

R. T. HICKS CONSULTANTS, LTD.

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

December 12, 2014

Mr. Solomon Hughes
Bureau of Land Management
620 E. Greene St
Carlsbad, NM 88220
Via E-mail

Mr. Mike Bratcher
NMOCD District 2
811 S. First Street
Artesia, New Mexico 88210
Via E-mail and US Mail

RE: Southwest Royalties North Hackberry Yates Well #105 Revision #2

Dear Mr. Hughes and Mr. Bratcher:

This revised final remediation proposal presents the results of the recent vertical investigation. It supersedes and simplifies previous communications.

Sampling Results

Plate 1 presents the locations of the samples collected on September 23, 2014 and December 4, 2014. Table 1 presents the results of the sampling and the laboratory reports are attached to this submittal as well. On December 4, 2014, we collected vertical delineation samples (PL-1-N and PL-3-C) and a sample of the asphalt hardpan.

		Chloride	DRO	MRO	GRO	DRO + GRO	TPH	BTEX
Sample Name	Collection Date	all units mg/kg						
Asphalt Hardpan	12/4/2014		170	1000	nd			
PL-1-C	9/25/2014	0						
PL-1-N	9/25/2014	1900						
PL-1-N 1.5	12/4/2014	39						
PL-1-N-3.0 ft	12/4/14/	ND						
PL-1-S	9/25/2014	0						
PL-2-C	9/25/2014	0	ND	ND	ND			
PL-2-N	9/25/2014	58	ND	ND	ND			ND
PL-2-S	9/25/2014	0						
PL-3-C	9/25/2014	4200	ND	ND	ND			ND
PL-3-C-1.5	12/4/2014	190						
PL-3-C-3.0 feet	12/4/2014	ND						
PL-3-N	9/25/2014	370						
PL-3-S	9/25/2014	0						
PL-4-C	9/25/2014	0	ND	ND	ND			ND
PL-4-N	9/25/2014	470						
PL-4-S	9/25/2014	510						
S-1	9/25/2014	260						
S-2	9/25/2014	ND						
S-3	9/25/2014	ND						
S-4	9/25/2014	ND						
Stockpile East	9/25/2014	410						
Stockpile West	9/25/2014	880						

Sampling Methods

The photograph below (left) shows the sampling methodology (from PL-3-C). The sample locations of September 25 were obvious due to residual flagging and sample excavations.

As shown, we used a post-hole digger to collect samples 1.5 and 3.0 feet below the September samples at the two locations that showed relatively high chloride concentrations.



Discussion

The sampling results from September and earlier campaigns show that petroleum hydrocarbons are not present in samples potentially impacted by the recent release. The soils impacted by the 2014 crude spill have been removed to disposal – with the exception of the west stockpile that exhibits chloride less than 1000 mg/kg.

The sample of asphalt hardpan (photograph below) has a TPH concentration of 1170 mg/kg and DRO+GRO of 1170.



Although the release is proximal to a watercourse, the 4-foot burial of the west stockpile effectively isolates this material from the environment. The 4-foot burial of the asphalt hardpan will also isolate this material from the environment. As groundwater is at least 40-feet below the arroyo bottom, the burial of the hardpan about 30-feet above the arroyo (i.e. adjacent to the production pad) creates a distance of about 70 feet between the burial and the groundwater surface. Given the proximity and age of the up gradient potash tailings pond, the probability that alluvial groundwater is significantly impaired by pond leakage is very high.

Proposed Remedy

Southwest Royalties would like to proceed with the remedy described in the attachment as soon as possible.

Please contact me if you have any questions regarding the results or the proposed final remedy.

Sincerely,
R.T. Hicks Consultants

Randall Hicks

Copy: Southwest Royalties

Remedy Instruction to Contractor

1. Distribute the soil in the West Stockpile in the excavation such that it will rest more than 4-feet below the final grade after restoration.
2. If approved by OCD and BLM, as a voluntary effort, place the surface asphaltic material that is near the release footprint into the trench such that it lies more than 4-feet below natural grade
3. If the trench is filled to within 4-feet of final grade and soil in the West Stockpile remains, remove the stockpile to disposal.
4. Borrow clean sand from adjacent to the release footprint as required to restore the natural topography.
5. As a voluntary effort, restore the original drainage pattern by moving small volumes of sand to create a channel and dune (see Plate 1).
6. Seed the site employing the mixture approved/recommended by BLM.

