R. T. HICKS CONSULTANTS, LTD.

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

December 11, 2014

Dr. Tomáš Oberding
NMOCD District 1
1625 French Drive
Hobbs, NM 88240
Via E-Mail

RE: Temporary Pit Closure Report for Mogi 9 St. Com #4H
API #30-025-41071, Pit Permit #P1-05938

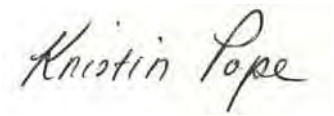
Dear Dr. Oberding:

On behalf of Murchison Oil and Gas, R.T. Hicks Consultants submits this closure report for the above-referenced temporary pit in accordance with the approved C-144 closure plan. This report includes the following information listed in Part 21 of the C-144 form:

Requirements	Location in this Submission
Proof of Closure Notice (to surface owner and Division)	Attachment 1
Proof of Deed Notice (on-site closure on private land only)	Not applicable; State Land (no deed)
Plot Plan, C-105 form (for on-site closures and temporary pits)	Attachment 2
Confirmation Sampling Analytical Results	Not applicable
Waste Material Sampling Analytical Results (required for on-site closure)	Attachment 3
Disposal Facility Name and Permit Number	Not applicable; on-site closure
Soil Backfilling and Cover Installation	Attachment 4
Re-vegetation Application Rates and Seeding Technique	Attachment 5
Site Reclamation (photo documentation)	To follow
Updated C-144 form	Attachment 6

Discussions with NMOCD regarding the closure criteria and record rainfall in September caused a delay in the closure of this site. R.T. Hicks Consultants will notify NMOCD and provide photo-documentation when re-vegetation obligations described in subsection H of 19.15.17.13 NMAC are met.

Sincerely,
R.T. Hicks Consultants



Kristin Pope
Project Geologist

Copy: Murchison Oil and Gas, NM State Land Office

ATTACHMENT 1

R. T. HICKS CONSULTANTS, LTD.

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

July 31, 2014

Dr. Tomas Oberding
NMOCD District 1
1625 French Drive
Hobbs, New Mexico 88240
VIA EMAIL

RE: Murchison – Mogi 9 State Com #4H, In-place Burial Notice
Unit P, Section 9, T24S, R33E, API #30-025-41071

Dear Dr. Oberding:

On behalf of Murchison Oil and Gas, R. T. Hicks Consultants provides this notice to NMOCD with a copy to the State Land Office (certified, return receipt request) that closure operations at the above- referenced temporary pit will begin on Thursday, August 7, 2014. Depending on the availability of machinery, the closure process should require about two weeks.

The "In-place Burial" closure plan was submitted on August 26, 2013 with the C-144 temporary pit application and NMOCD approved the plan on August 30, 2013. The rig was released on November 15, 2013. A notice of closure was previously submitted to NMOCD on April 24, 2014. During the subsequent phone call for verbal notice, NMOCD requested more time to evaluate the demonstration and a delay of the closure. NMOCD granted a 3-month extension for closure on May 14, 2014. Murchison, Hicks Consultants, and NMOCD met in the field on May 21, 2014 and discussed the use of calculated values for composites and the observations we've made regarding mixing highly heterogeneous (textually and chemically) samples. We are certain that these results "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 listed in Table II of 19.15.17.13 NMAC."

In conformance with the Pit Rule, eight-point composite samples that are representative of the solids in the pit were recovered on January 8, 2014 and stabilized with the available mixing soil at a 3:1 ratio. In this first sampling effort we collected numerous samples an effort to gain a better understanding the distribution of hydrocarbon concentrations in the pit solids and of the heterogeneity of the individual samples after mixing with clean fill. Some of the samples were duplicates and the synthetic precipitation leaching procedure (SPLP) was performed on two samples. As shown in the summary table on page 2 of this letter, laboratory analyses of the stabilized cuttings composite demonstrate that the concentrations of the Table II parameters met the limits that allow in-place burial of the stabilized cuttings for each constituent *except* GRO+DRO and TPH in some samples.

We allowed nine weeks for hydrocarbon in the pit to naturally degrade and collected samples again on March 13, 2014. This time we collected composites from the inner horseshoe cell (freshwater) and the outer horseshoe cell (brine and cut brine) and we mixed the inner and

outer composites in a ratio consistent with the amount of drilling solids placed in each cell—1 part freshwater cell to 3 parts brine/cut brine in this case—and the resulting sample was a composite of the pit contents ("Mogi 4 Comp." in the table). We calculated the closure concentrations for GRO/DRO and TPH in two ways using two sample sets. The first calculation used the pit field composite sample (Mogi 4 comp.) and "mixed" it with clean mixing dirt from the site in a 3:1 ratio, simulating stabilization. The second calculations utilized the separate inner and outer cell samples and "mixed" them mathematically in a 1:3 ratio, consistent with the amount of cuttings in each cell. We then "mixed" these in a 3:1 ratio with the mixing dirt. The resultant calculated concentrations of these two demonstrations meet Table II limits that allow in-place burial of the stabilized cuttings.

Mogi 9 State Com 4H Sample Name	Sample Type	Sample Date	Chloride *80,000*	Benzene *10*	BTEX *50*	GRO+ DRO *1000*	TPH 418.1 *2500*	GRO+ DRO+ DROext	GRO	DRO	MRO
3:1 Stabilized A-1	stabilized, duplicate	1/8/2014	6100	0.67 0.54	6501.756 0.54	2298 3550	5200 4900	3048 4750	98 150	2200 3400	750 1200
3:1 Stabilized A-2 SPLP	SPLP*	1/8/2014	380	-	-	4.24	1.7	4.24	0.84	3.4	0
3:1 Stabilized A-3	stabilized	1/8/2014	5800	-	-	2787	4700	3787	87	2700	1000
3:1 Stable B1	stabilized, duplicate	1/8/2014	5100	0.55 0.36	0.55 0.36	1186 1300	1600 1900	1186 1300	86 100	1100 1200	0 0
3:1 Stabilized B2 SPLP	SPLP*	1/8/2014	380	-	-	2.18	1.3	2.18	0.38	1.8	0
3:1 Stabilized B3	stabilized	1/8/2014	6700	-	-	1027	1800	1027	57	970	0
Mogi 4 Comp. (inner + outer)	Field 1:3 comp.	3/13/2014	-	-	-	1680	840 550	2200	180	1500	520
Mixing Dirt	composite	1/8/2014	95	-	-	16	0	16	0	16	0
***CALCULATED 3** (mixing dirt) **:1** (inner+outer) **stabilized** **						***432***	***210 138***				
Mogi 4 Inner (fresh)	composite	3/13/2014	-	-	-	65	84/23	65	0	65	0
Mogi 4 Outer (brine, cut brine)	composite	3/13/2014	-	-	-	755	620/270	905	25	730	150
Mixing Dirt	composite	1/8/2014	95	-	-	16	0	16	0	16	0
***CALCULATED 3** (mixing dirt) **:1** (inner+outer) **stabilized** **						***157.625***	***121.5/52***				

*For academic interest only

**[Mixing Dirt x 0.75] + [Pit Composite (1 inner: 3 outer) x 0.25] = 3:1 Stabilized

I will follow up this notice to you with a phone call as required by the Pit Rule.

Sincerely,

R.T. Hicks Consultants

Kristin Pope

Kristin Pope

Copy: Murchison Oil and Gas, Jim Griswold (NMOCD), Ed Martin, State Land Office
New Mexico State Land Office
PO Box 1148
Santa Fe, NM 87504-1148
CERTIFIED MAIL, RETURN RECIEPT REQUEST

MOGL 4H Closure Notice

SENDER: *COMPLETE THIS SECTION*

- Complete items 1, 2, and 3. Also complete item 4 if Restricted Delivery is desired.
- Print your name and address on the reverse so that we can return the card to you.
- Attach this card to the back of the mailpiece, or on the front if space permits.

