

R. T. HICKS CONSULTANTS, LTD.

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

June 6, 2014

HOBBS OCD

JUN 06 2014

Mr. Geoffrey Leking
NMOCD District 1
1625 French Drive
Hobbs, New Mexico 88240
Via Email

RECEIVED

RE: Murchison – Jackson Unit 15H Temporary Pit
In-place Burial Notice
Unit C, Section 15, T24S, R33E, API #30-025-41086

approved
Geoffrey Leking
Environmental Specialist
NMOCD-DIST 1
6/10/14

Dear Mr. Leking:

On behalf of Murchison Oil and Gas, R. T. Hicks Consultants is providing this closure notice to NMOCD with a copy to the State Land Office (certified, return receipt request). The above- referenced pit will begin closure operations on **Thursday, June 12, 2014**. Depending on equipment availability, the closure process should require about two weeks.

In conformance with the 2013 Pit Rule, a five-point (minimum) composite sample that is fully representative of the solids in the pit was recovered on April 2, 2014 and stabilized with the available mixing soil at a 3:1 ratio¹.

As shown in the summary table below, laboratory analyses of the stabilized cuttings composite demonstrate that the concentrations of the parameters listed in Table II of 19.15.17.13 NMAC (June 2013 Pit Rule) are below the limits that allow in-place burial of the stabilized cuttings.

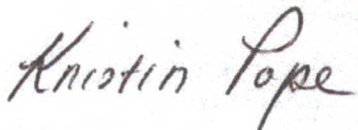
3:1 Stabilized Cuttings Sample		
Constituent	Table II Limit (GW>100')	4/2/14 Sample
Chloride	80,000 mg/kg	8,300
TPH	2,500 mg/kg	1,500
GRO+DRO	1,000 mg/kg	912
BTEX	50 mg/kg	5.19
Benzene	10 mg/kg	0.19

¹ (5) The operator shall collect, at a minimum, a five point composite of the contents of the temporary pit or drying pad/tank associated with a closed-loop system to demonstrate that, after the waste is solidified or stabilized with soil or other non-waste material at a ratio of no more than 3:1 soil or other non-waste material to waste, the concentration of any contaminant in the stabilized waste is not higher than the parameters in Table II of 19.15.17.13 NMAC.

I will follow up this notice to you with a phone call as required by the Pit Rule. Additionally, NMOCD will be notified prior to the installation of the geomembrane cover over the stabilized cuttings. As always, we appreciate your work to keep us on schedule.

Sincerely,

R.T. Hicks Consultants

A handwritten signature in cursive script that reads "Kristin Pope".

Kristin Pope

Enclosure: Laboratory analyses

Copy: Murchison Oil and Gas

Terry Warnell, State Land Office
New Mexico State Land Office
PO Box 1148
Santa Fe, NM 87504-1148
CERTIFIED MAIL – RETURN RECEIPT REQUEST