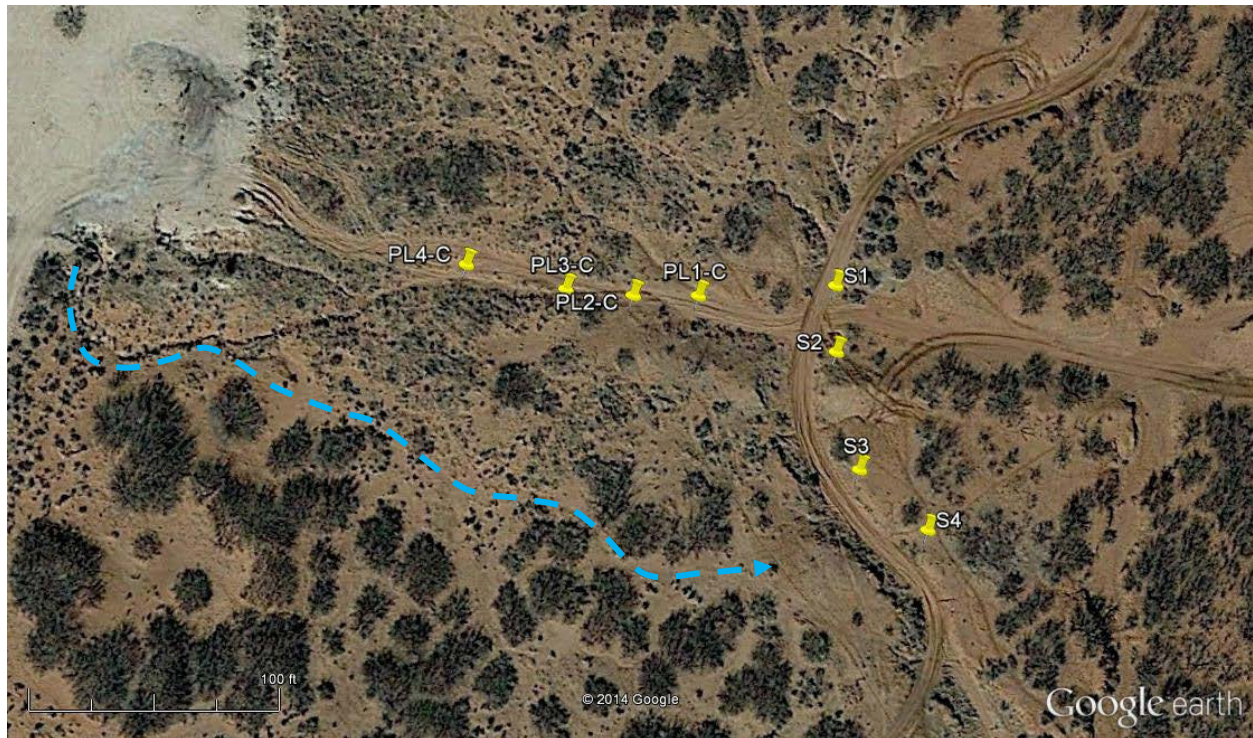


Plate 1: Google Earth image showing sample locations and drainage pattern to be re-established (dashed blue line). The original drainage is visible in the 10/21/96 Google Earth image.



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

December 10, 2014

Randall Hicks

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: SWR North Hackberry 105

OrderNo.: 1412311

Dear Randall Hicks:

Hall Environmental Analysis Laboratory received 5 sample(s) on 12/5/2014 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 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 **1412311**

Date Reported: **12/10/2014**

CLIENT: R.T. Hicks Consultants, LTD

Client Sample ID: PL-1-N-1.5

Project: SWR North Hackberry 105

Collection Date: 12/4/2014 12:16:00 PM

Lab ID: 1412311-001

Matrix: SOIL

Received Date: 12/5/2014 1:00:00 PM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 300.0: ANIONS							Analyst: LGP
Chloride	39	30		mg/Kg	20	12/8/2014 11:43:19 AM	16713

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

Qualifiers:	*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank	Page 1 of 8
	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 **1412311**

Date Reported: **12/10/2014**

CLIENT: R.T. Hicks Consultants, LTD

Client Sample ID: PL-1-N-3

Project: SWR North Hackberry 105

Collection Date: 12/4/2014 12:18:00 PM

Lab ID: 1412311-002

Matrix: SOIL

Received Date: 12/5/2014 1:00:00 PM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 300.0: ANIONS							Analyst: LGP
Chloride	ND	30		mg/Kg	20	12/8/2014 12:08:09 PM	16713

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

Qualifiers:	*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank	Page 2 of 8
	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 **1412311**

Date Reported: **12/10/2014**

CLIENT: R.T. Hicks Consultants, LTD

Client Sample ID: PL-3-C-1.5

Project: SWR North Hackberry 105

Collection Date: 12/4/2014 12:24:00 PM

Lab ID: 1412311-003

Matrix: SOIL

Received Date: 12/5/2014 1:00:00 PM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 300.0: ANIONS							Analyst: LGP
Chloride	190	30		mg/Kg	20	12/8/2014 12:20:34 PM	16713