1. Article Addressed to:

NM State Land Office
Ed Martin
PO Box 1148
Santa Fe NM 87504-1148

COMPLETE THIS SECTION ON DELIVERY

A. Signature
X ☐ Agent ☐ Addressee

B. Received by *(Printed Name)* C. Date of Delivery

D. Is delivery address different from item 1? ☐ Yes
If YES, enter delivery address below: ☐ No

SANTA FE NM 875
AUG - 5 2014
USPS

3. Service Type
☑ Certified Mail ☐ Express Mail
☐ Registered ☐ Return Receipt for Merchandise
☐ Insured Mail ☐ C.O.D.

4. Restricted Delivery? *(Extra Fee)* ☐ Yes

2. Article Number
(Transfer from service label) 9414 7107 0083 2944 6405

PS Form 3811, February 2004 Domestic Return Receipt 102595-02-M-1540

From:	Leking, Geoffrey R, EMNRD
To:	Kristin Pope
Cc:	Greg Boans; Chace Walls; Randy Hicks; ccottrell@jdmii.com; Warnell, Terry G.
Subject:	RE: xtension Request: Murchison - Mogi 9 St. Com 4H pit closure
Date:	Wednesday, May 14, 2014 3:31:07 PM

Kristin

The three month extension is approved for the closure of the Mogi 9 State Com 4H.

Geoffrey Leking
Environmental Specialist
NMOCD-Hobbs
1625 N. French Drive
Hobbs, NM 88240
Office: (575) 393-6161 Ext. 113
Cell: (575) 399-2990
email: geoffreyr.leking@state.nm.us

From: Kristin Pope [mailto:kristin@rthicksconsult.com]
Sent: Tuesday, May 13, 2014 4:04 PM
To: Leking, Geoffrey R, EMNRD
Cc: Greg Boans; Chace Walls; Randy Hicks; ccottrell@jdmii.com; Warnell, Terry G.
Subject: xtension Request: Murchison - Mogi 9 St. Com 4H pit closure

Mr. Leking:

As you suggested last week, please find the attached extension request for the closure of the **Mogi 9 State Com 4H** temporary pit. The deadline for closure is 5/15/2014. Perhaps we can coordinate a discussion of the calculated values we submitted for this site during Mr. Griswold's visit next week. Thank you.

Kristin Pope
R.T. Hicks Consultants
Carlsbad Field Office
575.302.6755

ATTACHMENT 2

Submit To Appropriate District Office
Two Copies
District I
1625 N. French Dr., Hobbs, NM 88240
District II
811 S. First St., Artesia, NM 88210
District III
1000 Rio Brazos Rd., Aztec, NM 87410
District IV
1220 S. St. Francis Dr., Santa Fe, NM 87505

State of New Mexico
Energy, Minerals and Natural Resources

Oil Conservation Division
1220 South St. Francis Dr.
Santa Fe, NM 87505

Form C-105
Revised August 1, 2011

1. WELL API NO.
30-025-41071

2. Type of Lease
☒ STATE ☐ FEE ☐ FED/INDIAN

3. State Oil & Gas Lease No.

WELL COMPLETION OR RECOMPLETION REPORT AND LOG

4. Reason for filing:

☐ **COMPLETION REPORT** (Fill in boxes #1 through #31 for State and Fee wells only)

☒ **C-144 CLOSURE ATTACHMENT** (Fill in boxes #1 through #9, #15 Date Rig Released and #32 and/or #33; attach this and the plat to the C-144 closure report in accordance with 19.15.17.13.K NMAC)

5. Lease Name or Unit Agreement Name
Mogi 9 State Com

6. Well Number:
#4H

7. Type of Completion:
☒ NEW WELL ☐ WORKOVER ☐ DEEPENING ☐ PLUGBACK ☐ DIFFERENT RESERVOIR ☐ OTHER _____

8. Name of Operator
MURCHISON OIL & GAS, INC.

9. OGRID
15363

10. Address of Operator

11. Pool name or Wildcat

12. Location	Unit Ltr	Section	Township	Range	Lot	Feet from the	N/S Line	Feet from the	E/W Line	County
Surface:										
BH:										

13. Date Spudded	14. Date T.D. Reached	15. Date Rig Released	16. Date Completed (Ready to Produce)	17. Elevations (DF and RKB, RT, GR, etc.)
		11/15/2013		

18. Total Measured Depth of Well	19. Plug Back Measured Depth	20. Was Directional Survey Made?	21. Type Electric and Other Logs Run

22. Producing Interval(s), of this completion - Top, Bottom, Name

23. **CASING RECORD** (Report all strings set in well)

CASING SIZE	WEIGHT LB./FT.	DEPTH SET	HOLE SIZE	CEMENTING RECORD	AMOUNT PULLED

24. LINER RECORD

SIZE	TOP	BOTTOM	SACKS CEMENT	SCREEN

25. TUBING RECORD

SIZE	DEPTH SET	PACKER SET

26. Perforation record (interval, size, and number)

27. ACID, SHOT, FRACTURE, CEMENT, SQUEEZE, ETC.

DEPTH INTERVAL	AMOUNT AND KIND MATERIAL USED

28. **PRODUCTION**

Date First Production	Production Method *(Flowing, gas lift, pumping - Size and type pump)*	Well Status *(Prod. or Shut-in)*

Date of Test	Hours Tested	Choke Size	Prod'n For Test Period	Oil - Bbl	Gas - MCF	Water - Bbl.	Gas - Oil Ratio

Flow Tubing Press.	Casing Pressure	Calculated 24-Hour Rate	Oil - Bbl.	Gas - MCF	Water - Bbl.	Oil Gravity - API - *(Corr.)*

29. Disposition of Gas *(Sold, used for fuel, vented, etc.)*

30. Test Witnessed By

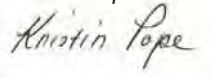
31. List Attachments

32. If a temporary pit was used at the well, attach a plat with the location of the temporary pit.
PLATE 1 ATTACHED

33. If an on-site burial was used at the well, report the exact location of the on-site burial:

Latitude N 32.225527° Longitude W 103.572204° NAD 1927 **1983**

I hereby certify that the information shown on both sides of this form is true and complete to the best of my knowledge and belief

Signature  Printed Name KRISTIN POPE Title PROJECT GEOLOGIST, AGENT FOR MURCHISON Date 12/11/2014

E-mail Address kristin@rthicksconsult.com

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Feet

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

On-site Burial Location of Temporary Pit
Relative to Well Pad

Murchison Oil & Gas
Mogi 9 State Com #4H

Plate 1
Form C-105

December 2014

ATTACHMENT 3

Waste Material Sampling Analytical Results

On January 8, 2014 a variety of samples were collected from the pit contents and stabilized in a 3:1 ratio using available mixing material from the berms of the pit (below the liner) in accordance with the Pit Rule. This sampling event also included duplicates, split samples, and synthetic precipitation leaching procedure (SPLP) analyses. These samples were submitted to Hall Environmental Analysis Laboratory in Albuquerque, New Mexico for BTEX (8260B), GRO/DRO (8015M), TPH (418.1), and Chloride (SM4500) analyses. TPH and GRO/DRO concentrations did not meet Table II limits of 19.15.17.13 NMAC in some of the field-stabilized samples.

Nine weeks later on March 13, 2014, the pit was re-sampled and using two sample sets to calculate stabilized cuttings (1 part pit contents, 3 parts mixing dirt) and Table II closure criteria were met. Sample results are summarized in the notice of in-place closure located in Attachment 1 of this report.

Sampling cuttings in inner cell 1/8/2014

The sample results were first presented to NMOCD in a notice of in-place burial submitted on April 24, 2014. NMOCD advised to postpone closure to allow NMOCD more time to evaluate the lab analyses and calculations and suggested an extension. A 3-month extension was requested on May 13, 2014 and granted the next day. Hicks Consultants, Murchison, and NMOCD staff met in Lea County on May 21, 2014 to discuss these results.

A second closure notice was submitted on July 31, 2014 and closure began on August 7, 2014. NMOCD requested a confirmation sample of the stabilized cuttings once they were mixed with machinery. The confirmation sample was collected on September 2, 2014 and submitted to NMOCD on September 15, 2014. These lab results are included in this section of the report.

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

September 12, 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: Mogi 9 St. Com 4H Pit OrderNo.: 1409172

Dear Kristin Pope:

Hall Environmental Analysis Laboratory received 1 sample(s) on 9/4/2014 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

Hall Environmental Analysis Laboratory, Inc.