Hall Environmental Analysis Laboratory, Inc.**Analytical Report**

Lab Order 1404303

Date Reported: 4/22/2014

CLIENT: R.T. Hicks Consultants, LTD**Client Sample ID:** Field 3:1 Stabilized Cuttings**Project:** Murchison Jackson Unit 15H**Collection Date:** 4/2/2014 11:55:00 AM**Lab ID:** 1404303-001**Matrix:** SOIL**Received Date:** 4/4/2014 12:20:00 PM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8015D: DIESEL RANGE ORGANICS							Analyst: BCN
Diesel Range Organics (DRO)	860	99		mg/Kg	10	4/14/2014 1:01:42 PM	12586
Motor Oil Range Organics (MRO)	ND	500		mg/Kg	10	4/14/2014 1:01:42 PM	12586
Surr: DNOP	0	66-131	S	%REC	10	4/14/2014 1:01:42 PM	12586
EPA METHOD 8015D: GASOLINE RANGE							Analyst: RAA
Gasoline Range Organics (GRO)	52	10		mg/Kg	2	4/15/2014 3:58:46 PM	12617
Surr: BFB	159	74.5-129	S	%REC	2	4/15/2014 3:58:46 PM	12617
EPA METHOD 8021B: VOLATILES							Analyst: RAA
Methyl tert-butyl ether (MTBE)	ND	0.20		mg/Kg	2	4/12/2014 12:41:49 AM	12617
Benzene	0.19	0.10		mg/Kg	2	4/12/2014 12:41:49 AM	12617
Toluene	1.4	0.10		mg/Kg	2	4/12/2014 12:41:49 AM	12617
Ethylbenzene	0.60	0.10		mg/Kg	2	4/12/2014 12:41:49 AM	12617
Xylenes, Total	3.0	0.20		mg/Kg	2	4/12/2014 12:41:49 AM	12617
Surr: 4-Bromofluorobenzene	117	80-120		%REC	2	4/12/2014 12:41:49 AM	12617
EPA METHOD 300.0: ANIONS							Analyst: JRR
Chloride	8300	690		mg/Kg	500	4/10/2014 12:49:37 PM	12646
EPA METHOD 418.1: TPH							Analyst: JME
Petroleum Hydrocarbons, TR	1500	200		mg/Kg	10	4/11/2014 12:00:00 PM	12560

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	Page 1 of 6
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
4901 Hawkins NE
Albuquerque, NM 87109
TEL: 505-345-3975 FAX: 505-345-4107
Website: www.hallenvironmental.com

April 22, 2014

Kristin Pope

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: Murchison Jackson Unit 15H

OrderNo.: 1404303

Dear Kristin Pope:

Hall Environmental Analysis Laboratory received 1 sample(s) on 4/4/2014 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

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1404303

22-Apr-14

Client: R.T. Hicks Consultants, LTD

Project: Murchison Jackson Unit 15H

Sample ID	MB-12646	SampType	MBLK	TestCode	EPA Method 300.0: Anions					
Client ID	PBS	Batch ID	12646	RunNo	17936					
Prep Date	4/10/2014	Analysis Date	4/10/2014	SeqNo	517496	Units	mg/Kg			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	ND	1.5								

Sample ID	LCS-12646	SampType	LCS	TestCode	EPA Method 300.0: Anions					
Client ID	LCSS	Batch ID	12646	RunNo	17936					
Prep Date	4/10/2014	Analysis Date	4/10/2014	SeqNo	517497	Units	mg/Kg			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	14	1.5	15.00	0	93.6	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#: 1404303

22-Apr-14

Client: R.T. Hicks Consultants, LTD

Project: Murchison Jackson Unit 15H

Sample ID	MB-12560	SampType:	MBLK	TestCode:	EPA Method 418.1: TPH						
Client ID:	PBS	Batch ID:	12560	RunNo:	17911						
Prep Date:	4/7/2014	Analysis Date:	4/10/2014	SeqNo:	516689	Units:	mg/Kg				
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual	
Petroleum Hydrocarbons, TR	ND	20									

Sample ID	LCS-12560	SampType:	LCS	TestCode:	EPA Method 418.1: TPH						
Client ID:	LCSS	Batch ID:	12560	RunNo:	17911						
Prep Date:	4/7/2014	Analysis Date:	4/10/2014	SeqNo:	516690	Units:	mg/Kg				
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual	
Petroleum Hydrocarbons, TR	98	20	100.0	0	97.8	80	120				

Sample ID	LCSD-12560	SampType:	LCSD	TestCode:	EPA Method 418.1: TPH						
Client ID:	LCSS02	Batch ID:	12560	RunNo:	17911						
Prep Date:	4/7/2014	Analysis Date:	4/10/2014	SeqNo:	516691	Units:	mg/Kg				
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual	
Petroleum Hydrocarbons, TR	98	20	100.0	0	97.8	80	120	0	20		