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

Qualifiers:	*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank	Page 3 of 8
	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 **1412311**

Date Reported: **12/10/2014**

CLIENT: R.T. Hicks Consultants, LTD

Client Sample ID: PL-3-C-3

Project: SWR North Hackberry 105

Collection Date: 12/4/2014 12:27:00 PM

Lab ID: 1412311-004

Matrix: SOIL

Received Date: 12/5/2014 1:00:00 PM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 300.0: ANIONS							Analyst: LGP
Chloride	ND	30		mg/Kg	20	12/8/2014 12:32:59 PM	16713

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

Qualifiers:	*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank	Page 4 of 8
	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 **1412311**

Date Reported: **12/10/2014**

CLIENT: R.T. Hicks Consultants, LTD

Client Sample ID: ASPHALT HARDPAN

Project: SWR North Hackberry 105

Collection Date: 12/4/2014 12:16:00 PM

Lab ID: 1412311-005

Matrix: SOIL

Received Date: 12/5/2014 1:00:00 PM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8015D: DIESEL RANGE ORGANICS							Analyst: BCN
Diesel Range Organics (DRO)	170	99		mg/Kg	10	12/8/2014 12:25:23 PM	16709
Motor Oil Range Organics (MRO)	1000	490		mg/Kg	10	12/8/2014 12:25:23 PM	16709
Surr: DNOP	0	63.5-128	S	%REC	10	12/8/2014 12:25:23 PM	16709
EPA METHOD 8015D: GASOLINE RANGE							Analyst: NSB
Gasoline Range Organics (GRO)	ND	4.9		mg/Kg	1	12/8/2014 11:39:08 AM	16689
Surr: BFB	89.9	80-120		%REC	1	12/8/2014 11:39:08 AM	16689

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

Qualifiers:	*	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		

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1412311

10-Dec-14

Client: R.T. Hicks Consultants, LTD

Project: SWR North Hackberry 105

Sample ID	MB-16713		SampType:	MBLK		TestCode:	EPA Method 300.0: Anions				
Client ID:	PBS		Batch ID:	16713		RunNo:	23009				
Prep Date:	12/8/2014		Analysis Date:	12/8/2014		SeqNo:	679787		Units: mg/Kg		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual	
Chloride	ND	1.5									

Sample ID	LCS-16713		SampType: LCS		TestCode: EPA Method 300.0: Anions					
Client ID:	LCSS		Batch ID: 16713		RunNo: 23009					
Prep Date:	12/8/2014		Analysis Date: 12/8/2014		SeqNo: 679788		Units: mg/Kg			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	14	1.5	15.00	0	92.4	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#: 1412311

10-Dec-14

Client: R.T. Hicks Consultants, LTD

Project: SWR North Hackberry 105

Sample ID	MB-16709	SampType: MBLK		TestCode: EPA Method 8015D: Diesel Range Organics						
Client ID:	PBS	Batch ID: 16709		RunNo: 22978						
Prep Date:	12/8/2014	Analysis Date: 12/8/2014		SeqNo: 678888		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	6.8		10.00		68.1	63.5	128			

Sample ID	LCS-16709		SampType: LCS		TestCode: EPA Method 8015D: Diesel Range Organics					
Client ID:	LCSS		Batch ID: 16709		RunNo: 22978					
Prep Date:	12/8/2014		Analysis Date: 12/8/2014		SeqNo: 678889		Units: mg/Kg			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	46	10	50.00	0	92.3	68.6	130			
Surr: DNOP	3.9		5.000		78.4	63.5	128			

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#: 1412311

10-Dec-14

Client: R.T. Hicks Consultants, LTD

Project: SWR North Hackberry 105

Sample ID	MB-16689		SampType: MBLK		TestCode: EPA Method 8015D: Gasoline Range					
Client ID:	PBS		Batch ID: 16689		RunNo: 22986					
Prep Date:	12/5/2014		Analysis Date: 12/8/2014		SeqNo: 679318		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	900		1000		89.8	80	120			

Sample ID	LCS-16689		SampType: LCS		TestCode: EPA Method 8015D: Gasoline Range					
Client ID:	LCSS		Batch ID: 16689		RunNo: 22986					
Prep Date:	12/5/2014		Analysis Date: 12/8/2014		SeqNo: 679319		Units: mg/Kg			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	23	5.0	25.00	0	92.4	65.8	139			
Surr: BFB	980		1000		97.7	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

Sample Log-In Check List

Client Name: RT HICKS

Work Order Number: 1412311

RcptNo: 1

Received by/date:

CS 12/05/14

Logged By: Celina Sessa

12/5/2014 1:00:00 PM

Celina Sessa

Completed By: Celina Sessa

12/5/2014 1:10:34 PM

Celina Sessa

Reviewed By:

AR 12/05/14

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 ☐
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?
(Note discrepancies on chain of custody) Yes ☒ No ☐
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?
(If no, notify customer for authorization.) Yes ☒ No ☐

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	3.8	Good	Not Present			



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

October 01, 2014

Randall Hicks

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: North Hackberry Yates 105

OrderNo.: 1409D42

Dear Randall Hicks:

Hall Environmental Analysis Laboratory received 6 sample(s) on 9/26/2014 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 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: 1409D42

Date Reported: 10/1/2014

CLIENT: R.T. Hicks Consultants, LTD
Project: North Hackberry Yates 105

Lab Order: 1409D42

Lab ID: 1409D42-001 **Collection Date:** 9/25/2014 10:32:00 AM
Client Sample ID: West Stockpile **Matrix:** SOIL

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 300.0: ANIONS Analyst: LGP							
Chloride	880	30		mg/Kg	20	9/29/2014 6:31:22 PM	15595

Lab ID: 1409D42-002 **Collection Date:** 9/25/2014 10:12:00 AM
Client Sample ID: East Stockpile **Matrix:** SOIL

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 300.0: ANIONS Analyst: LGP							
Chloride	410	30		mg/Kg	20	9/29/2014 6:43:46 PM	15595

Lab ID: 1409D42-003 **Collection Date:** 9/25/2014 9:08:00 AM
Client Sample ID: S-1 **Matrix:** SOIL

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 300.0: ANIONS Analyst: LGP							
Chloride	260	30		mg/Kg	20	9/29/2014 6:56:10 PM	15595

Lab ID: 1409D42-004 **Collection Date:** 9/25/2014 9:10:00 AM
Client Sample ID: S-2 **Matrix:** SOIL

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 300.0: ANIONS Analyst: LGP							
Chloride	ND	30		mg/Kg	20	9/29/2014 7:08:35 PM	15595

Lab ID: 1409D42-005 **Collection Date:** 9/25/2014 9:12:00 AM
Client Sample ID: S-4 **Matrix:** SOIL

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 300.0: ANIONS Analyst: LGP							
Chloride	ND	30		mg/Kg	20	9/29/2014 7:45:48 PM	15595

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

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

Analytical ReportLab Order: **1409D42**Date Reported: **10/1/2014****Hall Environmental Analysis Laboratory, Inc.****CLIENT:** R.T. Hicks Consultants, LTD
Project: North Hackberry Yates 105**Lab Order:** 1409D42**Lab ID:** 1409D42-006**Collection Date:** 9/25/2014 9:13:00 AM**Client Sample ID:** S-3**Matrix:** SOIL

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 300.0: ANIONS							Analyst: LGP
Chloride	ND	30		mg/Kg	20	9/29/2014 7:58:12 PM	15595

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

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#: 1409D42

01-Oct-14

Client: R.T. Hicks Consultants, LTD

Project: North Hackberry Yates 105

Sample ID	MB-15595	SampType:	MBLK	TestCode:	EPA Method 300.0: Anions					
Client ID:	PBS	Batch ID:	15595	RunNo:	21544					
Prep Date:	9/29/2014	Analysis Date:	9/29/2014	SeqNo:	630734	Units:	mg/Kg			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	ND	1.5								

Sample ID	LCS-15595	SampType:	LCS	TestCode:	EPA Method 300.0: Anions					
Client ID:	LCSS	Batch ID:	15595	RunNo:	21544					
Prep Date:	9/29/2014	Analysis Date:	9/29/2014	SeqNo:	630735	Units:	mg/Kg			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	14	1.5	15.00	0	94.1	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

Sample Log-In Check List

Client Name: RT HICKS

Work Order Number: 1409D42

RcptNo: 1

Received by/date:

AT 09/26/14

Logged By:

Lindsay Mangin

9/26/2014 10:48:00 AM

Lindsay Mangin

Completed By:

Lindsay Mangin

9/26/2014 12:23:02 PM

Lindsay Mangin

Reviewed By:

mg

09/26/14

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 ☐
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?
(Note discrepancies on chain of custody) Yes ☒ No ☐
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?
(If no, notify customer for authorization.) Yes ☒ No ☐

Approved by client

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	10.1	Good	Not Present			

Chain-of-Custody Record

Client: Hicks Consultants

Mailing Address:

Phone #: 238-9515

email or Fax#: R@rthickconsult.com

QA/QC Package:

☐ Standard ☐ Level 4 (Full Validation)

Accreditation

☐ NELAP ☐ Other

☐ EDD (Type)

Sampler:

On Ice: ☒ Yes ☐ No

Sample Temperature: 10.1

Container Type and #

Preservative Type

HEAL No. 14091542

Date

Time

Matrix

Sample Request ID

9/25 10:32 WEST STOCKPILE

9/25 10:12 EAST STOCKPILE

9/25 9:08 S-1

9/25 9:10 S-2

9/25 9:12 S-4

9/25 9:13 S-3

Turn-Around Time:

☐ Standard ☒ Rush 9/30

Project Name:

NORTH HACKBERRY YATES IOS

Project #:

SPALL

Project Manager:

RTH

Analysis Request

BTX + MTBE + TMB's (8021)

BTX + MTBE + TPH (Gas only)

TPH 8015B (GRO / DRO / MRO)

TPH (Method 418.1)

EDB (Method 504.1)

PAH's (8310 or 8270 SIMS)

RCRA 8 Metals

Anions (F, Cl, NO₃, NO₂, PO₄, SO₄)

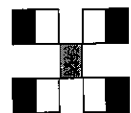
8081 Pesticides / 8082 PCB's

8260B (VOA)

8270 (Semi-VOA)

Chloride

Air Bubbles (Y or N)



HALL ENVIRONMENTAL ANALYSIS LABORATORY

www.hallenvironmental.com

4901 Hawkins NE - Albuquerque, NM 87109

Tel. 505-345-3975 Fax 505-345-4107

Analysis Request

Remarks:

Date Time

Received by: [Signature]

Relinquished by: [Signature]

Date: 10/24/12 Time: 10:48

Date Time

Received by: [Signature]

Relinquished by: [Signature]

Date: 9/26/12 Time: 10:48



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

October 01, 2014

Randall Hicks

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: North Hackberry Yates 105

OrderNo.: 1409D40

Dear Randall Hicks:

Hall Environmental Analysis Laboratory received 12 sample(s) on 9/26/2014 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 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 **1409D40**

Date Reported: **10/1/2014**

CLIENT: R.T. Hicks Consultants, LTD

Client Sample ID: PL-1 S

Project: North Hackberry Yates 105

Collection Date: 9/25/2014 9:31:00 AM

Lab ID: 1409D40-001

Matrix: SOIL

Received Date: 9/26/2014 10:48:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 300.0: ANIONS							Analyst: LGP
Chloride	ND	30		mg/Kg	20	9/29/2014 3:12:49 PM	15595

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

Qualifiers:	*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank	Page 1 of 16
	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 **1409D40**

Date Reported: **10/1/2014**

CLIENT: R.T. Hicks Consultants, LTD

Client Sample ID: PL-1 Center

Project: North Hackberry Yates 105

Collection Date: 9/25/2014 9:29:00 AM

Lab ID: 1409D40-002

Matrix: SOIL

Received Date: 9/26/2014 10:48:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 300.0: ANIONS							Analyst: LGP
Chloride	ND	30		mg/Kg	20	9/29/2014 3:50:03 PM	15595

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

Qualifiers:	*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank	Page 2 of 16
	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 **1409D40**

Date Reported: **10/1/2014**

CLIENT: R.T. Hicks Consultants, LTD

Client Sample ID: PL-1 North

Project: North Hackberry Yates 105

Collection Date: 9/25/2014 9:31:00 AM

Lab ID: 1409D40-003

Matrix: SOIL

Received Date: 9/26/2014 10:48:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 300.0: ANIONS							Analyst: LGP
Chloride	1900	75		mg/Kg	50	10/1/2014 12:37:45 AM	15595

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

Qualifiers:	*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank	Page 3 of 16
	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 **1409D40**

Date Reported: **10/1/2014**

CLIENT: R.T. Hicks Consultants, LTD

Client Sample ID: PL-2 North

Project: North Hackberry Yates 105

Collection Date: 9/25/2014 9:33:00 AM

Lab ID: 1409D40-004

Matrix: SOIL

Received Date: 9/26/2014 10:48:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 300.0: ANIONS							Analyst: LGP
Chloride	58	30		mg/Kg	20	9/29/2014 4:14:52 PM	15595

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

Qualifiers:	*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank	Page 4 of 16
	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 **1409D40**

