

# R. T. HICKS CONSULTANTS, LTD.

Artesia ▲ Carlsbad ▲ Durango ▲ Midland

901 Rio Grande Blvd NW ▲ Suite F-142 ▲ Albuquerque, NM 87104 ▲ 505.266.5004 ▲ Fax: 505.266-0745

August 4, 2014

Date received 8/6/14

REM #8588

Doc #1733875

Mr. Alex Fischer and Jim Hughes  
COGCC  
Denver, Colorado

RE: D.J Simmons, Inc. Pinto #1-7 Sampling Results and Closure Plan

Dear Mr. Fischer and Mr. Hughes:

On July 11, 2014 R.T. Hicks Consultants (Hicks Consultants), under contract to D.J. Simmons, collected six (6) cores samples of the drilling pit material and one (1) representative sample of the stockpiled soil. The purpose of the sampling was to characterize the existing contents of the drilling pit to determine a soil mixing ratio for pit closure.

As explained below, we propose to mix clean soil with drill cuttings in a 2:1 ratio, respectively; to stabilize the drilling pit solids in order to support a 4-foot soil cover. The calculations show that the chemistry of the buried, stabilized material meets COGCC standards.

## Sampling Methodology

Core samples of the drilling pit cuttings were collected using a 1.5" diameter Schedule 40 PVC push core sampler (see Figure 1).

The depth of the core was determined by sampler refusal at the liner. Five out of the six drilling pit core samples encountered depth refusal at 1.5 feet. Depth refusal for the remaining core sample located in the southwest corner of the drilling pit was 2 feet. The depth of the core is included in the sample ID as shown in Table 1.

The core sample was deposited into a clean 5 quart plastic bucket then placed into two 4-oz sampling jars. The process was repeated for each of the 6 core samples.

One representative sample was collected from the stockpiled soil in two 4-oz jars. The representative sample consisted of six (6) discrete sampling points located along the



**Figure 1: Sampling the southwest corner of the reserve pit using a push core sampler.**

length (N-S) of the stockpiled soil. Each discrete sample was collected at a depth of approximately 4-inches below sampling surface.

Samples were transported to Hall Environmental Analytical Laboratory (HEAL) located in Albuquerque, NM on-ice and under strict chain-of-custody.

We instructed HEAL to collect representative portions from each jar for the analysis of constituents listed in Table 910-1 plus Chloride. TPH was analyzed using EPA Method 8015 for GRO, DRO, and MRO.

### **Analytical Results and Comparison to Soil Evaluation Values and Calculations**

Analytical results are presented in Table 1. The Certificate of Analysis is in Appendix A. We compared the results to COGCC Series 900 Table 910-1 (December 2007) and to the current Colorado Soil Evaluation Values, which are the basis of the values in Table 910-1. Constituents exceeding Table 910-1 concentration levels (2007) are highlighted light red.

Table 910-1 footnotes show that many constituent concentration levels were taken from the CDHPE-HMWMD Table 1 Colorado Soil Evaluation Values (December 2007). Because the constituent levels in Table 910-1 are seven years out of date, we examined the CDPHE-HMWMD website<sup>1</sup> to determine if the values had changed. The CDPHE website directs the user to EPA's Regional Screening Levels (RSLs). As stated on the CDPHE-HMWMD website, "The division uses the direct exposure levels for residential and industrial exposure scenarios listed in the EPA Regional Screening Levels (RSLs)". The SSL's listed in Table 1 assume direct soil dermal contact to an Industrial Worker. Per EPA's guidelines, a THQ=0.1 is commonly used if multiple constituents are being screened, which is the case for some PAHs at the Pinto #1-7 drilling pit. Constituents exceeding current EPA's RSLs for industrial direct exposure are highlighted orange.

After examining the nature of the cuttings, we believe that mixing 2 parts dry earth material to 1 part pit solids will result in a stable material that can support a 4-foot soil cover. To calculate the mixing ratio, we:

1. Averaged the core samples to create a "pit solids average concentration".
2. Multiplied the "Stockpile Soil" concentration by the clean soil mixing ratio. For example, a mixing ratio of "2:1" has a multiplier of "2".
3. Added the clean soil result to the core average.
4. Divided by the number of concentrations added in the numerator (mixing ratio plus 1).

For a mixing ration of 2:1, the equation yields

$$\frac{(\text{clean soil} \times 2) + \text{core average}}{3}$$

If a discrete sample concentration exhibits non-detect, the laboratory reporting limit was used. This creates a "worse-case" scenario for the constituent of concern

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<sup>1</sup> <http://www.colorado.gov/cs/Satellite/CDPHE-HM/CBON/1251616113557>

Table 2 shows this mixing ratio of 2:1 will not exceed Table 910-1 concentration levels when applying the current Soil Evaluation Values (EPA's SSLs) for all constituents except Boron (5.0 mg/kg after 2:1 mixing) and SAR (27 after 2:1 mixing). The standard for Boron is 4 mg/kg. The standard for SAR is <12. Boron and SAR is discussed below.

The high SAR is the result of the "West Central 1.5 ft core" exhibiting a low concentration of Calcium. We reviewed the raw SAR data provided by HEAL. Comparing Calcium, Magnesium, and Sodium values; the cause of the low calcium concentration in the "West Central 1.5ft Core" sample is undetermined and makes little geochemical sense. When the anomalous SAR result is removed from the core average and mixed with clean soil in a 2:1 ratio, the resulting SAR concentration ("11") does not exceed Table 910-1 concentration levels of <12. Appendix B contains the raw report from HEAL.

A Boron mixing ratio of 2:1 results in an average stabilized material value of 5 mg/kg. The "Stockpile Soil" sample exhibited a concentration <4mg/kg with a dilution factor of 2. Using 4 mg/kg as the concentration of boron in the mixing dirt, it is mathematically impossible to obtain a result less than 4 mg/kg. After physical mixing of clean soil with drill cuttings, a Boron concentration <4 mg/kg is likely.

### **Closure Procedures**

D.J. Simmons will close the drilling pit in accordance the 900 Series Rule. Prior to soil mixing to stabilize the drill cuttings per COGCC 1000 series rule (1003.d.(2)), D.J. Simmons will obtain one sample from below the liner at the deepest location of the drilling pit and analyze the soil for constituents listed in Table 910-1 and Chloride.

D.J. Simmons will then mix clean soil with the drill cuttings in a 2:1 ratio, respectively. All mixing will occur in the existing reserve pit. After mixing, one representative soil sample will be obtained for the analysis of constituents listed in Table 910-1 and Chloride. Sample collection will follow the same sampling methodology discussed above. This sample will be the compliance sample as required by Rule 905.b.

Samples collected for analysis will be transported to Hall Environmental Analytical Laboratory (HEAL) located in Albuquerque, NM on-ice and under strict chain-of-custody. We will instruct HEAL to sample TPH using EPA Method 8015 for GRO, DRO, and MRO.

Upon laboratory confirmation that the soil mixture is in compliance with Table 910-1, D.J. Simmons will complete the closure using the following steps.

1. Notify COGCC of sampling results and intent to finalize pit closure.

After pit closure notice to COGCC-

2. Remove remaining pit liner visible above the mixed soil line.
3. Place the remaining stockpiled soil to maintain a three to four foot cap.
4. Contour the surface to match surrounding topography.
5. Seed the disturbed area during the next favorable growing season. A native seed mixture will be applied that is appropriate for the area.

August 4, 2014  
Page 4

Please contact us if you have any questions.

A handwritten signature in black ink, appearing to read "Andrew Parker". The signature is fluid and cursive, with the first name "Andrew" and last name "Parker" clearly distinguishable.

Andrew Parker  
R.T. Hicks Consultants  
Durango, CO Field Office

Table 1: Summary of Analytical Results

Sample ID	Date	DRO (8015D)	MRO (8015D)	GRO (8015D)	TPH(EPA 8015)	Benzene	Toluene	Ethylbenzene	Xylenes (total)	Chloride	Mercury	Arsenic
		mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
Base Line	10/2/2013				635	< 0.05	< 0.05	< 0.05	< 0.05		< 0.97	< 0.97
Drill Pit	4/25/2014				176	< 0.05	< 0.05	< 0.05	< 0.05		34.2	< 0.97
NW 1.5 ft Core	7/11/2014	170	350	8.2	528.2	<0.049	0.028	<0.049	0.095	2,400	0.0053	1.8
NE 1.5 ft Core	7/11/2014	190	460	4.2	654.2	0.019	0.024	0.04	0.082	3,400	0.0051	2
East Central 1.5 ft Core	7/11/2014	75	190	<4.9	269.9	<0.049	0.021	0.024	0.056	1,500	0.0051	2.5
SE 1.5 ft Core	7/11/2014	520	600	<4.8	1,124.80	<0.048	0.024	0.026	0.06	2,400	0.0061	2.5
SW 2 ft Core	7/11/2014	140	240	7.9	387.9	0.023	0.048	<0.050	0.13	340	0.013	2.3
West Central 1.5 ft Core	7/11/2014	340	550	<4.7	894.7	<0.047	0.021	0.027	0.066	4,400	0.008	2.4
Stockpile Soil	7/11/2014	<9.9	<50	<4.8	64.7	<0.048	0.018	<0.048	<0.096	<30	0.0097	<5
COGCC Table 910-1					500	0.17	85	100	175		23	0.39
CDPHE-HMWMD/EPA SSLs						5.10	4,700	25	250		35	3.00

Notes:
exceeds guidelines
exceeds EPA SSL Standards

Table 1: Summary of Analytical Results

Sample ID	Date	Barium	Boron	Cadmium	Chromium	Chromium VI	Copper	Lead	Nickel	Selenium	Silver	Zinc	pH	Naphthalene	Acenaphthene	Fluorene
		mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	--	mg/kg	mg/kg	mg/kg
Base Line	10/2/2013	315	< 0.50	1.12	20		3.02	< 0.97	8.46	< 0.97	3.56	38.4	10	< 0.036	< 0.036	< 0.036
Drill Pit	4/25/2014	251	< 0.49	< 0.97	22.2		8.73	3.1	6.68	3.66	< 0.97	51.7	7.62	< 0.4	< 0.12	0.15
NW 1.5 ft Core	7/11/2014	430	4.3	<0.097	24	<2.0	19	1.7	10	<2.4	<0.24	81	7.7	<0.20	<0.20	<0.20
NE 1.5 ft Core	7/11/2014	1,300	5.5	<0.097	27	<2.0	41	3.7	11	<2.4	<0.24	300	7.6	<0.20	<0.20	<0.20
East Central 1.5 ft Core	7/11/2014	940	12	<0.10	22	<2.0	12	1.3	8.6	<2.6	<0.26	49	7.8	<0.20	<0.20	<0.20
SE 1.5 ft Core	7/11/2014	700	7.9	<0.10	18	<2.0	12	1.6	9.1	<2.5	<0.25	51	9.9	<0.20	0.08	0.18
SW 2 ft Core	7/11/2014	2,900	4	<0.10	15	<2.0	16	1.8	6.8	<2.6	<0.26	55	9.7	<0.10	<0.10	<0.10
West Central 1.5 ft Core	7/11/2014	2,800	8.1	<0.097	32	<2.0	33	3.3	11	<2.4	<0.24	120	9.3	<0.20	0.07	0.16
Stockpile Soil	7/11/2014	140	<4	<0.20	5.1	<2.0	5.8	4.5	7.1	<5	<0.5	20	8	<0.02	<0.02	<0.02
COGCC Table 910-1		15,000	4	70	120,000	23	3,100	400	1,600	390	390	23,000	6-9	23	1,000	1,000
CDPHE-HMWMD/EPA SSLs		22,400		98	180,000	6	4,700	800	2,200	580	580	35,000		17	4,500	3,000

Notes:
exceeds guidelines
exceeds EPA SSL Standards

Table 1: Summary of Analytical Results

Sample ID	Date	Anthracene	Fluoranthene	Pyrene	Benzo(A)anthracene	Chrysene	Benzo(B)fluoranthene	Benzo(K)fluoranthene	Benzo(A)pyrene
		mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
Base Line	10/2/2013	< 0.036	< 0.036	< 0.036	< 0.036	< 0.036	< 0.036	< 0.036	< 0.036
Drill Pit	4/25/2014	0.94	6.8	1.6	3.6	3.8	4.4	0.74	0.92
NW 1.5 ft Core	7/11/2014	0.2	2.3	0.68	1.7	3	2.1	0.78	0.56
NE 1.5 ft Core	7/11/2014	0.11	1.3	0.34	0.83	1.6	1.5	0.3	0.3
East Central 1.5 ft Core	7/11/2014	0.14	1.3	0.37	0.86	1.5	1.2	0.36	0.3
SE 1.5 ft Core	7/11/2014	0.6	7.2	2.2	5.1	8.3	8.9	1.8	2
SW 2 ft Core	7/11/2014	0.048	0.78	0.2	0.43	0.86	0.7	0.2	0.17
West Central 1.5 ft Core	7/11/2014	0.58	6.2	1.8	4	7	7.1	1.1	1.4
Stockpile Soil	7/11/2014	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
COGCC Table 910-1		1,000	1,000	1,000	0.22	22	0.22	2.20	0.022
CDPHE-HMWMD/EPA SSLs		23,000	3,000	2,300	2.90	290	2.90	29.00	0.29