Qualifiers:

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

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

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1404303

22-Apr-14

Client: R.T. Hicks Consultants, LTD

Project: Murchison Jackson Unit 15H

Sample ID	MB-12586	SampType:	MBLK	TestCode:	EPA Method 8015D: Diesel Range Organics					
Client ID:	PBS	Batch ID:	12586	RunNo:	17898					
Prep Date:	4/8/2014	Analysis Date:	4/10/2014	SeqNo:	516454	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	8.1		10.00		80.6	66	131			

Sample ID	LCS-12586	SampType:	LCS	TestCode:	EPA Method 8015D: Diesel Range Organics					
Client ID:	LCSS	Batch ID:	12586	RunNo:	17898					
Prep Date:	4/8/2014	Analysis Date:	4/10/2014	SeqNo:	516498	Units:	mg/Kg			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	59	10	50.00	0	118	60.8	145			
Surr: DNOP	5.4		5.000		109	66	131			

Qualifiers:

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

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

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1404303

22-Apr-14

Client: R.T. Hicks Consultants, LTD

Project: Murchison Jackson Unit 15H

Sample ID	MB-12617	SampType:	MBLK	TestCode:	EPA Method 8015D: Gasoline Range						
Client ID:	PBS	Batch ID:	12617	RunNo:	17906						
Prep Date:	4/9/2014	Analysis Date:	4/10/2014	SeqNo:	517113	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	860		1000		86.4	74.5	129				

Sample ID	LCS-12617	SampType:	LCS	TestCode:	EPA Method 8015D: Gasoline Range						
Client ID:	LCSS	Batch ID:	12617	RunNo:	17906						
Prep Date:	4/9/2014	Analysis Date:	4/10/2014	SeqNo:	517114	Units:	mg/Kg				
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual	
Gasoline Range Organics (GRO)	24	5.0	25.00	0	96.7	71.7	134				
Surr: BFB	930		1000		92.8	74.5	129				

Sample ID	LCSD-12617	SampType:	LCSD	TestCode:	EPA Method 8015D: Gasoline Range						
Client ID:	LCSS02	Batch ID:	12617	RunNo:	17906						
Prep Date:	4/9/2014	Analysis Date:	4/10/2014	SeqNo:	517115	Units:	%REC				
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual	
Surr: BFB	910							0	0		

Qualifiers:

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

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

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1404303

22-Apr-14

Client: R.T. Hicks Consultants, LTD

Project: Murchison Jackson Unit 15H

Sample ID	MB-12617		SampType:	MBLK		TestCode:	EPA Method 8021B: Volatiles			
Client ID:	PBS		Batch ID:	12617		RunNo:	17906			
Prep Date:	4/9/2014		Analysis Date:	4/10/2014		SeqNo:	517158		Units: mg/Kg	
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Methyl tert-butyl ether (MTBE)	ND	0.10								
Benzene	ND	0.050								
Toluene	ND	0.050								
Ethylbenzene	ND	0.050								
Xylenes, Total	ND	0.10								
Surr: 4-Bromofluorobenzene	1.0		1.000		104	80	120			

Sample ID	LCS-12617		SampType:	LCS		TestCode:	EPA Method 8021B: Volatiles			
Client ID:	LCSS		Batch ID:	12617		RunNo:	17906			
Prep Date:	4/9/2014		Analysis Date:	4/10/2014		SeqNo:	517159		Units: mg/Kg	
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Methyl tert-butyl ether (MTBE)	0.97	0.10	1.000	0	97.2	64.5	131			
Benzene	1.1	0.050	1.000	0	106	80	120			
Toluene	1.0	0.050	1.000	0	100	80	120			
Ethylbenzene	1.0	0.050	1.000	0	101	80	120			
Xylenes, Total	3.0	0.10	3.000	0	99.5	80	120			
Surr: 4-Bromofluorobenzene	1.1		1.000		108	80	120			

