R. T. HICKS CONSULTANTS, LTD.

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

November 3, 2014

Mr. Soloman 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 REVISED

Dear Mr. Hughes and Mr. Bratcher:

Please accept this revised version as the final remediation proposal. It supersedes and clarifies previous communications. Since our last communication and prior to the sampling program described in this report, Hungry Horse removed additional impacted soil from the site for disposal (R360) and stockpiled topsoil and non-impacted excavated soil for future backfilling. This effort makes moot our previous submission.

Sampling Methods

We collected a suite of samples from the excavated trench in order to provide additional characterization prior to completing a remedy. Plate 1 presents the locations of the samples collected on September 23, 2014. Table 1 presents the results of the sampling and the laboratory reports are attached to this submittal.

Figure 1 (below) shows the sampling methodology. This sample site is PL-3 on Plate 1. Sample PL-3-C is below the pipeline, in the center of the excavation, in the left corner of Figure 1. Sample PL-3-N is the jar shown about 4-feet below natural grade (blue line) on the north face of the excavation. The pipeline is exposed in the middle of the trench and all central samples were taken from beneath the exposed pipeline. Not shown in this photograph is PL3-S, also 4-feet below natural grade, above the pipeline and on the south face of the excavation.

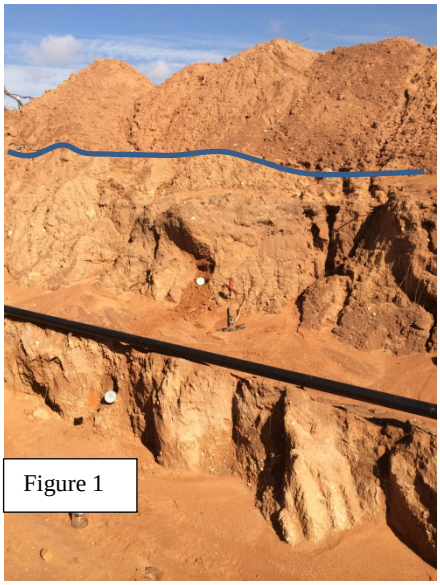


Figure 1

Figure 2a and 2b show the sampling at PL4 This location is not over the pipeline but is within the flow path of the leak. Figure 2b shows that the same sampling methodology was used: one sample from the center of the trench that is more than 4-feet beneath the natural grade and two samples from either side of the trench that lie within the 0-4 foot zone below grade. Figure 2b shows only PL4-C and PL-4S.

Figure 2a

Figure 2b

Depth to Groundwater

Plate 2 of our August 4 submission shows that groundwater elevation in the Rustler Formation is 3201 feet asl (water well Misc-175, east of the release measures a depth to groundwater of 99 feet). Wells completed in the sandy alluvium near Hackberry Lake show a depth to groundwater of about 40 feet (an elevation of 3222 feet asl for Misc-177 southeast of the release). The release footprint within the arroyo has been remediated to near background conditions. The release footprint on the hillside is not within the sandy alluvium. Instead, the release footprint overlies Rustler Formation, based upon nearby outcrops. Thus, we conclude with a high degree of certainty that the depth to groundwater beneath the hillsides is greater than 50 feet – as was measured on the east side of the arroyo.

Discussion of Sampling Results

The sampling results from September 2014 and earlier campaigns clearly show that petroleum hydrocarbons are not present at the site. The soils impacted by the crude spill have been removed for disposal.

Table 1 (below) shows that the soil material remaining within the area of impact (the trench) meet the concentration limits established by the Oil Conservation Commission for burial beneath a 4-foot soil cover (less than 10,000 mg/kg from Table I of the Pit Rule). In the arroyo, chloride concentrations are very low as shown. A discussion of how the Pit Rule concentration limits apply to this release is provided in Appendix A.

The west stockpile material meets the BLM standard (less than 1000 mg/kg chloride) for surface material. However, the chloride concentration exceeds the OCD 600 mg/kg limit for a soil cover (see Appendix A).

