody agree?	☑ Yes	☐ No	
12. Are the containers and preservatives correct for the tests indicated?	☑ Yes	☐ No	
13. Conoco Phillips, Alyeska, BP H2O samples only, pH <2?	☐ Yes	☐ No	☑ N/A
14. Is there adequate volume for the tests requested?	☑ Yes	☒ No BL 08/01/12	
14. Is there dry weight volume provided?	☐ Yes	☑ No N/A.	
15. Were VOA vials free of bubbles? ☐ N/A	☒ Yes	☐ No	

If "NO" which containers contained "head space" or bubbles? ____

16. Are methanol soils immersed in methanol?	☒ Yes	☐ No	☑ N/A

Log-in Phase:

Date of sample log-in 08/01/12

Samples logged in by (print) Ada Liu (sign) [signature]

1. Was project identifiable from custody papers?	☒ Yes	☐ No
2. Do Turn Around Times and Due Dates agree?	☒ Yes	☐ No
3. Was the Project Manager notified of status?	☒ Yes	☐ No
4. Was the Lab notified of status?	☒ Yes	☐ No
5. Was the COC scanned and copied?	☒ Yes	☐ No

AK-FORM-SPL-005 5 October 2011

331234

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

Custody Seal

DATE 8/1/12

SIGNATURE Sarah Christ

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING
331234

331233

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

Custody Seal

DATE 8/1/12

SIGNATURE Sarah Christ

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING
331233

331231

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

Custody Seal

DATE 8/1/12

SIGNATURE Sarah Christ

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING
331231

331232

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

Custody Seal

DATE 8/1/12

SIGNATURE Sarah Christ

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING
331232

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APPENDIX C

Quality Assurance Report and ADEC Data Review Checklists

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1. QUALITY ASSURANCE/ QUALITY CONTROL

Laboratory Quality Assurance/Quality Control (QA/QC) data associated with the analysis of project samples was reviewed to evaluate the integrity of the analytical data generated during July 2012 water sampling for the Eureka Lodge, Mile 128 Glenn Highway, Alaska.

Environmental samples were shipped TestAmerica in Anchorage, Alaska in one sample delivery group (SDG): AVH0002. Sample identification included the prefix 12-ERK- to indicate samples were collected from the Eureka Lodge project in 2012. Samples were collected, reported, and shipped in general accordance with the work plan (OASIS 2012).

All data were reviewed in accordance with appropriate United States Environmental Protection Agency (EPA) procedural guidance documents (EPA 2008) and ADEC regulatory guidance documents (ADEC 2009; 2010; 2012). This data review focuses on criteria for the following QA/QC parameters and their effect on the quality of data and usability: sample handling and chain-of-custody (CoC) documentation; holding time compliance; field QA/QC (trip blanks, field duplicate) results; laboratory QA/QC (method blanks, laboratory control samples, surrogates, matrix spike duplicate [MS/MSD]) results and analytical methods; method reporting limits; precision and accuracy; and completeness. In absence of other regulatory QC guidance, method- and/or standard operating procedure-specific QC limits were utilized to apply qualifiers to the data.

Water samples were tested using the following analytical methods:

- Gasoline Range Organics (GRO) by Alaska (AK) Method 101;
- Benzene, Toluene, Ethylbenzene and Xylenes (BTEX) by EPA 8260B;
- Diesel Range Organics (DRO) by AK102; and
- Polynuclear Aromatic Hydrocarbons (PAH) by EPA 8270-SIM.

Sample results are considered usable and meet project objectives, although some results are considered estimated due to certain quality control criteria that were not met. The completeness for this project is 100%. The details of this review and qualification of the data are summarized in the following sections.

Data that was qualified by ERM during the data review process are also flagged with a “V” to distinguish between laboratory assigned qualifiers and ERM assigned qualifiers.

1.1. Sample Handling and Chain of Custody

All sample coolers were delivered with custody seals intact. COC forms, laboratory sample receipt forms, and case narratives were reviewed to determine if any sample handling activities might affect the integrity of the samples and the quality of the associated data.

All sample containers in the sample coolers were received at the laboratory intact, with proper documentation, and within the specified temperature range of $4^{\circ}C \pm 2^{\circ}C$. All

samples were extracted, digested, and/or analyzed within the holding time criteria for the applicable analytical methods and in accordance with the work plan specifications, with the following exceptions. Due to well recharge issues, limited volume was submitted for PAH by EPA Method 8270-SIM analysis for samples 12-ERK-MW01 and 12-ERK-MW02. The laboratory reported PAH results for 12-ERK-MW02; however, analysis was not performed for sample 12-ERK-MW01.