Sample ID	LCSD-12617		SampType:	LCSD		TestCode:	EPA Method 8021B: Volatiles			
Client ID:	LCSS02		Batch ID:	12617		RunNo:	17906			
Prep Date:	4/9/2014		Analysis Date:	4/10/2014		SeqNo:	517160		Units: mg/Kg	
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Methyl tert-butyl ether (MTBE)	1.1	0.10	1.000	0	109	64.5	131	11.5	20	
Benzene	1.1	0.050	1.000	0	108	80	120	1.95	20	
Toluene	1.0	0.050	1.000	0	101	80	120	0.387	20	
Ethylbenzene	1.0	0.050	1.000	0	101	80	120	0.405	20	
Xylenes, Total	3.0	0.10	3.000	0	100	80	120	0.614	20	
Surr: 4-Bromofluorobenzene	1.1		1.000		111	80	120	0		

Qualifiers:

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- 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
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: 1404303

RcptNo: 1

Received by/date:

Logged By: Anne Thorne

4/4/2014 12:20:00 PM

Completed By: Anne Thorne

4/8/2014

Reviewed By:

Chain of Custody

1. Custody seals intact on sample bottles? Yes ☐ No ☐ Not Present ☒
2. Is Chain of Custody complete? Yes ☒ No ☐ Not Present ☐
3. How was the sample delivered? Client

Log In

4. Was an attempt made to cool the samples? Yes ☒ No ☐ NA ☐
5. Were all samples received at a temperature of $>0^{\circ}\text{C}$ 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 ☒

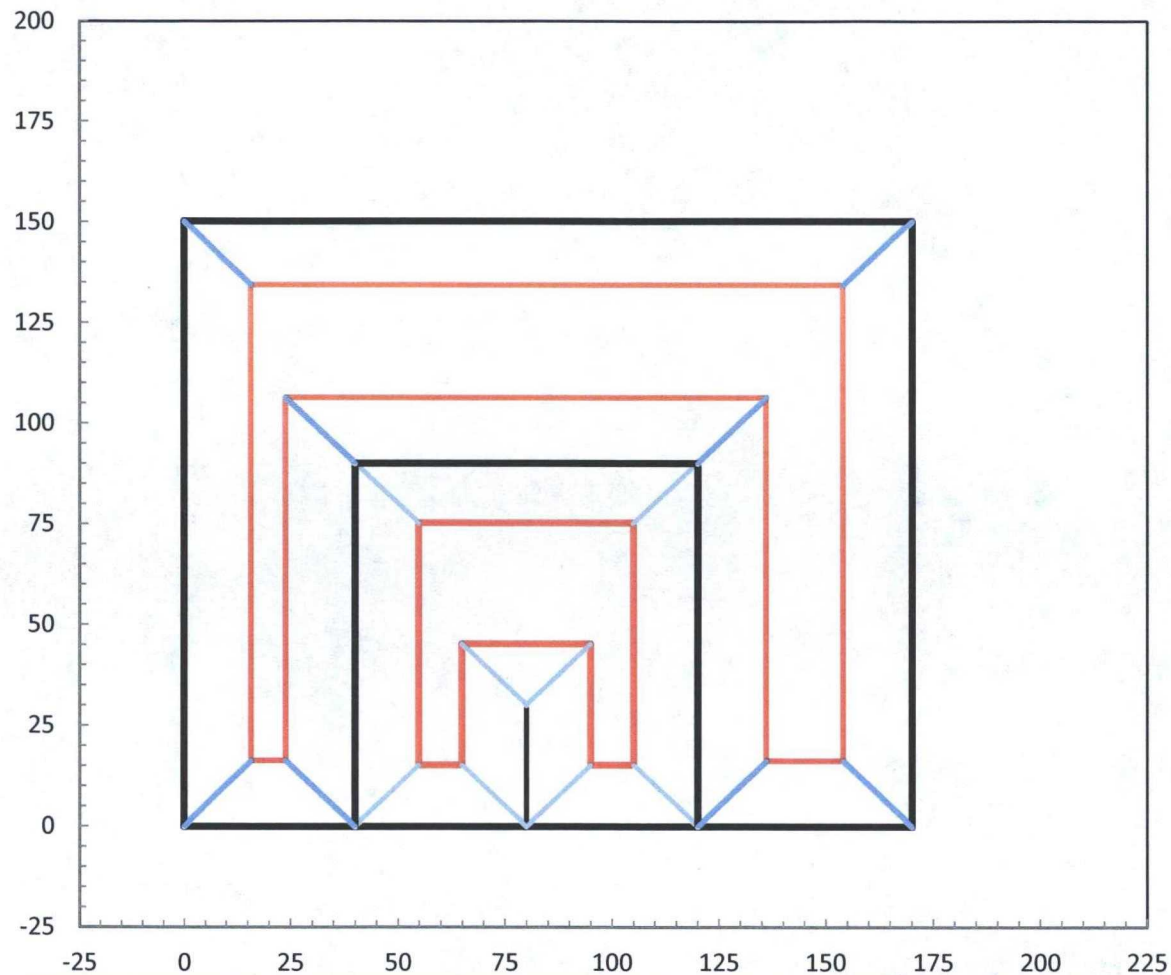
Person Notified: _____ Date: _____
By Whom: _____ Via: ☐ eMail ☐ Phone ☐ Fax ☐ In Person
Regarding: _____
Client Instructions: _____