Notes:
exceeds guidelines
exceeds EPA SSL Standards

Table 1: Summary of Analytical Results

Sample ID	Date	Dibenzo(A,H)anthracene	Indeno(1,2,3-cd)pyrene	Sodium Absorption Ratio	Electrical Conductivity
		mg/kg	mg/kg	--	mmhos/cm
Base Line	10/2/2013	< 0.036	< 0.036	0.924	0.193
Drill Pit	4/25/2014	0.48	0.74	5.05	2.26
NW 1.5 ft Core	7/11/2014	0.3	0.42	53	13
NE 1.5 ft Core	7/11/2014	0.19	0.2	61	Inf. Sample
East Central 1.5 ft Core	7/11/2014	0.22	0.24	29	Inf. Sample
SE 1.5 ft Core	7/11/2014	0.95	1.4	26	Inf. Sample
SW 2 ft Core	7/11/2014	0.12	0.14	29	5
West Central 1.5 ft Core	7/11/2014	0.86	0.99	290	Inf. Sample
Stockpile Soil	7/11/2014	<0.02	<0.02	0.19	0.46
COGCC Table 910-1		0.022	0.22	<12	<4 or 2x background
CDPHE-HMWMD/EPA SSLs		0.290	2.90		

Notes:
exceeds guidelines
exceeds EPA SSL Standards



Table 2: Mixing Ratio

Mixing Ratio	Calculated Value	MRO (8015D)	GRO (8015D)	TPH(EPA 8015)	Benzene	Toluene	Ethylbenzene	Xylenes (total)	Chloride	Mercury	Arsenic	Barium	Boron
clean:actual		mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
1:1	07/14/2014 Core Samples	224.17	5.29	353.99	0.04	0.02	0.04	0.09	1218.33	0.01	3.63	825.83	5.5
2:1	07/14/2014 Core Samples	166.11	5.13	257.56	0.04	0.02	0.04	0.09	822.22	0.01	4.08	597.22	5.0
3:1	07/14/2014 Core Samples	137.08	5.05	209.35	0.04	0.02	0.04	0.09	624.17	0.01	4.31	482.92	4.7
COGCC Table 910-1				500	0.17	85	100	175		23	0.39	15,000	4
PHE-HMWMD/EPA SSLs					5.10	4,700	25	250		35	3	22,400	
	Core average	398.33	5.78	643.28	0.04	0.03	0.04	0.08	2406.67	0.01	2.25	1511.67	6.97

Notes:

exceeds guidelines

ds EPA SSL Standards

Table 2: Mixing Ratio

Mixing Ratio	Calculated Value	Cadmium	Chromium	Chromium VI	Copper	Lead	Nickel	Selenium	Silver	Zinc	pH	Naphthalene	Acenaphthene	Fluorene
clean:actual		mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	--	mg/kg	mg/kg	mg/kg
1:1	07/14/2014 Core Samples	0.22	14.05	2	13.98	3.37	8.26	4.16	0.37	64.67	8.33	0.10	0.08	0.10
2:1	07/14/2014 Core Samples	0.21	11.07	2	11.26	3.74	7.87	4.44	0.42	49.78	8.22	0.07	0.06	0.07
3:1	07/14/2014 Core Samples	0.21	9.58	2	9.89	3.93	7.68	4.58	0.44	42.33	8.17	0.06	0.05	0.06
COGCC Table 910-1		70	120,000	23	3,100	400	1,600	390	390	23,000	6-9	23	1,000	1,000
PHE-HMWMD/EPA SSLs		98	180,000	6.30	4,700	800	2,200	580	580	35,000		17	4,500	3,000
	Core average	0.24	23.00	2.00	22.17	2.23	9.42	3.32	0.25	109.33	8.67	0.18	0.14	0.17

Notes:

exceeds guidelines

ds EPA SSL Standards

Table 2: Mixing Ratio

Mixing Ratio	Calculated Value	Anthracene	Fluoranthene	Pyrene	Benzo(A)anthracene	Chrysene	Benzo(B)fluoranthene	Benzo(K)floranthene	Benzo(A)pyrene
clean:actual		mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
1:1	07/14/2014 Core Samples	0.15	1.60	0.48	1.09	1.87	1.80	0.39	0.404
2:1	07/14/2014 Core Samples	0.11	1.07	0.32	0.73	1.25	1.21	0.27	0.276
3:1	07/14/2014 Core Samples	0.08	0.81	0.25	0.55	0.94	0.91	0.20	0.212
COGCC Table 910-1		1,000	1,000	1,000	0.22	22	0.22	2.20	0.022
PHE-HMWMD/EPA SSLs		23,000	3,000	2,300	2.90	290	2.90	29	0.29
	Core average	0.28	3.18	0.93	2.15	3.71	3.58	0.76	0.79

Notes:

exceeds guidelines

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Table 2: Mixing Ratio

Mixing Ratio	Calculated Value	Dibenzo(A,H)anthracene	Indeno(1,2,3-cd)pyrene	Sodium Absorption Ratio	Electrical Conductivity
clean:actual		mg/kg	mg/kg	--	mmhos/cm
1:1	07/14/2014 Core Samples	0.230	0.29	17	4.73
2:1	07/14/2014 Core Samples	0.160	0.20	11	3.31
3:1	07/14/2014 Core Samples	0.125	0.16	8	2.60
COGCC Table 910-1		0.022	0.22	<12	<4 or 2x background
PHE-HMWMD/EPA SSLs		0.29	2.9		
	Core average	0.44	0.57	33.00	9.00

Notes:

exceeds guidelines

ds EPA SSL Standards

## ***APPENDIX A***

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Hall Environmental Analysis Laboratory  
4901 Hawkins NE  
Albuquerque, NM 87109  
TEL: 505-345-3975 FAX: 505-345-4107  
Website: [www.hallenvironmental.com](http://www.hallenvironmental.com)

July 31, 2014

Andrew Parker

R.T. Hicks Consultants, LTD  
901 Rio Grande Blvd. NW  
Suite F-142  
Albuquerque, NM 87104  
TEL: (505) 266-5004  
FAX (505) 266-0745

RE: Pinto 1-7 Pit

OrderNo.: 1407583

Dear Andrew Parker:

Hall Environmental Analysis Laboratory received 7 sample(s) on 7/14/2014 for the analyses presented in the following report.

These were analyzed according to EPA procedures or equivalent. To access our accredited tests please go to [www.hallenvironmental.com](http://www.hallenvironmental.com) or the state specific web sites. In order to properly interpret your results it is imperative that you review this report in its entirety. See the sample checklist and/or the Chain of Custody for information regarding the sample receipt temperature and preservation. Data qualifiers or a narrative will be provided if the sample analysis or analytical quality control parameters require a flag. When necessary, data qualifiers are provided on both the sample analysis report and the QC summary report, both sections should be reviewed. All samples are reported, as received, unless otherwise indicated. Lab measurement of analytes considered field parameters that require analysis within 15 minutes of sampling such as pH and residual chlorine are qualified as being analyzed outside of the recommended holding time.

Please don't hesitate to contact HEAL for any additional information or clarifications.

ADHS Cert #AZ0682 -- NMED-DWB Cert #NM9425 -- NMED-Micro Cert #NM0190

Sincerely,

A handwritten signature in black ink, appearing to read "Andy Freeman", is written over a horizontal line.

Andy Freeman  
Laboratory Manager  
4901 Hawkins NE  
Albuquerque, NM 87109

# Hall Environmental Analysis Laboratory, Inc.

## Analytical Report

Lab Order 1407583

Date Reported: 7/31/2014

**CLIENT:** R.T. Hicks Consultants, LTD

**Client Sample ID:** NW 1.5 Ft Core

**Project:** Pinto 1-7 Pit

**Collection Date:** 7/11/2014 9:45:00 AM

**Lab ID:** 1407583-001

**Matrix:** SOIL

**Received Date:** 7/14/2014 11:30:00 AM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
<b>EPA METHOD 8015D: DIESEL RANGE ORGANICS</b>							Analyst: <b>BCN</b>	
Diesel Range Organics (DRO)	170	5.5	9.9		mg/Kg	1	7/19/2014 3:09:48 AM	14218
Motor Oil Range Organics (MRO)	350	50	50		mg/Kg	1	7/19/2014 3:09:48 AM	14218
Surr: DNOP	84.5	0	57.9-140		%REC	1	7/19/2014 3:09:48 AM	14218
<b>EPA METHOD 8015D: GASOLINE RANGE</b>							Analyst: <b>NSB</b>	
Gasoline Range Organics (GRO)	8.2	3.0	4.9		mg/Kg	1	7/16/2014 6:40:14 PM	14206
Surr: BFB	147	0	80-120	S	%REC	1	7/16/2014 6:40:14 PM	14206
<b>EPA METHOD 8021B: VOLATILES</b>							Analyst: <b>NSB</b>	
Benzene	ND	0.0029	0.049		mg/Kg	1	7/16/2014 6:40:14 PM	14206
Toluene	0.028	0.0035	0.049	J	mg/Kg	1	7/16/2014 6:40:14 PM	14206
Ethylbenzene	ND	0.0035	0.049		mg/Kg	1	7/16/2014 6:40:14 PM	14206
Xylenes, Total	0.095	0.011	0.098	J	mg/Kg	1	7/16/2014 6:40:14 PM	14206
Surr: 4-Bromofluorobenzene	110	0	80-120		%REC	1	7/16/2014 6:40:14 PM	14206
<b>EPA METHOD 300.0: ANIONS</b>							Analyst: <b>JRR</b>	
Chloride	2400	16	150		mg/Kg	100	7/23/2014 4:35:10 PM	14352
<b>EPA METHOD 7471: MERCURY</b>							Analyst: <b>JLF</b>	
Mercury	ND	0.0053	0.032		mg/Kg	1	7/22/2014 1:03:19 PM	14338
<b>EPA METHOD 6010B: SOIL METALS</b>							Analyst: <b>ELS</b>	
Arsenic	1.8	1.6	2.4	J	mg/Kg	1	7/19/2014 3:12:17 PM	14260
Barium	430	0.19	0.19		mg/Kg	2	7/19/2014 3:13:41 PM	14260
Boron	4.3	1.2	1.9		mg/Kg	1	7/19/2014 3:12:17 PM	14260
Cadmium	ND	0.049	0.097		mg/Kg	1	7/19/2014 3:12:17 PM	14260
Chromium	24	0.16	0.29		mg/Kg	1	7/19/2014 3:12:17 PM	14260
Copper	19	0.29	0.29		mg/Kg	1	7/19/2014 3:12:17 PM	14260
Lead	1.7	0.18	0.24		mg/Kg	1	7/19/2014 3:12:17 PM	14260
Nickel	10	0.18	0.48		mg/Kg	1	7/19/2014 3:12:17 PM	14260
Selenium	ND	1.3	2.4		mg/Kg	1	7/19/2014 3:12:17 PM	14260
Silver	ND	0.093	0.24		mg/Kg	1	7/19/2014 3:12:17 PM	14260
Zinc	81	0.16	2.4		mg/Kg	1	7/19/2014 3:12:17 PM	14260
<b>SAR SOLUBLE CATIONS</b>							Analyst: <b>ELS</b>	
Sodium Adsorption Ratio	53	0	0			1	7/19/2014 12:19:00 PM	14248
<b>EPA METHOD 8270C: PAHS</b>							Analyst: <b>DAM</b>	
Naphthalene	ND	0.056	0.20		mg/Kg	1	7/16/2014 1:25:05 PM	14223
Acenaphthene	ND	0.063	0.20		mg/Kg	1	7/16/2014 1:25:05 PM	14223
Fluorene	ND	0.072	0.20		mg/Kg	1	7/16/2014 1:25:05 PM	14223
Anthracene	0.20	0.060	0.20		mg/Kg	1	7/16/2014 1:25:05 PM	14223
Fluoranthene	2.3	0.062	0.20		mg/Kg	1	7/16/2014 1:25:05 PM	14223

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

<b>Qualifiers:</b>	*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
	J	Analyte detected below quantitation limits	ND	Not Detected at the Reporting Limit
	O	RSD is greater than RSDlimit	P	Sample pH greater than 2.
	R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
	S	Spike Recovery outside accepted recovery limits		

