

December 27, 2013

Report to:

Randy Miller

North Park Engineering & Consulting, Inc

P.O. Box 395

Walden, CO 80480

Bill to:

Randy Miller

North Park Engineering & Consulting, Inc

P.O. Box 395

Walden, CO 80480

Project ID:

ACZ Project ID: L15936

Randy Miller:

Enclosed are the analytical results for sample(s) submitted to ACZ Laboratories, Inc. (ACZ) on December 11, 2013. This project has been assigned to ACZ's project number, L15936. Please reference this number in all future inquiries.

All analyses were performed according to ACZ's Quality Assurance Plan. The enclosed results relate only to the samples received under L15936. Each section of this report has been reviewed and approved by the appropriate Laboratory Supervisor, or a qualified substitute.

Except as noted, the test results for the methods and parameters listed on ACZ's current NELAC certificate letter (#ACZ) meet all requirements of NELAC.

This report shall be used or copied only in its entirety. ACZ is not responsible for the consequences arising from the use of a partial report.

All samples and sub-samples associated with this project will be disposed of after January 26, 2014. If the samples are determined to be hazardous, additional charges apply for disposal (typically \$11/sample). If you would like the samples to be held longer than ACZ's stated policy or to be returned, please contact your Project Manager or Customer Service Representative for further details and associated costs. ACZ retains analytical raw data reports for ten years.

If you have any questions or other needs, please contact your Project Manager.

*S. Habermehl*

Scott Habermehl has reviewed  
and approved this report.



North Park Engineering Consulting, Inc

December 27, 2013

Project ID:

ACZ Project ID: L15936

**Sample Receipt**

ACZ Laboratories, Inc. (ACZ) received 7 soil samples from North Park Engineering & Consulting, Inc on December 11, 2013. The samples were received in good condition. Upon receipt, the sample custodian removed the samples from the cooler, inspected the contents, and logged the samples into ACZ's computerized Laboratory Information Management System (LIMS). The samples were assigned ACZ LIMS project number L15936. The custodian verified the sample information entered into the computer against the chain of custody (COC) forms and sample bottle labels.

**Holding Times**

All analyses were performed within EPA recommended holding times.

**Sample Analysis**

These samples were analyzed for inorganic, organic parameters. The individual methods are referenced on both, the ACZ invoice and the analytical reports. The extended qualifier reports may contain footnotes qualifying specific elements due to QC failures. In addition the following has been noted with this specific project:

(N1) Zinc. Control sample (LCSS) Recovery and duplicate (LCSS) RPD for Zn out. Data is acceptable because passing MS and MSD with acceptable RPD demonstrates accuracy and precision in client matrix.

(DE) Volatile Hydrocarbons.

L15936-02 sample was sandy, brown with a strong fuel odor. It contained a large amount of non-target matrix present that is eluting after the BTEX and TVH compounds. Diluted 20X.

L15936-04 Sample is thick grey clay with black oily streaking throughout sample, with a strong fuel odor. It could not be mixed because of the thick matrix. Sample had varying amount of BTEX/TVH compounds present. There is a large amount of non-target analyte present that is eluting after the BTEX/TVH compounds. This matrix is interfering with the Surrogate at both the 20X and 50X dilutions. The 20X dilution was reported.

L15936-06 Sample is thick grey/black clay with black oily streaking present, and a strong fuel odor. Sample could not be mixed due to the thick matrix. This sample had varying amount of BTEX/TVH compounds present, and had varying concentrations of compounds present during screening, due to the non-homogenous nature of the soil.

Diluted at 25x, 10x and 5x dilutions. Most of the The non-target analyte present is eluting after the BTEX/TVH compounds. Reported the 5X dilution. It is the lowest dilution possible without compromising the instruments.

**North Park Engineering & Consulting, Inc**

Project ID:

Sample ID: P1 6-7

ACZ Sample ID: **L15936-01**

Date Sampled: 12/09/13 15:00

Date Received: 12/11/13

Sample Matrix: Soil

Soil Analysis

Parameter	EPA Method	Dilution	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Free liquid by Paint Filter	M9095	1	contains no free liquid		*				12/23/13 14:45	brd

**North Park Engineering & Consulting, Inc**

Project ID:

Sample ID: P1 13-14

ACZ Sample ID: **L15936-02**

Date Sampled: 12/09/13 15:10

Date Received: 12/11/13

Sample Matrix: Soil

Metals Analysis

Parameter	EPA Method	Dilution	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Arsenic, total (3050)	M6020 ICP-MS	505	7.6		*	mg/Kg	0.1	0.5	12/13/13 22:11	msh
Barium, total (3050)	M6010B ICP	101	240		*	mg/Kg	0.3	2	12/13/13 21:17	aeb
Boron, total (3050)	M6010B ICP	101	6			mg/Kg	1	5	12/13/13 21:17	aeb
Cadmium, total (3050)	M6010B ICP	101		U		mg/Kg	0.5	2	12/13/13 21:17	aeb
Calcium, soluble (Sat. Paste)	M6010B ICP	5	5.04			meq/L	0.05	0.2	12/16/13 13:00	aeb
Chromium, total (3050)	M6010B ICP	101	8			mg/Kg	1	5	12/13/13 21:17	aeb
Chromium, Trivalent	Calculation (Total - Hexavalent)		8			mg/Kg	1	5	12/26/13 0:00	calc
Copper, total (3050)	M6010B ICP	101	12			mg/Kg	1	5	12/13/13 21:17	aeb
Lead, total (3050)	M6010B ICP	101	12	B		mg/Kg	4	20	12/13/13 21:17	aeb
Magnesium, soluble (Sat. Paste)	M6010B ICP	5	12.30		*	meq/L	0.08	0.4	12/16/13 13:00	aeb
Mercury by Direct Combustion AA	M7473	1	26.1		*	ng/g	2.22	11.1	12/16/13 12:11	mfm
Nickel, total (3050)	M6010B ICP	101	15			mg/Kg	1	5	12/13/13 21:17	aeb
Selenium, total (3050)	M6010B ICP	101		U	*	mg/Kg	10	50	12/13/13 21:17	aeb
Silver, total (3050)	M6010B ICP	101		U		mg/Kg	1	3	12/13/13 21:17	aeb
Sodium Adsorption Ratio	Calculation		7.17				0.03	0.15	12/26/13 0:00	calc
Sodium, soluble (Sat. Paste)	M6010B ICP	5	21.10			meq/L	0.09	0.3	12/16/13 13:00	aeb
Zinc, total (3050)	M6010B ICP	101	50		*	mg/Kg	1	5	12/13/13 21:17	aeb

Soil Analysis

Parameter	EPA Method	Dilution	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Conductivity @25C	SM2510B									
Conductivity		1	3.280		*	mmhos/cm	0.001	0.01	12/14/13 0:00	spl
Max Particle Size		1	2000		*	um			12/14/13 0:00	spl
pH, Saturated Paste	EPA 600/2-78-054, section 3.2.2									
Max Particle Size		1	2000		*	um			12/14/13 0:00	spl
pH		1	7.7		*	units	0.1	0.1	12/14/13 0:00	spl
Solids, Percent	CLPSOW390, PART F, D-98	1	85.5		*	%	0.1	0.5	12/11/13 21:41	spl

Soil Preparation

Parameter	EPA Method	Dilution	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Air Dry at 34 Degrees C	USDA No. 1, 1972								12/11/13 20:30	spl
Digestion - Alkaline	M3060A								12/11/13 22:21	cra
Digestion - Hot Plate	M3050B ICP-MS								12/12/13 12:13	mss2
Digestion - Hot Plate	M3050B ICP								12/12/13 12:13	mss2
Saturated Paste Extraction	USDA No. 60 (2)								12/13/13 17:34	spl
Sieve-2000 um (2.0mm)	ASA No.9, 15-4.2.2								12/12/13 9:10	mss2

**North Park Engineering & Consulting, Inc**

Project ID:

Sample ID: P1 13-14

ACZ Sample ID: **L15936-02**

Date Sampled: 12/09/13 15:10

Date Received: 12/11/13

Sample Matrix: Soil

## Wet Chemistry

Parameter	EPA Method	Dilution	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Chromium, Hexavalent (3060)	M7196A	235		U	*	mg/Kg	1.175	4.7	12/13/13 13:28	dcw

**North Park Engineering & Consulting, Inc**

Project ID:

Sample ID: P2 7.5-9

ACZ Sample ID: **L15936-04**

Date Sampled: 12/09/13 13:45

Date Received: 12/11/13

Sample Matrix: Soil

Metals Analysis

Parameter	EPA Method	Dilution	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Arsenic, total (3050)	M6020 ICP-MS	510	9.8		*	mg/Kg	0.1	0.5	12/13/13 22:22	msh
Barium, total (3050)	M6010B ICP	102	173		*	mg/Kg	0.3	2	12/13/13 21:21	aeb
Boron, total (3050)	M6010B ICP	102	11			mg/Kg	1	5	12/13/13 21:21	aeb
Cadmium, total (3050)	M6010B ICP	102	1.3	B		mg/Kg	0.5	2	12/13/13 21:21	aeb
Calcium, soluble (Sat. Paste)	M6010B ICP	5	3.55			meq/L	0.05	0.2	12/16/13 13:03	aeb
Chromium, total (3050)	M6010B ICP	102	16			mg/Kg	1	5	12/13/13 21:21	aeb
Chromium, Trivalent	Calculation (Total - Hexavalent)		16			mg/Kg	1	5	12/26/13 0:00	calc
Copper, total (3050)	M6010B ICP	102	21			mg/Kg	1	5	12/13/13 21:21	aeb
Lead, total (3050)	M6010B ICP	102	15	B		mg/Kg	4	20	12/13/13 21:21	aeb
Magnesium, soluble (Sat. Paste)	M6010B ICP	5	8.20		*	meq/L	0.08	0.4	12/16/13 13:03	aeb
Mercury by Direct Combustion AA	M7473	1	14.7		*	ng/g	2.15	10.75	12/16/13 12:25	mfm
Nickel, total (3050)	M6010B ICP	102	19			mg/Kg	1	5	12/13/13 21:21	aeb
Selenium, total (3050)	M6010B ICP	102		U	*	mg/Kg	10	50	12/13/13 21:21	aeb
Silver, total (3050)	M6010B ICP	102		U		mg/Kg	1	3	12/13/13 21:21	aeb
Sodium Adsorption Ratio	Calculation		4.33				0.03	0.15	12/26/13 0:00	calc
Sodium, soluble (Sat. Paste)	M6010B ICP	5	10.50			meq/L	0.09	0.3	12/16/13 13:03	aeb
Zinc, total (3050)	M6010B ICP	102	69		*	mg/Kg	1	5	12/13/13 21:21	aeb

Soil Analysis

Parameter	EPA Method	Dilution	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Conductivity @25C	SM2510B									
Conductivity		1	2.030		*	mmhos/cm	0.001	0.01	12/14/13 0:00	spl
Max Particle Size		1	2000		*	um			12/14/13 0:00	spl
pH, Saturated Paste	EPA 600/2-78-054, section 3.2.2									
Max Particle Size		1	2000		*	um			12/14/13 0:00	spl
pH		1	7.9		*	units	0.1	0.1	12/14/13 0:00	spl
Solids, Percent	CLPSOW390, PART F, D-98	1	80.6		*	%	0.1	0.5	12/12/13 2:48	spl