17. Additional remarks:

18. Cooler Information

Cooler No	Temp $^{\circ}\text{C}$	Condition	Seal Intact	Seal No	Seal Date	Signed By
1	2.5	Good	Not Present			

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.



Inner Horseshoe Capacity 6011 bbl
Outer Horseshoe Capacity 17701 bbl

Frac Cell Capacity 0 bbl
Total Capacity 23712 bbl

Drilling Cell Dimensions

Drilling Cell Total Width	170.0
Drilling Cell Total Length	150.0

Slopes of Pit Horizontal Distance	2.00
Slopes of Pit Vertical Distance	1.00
Horseshoe divider width at surface	0.0

Inner Horseshoe Dimensions

Total Width (left right)	80.0
Total Length (up down)	90.0
Depth	7.5
Length of Divider	30.0
Divider Width	0.0
Width of discharge floor	10.0
Width of suction floor	10.0

Outer Horseshoe Dimensions

Width Discharge Side	50.0
Width Suction Side	40.0
Length Far Side (up down)	60.0
Width of discharge Floor	18.0
Width of Suction Floor	8.0
Width of Far Side Floor (right-left dimension)	126.0
Length of far side floor (Up-down dimension)	28.0
Depth of Discharge Side	6.0
Depth of Far Side	8.0
Depth of Suction Side	10.0

Fluids Cell Dimensions

Width (left-right)	0.0
Length (up-down)	0.0
Depth	10.0

R.T. Hicks Consultants
901 Rio Grande Blvd. NW
Suite F-142
Albuquerque, N. M. 87104