## Hall Environmental Analysis Laboratory, Inc.

CLIENT: R.T. Hicks Consultants, LTD

Client Sample ID: NW 1.5 Ft Core

Project: Pinto 1-7 Pit

Collection Date: 7/11/2014 9:45:00 AM

Lab ID: 1407583-001

Matrix: SOIL

Received Date: 7/14/2014 11:30:00 AM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
<b>EPA METHOD 8270C: PAHS</b>							Analyst: <b>DAM</b>	
Pyrene	0.68	0.049	0.20		mg/Kg	1	7/16/2014 1:25:05 PM	14223
Benz(a)anthracene	1.7	0.051	0.20		mg/Kg	1	7/16/2014 1:25:05 PM	14223
Chrysene	3.0	0.036	0.20		mg/Kg	1	7/16/2014 1:25:05 PM	14223
Benzo(b)fluoranthene	2.1	0.065	0.20		mg/Kg	1	7/16/2014 1:25:05 PM	14223
Benzo(k)fluoranthene	0.78	0.081	0.20		mg/Kg	1	7/16/2014 1:25:05 PM	14223
Benzo(a)pyrene	0.56	0.076	0.20		mg/Kg	1	7/16/2014 1:25:05 PM	14223
Dibenz(a,h)anthracene	0.30	0.073	0.20		mg/Kg	1	7/16/2014 1:25:05 PM	14223
Indeno(1,2,3-cd)pyrene	0.42	0.068	0.20		mg/Kg	1	7/16/2014 1:25:05 PM	14223
Surr: N-hexadecane	0	0	27-106	S	%REC	1	7/16/2014 1:25:05 PM	14223
Surr: Benzo(e)pyrene	0	0	34.7-131	S	%REC	1	7/16/2014 1:25:05 PM	14223
<b>CONDUCTANCE</b>							Analyst: <b>IDC</b>	
Specific Conductance	13000	1.0	1.0		µmhos/c	1	7/18/2014 11:53:00 AM	R19988

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

<b>Qualifiers:</b>	*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
	J	Analyte detected below quantitation limits	ND	Not Detected at the Reporting Limit
	O	RSD is greater than RSDlimit	P	Sample pH greater than 2.
	R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
	S	Spike Recovery outside accepted recovery limits		



# Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order 1407583

Date Reported: 7/31/2014

**CLIENT:** R.T. Hicks Consultants, LTD

**Client Sample ID:** NE 1.5 ft Core

**Project:** Pinto 1-7 Pit

**Collection Date:** 7/11/2014 10:15:00 AM

**Lab ID:** 1407583-002

**Matrix:** SOIL

**Received Date:** 7/14/2014 11:30:00 AM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
<b>EPA METHOD 8015D: DIESEL RANGE ORGANICS</b>							Analyst: <b>BCN</b>	
Diesel Range Organics (DRO)	190	5.5	9.9		mg/Kg	1	7/19/2014 5:19:12 AM	14218
Motor Oil Range Organics (MRO)	460	50	50		mg/Kg	1	7/19/2014 5:19:12 AM	14218
Surr: DNOP	79.4	0	57.9-140		%REC	1	7/19/2014 5:19:12 AM	14218
<b>EPA METHOD 8015D: GASOLINE RANGE</b>							Analyst: <b>NSB</b>	
Gasoline Range Organics (GRO)	4.2	3.0	4.9	J	mg/Kg	1	7/16/2014 7:10:22 PM	14206
Surr: BFB	117	0	80-120		%REC	1	7/16/2014 7:10:22 PM	14206
<b>EPA METHOD 8021B: VOLATILES</b>							Analyst: <b>NSB</b>	
Benzene	0.019	0.0029	0.049	J	mg/Kg	1	7/16/2014 7:10:22 PM	14206
Toluene	0.024	0.0035	0.049	J	mg/Kg	1	7/16/2014 7:10:22 PM	14206
Ethylbenzene	0.040	0.0035	0.049	J	mg/Kg	1	7/16/2014 7:10:22 PM	14206
Xylenes, Total	0.082	0.011	0.098	J	mg/Kg	1	7/16/2014 7:10:22 PM	14206
Surr: 4-Bromofluorobenzene	114	0	80-120		%REC	1	7/16/2014 7:10:22 PM	14206
<b>EPA METHOD 300.0: ANIONS</b>							Analyst: <b>JRR</b>	
Chloride	3400	16	150		mg/Kg	100	7/23/2014 4:47:35 PM	14352
<b>EPA METHOD 7471: MERCURY</b>							Analyst: <b>JLF</b>	
Mercury	ND	0.0051	0.031		mg/Kg	1	7/22/2014 1:08:48 PM	14338
<b>EPA METHOD 6010B: SOIL METALS</b>							Analyst: <b>ELS</b>	
Arsenic	2.0	1.6	2.4	J	mg/Kg	1	7/19/2014 3:15:02 PM	14260
Barium	1300	0.93	0.97		mg/Kg	10	7/21/2014 3:03:07 PM	14260
Boron	5.5	1.2	1.9		mg/Kg	1	7/19/2014 3:15:02 PM	14260
Cadmium	ND	0.049	0.097		mg/Kg	1	7/19/2014 3:15:02 PM	14260
Chromium	27	0.16	0.29		mg/Kg	1	7/19/2014 3:15:02 PM	14260
Copper	41	0.29	0.29		mg/Kg	1	7/19/2014 3:15:02 PM	14260
Lead	3.7	0.18	0.24		mg/Kg	1	7/19/2014 3:15:02 PM	14260
Nickel	11	0.18	0.48		mg/Kg	1	7/19/2014 3:15:02 PM	14260
Selenium	ND	1.3	2.4		mg/Kg	1	7/19/2014 3:15:02 PM	14260
Silver	ND	0.093	0.24		mg/Kg	1	7/19/2014 3:15:02 PM	14260
Zinc	300	0.31	4.8		mg/Kg	2	7/19/2014 3:16:25 PM	14260
<b>SAR SOLUBLE CATIONS</b>							Analyst: <b>ELS</b>	
Sodium Adsorption Ratio	61	0	0			1	7/19/2014 12:19:00 PM	14248
<b>EPA METHOD 8270C: PAHS</b>							Analyst: <b>DAM</b>	
Naphthalene	ND	0.056	0.20		mg/Kg	1	7/16/2014 1:48:18 PM	14223
Acenaphthene	ND	0.063	0.20		mg/Kg	1	7/16/2014 1:48:18 PM	14223
Fluorene	ND	0.072	0.20		mg/Kg	1	7/16/2014 1:48:18 PM	14223
Anthracene	0.11	0.060	0.20	J	mg/Kg	1	7/16/2014 1:48:18 PM	14223
Fluoranthene	1.3	0.062	0.20		mg/Kg	1	7/16/2014 1:48:18 PM	14223

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

<b>Qualifiers:</b>	*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
	J	Analyte detected below quantitation limits	ND	Not Detected at the Reporting Limit
	O	RSD is greater than RSDlimit	P	Sample pH greater than 2.
	R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
	S	Spike Recovery outside accepted recovery limits		

# Hall Environmental Analysis Laboratory, Inc.

## Analytical Report

Lab Order 1407583

Date Reported: 7/31/2014

**CLIENT:** R.T. Hicks Consultants, LTD

**Client Sample ID:** NE 1.5 ft Core

**Project:** Pinto 1-7 Pit

**Collection Date:** 7/11/2014 10:15:00 AM

**Lab ID:** 1407583-002

**Matrix:** SOIL

**Received Date:** 7/14/2014 11:30:00 AM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
<b>EPA METHOD 8270C: PAHS</b>							Analyst: <b>DAM</b>	
Pyrene	0.34	0.049	0.20		mg/Kg	1	7/16/2014 1:48:18 PM	14223
Benz(a)anthracene	0.83	0.051	0.20		mg/Kg	1	7/16/2014 1:48:18 PM	14223
Chrysene	1.6	0.036	0.20		mg/Kg	1	7/16/2014 1:48:18 PM	14223
Benzo(b)fluoranthene	1.5	0.065	0.20		mg/Kg	1	7/16/2014 1:48:18 PM	14223
Benzo(k)fluoranthene	0.30	0.081	0.20		mg/Kg	1	7/16/2014 1:48:18 PM	14223
Benzo(a)pyrene	0.30	0.076	0.20		mg/Kg	1	7/16/2014 1:48:18 PM	14223
Dibenz(a,h)anthracene	0.19	0.073	0.20	J	mg/Kg	1	7/16/2014 1:48:18 PM	14223
Indeno(1,2,3-cd)pyrene	0.20	0.068	0.20		mg/Kg	1	7/16/2014 1:48:18 PM	14223
Surr: N-hexadecane	0	0	27-106	S	%REC	1	7/16/2014 1:48:18 PM	14223
Surr: Benzo(e)pyrene	0	0	34.7-131	S	%REC	1	7/16/2014 1:48:18 PM	14223

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

<b>Qualifiers:</b>	*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
	J	Analyte detected below quantitation limits	ND	Not Detected at the Reporting Limit
	O	RSD is greater than RSDlimit	P	Sample pH greater than 2.
	R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
	S	Spike Recovery outside accepted recovery limits		

# Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order 1407583

Date Reported: 7/31/2014

**CLIENT:** R.T. Hicks Consultants, LTD

**Client Sample ID:** East Central 1.5 ft Core

**Project:** Pinto 1-7 Pit

**Collection Date:** 7/11/2014 10:30:00 AM

**Lab ID:** 1407583-003

**Matrix:** SOIL

**Received Date:** 7/14/2014 11:30:00 AM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
<b>EPA METHOD 8015D: DIESEL RANGE ORGANICS</b>							Analyst: <b>BCN</b>	
Diesel Range Organics (DRO)	75	5.4	9.8		mg/Kg	1	7/19/2014 6:02:10 AM	14218
Motor Oil Range Organics (MRO)	190	49	49		mg/Kg	1	7/19/2014 6:02:10 AM	14218
Surr: DNOP	83.7	0	57.9-140		%REC	1	7/19/2014 6:02:10 AM	14218
<b>EPA METHOD 8015D: GASOLINE RANGE</b>							Analyst: <b>NSB</b>	
Gasoline Range Organics (GRO)	ND	3.0	4.9		mg/Kg	1	7/16/2014 9:40:54 PM	14206
Surr: BFB	98.8	0	80-120		%REC	1	7/16/2014 9:40:54 PM	14206
<b>EPA METHOD 8021B: VOLATILES</b>							Analyst: <b>NSB</b>	
Benzene	ND	0.0029	0.049		mg/Kg	1	7/16/2014 9:40:54 PM	14206
Toluene	0.021	0.0035	0.049	J	mg/Kg	1	7/16/2014 9:40:54 PM	14206
Ethylbenzene	0.024	0.0035	0.049	J	mg/Kg	1	7/16/2014 9:40:54 PM	14206
Xylenes, Total	0.056	0.011	0.098	J	mg/Kg	1	7/16/2014 9:40:54 PM	14206
Surr: 4-Bromofluorobenzene	104	0	80-120		%REC	1	7/16/2014 9:40:54 PM	14206
<b>EPA METHOD 300.0: ANIONS</b>							Analyst: <b>JRR</b>	
Chloride	1500	8.1	75		mg/Kg	50	7/23/2014 4:59:59 PM	14352
<b>EPA METHOD 7471: MERCURY</b>							Analyst: <b>JLF</b>	
Mercury	0.0051	0.0051	0.031	J	mg/Kg	1	7/22/2014 1:10:35 PM	14338
<b>EPA METHOD 6010B: SOIL METALS</b>							Analyst: <b>ELS</b>	
Arsenic	2.5	1.7	2.6	J	mg/Kg	1	7/19/2014 3:17:47 PM	14260
Barium	940	0.50	0.52		mg/Kg	5	7/21/2014 3:04:23 PM	14260
Boron	12	1.3	2.1		mg/Kg	1	7/19/2014 3:17:47 PM	14260
Cadmium	ND	0.053	0.10		mg/Kg	1	7/19/2014 3:17:47 PM	14260
Chromium	22	0.18	0.31		mg/Kg	1	7/19/2014 3:17:47 PM	14260
Copper	12	0.31	0.31		mg/Kg	1	7/19/2014 3:17:47 PM	14260
Lead	1.3	0.19	0.26		mg/Kg	1	7/19/2014 3:17:47 PM	14260
Nickel	8.6	0.19	0.52		mg/Kg	1	7/19/2014 3:17:47 PM	14260
Selenium	ND	1.4	2.6		mg/Kg	1	7/19/2014 3:17:47 PM	14260
Silver	ND	0.10	0.26		mg/Kg	1	7/19/2014 3:17:47 PM	14260
Zinc	49	0.17	2.6		mg/Kg	1	7/19/2014 3:17:47 PM	14260
<b>SAR SOLUBLE CATIONS</b>							Analyst: <b>ELS</b>	
Sodium Adsorption Ratio	29	0	0			1	7/19/2014 12:19:00 PM	14248
<b>EPA METHOD 8270C: PAHS</b>							Analyst: <b>DAM</b>	
Naphthalene	ND	0.056	0.20		mg/Kg	1	7/16/2014 2:11:32 PM	14223
Acenaphthene	ND	0.063	0.20		mg/Kg	1	7/16/2014 2:11:32 PM	14223
Fluorene	ND	0.072	0.20		mg/Kg	1	7/16/2014 2:11:32 PM	14223
Anthracene	0.14	0.060	0.20	J	mg/Kg	1	7/16/2014 2:11:32 PM	14223
Fluoranthene	1.3	0.062	0.20		mg/Kg	1	7/16/2014 2:11:32 PM	14223

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

<b>Qualifiers:</b>	*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
	J	Analyte detected below quantitation limits	ND	Not Detected at the Reporting Limit
	O	RSD is greater than RSDlimit	P	Sample pH greater than 2.
	R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
	S	Spike Recovery outside accepted recovery limits		