Date Reported: **10/1/2014**

CLIENT: R.T. Hicks Consultants, LTD

Client Sample ID: PL-2 Center

Project: North Hackberry Yates 105

Collection Date: 9/25/2014 9:35:00 AM

Lab ID: 1409D40-005

Matrix: SOIL

Received Date: 9/26/2014 10:48:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8015D: DIESEL RANGE ORGANICS							Analyst: BCN
Diesel Range Organics (DRO)	ND	9.9		mg/Kg	1	9/29/2014 1:31:20 PM	15534
Motor Oil Range Organics (MRO)	ND	50		mg/Kg	1	9/29/2014 1:31:20 PM	15534
Surr: DNOP	110	57.9-140		%REC	1	9/29/2014 1:31:20 PM	15534
EPA METHOD 8015D: GASOLINE RANGE							Analyst: NSB
Gasoline Range Organics (GRO)	ND	4.9		mg/Kg	1	9/28/2014 5:31:02 PM	15551
Surr: BFB	89.8	80-120		%REC	1	9/28/2014 5:31:02 PM	15551
EPA METHOD 8021B: VOLATILES							Analyst: NSB
Benzene	ND	0.049		mg/Kg	1	9/28/2014 5:31:02 PM	15551
Toluene	ND	0.049		mg/Kg	1	9/28/2014 5:31:02 PM	15551
Ethylbenzene	ND	0.049		mg/Kg	1	9/28/2014 5:31:02 PM	15551
Xylenes, Total	ND	0.098		mg/Kg	1	9/28/2014 5:31:02 PM	15551
Surr: 4-Bromofluorobenzene	93.2	80-120		%REC	1	9/28/2014 5:31:02 PM	15551
EPA METHOD 300.0: ANIONS							Analyst: LGP
Chloride	52	30		mg/Kg	20	9/29/2014 4:27:16 PM	15595

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

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

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order **1409D40**

Date Reported: **10/1/2014**

CLIENT: R.T. Hicks Consultants, LTD

Client Sample ID: PL-2 South

Project: North Hackberry Yates 105

Collection Date: 9/25/2014 9:36:00 AM

Lab ID: 1409D40-006

Matrix: SOIL

Received Date: 9/26/2014 10:48:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 300.0: ANIONS							Analyst: LGP
Chloride	ND	30		mg/Kg	20	9/29/2014 4:39:41 PM	15595

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

Qualifiers:	*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank	Page 6 of 16
	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 **1409D40**

Date Reported: **10/1/2014**

CLIENT: R.T. Hicks Consultants, LTD

Client Sample ID: PL-3 North

Project: North Hackberry Yates 105

Collection Date: 9/25/2014 9:46:00 AM

Lab ID: 1409D40-007

Matrix: SOIL

Received Date: 9/26/2014 10:48:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 300.0: ANIONS							Analyst: LGP
Chloride	370	30		mg/Kg	20	9/29/2014 5:16:54 PM	15595

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

Qualifiers:	*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank	Page 7 of 16
	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 **1409D40**

Date Reported: **10/1/2014**

CLIENT: R.T. Hicks Consultants, LTD

Client Sample ID: PL-3 Center

Project: North Hackberry Yates 105

Collection Date: 9/25/2014 9:48:00 AM

Lab ID: 1409D40-008

Matrix: SOIL

Received Date: 9/26/2014 10:48:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8015D: DIESEL RANGE ORGANICS							Analyst: BCN
Diesel Range Organics (DRO)	ND	9.9		mg/Kg	1	9/29/2014 2:01:38 PM	15534
Motor Oil Range Organics (MRO)	ND	49		mg/Kg	1	9/29/2014 2:01:38 PM	15534
Surr: DNOP	105	57.9-140		%REC	1	9/29/2014 2:01:38 PM	15534
EPA METHOD 8015D: GASOLINE RANGE							Analyst: NSB
Gasoline Range Organics (GRO)	ND	4.8		mg/Kg	1	9/28/2014 5:59:36 PM	15551
Surr: BFB	90.6	80-120		%REC	1	9/28/2014 5:59:36 PM	15551
EPA METHOD 8021B: VOLATILES							Analyst: NSB
Benzene	ND	0.048		mg/Kg	1	9/28/2014 5:59:36 PM	15551
Toluene	ND	0.048		mg/Kg	1	9/28/2014 5:59:36 PM	15551
Ethylbenzene	ND	0.048		mg/Kg	1	9/28/2014 5:59:36 PM	15551
Xylenes, Total	ND	0.095		mg/Kg	1	9/28/2014 5:59:36 PM	15551
Surr: 4-Bromofluorobenzene	94.4	80-120		%REC	1	9/28/2014 5:59:36 PM	15551
EPA METHOD 300.0: ANIONS							Analyst: LGP
Chloride	4200	750		mg/Kg	500	10/1/2014 12:50:10 AM	15595