CLIENT: R.T. Hicks Consultants, LTD
Client Sample ID: 3:1 Stab. Cuttings Confirmation
Project: Mogi 9 St. Com 4H Pit
Collection Date: 9/2/2014 11:40:00 AM
Lab ID: 1409172-001
Matrix: SOIL
Received Date: 9/4/2014 9:15:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8015D: DIESEL RANGE ORGANICS						Analyst: **BCN**	
Diesel Range Organics (DRO)	130	9.9		mg/Kg	1	9/9/2014 4:03:26 PM	15139
Motor Oil Range Organics (MRO)	ND	50		mg/Kg	1	9/9/2014 4:03:26 PM	15139
Surr: DNOP	92.8	57.9-140		%REC	1	9/9/2014 4:03:26 PM	15139
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **NSB**	
Gasoline Range Organics (GRO)	6.3	5.0		mg/Kg	1	9/7/2014 5:54:39 PM	15128
Surr: BFB	130	80-120	S	%REC	1	9/7/2014 5:54:39 PM	15128
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**	
Benzene	ND	0.050		mg/Kg	1	9/7/2014 5:54:39 PM	15128
Toluene	ND	0.050		mg/Kg	1	9/7/2014 5:54:39 PM	15128
Ethylbenzene	0.050	0.050		mg/Kg	1	9/7/2014 5:54:39 PM	15128
Xylenes, Total	ND	0.10		mg/Kg	1	9/7/2014 5:54:39 PM	15128
Surr: 4-Bromofluorobenzene	121	80-120	S	%REC	1	9/7/2014 5:54:39 PM	15128
EPA METHOD 300.0: ANIONS						Analyst: **LGP**	
Chloride	11000	750		mg/Kg	500	9/9/2014 7:25:20 PM	15172
EPA METHOD 418.1: TPH						Analyst: **JME**	
Petroleum Hydrocarbons, TR	260	20		mg/Kg	1	9/9/2014 12:00:00 PM	15141

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#: **1409172**

12-Sep-14

Client: R.T. Hicks Consultants, LTD

Project: Mogi 9 St. Com 4H Pit

Sample ID	**MB-15172**	SampType:	**MBLK**	TestCode:	**EPA Method 300.0: Anions**					
Client ID:	**PBS**	Batch ID:	**15172**	RunNo:	**21073**					
Prep Date:	**9/8/2014**	Analysis Date:	**9/8/2014**	SeqNo:	**613131**	Units:	**mg/Kg**			

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	ND	1.5								

Sample ID	**LCS-15172**	SampType:	**LCS**	TestCode:	**EPA Method 300.0: Anions**					
Client ID:	**LCSS**	Batch ID:	**15172**	RunNo:	**21073**					
Prep Date:	**9/8/2014**	Analysis Date:	**9/8/2014**	SeqNo:	**613132**	Units:	**mg/Kg**			

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	14	1.5	15.00	0	92.3	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#: **1409172**

12-Sep-14

Client: R.T. Hicks Consultants, LTD

Project: Mogi 9 St. Com 4H Pit

Sample ID	**MB-15141**	SampType:	**MBLK**	TestCode:	**EPA Method 418.1: TPH**					
Client ID:	**PBS**	Batch ID:	**15141**	RunNo:	**21096**					
Prep Date:	**9/5/2014**	Analysis Date:	**9/9/2014**	SeqNo:	**614038**	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-15141**	SampType:	**LCS**	TestCode:	**EPA Method 418.1: TPH**					
Client ID:	**LCSS**	Batch ID:	**15141**	RunNo:	**21096**					
Prep Date:	**9/5/2014**	Analysis Date:	**9/9/2014**	SeqNo:	**614039**	Units:	**mg/Kg**			

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Petroleum Hydrocarbons, TR	110	20	100.0	0	110	80	120			

Sample ID	**LCSD-15141**	SampType:	**LCSD**	TestCode:	**EPA Method 418.1: TPH**					
Client ID:	**LCSS02**	Batch ID:	**15141**	RunNo:	**21096**					
Prep Date:	**9/5/2014**	Analysis Date:	**9/9/2014**	SeqNo:	**614040**	Units:	**mg/Kg**			

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Petroleum Hydrocarbons, TR	110	20	100.0	0	110	80	120	0	20	

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#: **1409172**

12-Sep-14

Client: R.T. Hicks Consultants, LTD

Project: Mogi 9 St. Com 4H Pit

Sample ID **MB-15139**	SampType: **MBLK**	TestCode: **EPA Method 8015D: Diesel Range Organics**
Client ID: **PBS**	Batch ID: **15139**	RunNo: **21040**
Prep Date: **9/5/2014**	Analysis Date: **9/6/2014**	SeqNo: **612324** 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		81.1	57.9	140			

Sample ID **LCS-15139**	SampType: **LCS**	TestCode: **EPA Method 8015D: Diesel Range Organics**
Client ID: **LCSS**	Batch ID: **15139**	RunNo: **21040**
Prep Date: **9/5/2014**	Analysis Date: **9/6/2014**	SeqNo: **612325** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	49	10	50.00	0	98.8	68.6	130			
Surr: DNOP	4.1		5.000		81.1	57.9	140			

Sample ID **MB-15188**	SampType: **MBLK**	TestCode: **EPA Method 8015D: Diesel Range Organics**
Client ID: **PBS**	Batch ID: **15188**	RunNo: **21055**
Prep Date: **9/9/2014**	Analysis Date: **9/9/2014**	SeqNo: **613919** Units: **%REC**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: DNOP	8.6		10.00		86.3	57.9	140			

Sample ID **LCS-15188**	SampType: **LCS**	TestCode: **EPA Method 8015D: Diesel Range Organics**
Client ID: **LCSS**	Batch ID: **15188**	RunNo: **21055**
Prep Date: **9/9/2014**	Analysis Date: **9/9/2014**	SeqNo: **613920** Units: **%REC**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: DNOP	3.9		5.000		78.7	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#: **1409172**

12-Sep-14

Client: R.T. Hicks Consultants, LTD

Project: Mogi 9 St. Com 4H Pit

Sample ID **MB-15128**	SampType: **MBLK**	TestCode: **EPA Method 8015D: Gasoline Range**
Client ID: **PBS**	Batch ID: **15128**	RunNo: **21049**
Prep Date: **9/4/2014**	Analysis Date: **9/7/2014**	SeqNo: **612626** 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	1000		200.0		503	80	120			S

Sample ID **LCS-15128**	SampType: **LCS**	TestCode: **EPA Method 8015D: Gasoline Range**
Client ID: **LCSS**	Batch ID: **15128**	RunNo: **21049**
Prep Date: **9/4/2014**	Analysis Date: **9/7/2014**	SeqNo: **612627** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	25	5.0	5.000	0	499	65.8	139			S
Surr: BFB	950		200.0		476	80	120			S

Sample ID **LCSD-15128**	SampType: **LCSD**	TestCode: **EPA Method 8015D: Gasoline Range**
Client ID: **LCSS02**	Batch ID: **15128**	RunNo: **21049**
Prep Date: **9/4/2014**	Analysis Date: **9/7/2014**	SeqNo: **612635** Units: **%REC**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: BFB	1100							0	0	

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#: **1409172**

12-Sep-14

Client: R.T. Hicks Consultants, LTD

Project: Mogi 9 St. Com 4H Pit

Sample ID **MB-15128**	SampType: **MBLK**	TestCode: **EPA Method 8021B: Volatiles**
Client ID: **PBS**	Batch ID: **15128**	RunNo: **21049**
Prep Date: **9/4/2014**	Analysis Date: **9/7/2014**	SeqNo: **612670** 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	1.2		1.000		120	80	120			

Sample ID **LCS-15128**	SampType: **LCS**	TestCode: **EPA Method 8021B: Volatiles**
Client ID: **LCSS**	Batch ID: **15128**	RunNo: **21049**
Prep Date: **9/4/2014**	Analysis Date: **9/7/2014**	SeqNo: **612671** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	0.90	0.050	1.000	0	89.9	80	120			
Toluene	0.90	0.050	1.000	0	90.4	80	120			
Ethylbenzene	0.93	0.050	1.000	0	93.2	80	120			
Xylenes, Total	2.9	0.10	3.000	0	98.0	80	120			
Surr: 4-Bromofluorobenzene	0.90		1.000		89.6	80	120			