Soil Preparation

Parameter	EPA Method	Dilution	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Air Dry at 34 Degrees C	USDA No. 1, 1972								12/12/13 3:30	spl
Digestion - Alkaline	M3060A								12/12/13 2:08	cra
Digestion - Hot Plate	M3050B ICP-MS								12/12/13 14:23	mss2
Digestion - Hot Plate	M3050B ICP								12/12/13 14:23	mss2
Saturated Paste Extraction	USDA No. 60 (2)								12/14/13 2:08	spl
Sieve-2000 um (2.0mm)	ASA No.9, 15-4.2.2								12/12/13 9:30	mss2

**North Park Engineering & Consulting, Inc**

Project ID:

Sample ID: P2 7.5-9

ACZ Sample ID: **L15936-04**

Date Sampled: 12/09/13 13:45

Date Received: 12/11/13

Sample Matrix: Soil

## Wet Chemistry

Parameter	EPA Method	Dilution	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Chromium, Hexavalent (3060)	M7196A	250		U	*	mg/Kg	1.25	5	12/13/13 13:38	dcw

**North Park Engineering & Consulting, Inc**

Project ID:

Sample ID: P7 1-2

ACZ Sample ID: **L15936-06**

Date Sampled: 12/10/13 14:00

Date Received: 12/11/13

Sample Matrix: Soil

**Metals Analysis**

Parameter	EPA Method	Dilution	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Arsenic, total (3050)	M6020 ICP-MS	535	12.6		*	mg/Kg	0.1	0.5	12/13/13 22:25	msh
Barium, total (3050)	M6010B ICP	107	96.1		*	mg/Kg	0.3	2	12/13/13 21:24	aeb
Boron, total (3050)	M6010B ICP	107	23			mg/Kg	1	5	12/13/13 21:24	aeb
Cadmium, total (3050)	M6010B ICP	107	2.2			mg/Kg	0.5	2	12/13/13 21:24	aeb
Calcium, soluble (Sat. Paste)	M6010B ICP	5	14.80			meq/L	0.05	0.2	12/16/13 13:06	aeb
Chromium, total (3050)	M6010B ICP	107	21			mg/Kg	1	5	12/13/13 21:24	aeb
Chromium, Trivalent	Calculation (Total - Hexavalent)		21			mg/Kg	1	5	12/26/13 0:00	calc
Copper, total (3050)	M6010B ICP	107	31			mg/Kg	1	5	12/13/13 21:24	aeb
Lead, total (3050)	M6010B ICP	107	20			mg/Kg	4	20	12/13/13 21:24	aeb
Magnesium, soluble (Sat. Paste)	M6010B ICP	5	21.70		*	meq/L	0.08	0.4	12/16/13 13:06	aeb
Mercury by Direct Combustion AA	M7473	1	49.4		*	ng/g	2.34	11.7	12/16/13 12:39	mfm
Nickel, total (3050)	M6010B ICP	107	24			mg/Kg	1	5	12/13/13 21:24	aeb
Selenium, total (3050)	M6010B ICP	107		U	*	mg/Kg	10	50	12/13/13 21:24	aeb
Silver, total (3050)	M6010B ICP	107		U		mg/Kg	1	3	12/13/13 21:24	aeb
Sodium Adsorption Ratio	Calculation		6.20				0.03	0.15	12/26/13 0:00	calc
Sodium, soluble (Sat. Paste)	M6010B ICP	5	26.50			meq/L	0.09	0.3	12/16/13 13:06	aeb
Zinc, total (3050)	M6010B ICP	107	95		*	mg/Kg	1	5	12/13/13 21:24	aeb

**Soil Analysis**

Parameter	EPA Method	Dilution	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Conductivity @25C	SM2510B									
Conductivity		1	4.790		*	mmhos/cm	0.001	0.01	12/14/13 0:00	spl
Max Particle Size		1	2000		*	um			12/14/13 0:00	spl
pH, Saturated Paste	EPA 600/2-78-054, section 3.2.2									
Max Particle Size		1	2000		*	um			12/14/13 0:00	spl
pH		1	7.4		*	units	0.1	0.1	12/14/13 0:00	spl
Solids, Percent	CLPSOW390, PART F, D-98	1	76.3		*	%	0.1	0.5	12/12/13 7:56	spl

**Soil Preparation**

Parameter	EPA Method	Dilution	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Air Dry at 34 Degrees C	USDA No. 1, 1972								12/12/13 10:30	spl
Digestion - Alkaline	M3060A								12/12/13 5:55	cra
Digestion - Hot Plate	M3050B ICP								12/12/13 15:27	mss2
Digestion - Hot Plate	M3050B ICP-MS								12/12/13 15:27	mss2
Saturated Paste Extraction	USDA No. 60 (2)								12/14/13 10:42	spl
Sieve-2000 um (2.0mm)	ASA No.9, 15-4.2.2								12/12/13 9:50	mss2

**North Park Engineering & Consulting, Inc**

Project ID:

Sample ID: P7 1-2

ACZ Sample ID: **L15936-06**

Date Sampled: 12/10/13 14:00

Date Received: 12/11/13

Sample Matrix: Soil

## Wet Chemistry

Parameter	EPA Method	Dilution	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Chromium, Hexavalent (3060)	M7196A	260		U	*	mg/Kg	1.3	5.2	12/13/13 13:43	dcw



**Report Header Explanations**

<i>Batch</i>	A distinct set of samples analyzed at a specific time
<i>Found</i>	Value of the QC Type of interest
<i>Limit</i>	Upper limit for RPD, in %.
<i>Lower</i>	Lower Recovery Limit, in % (except for LCSS, mg/Kg)
<i>MDL</i>	Method Detection Limit. Same as Minimum Reporting Limit. Allows for instrument and annual fluctuations.
<i>PCN/SCN</i>	A number assigned to reagents/standards to trace to the manufacturer's certificate of analysis
<i>PQL</i>	Practical Quantitation Limit, typically 5 times the MDL.
<i>QC</i>	True Value of the Control Sample or the amount added to the Spike
<i>Rec</i>	Recovered amount of the true value or spike added, in % (except for LCSS, mg/Kg)
<i>RPD</i>	Relative Percent Difference, calculation used for Duplicate QC Types
<i>Upper</i>	Upper Recovery Limit, in % (except for LCSS, mg/Kg)
<i>Sample</i>	Value of the Sample of interest

**QC Sample Types**

<i>AS</i>	Analytical Spike (Post Digestion)	<i>LCSWD</i>	Laboratory Control Sample - Water Duplicate
<i>ASD</i>	Analytical Spike (Post Digestion) Duplicate	<i>LFB</i>	Laboratory Fortified Blank
<i>CCB</i>	Continuing Calibration Blank	<i>LFM</i>	Laboratory Fortified Matrix
<i>CCV</i>	Continuing Calibration Verification standard	<i>LFMD</i>	Laboratory Fortified Matrix Duplicate
<i>DUP</i>	Sample Duplicate	<i>LRB</i>	Laboratory Reagent Blank
<i>ICB</i>	Initial Calibration Blank	<i>MS</i>	Matrix Spike
<i>ICV</i>	Initial Calibration Verification standard	<i>MSD</i>	Matrix Spike Duplicate
<i>ICSAB</i>	Inter-element Correction Standard - A plus B solutions	<i>PBS</i>	Prep Blank - Soil
<i>LCSS</i>	Laboratory Control Sample - Soil	<i>PBW</i>	Prep Blank - Water
<i>LCSSD</i>	Laboratory Control Sample - Soil Duplicate	<i>PQV</i>	Practical Quantitation Verification standard
<i>LCSW</i>	Laboratory Control Sample - Water	<i>SDL</i>	Serial Dilution

**QC Sample Type Explanations**

Blanks	Verifies that there is no or minimal contamination in the prep method or calibration procedure.
Control Samples	Verifies the accuracy of the method, including the prep procedure.
Duplicates	Verifies the precision of the instrument and/or method.
Spikes/Fortified Matrix	Determines sample matrix interferences, if any.
Standard	Verifies the validity of the calibration.

**ACZ Qualifiers (Qual)**

B	Analyte concentration detected at a value between MDL and PQL. The associated value is an estimated quantity.
H	Analysis exceeded method hold time. pH is a field test with an immediate hold time.
L	Target analyte response was below the laboratory defined negative threshold.
U	The material was analyzed for, but was not detected above the level of the associated value. The associated value is either the sample quantitation limit or the sample detection limit.

**Method References**

- (1) EPA 600/4-83-020. Methods for Chemical Analysis of Water and Wastes, March 1983.
- (2) EPA 600/R-93-100. Methods for the Determination of Inorganic Substances in Environmental Samples, August 1993.
- (3) EPA 600/R-94-111. Methods for the Determination of Metals in Environmental Samples - Supplement I, May 1994.
- (4) EPA SW-846. Test Methods for Evaluating Solid Waste.
- (5) Standard Methods for the Examination of Water and Wastewater.

**Comments**

- (1) QC results calculated from raw data. Results may vary slightly if the rounded values are used in the calculations.
- (2) Soil, Sludge, and Plant matrices for Inorganic analyses are reported on a dry weight basis.
- (3) Animal matrices for Inorganic analyses are reported on an "as received" basis.
- (4) An asterisk in the "XQ" column indicates there is an extended qualifier and/or certification qualifier associated with the result.
- (5) If the MDL equals the PQL or the MDL column is omitted, the PQL is the reporting limit.

For a complete list of ACZ's Extended Qualifiers, please click:

<http://www.acz.com/public/extquallist.pdf>

North Park Engineering & Consulting, Inc

ACZ Project ID: **L15936**

**Arsenic, total (3050)** M6020 ICP-MS

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec	Lower	Upper	RPD	Limit	Qual
<b>WG356432</b>													
WG356432ICV	ICV	12/13/13 21:44	MS131202-2	.05		.05156	mg/L	103.1	90	110			
WG356432ICB	ICB	12/13/13 21:47				U	mg/L		-0.0006	0.0006			
WG356318PBS	PBS	12/13/13 22:01				.11	mg/Kg		-0.3	0.3			
WG356318LCSS	LCSS	12/13/13 22:05	PCN42470	161		197	mg/Kg		130	192			RL
WG356318LCSSD	LCSSD	12/13/13 22:08	PCN42470	161		180.6	mg/Kg		130	192	8.7	20	
L15936-02MS	MS	12/13/13 22:15	MS131204-3	25.3005	7.6	39.4	mg/Kg	125.7	75	125			M1
L15936-02MSD	MSD	12/13/13 22:18	MS131204-3	25.3005	7.6	41.12	mg/Kg	132.5	75	125	4.27	20	M1

**Barium, total (3050)** M6010B ICP

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec	Lower	Upper	RPD	Limit	Qual
<b>WG356424</b>													
WG356424ICV	ICV	12/13/13 20:44	II131111-1	2		1.986	mg/L	99.3	90	110			
WG356424ICB	ICB	12/13/13 20:47				U	mg/L		-0.009	0.009			
WG356318PBS	PBS	12/13/13 20:59				U	mg/Kg		-0.9	0.9			
WG356318LCSS	LCSS	12/13/13 21:02	PCN42470	385		408.2	mg/Kg		319	452			
WG356318LCSSD	LCSSD	12/13/13 21:05	PCN42470	385		370.2	mg/Kg		319	452	9.8	20	
L15936-01MS	MS	12/13/13 21:11	II131211-5	51	222	204.31	mg/Kg	-34.7	75	125			M3
L15936-01MSD	MSD	12/13/13 21:14	II131211-5	51	222	194.82	mg/Kg	-53.3	75	125	4.76	20	M3