# Hall Environmental Analysis Laboratory, Inc.

## Analytical Report

Lab Order 1407583

Date Reported: 7/31/2014

**CLIENT:** R.T. Hicks Consultants, LTD

**Client Sample ID:** East Central 1.5 ft Core

**Project:** Pinto 1-7 Pit

**Collection Date:** 7/11/2014 10:30:00 AM

**Lab ID:** 1407583-003

**Matrix:** SOIL

**Received Date:** 7/14/2014 11:30:00 AM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
<b>EPA METHOD 8270C: PAHS</b>							Analyst: DAM	
Pyrene	0.37	0.049	0.20		mg/Kg	1	7/16/2014 2:11:32 PM	14223
Benz(a)anthracene	0.86	0.051	0.20		mg/Kg	1	7/16/2014 2:11:32 PM	14223
Chrysene	1.5	0.036	0.20		mg/Kg	1	7/16/2014 2:11:32 PM	14223
Benzo(b)fluoranthene	1.2	0.065	0.20		mg/Kg	1	7/16/2014 2:11:32 PM	14223
Benzo(k)fluoranthene	0.36	0.081	0.20		mg/Kg	1	7/16/2014 2:11:32 PM	14223
Benzo(a)pyrene	0.30	0.076	0.20		mg/Kg	1	7/16/2014 2:11:32 PM	14223
Dibenz(a,h)anthracene	0.22	0.073	0.20		mg/Kg	1	7/16/2014 2:11:32 PM	14223
Indeno(1,2,3-cd)pyrene	0.24	0.068	0.20		mg/Kg	1	7/16/2014 2:11:32 PM	14223
Surr: N-hexadecane	0	0	27-106	S	%REC	1	7/16/2014 2:11:32 PM	14223
Surr: Benzo(e)pyrene	0	0	34.7-131	S	%REC	1	7/16/2014 2:11:32 PM	14223

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

<b>Qualifiers:</b>	*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
	J	Analyte detected below quantitation limits	ND	Not Detected at the Reporting Limit
	O	RSD is greater than RSDlimit	P	Sample pH greater than 2.
	R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
	S	Spike Recovery outside accepted recovery limits		

# Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order 1407583

Date Reported: 7/31/2014

**CLIENT:** R.T. Hicks Consultants, LTD

**Client Sample ID:** SE 1.5 ft Core

**Project:** Pinto 1-7 Pit

**Collection Date:** 7/11/2014 10:45:00 AM

**Lab ID:** 1407583-004

**Matrix:** SOIL

**Received Date:** 7/14/2014 11:30:00 AM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
<b>EPA METHOD 8015D: DIESEL RANGE ORGANICS</b>							Analyst: <b>BCN</b>	
Diesel Range Organics (DRO)	520	55	99		mg/Kg	10	7/17/2014 7:39:34 PM	14218
Motor Oil Range Organics (MRO)	600	500	500		mg/Kg	10	7/17/2014 7:39:34 PM	14218
Surr: DNOP	0	0	57.9-140	S	%REC	10	7/17/2014 7:39:34 PM	14218
<b>EPA METHOD 8015D: GASOLINE RANGE</b>							Analyst: <b>NSB</b>	
Gasoline Range Organics (GRO)	ND	2.9	4.8		mg/Kg	1	7/16/2014 10:10:57 PM	14206
Surr: BFB	108	0	80-120		%REC	1	7/16/2014 10:10:57 PM	14206
<b>EPA METHOD 8021B: VOLATILES</b>							Analyst: <b>NSB</b>	
Benzene	ND	0.0029	0.048		mg/Kg	1	7/16/2014 10:10:57 PM	14206
Toluene	0.024	0.0034	0.048	J	mg/Kg	1	7/16/2014 10:10:57 PM	14206
Ethylbenzene	0.026	0.0034	0.048	J	mg/Kg	1	7/16/2014 10:10:57 PM	14206
Xylenes, Total	0.060	0.011	0.096	J	mg/Kg	1	7/16/2014 10:10:57 PM	14206
Surr: 4-Bromofluorobenzene	114	0	80-120		%REC	1	7/16/2014 10:10:57 PM	14206
<b>EPA METHOD 300.0: ANIONS</b>							Analyst: <b>LGP</b>	
Chloride	2400	8.0	75		mg/Kg	50	7/26/2014 1:23:41 AM	14352
<b>EPA METHOD 7471: MERCURY</b>							Analyst: <b>JLF</b>	
Mercury	0.0061	0.0055	0.033	J	mg/Kg	1	7/22/2014 1:12:21 PM	14338
<b>EPA METHOD 6010B: SOIL METALS</b>							Analyst: <b>ELS</b>	
Arsenic	2.5	1.6	2.5	J	mg/Kg	1	7/19/2014 3:20:30 PM	14260
Barium	700	0.49	0.51		mg/Kg	5	7/21/2014 3:05:38 PM	14260
Boron	7.9	1.2	2.0		mg/Kg	1	7/19/2014 3:20:30 PM	14260
Cadmium	ND	0.052	0.10		mg/Kg	1	7/19/2014 3:20:30 PM	14260
Chromium	18	0.17	0.31		mg/Kg	1	7/19/2014 3:20:30 PM	14260
Copper	12	0.30	0.31		mg/Kg	1	7/19/2014 3:20:30 PM	14260
Lead	1.6	0.19	0.25		mg/Kg	1	7/19/2014 3:20:30 PM	14260
Nickel	9.1	0.19	0.51		mg/Kg	1	7/19/2014 3:20:30 PM	14260
Selenium	ND	1.4	2.5		mg/Kg	1	7/19/2014 3:20:30 PM	14260
Silver	ND	0.097	0.25		mg/Kg	1	7/19/2014 3:20:30 PM	14260
Zinc	51	0.16	2.5		mg/Kg	1	7/19/2014 3:20:30 PM	14260
<b>SAR SOLUBLE CATIONS</b>							Analyst: <b>ELS</b>	
Sodium Adsorption Ratio	26	0	0			1	7/19/2014 12:19:00 PM	14248
<b>EPA METHOD 8270C: PAHS</b>							Analyst: <b>DAM</b>	
Naphthalene	ND	0.056	0.20		mg/Kg	1	7/16/2014 2:34:43 PM	14223
Acenaphthene	0.080	0.063	0.20	J	mg/Kg	1	7/16/2014 2:34:43 PM	14223
Fluorene	0.18	0.072	0.20	J	mg/Kg	1	7/16/2014 2:34:43 PM	14223
Anthracene	0.60	0.060	0.20		mg/Kg	1	7/16/2014 2:34:43 PM	14223
Fluoranthene	7.2	0.31	1.0		mg/Kg	5	7/16/2014 5:17:13 PM	14223

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

<b>Qualifiers:</b>	* Value exceeds Maximum Contaminant Level.	B Analyte detected in the associated Method Blank
	E Value above quantitation range	H Holding times for preparation or analysis exceeded
	J Analyte detected below quantitation limits	ND Not Detected at the Reporting Limit
	O RSD is greater than RSDlimit	P Sample pH greater than 2.
	R RPD outside accepted recovery limits	RL Reporting Detection Limit
	S Spike Recovery outside accepted recovery limits	

# Hall Environmental Analysis Laboratory, Inc.

## Analytical Report

Lab Order 1407583

Date Reported: 7/31/2014

**CLIENT:** R.T. Hicks Consultants, LTD

**Client Sample ID:** SE 1.5 ft Core

**Project:** Pinto 1-7 Pit

**Collection Date:** 7/11/2014 10:45:00 AM

**Lab ID:** 1407583-004

**Matrix:** SOIL

**Received Date:** 7/14/2014 11:30:00 AM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
<b>EPA METHOD 8270C: PAHS</b>							Analyst: <b>DAM</b>	
Pyrene	2.2	0.049	0.20		mg/Kg	1	7/16/2014 2:34:43 PM	14223
Benz(a)anthracene	5.1	0.051	0.20		mg/Kg	1	7/16/2014 2:34:43 PM	14223
Chrysene	8.3	0.18	1.0		mg/Kg	5	7/16/2014 5:17:13 PM	14223
Benzo(b)fluoranthene	8.9	0.32	1.0		mg/Kg	5	7/16/2014 5:17:13 PM	14223
Benzo(k)fluoranthene	1.8	0.081	0.20		mg/Kg	1	7/16/2014 2:34:43 PM	14223
Benzo(a)pyrene	2.0	0.076	0.20		mg/Kg	1	7/16/2014 2:34:43 PM	14223
Dibenz(a,h)anthracene	0.95	0.073	0.20		mg/Kg	1	7/16/2014 2:34:43 PM	14223
Indeno(1,2,3-cd)pyrene	1.4	0.068	0.20		mg/Kg	1	7/16/2014 2:34:43 PM	14223
Surr: N-hexadecane	0	0	27-106	S	%REC	1	7/16/2014 2:34:43 PM	14223
Surr: Benzo(e)pyrene	0	0	34.7-131	S	%REC	1	7/16/2014 2:34:43 PM	14223

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

<b>Qualifiers:</b>	*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
	J	Analyte detected below quantitation limits	ND	Not Detected at the Reporting Limit
	O	RSD is greater than RSDlimit	P	Sample pH greater than 2.
	R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
	S	Spike Recovery outside accepted recovery limits		

# Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order 1407583

Date Reported: 7/31/2014

**CLIENT:** R.T. Hicks Consultants, LTD

**Client Sample ID:** SW 2 ft Core

**Project:** Pinto 1-7 Pit

**Collection Date:** 7/11/2014 10:55:00 AM

**Lab ID:** 1407583-005

**Matrix:** SOIL

**Received Date:** 7/14/2014 11:30:00 AM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
<b>EPA METHOD 8015D: DIESEL RANGE ORGANICS</b>							Analyst: <b>BCN</b>	
Diesel Range Organics (DRO)	140	5.6	10		mg/Kg	1	7/19/2014 6:45:09 AM	14218
Motor Oil Range Organics (MRO)	240	50	50		mg/Kg	1	7/19/2014 6:45:09 AM	14218
Surr: DNOP	82.2	0	57.9-140		%REC	1	7/19/2014 6:45:09 AM	14218
<b>EPA METHOD 8015D: GASOLINE RANGE</b>							Analyst: <b>NSB</b>	
Gasoline Range Organics (GRO)	7.9	3.0	5.0		mg/Kg	1	7/16/2014 10:41:05 PM	14206
Surr: BFB	123	0	80-120	S	%REC	1	7/16/2014 10:41:05 PM	14206
<b>EPA METHOD 8021B: VOLATILES</b>							Analyst: <b>NSB</b>	
Benzene	0.023	0.0030	0.050	J	mg/Kg	1	7/16/2014 10:41:05 PM	14206
Toluene	0.048	0.0036	0.050	J	mg/Kg	1	7/16/2014 10:41:05 PM	14206
Ethylbenzene	ND	0.0036	0.050		mg/Kg	1	7/16/2014 10:41:05 PM	14206
Xylenes, Total	0.13	0.011	0.099		mg/Kg	1	7/16/2014 10:41:05 PM	14206
Surr: 4-Bromofluorobenzene	125	0	80-120	S	%REC	1	7/16/2014 10:41:05 PM	14206
<b>EPA METHOD 300.0: ANIONS</b>							Analyst: <b>JRR</b>	
Chloride	340	3.2	30		mg/Kg	20	7/22/2014 2:42:23 PM	14352
<b>EPA METHOD 7471: MERCURY</b>							Analyst: <b>JLF</b>	
Mercury	0.013	0.0053	0.032	J	mg/Kg	1	7/22/2014 1:14:07 PM	14338
<b>EPA METHOD 6010B: SOIL METALS</b>							Analyst: <b>ELS</b>	
Arsenic	2.3	1.7	2.6	J	mg/Kg	1	7/19/2014 3:23:15 PM	14260
Barium	2900	2.0	2.1		mg/Kg	20	7/21/2014 3:18:02 PM	14260
Boron	4.0	1.3	2.1		mg/Kg	1	7/19/2014 3:23:15 PM	14260
Cadmium	ND	0.053	0.10		mg/Kg	1	7/19/2014 3:23:15 PM	14260
Chromium	15	0.18	0.31		mg/Kg	1	7/19/2014 3:23:15 PM	14260
Copper	16	0.31	0.31		mg/Kg	1	7/19/2014 3:23:15 PM	14260
Lead	1.8	0.19	0.26		mg/Kg	1	7/19/2014 3:23:15 PM	14260
Nickel	6.8	0.19	0.52		mg/Kg	1	7/19/2014 3:23:15 PM	14260
Selenium	ND	1.4	2.6		mg/Kg	1	7/19/2014 3:23:15 PM	14260
Silver	ND	0.099	0.26		mg/Kg	1	7/19/2014 3:23:15 PM	14260
Zinc	55	0.17	2.6		mg/Kg	1	7/19/2014 3:23:15 PM	14260
<b>SAR SOLUBLE CATIONS</b>							Analyst: <b>ELS</b>	
Sodium Adsorption Ratio	29	0	0			1	7/19/2014 12:19:00 PM	14248
<b>EPA METHOD 8270C: PAHS</b>							Analyst: <b>DAM</b>	
Naphthalene	ND	0.028	0.10		mg/Kg	1	7/16/2014 4:30:46 PM	14223
Acenaphthene	ND	0.032	0.10		mg/Kg	1	7/16/2014 4:30:46 PM	14223
Fluorene	ND	0.036	0.10		mg/Kg	1	7/16/2014 4:30:46 PM	14223
Anthracene	0.048	0.030	0.10	J	mg/Kg	1	7/16/2014 4:30:46 PM	14223
Fluoranthene	0.78	0.031	0.10		mg/Kg	1	7/16/2014 4:30:46 PM	14223