1.2. Field QA/QC

Field QA/QC protocols are designed to monitor for possible contamination during collection and transport of samples collected in the field. Collection and analysis of field duplicates also facilitates an evaluation of precision that takes into account potential variables associated with sampling procedures and laboratory analyses. Trip blanks are used to monitor sample containers and possible cross-contamination of samples. During this sampling event, both trip blanks and field duplicates were submitted for analysis.

1.2.1. Trip Blanks

A trip blank was prepared by the laboratory, shipped to the site with the empty sample bottles/containers, stored with sample containers during the field event, and transported with the collected samples back to the laboratory for analysis.

The trip blank was placed in the cooler with associated matrix specific volatile organics samples (BTEX). The trip blank results were not detected (ND) above the method detection limit (MDL) analytes, with the following exceptions. Toluene and total xylenes were detected in the trip blank and positive results were qualified as estimated (B) due to blank contamination associated with the results. Toluene and total xylenes were also detected in the associated method blank.

1.2.2. Field Duplicates

There were 5 primary and 1 field duplicate water samples submitted – primary 12-ERK-SW01 with duplicate 12-ERK-FD01. The frequency of field duplicate collection met the 10% frequency requirements specified in the work plan. When analytes were present in concentrations below the MRL in one or both samples, no valid comparison could be made. All primary and duplicate sample relative percent differences (RPDs) met applicable ADEC recommended limits of <30% in water. There was adequate comparability of field duplicate results to meet project data quality objectives.

1.3. Laboratory QA/QC

1.3.1. Method Blanks

Method blanks were analyzed concurrent with a batch of 20 or fewer primary samples for each of the analytical procedures performed for this project. Method blanks were analyzed at the required frequency and target analytes were not detected (ND) in the blanks at concentrations above the analytical MDL, with the following exceptions.

DRO, toluene and xylenes were present in the method blank. Toluene and total xylenes were also present in the trip blank and associated positive results in samples 12-ERK-MW02, 12-ERK-SW01, 12-ERK-FD01, and 12-ERK-SW02 were qualified as estimated (B) due to blank contamination associated with the results. Toluene and total xylene results in the Trip Blank were qualified as estimated (B) due to method blank contamination and may be biased high. The reported positive DRO results in samples 12-ERK-SW02 and 12-ERK-MW02 were also qualified as estimated (B) due to method blank contamination.

1.3.2. Laboratory Control Samples

The laboratory monitors internal precision and accuracy for each analytical batch with a set of laboratory control samples (LCS/LCSD). A known quantity of target analytes are added to blank laboratory control samples prior to extraction and analysis and recoveries are calculated. Acceptable recovery criteria vary with each analytical method, analyte and matrix. All LCS/LCSD sample recoveries (%R) and RPDs met laboratory and project QC goals.

1.3.3. Laboratory Duplicate Samples

Two sample aliquots of the same sample are taken in the analytical laboratory and analyzed separately with identical procedures. Analyses of the sample and duplicate give a measure of the precision associated with laboratory procedures but not with sample collection, preservation or storage procedures. Precision is expressed as RPD. All laboratory duplicates met QC goals.

1.3.4. Matrix Spikes

Extra volumes of primary field samples were collected and submitted to the laboratory for matrix spike/matrix spike duplicate (MS/MSD) analyses. Matrix spikes have a known quantity of target analytes are added (spiked) to field samples. Spike recoveries are calculated and are used to evaluate both site conditions and laboratory quality control. MS/MSD %R and RPDs met the laboratory and project QC goals, with the following exceptions. The MS/MSD %R was below the quality control limits in toluene, ethylbenzene and total xylene. The MS/MSD RPD was above the quality control limits in benzene, toluene, ethylbenzene, and total xylenes. The associated sample was 12-ERK-SW02. The associated LCS/LCSD was within range and; therefore, no data required qualification. All data is suitable for use.

1.3.5. Surrogates

System Monitoring Compounds (Surrogates) are specified for organic chromatographic analytical procedures. Surrogates are compounds similar to target analytes. These compounds are added to each sample prior to collection or extraction. Subsequent surrogate recovery indicates overall method performance. Surrogate recoveries were within prescribed control limits for all primary samples, LCS/LCSD and MS/MSD.