**Boron, total (3050)** M6010B ICP

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec	Lower	Upper	RPD	Limit	Qual
<b>WG356424</b>													
WG356424ICV	ICV	12/13/13 20:44	II131111-1	2		2.02	mg/L	101	90	110			
WG356424ICB	ICB	12/13/13 20:47				U	mg/L		-0.03	0.03			
WG356318PBS	PBS	12/13/13 20:59				U	mg/Kg		-3	3			
WG356318LCSS	LCSS	12/13/13 21:02	PCN42470	94.9		99.9	mg/Kg		65.9	124			
WG356318LCSSD	LCSSD	12/13/13 21:05	PCN42470	94.9		88.7	mg/Kg		65.9	124	11.9	20	
L15936-01MS	MS	12/13/13 21:11	II131211-5	51.051	8	56.1	mg/Kg	94.2	75	125			
L15936-01MSD	MSD	12/13/13 21:14	II131211-5	51.051	8	55.7	mg/Kg	93.4	75	125	0.72	20	

**Cadmium, total (3050)** M6010B ICP

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec	Lower	Upper	RPD	Limit	Qual
<b>WG356424</b>													
WG356424ICV	ICV	12/13/13 20:44	II131111-1	2		1.938	mg/L	96.9	90	110			
WG356424ICB	ICB	12/13/13 20:47				U	mg/L		-0.015	0.015			
WG356318PBS	PBS	12/13/13 20:59				U	mg/Kg		-1.5	1.5			
WG356318LCSS	LCSS	12/13/13 21:02	PCN42470	149		158.7	mg/Kg		118	180			
WG356318LCSSD	LCSSD	12/13/13 21:05	PCN42470	149		142.7	mg/Kg		118	180	10.6	20	
L15936-01MS	MS	12/13/13 21:11	II131211-5	51	U	44.44	mg/Kg	86	75	125			
L15936-01MSD	MSD	12/13/13 21:14	II131211-5	51	U	44	mg/Kg	85.1	75	125	1	20	

**Calcium, soluble (Sat. Paste)** M6010B ICP

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec	Lower	Upper	RPD	Limit	Qual
<b>WG356465</b>													
WG356465ICV	ICV	12/16/13 12:39	II131113-1	100		98.36	mg/L	98.4	90	110			
WG356465ICB	ICB	12/16/13 12:42				U	mg/L		-0.6	0.6			
L15936-01DUP	DUP	12/16/13 12:57			1.32	1.126	meq/L				15.9	20	

North Park Engineering & Consulting, Inc

ACZ Project ID: **L15936**

**Chromium, Hexavalent (3060) M7196A**

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec	Lower	Upper	RPD	Limit	Qual
<b>WG356420</b>													
WG356420ICV	ICV	12/13/13 13:09	WC131202-	.05		.0456	mg/L	91.2	90	110			
WG356420ICB	ICB	12/13/13 13:11				U	mg/L		-0.015	0.015			
L15936-01MS1	MS	12/13/13 13:23	SI131211-02	36.814904	U	30.7	mg/Kg	83.4	75	125			
L15936-01MS2	MS	12/13/13 13:26	SI130731-7/	1450.84023	U	1650	mg/Kg	113.7	75	125			
L15936-07DUP	DUP	12/13/13 13:50			U	U	mg/Kg				0	20	RA
WG356251LCSS	LCSS	12/13/13 13:52	PCN39706	218		176	mg/Kg		154	282			
WG356251PBS	PBS	12/13/13 13:55				U	mg/Kg		-3	3			

**Chromium, total (3050) M6010B ICP**

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec	Lower	Upper	RPD	Limit	Qual
<b>WG356424</b>													
WG356424ICV	ICV	12/13/13 20:44	II131111-1	2		1.931	mg/L	96.6	90	110			
WG356424ICB	ICB	12/13/13 20:47				U	mg/L		-0.03	0.03			
WG356318PBS	PBS	12/13/13 20:59				U	mg/Kg		-3	3			
WG356318LCSS	LCSS	12/13/13 21:02	PCN42470	180		188.7	mg/Kg		147	213			
WG356318LCSSD	LCSSD	12/13/13 21:05	PCN42470	180		165.9	mg/Kg		147	213	12.9	20	
L15936-01MS	MS	12/13/13 21:11	II131211-5	51.153	20	72.2	mg/Kg	102	75	125			
L15936-01MSD	MSD	12/13/13 21:14	II131211-5	51.153	20	72	mg/Kg	101.7	75	125	0.28	20	

**Conductivity @25C SM2510B**

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec	Lower	Upper	RPD	Limit	Qual
<b>WG356367</b>													
L15936-01DUP	DUP	12/14/13 10:15			1.15	1.012	nmhos/cm				12.8	20	

**Copper, total (3050) M6010B ICP**

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec	Lower	Upper	RPD	Limit	Qual
<b>WG356424</b>													
WG356424ICV	ICV	12/13/13 20:44	II131111-1	2		1.953	mg/L	97.7	90	110			
WG356424ICB	ICB	12/13/13 20:47				U	mg/L		-0.03	0.03			
WG356318PBS	PBS	12/13/13 20:59				U	mg/Kg		-3	3			
WG356318LCSS	LCSS	12/13/13 21:02	PCN42470	162		174.8	mg/Kg		135	190			
WG356318LCSSD	LCSSD	12/13/13 21:05	PCN42470	162		156.1	mg/Kg		135	190	11.3	20	
L15936-01MS	MS	12/13/13 21:11	II131211-5	51	21	67.5	mg/Kg	91.2	75	125			
L15936-01MSD	MSD	12/13/13 21:14	II131211-5	51	21	67.1	mg/Kg	90.4	75	125	0.59	20	

**Lead, total (3050) M6010B ICP**

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec	Lower	Upper	RPD	Limit	Qual
<b>WG356424</b>													
WG356424ICV	ICV	12/13/13 20:44	II131111-1	4		3.941	mg/L	98.5	90	110			
WG356424ICB	ICB	12/13/13 20:47				U	mg/L		-0.12	0.12			
WG356318PBS	PBS	12/13/13 20:59				U	mg/Kg		-12	12			
WG356318LCSS	LCSS	12/13/13 21:02	PCN42470	103		110.4	mg/Kg		84.8	120			
WG356318LCSSD	LCSSD	12/13/13 21:05	PCN42470	103		96.1	mg/Kg		84.8	120	13.8	20	
L15936-01MS	MS	12/13/13 21:11	II131211-5	102.102	15	106.4	mg/Kg	89.5	75	125			
L15936-01MSD	MSD	12/13/13 21:14	II131211-5	102.102	15	102.8	mg/Kg	86	75	125	3.44	20	

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ACZ Project ID: **L15936**

**Magnesium, soluble (Sat. Paste) M6010B ICP**

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec	Lower	Upper	RPD	Limit	Qual
<b>WG356465</b>													
WG356465ICV	ICV	12/16/13 12:39	II131113-1	100		96.89	mg/L	96.9	90	110			
WG356465ICB	ICB	12/16/13 12:42				U	mg/L		-0.6	0.6			
L15936-01DUP	DUP	12/16/13 12:57			1.59	1.21	meq/L				27.2	20	RD

**Mercury by Direct Combustion AA M7473**

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec	Lower	Upper	RPD	Limit	Qual
<b>WG356351</b>													
WG356351ICV2	ICV	12/12/13 14:56	HG131211-6	100		106	ng/g	106	90	110			
<b>WG356454</b>													
WG356454ICV1	ICV	12/16/13 9:19	HG131211-4	100		108	ng/g	108	90	110			
WG356454ICV2	ICV	12/16/13 9:35	HG131211-6	100		108	ng/g	108	90	110			
WG356454ICV3	ICV	12/16/13 9:46	HG131211-3	1000		1050	ng/g	105	90	110			
WG356454ICV4	ICV	12/16/13 10:04	HG131211-3	1000		1060	ng/g	106	90	110			
WG356454PBS	PBS	12/16/13 11:03				U	ng/g		-2	2			
WG356454LCSS	LCSS	12/16/13 11:10	PCN41378	91		95.4	ng/g		80	120			
WG356454LCSSD	LCSSD	12/16/13 11:17	PCN41378	91		96.1	ng/g		80	120	0.7	20	
L15936-02MS	MS	12/16/13 12:17	PCN41378				ng/g	86.1	80	120			
L15936-04DUP	DUP	12/16/13 12:32			14.7	15.1	ng/g				2.7	20	RA

**Nickel, total (3050) M6010B ICP**

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec	Lower	Upper	RPD	Limit	Qual
<b>WG356424</b>													
WG356424ICV	ICV	12/13/13 20:44	II131111-1	2		2.014	mg/L	100.7	90	110			
WG356424ICB	ICB	12/13/13 20:47				U	mg/L		-0.03	0.03			
WG356318PBS	PBS	12/13/13 20:59				U	mg/Kg		-3	3			
WG356318LCSS	LCSS	12/13/13 21:02	PCN42470	133		147.8	mg/Kg		105	161			
WG356318LCSSD	LCSSD	12/13/13 21:05	PCN42470	133		130.8	mg/Kg		105	161	12.2	20	
L15936-01MS	MS	12/13/13 21:11	II131211-5	51	23	68.6	mg/Kg	89.4	75	125			
L15936-01MSD	MSD	12/13/13 21:14	II131211-5	51	23	67.1	mg/Kg	86.5	75	125	2.21	20	

**pH, Saturated Paste EPA 600/2-78-054, section 3.2.2**

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec	Lower	Upper	RPD	Limit	Qual
<b>WG356367</b>													
WG356367ICV	ICV	12/14/13 9:45	PCN42578	4		3.95	units	98.8	3.9	4.1			
L15936-01DUP	DUP	12/14/13 10:15			7.9	7.75	units				1.9	20	

**Selenium, total (3050) M6010B ICP**

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec	Lower	Upper	RPD	Limit	Qual
<b>WG356424</b>													
WG356424ICV	ICV	12/13/13 20:44	II131111-1	4		4.17	mg/L	104.3	90	110			
WG356424ICB	ICB	12/13/13 20:47				U	mg/L		-0.3	0.3			
WG356318PBS	PBS	12/13/13 20:59				U	mg/Kg		-30	30			
WG356318LCSS	LCSS	12/13/13 21:02	PCN42470	153		170	mg/Kg		121	184			
WG356318LCSSD	LCSSD	12/13/13 21:05	PCN42470	153		146	mg/Kg		121	184	15.2	20	
L15936-01MS	MS	12/13/13 21:11	II131211-5	102.102	U	81	mg/Kg	79.3	75	125			
L15936-01MSD	MSD	12/13/13 21:14	II131211-5	102.102	U	76	mg/Kg	74.4	75	125	6.37	20	MA