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

<b>Qualifiers:</b>	* Value exceeds Maximum Contaminant Level.	B Analyte detected in the associated Method Blank
	E Value above quantitation range	H Holding times for preparation or analysis exceeded
	J Analyte detected below quantitation limits	ND Not Detected at the Reporting Limit
	O RSD is greater than RSDlimit	P Sample pH greater than 2.
	R RPD outside accepted recovery limits	RL Reporting Detection Limit
	S Spike Recovery outside accepted recovery limits	

# Hall Environmental Analysis Laboratory, Inc.

## Analytical Report

Lab Order 1407583

Date Reported: 7/31/2014

**CLIENT:** R.T. Hicks Consultants, LTD

**Client Sample ID:** SW 2 ft Core

**Project:** Pinto 1-7 Pit

**Collection Date:** 7/11/2014 10:55:00 AM

**Lab ID:** 1407583-005

**Matrix:** SOIL

**Received Date:** 7/14/2014 11:30:00 AM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
<b>EPA METHOD 8270C: PAHS</b>							Analyst: <b>DAM</b>	
Pyrene	0.20	0.025	0.10		mg/Kg	1	7/16/2014 4:30:46 PM	14223
Benz(a)anthracene	0.43	0.026	0.10		mg/Kg	1	7/16/2014 4:30:46 PM	14223
Chrysene	0.86	0.018	0.10		mg/Kg	1	7/16/2014 4:30:46 PM	14223
Benzo(b)fluoranthene	0.70	0.033	0.10		mg/Kg	1	7/16/2014 4:30:46 PM	14223
Benzo(k)fluoranthene	0.20	0.041	0.10		mg/Kg	1	7/16/2014 4:30:46 PM	14223
Benzo(a)pyrene	0.17	0.038	0.10		mg/Kg	1	7/16/2014 4:30:46 PM	14223
Dibenz(a,h)anthracene	0.12	0.037	0.10		mg/Kg	1	7/16/2014 4:30:46 PM	14223
Indeno(1,2,3-cd)pyrene	0.14	0.034	0.10		mg/Kg	1	7/16/2014 4:30:46 PM	14223
Surr: N-hexadecane	0	0	27-106	S	%REC	1	7/16/2014 4:30:46 PM	14223
Surr: Benzo(e)pyrene	0	0	34.7-131	S	%REC	1	7/16/2014 4:30:46 PM	14223
<b>CONDUCTANCE</b>							Analyst: <b>IDC</b>	
Specific Conductance	5000	1.0	1.0		µmhos/c	1	7/18/2014 11:53:00 AM	R19988

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

<b>Qualifiers:</b>	*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
	J	Analyte detected below quantitation limits	ND	Not Detected at the Reporting Limit
	O	RSD is greater than RSDlimit	P	Sample pH greater than 2.
	R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
	S	Spike Recovery outside accepted recovery limits		



# Hall Environmental Analysis Laboratory, Inc.

## Analytical Report

Lab Order 1407583

Date Reported: 7/31/2014

**CLIENT:** R.T. Hicks Consultants, LTD

**Client Sample ID:** West Central 1.5 ft Core

**Project:** Pinto 1-7 Pit

**Collection Date:** 7/11/2014 11:10:00 AM

**Lab ID:** 1407583-006

**Matrix:** SOIL

**Received Date:** 7/14/2014 11:30:00 AM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
<b>EPA METHOD 8015D: DIESEL RANGE ORGANICS</b>							Analyst: <b>BCN</b>	
Diesel Range Organics (DRO)	340	5.5	10		mg/Kg	1	7/19/2014 7:27:55 AM	14218
Motor Oil Range Organics (MRO)	550	50	50		mg/Kg	1	7/19/2014 7:27:55 AM	14218
Surr: DNOP	88.4	0	57.9-140		%REC	1	7/19/2014 7:27:55 AM	14218
<b>EPA METHOD 8015D: GASOLINE RANGE</b>							Analyst: <b>NSB</b>	
Gasoline Range Organics (GRO)	ND	2.9	4.7		mg/Kg	1	7/16/2014 11:11:16 PM	14206
Surr: BFB	105	0	80-120		%REC	1	7/16/2014 11:11:16 PM	14206
<b>EPA METHOD 8021B: VOLATILES</b>							Analyst: <b>NSB</b>	
Benzene	ND	0.0028	0.047		mg/Kg	1	7/16/2014 11:11:16 PM	14206
Toluene	0.021	0.0034	0.047	J	mg/Kg	1	7/16/2014 11:11:16 PM	14206
Ethylbenzene	0.027	0.0034	0.047	J	mg/Kg	1	7/16/2014 11:11:16 PM	14206
Xylenes, Total	0.066	0.011	0.094	J	mg/Kg	1	7/16/2014 11:11:16 PM	14206
Surr: 4-Bromofluorobenzene	109	0	80-120		%REC	1	7/16/2014 11:11:16 PM	14206
<b>EPA METHOD 300.0: ANIONS</b>							Analyst: <b>JRR</b>	
Chloride	4400	16	150		mg/Kg	100	7/23/2014 5:12:24 PM	14352
<b>EPA METHOD 7471: MERCURY</b>							Analyst: <b>JLF</b>	
Mercury	0.0080	0.0054	0.032	J	mg/Kg	1	7/22/2014 1:15:55 PM	14338
<b>EPA METHOD 6010B: SOIL METALS</b>							Analyst: <b>ELS</b>	
Arsenic	2.4	1.6	2.4	J	mg/Kg	1	7/19/2014 3:31:16 PM	14260
Barium	2800	1.9	1.9		mg/Kg	20	7/21/2014 3:19:16 PM	14260
Boron	8.1	1.2	1.9		mg/Kg	1	7/19/2014 3:31:16 PM	14260
Cadmium	ND	0.049	0.097		mg/Kg	1	7/19/2014 3:31:16 PM	14260
Chromium	32	0.16	0.29		mg/Kg	1	7/19/2014 3:31:16 PM	14260
Copper	33	0.29	0.29		mg/Kg	1	7/19/2014 3:31:16 PM	14260
Lead	3.3	0.18	0.24		mg/Kg	1	7/19/2014 3:31:16 PM	14260
Nickel	11	0.18	0.49		mg/Kg	1	7/19/2014 3:31:16 PM	14260
Selenium	ND	1.3	2.4		mg/Kg	1	7/19/2014 3:31:16 PM	14260
Silver	ND	0.093	0.24		mg/Kg	1	7/19/2014 3:31:16 PM	14260
Zinc	120	0.16	2.4		mg/Kg	1	7/19/2014 3:31:16 PM	14260
<b>SAR SOLUBLE CATIONS</b>							Analyst: <b>ELS</b>	
Sodium Adsorption Ratio	290	0	0			1	7/19/2014 12:19:00 PM	14248
<b>EPA METHOD 8270C: PAHS</b>							Analyst: <b>DAM</b>	
Naphthalene	ND	0.056	0.20		mg/Kg	1	7/16/2014 2:57:56 PM	14223
Acenaphthene	0.070	0.063	0.20	J	mg/Kg	1	7/16/2014 2:57:56 PM	14223
Fluorene	0.16	0.072	0.20	J	mg/Kg	1	7/16/2014 2:57:56 PM	14223
Anthracene	0.58	0.060	0.20		mg/Kg	1	7/16/2014 2:57:56 PM	14223
Fluoranthene	6.2	0.062	0.20		mg/Kg	1	7/16/2014 2:57:56 PM	14223

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

<b>Qualifiers:</b>	* Value exceeds Maximum Contaminant Level.	B Analyte detected in the associated Method Blank
	E Value above quantitation range	H Holding times for preparation or analysis exceeded
	J Analyte detected below quantitation limits	ND Not Detected at the Reporting Limit
	O RSD is greater than RSDlimit	P Sample pH greater than 2.
	R RPD outside accepted recovery limits	RL Reporting Detection Limit
	S Spike Recovery outside accepted recovery limits	

**Hall Environmental Analysis Laboratory, Inc.****CLIENT:** R.T. Hicks Consultants, LTD**Client Sample ID:** West Central 1.5 ft Core**Project:** Pinto 1-7 Pit**Collection Date:** 7/11/2014 11:10:00 AM**Lab ID:** 1407583-006**Matrix:** SOIL**Received Date:** 7/14/2014 11:30:00 AM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
<b>EPA METHOD 8270C: PAHS</b>							Analyst: <b>DAM</b>	
Pyrene	1.8	0.049	0.20		mg/Kg	1	7/16/2014 2:57:56 PM	14223
Benz(a)anthracene	4.0	0.051	0.20		mg/Kg	1	7/16/2014 2:57:56 PM	14223
Chrysene	7.0	0.18	1.0		mg/Kg	5	7/16/2014 5:40:19 PM	14223
Benzo(b)fluoranthene	7.1	0.32	1.0		mg/Kg	5	7/16/2014 5:40:19 PM	14223
Benzo(k)fluoranthene	1.1	0.081	0.20		mg/Kg	1	7/16/2014 2:57:56 PM	14223
Benzo(a)pyrene	1.4	0.076	0.20		mg/Kg	1	7/16/2014 2:57:56 PM	14223
Dibenz(a,h)anthracene	0.86	0.073	0.20		mg/Kg	1	7/16/2014 2:57:56 PM	14223
Indeno(1,2,3-cd)pyrene	0.99	0.068	0.20		mg/Kg	1	7/16/2014 2:57:56 PM	14223
Surr: N-hexadecane	0	0	27-106	S	%REC	1	7/16/2014 2:57:56 PM	14223
Surr: Benzo(e)pyrene	0	0	34.7-131	S	%REC	1	7/16/2014 2:57:56 PM	14223

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

<b>Qualifiers:</b>	*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
	J	Analyte detected below quantitation limits	ND	Not Detected at the Reporting Limit
	O	RSD is greater than RSDlimit	P	Sample pH greater than 2.
	R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
	S	Spike Recovery outside accepted recovery limits		

# Hall Environmental Analysis Laboratory, Inc.

## Analytical Report

Lab Order 1407583

Date Reported: 7/31/2014

**CLIENT:** R.T. Hicks Consultants, LTD

**Client Sample ID:** Stockpile Soil

**Project:** Pinto 1-7 Pit

**Collection Date:** 7/11/2014 11:30:00 AM

**Lab ID:** 1407583-007

**Matrix:** SOIL

**Received Date:** 7/14/2014 11:30:00 AM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
<b>EPA METHOD 8015D: DIESEL RANGE ORGANICS</b>							Analyst: <b>BCN</b>	
Diesel Range Organics (DRO)	ND	5.5	9.9		mg/Kg	1	7/17/2014 9:12:39 PM	14218
Motor Oil Range Organics (MRO)	ND	50	50		mg/Kg	1	7/17/2014 9:12:39 PM	14218
Surr: DNOP	78.0	0	57.9-140		%REC	1	7/17/2014 9:12:39 PM	14218
<b>EPA METHOD 8015D: GASOLINE RANGE</b>							Analyst: <b>NSB</b>	
Gasoline Range Organics (GRO)	ND	2.9	4.8		mg/Kg	1	7/15/2014 9:42:38 PM	14206
Surr: BFB	90.2	0	80-120		%REC	1	7/15/2014 9:42:38 PM	14206
<b>EPA METHOD 8021B: VOLATILES</b>							Analyst: <b>NSB</b>	
Benzene	ND	0.0029	0.048		mg/Kg	1	7/15/2014 9:42:38 PM	14206
Toluene	0.018	0.0034	0.048	J	mg/Kg	1	7/15/2014 9:42:38 PM	14206
Ethylbenzene	ND	0.0034	0.048		mg/Kg	1	7/15/2014 9:42:38 PM	14206
Xylenes, Total	ND	0.011	0.096		mg/Kg	1	7/15/2014 9:42:38 PM	14206
Surr: 4-Bromofluorobenzene	99.1	0	80-120		%REC	1	7/15/2014 9:42:38 PM	14206
<b>EPA METHOD 300.0: ANIONS</b>							Analyst: <b>JRR</b>	
Chloride	ND	3.2	30		mg/Kg	20	7/22/2014 3:07:13 PM	14352
<b>EPA METHOD 7471: MERCURY</b>							Analyst: <b>JLF</b>	
Mercury	0.0097	0.0054	0.032	J	mg/Kg	1	7/22/2014 1:21:19 PM	14339
<b>EPA METHOD 6010B: SOIL METALS</b>							Analyst: <b>ELS</b>	
Arsenic	ND	3.2	5.0		mg/Kg	2	7/19/2014 3:34:10 PM	14260
Barium	140	0.19	0.20		mg/Kg	2	7/19/2014 3:34:10 PM	14260
Boron	ND	2.4	4.0		mg/Kg	2	7/18/2014 11:29:21 AM	14260
Cadmium	ND	0.10	0.20		mg/Kg	2	7/18/2014 11:29:21 AM	14260
Chromium	5.1	0.34	0.60		mg/Kg	2	7/18/2014 11:29:21 AM	14260
Copper	5.8	0.60	0.60		mg/Kg	2	7/18/2014 11:29:21 AM	14260
Lead	4.5	0.37	0.50		mg/Kg	2	7/19/2014 3:34:10 PM	14260
Nickel	7.1	0.37	1.0		mg/Kg	2	7/18/2014 11:29:21 AM	14260
Selenium	ND	2.7	5.0		mg/Kg	2	7/19/2014 3:34:10 PM	14260
Silver	ND	0.19	0.50		mg/Kg	2	7/18/2014 11:29:21 AM	14260
Zinc	20	0.32	5.0		mg/Kg	2	7/18/2014 11:29:21 AM	14260
<b>SAR SOLUBLE CATIONS</b>							Analyst: <b>ELS</b>	
Sodium Adsorption Ratio	0.19	0	0			1	7/19/2014 12:19:00 PM	14248
<b>EPA METHOD 8270C: PAHS</b>							Analyst: <b>DAM</b>	
Naphthalene	ND	0.0056	0.020		mg/Kg	1	7/16/2014 4:53:59 PM	14223
Acenaphthene	ND	0.0063	0.020		mg/Kg	1	7/16/2014 4:53:59 PM	14223
Fluorene	ND	0.0072	0.020		mg/Kg	1	7/16/2014 4:53:59 PM	14223
Anthracene	ND	0.0060	0.020		mg/Kg	1	7/16/2014 4:53:59 PM	14223
Fluoranthene	ND	0.0062	0.020		mg/Kg	1	7/16/2014 4:53:59 PM	14223