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

Qualifiers:	*	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 **1409D40**

Date Reported: **10/1/2014**

CLIENT: R.T. Hicks Consultants, LTD

Client Sample ID: PL-3 South

Project: North Hackberry Yates 105

Collection Date: 9/25/2014 9:50:00 AM

Lab ID: 1409D40-009

Matrix: SOIL

Received Date: 9/26/2014 10:48:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 300.0: ANIONS							Analyst: LGP
Chloride	ND	30		mg/Kg	20	9/29/2014 5:41:43 PM	15595

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

Qualifiers:	*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank	Page 9 of 16
	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 **1409D40**

Date Reported: **10/1/2014**

CLIENT: R.T. Hicks Consultants, LTD

Client Sample ID: PL-4 North

Project: North Hackberry Yates 105

Collection Date: 9/25/2014 9:54:00 AM

Lab ID: 1409D40-010

Matrix: SOIL

Received Date: 9/26/2014 10:48:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 300.0: ANIONS							Analyst: LGP
Chloride	470	30		mg/Kg	20	9/29/2014 5:54:08 PM	15595

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

Qualifiers:	*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank	Page 10 of 16
	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 **1409D40**

Date Reported: **10/1/2014**

CLIENT: R.T. Hicks Consultants, LTD

Client Sample ID: PL-4 Center

Project: North Hackberry Yates 105

Collection Date: 9/25/2014 9:57:00 AM

Lab ID: 1409D40-011

Matrix: SOIL

Received Date: 9/26/2014 10:48:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8015D: DIESEL RANGE ORGANICS							Analyst: BCN
Diesel Range Organics (DRO)	ND	9.9		mg/Kg	1	9/29/2014 2:32:05 PM	15534
Motor Oil Range Organics (MRO)	ND	49		mg/Kg	1	9/29/2014 2:32:05 PM	15534
Surr: DNOP	105	57.9-140		%REC	1	9/29/2014 2:32:05 PM	15534
EPA METHOD 8015D: GASOLINE RANGE							Analyst: NSB
Gasoline Range Organics (GRO)	ND	4.9		mg/Kg	1	9/28/2014 6:28:17 PM	15551
Surr: BFB	90.2	80-120		%REC	1	9/28/2014 6:28:17 PM	15551
EPA METHOD 8021B: VOLATILES							Analyst: NSB
Benzene	ND	0.049		mg/Kg	1	9/28/2014 6:28:17 PM	15551
Toluene	ND	0.049		mg/Kg	1	9/28/2014 6:28:17 PM	15551
Ethylbenzene	ND	0.049		mg/Kg	1	9/28/2014 6:28:17 PM	15551
Xylenes, Total	ND	0.097		mg/Kg	1	9/28/2014 6:28:17 PM	15551
Surr: 4-Bromofluorobenzene	93.3	80-120		%REC	1	9/28/2014 6:28:17 PM	15551
EPA METHOD 300.0: ANIONS							Analyst: LGP
Chloride	ND	30		mg/Kg	20	9/29/2014 6:06:33 PM	15595

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

Qualifiers:	*	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 **1409D40**

Date Reported: **10/1/2014**

CLIENT: R.T. Hicks Consultants, LTD

Client Sample ID: PL-4 South

Project: North Hackberry Yates 105

Collection Date: 9/25/2014 10:01:00 AM

Lab ID: 1409D40-012

Matrix: SOIL

Received Date: 9/26/2014 10:48:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 300.0: ANIONS						Analyst: LGP	
Chloride	510	30		mg/Kg	20	9/29/2014 6:18:57 PM	15595

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

Qualifiers:	*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank	Page 12 of 16
	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			

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1409D40

01-Oct-14

Client: R.T. Hicks Consultants, LTD

Project: North Hackberry Yates 105

Sample ID	MB-15595		SampType: MBLK		TestCode: EPA Method 300.0: Anions					
Client ID:	PBS		Batch ID: 15595		RunNo: 21544					
Prep Date:	9/29/2014		Analysis Date: 9/29/2014		SeqNo: 630734		Units: mg/Kg			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	ND	1.5								

Sample ID	LCS-15595		SampType: LCS		TestCode: EPA Method 300.0: Anions					
Client ID:	LCSS		Batch ID: 15595		RunNo: 21544					
Prep Date:	9/29/2014		Analysis Date: 9/29/2014		SeqNo: 630735		Units: mg/Kg			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	14	1.5	15.00	0	94.1	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#: 1409D40

01-Oct-14

Client: R.T. Hicks Consultants, LTD

Project: North Hackberry Yates 105

Sample ID	MB-15534		SampType: MBLK		TestCode: EPA Method 8015D: Diesel Range Organics					
Client ID:	PBS		Batch ID: 15534		RunNo: 21518					
Prep Date:	9/26/2014		Analysis Date: 9/29/2014		SeqNo: 630645		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	10		10.00		101	57.9	140			