North Park Engineering & Consulting, Inc

ACZ Project ID: **L15936**

**Silver, total (3050) M6010B ICP**

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec	Lower	Upper	RPD	Limit	Qual
<b>WG356424</b>													
WG356424ICV	ICV	12/13/13 20:44	II131111-1	1.001		1.005	mg/L	100.4	90	110			
WG356424ICB	ICB	12/13/13 20:47				U	mg/L		-0.03	0.03			
WG356318PBS	PBS	12/13/13 20:59				U	mg/Kg		-3	3			
WG356318LCSS	LCSS	12/13/13 21:02	PCN42470	71.1		72	mg/Kg		47.2	95.1			
WG356318LCSSD	LCSSD	12/13/13 21:05	PCN42470	71.1		63.8	mg/Kg		47.2	95.1	12.1	20	
L15936-01MS	MS	12/13/13 21:11	II131211-5	51.051	U	41.5	mg/Kg	81.3	75	125			
L15936-01MSD	MSD	12/13/13 21:14	II131211-5	51.051	U	40.9	mg/Kg	80.1	75	125	1.46	20	

**Sodium, soluble (Sat. Paste) M6010B ICP**

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec	Lower	Upper	RPD	Limit	Qual
<b>WG356465</b>													
WG356465ICV	ICV	12/16/13 12:39	II131113-1	100		98.84	mg/L	98.8	90	110			
WG356465ICB	ICB	12/16/13 12:42				U	mg/L		-0.9	0.9			
L15936-01DUP	DUP	12/16/13 12:57			8.12	6.836	meq/L				17.2	20	

**Solids, Percent CLPSOW390, PART F, D-98**

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec	Lower	Upper	RPD	Limit	Qual
<b>WG356271</b>													
WG356271PBS	PBS	12/11/13 14:00				U	%		99.9	100.1			
L15936-01DUP	DUP	12/11/13 19:07			87.6	87.16	%				0.5	20	

**Zinc, total (3050) M6010B ICP**

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec	Lower	Upper	RPD	Limit	Qual
<b>WG356424</b>													
WG356424ICV	ICV	12/13/13 20:44	II131111-1	2		1.999	mg/L	100	90	110			
WG356424ICB	ICB	12/13/13 20:47				U	mg/L		-0.03	0.03			
WG356318PBS	PBS	12/13/13 20:59				U	mg/Kg		-3	3			
WG356318LCSS	LCSS	12/13/13 21:02	PCN42470	352		442.1	mg/Kg		282	422			N1
WG356318LCSSD	LCSSD	12/13/13 21:05	PCN42470	352		341.8	mg/Kg		282	422	25.6	20	N1
L15936-01MS	MS	12/13/13 21:11	II131211-5	51	74	116.7	mg/Kg	83.7	75	125			
L15936-01MSD	MSD	12/13/13 21:14	II131211-5	51	74	116.1	mg/Kg	82.5	75	125	0.52	20	

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ACZ Project ID: **L15936**

ACZ ID	WORKNUM	PARAMETER	METHOD	QUAL	DESCRIPTION
<b>L15936-02</b>	WG356432	Arsenic, total (3050)	M6020 ICP-MS	M1	Matrix spike recovery was high, the recovery of the associated control sample (LCS or LFB) was acceptable.
			M6020 ICP-MS	RL	Recovery for either the LCS or LCS duplicate was outside of the acceptance limits; the RPD was within the acceptance limits.
	WG356424	Barium, total (3050)	M6010B ICP	M3	The spike recovery value is unusable since the analyte concentration in the sample is disproportionate to the spike level. The recovery of the associated control sample (LCS or LFB) was acceptable.
	WG356465	Magnesium, soluble (Sat. Paste)	M6010B ICP	RD	For a solid matrix, the duplicate RPD (spike or matrix) exceeded the control limit, which is attributable to the non-homogeneity of the sample.
	WG356454	Mercury by Direct Combustion AA	M7473	RA	Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL).
	WG356424	Selenium, total (3050)	M6010B ICP	MA	Recovery for either the spike or spike duplicate was outside of the acceptance limits; the RPD was within the acceptance limits.
				N1	See Case Narrative.
	WG356420	Zinc, total (3050)	M6010B ICP	DA	Sample required dilution due to reactivity.
				M7196A	RA
	<b>L15936-04</b>	WG356432	Arsenic, total (3050)		M6020 ICP-MS
M6020 ICP-MS				RL	Recovery for either the LCS or LCS duplicate was outside of the acceptance limits; the RPD was within the acceptance limits.
WG356424		Barium, total (3050)	M6010B ICP	M3	The spike recovery value is unusable since the analyte concentration in the sample is disproportionate to the spike level. The recovery of the associated control sample (LCS or LFB) was acceptable.
WG356465		Magnesium, soluble (Sat. Paste)	M6010B ICP	RD	For a solid matrix, the duplicate RPD (spike or matrix) exceeded the control limit, which is attributable to the non-homogeneity of the sample.
WG356454		Mercury by Direct Combustion AA	M7473	RA	Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL).
WG356424		Selenium, total (3050)	M6010B ICP	MA	Recovery for either the spike or spike duplicate was outside of the acceptance limits; the RPD was within the acceptance limits.
				N1	See Case Narrative.
WG356420		Zinc, total (3050)	M6010B ICP	DA	Sample required dilution due to reactivity.
				M7196A	RA

North Park Engineering & Consulting, Inc

ACZ Project ID: **L15936**

ACZ ID	WORKNUM	PARAMETER	METHOD	QUAL	DESCRIPTION
L15936-06	WG356432	Arsenic, total (3050)	M6020 ICP-MS	M1	Matrix spike recovery was high, the recovery of the associated control sample (LCS or LFB) was acceptable.
			M6020 ICP-MS	RL	Recovery for either the LCS or LCS duplicate was outside of the acceptance limits; the RPD was within the acceptance limits.
	WG356424	Barium, total (3050)	M6010B ICP	M3	The spike recovery value is unusable since the analyte concentration in the sample is disproportionate to the spike level. The recovery of the associated control sample (LCS or LFB) was acceptable.
	WG356465	Magnesium, soluble (Sat. Paste)	M6010B ICP	RD	For a solid matrix, the duplicate RPD (spike or matrix) exceeded the control limit, which is attributable to the non-homogeneity of the sample.
	WG356454	Mercury by Direct Combustion AA	M7473	RA	Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL).
	WG356424	Selenium, total (3050)	M6010B ICP	MA	Recovery for either the spike or spike duplicate was outside of the acceptance limits; the RPD was within the acceptance limits.
		Zinc, total (3050)	M6010B ICP	N1	See Case Narrative.
	WG356420	Chromium, Hexavalent (3060)	M7196A	DA	Sample required dilution due to reactivity.
			M7196A	RA	Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL).

**North Park Engineering & Consulting, Inc**

Project ID:

Sample ID: P1 6-7

ACZ Sample ID: **L15936-01**

Date Sampled: 12/09/13 15:00

Date Received: 12/11/13

Sample Matrix: Soil

**Diesel Range Organics (C10-C28)**Analysis Method: **M8015D GC/FID**Extract Method: **M3540****Workgroup:** WG356733

Analyst: jad

Extract Date: 12/11/13 16:33

Analysis Date: 12/19/13 19:32

Compound	CAS	Result	QUAL	Dilution	XQ	Units	MDL	PQL
TPH C10 to C28			U	33.3		mg/Kg	3	20
Surrogate Recoveries	CAS	% Recovery		Dilution	XQ	Units	LCL	UCL
OTP	84-15-1	87.1		33.3		%	70	130

North Park Engineering & Consulting, Inc  
 Project ID:  
 Sample ID: P1 13-14

ACZ Sample ID: **L15936-02**  
 Date Sampled: 12/09/13 15:10  
 Date Received: 12/11/13  
 Sample Matrix: Soil

**BTEX/Gasoline Range Organics (C6-C10)**

Analysis Method: **M8021B/8015D GC/PID/FID**  
 Extract Method: **5035A**

**Workgroup: WG356428**

Analyst: pml  
 Extract Date: 12/13/13 20:10  
 Analysis Date: 12/13/13 20:10

Compound	CAS	Result	QUAL	Dilution	XQ	Units	MDL	PQL
Benzene	71-43-2		U	20	*	ug/Kg	20	20
Ethylbenzene	100-41-4		U	20	*	ug/Kg	20	20
m p Xylene	1330-20-7		U	20	*	ug/Kg	40	40
o Xylene	95-47-6		U	20	*	ug/Kg	20	20
Toluene	108-88-3		U	20	*	ug/Kg	20	20
TVH C6 to C10	TVH	3		20	*	mg/Kg	1	1
Surrogate Recoveries	CAS	% Recovery		Dilution	XQ	Units	LCL	UCL
Bromofluorobenzene	460-00-4	99.7		20	*	%	70	130
Bromofluorobenzene (TVH)	460-00 4	106.6		20	*	%	70	130

**North Park Engineering & Consulting, Inc**

Project ID:

Sample ID: P1 13-14

ACZ Sample ID: **L15936-02**

Date Sampled: 12/09/13 15:10

Date Received: 12/11/13

Sample Matrix: Soil

**Diesel Range Organics (C10-C28)**Analysis Method: **M8015D GC/FID**Extract Method: **M3540****Workgroup:** WG356408

Analyst: jad

Extract Date: 12/11/13 16:34

Analysis Date: 12/13/13 13:34

Compound	CAS	Result	QUAL	Dilution	XQ	Units	MDL	PQL
TPH C10 to C28		730		100		mg/Kg	10	50
Surrogate Recoveries	CAS	% Recovery		Dilution	XQ	Units	LCL	UCL
OTP	84-15-1	95.8		100		%	70	130

North Park Engineering & Consulting, Inc

Project ID:  
 Sample ID: P1 13-14

ACZ Sample ID: **L15936-02**  
 Date Sampled: 12/09/13 15:10  
 Date Received: 12/11/13  
 Sample Matrix: Soil

**Polynuclear Aromatic Hydrocarbons GC/M**

Analysis Method: **M8270C GC/MS**  
 Extract Method: **M3540**

**Workgroup: WG356458**

Analyst: itk  
 Extract Date: 12/11/13 16:36  
 Analysis Date: 12/16/13 13:56

Compound	CAS	Result	QUAL	Dilution	XQ	Units	MDL	PQL
2-Methylnaphthalene	91-57-6		U	100	*	ug/Kg	200	1000
Acenaphthene	83-32-9		U	100	*	ug/Kg	200	1000
Acenaphthylene	208-96-8		U	100	*	ug/Kg	200	1000
Anthracene	120-12-7		U	100	*	ug/Kg	200	1000
Benzo(a)anthracene	56-55-3		U	100	*	ug/Kg	200	1000
Benzo(a)pyrene	50-32-8		U	100	*	ug/Kg	200	1000
Benzo(b)fluoranthene	205-99-2		U	100	*	ug/Kg	200	1000
Benzo(g,h,i)perylene	191-24-2		U	100	*	ug/Kg	200	1000
Benzo(k)fluoranthene	207-08-9		U	100	*	ug/Kg	200	1000
Chrysene	218-01-9		U	100	*	ug/Kg	200	1000
Dibenzo(a,h)anthracene	53-70-3		U	100	*	ug/Kg	200	1000
Fluoranthene	206-44-0		U	100	*	ug/Kg	200	1000
Fluorene	86-73-7	200	J	100	*	ug/Kg	200	1000
Indeno(1,2,3-cd)pyrene	193-39-5		U	100	*	ug/Kg	200	1000
Naphthalene	91-20-3		U	100	*	ug/Kg	200	1000
Phenanthrene	85-01-8	400	J	100	*	ug/Kg	200	1000
Pyrene	129-00-0		U	100	*	ug/Kg	200	1000
Surrogate Recoveries	CAS	% Recovery		Dilution	XQ	Units	LCL	UCL
2-Fluorobiphenyl	321-60-8	96.5		100	*	%	45	105
Nitrobenzene-d5	4165-60-0	90.7		100	*	%	35	100
Terphenyl-d14	1718-51-0	97.6		100	*	%	30	125