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

<b>Qualifiers:</b>	* Value exceeds Maximum Contaminant Level.	B Analyte detected in the associated Method Blank
	E Value above quantitation range	H Holding times for preparation or analysis exceeded
	J Analyte detected below quantitation limits	ND Not Detected at the Reporting Limit
	O RSD is greater than RSDlimit	P Sample pH greater than 2.
	R RPD outside accepted recovery limits	RL Reporting Detection Limit
	S Spike Recovery outside accepted recovery limits	

**Hall Environmental Analysis Laboratory, Inc.****CLIENT:** R.T. Hicks Consultants, LTD**Client Sample ID:** Stockpile Soil**Project:** Pinto 1-7 Pit**Collection Date:** 7/11/2014 11:30:00 AM**Lab ID:** 1407583-007**Matrix:** SOIL**Received Date:** 7/14/2014 11:30:00 AM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
<b>EPA METHOD 8270C: PAHS</b>							Analyst: <b>DAM</b>	
Pyrene	ND	0.0049	0.020		mg/Kg	1	7/16/2014 4:53:59 PM	14223
Benz(a)anthracene	ND	0.0051	0.020		mg/Kg	1	7/16/2014 4:53:59 PM	14223
Chrysene	ND	0.0036	0.020		mg/Kg	1	7/16/2014 4:53:59 PM	14223
Benzo(b)fluoranthene	ND	0.0065	0.020		mg/Kg	1	7/16/2014 4:53:59 PM	14223
Benzo(k)fluoranthene	ND	0.0081	0.020		mg/Kg	1	7/16/2014 4:53:59 PM	14223
Benzo(a)pyrene	ND	0.0076	0.020		mg/Kg	1	7/16/2014 4:53:59 PM	14223
Dibenz(a,h)anthracene	ND	0.0073	0.020		mg/Kg	1	7/16/2014 4:53:59 PM	14223
Indeno(1,2,3-cd)pyrene	ND	0.0068	0.020		mg/Kg	1	7/16/2014 4:53:59 PM	14223
Surr: N-hexadecane	62.2	0	27-106		%REC	1	7/16/2014 4:53:59 PM	14223
Surr: Benzo(e)pyrene	65.4	0	34.7-131		%REC	1	7/16/2014 4:53:59 PM	14223
<b>CONDUCTANCE</b>							Analyst: <b>IDC</b>	
Specific Conductance	460	1.0	1.0		µmhos/c	1	7/18/2014 11:53:00 AM	R19988

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

<b>Qualifiers:</b>	*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
	J	Analyte detected below quantitation limits	ND	Not Detected at the Reporting Limit
	O	RSD is greater than RSDlimit	P	Sample pH greater than 2.
	R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
	S	Spike Recovery outside accepted recovery limits		



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REPORT OF ANALYSIS

July 22, 2014

Hall Environmental Analysis Laborat  
4901 Hawkins NE  
Albuquerque, NM 87109

Date Received : July 15, 2014  
Description :  
Sample ID : 1407583-001B NW 1.5 FT CORE  
Collected By :  
Collection Date : 07/11/14 09:45

ESC Sample # : L710167-01  
Site ID :  
Project # :

Parameter	Result	Det. Limit	Units	Method	Date	Dil.
Chromium, Hexavalent	BDL	2.0	mg/kg	3060A/7196A	07/18/14	1
ORP	160		mV	2580 B-2011	07/22/14	1
pH	7.7		su	9045D	07/18/14	1

BDL - Below Detection Limit

Det. Limit - Practical Quantitation Limit(PQL)

Note:

The reported analytical results relate only to the sample submitted.

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L710167-01 (PH) - 7.7@19.7c



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REPORT OF ANALYSIS

July 22, 2014

Hall Environmental Analysis Laborat  
4901 Hawkins NE  
Albuquerque, NM 87109

Date Received : July 15, 2014  
Description :  
Sample ID : 1407583-002B NE 1.5 FT CORE  
Collected By :  
Collection Date : 07/11/14 10:15

ESC Sample # : L710167-02

Site ID :  
Project # :

Parameter	Result	Det. Limit	Units	Method	Date	Dil.
Chromium, Hexavalent	BDL	2.0	mg/kg	3060A/7196A	07/18/14	1
ORP	-130		mV	2580 B-2011	07/22/14	1
pH	7.6		su	9045D	07/18/14	1

BDL - Below Detection Limit

Det. Limit - Practical Quantitation Limit (PQL)

Note:

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L710167-02 (PH) - 7.6@19.5c



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# REPORT OF ANALYSIS

July 22, 2014

Hall Environmental Analysis Laborat  
4901 Hawkins NE  
Albuquerque, NM 87109

Date Received : July 15, 2014  
Description :  
Sample ID : 1407583-003B EAST CENTRAL 1.5 FT CORE  
Collected By :  
Collection Date : 07/11/14 10:30

ESC Sample # : L710167-03

Site ID :

Project # :

Parameter	Result	Det. Limit	Units	Method	Date	Dil.
Chromium, Hexavalent	BDL	2.0	mg/kg	3060A/7196A	07/19/14	1
ORP	-120		mV	2580 B-2011	07/22/14	1
pH	7.8		su	9045D	07/18/14	1

BDL - Below Detection Limit

Det. Limit - Practical Quantitation Limit (PQL)

Note:

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L710167-03 (PH) - 7.8019.5c



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REPORT OF ANALYSIS

July 22, 2014

Hall Environmental Analysis Laborat  
4901 Hawkins NE  
Albuquerque, NM 87109

Date Received : July 15, 2014  
Description :  
Sample ID : 1407583-004B SE 1.5 FT CORE  
Collected By :  
Collection Date : 07/11/14 10:45

ESC Sample # : L710167-04  
Site ID :  
Project # :

Parameter	Result	Det. Limit	Units	Method	Date	Dil.
Chromium, Hexavalent	BDL	2.0	mg/kg	3060A/7196A	07/19/14	1
ORP	-120		mV	2580 B-2011	07/22/14	1
pH	9.9		su	9045D	07/18/14	1

BDL - Below Detection Limit  
Det. Limit - Practical Quantitation Limit(PQL)  
Note:  
The reported analytical results relate only to the sample submitted.  
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L710167-04 (PH) - 9.9@19.5c





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# REPORT OF ANALYSIS

July 22, 2014

Hall Environmental Analysis Laborat  
4901 Hawkins NE  
Albuquerque, NM 87109

Date Received : July 15, 2014  
Description :  
Sample ID : 1407583-005B SW 2 FT CORE  
Collected By :  
Collection Date : 07/11/14 10:55

ESC Sample # : L710167-05

Site ID :

Project # :

Parameter	Result	Det. Limit	Units	Method	Date	Dil.
Chromium, Hexavalent	BDL	2.0	mg/kg	3060A/7196A	07/19/14	1
ORP	60.		mV	2580 B-2011	07/22/14	1
pH	9.7		su	9045D	07/18/14	1

BDL - Below Detection Limit

Det. Limit - Practical Quantitation Limit (PQL)

Note:

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L710167-05 (PH) - 9.7@19.3c



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REPORT OF ANALYSIS

July 22, 2014

Hall Environmental Analysis Laborat  
4901 Hawkins NE  
Albuquerque, NM 87109

Date Received : July 15, 2014  
Description :  
Sample ID : 1407583-006B WEST CENTRAL 1.5 FT CORE  
Collected By :  
Collection Date : 07/11/14 11:10

ESC Sample # : L710167-06  
Site ID :  
Project # :

Parameter	Result	Det. Limit	Units	Method	Date	Dil.
Chromium, Hexavalent	BDL	2.0	mg/kg	3060A/7196A	07/19/14	1
ORP	32.		mV	2580 B-2011	07/22/14	1
pH	9.3		su	9045D	07/18/14	1

BDL - Below Detection Limit  
Det. Limit - Practical Quantitation Limit (PQL)  
Note:  
The reported analytical results relate only to the sample submitted.  
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Reported: 07/22/14 16:01 Printed: 07/22/14 16:01  
L710167-06 (PH) - 9.3019.3c



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Tax I.D. 62-0814289

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# REPORT OF ANALYSIS

July 22, 2014

Hall Environmental Analysis Laborat  
4901 Hawkins NE  
Albuquerque, NM 87109

Date Received : July 15, 2014  
Description :  
Sample ID : 1407583-007B STOCKPILE SOIL  
Collected By :  
Collection Date : 07/11/14 11:30

ESC Sample # : L710167-07

Site ID :

Project # :

Parameter	Result	Det. Limit	Units	Method	Date	Dil.
Chromium, Hexavalent	BDL	2.0	mg/kg	3060A/7196A	07/19/14	1
ORP	40.		mV	2580 B-2011	07/22/14	1
pH	8.0		su	9045D	07/18/14	1

BDL - Below Detection Limit

Det. Limit - Practical Quantitation Limit (PQL)

Note:

The reported analytical results relate only to the sample submitted.

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Reported: 07/22/14 16:01 Printed: 07/22/14 16:01  
L710167-07 (PH) - 8.0@19.2c



YOUR LAB OF CHOICE

Hall Environmental Analysis Laboratory

4901 Hawkins NE

Albuquerque, NM 87109

Quality Assurance Report  
Level II

L710167

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July 22, 2014

Analyte	Result	Laboratory Blank Units % Rec	Limit	Batch	Date Analyzed
Chromium, Hexavalent	< 2	mg/kg		WG732062	07/18/14 17:19
Chromium, Hexavalent	< 2	mg/kg		WG732609	07/19/14 14:45

Analyte	Units	Result	Duplicate Duplicate	RPD	Limit	Ref Samp	Batch
pH	su	8.00	8.00	0.501	1	L710167-07	WG732342
pH	su	8.20	8.30	0.847	1	L710228-03	WG732342
Chromium, Hexavalent	mg/kg	0.0	0.0	0.0	20	L710121-06	WG732062
Chromium, Hexavalent	mg/kg	5.90	5.90	0.0	20	L710129-06	WG732062
Chromium, Hexavalent	mg/kg	0.0	0.0	0.0	20	L710984-03	WG732609
Chromium, Hexavalent	mg/kg	0.0	0.0	0.0	20	L710167-03	WG732609
ORP	mV	120.	130.	6.35	20	L710121-02	WG732888
ORP	mV	39.0	40.0	2.53	20	L710167-07	WG732888

Analyte	Units	Laboratory Control Known Val	Sample Result	% Rec	Limit	Batch
pH	su	6.33	6.40	101.	98.3-101.7	WG732342
Chromium, Hexavalent	mg/kg	125	146.	117.	80-120	WG732062
Chromium, Hexavalent	mg/kg	125	108.	86.4	80-120	WG732609
ORP	mV	100	103.	103.	90-110	WG732888

Analyte	Units	Laboratory Control Result	Sample Ref	Duplicate %Rec	Limit	RPD	Limit	Batch
pH	su	6.30	6.40	100.	98.3-101.7	1.57	20	WG732342
Chromium, Hexavalent	mg/kg	146.	146.	117.	80-120	0.0	20	WG732062
Chromium, Hexavalent	mg/kg	112.	108.	90.0	80-120	3.64	20	WG732609
ORP	mV	99.0	103.	99.0	90-110	3.96	20	WG732888

Analyte	Units	Matrix Spike MS Res	Ref Res	TV	% Rec	Limit	Ref Samp	Batch
Chromium, Hexavalent	mg/kg	22.5	0.0	20	110.	75-125	L710121-06	WG732062
Chromium, Hexavalent	mg/kg	18.0	0.0	20	90.0	75-125	L710167-04	WG732609

\* Performance of this Analyte is outside of established criteria.