Sample ID **LCSD-15128**	SampType: **LCSD**	TestCode: **EPA Method 8021B: Volatiles**
Client ID: **LCSS02**	Batch ID: **15128**	RunNo: **21049**
Prep Date: **9/4/2014**	Analysis Date: **9/7/2014**	SeqNo: **612672** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	0.90	0.050	1.000	0	89.9	80	120	0.0223	20	
Toluene	0.90	0.050	1.000	0	90.0	80	120	0.543	20	
Ethylbenzene	0.94	0.050	1.000	0	93.7	80	120	0.460	20	
Xylenes, Total	2.9	0.10	3.000	0	98.0	80	120	0.0204	20	
Surr: 4-Bromofluorobenzene	1.2		1.000		120	80	120	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

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: 1409172 | RcptNo: 1

Received by/date: AG 09/04/14

Logged By: **Lindsay Mangin** 9/4/2014 9:15:00 AM

Completed By: **Lindsay Mangin** 9/4/2014 10:23:56 AM

Reviewed By: TO 09/04/2014

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?	Courier		

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	4.2	Good	Yes			

Chain of Custody Record

HALL ENVIRONMENTAL ANALYSIS LABORATORY

www.hallenvironmental.com

4901 Hawkins NE - Albuquerque, NM 87109

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

Client: R. T. Hicks Consultants	☒ Standard ☐ Rush
Mailing Address: 901 Rio Grande Blvd NW, Albuquerque, NM 87104	Project Name: Murchison - Mogi 9 St. Com 4H pit
Phone #: (505) 266-5004	Project #:
email or Fax#: R@rthicksconsult.com	Project Manager: Kristin Pope
QA/QC Package: ☒ Standard ☐ Level 4 (Full Validation)	Sampler: Kristin Pope
Accreditation: ☐ NELAP ☐ Other ☐ EDD (Type)	On Ice: ☒ Yes ☐ No; Sample Temperature: 0.1 + 2

Date	Time	Matrix	Sample Request ID	Container Type and #	Preservative Type	HEAL No. 1409172	BTEX + MTBE + TMB's (8021)	BTEX + MTBE + TPH (Gas only)	TPH Method 8015B (Gas/Diesel)	TPH (Method 418.1) *MRO	EDB (Method 504.1)	8310 (PNA or PAH)	RCRA 8 Metals	Anions (F^-, Cl^-, NO_3, NO_2, PO_4, SO_4)	8081 Pesticides / 8082 PCB's	8260B (VOA)	8270 (Semi-VOA)		100 grams		Air Bubbles (Y or N)
9/2/14	1140	soil	3:1 Stab. Cuttings Confirmation	1 glass	ice	-001	X		X	X				X					X		

Analysis Request

Date:	Time:	Relinquished by:	Received by:	Date	Time
9/3/14	1000	Kristin Pope	Andy Keynote	9/3/14	1000
Date:	Time:	Relinquished by:	Received by:	Date	Time
				09/04/14	0915

Remarks: Email results to R@..., kristin@rthicksconsult.com

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

March 27, 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: MOGI 4H Pit OrderNo.: 1403828

Dear Randall Hicks:

Hall Environmental Analysis Laboratory received 3 sample(s) on 3/18/2014 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

Hall Environmental Analysis Laboratory, Inc.

CLIENT: R.T. Hicks Consultants, LTD
Client Sample ID: MOGI 4 Inner
Project: MOGI 4H Pit
Collection Date: 3/13/2014 4:47:00 PM
Lab ID: 1403828-001
Matrix: SOIL
Received Date: 3/18/2014 11:45:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8015D: DIESEL RANGE ORGANICS						Analyst: **BCN**	
Diesel Range Organics (DRO)	65	10		mg/Kg	1	3/24/2014 11:59:01 AM	12299
Motor Oil Range Organics (MRO)	ND	50		mg/Kg	1	3/24/2014 11:59:01 AM	12299
Surr: DNOP	104	66-131		%REC	1	3/24/2014 11:59:01 AM	12299
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **NSB**	
Gasoline Range Organics (GRO)	ND	5.0		mg/Kg	1	3/26/2014 2:44:09 PM	12276
Surr: BFB	90.3	74.5-129		%REC	1	3/26/2014 2:44:09 PM	12276
EPA METHOD 418.1: TPH						Analyst: **JME**	
Petroleum Hydrocarbons, TR	84	20		mg/Kg	1	3/31/2014 12:00:00 PM	12401
Petroleum Hydrocarbons, TR	23	20		mg/Kg	1	3/24/2014	12298

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: MOGI 4 Outer
Project: MOGI 4H Pit
Collection Date: 3/13/2014 5:04:00 PM
Lab ID: 1403828-002
Matrix: SOIL
Received Date: 3/18/2014 11:45:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8015D: DIESEL RANGE ORGANICS						Analyst: **BCN**	
Diesel Range Organics (DRO)	730	9.9		mg/Kg	1	3/24/2014 12:29:37 PM	12299
Motor Oil Range Organics (MRO)	150	49		mg/Kg	1	3/24/2014 12:29:37 PM	12299
Surr: DNOP	118	66-131		%REC	1	3/24/2014 12:29:37 PM	12299
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **NSB**	
Gasoline Range Organics (GRO)	25	5.0		mg/Kg	1	3/26/2014 3:41:24 PM	12276
Surr: BFB	130	74.5-129	S	%REC	1	3/26/2014 3:41:24 PM	12276
EPA METHOD 418.1: TPH						Analyst: **JME**	
Petroleum Hydrocarbons, TR	620	20		mg/Kg	1	3/31/2014 12:00:00 PM	12401
Petroleum Hydrocarbons, TR	270	20		mg/Kg	1	3/24/2014	12298

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: MOGI 4 Composite
Project: MOGI 4H Pit
Collection Date: 3/13/2014 5:12:00 PM
Lab ID: 1403828-003 **Matrix:** SOIL **Received Date:** 3/18/2014 11:45:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8015D: DIESEL RANGE ORGANICS						Analyst: **BCN**	
Diesel Range Organics (DRO)	1500	100		mg/Kg	10	3/24/2014 1:30:41 PM	12299
Motor Oil Range Organics (MRO)	520	500		mg/Kg	10	3/24/2014 1:30:41 PM	12299
Surr: DNOP	0	66-131	S	%REC	10	3/24/2014 1:30:41 PM	12299
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **NSB**	
Gasoline Range Organics (GRO)	180	100		mg/Kg	20	3/24/2014 5:03:03 PM	12276
Surr: BFB	102	74.5-129		%REC	20	3/24/2014 5:03:03 PM	12276
EPA METHOD 418.1: TPH						Analyst: **JME**	
Petroleum Hydrocarbons, TR	840	20		mg/Kg	1	3/31/2014 12:00:00 PM	12401
Petroleum Hydrocarbons, TR	550	200		mg/Kg	10	3/24/2014	12298

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#: **1403828**

31-Mar-14

Client: R.T. Hicks Consultants, LTD

Project: MOGI 4H Pit

Sample ID	**MB-12298**	SampType:	**MBLK**	TestCode:	**EPA Method 418.1: TPH**					
Client ID:	**PBS**	Batch ID:	**12298**	RunNo:	**17514**					
Prep Date:	**3/21/2014**	Analysis Date:	**3/24/2014**	SeqNo:	**504515**	Units:	**mg/Kg**			

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Petroleum Hydrocarbons, TR	ND	20								

Sample ID	**MB-12401**	SampType:	**MBLK**	TestCode:	**EPA Method 418.1: TPH**					
Client ID:	**PBS**	Batch ID:	**12401**	RunNo:	**17660**					
Prep Date:	**3/27/2014**	Analysis Date:	**3/31/2014**	SeqNo:	**508714**	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-12401**	SampType:	**LCS**	TestCode:	**EPA Method 418.1: TPH**					
Client ID:	**LCSS**	Batch ID:	**12401**	RunNo:	**17660**					
Prep Date:	**3/27/2014**	Analysis Date:	**3/31/2014**	SeqNo:	**508715**	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	97.5	80	120			