**North Park Engineering & Consulting, Inc**

Project ID:

Sample ID: P1 17-18

ACZ Sample ID: **L15936-03**

Date Sampled: 12/09/13 15:30

Date Received: 12/11/13

Sample Matrix: Soil

**Diesel Range Organics (C10-C28)**Analysis Method: **M8015D GC/FID**Extract Method: **M3540****Workgroup:** WG356733

Analyst: jad

Extract Date: 12/11/13 16:35

Analysis Date: 12/19/13 19:58

Compound	CAS	Result	QUAL	Dilution	XQ	Units	MDL	PQL
TPH C10 to C28			U	33.3		mg/Kg	3	20
Surrogate Recoveries	CAS	% Recovery		Dilution	XQ	Units	LCL	UCL
OTP	84-15-1	88.2		33.3		%	70	130

North Park Engineering & Consulting, Inc  
 Project ID:  
 Sample ID: P2 7.5-9

ACZ Sample ID: **L15936-04**  
 Date Sampled: 12/09/13 13:45  
 Date Received: 12/11/13  
 Sample Matrix: Soil

**BTEX/Gasoline Range Organics (C6-C10)**

Analysis Method: **M8021B/8015D GC/PID/FID**  
 Extract Method: **5035A**

**Workgroup: WG356428**

Analyst: pml  
 Extract Date: 12/13/13 21:42  
 Analysis Date: 12/13/13 21:42

Compound	CAS	Result	QUAL	Dilution	XQ	Units	MDL	PQL
Benzene	71-43-2		U	20	*	ug/Kg	20	20
Ethylbenzene	100-41-4	90		20	*	ug/Kg	20	20
m p Xylene	1330-20-7	150		20	*	ug/Kg	40	40
o Xylene	95-47-6	90		20	*	ug/Kg	20	20
Toluene	108-88-3		U	20	*	ug/Kg	20	20
TVH C6 to C10	TVH	12		20	*	mg/Kg	1	1
Surrogate Recoveries	CAS	% Recovery		Dilution	XQ	Units	LCL	UCL
Bromofluorobenzene	460-00-4	114.6		20	*	%	70	130
Bromofluorobenzene (TVH)	460-00 4	151.8		20	*	%	70	130

**North Park Engineering & Consulting, Inc**

Project ID:

Sample ID: P2 7.5-9

ACZ Sample ID: **L15936-04**

Date Sampled: 12/09/13 13:45

Date Received: 12/11/13

Sample Matrix: Soil

**Diesel Range Organics (C10-C28)**Analysis Method: **M8015D GC/FID**Extract Method: **M3540****Workgroup:** WG356408

Analyst: jad

Extract Date: 12/11/13 16:36

Analysis Date: 12/13/13 14:00

Compound	CAS	Result	QUAL	Dilution	XQ	Units	MDL	PQL
TPH C10 to C28		2780		500		mg/Kg	50	300
Surrogate Recoveries	CAS	% Recovery		Dilution	XQ	Units	LCL	UCL
OTP	84-15-1	106.3		500		%	70	130

North Park Engineering & Consulting, Inc

Project ID:

Sample ID: P2 7.5-9

ACZ Sample ID: **L15936-04**

Date Sampled: 12/09/13 13:45

Date Received: 12/11/13

Sample Matrix: Soil

**Polynuclear Aromatic Hydrocarbons GC/M**

Analysis Method: **M8270C GC/MS**

Extract Method: **M3540**

Workgroup: **WG356458**

Analyst: itk

Extract Date: 12/11/13 16:38

Analysis Date: 12/16/13 14:30

Compound	CAS	Result	QUAL	Dilution	XQ	Units	MDL	PQL
2-Methylnaphthalene	91-57-6	6000		500	*	ug/Kg	1000	5000
Acenaphthene	83-32-9		U	500	*	ug/Kg	1000	5000
Acenaphthylene	208-96-8		U	500	*	ug/Kg	1000	5000
Anthracene	120-12-7		U	500	*	ug/Kg	1000	5000
Benzo(a)anthracene	56-55-3		U	500	*	ug/Kg	1000	5000
Benzo(a)pyrene	50-32-8		U	500	*	ug/Kg	1000	5000
Benzo(b)fluoranthene	205-99-2		U	500	*	ug/Kg	1000	5000
Benzo(g,h,i)perylene	191-24-2		U	500	*	ug/Kg	1000	5000
Benzo(k)fluoranthene	207-08-9		U	500	*	ug/Kg	1000	5000
Chrysene	218-01-9		U	500	*	ug/Kg	1000	5000
Dibenzo(a,h)anthracene	53-70-3		U	500	*	ug/Kg	1000	5000
Fluoranthene	206-44-0		U	500	*	ug/Kg	1000	5000
Fluorene	86-73-7		U	500	*	ug/Kg	1000	5000
Indeno(1,2,3-cd)pyrene	193-39-5		U	500	*	ug/Kg	1000	5000
Naphthalene	91-20-3	1000	J	500	*	ug/Kg	1000	5000
Phenanthrene	85-01-8	1000	J	500	*	ug/Kg	1000	5000
Pyrene	129-00-0		U	500	*	ug/Kg	1000	5000
Surrogate Recoveries	CAS	% Recovery		Dilution	XQ	Units	LCL	UCL
2-Fluorobiphenyl	321-60-8	104.9		500	*	%	45	105
Nitrobenzene-d5	4165-60-0	78.3		500	*	%	35	100
Terphenyl-d14	1718-51-0	95.8		500	*	%	30	125

**North Park Engineering & Consulting, Inc**

Project ID:

Sample ID: P2 17-18

ACZ Sample ID: **L15936-05**

Date Sampled: 12/09/13 14:45

Date Received: 12/11/13

Sample Matrix: Soil

**Diesel Range Organics (C10-C28)**Analysis Method: **M8015D GC/FID**Extract Method: **M3540****Workgroup:** WG356733

Analyst: jad

Extract Date: 12/11/13 16:37

Analysis Date: 12/19/13 20:24

Compound	CAS	Result	QUAL	Dilution	XQ	Units	MDL	PQL
TPH C10 to C28			U	33.3		mg/Kg	3	20
Surrogate Recoveries	CAS	% Recovery		Dilution	XQ	Units	LCL	UCL
OTP	84-15-1	81.9		33.3		%	70	130

North Park Engineering & Consulting, Inc  
 Project ID:  
 Sample ID: P7 1-2

ACZ Sample ID: **L15936-06**  
 Date Sampled: 12/10/13 14:00  
 Date Received: 12/11/13  
 Sample Matrix: Soil

**BTEX/Gasoline Range Organics (C6-C10)**

Analysis Method: **M8021B/8015D GC/PID/FID**  
 Extract Method: **5035A**

**Workgroup: WG356428**

Analyst: pml  
 Extract Date: 12/16/13 12:35  
 Analysis Date: 12/16/13 12:35

Compound	CAS	Result	QUAL	Dilution	XQ	Units	MDL	PQL
Benzene	71-43-2		U	5	*	ug/Kg	5	5
Ethylbenzene	100-41-4		U	5	*	ug/Kg	5	5
m p Xylene	1330-20-7		U	5	*	ug/Kg	10	10
o Xylene	95-47-6		U	5	*	ug/Kg	5	5
Toluene	108-88-3		U	5	*	ug/Kg	5	5
TVH C6 to C10	TVH		U	5	*	mg/Kg	0.3	0.3
Surrogate Recoveries	CAS	% Recovery		Dilution	XQ	Units	LCL	UCL
Bromofluorobenzene	460-00-4	97.3		5	*	%	70	130
Bromofluorobenzene (TVH)	460-00 4	100.9		5	*	%	70	130

**North Park Engineering & Consulting, Inc**

Project ID:

Sample ID: P7 1-2

ACZ Sample ID: **L15936-06**

Date Sampled: 12/10/13 14:00

Date Received: 12/11/13

Sample Matrix: Soil

**Diesel Range Organics (C10-C28)**Analysis Method: **M8015D GC/FID**Extract Method: **M3540****Workgroup:** WG356408

Analyst: jad

Extract Date: 12/11/13 16:38

Analysis Date: 12/13/13 14:26

Compound	CAS	Result	QUAL	Dilution	XQ	Units	MDL	PQL
TPH C10 to C28		600		100		mg/Kg	10	50
Surrogate Recoveries	CAS	% Recovery		Dilution	XQ	Units	LCL	UCL
OTP	84-15-1	101.3		100		%	70	130

North Park Engineering & Consulting, Inc

Project ID:

Sample ID: P7 1-2

ACZ Sample ID: **L15936-06**

Date Sampled: 12/10/13 14:00

Date Received: 12/11/13

Sample Matrix: Soil

**Polynuclear Aromatic Hydrocarbons GC/M**

Analysis Method: **M8270C GC/MS**

Extract Method: **M3540**

Workgroup: **WG356458**

Analyst: itk

Extract Date: 12/11/13 16:40

Analysis Date: 12/16/13 15:04

Compound	CAS	Result	QUAL	Dilution	XQ	Units	MDL	PQL
2-Methylnaphthalene	91-57-6		U	500	*	ug/Kg	1000	5000
Acenaphthene	83-32-9		U	500	*	ug/Kg	1000	5000
Acenaphthylene	208-96-8		U	500	*	ug/Kg	1000	5000
Anthracene	120-12-7		U	500	*	ug/Kg	1000	5000
Benzo(a)anthracene	56-55-3		U	500	*	ug/Kg	1000	5000
Benzo(a)pyrene	50-32-8		U	500	*	ug/Kg	1000	5000
Benzo(b)fluoranthene	205-99-2		U	500	*	ug/Kg	1000	5000
Benzo(g,h,i)perylene	191-24-2		U	500	*	ug/Kg	1000	5000
Benzo(k)fluoranthene	207-08-9		U	500	*	ug/Kg	1000	5000
Chrysene	218-01-9		U	500	*	ug/Kg	1000	5000
Dibenzo(a,h)anthracene	53-70-3		U	500	*	ug/Kg	1000	5000
Fluoranthene	206-44-0		U	500	*	ug/Kg	1000	5000
Fluorene	86-73-7		U	500	*	ug/Kg	1000	5000
Indeno(1,2,3-cd)pyrene	193-39-5		U	500	*	ug/Kg	1000	5000
Naphthalene	91-20-3		U	500	*	ug/Kg	1000	5000
Phenanthrene	85-01-8		U	500	*	ug/Kg	1000	5000
Pyrene	129-00-0		U	500	*	ug/Kg	1000	5000
Surrogate Recoveries	CAS	% Recovery		Dilution	XQ	Units	LCL	UCL
2-Fluorobiphenyl	321-60-8	100.9		500	*	%	45	105
Nitrobenzene-d5	4165-60-0	85.1		500	*	%	35	100
Terphenyl-d14	1718-51-0	97.1		500	*	%	30	125