Sample ID	LCS-15534		SampType: LCS		TestCode: EPA Method 8015D: Diesel Range Organics					
Client ID:	LCSS		Batch ID: 15534		RunNo: 21518					
Prep Date:	9/26/2014		Analysis Date: 9/29/2014		SeqNo: 630646		Units: mg/Kg			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	47	10	50.00	0	93.7	68.6	130			
Surr: DNOP	4.8		5.000		95.7	57.9	140			

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#: 1409D40

01-Oct-14

Client: R.T. Hicks Consultants, LTD

Project: North Hackberry Yates 105

Sample ID	MB-15551		SampType: MBLK		TestCode: EPA Method 8015D: Gasoline Range					
Client ID:	PBS		Batch ID: 15551		RunNo: 21502					
Prep Date:	9/26/2014		Analysis Date: 9/28/2014		SeqNo: 628928		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	900		1000		89.7	80	120			

Sample ID	LCS-15551		SampType: LCS		TestCode: EPA Method 8015D: Gasoline Range					
Client ID:	LCSS		Batch ID: 15551		RunNo: 21502					
Prep Date:	9/26/2014		Analysis Date: 9/28/2014		SeqNo: 628929		Units: mg/Kg			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	26	5.0	25.00	0	105	65.8	139			
Surr: BFB	940		1000		94.5	80	120			

Sample ID	MB-15551 MK		SampType: MBLK		TestCode: EPA Method 8015D: Gasoline Range					
Client ID:	PBS		Batch ID: R21502		RunNo: 21502					
Prep Date:			Analysis Date: 9/28/2014		SeqNo: 628939		Units: %REC			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: BFB	900		1000		89.7	80	120			

Sample ID	LCS-15551 MK		SampType: LCS		TestCode: EPA Method 8015D: Gasoline Range					
Client ID:	LCSS		Batch ID: R21502		RunNo: 21502					
Prep Date:			Analysis Date: 9/28/2014		SeqNo: 628940		Units: %REC			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: BFB	940		1000		94.5	80	120			

Sample ID	5ML RB		SampType: MBLK		TestCode: EPA Method 8015D: Gasoline Range					
Client ID:	PBS		Batch ID: R21524		RunNo: 21524					
Prep Date:			Analysis Date: 9/29/2014		SeqNo: 629693		Units: %REC			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: BFB	880		1000		87.7	80	120			

Sample ID	2.5UG GRO LCS		SampType: LCS		TestCode: EPA Method 8015D: Gasoline Range					
Client ID:	LCSS		Batch ID: R21524		RunNo: 21524					
Prep Date:			Analysis Date: 9/29/2014		SeqNo: 629694		Units: %REC			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: BFB	960		1000		96.1	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#: 1409D40

01-Oct-14

Client: R.T. Hicks Consultants, LTD

Project: North Hackberry Yates 105

Sample ID	MB-15551		SampType: MBLK		TestCode: EPA Method 8021B: Volatiles					
Client ID:	PBS		Batch ID: 15551		RunNo: 21502					
Prep Date:	9/26/2014		Analysis Date: 9/28/2014		SeqNo: 628956		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	ND	0.10								
Surr: 4-Bromofluorobenzene	0.93		1.000		93.3	80	120			

Sample ID	LCS-15551		SampType: LCS		TestCode: EPA Method 8021B: Volatiles					
Client ID:	LCSS		Batch ID: 15551		RunNo: 21502					
Prep Date:	9/26/2014		Analysis Date: 9/28/2014		SeqNo: 628957		Units: mg/Kg			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	0.98	0.050	1.000	0	98.0	80	120			
Toluene	0.97	0.050	1.000	0	96.7	80	120			
Ethylbenzene	1.0	0.050	1.000	0	100	80	120			
Xylenes, Total	3.0	0.10	3.000	0	99.3	80	120			
Surr: 4-Bromofluorobenzene	1.0		1.000		100	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

Sample Log-In Check List

Client Name: RT HICKS

Work Order Number: 1409D40

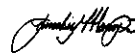
RcptNo: 1

Received by/date:

AF 09/26/14

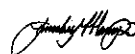
Logged By: Lindsay Mangin

9/26/2014 10:48:00 AM



Completed By: Lindsay Mangin

9/26/2014 12:14:19 PM



Reviewed By:

mg 09/26/14

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 ☐
6. Sample(s) in proper container(s)? Approved by client. 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?
(Note discrepancies on chain of custody) Yes ☒ No ☐
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?
(If no, notify customer for authorization.) Yes ☒ No ☐

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	10.1	Good	Not Present			