Sample ID	**LCSD-12401**	SampType:	**LCSD**	TestCode:	**EPA Method 418.1: TPH**					
Client ID:	**LCSS02**	Batch ID:	**12401**	RunNo:	**17660**					
Prep Date:	**3/27/2014**	Analysis Date:	**3/31/2014**	SeqNo:	**508717**	Units:	**mg/Kg**			

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Petroleum Hydrocarbons, TR	110	20	100.0	0	109	80	120	10.7	20	

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#: **1403828**

31-Mar-14

Client: R.T. Hicks Consultants, LTD

Project: MOGI 4H Pit

Sample ID **MB-12299**	SampType: **MBLK**	TestCode: **EPA Method 8015D: Diesel Range Organics**
Client ID: **PBS**	Batch ID: **12299**	RunNo: **17506**
Prep Date: **3/21/2014**	Analysis Date: **3/24/2014**	SeqNo: **504464** 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	8.4		10.00		83.8	66	131			

Sample ID **MB-12321**	SampType: **MBLK**	TestCode: **EPA Method 8015D: Diesel Range Organics**
Client ID: **PBS**	Batch ID: **12321**	RunNo: **17506**
Prep Date: **3/24/2014**	Analysis Date: **3/24/2014**	SeqNo: **504481** Units: **%REC**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: DNOP	8.6		10.00		85.9	66	131			

Sample ID **LCS-12321**	SampType: **LCS**	TestCode: **EPA Method 8015D: Diesel Range Organics**
Client ID: **LCSS**	Batch ID: **12321**	RunNo: **17506**
Prep Date: **3/24/2014**	Analysis Date: **3/24/2014**	SeqNo: **504483** Units: **%REC**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: DNOP	4.5		5.000		90.6	66	131			

Sample ID **LCS-12299**	SampType: **LCS**	TestCode: **EPA Method 8015D: Diesel Range Organics**
Client ID: **LCSS**	Batch ID: **12299**	RunNo: **17506**
Prep Date: **3/21/2014**	Analysis Date: **3/24/2014**	SeqNo: **504499** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	42	10	50.00	0	84.3	60.8	145			
Surr: DNOP	4.4		5.000		87.5	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#: **1403828**

31-Mar-14

Client: R.T. Hicks Consultants, LTD

Project: MOGI 4H Pit

Sample ID **MB-12276**	SampType: **MBLK**	TestCode: **EPA Method 8015D: Gasoline Range**
Client ID: **PBS**	Batch ID: **12276**	RunNo: **17485**
Prep Date: **3/20/2014**	Analysis Date: **3/21/2014**	SeqNo: **504199** 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	890		1000		89.3	74.5	129			

Sample ID **LCS-12276**	SampType: **LCS**	TestCode: **EPA Method 8015D: Gasoline Range**
Client ID: **LCSS**	Batch ID: **12276**	RunNo: **17485**
Prep Date: **3/20/2014**	Analysis Date: **3/21/2014**	SeqNo: **504200** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	28	5.0	25.00	0	112	71.7	134			
Surr: BFB	950		1000		95.4	74.5	129			

Sample ID **LCSD-12276**	SampType: **LCSD**	TestCode: **EPA Method 8015D: Gasoline Range**
Client ID: **LCSS02**	Batch ID: **12276**	RunNo: **17485**
Prep Date: **3/20/2014**	Analysis Date: **3/21/2014**	SeqNo: **504201** Units: **%REC**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: BFB	950							0	0	

Sample ID **1403828-001ADUP**	SampType: **DUP**	TestCode: **EPA Method 8015D: Gasoline Range**
Client ID: **MOGI 4 Inner**	Batch ID: **12276**	RunNo: **17583**
Prep Date: **3/20/2014**	Analysis Date: **3/26/2014**	SeqNo: **506904** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	ND	5.0						0	0	
Surr: BFB	930							0	0	

Sample ID **MB-12325**	SampType: **MBLK**	TestCode: **EPA Method 8015D: Gasoline Range**
Client ID: **PBS**	Batch ID: **12325**	RunNo: **17583**
Prep Date: **3/24/2014**	Analysis Date: **3/26/2014**	SeqNo: **506906** Units: **%REC**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: BFB	890		1000		89.1	74.5	129			

Sample ID **LCS-12325**	SampType: **LCS**	TestCode: **EPA Method 8015D: Gasoline Range**
Client ID: **LCSS**	Batch ID: **12325**	RunNo: **17583**
Prep Date: **3/24/2014**	Analysis Date: **3/26/2014**	SeqNo: **506907** Units: **%REC**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: BFB	960		1000		96.3	74.5	129			

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

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: 1403828 | RcptNo: 1

Received by/date: MG 03/18/14

Logged By: Anne Thorne 3/18/2014 11:45:00 AM Anne Thorne

Completed By: Anne Thorne 3/19/2014 Anne Thorne

Reviewed By: KMS 3/20/14

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	10.6	Good	Not Present			

Chain-of-Custody Record

Client: RT Hicks Consultants

Mailing Address: 901 Rio Grande NW

Phone #:

email or Fax#: R@rthicksconsult.com

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

Accreditation
☐ NELAP ☐ Other _____

☐ EDD (Type) _____

Turn-Around Time:
☒ Standard ☐ Rush _____

Project Name: MOGI 4H PIT

Project #:

Project Manager: R. Hicks

Sampler: RT Hicks

On Ice: ☐ Yes ☒ No

Sample Temperature: 10.6

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. 1403828	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)	100 Grams			
3/13	1447	Soil	MOGI 4 Inner	1 Glass		-001			X	X								X			
3/13	1504	Soil	MOGI 4 Outer	1 Glass		-002			X	X								X			
3/13	1512	Soil	MOGI 4 Composite	1 Glass		-003			X	X								X			

Date: 3/18/14 Time: 1145 Relinquished by: Randall A

Received by: Michelle Gonzales Date: 03/18/14 Time: 11:45

Date: Time: Relinquished by:

Received by: Date: Time:

Remarks: use 100 grams - or as much sample as you can

From: Oberding, Tomas, EMNRD
To: Kristin Pope
Cc: gboans@jdmii.com; Chace Walls; Randy Hicks
Subject: RE: CLOSURE NOTICE: Murchison - Mogi 9 St. Com 4H pit
Date: Monday, September 15, 2014 3:19:27 PM
Attachments: image001.png

Aloha Ms. Pope et al,

Thank you for obtaining the confirmation samples.
Please consider this the notice of receipt for the sample results.
As noted during our discussions- the numbers look to be within specs.
Please keep me informed as the closure proceeds
Have a wonderful afternoon
Mahalo
-Doc

Tomáš 'Doc' Oberding, PhD
Environmental Specialist – New Mexico Oil Conservation Division
Energy, Minerals and Natural Resources Department
1625 N. French Dr.
Hobbs, NM 88240
(O): (575) 393-6161 ext 111
(C): 575-370-3180
(F): (575) 393-0720
E-Mail: tomas.oberding@state.nm.us
Website: http://www.emnrd.state.nm.us/ocd/

From: Kristin Pope [mailto:kristin@rthicksconsult.com]
Sent: Monday, September 15, 2014 9:48 AM
To: Oberding, Tomas, EMNRD
Cc: gboans@jdmii.com; Chace Walls; Randy Hicks
Subject: RE: CLOSURE NOTICE: Murchison - Mogi 9 St. Com 4H pit

Dr. Oberding:

As you requested during the verbal notice for the closure of Murchison's **Mogi 9 St. Com 4H pit**, we collected a confirmation sample from the stabilized cuttings after they have been mixed with the trackhoe. As summarizes below, the sample collected on 9/2/2014 confirms that Table II limits are met; please find the attached lab report.