**North Park Engineering & Consulting, Inc**

Project ID:

Sample ID: P7 9-10

ACZ Sample ID: **L15936-07**

Date Sampled: 12/10/13 14:10

Date Received: 12/11/13

Sample Matrix: Soil

**Diesel Range Organics (C10-C28)**Analysis Method: **M8015D GC/FID**Extract Method: **M3540****Workgroup:** WG356408

Analyst: jad

Extract Date: 12/11/13 16:39

Analysis Date: 12/13/13 14:53

Compound	CAS	Result	QUAL	Dilution	XQ	Units	MDL	PQL
TPH C10 to C28			U	100		mg/Kg	10	50
Surrogate Recoveries	CAS	% Recovery		Dilution	XQ	Units	LCL	UCL
OTP	84-15-1	86.1		100		%	70	130

**Report Header Explanations**

<i>Batch</i>	A distinct set of samples analyzed at a specific time
<i>Found</i>	Value of the QC Type of interest
<i>Limit</i>	Upper limit for RPD, in %.
<i>Lower</i>	Lower Recovery Limit, in % (except for LCSS, mg/Kg)
<i>LCL</i>	Lower Control Limit
<i>MDL</i>	Method Detection Limit. Same as Minimum Reporting Limit. Allows for instrument and annual fluctuations.
<i>PCN/SCN</i>	A number assigned to reagents/standards to trace to the manufacturer's certificate of analysis
<i>PQL</i>	Practical Quantitation Limit, typically 5 times the MDL.
<i>QC</i>	True Value of the Control Sample or the amount added to the Spike
<i>Rec</i>	Amount of the true value or spike added recovered, in % (except for LCSS, mg/Kg)
<i>RPD</i>	Relative Percent Difference, calculation used for Duplicate QC Types
<i>Upper</i>	Upper Recovery Limit, in % (except for LCSS, mg/Kg)
<i>UCL</i>	Upper Control Limit
<i>Sample</i>	Value of the Sample of interest

**QC Sample Types**

<i>SURR</i>	Surrogate	<i>LFM</i>	Laboratory Fortified Matrix
<i>INTS</i>	Internal Standard	<i>LFMD</i>	Laboratory Fortified Matrix Duplicate
<i>DUP</i>	Sample Duplicate	<i>LRB</i>	Laboratory Reagent Blank
<i>LCSS</i>	Laboratory Control Sample - Soil	<i>MS/MSD</i>	Matrix Spike/Matrix Spike Duplicate
<i>LCSW</i>	Laboratory Control Sample - Water	<i>PBS</i>	Prep Blank - Soil
<i>LFB</i>	Laboratory Fortified Blank	<i>PBW</i>	Prep Blank - Water

**QC Sample Type Explanations**

Blanks	Verifies that there is no or minimal contamination in the prep method or calibration procedure.
Control Samples	Verifies the accuracy of the method, including the prep procedure.
Duplicates	Verifies the precision of the instrument and/or method.
Spikes/Fortified Matrix	Determines sample matrix interferences, if any.

**ACZ Qualifiers (Qual)**

B	Analyte concentration detected at a value between MDL and PQL. The associated value is an estimated quantity.
O	Analyte concentration is estimated due to result exceeding calibration range.
H	Analysis exceeded method hold time. pH is a field test with an immediate hold time.
J	Analyte concentration detected at a value between MDL and PQL. The associated value is an estimated quantity.
L	Target analyte response was below the laboratory defined negative threshold.
U	The material was analyzed for, but was not detected above the level of the associated value. The associated value is either the sample quantitation limit or the sample detection limit.

**Method References**

- (1) EPA 600/4-83-020. Methods for Chemical Analysis of Water and Wastes, March 1983.
- (2) EPA 600/4-90/020. Methods for the Determination of Organic Compounds in Drinking Water (I), July 1990.
- (3) EPA 600/R-92/129. Methods for the Determination of Organic Compounds in Drinking Water (II), July 1990.
- (4) EPA SW-846. Test Methods for Evaluating Solid Waste.
- (5) Standard Methods for the Examination of Water and Wastewater.

**Comments**

- (1) QC results calculated from raw data. Results may vary slightly if the rounded values are used in the calculations.
- (2) Excluding Oil & Grease, solid & biological matrices for organic analyses are reported on a wet weight basis.
- (3) An asterisk in the "XQ" column indicates there is an extended qualifier and/or certification qualifier associated with the result.
- (4) If the MDL equals the PQL or the MDL column is omitted, the PQL is the reporting limit.

For a complete list of ACZ's Extended Qualifiers, please click:

<http://www.acz.com/public/extquallist.pdf>

North Park Engineering & Consulting, Inc

ACZ Project ID: **L15936**

**BTEX/Gasoline Range Organics (C6-C10)**

M8021B/8015D GC/PID/FID

**WG356428**

AS	Sample ID: L15936-02AS			PCN/SCN: B131203-1-SPIK			Analyzed: 12/13/13 20:40			
Compound	QC	Sample	Found	Units	Rec	Lower	Upper	RPD	Limit	Qual
BENZENE	500	U	491	ug/Kg	98.2	70	130			
ETHYLBENZENE	500	U	476	ug/Kg	95.2	70	130			
M P XYLENE	1000	U	987	ug/Kg	98.7	70	130			
O XYLENE	1000	U	994	ug/Kg	99.4	70	130			
TOLUENE	1500	U	1427	ug/Kg	95.1	70	130			
TVH C6 TO C10	10	3	11.6	mg/Kg	86.0	70	130			
BROMOFLUOROBENZENE (surr)				%	100.6	70	130			
BROMOFLUOROBENZENE (TVH) (surr)				%	108.2	70	130			

ASD	Sample ID: L15936-02ASD			PCN/SCN: B131203-1-SPIK			Analyzed: 12/13/13 21:11			
Compound	QC	Sample	Found	Units	Rec	Lower	Upper	RPD	Limit	Qual
BENZENE	500	U	508	ug/Kg	101.6	70	130	3.4	20	
ETHYLBENZENE	500	U	496	ug/Kg	99.2	70	130	4.12	20	
M P XYLENE	1000	U	1049	ug/Kg	104.9	70	130	6.09	20	
O XYLENE	1000	U	1021	ug/Kg	102.1	70	130	2.68	20	
TOLUENE	1500	U	1471	ug/Kg	98.1	70	130	3.04	20	
TVH C6 TO C10	10	3	10.9	mg/Kg	79.0	70	130	6.22	20	
BROMOFLUOROBENZENE (surr)				%	101.7	70	130			
BROMOFLUOROBENZENE (TVH) (surr)				%	106.6	70	130			

LCSS	Sample ID: WG356428LCSS			PCN/SCN: B131203-1-SPIK			Analyzed: 12/13/13 18:38			
Compound	QC	Sample	Found	Units	Rec	Lower	Upper	RPD	Limit	Qual
BENZENE	25		26.2	ug/Kg	104.8	70	130			
ETHYLBENZENE	25		27.8	ug/Kg	111.2	70	130			
M P XYLENE	50		57.1	ug/Kg	114.2	70	130			
O XYLENE	50		55	ug/Kg	110.0	70	130			
TOLUENE	75		78	ug/Kg	104.0	70	130			
TVH C6 TO C10	.5		.588	mg/Kg	117.6	70	130			
BROMOFLUOROBENZENE (surr)				%	102.4	70	130			
BROMOFLUOROBENZENE (TVH) (surr)				%	104.0	70	130			

LCSSD	Sample ID: WG356428LCSSD			PCN/SCN: B131203-1-SPIK			Analyzed: 12/13/13 19:08			
Compound	QC	Sample	Found	Units	Rec	Lower	Upper	RPD	Limit	Qual
BENZENE	25		24	ug/Kg	96.0	70	130	8.8	20	
ETHYLBENZENE	25		24.2	ug/Kg	96.8	70	130	13.8	20	
M P XYLENE	50		49.4	ug/Kg	98.8	70	130	14.5	20	
O XYLENE	50		48.3	ug/Kg	96.6	70	130	13	20	
TOLUENE	75		70.6	ug/Kg	94.1	70	130	10	20	
TVH C6 TO C10	.5		.473	mg/Kg	94.6	70	130	21.7	20	RD
BROMOFLUOROBENZENE (surr)				%	102.8	70	130			
BROMOFLUOROBENZENE (TVH) (surr)				%	104.9	70	130			

North Park Engineering & Consulting, Inc

ACZ Project ID: **L15936**

<b>PBS</b>		<b>Sample ID: WG356428PBS</b>					<b>Analyzed: 12/13/13 19:39</b>				
Compound	QC	Sample	Found	Units	Rec	Lower	Upper	RPD	Limit	Qual	
BENZENE			U	ug/Kg		-1	1				
ETHYLBENZENE			U	ug/Kg		-1	1				
M P XYLENE			U	ug/Kg		-2	2				
O XYLENE			U	ug/Kg		-1	1				
TOLUENE			U	ug/Kg		-1	1				
TVH C6 TO C10			U	mg/Kg		-.05	.05				
BROMOFLUOROBENZENE (surr)				%	100.1	70	130				
BROMOFLUOROBENZENE (TVH) (surr)				%	100.7	70	130				
BENZENE			U	ug/Kg		-1	1				
ETHYLBENZENE			U	ug/Kg		-1	1				
M P XYLENE			U	ug/Kg		-2	2				
O XYLENE			U	ug/Kg		-1	1				
TOLUENE			U	ug/Kg		-1	1				
TVH C6 TO C10			U	mg/Kg		-.05	.05				
BROMOFLUOROBENZENE (surr)				%	102.8	70	130				
BROMOFLUOROBENZENE (TVH) (surr)				%	104.4	70	130				

North Park Engineering & Consulting, Inc

ACZ Project ID: **L15936**

**Diesel Range Organics (C10-C28)**

M8015D GC/FID

**WG356408**

MS	Sample ID: L15936-07MS			PCN/SCN: TPH131106-1-10				Analyzed: 12/13/13 15:19			
Compound	QC	Sample	Found	Units	Rec	Lower	Upper	RPD	Limit	Qual	
TPH C10 TO C28	250	U	235	mg/Kg	94.0	70	130				
OTP (surr)				%	92.9	70	130				

MSD	Sample ID: L15936-07MSD			PCN/SCN: TPH131106-1-10				Analyzed: 12/13/13 15:45			
Compound	QC	Sample	Found	Units	Rec	Lower	Upper	RPD	Limit	Qual	
TPH C10 TO C28	250	U	230	mg/Kg	92.0	70	130	2.15	20		
OTP (surr)				%	92.5	70	130				

LCSS	Sample ID: WG356266LCSS			PCN/SCN: TPH131106-1-30				Analyzed: 12/13/13 12:42			
Compound	QC	Sample	Found	Units	Rec	Lower	Upper	RPD	Limit	Qual	
TPH C10 TO C28	83.3		75.5	mg/Kg	90.6	70	130				
OTP (surr)				%	86.7	70	130				