For additional information, please see Attachment A 'List of Analytes with QC Qualifiers.'



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Hall Environmental Analysis Laboratory

4901 Hawkins NE

Albuquerque, NM 87109

Quality Assurance Report  
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July 22, 2014

Analyte	Units	MSD	Matrix Spike Ref	Duplicate %Rec	Limit	RPD	Limit	Ref Samp	Batch
Chromium, Hexavalent	mg/kg	22.6	22.5	113.	75-125	0.443	20	L710121-06	WG732062
Chromium, Hexavalent	mg/kg	18.0	18.0	89.9	75-125	0.0	20	L710167-04	WG732609

Batch number / Run number / Sample number cross reference

WG732342: R2964907: L710167-01 02 03 04 05 06 07  
WG732062: R2965005: L710167-01 02  
WG732609: R2965385: L710167-03 04 05 06 07  
WG732888: R2967000: L710167-01 02 03 04 05 06 07

\* \* Calculations are performed prior to rounding of reported values.

\* Performance of this Analyte is outside of established criteria.

For additional information, please see Attachment A 'List of Analytes with QC Qualifiers.'

# QC SUMMARY REPORT

## Hall Environmental Analysis Laboratory, Inc.

WO#: 1407583

31-Jul-14

Client: R.T. Hicks Consultants, LTD

Project: Pinto 1-7 Pit

Sample ID	MB-14352		SampType:	MBLK		TestCode:	EPA Method 300.0: Anions				
Client ID:	PBS		Batch ID:	14352		RunNo:	20077				
Prep Date:	7/22/2014		Analysis Date:	7/22/2014		SeqNo:	583605		Units: mg/Kg		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual	
Chloride	ND	1.5									

Sample ID	LCS-14352		SampType: LCS		TestCode: EPA Method 300.0: Anions					
Client ID:	LCSS		Batch ID: 14352		RunNo: 20077					
Prep Date:	7/22/2014		Analysis Date: 7/22/2014		SeqNo: 583606		Units: mg/Kg			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	14	1.5	15.00	0	93.1	90	110			

### Qualifiers:

\* Value exceeds Maximum Contaminant Level.  
E Value above quantitation range  
J Analyte detected below quantitation limits  
O RSD is greater than RSDlimit  
R RPD outside accepted recovery limits  
S Spike Recovery outside accepted recovery limits

B Analyte detected in the associated Method Blank  
H Holding times for preparation or analysis exceeded  
ND Not Detected at the Reporting Limit  
P Sample pH greater than 2.  
RL Reporting Detection Limit

# QC SUMMARY REPORT

## Hall Environmental Analysis Laboratory, Inc.

WO#: 1407583

31-Jul-14

Client: R.T. Hicks Consultants, LTD

Project: Pinto 1-7 Pit

Sample ID	MB-14218		SampType: MBLK		TestCode: EPA Method 8015D: Diesel Range Organics					
Client ID:	PBS		Batch ID: 14218		RunNo: 19870					
Prep Date:	7/15/2014		Analysis Date: 7/15/2014		SeqNo: 577863		Units: mg/Kg			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	ND	10								
Motor Oil Range Organics (MRO)	ND	50								
Surr: DNOP	7.7		10.00		77.0	57.9	140			

Sample ID	LCS-14218		SampType: LCS		TestCode: EPA Method 8015D: Diesel Range Organics					
Client ID:	LCSS		Batch ID: 14218		RunNo: 19870					
Prep Date:	7/15/2014		Analysis Date: 7/15/2014		SeqNo: 577864		Units: mg/Kg			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	49	10	50.00	0	97.3	68.6	130			
Surr: DNOP	3.6		5.000		72.1	57.9	140			

Sample ID	1407583-001AMS	SampType: MS			TestCode: EPA Method 8015D: Diesel Range Organics					
Client ID:	NW 1.5 Ft Core	Batch ID: 14218			RunNo: 19974					
Prep Date:	7/15/2014	Analysis Date: 7/19/2014			SeqNo: 581063		Units: mg/Kg			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	260	10	49.85	166.1	193	40.1	152			S
Surr: DNOP	4.5		4.985		91.1	57.9	140			

Sample ID	1407583-001AMSD		SampType: MSD		TestCode: EPA Method 8015D: Diesel Range Organics					
Client ID:	NW 1.5 Ft Core		Batch ID: 14218		RunNo: 19974					
Prep Date:	7/15/2014		Analysis Date: 7/19/2014		SeqNo: 581080		Units: mg/Kg			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	130	9.8	49.07	166.1	-68.5	40.1	152	65.8	32.1	RS
Surr: DNOP	3.9		4.907		80.2	57.9	140	0	0	

### Qualifiers:

\* Value exceeds Maximum Contaminant Level.  
E Value above quantitation range  
J Analyte detected below quantitation limits  
O RSD is greater than RSDlimit  
R RPD outside accepted recovery limits  
S Spike Recovery outside accepted recovery limits

B Analyte detected in the associated Method Blank  
H Holding times for preparation or analysis exceeded  
ND Not Detected at the Reporting Limit  
P Sample pH greater than 2.  
RL Reporting Detection Limit

# QC SUMMARY REPORT

## Hall Environmental Analysis Laboratory, Inc.

WO#: 1407583

31-Jul-14

Client: R.T. Hicks Consultants, LTD

Project: Pinto 1-7 Pit

Sample ID	MB-14206		SampType: MBLK		TestCode: EPA Method 8015D: Gasoline Range					
Client ID:	PBS		Batch ID: 14206		RunNo: 19892					
Prep Date:	7/14/2014		Analysis Date: 7/15/2014		SeqNo: 578279		Units: mg/Kg			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	ND	5.0								
Surr: BFB	880		1000		87.9	80	120			

Sample ID	LCS-14206		SampType: LCS		TestCode: EPA Method 8015D: Gasoline Range					
Client ID:	LCSS		Batch ID: 14206		RunNo: 19892					
Prep Date:	7/14/2014		Analysis Date: 7/15/2014		SeqNo: 578280		Units: mg/Kg			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	27	5.0	25.00	0	107	71.7	134			
Surr: BFB	960		1000		95.6	80	120			

### Qualifiers:

\* Value exceeds Maximum Contaminant Level.  
E Value above quantitation range  
J Analyte detected below quantitation limits  
O RSD is greater than RSDlimit  
R RPD outside accepted recovery limits  
S Spike Recovery outside accepted recovery limits

B Analyte detected in the associated Method Blank  
H Holding times for preparation or analysis exceeded  
ND Not Detected at the Reporting Limit  
P Sample pH greater than 2.  
RL Reporting Detection Limit



# QC SUMMARY REPORT

## Hall Environmental Analysis Laboratory, Inc.

WO#: 1407583

31-Jul-14

Client: R.T. Hicks Consultants, LTD

Project: Pinto 1-7 Pit

Sample ID	MB-14206	SampType: MBLK		TestCode: EPA Method 8021B: Volatiles						
Client ID:	PBS	Batch ID: 14206		RunNo: 19892						
Prep Date:	7/14/2014	Analysis Date: 7/15/2014		SeqNo: 578328		Units: mg/Kg				
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	ND	0.050								
Toluene	ND	0.050								
Ethylbenzene	ND	0.050								
Xylenes, Total	0.012	0.10								J
Surr: 4-Bromofluorobenzene	0.97		1.000		96.8	80	120			

Sample ID	LCS-14206		SampType: LCS		TestCode: EPA Method 8021B: Volatiles					
Client ID:	LCSS		Batch ID: 14206		RunNo: 19892					
Prep Date:	7/14/2014		Analysis Date: 7/15/2014		SeqNo: 578329		Units: mg/Kg			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	1.1	0.050	1.000	0	109	80	120			
Toluene	1.1	0.050	1.000	0	107	80	120			
Ethylbenzene	1.1	0.050	1.000	0	108	80	120			
Xylenes, Total	3.2	0.10	3.000	0	107	80	120			
Surr: 4-Bromofluorobenzene	1.1		1.000		106	80	120			

### Qualifiers:

\* Value exceeds Maximum Contaminant Level.  
E Value above quantitation range  
J Analyte detected below quantitation limits  
O RSD is greater than RSDlimit  
R RPD outside accepted recovery limits  
S Spike Recovery outside accepted recovery limits

B Analyte detected in the associated Method Blank  
H Holding times for preparation or analysis exceeded  
ND Not Detected at the Reporting Limit  
P Sample pH greater than 2.  
RL Reporting Detection Limit

# QC SUMMARY REPORT

## Hall Environmental Analysis Laboratory, Inc.

WO#: 1407583

31-Jul-14

Client: R.T. Hicks Consultants, LTD

Project: Pinto 1-7 Pit

Sample ID	mb-14223		SampType: MBLK		TestCode: EPA Method 8270C: PAHs					
Client ID:	PBS		Batch ID: 14223		RunNo: 19933					
Prep Date:	7/15/2014		Analysis Date: 7/16/2014		SeqNo: 579416		Units: mg/Kg			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Naphthalene	ND	0.020								
Acenaphthene	ND	0.020								
Fluorene	ND	0.020								
Anthracene	ND	0.020								
Fluoranthene	ND	0.020								
Pyrene	ND	0.020								
Benz(a)anthracene	ND	0.020								
Chrysene	ND	0.020								
Benzo(b)fluoranthene	ND	0.020								
Benzo(k)fluoranthene	ND	0.020								
Benzo(a)pyrene	ND	0.020								
Dibenz(a,h)anthracene	ND	0.020								
Indeno(1,2,3-cd)pyrene	ND	0.020								
Surr: N-hexadecane	0.85		1.460		58.5	27	106			
Surr: Benzo(e)pyrene	0.20		0.3300		59.7	34.7	131			

Sample ID	lcs-14223		SampType: LCS		TestCode: EPA Method 8270C: PAHs					
Client ID:	LCSS		Batch ID: 14223		RunNo: 19933					
Prep Date:	7/15/2014		Analysis Date: 7/16/2014		SeqNo: 579418		Units: mg/Kg			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Naphthalene	0.24	0.020	0.3300	0	72.2	50.1	116			
Acenaphthene	0.28	0.020	0.3300	0	83.6	51.4	112			
Fluorene	0.28	0.020	0.3300	0	85.9	51	116			
Anthracene	0.27	0.020	0.3300	0	80.4	46.4	118			
Fluoranthene	0.28	0.020	0.3300	0	83.3	46.4	123			
Pyrene	0.26	0.020	0.3300	0	77.6	43.3	122			
Benz(a)anthracene	0.26	0.020	0.3300	0	78.1	44.3	118			
Chrysene	0.30	0.020	0.3300	0	91.0	45.5	116			
Benzo(b)fluoranthene	0.24	0.020	0.3300	0	72.0	50.5	123			
Benzo(k)fluoranthene	0.23	0.020	0.3300	0	69.6	49.7	117			
Benzo(a)pyrene	0.26	0.020	0.3300	0	79.3	50.8	111			
Dibenz(a,h)anthracene	0.29	0.020	0.3300	0	88.7	49.8	127			
Indeno(1,2,3-cd)pyrene	0.25	0.020	0.3300	0	77.1	50.1	120			
Surr: N-hexadecane	0.97		1.460		66.2	27	106			
Surr: Benzo(e)pyrene	0.22		0.3300		68.2	34.7	131			

### Qualifiers:

\* Value exceeds Maximum Contaminant Level.  
E Value above quantitation range  
J Analyte detected below quantitation limits  
O RSD is greater than RSDlimit  
R RPD outside accepted recovery limits  
S Spike Recovery outside accepted recovery limits

B Analyte detected in the associated Method Blank  
H Holding times for preparation or analysis exceeded  
ND Not Detected at the Reporting Limit  
P Sample pH greater than 2.  
RL Reporting Detection Limit

# QC SUMMARY REPORT

## Hall Environmental Analysis Laboratory, Inc.

WO#: 1407583

31-Jul-14

Client: R.T. Hicks Consultants, LTD

Project: Pinto 1-7 Pit

Sample ID	1407583-007ADUP	SampType:	DUP	TestCode:	CONDUCTANCE					
Client ID:	Stockpile Soil	Batch ID:	R19988	RunNo:	19988					
Prep Date:		Analysis Date:	7/18/2014	SeqNo:	580845	Units:	µmhos/cm			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Specific Conductance	450	1.0						2.12	20	

### Qualifiers:

\* Value exceeds Maximum Contaminant Level.  
E Value above quantitation range  
J Analyte detected below quantitation limits  
O RSD is greater than RSDlimit  
R RPD outside accepted recovery limits  
S Spike Recovery outside accepted recovery limits