1.3.6. Method Detection Limits (Sensitivity)

The laboratory established method detection limits (MDL) or practical quantitation limits (PQL) were below the ADEC cleanup levels.

1.4. Analytical Methods

Sample results below the method detection limits are flagged non-detect “ND” in the report Tables. Results reported above the method detection limit and below the reported detection limit (or practical quantitation limit) have been flagged “J” as estimates due to the low confidence in the accuracy of the quantitation. Results that are estimated due to minor QA/QC deficiencies have been qualified as estimated (J). No results were rejected (flagged “R” or “UR”).

1.5. Precision and Accuracy

Precision criteria monitor analytical reproducibility. Accuracy criteria monitor agreement of measured results with “true values” established by spiking applicable samples with a known quantity of analyte or surrogate. Precision and accuracy were evaluated by comparing LCS/LCSDs, MS/MSDs and field duplicate pairs for this project. Field duplicates and MS/MSD samples were collected in accordance with Work Plan specifications. Field duplicate RPDs met applicable control limits. Recoveries and RPDs for all LCS/LSCD and MS/MSD samples were within required limits, with any exceptions noted in previous sections. Data Quality Objectives (DQO) of at least an overall 90% accuracy in QC samples was met.

1.5.1. Completeness

Data completeness is defined as the percentage of usable data (usable data divided by the total possible data). The overall project completeness goal is 90%:

$$\%\ \text{completeness} = \frac{\text{number of valid (i.e., non-R flagged) results}}{\text{number of possible results}}$$

All requested analyses were performed in accordance with work plan specifications. No results are considered rejected “R”. The completeness for this project is 100%.

1.5.2. Representativeness

Data representativeness expresses the degree to which sample data accurately and precisely represent a characteristic of a population, parameter variations at a sampling point, or environmental condition. The number and selection of samples were specified in the Work Plan and verified in the field to account accurately for site variations and sample matrices. The DQO for representativeness was met.

1.5.3. Comparability

Comparability is a qualitative parameter expressing the confidence with which one data set can be compared to another. Data produced for this project followed applicable field

sampling techniques and specific analytical methodology. The DQO for comparability was met.

1.6. Data Summary

Based upon the information provided, the data are acceptable for use. All requested analyses were performed in accordance with work plan specifications. Completeness for this project is 100%. The EPA National Functional Guidelines (EPA 2008) and ADEC guidance documents (2009; 2010; 2012) were used to evaluate the acceptability of the data. Overall, data quality meets DQOs established in the work plan for this project.

2. REFERENCES

ADEC. 2009. Technical Memorandum: Environmental Laboratory Data and Quality Assurance Requirements. March.

ADEC. 2010. Laboratory Data Review Checklist. Version 2.7. January.

ADEC. 2012. Technical Memorandum: Guidelines for Data Reporting, Data Reduction and Treatment of Non-detect Values. June.

EPA. 2008. *Contract Laboratory Program National Functional Guidelines for Organic Data Review* (EPA 540/R-94/012).

OASIS 2012. Groundwater and Surface Monitoring Work Plan, Eureka Lodge, Alaska, ADEC File Number 210.38.006, Hazard ID 25595. June 4

Laboratory Data Review Checklist

Completed by:	Melissa Pike		
Title:	Environmental Scientist	Date:	Sep 17, 2012
CS Report Name:	July 2012 Water Sampling Eureka, Eureka, Alaska	Report Date:	September 2012
Consultant Firm:	OASIS Environmental Inc, an ERM Company		
Laboratory Name:	TestAmerica	Laboratory Report Number:	AVH0002
ADEC File Number:	210.28.006	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:

8270-SIM was subcontracted from TestAmerica Anchorage to TestAmerica Spokane.

2. Chain of Custody (COC)

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

(●) Yes ( ) No ( ) NA (Please explain) Comments:

b. Correct analyses requested?

(●) Yes ( ) No ( ) NA (Please explain) Comments:

3. Laboratory Sample Receipt Documentation

a. Sample/cooler temperature documented and within range at receipt (4° ± 2° C)?

(●) Yes ( ) No ( ) NA (Please explain) Comments:

Temperature upon arrival was 3.0°C and 3.4°C.