LCSSD	Sample ID: WG356266LCSSD			PCN/SCN: TPH131106-1-30				Analyzed: 12/13/13 13:08			
Compound	QC	Sample	Found	Units	Rec	Lower	Upper	RPD	Limit	Qual	
TPH C10 TO C28	83.3		76.5	mg/Kg	91.8	70	130	1.3	20		
OTP (surr)				%	88.0	70	130				

PBS	Sample ID: WG356266PBS							Analyzed: 12/13/13 12:16			
Compound	QC	Sample	Found	Units	Rec	Lower	Upper	RPD	Limit	Qual	
TPH C10 TO C28			U	mg/Kg		-20	20				
OTP (surr)				%	81.8	70	130				

**WG356733**

MS	Sample ID: L15936-07MS			PCN/SCN: TPH131106-1-10				Analyzed: 12/19/13 21:17			
Compound	QC	Sample	Found	Units	Rec	Lower	Upper	RPD	Limit	Qual	
TPH C10 TO C28	250		232	mg/Kg		70	130				
OTP (surr)				%	91.2	70	130				

MSD	Sample ID: L15936-07MSD			PCN/SCN: TPH131106-1-10				Analyzed: 12/19/13 21:43			
Compound	QC	Sample	Found	Units	Rec	Lower	Upper	RPD	Limit	Qual	
TPH C10 TO C28	250		228	mg/Kg		70	130		20		
OTP (surr)				%	91.5	70	130				

LCSS	Sample ID: WG356266LCSS			PCN/SCN: TPH131106-1-30				Analyzed: 12/19/13 18:40			
Compound	QC	Sample	Found	Units	Rec	Lower	Upper	RPD	Limit	Qual	
TPH C10 TO C28	83.3		74.3	mg/Kg	89.1	70	130				
OTP (surr)				%	84.7	70	130				

LCSSD	Sample ID: WG356266LCSSD			PCN/SCN: TPH131106-1-30				Analyzed: 12/19/13 19:06			
Compound	QC	Sample	Found	Units	Rec	Lower	Upper	RPD	Limit	Qual	
TPH C10 TO C28	83.3		75.6	mg/Kg	90.7	70	130	1.7	20		
OTP (surr)				%	86.9	70	130				

North Park Engineering & Consulting, Inc

ACZ Project ID: **L15936**

PBS		Sample ID: WG356266PBS						Analyzed: 12/19/13 18:14			
Compound	QC	Sample	Found	Units	Rec	Lower	Upper	RPD	Limit	Qual	
TPH C10 TO C28			U	mg/Kg		-20	20				
OTP (surr)				%	79.9	70	130				

North Park Engineering & Consulting, Inc

ACZ Project ID: **L15936**

**Polynuclear Aromatic Hydrocarbons GC/MS**

M8270C GC/MS

**WG356458**

<b>MS</b>	<b>Sample ID: L15936-01MS</b>		<b>PCN/SCN: BNA131210-1-30</b>				<b>Analyzed: 12/13/13 21:48</b>				
Compound	QC	Sample	Found	Units	Rec	Lower	Upper	RPD	Limit	Qual	
ACENAPHTHENE	1666.7	U	1670	ug/Kg	100.2	45	110				
PYRENE	1666.7	U	1875	ug/Kg	112.5	45	125				
2,4,6-TRIBROMOPHENOL (surr)				%	100.5	35	125				
2-FLUOROBIPHENYL (surr)				%	91.0	45	105				
2-FLUOROPHENOL (surr)				%	84.7	35	105				
NITROBENZENE-D5 (surr)				%	76.7	35	100				
PHENOL-D6 (surr)				%	91.5	40	100				
TERPHENYL-D14 (surr)				%	97.3	30	125				

<b>MSD</b>	<b>Sample ID: L15936-01MSD</b>		<b>PCN/SCN: BNA131210-1-30</b>				<b>Analyzed: 12/13/13 22:22</b>				
Compound	QC	Sample	Found	Units	Rec	Lower	Upper	RPD	Limit	Qual	
ACENAPHTHENE	1666.7	U	1679	ug/Kg	100.7	45	110	0.54	20	S10	
PYRENE	1666.7	U	1875	ug/Kg	112.5	45	125	0	20	S10	
2,4,6-TRIBROMOPHENOL (surr)				%	102.7	35	125			S10	
2-FLUOROBIPHENYL (surr)				%	93.3	45	105			S10	
2-FLUOROPHENOL (surr)				%	95.1	35	105			S10	
NITROBENZENE-D5 (surr)				%	85.6	35	100			S10	
PHENOL-D6 (surr)				%	101.7	40	100			S10	
TERPHENYL-D14 (surr)				%	97.0	30	125			S10	

<b>LCSS</b>	<b>Sample ID: WG356265LCSS</b>		<b>PCN/SCN: BNA131210-1-30</b>				<b>Analyzed: 12/13/13 20:06</b>				
Compound	QC	Sample	Found	Units	Rec	Lower	Upper	RPD	Limit	Qual	
ACENAPHTHENE	1666.7		1698	ug/Kg	101.9	45	110			S10	
PYRENE	1666.7		2001	ug/Kg	120.1	45	125			S10	
2,4,6-TRIBROMOPHENOL (surr)				%	101.5	35	125			S10	
2-FLUOROBIPHENYL (surr)				%	96.9	45	105			S10	
2-FLUOROPHENOL (surr)				%	102.7	35	105			S10	
NITROBENZENE-D5 (surr)				%	93.0	35	100			S10	
PHENOL-D6 (surr)				%	105.5	40	100			S10	
TERPHENYL-D14 (surr)				%	103.3	30	125			S10	

<b>LCSSD</b>	<b>Sample ID: WG356265LCSSD</b>		<b>PCN/SCN: BNA131210-1-30</b>				<b>Analyzed: 12/13/13 20:40</b>				
Compound	QC	Sample	Found	Units	Rec	Lower	Upper	RPD	Limit	Qual	
ACENAPHTHENE	1666.7		1870	ug/Kg	112.2	45	110	9.6	20	LA S10	
PYRENE	1666.7		2200	ug/Kg	132.0	45	125	9.5	20	LA S10	
2,4,6-TRIBROMOPHENOL (surr)				%	111.3	35	125			S10	
2-FLUOROBIPHENYL (surr)				%	105.6	45	105			S10	
2-FLUOROPHENOL (surr)				%	110.9	35	105			S10	
NITROBENZENE-D5 (surr)				%	99.4	35	100			S10	
PHENOL-D6 (surr)				%	114.9	40	100			S10	
TERPHENYL-D14 (surr)				%	112.2	30	125			S10	

North Park Engineering & Consulting, Inc

ACZ Project ID: **L15936**

PBS		Sample ID: WG356265PBS					Analyzed: 12/13/13 19:32				
Compound	QC	Sample	Found	Units	Rec	Lower	Upper	RPD	Limit	Qual	
2-METHYLNAPHTHALENE			U	ug/Kg		-300	300			S4	
ACENAPHTHENE			U	ug/Kg		-300	300			S4	
ACENAPHTHYLENE			U	ug/Kg		-300	300			S4	
ANTHRACENE			U	ug/Kg		-300	300			S4	
BENZO(A)ANTHRACENE			U	ug/Kg		-300	300			S4	
BENZO(A)PYRENE			U	ug/Kg		-300	300			S4	
BENZO(B)FLUORANTHENE			U	ug/Kg		-300	300			S4	
BENZO(G,H,I)PERYLENE			U	ug/Kg		-300	300			S4	
BENZO(K)FLUORANTHENE			U	ug/Kg		-300	300			S4	
CHRYSENE			U	ug/Kg		-300	300			S4	
DIBENZO(A,H)ANTHRACENE			U	ug/Kg		-300	300			S4	
FLUORANTHENE			U	ug/Kg		-300	300			S4	
FLUORENE			U	ug/Kg		-300	300			S4	
INDENO(1,2,3-CD)PYRENE			U	ug/Kg		-300	300			S4	
NAPHTHALENE			U	ug/Kg		-300	300			S4	
PHENANTHRENE			U	ug/Kg		-300	300			S4	
PYRENE			U	ug/Kg		-300	300			S4	
2,4,6-TRIBROMOPHENOL (surr)				%	102.8	35	125			S4	
2-FLUOROBIPHENYL (surr)				%	102.8	45	105			S4	
2-FLUOROPHENOL (surr)				%	111.8	35	105			S4	
NITROBENZENE-D5 (surr)				%	98.9	35	100			S4	
PHENOL-D6 (surr)				%	114.5	40	100			S4	
TERPHENYL-D14 (surr)				%	103.1	30	125			S4	

North Park Engineering & Consulting, Inc

ACZ Project ID: **L15936**

ACZ ID	WORKNUM	PARAMETER	METHOD	QUAL	DESCRIPTION
L15936-02	WG356265	*All Compounds*	M3540	D1	Sample required dilution due to matrix.
	WG356266		M3540	D1	Sample required dilution due to matrix.
	WG356428		M8021B/8015D GC/PID/FID	DE	Sample required dilution. See Case Narrative.
		Benzene	M8021B/8015D GC/PID/FID	ZM	Data is estimated because result is below 200 ug/Kg; ACZ does not have a closed-system purge and trap as described in method 5035.
		Ethylbenzene	M8021B/8015D GC/PID/FID	ZM	Data is estimated because result is below 200 ug/Kg; ACZ does not have a closed-system purge and trap as described in method 5035.
		m p Xylene	M8021B/8015D GC/PID/FID	ZM	Data is estimated because result is below 200 ug/Kg; ACZ does not have a closed-system purge and trap as described in method 5035.
		o Xylene	M8021B/8015D GC/PID/FID	ZM	Data is estimated because result is below 200 ug/Kg; ACZ does not have a closed-system purge and trap as described in method 5035.
		Toluene	M8021B/8015D GC/PID/FID	ZM	Data is estimated because result is below 200 ug/Kg; ACZ does not have a closed-system purge and trap as described in method 5035.
		TVH C6 to C10	M8021B/8015D GC/PID/FID	RD	For a solid matrix, the duplicate RPD (spike or matrix) exceeded the control limit, which is attributable to the non-homogeneity of the sample.
	WG356458	*All Compounds*	M8270C GC/MS	D1	Sample required dilution due to matrix.
		Acenaphthene	M8270C GC/MS	LA	Recovery for target analyte in the control sample (LCS or LFB) exceeded the acceptance criteria. Target analyte was not detected in the sample [< MDL].
		Pyrene	M8270C GC/MS	LA	Recovery for target analyte in the control sample (LCS or LFB) exceeded the acceptance criteria. Target analyte was not detected in the sample [< MDL].
	WG356265	*All Compounds*	M3540	D1	Sample required dilution due to matrix.
	WG356266		M3540	D1	Sample required dilution due to matrix.
	L15936-04	WG356265	*All Compounds*	M3540	D1
WG356266			M3540	D1	Sample required dilution due to matrix.
WG356428			M8021B/8015D GC/PID/FID	DE	Sample required dilution. See Case Narrative.
		Benzene	M8021B/8015D GC/PID/FID	SA	Surrogate recovery was outside acceptance limits due to matrix interference.
			M8021B/8015D GC/PID/FID	ZM	Data is estimated because result is below 200 ug/Kg; ACZ does not have a closed-system purge and trap as described in method 5035.
		Bromofluorobenzene (TVH)	M8021B/8015D GC/PID/FID	SA	Surrogate recovery was outside acceptance limits due to matrix interference.
		Ethylbenzene	M8021B/8015D GC/PID/FID	SA	Surrogate recovery was outside acceptance limits due to matrix interference.
			M8021B/8015D GC/PID/FID	ZM	Data is estimated because result is below 200 ug/Kg; ACZ does not have a closed-system purge and trap as described in method 5035.
		m p Xylene	M8021B/8015D GC/PID/FID	SA	Surrogate recovery was outside acceptance limits due to matrix interference.
			M8021B/8015D GC/PID/FID	ZM	Data is estimated because result is below 200 ug/Kg; ACZ does not have a closed-system purge and trap as described in method 5035.
		o Xylene	M8021B/8015D GC/PID/FID	SA	Surrogate recovery was outside acceptance limits due to matrix interference.
			M8021B/8015D GC/PID/FID	ZM	Data is estimated because result is below 200 ug/Kg; ACZ does not have a closed-system purge and trap as described in method 5035.
		Toluene	M8021B/8015D GC/PID/FID	SA	Surrogate recovery was outside acceptance limits due to matrix interference.
			M8021B/8015D GC/PID/FID	ZM	Data is estimated because result is below 200 ug/Kg; ACZ does not have a closed-system purge and trap as described in method 5035.
		TVH C6 to C10	M8021B/8015D GC/PID/FID	RD	For a solid matrix, the duplicate RPD (spike or matrix) exceeded the control limit, which is attributable to the non-homogeneity of the sample.