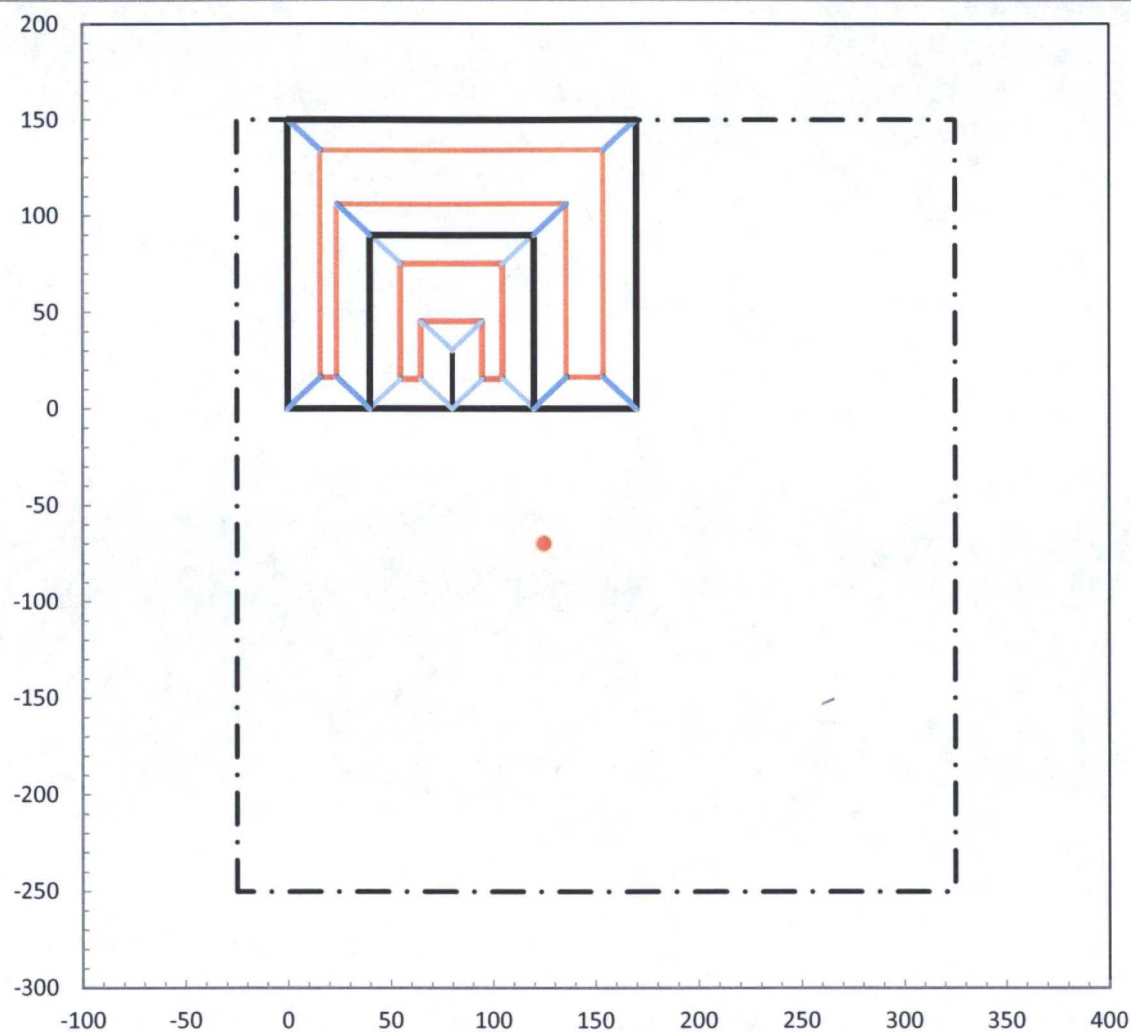
Drawing of Drilling Cell

Murchison - Jackson Unit 15H
(Design approved 7/22/2013 API #30-025-41227)

Plate 1

October 2013

REVIEWED 11/22/13



- Black Lines are on the ground surface.
- Red Lines are on the Pit Floors.
- The Blue Contour Lines are at a depth of 4 feet in both pits.
- The origin (0,0) is at the southwest corner of the Outer Horseshoe Pit.

R.T. Hicks Consultants
901 Rio Grande Blvd. NW
Suite F-142
Albuquerque, N. M. 87104

Drawing of Drilling Pit and Well in Relation to Pad

Murchison - Jackson Unit 15H
(Design approved 7/22/2013 API #30-025-41227)

Plate 2

October 2013

REPLACED 11/22/13