Sample Name	Sample Depth	Chloride	DRO	MRO	GRO	BTEX
		all units mg/kg				
PL-1-C	>4 feet	29				
PL-1-N	3-4 feet	1900				
PL-1-S	3-4 feet	29				
PL-2-C	>4 feet	29	ND	ND	ND	
PL-2-N	3-4 feet	58	ND	ND	ND	ND
PL-2-S	3-4 feet	29				
PL-3-C	>4 feet	4200	ND	ND	ND	ND
PL-3-N	3-4 feet	370				
PL-3-S	3-4 feet	29				
PL-4-C	>4 feet	29	ND	ND	ND	ND
PL-4-N	3-4 feet	470				
PL-4-S	3-4 feet	510				
AVERAGE Pipeline Trench Samples		640				
S-1	0-1 foot	260				
S-2	0-1 foot	29				
S-3	0-1 foot	29				
S-4	0-1 foot	29				
West Stockpile		880				
East Stockpile		410				
Laboratory Reporting Limit		30				

The Remedy Instructions to Contractor (Appendix B) calls for using the West Stockpile material to fill the excavation to within 4-feet of natural grade. If any material in the West Stockpile remains, the contractor will blend remaining material of the West Stockpile with clean fill in order to achieve a chloride concentration of 600 mg/kg or less for the soils from 0-4 feet below grade.

Southwest Royalties would like to proceed with the remedy as soon as possible. However, we understand that OCD has several permit reviews in line ahead of this submittal and the OCD "first-in/first-out" policy may cause the review of this submittal to be complete in December or later.

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

Appendix A – OCD Burial Standards

Part 29 of OCD Rules address releases to the environment – such as the North Hackberry Yates 105 release. Part 29 requires a corrective action according to the following citation [emphasis added]:

> **19.15.29.11 CORRECTIVE ACTION:** The responsible person shall complete division-approved corrective action for releases that endanger public health or the environment. The responsible person shall address releases in accordance with a remediation plan submitted to and approved by the division or with an abatement plan submitted in accordance with 19.15.30 NMAC.

Part 29 of OCD Rules does not provide any numerical criteria to determine if a release "endangers public health or the environment". However, the Pit Rule does offer such numerical standards.

In technical testimony during the Pit Rule hearings, experts provided data regarding the concentration of chloride that may be left in place at the ground surface (the soil horizon). The Oil Conservation Commission (OCC), after hearing testimony from many sides of the argument, decided that a concentration of 600 mg/kg concentration is suitable to allow for growth of vegetation. This finding of the OCC is established in the Pit Rule NMAC 19.15.17.13.H.(2) and (3). BLM has found that a concentration of 1000 mg/kg is acceptable to be left in place in southeast New Mexico. The "Findings of Fact Section R" that explain the OCC decision regarding the 600 mg/kg chloride limit are included below for the benefit of BLM. Emphasis is added as yellow highlight to show the specific finding.

> R. The Commission finds that revegetation is an important factor in providing reasonable protection of fresh water, and protection of public health and the environment. Revegetation of the area over a pit protects against erosion and movement of chlorides and other waste constituents toward groundwater. Chlorides from pit waste are not only a concern because of potential groundwater contamination, but also because they stress vegetation. Shrubs generally root at 3 to 4 feet, while grasses are generally confined to the upper two feet. The Commission received evidence that, while some native species in New Mexico are more salt tolerant, a chloride concentration of 600 mg/kg is a conservative level for soil that will sustain vegetation. The Commission finds, then, that the top four feet of soil cover should have no greater chloride concentration than 600 mg/kg, unless the native soil concentration is greater. The Commission also received evidence that salt from pit contents will migrate up, thereby causing concern that it not migrate far enough toward the surface to affect vegetation. Evidence supports the conclusion, though, that such migration is limited and likely will be somewhere in the range of 12 inches. The Commission finds that four feet of cover, particularly in light of additional backfill at pit closure, is sufficient to protect against the threat to vegetation from the upward migration of salts. For shallow excavations to support drying pads and below grade tanks with no evidence of leaks or spills, if the soil under the pad or tank is no more than 600 mg/kg, cover need not be more than one foot. The Commission further finds that seeding to establish categories of vegetation, as opposed to specific species, allows flexibility and encourages successful revegetation. Moreover, revegetation is most successful where native species are used. In order to allow flexibility, however, "native" should not be interpreted to mean in the immediate vicinity of the revegetative efforts, and the Commission finds that revegetating with regional native life forms will enhance successful revegetation. Finally, because weather and planting conditions may not be favorable in the first growing season after pit closure, the operator should be required to seed in the first favorable growing season following pit closure.