Well Name	Sample Name	Sample Type	Sample Date	Chloride *80,000*	Benzene *10*	BTEX *50*	GRO+DRO *1000*	TPH 418.1 *2500*	GRO+DRO+ DROext	GRO	DRO	MRO	T	E	X
Mogi 9 State com 4H	3:1 Stabilized (after trackhoe mix)	confirmation	9/2/2014	11000	0	0.05	136.3	260	136.3	6.3	130	0	0	0.05	0

A copy of the lab analyses will be included in the closure report for this pit. We will install a geomembrane cover over the cuttings of this pit and 2 others within the next week or so. The heavy rains in the area have caused some minor snags for closure progress. Thank you for your understanding.

Kristin Pope
R.T. Hicks Consultants
Carlsbad Field Office
575.302.6755

From: Oberding, Tomas, EMNRD [mailto:Tomas.Oberding@state.nm.us]
Sent: Thursday, July 31, 2014 8:38 AM
To: Kristin Pope
Subject: RE: CLOSURE NOTICE: Murchison - Mogi 9 St. Com 4H pit

Aloha Ms. Pope,

Thank you for sending in the closure notice. Consider this the official notice of receipt for this document.
I look forward to your phone call.
Mahalo
-Doc

Tomáš 'Doc' Oberding, PhD
Environmental Specialist – New Mexico Oil Conservation Division
Energy, Minerals and Natural Resources Department
1625 N. French Dr.
Hobbs, NM 88240
(O): (575) 393-6161 ext 111
(C): 575-370-3180
(F): (575) 393-0720
E-Mail: tomas.oberding@state.nm.us
Website: http://www.emnrd.state.nm.us/ocd/

From: Kristin Pope [mailto:kristin@rthicksconsult.com]
Sent: Thursday, July 31, 2014 8:14 AM
To: Oberding, Tomas, EMNRD
Cc: Greg Boans; Chace Walls; ccottrell@jdmii.com; Martin, Ed; Randy Hicks; Griswold, Jim, EMNRD
Subject: CLOSURE NOTICE: Murchison - Mogi 9 St. Com 4H pit

Dr. Oberding:

On behalf of Murchison, please find the attached notice of in-place closure of the **Mogi 9 St Com 4H** temporary pit which is set to begin on **Thursday, August 7, 2014**. Per Pit Rule requirements, I will follow this email with a phone call to you and I will mail a copy (certified, return receipt request) of this notice to the State Land Office.

If you want to expand on our discussion during our May 21 field visit, please contact me with any questions about this notice.

Thank you.

Kristin Pope
R.T. Hicks Consultants
Carlsbad Field Office
575.302.6755

ATTACHMENT 4

SOIL BACKFILLING & COVER INSTALLATION

In accordance with the requirements listed in paragraph D of 19.15.17.13 NMAC, the operator employed the following steps for in-place burial of the waste material from the temporary pit:

1. Siting criteria and operations of the pit complied with the C-144 application and the Pit Rule under which it was submitted to the NMOCD on August 26, 2013 and approved on August 30, 2013. After the rig was released on November 15, 2013, fluid contents in the pit were removed to be recycled for the drilling of other wells while the cuttings were allowed to dry.

2. Final closure samples were collected on March 13, 2014. Using composites of the inner, and outer cells and clean soil from the berms of the pit below the liner, calculated simulating stabilized cuttings using a ratio of 3 parts clean soil to 1 part cuttings and were submitted to NMOCD. As demonstrated in the closure notice in Attachment 1 of this report, calculations confirm that the stabilized pit contents would not exceed the parameter limits listed in Table II of the new Pit Rule (June 2013).

3. As outlined in Attachment 3, a second closure notice was submitted to the NMOCD, District 1 office in Hobbs and to the State Land Office on July 31, 2014. Verbal notice in the form of a phone call to NMOCD was placed on the next day.

4. On August 7, 2014, closure activities commenced and stabilization of the pit contents was achieved by mixing the pit contents with the dry soil beneath the liner of the pit and the dividing berms. On September 2, 2014, a paint filter test was performed by R.T. Hicks Consultants that confirmed that the process was complete and that the stabilized cuttings were located at least 4 feet below grade. As requested by NMOCD, confirmation samples of the stabilized cuttings were collected for laboratory analysis.

5. Following the inspection, after receipt of the confirmation analysis and having achieved all applicable stabilization requirements associated with in-place burial, a geomembrane liner was installed to completely cover the stabilized cuttings on October 9, 2014. The pit contents and liner were shaped to shed infiltrating water, slightly higher in the center.

6. Once the geomembrane cover was in place, approximately 4 feet or more of non-waste containing, uncontaminated, earthen material and the reserved topsoil were replaced to their relative positions in accordance with Subsection (3) of Paragraph H of 19.15.17.13 NMAC. The soil cover consists of at least four feet of compacted, non-waste containing,

earthen material. The uppermost topsoil is equal to the background thickness at least one foot. The surface was contoured to blend with the surrounding topography and to prevent erosion and the ponding of water over the on-site closure. This work was completed on October 24, 2014.

Mixing cuttings 8/13/2014

Paint Filter Test on Stabilized Cuttings 9/2/2014

Geomembrane cover installed over stabilized cuttings at 4^{+} feet BGS 10/9/2014

ATTACHMENT 5

RE-VEGETATION PROCEDURES

There were no roads or surface drainage features nearby that required restoration or preservation.

1. On November 25, 2014, Storm Construction seeded the topsoil of the on-site burial area using a seed drill pulled by a tractor that prepared the seedbed in the same pass using discs. The seed furrows were oriented perpendicular to the prevailing western wind to minimize erosion.

2. Approximately 48 pounds of a seed mixture consisting of 50% BLM #2 seed blend and 50% Homesteader's Choice blend was applied to approximately 1 acre of disturbance in accordance with the supplier's instructions to the former temporary pit area. Species constituents of each blend are listed below and are appropriate for the soil type and conditions at this site. Note that Sand Lovegrass, a component of the BLM #2 assortment, was unavailable so appropriate substitute species were used as selected by the seed vendor.

BLM #2	***Homesteader's Choice***
Sideoats Grama	Blue Grama
Switchgrass	Buffalograss
Sand Dropseed	Sideoats Grama
Bristlegrass	Western Wheatgrass
Plains Coreopsis	Sand Dropseed

3. After seeding, a steel plate marking the site as an in-place pit closure has been placed on the surface at the center of the former pit location in accordance with Subsection (3) of Paragraph F of 19.15.17.13 NMAC.

4. The seeded area will be monitored for growth and the operator will repeat seeding until a successful vegetative cover is achieved as outlined in Subsection (5) of Paragraph H of 19.15.17.13 NMAC.

5. If conditions are not favorable for the establishment of vegetation, such as periods of drought, the operator may request that the division allow a delay in additional seeding until soil moisture conditions become favorable. The operator will notify the division and provide photo-documentation when it successful re-vegetation is achieved.

ATTACHMENT 6

District I
1625 N. French Dr., Hobbs, NM 88240
District II
811 S. First St., Artesia, NM 88210
District III
1000 Rio Brazos Road, Aztec, NM 87410
District IV
1220 S. St. Francis Dr., Santa Fe, NM 87505

State of New Mexico
Energy Minerals and Natural Resources
Department
Oil Conservation Division
1220 South St. Francis Dr.
Santa Fe, NM 87505

Form C-144
Revised June 6, 2013

For temporary pits, below-grade tanks, and multi-well fluid management pits, submit to the appropriate NMOCD District Office.
For permanent pits submit to the Santa Fe Environmental Bureau office and provide a copy to the appropriate NMOCD District Office.

HOBBS OCD
AUG 26 2013
RECEIVED

Pit, Below-Grade Tank, or Proposed Alternative Method Permit or Closure Plan Application

Type of action:
- ☐ Below grade tank registration
- ☒ Permit of a pit or proposed alternative method
- ☐ Closure of a pit, below-grade tank, or proposed alternative method
- ☒ Modification to an existing permit/or registration
- ☐ Closure plan only submitted for an existing permitted or non-permitted pit, below-grade tank, or proposed alternative method

Instructions: Please submit one application (Form C-144) per individual pit, below-grade tank or alternative request

Please be advised that approval of this request does not relieve the operator of liability should operations result in pollution of surface water, ground water or the environment. Nor does approval relieve the operator of its responsibility to comply with any other applicable governmental authority's rules, regulations or ordinances.