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

(•) Yes ( ) No ( ) NA (Please explain) Comments:

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

(•) Yes ( ) No ( ) NA (Please explain) Comments:

Samples arrived in good condition.

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

(•) Yes ( ) No ( ) NA (Please explain) Comments:

There was not enough sample volume submitted to run 8270-SIM on samples 12-ERK-MW01 and 12-ERK-MW02.

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

Comments:

Data quality and usability is not affected with respect to the laboratory sample receipt documentation.

4. Case Narrative

a. Present and understandable?

(•) Yes ( ) No ( ) NA (Please explain) Comments:

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

(•) Yes ( ) No ( ) NA (Please explain) Comments:

c. Were all corrective actions documented?

( ) Yes ( ) No (•) NA (Please explain) Comments:

There were no corrective actions.

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

Comments:

Data quality and usability is not affected with respect to the case narrative.

5. Samples Results

a. Correct analyses performed/reported as requested on COC?

(•) Yes ( ) No ( ) NA (Please explain) Comments:

b. All applicable holding times met?

(•) Yes ( ) No ( ) NA (Please explain) Comments:

c. All soils reported on a dry weight basis?

( ) Yes ( ) No (•) NA (Please explain) Comments:

There are no soil samples submitted.

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:

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

Comments:

Data quality and usability is not affected with respect to the reported sample results.

6. QC Samples

a. Method Blank

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

(•) Yes ( ) No ( ) NA (Please explain) Comments:

ii. All method blank results less than PQL?

( ) Yes (•) No ( ) NA (Please explain) Comments:

Refer to QAR for further details.

iii. If above PQL, what samples are affected? Comments:

Refer to QAR for further details.

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

◉ Yes ○ No ○ NA (Please explain) Comments:

Refer to QAR for further details..

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

Data quality and usability is not affected with respect to the method blank results. Refer to QAR for further details.

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

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

◉ Yes ○ No ○ NA (Please explain) Comments:

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

○ Yes ○ No ◉ NA (Please explain) Comments:

NA. There are no metal or inorganic analyses.

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:

MS/MSD %R was below the limits in toluene, ethylbenzene, and total xylenes.

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/DMSD, and or sample/sample duplicate. (AK Petroleum methods 20%; all other analyses see the laboratory QC pages)

○ Yes ◉ No ○ NA (Please explain) Comments:

The MS/MSD RPD was above the limits in benzene, toluene, ethylbenzene, and total xylenes.

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

Comments:

Refer to QAR for further details.

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

◉ Yes ○ No ○ NA (Please explain) Comments:

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

Data quality and usability is somewhat affected. Refer to QAR for further details.

c. Surrogates - Organics Only

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

◉ Yes ○ No ○ NA (Please explain) Comments:

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

◉ Yes ○ No ○ NA (Please explain) Comments:

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:

NA. All surrogate recoveries were within range.

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

Data quality and usability is not affected with respect to the surrogate results.

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:

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:

iii. All results less than PQL?

○ Yes ◉ No ○ NA (Please explain.) Comments:

Refer to QAR for further details.

iv. If above PQL, what samples are affected?

Comments:

Refer to QAR for further details.

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

Comments:

Data quality and usability is not affected with respect to the reported trip blank results. Refer to QAR for further details.

e. Field Duplicate

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

◉ Yes ○ No ○ NA (Please explain) Comments:

ii. Submitted blind to lab?

◉ Yes ○ No ○ NA (Please explain.) Comments:

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

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

Where R_1 = Sample Concentration

R_2 = Field Duplicate Concentration

◉ Yes ○ No ○ NA (Please explain) Comments:

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

○ Yes ○ No ○ NA (Please explain) Comments:

Data quality and usability is not affected.

f. Decontamination or Equipment Blank (if applicable)

○ Yes ○ No ◉ NA (Please explain) Comments:

There is no decontamination or equipment blank. All sampling materials were disposable.

i. All results less than PQL?

○ Yes ○ No ◉ NA (Please explain) Comments:

There is no decontamination or equipment blank. All sampling materials were disposable.

ii. If above PQL, what samples are affected?

Comments:

There is no decontamination or equipment blank. All sampling materials were disposable.

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

Comments:

There is no decontamination or equipment blank. All sampling materials were disposable.

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

a. Defined and appropriate?

◉ Yes ○ No ○ NA (Please explain) Comments:

Any additional qualifiers are defined within the laboratory report.

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