At the North Hackberry Yates Well #105 release site, the residual chloride concentrations meet the BLM standards of less than 1000 mg/kg. We believe the average chloride concentration of 626 mg/kg in the trench also meet OCD standards for closure – provided the residual material is beneath a 4-foot soil cover. This conclusion is based upon the technical foundations in the Pit Rule.

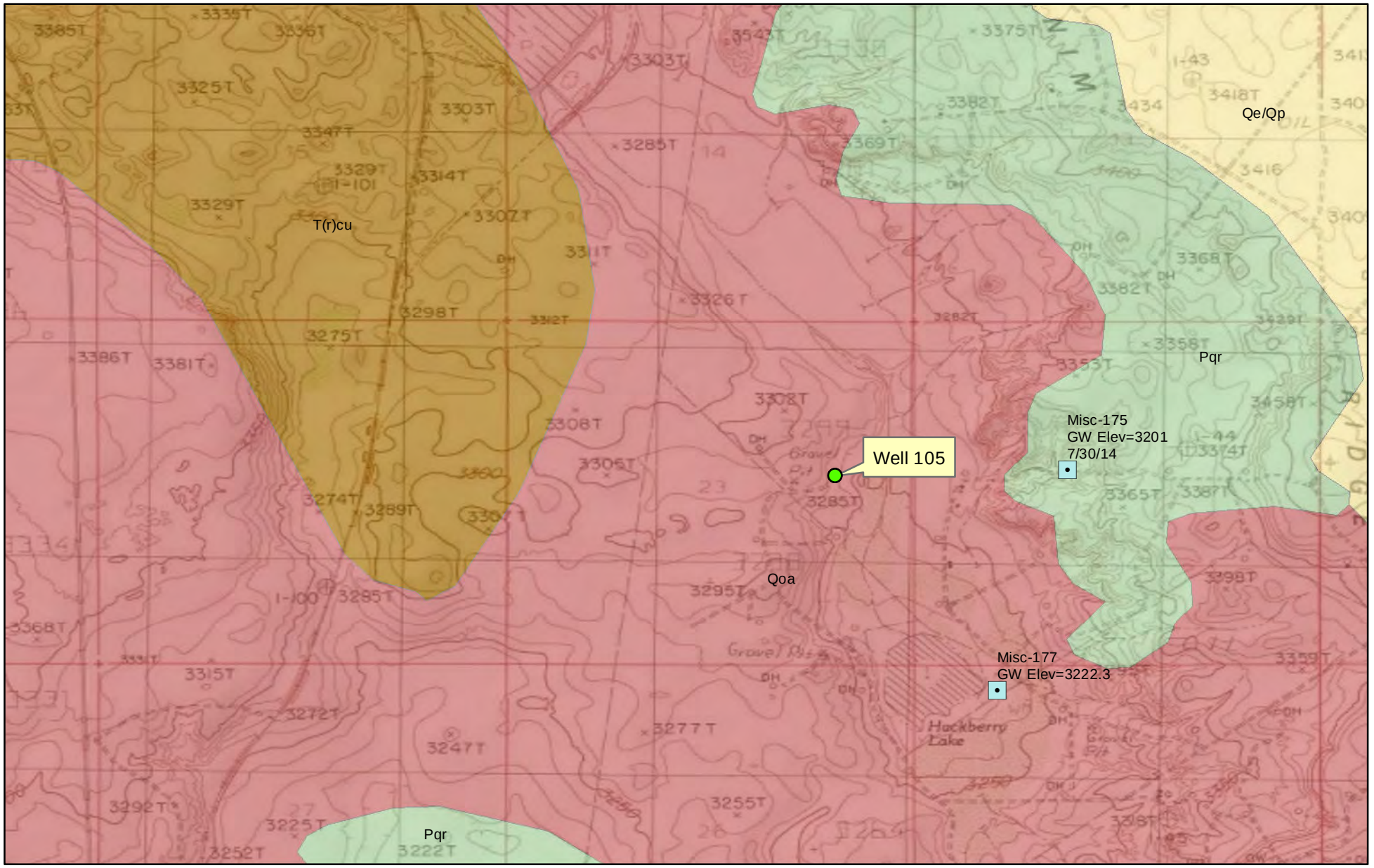
Similar to "Finding R" above, the OCC listened to technical arguments from many sides and found The Pit Rule Standards presented in Table I represent concentrations that are acceptable for burial beneath a 4-foot soil cover without a geomembrane cover (Table I of the Pit Rule). While somewhat difficult to read, "Finding S" (below) discusses the rationale for the concentration limits placed in Table I. The discussion in "Finding S" involves both Table I and Table II. We have highlighted what we believe is the pertinent section of the finding that speaks to Table I's burial criteria that apply to releases – be the release from a pit or a pipeline.