North Park Engineering & Consulting, Inc

ACZ Project ID: **L15936**

ACZ ID	WORKNUM	PARAMETER	METHOD	QUAL	DESCRIPTION
	WG356458	*All Compounds*	M8270C GC/MS	D1	Sample required dilution due to matrix.
		Acenaphthene	M8270C GC/MS	LA	Recovery for target analyte in the control sample (LCS or LFB) exceeded the acceptance criteria. Target analyte was not detected in the sample [ $<$ MDL].
		Pyrene	M8270C GC/MS	LA	Recovery for target analyte in the control sample (LCS or LFB) exceeded the acceptance criteria. Target analyte was not detected in the sample [ $<$ MDL].
	WG356265	*All Compounds*	M3540	D1	Sample required dilution due to matrix.
	WG356266		M3540	D1	Sample required dilution due to matrix.
<b>L15936-05</b>	WG356265	*All Compounds*	M3540	D1	Sample required dilution due to matrix.
<b>L15936-06</b>	WG356265	*All Compounds*	M3540	D1	Sample required dilution due to matrix.
	WG356266		M3540	D1	Sample required dilution due to matrix.
	WG356428		M8021B/8015D GC/PID/FID	DE	Sample required dilution. See Case Narrative.
			M8021B/8015D GC/PID/FID	ZM	Data is estimated because result is below 200 ug/Kg; ACZ does not have a closed-system purge and trap as described in method 5035.
		TVH C6 to C10	M8021B/8015D GC/PID/FID	RD	For a solid matrix, the duplicate RPD (spike or matrix) exceeded the control limit, which is attributable to the non-homogeneity of the sample.
	WG356458	*All Compounds*	M8270C GC/MS	D1	Sample required dilution due to matrix.
		Acenaphthene	M8270C GC/MS	LA	Recovery for target analyte in the control sample (LCS or LFB) exceeded the acceptance criteria. Target analyte was not detected in the sample [ $<$ MDL].
		Pyrene	M8270C GC/MS	LA	Recovery for target analyte in the control sample (LCS or LFB) exceeded the acceptance criteria. Target analyte was not detected in the sample [ $<$ MDL].
	WG356265	*All Compounds*	M3540	D1	Sample required dilution due to matrix.
	WG356266		M3540	D1	Sample required dilution due to matrix.
<b>L15936-07</b>	WG356265	*All Compounds*	M3540	D1	Sample required dilution due to matrix.
	WG356266		M3540	D1	Sample required dilution due to matrix.

Soil Analysis

The following parameters are not offered for certification or are not covered by NELAC certificate #ACZ.

Conductivity @25C	SM2510B
Free liquid by Paint Filter	M9095
pH, Saturated Paste	EPA 600/2-78-054, section 3.2.2
Solids, Percent	CLPSOW390, PART F, D-98

North Park Engineering & Consulting, Inc

ACZ Project ID: L15936  
 Date Received: 12/11/2013 07:43  
 Received By: mtb  
 Date Printed: 12/12/2013

**Receipt Verification**

	YES	NO	NA
1) Is a foreign soil permit included for applicable samples?			X
2) Is the Chain of Custody or other directive shipping papers present?	X		
3) Does this project require special handling procedures such as CLP protocol?			X
4) Are any samples NRC licensable material?			X
5) If samples are received past hold time, proceed with requested short hold time analyses?	X		
6) Is the Chain of Custody complete and accurate?	X		
7) Were any changes made to the Chain of Custody prior to ACZ receiving the samples?		X	

**Samples/Containers**

	YES	NO	NA
8) Are all containers intact and with no leaks?	X		
9) Are all labels on containers and are they intact and legible?	X		
10) Do the sample labels and Chain of Custody match for Sample ID, Date, and Time?	X		
11) For preserved bottle types, was the pH checked and within limits?			X
12) Is there sufficient sample volume to perform all requested work?	X		
13) Is the custody seal intact on all containers?			X
14) Are samples that require zero headspace acceptable?			X
15) Are all sample containers appropriate for analytical requirements?	X		
16) Is there an Hg-1631 trip blank present?			X
17) Is there a VOA trip blank present?		X	
18) Were all samples received within hold time?	X		

**Chain of Custody Related Remarks**

**Client Contact Remarks**

**Shipping Containers**

Cooler Id	Temp (°C)	Rad (µR/Hr)	Custody Seal Intact?
3440	0.5	12	N/A

Was ice present in the shipment container(s)?

No - Wet or gel ice was not present in the shipment container(s).

Client must contact an ACZ Project Manager if analysis should not proceed for samples received outside of their thermal preservation acceptance criteria.



Laboratories, Inc. L15936

**CHAIN of CUSTODY**

2773 Downhill Drive Steamboat Springs, CO 80487 (800) 334-5493

**Report to:**

Name: Randy Miller  
Company: North Park Engineering  
E-mail: Randy@npeng.com

Address: PO Box 395  
Walden CO  
Telephone: 970 218 4974

**Copy of Report to:**

Name: Same  
Company:

E-mail: Same  
Telephone:

**Invoice to:**

Name: Same  
Company:  
E-mail:

Address: Same  
Telephone:

If sample(s) received past holding time (HT), or if insufficient HT remains to complete analysis before expiration, shall ACZ proceed with requested short HT analyses? YES  NO

If "NO" then ACZ will contact client for further instruction. If neither "YES" nor "NO" is indicated, ACZ will proceed with the requested analyses, even if HT is expired, and data will be qualified

Are samples for SDWA Compliance Monitoring? Yes  No

If yes, please include state forms. Results will be reported to PQL for Colorado.

Sampler's Name: Will Sampler's site Information State: COLO Zip code 80403 Time Zone MT

Check box if observe Daylight Savings Time

**PROJECT INFORMATION**

**ANALYSES REQUESTED (attach list or use quote number)**

Quote #: 910-1  
PO#:  
Reporting state for compliance testing:  
Check box if samples include NRC licensed material?

# of Containers	6	DR	INORGANICS	<b>COPY</b>			
-----------------	---	----	------------	-------------	--	--	--

SAMPLE IDENTIFICATION	DATE:TIME	Matrix	# of Containers	6	DR	INORGANICS				
P1 6-7	12/9 1500	SOIL	3							
P1 13-14	1510		3							
P1 17-18	1530		3							
P2 7.5-9	1345		3							
P2 17-18	1445		3							
P3 13-14	1540		3							
P4 6-7	12/10/13 0900		3							
P4 13-15	0850		3							
PS 9-10	1000		3							
PG 4-5	0930		3							

Matrix SW (Surface Water) - GW (Ground Water) - WW (Waste Water) - DW (Drinking Water) - SL (Sludge) - SO (Soil) - OL (Oil) - Other (Specify)

**MARKS**

COG 1/3 Rush Samples P1 & P2 per quote

Please refer to ACZ's terms & conditions located on the reverse side of this COC.

RELINQUISHED BY:	DATE:TIME	RECEIVED BY:	DATE:TIME
<u>[Signature]</u>	<u>12/11/13 0730</u>	<u>AME</u>	<u>12/11/13 0730</u>





Laboratories, Inc. *L15936*

CHAIN of CUSTODY

2773 Downhill Drive Steamboat Springs, CO 80487 (800) 334-5493

Report to:

Name: *Fandy Miller*  
Company: *North Park Engineering*  
E-mail: *Fandy@NPEng.com*

Address: *PO Box 395*  
*Walden CO*  
Telephone: *970 218 4974*

Copy of Report to:

Name: *Same*  
Company:

E-mail: *Same*  
Telephone:

Invoice to:

Name: *Same*  
Company:  
E-mail:

Address: *Same*  
Telephone:

If sample(s) received past holding time (HT), or if insufficient HT remains to complete analysis before expiration, shall ACZ proceed with requested short HT analyses? YES  NO

Are samples for SDWA Compliance Monitoring? Yes  No

If yes, please include state forms. Results will be reported to PQL for Colorado.

Sampler's Name: *Will* Sampler's site information State: *COLO* Zip code *80403* Time Zone  
Check box if observe Daylight Savings Time

PROJECT INFORMATION

ANALYSES REQUESTED (attach list or use quote number)

Quote #: *910-1*  
PO#:  
Reporting state for compliance testing:  
Check box if samples include NRC licensed material?

# of Containers  
*6RO*  
*DRD*  
*Inorganics*  
**COPY**

SAMPLE IDENTIFICATION	DATE:TIME	Matrix	# of Containers	6RO	DRD	Inorganics				
<i>P6 14-15</i>	<i>12/10/13 0910</i>	<i>SL</i>	<i>3</i>							
<i>* P7 1-2</i>	<i>1400</i>									
<i>* P7 9-10</i>	<i>1410</i>									
<i>P8 3-4</i>	<i>1215</i>									
<i>P5 13-14</i>	<i>1230</i>									
<i>P9 2-3</i>	<i>1210</i>									
<i>P9 12-13</i>	<i>1215</i>									
<i>P10 13-14</i>	<i>1150</i>									
<i>P11 2-3</i>	<i>1300</i>									
<i>P11 13-14</i>	<i>1310</i>									

Matrix SW (Surface Water) · GW (Ground Water) · WW (Waste Water) · DW (Drinking Water) · SL (Sludge) · SO (Soil) · OL (Oil) · Other (Specify)

REMARKS

*COL 2/3*  
*\* Rush sample P7 per quote*

Please refer to ACZ's terms & conditions located on the reverse side of this COC.

RELINQUISHED BY:	DATE:TIME	RECEIVED BY:	DATE:TIME
<i>[Signature]</i>	<i>12/11/13 0730</i>	<i>AME</i>	<i>12/11/13 0730</i>