1.
Operator: Murchison Oil & Gas, Inc. OGRID #: 15363
Address: 1100 Mira Vista Blvd., Plano, TX 75093-4698
Facility or well name: Mogi 9 State 4H
API Number: 30-025-41071 OCD Permit Number: P1 05938
U/L or Qtr/Qtr P Section 9 Township 24S Range 33E County: Lea
Center of Proposed Design: Latitude 32°13'32.756" N Longitude 103°34'18.542" W NAD: ☐1927 ☒ 1983
Surface Owner: ☐ Federal ☒ State ☐ Private ☐ Tribal Trust or Indian Allotment

2.
☒ **Pit:** Subsection F, G or J of 19.15.17.11 NMAC
Temporary: ☒ Drilling ☐ Workover
☐ Permanent ☐ Emergency ☐ Cavitation ☐ P&A ☐ Multi-Well Fluid Management Low Chloride Drilling Fluid ☐ yes ☒ no
☒ Lined ☐ Unlined Liner type: Thickness 20 mil ☒ LLDPE ☐ HDPE ☐ PVC ☐ Other
☒ String-Reinforced
Liner Seams: ☒ Welded ☐ Factory ☐ Other Volume: 23,712 bbl Dimensions: L 150 x W 170 x D 6-10 ft

3.
☐ **Below-grade tank:** Subsection I of 19.15.17.11 NMAC
Volume: bbl Type of fluid:
Tank Construction material:
☐ Secondary containment with leak detection ☐ Visible sidewalls, liner, 6-inch lift and automatic overflow shut-off
☐ Visible sidewalls and liner ☐ Visible sidewalls only ☐ Other
Liner type: Thickness mil ☐ HDPE ☐ PVC ☐ Other

4.
☐ **Alternative Method:**
Submittal of an exception request is required. Exceptions must be submitted to the Santa Fe Environmental Bureau office for consideration of approval.

5.
Fencing: Subsection D of 19.15.17.11 NMAC *(Applies to permanent pits, temporary pits, and below-grade tanks)*
☐ Chain link, six feet in height, two strands of barbed wire at top *(Required if located within 1000 feet of a permanent residence, school, hospital, institution or church)*
☒ Four foot height, four strands of barbed wire evenly spaced between one and four feet
☐ Alternate. Please specify

6.
Netting: Subsection E of 19.15.17.11 NMAC *(Applies to permanent pits and permanent open top tanks)*

☐ Screen ☐ Netting ☐ Other _____

☐ Monthly inspections (If netting or screening is not physically feasible)

7.
Signs: Subsection C of 19.15.17.11 NMAC

☐ 12"x 24", 2" lettering, providing Operator's name, site location, and emergency telephone numbers

☒ Signed in compliance with 19.15.16.8 NMAC

8.
Variances and Exceptions:
Justifications and/or demonstrations of equivalency are required. Please refer to 19.15.17 NMAC for guidance.

Please check a box if one or more of the following is requested, if not leave blank:

☐ Variance(s): Requests must be submitted to the appropriate division district for consideration of approval.

☐ Exception(s): Requests must be submitted to the Santa Fe Environmental Bureau office for consideration of approval.

9.
Siting Criteria (regarding permitting): 19.15.17.10 NMAC

Instructions: The applicant must demonstrate compliance for each siting criteria below in the application. Recommendations of acceptable source material are provided below. **Siting criteria does not apply to drying pads or above-grade tanks.**

General siting

Ground water is less than 25 feet below the bottom of a low chloride temporary pit or below-grade tank. ☐ Yes ☐ No ☒ NA
- ☐ NM Office of the State Engineer - iWATERS database search; ☐ USGS; ☐ Data obtained from nearby wells

Ground water is less than 50 feet below the bottom of a Temporary pit, permanent pit, or Multi-Well Fluid Management pit . ☐ Yes ☒ No ☐ NA
NM Office of the State Engineer - iWATERS database search; USGS; Data obtained from nearby wells **See Figures 1 & 2**

Within incorporated municipal boundaries or within a defined municipal fresh water well field covered under a municipal ordinance adopted pursuant to NMSA 1978, Section 3-27-3, as amended. **(Does not apply to below grade tanks) See Figure 5** ☐ Yes ☒ No
- Written confirmation or verification from the municipality; Written approval obtained from the municipality

Within the area overlying a subsurface mine. **(Does not apply to below grade tanks) See Figure 7** ☐ Yes ☒ No
- Written confirmation or verification or map from the NM EMNRD-Mining and Mineral Division

Within an unstable area. **(Does not apply to below grade tanks) See Figure 8** ☐ Yes ☒ No
- Engineering measures incorporated into the design; NM Bureau of Geology & Mineral Resources; USGS; NM Geological Society; Topographic map

Within a 100-year floodplain. **(Does not apply to below grade tanks) See Figure 9** ☐ Yes ☒ No
- FEMA map

Below Grade Tanks

Within 100 feet of a continuously flowing watercourse, significant watercourse, lake bed, sinkhole, wetland or playa lake (measured from the ordinary high-water mark). ☐ Yes ☐ No
- Topographic map; Visual inspection (certification) of the proposed site

Within 200 horizontal feet of a spring or a fresh water well used for public or livestock consumption;. ☐ Yes ☐ No
- NM Office of the State Engineer - iWATERS database search; Visual inspection (certification) of the proposed site

Temporary Pit using Low Chloride Drilling Fluid (maximum chloride content 15,000 mg/liter)

Within 100 feet of a continuously flowing watercourse, or any other significant watercourse or within 200 feet of any lakebed, sinkhole, or playa lake (measured from the ordinary high-water mark). (Applies to low chloride temporary pits.) ☐ Yes ☐ No
- Topographic map; Visual inspection (certification) of the proposed site

Within 300 feet from a occupied permanent residence, school, hospital, institution, or church in existence at the time of initial application. ☐ Yes ☐ No
- Visual inspection (certification) of the proposed site; Aerial photo; Satellite image

Within 200 horizontal feet of a spring or a private, domestic fresh water well used by less than five households for domestic or stock watering purposes, or 300feet of any other fresh water well or spring, in existence at the time of the initial application. ☐ Yes ☐ No
NM Office of the State Engineer - iWATERS database search; Visual inspection (certification) of the proposed site

Within 100 feet of a wetland. - US Fish and Wildlife Wetland Identification map; Topographic map; Visual inspection (certification) of the proposed site	☐ Yes ☐ No
Temporary Pit Non-low chloride drilling fluid	
Within 300 feet of a continuously flowing watercourse, or any other significant watercourse, or within 200 feet of any lakebed, sinkhole, or playa lake (measured from the ordinary high-water mark). **See Figure 3** - Topographic map; Visual inspection (certification) of the proposed site	☐ Yes ☒ No
Within 300 feet from a permanent residence, school, hospital, institution, or church in existence at the time of initial application. - Visual inspection (certification) of the proposed site; Aerial photo; Satellite image. **See Figure 4**	☐ Yes ☒ No
Within 500 horizontal feet of a spring or a private, domestic fresh water well used by less than five households for domestic or stock watering purposes, or 1000 feet of any other fresh water well or spring, in the existence at the time of the initial application; - NM Office of the State Engineer - iWATERS database search; Visual inspection (certification) of the proposed site **See Figures 1 & 2**	☐ Yes ☒ No
Within 300 feet of a wetland. **See Figure 6** - US Fish and Wildlife Wetland Identification map; Topographic map; Visual inspection (certification) of the proposed site	☐ Yes ☒ No
Permanent Pit or Multi-Well Fluid Management Pit	
Within 300 feet of a continuously flowing watercourse, or 200 feet of any other significant watercourse, or lakebed, sinkhole, or playa lake (measured from the ordinary high-water mark). - Topographic map; Visual inspection (certification) of the proposed site	☐ Yes ☐ No
Within 1000 feet from a permanent residence, school, hospital, institution, or church in existence at the time of initial application. - Visual inspection (certification) of the proposed site; Aerial photo; Satellite image	☐ Yes ☐ No
Within 500 horizontal feet of a spring or a fresh water well used for domestic or stock watering purposes, in existence at the time of initial application. - NM Office of the State Engineer - iWATERS database search; Visual inspection (certification) of the proposed site	☐ Yes ☐ No
Within 500 feet of a wetland. - US Fish and Wildlife Wetland Identification map; Topographic map; Visual inspection (certification) of the proposed site	☐ Yes ☐ No

10.
Temporary Pits, Emergency Pits, and Below-grade Tanks Permit Application Attachment Checklist: Subsection B of 19.15.17.9 NMAC
Instructions: Each of the following items must be attached to the application. Please indicate, by a check mark in the box, that the documents are attached.