> S. Based on the modeling presented to the Commission and other evidence presented to the Commission regarding, without limitation, chloride movement through soils, the salt bulge, migration of salts toward the surface, the mobility of chlorides as compared to the non-chloride constituents reflected in the Tables in Section 19.15.17.13 of Attachment A, closure and revegetation, and the mobility, toxicity, and volatility of the constituents and compounds set forth in the Tables, a majority of the Commission finds that the closing standards that are the constituent levels set forth in Table I and Table II in Section 19.15.17.13 of Attachment A, in conjunction with the other requirements of Attachment A, including without limitation, requirements concerning construction and design of pits, burial trenches and below grade tanks, and operation, closure and revegetation, provide reasonable protection of groundwater and protection of public health and the environment. While the Applications requested higher chloride levels in Table II, the modeling presented to the Commission for groundwater at a depth of 25 feet beneath pit waste was based on approximately 20,000 mg/kg of chloride, and the Commission declines to adjust the chloride level in Table II for stabilized waste where groundwater is 25 to 50 feet below the surface of the waste to a level greater than that which was modeled. Moreover, given the foregoing referenced evidence and requirements, a majority of the Commission finds that doubling the chloride levels in Table II as the groundwater depth increases at 50 foot increments is reasonable and consistent with typical engineering safety factors. Finally, because any pit may be sited where groundwater is 50 feet from the bottom of the pit, and the bottom of low chloride pits and below grade tanks may be sited 25 feet from groundwater, the Commission declines to set the chloride trigger for further investigation in Table I, where groundwater is less than 50 feet from the bottom of a pit, at 5,000 mg/kg, as requested by the Applicants. Given the proximity of the groundwater and the fact that the facilities that are subject to Table I criteria were fluid bearing prior to closure, the Commission believes that a conservative standard for triggering an investigation at that groundwater depth is more appropriate. Under Table I, the Commission finds that requiring further investigation where groundwater is 50 feet or less from the bottom of the structure and the chloride concentration of the soil exceeds 600 mg/kg provides reasonable protection of fresh water and protection of public health and the environment.

Appendix B Remedy Instruction to Contractor

1. Distribute the soil in the West Stockpile in the excavation such that it lies more than 4-feet below the natural grade.
2. Also, 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 natural grade and soil in the West Stockpile remains, blend one part of the remaining soil in the West Stockpile with 2 parts soil from the East Stockpile in the following manner
    a. Place no more than 1.3 feet of soil from the West Stockpile in the bottom of the trench
    b. Place at least 2.7 feet of soil from the East Stockpile in the trench over the soil from the West Stockpile
    c. Obtain a composite sample of the 4-foot soil cover to confirm that the material meets the OCD standard of 600 mg/kg
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).

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. The green rectangles are the locations of the east (right) and west (stockpile).



N
W E
S

0 2,000 Feet

R.T. Hicks Consultants, Ltd
901 Rio Grande Blvd NW Suite F-142
Albuquerque, NM 87104
Ph: 505.266.5004

Geologic Map And Groundwater Elevation

Plate 2

Southwest Royalties - North Hackberry Yates #105

Aug 2014

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 qualifers 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,

Andy Freeman
Laboratory Manager
4901 Hawkins NE
Albuquerque, NM 87109

Analytical Report
Lab 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: 1409D42-001 **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

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.	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#: **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.	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

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

Sample Log-In Check List

Client Name: RT HICKS | Work Order Number: 1409D42 | 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 12:23:02 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 ☐
	Approved by client.		
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	10.1	Good	Not Present			

Chain-of-Custody Record

Client: Hicks Consultant

Mailing Address:

Phone #: 238-9515

email or Fax#: R@rthicksconsult.com

QA/QC Package:

☐ Standard ☐ Level 4 (Full Validation)

Accreditation

☐ NELAP ☐ Other _____

☐ EDD (Type) _____

Turn-Around Time:

☐ Standard ☒ Rush 9/30

Project Name: NORTH HACKBERRY YATES 105

Project #: SALL

Project Manager: RTH

Sampler:

On Ice: ☒ Yes ☐ No

Sample Temperature: 10.1

HALL ENVIRONMENTAL ANALYSIS LABORATORY

www.hallenvironmental.com

4901 Hawkins NE - Albuquerque, NM 87109

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

Analysis Request

Date	Time	Matrix	Sample Request ID	Container Type and #	Preservative Type	HEAL No. 1409142	BTEX + MTBE + TMB's (8021)	BTEX + 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,NO_3,NO_2,PO_4,SO_4)	8081 Pesticides / 8082 PCB's	8260B (VOA)	8270 (Semi-VOA)	Chloride				Air Bubbles (Y or N)
9/25	10:32	Soil	WEST STOCKPILE	2 Glass		-001												X				
9/25	10:12		EAST STOCKPILE	2 Glass		-002												X				
	9:08	Soil	S-1	1 Glass		-003												X				
	9:10	Soil	S-2	1 Glass		-004												X				
	9:12	Soil	S-4	1 Glass		-005												X				
	9:13	Soil	S-3	1 Glass		-006												X				

Date:	Time:	Relinquished by:	Received by:	Date	Time
9/26	1048			9/26/19	10:48
Date:	Time:	Relinquished by:	Received by:	Date	Time

Remarks:

If necessary, samples submitted to Hall Environmental may be subcontracted to other accredited laboratories. This serves as notice of this possibility. Any sub-contracted data will be clearly notated on the analytical report.

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 qualifers 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,

Andy Freeman
Laboratory Manager
4901 Hawkins NE
Albuquerque, NM 87109

Analytical Report
Lab Order **1409D40**
Date Reported: **10/1/2014**

Hall Environmental Analysis Laboratory, Inc.

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
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: 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
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
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S	Spike Recovery outside accepted recovery limits		

Hall Environmental Analysis Laboratory, Inc.

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
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: 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
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: 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.	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: 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
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: 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
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: 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.

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.
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.

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
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: 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.

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
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.	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#: **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.	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#: **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.	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#: **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.	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		

ENVIRONMENTAL ANALYSIS LABORATORY

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

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 ☐
   Approved by client.
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	10.1	Good	Not Present			

Chain-of-Custody Record

Client: [redacted] / Hicks Consultants

Mailing Address:

Phone #: 238-9515

email or Fax#: R@rthicksconsult

QA/QC Package:
☐ Standard ☐ Level 4 (Full Validation)

Accreditation
☐ NELAP ☐ Other

☐ EDD (Type)

Turn-Around Time:
☐ Standard ☒ Rush 9/30

Project Name: NORTH HACKBERRY YATES 105

Project #: SPILL

Project Manager: RTH

Sampler:

On Ice: ☑ Yes ☐ No

Sample Temperature: 10.1

HALL ENVIRONMENTAL ANALYSIS LABORATORY

www.hallenvironmental.com

4901 Hawkins NE - Albuquerque, NM 87109

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

Analysis Request

Date	Time	Matrix	Sample Request ID	Container Type and #	Preservative Type	HEAL No. 1409D10	BTEX + MTBE + TMB's (8021)	BTEX [redacted]	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,NO_3,NO_2,PO_4,SO_4)	8081 Pesticides / 8082 PCB's	8260B (VOA)	8270 (Semi-VOA)	Chloride				Air Bubbles (Y or N)
9/25/14	931	Soil	PL-1 [redacted] S	1 Glass		-001												X				
	929		PL-1 Center	"		-002		[redacted]										X				
	931		PL-1 NORTH	"		-003												X				
	933		PL-2 NORTH	"		-004												X				
	935		PL-2 Center	"		-005		X	X									X				
	936		PL-2 South	"		-006												X				
	946		PL 3 - NORTH	"		-007												X				
	948		PL 3 - Center	"		-008		X	X									X				
	950		PL 3 South	"		-009												X				
	954		PL-4 NORTH	"		-010												X				
	957		PL 4 Center	"		-011		X	X									X				
	10:01		PL 4 - South	"		-012												X				

Date:	Time:	Relinquished by:	Received by:	Date Time
9/26	1048	[signature]	[signature]	9/26/14 1048
Date:	Time:	Relinquished by:	Received by:	Date Time

Remarks:

If necessary, samples submitted to Hall Environmental may be subcontracted to other accredited laboratories. This serves as notice of this possibility. Any sub-contracted data will be clearly notated on the analytical report.