B Analyte detected in the associated Method Blank  
H Holding times for preparation or analysis exceeded  
ND Not Detected at the Reporting Limit  
P Sample pH greater than 2.  
RL Reporting Detection Limit

# QC SUMMARY REPORT

## Hall Environmental Analysis Laboratory, Inc.

WO#: 1407583

31-Jul-14

Client: R.T. Hicks Consultants, LTD

Project: Pinto 1-7 Pit

Sample ID	MB-14338		SampType: MBLK		TestCode: EPA Method 7471: Mercury					
Client ID:	PBS		Batch ID: 14338		RunNo: 20060					
Prep Date:	7/21/2014		Analysis Date: 7/22/2014		SeqNo: 583010		Units: mg/Kg			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercurv	ND	0.033								

Sample ID	LCS-14338		SampType: LCS		TestCode: EPA Method 7471: Mercury					
Client ID:	LCSS		Batch ID: 14338		RunNo: 20060					
Prep Date:	7/21/2014		Analysis Date: 7/22/2014		SeqNo: 583011		Units: mg/Kg			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury	0.16	0.033	0.1667	0	98.8	80	120			

Sample ID	MB-14339		SampType:	MBLK		TestCode:	EPA Method 7471: Mercury				
Client ID:	PBS		Batch ID:	14339		RunNo:	20060				
Prep Date:	7/21/2014		Analysis Date:	7/22/2014		SeqNo:	583039		Units: mg/Kg		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual	
Mercury	ND	0.033									

Sample ID	LCS-14339			SampType:	LCS		TestCode:	EPA Method 7471: Mercury			
Client ID:	LCSS			Batch ID:	14339		RunNo:	20060			
Prep Date:	7/21/2014			Analysis Date:	7/22/2014		SeqNo:	583040		Units:	mg/Kg
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual	
Mercury	0.16	0.033	0.1667	0	96.3	80	120				

### Qualifiers:

\* Value exceeds Maximum Contaminant Level.  
E Value above quantitation range  
J Analyte detected below quantitation limits  
O RSD is greater than RSDlimit  
R RPD outside accepted recovery limits  
S Spike Recovery outside accepted recovery limits

B Analyte detected in the associated Method Blank  
H Holding times for preparation or analysis exceeded  
ND Not Detected at the Reporting Limit  
P Sample pH greater than 2.  
RL Reporting Detection Limit

# QC SUMMARY REPORT

## Hall Environmental Analysis Laboratory, Inc.

WO#: 1407583

31-Jul-14

Client: R.T. Hicks Consultants, LTD

Project: Pinto 1-7 Pit

Sample ID	MB-14260	SampType:	MBLK	TestCode:	EPA Method 6010B: Soil Metals					
Client ID:	PBS	Batch ID:	14260	RunNo:	19979					
Prep Date:	7/16/2014	Analysis Date:	7/18/2014	SeqNo:	580593	Units:	mg/Kg			

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Arsenic	ND	2.5								
Barium	ND	0.10								
Boron	ND	2.0								
Cadmium	ND	0.10								
Chromium	ND	0.30								
Copper	ND	0.30								
Lead	ND	0.25								
Nickel	ND	0.50								
Selenium	ND	2.5								
Silver	ND	0.25								
Zinc	0.47	2.5								J

Sample ID	LCS-14260	SampType:	LCS	TestCode:	EPA Method 6010B: Soil Metals					
Client ID:	LCSS	Batch ID:	14260	RunNo:	19979					
Prep Date:	7/16/2014	Analysis Date:	7/18/2014	SeqNo:	580594	Units:	mg/Kg			

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Arsenic	25	2.5	25.00	0	101	80	120			
Barium	25	0.10	25.00	0	99.3	80	120			
Boron	25	2.0	25.00	0	99.7	80	120			
Cadmium	25	0.10	25.00	0	100	80	120			
Chromium	25	0.30	25.00	0	101	80	120			
Copper	26	0.30	25.00	0	103	80	120			
Lead	24	0.25	25.00	0	95.9	80	120			
Nickel	24	0.50	25.00	0	95.7	80	120			
Selenium	23	2.5	25.00	0	93.5	80	120			
Silver	5.0	0.25	5.000	0	101	80	120			
Zinc	25	2.5	25.00	0	100	80	120			

Sample ID	1407583-007AMS	SampType:	MS	TestCode:	EPA Method 6010B: Soil Metals					
Client ID:	Stockpile Soil	Batch ID:	14260	RunNo:	19979					
Prep Date:	7/16/2014	Analysis Date:	7/18/2014	SeqNo:	580633	Units:	mg/Kg			

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Arsenic	24	5.1	25.63	0	95.6	75	125			
Boron	26	4.1	25.63	0	103	75	125			
Cadmium	23	0.21	25.63	0	88.3	75	125			
Chromium	31	0.62	25.63	5.073	102	75	125			
Copper	29	0.62	25.63	5.821	90.4	75	125			
Nickel	29	1.0	25.63	7.120	86.0	75	125			

### Qualifiers:

\* Value exceeds Maximum Contaminant Level.  
E Value above quantitation range  
J Analyte detected below quantitation limits  
O RSD is greater than RSDlimit  
R RPD outside accepted recovery limits  
S Spike Recovery outside accepted recovery limits

B Analyte detected in the associated Method Blank  
H Holding times for preparation or analysis exceeded  
ND Not Detected at the Reporting Limit  
P Sample pH greater than 2.  
RL Reporting Detection Limit

# QC SUMMARY REPORT

## Hall Environmental Analysis Laboratory, Inc.

WO#: 1407583

31-Jul-14

Client: R.T. Hicks Consultants, LTD

Project: Pinto 1-7 Pit

Sample ID	1407583-007AMS	SampType: MS			TestCode: EPA Method 6010B: Soil Metals					
Client ID:	Stockpile Soil	Batch ID: 14260			RunNo: 19979					
Prep Date:	7/16/2014	Analysis Date: 7/18/2014			SeqNo: 580633		Units: mg/Kg			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Silver	4.5	0.51	5.127	0	87.7	75	125			
Zinc	51	5.1	25.63	19.85	120	75	125			

Sample ID	1407583-007AMSD	SampType: MSD		TestCode: EPA Method 6010B: Soil Metals						
Client ID:	Stockpile Soil	Batch ID: 14260		RunNo: 19979						
Prep Date:	7/16/2014	Analysis Date: 7/18/2014		SeqNo: 580634		Units: mg/Kg				
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Arsenic	24	5.0	24.86	0	96.2	75	125	2.41	20	
Boron	22	4.0	24.86	0	89.6	75	125	16.6	20	
Cadmium	23	0.20	24.86	0	90.7	75	125	0.468	20	
Chromium	31	0.60	24.86	5.073	104	75	125	1.09	20	
Copper	29	0.60	24.86	5.821	93.3	75	125	0.0883	20	
Nickel	29	0.99	24.86	7.120	88.6	75	125	0.0938	20	
Silver	4.5	0.50	4.972	0	90.1	75	125	0.370	20	
Zinc	51	5.0	24.86	19.85	124	75	125	0.0814	20	

Sample ID	1407583-007AMS	SampType: MS			TestCode: EPA Method 6010B: Soil Metals					
Client ID:	Stockpile Soil	Batch ID: 14260			RunNo: 20002					
Prep Date:	7/16/2014	Analysis Date: 7/19/2014			SeqNo: 581550		Units: mg/Kg			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Barium	170	0.21	25.63	142.1	102	75	125			
Lead	24	0.51	25.63	4.451	76.9	75	125			
Selenium	16	5.1	25.63	0	62.4	75	125			S

Sample ID	1407583-007AMSD	SampType:	MSD	TestCode: EPA Method 6010B: Soil Metals						
Client ID:	Stockpile Soil	Batch ID:	14260	RunNo: 20002						
Prep Date:	7/16/2014	Analysis Date:	7/19/2014	SeqNo: 581551			Units: mg/Kg			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Barium	170	0.20	24.86	142.1	112	75	125	0.980	20	
Lead	23	0.50	24.86	4.451	76.4	75	125	3.01	20	
Selenium	14	5.0	24.86	0	54.9	75	125	15.7	20	S

### Qualifiers:

\* Value exceeds Maximum Contaminant Level.  
E Value above quantitation range  
J Analyte detected below quantitation limits  
O RSD is greater than RSDlimit  
R RPD outside accepted recovery limits  
S Spike Recovery outside accepted recovery limits

B Analyte detected in the associated Method Blank  
H Holding times for preparation or analysis exceeded  
ND Not Detected at the Reporting Limit  
P Sample pH greater than 2.  
RL Reporting Detection Limit

## Sample Log-In Check List

Client Name: RT HICKS

Work Order Number: 1407583

RcptNo: 1

Received by/date:

Logged By: Ashley Gallegos

7/14/2014 11:30:00 AM

Completed By: Ashley Gallegos

7/14/2014 12:32:15 PM

Reviewed By:

### Chain of Custody

1. Custody seals intact on sample bottles?

Yes ☐

No ☐

Not Present ☒

2. Is Chain of Custody complete?

Yes ☒

No ☐

Not Present ☐

3. How was the sample delivered?

Client

### Log In

4. Was an attempt made to cool the samples?

Yes ☒

No ☐

NA ☐

5. Were all samples received at a temperature of >0° C to 6.0° C

Yes ☐

No ☒

NA ☐

Not required

6. Sample(s) in proper container(s)?

Yes ☒

No ☐

7. Sufficient sample volume for indicated test(s)?

Yes ☒

No ☐

8. Are samples (except VOA and ONG) properly preserved?

Yes ☒

No ☐

9. Was preservative added to bottles?

Yes ☐

No ☒

NA ☐

10. VOA vials have zero headspace?

Yes ☐

No ☐

No VOA Vials ☒

11. Were any sample containers received broken?

Yes ☐

No ☒

12. Does paperwork match bottle labels?

Yes ☒

No ☐

(Note discrepancies on chain of custody)

13. Are matrices correctly identified on Chain of Custody?

Yes ☒

No ☐

14. Is it clear what analyses were requested?

Yes ☒

No ☐

15. Were all holding times able to be met?

Yes ☒

No ☐

(If no, notify customer for authorization.)

# of preserved  
bottles checked  
for pH:

(<2 or >12 unless noted)

Adjusted? \_\_\_\_\_

Checked by: \_\_\_\_\_

### Special Handling (if applicable)

16. Was client notified of all discrepancies with this order?

Yes ☐

No ☐

NA ☒

Person Notified:

Date:

By Whom:

Via:

☐ eMail

☐ Phone

☐ Fax

☐ In Person

Regarding:

Client Instructions:

17. Additional remarks:

### 18. Cooler Information

Cooler No	Temp °C	Condition	Seal Intact	Seal No	Seal Date	Signed By
1	18.9	Good	Not Present			





## ***APPENDIX B***

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✓ 1/23/14

## SAR Calculation Sheet

Date: 7/19/14

✓ 7/23/14

	Sample ID	Cations	Raw ICP Results (mg/L)	Dil Factor	Result (mg/L)	meq/L	SAR	ESP
1	Unrelated Sample							
2	1407583-001A	Na	70.171	100	7017.1	305.24		
	NW 1.5ft core	Ca	10.651	100	1065.1	53.15	52.694	43.33
		Mg	16.968	10	169.68	13.96		
3	1407583-002A	Na	25.791	500	12895.5	560.95		
	NE 1.5ft core	Ca	46.339	50	2316.95	115.62	60.949	47.0
		Mg	13.076	50	653.8	53.80		
4	1407583-003A	Na	92.025	50	4601.25	200.15		
	West Central	Ca	36.215	50	1810.75	90.36	28.63	29.1
	1.5ft core	Mg	1.7975	50	89.875	7.40		
5	1407583-004A	Na	74.917	50	3745.85	162.94		
	SE 1.5ft Core	Ca	31.753	50	1587.65	79.22	25.84	26.9
		Mg	0.35945	10	3.5945	0.30		
6	1407583-005A	Na	75.906	50	3795.3	165.10		
	NW 2ft core	Ca	60.894	20	1217.88	60.77	28.85	29.2
		Mg	2.8672	20	57.344	4.72		
7	1407583-006A	Na	28.346	500	14173	616.53		
	West Central	Ca	0.79239	50	39.6195	1.98	285.29	80.8
	1.5 ft Core	Mg	1.7896	50	89.48	7.36		
8	1407583-007A	Na	0.62301	10	6.2301	0.27		
	Stockpile Soil	Ca	6.6048	10	66.048	3.30	0.19	-1.0
		Mg	1.0822	10	10.822	0.89		
9	Unrelated Sample							
10	Unrelated Sample							

$$SAR = \frac{Na^{+} (meq / L)}{\sqrt{\frac{Ca^{2+} (meq / L) + Mg^{2+} (meq / L)}{2}}}$$
$$ESP = \frac{(-0.0126 + 0.01475 \times SAR) \times 100}{1 + (-0.0126 + 0.01475 \times SAR)}$$

H:\HailDocs\Inorganics\USDA Methods\SAR-ESP template-LOCKED.xls\Sheet1