☐ Hydrogeologic Report (Below-grade Tanks) - based upon the requirements of Paragraph (4) of Subsection B of 19.15.17.9 NMAC
☒ Hydrogeologic Data (Temporary and Emergency Pits) - based upon the requirements of Paragraph (2) of Subsection B of 19.15.17.9 NMAC
☒ Siting Criteria Compliance Demonstrations - based upon the appropriate requirements of 19.15.17.10 NMAC
☒ Design Plan - based upon the appropriate requirements of 19.15.17.11 NMAC
☒ Operating and Maintenance Plan - based upon the appropriate requirements of 19.15.17.12 NMAC
☒ Closure Plan (Please complete Boxes 14 through 18, if applicable) - based upon the appropriate requirements of Subsection C of 19.15.17.9 NMAC and 19.15.17.13 NMAC

☐ Previously Approved Design (attach copy of design) API Number: _____ or Permit Number: _____

11.
Multi-Well Fluid Management Pit Checklist: Subsection B of 19.15.17.9 NMAC
Instructions: Each of the following items must be attached to the application. Please indicate, by a check mark in the box, that the documents are attached.

☐ Design Plan - based upon the appropriate requirements of 19.15.17.11 NMAC
☐ Operating and Maintenance Plan - based upon the appropriate requirements of 19.15.17.12 NMAC
☐ A List of wells with approved application for permit to drill associated with the pit.
☐ Closure Plan (Please complete Boxes 14 through 18, if applicable) - based upon the appropriate requirements of Subsection C of 19.15.17.9 NMAC and 19.15.17.13 NMAC
☐ Hydrogeologic Data - based upon the requirements of Paragraph (4) of Subsection B of 19.15.17.9 NMAC
☐ Siting Criteria Compliance Demonstrations - based upon the appropriate requirements of 19.15.17.10 NMAC

☐ Previously Approved Design (attach copy of design) API Number: _____ or Permit Number: _____

12.
Permanent Pits Permit Application Checklist: Subsection B of 19.15.17.9 NMAC

Instructions: Each of the following items must be attached to the application. Please indicate, by a check mark in the box, that the documents are attached.

- ☐ Hydrogeologic Report - based upon the requirements of Paragraph (1) of Subsection B of 19.15.17.9 NMAC
- ☐ Siting Criteria Compliance Demonstrations - based upon the appropriate requirements of 19.15.17.10 NMAC
- ☐ Climatological Factors Assessment
- ☐ Certified Engineering Design Plans - based upon the appropriate requirements of 19.15.17.11 NMAC
- ☐ Dike Protection and Structural Integrity Design - based upon the appropriate requirements of 19.15.17.11 NMAC
- ☐ Leak Detection Design - based upon the appropriate requirements of 19.15.17.11 NMAC
- ☐ Liner Specifications and Compatibility Assessment - based upon the appropriate requirements of 19.15.17.11 NMAC
- ☐ Quality Control/Quality Assurance Construction and Installation Plan
- ☐ Operating and Maintenance Plan - based upon the appropriate requirements of 19.15.17.12 NMAC
- ☐ Freeboard and Overtopping Prevention Plan - based upon the appropriate requirements of 19.15.17.11 NMAC
- ☐ Nuisance or Hazardous Odors, including H_2S, Prevention Plan
- ☐ Emergency Response Plan
- ☐ Oil Field Waste Stream Characterization
- ☐ Monitoring and Inspection Plan
- ☐ Erosion Control Plan
- ☐ Closure Plan - based upon the appropriate requirements of Subsection C of 19.15.17.9 NMAC and 19.15.17.13 NMAC

13.
Proposed Closure: 19.15.17.13 NMAC

Instructions: Please complete the applicable boxes, Boxes 14 through 18, in regards to the proposed closure plan.

Type: ☒ Drilling ☐ Workover ☐ Emergency ☐ Cavitation ☐ P&A ☐ Permanent Pit ☐ Below-grade Tank ☐ Multi-well Fluid Management Pit ☐ Alternative

Proposed Closure Method:
- ☐ Waste Excavation and Removal
- ☐ Waste Removal (Closed-loop systems only)
- ☒ On-site Closure Method (Only for temporary pits and closed-loop systems)
  - ☒ In-place Burial ☐ On-site Trench Burial
- ☐ Alternative Closure Method

14.
Waste Excavation and Removal Closure Plan Checklist: (19.15.17.13 NMAC) ***Instructions: Each of the following items must be attached to the closure plan. Please indicate, by a check mark in the box, that the documents are attached.***

- ☐ Protocols and Procedures - based upon the appropriate requirements of 19.15.17.13 NMAC
- ☐ Confirmation Sampling Plan (if applicable) - based upon the appropriate requirements of Subsection C of 19.15.17.13 NMAC
- ☐ Disposal Facility Name and Permit Number (for liquids, drilling fluids and drill cuttings)
- ☐ Soil Backfill and Cover Design Specifications - based upon the appropriate requirements of Subsection H of 19.15.17.13 NMAC
- ☐ Re-vegetation Plan - based upon the appropriate requirements of Subsection H of 19.15.17.13 NMAC
- ☐ Site Reclamation Plan - based upon the appropriate requirements of Subsection H of 19.15.17.13 NMAC

15.
Siting Criteria (regarding on-site closure methods only): 19.15.17.10 NMAC

Instructions: Each siting criteria requires a demonstration of compliance in the closure plan. Recommendations of acceptable source material are provided below. Requests regarding changes to certain siting criteria require justifications and/or demonstrations of equivalency. Please refer to 19.15.17.10 NMAC for guidance.

Ground water is less than 25 feet below the bottom of the buried waste. - NM Office of the State Engineer - iWATERS database search; USGS; Data obtained from nearby wells	☐ Yes ☒ No ☐ NA
Ground water is between 25-50 feet below the bottom of the buried waste - NM Office of the State Engineer - iWATERS database search; USGS; Data obtained from nearby wells	☐ Yes ☒ No ☐ NA
Ground water is more than 100 feet below the bottom of the buried waste. - NM Office of the State Engineer - iWATERS database search; USGS; Data obtained from nearby wells	☒ Yes ☐ No ☐ NA
Within 100 feet of a continuously flowing watercourse, or 200 feet of any other significant watercourse, lakebed, sinkhole, or playa lake (measured from the ordinary high-water mark). - Topographic map; Visual inspection (certification) of the proposed site	☐ Yes ☒ No
Within 300 feet from a permanent residence, school, hospital, institution, or church in existence at the time of initial application. - Visual inspection (certification) of the proposed site; Aerial photo; Satellite image	☐ Yes ☒ No
Within 300 horizontal feet of a private, domestic fresh water well or spring used for domestic or stock watering purposes, in existence at the time of initial application. - NM Office of the State Engineer - iWATERS database; Visual inspection (certification) of the proposed site	☐ Yes ☒ No
Written confirmation or verification from the municipality; Written approval obtained from the municipality	☐ Yes ☒ No
Within 300 feet of a wetland. US Fish and Wildlife Wetland Identification map; Topographic map; Visual inspection (certification) of the proposed site	☐ Yes ☒ No
Within incorporated municipal boundaries or within a defined municipal fresh water well field covered under a municipal ordinance	

adopted pursuant to NMSA 1978, Section 3-27-3, as amended. - Written confirmation or verification from the municipality; Written approval obtained from the municipality	☐ Yes ☒ No
Within the area overlying a subsurface mine. - Written confirmation or verification or map from the NM EMNRD-Mining and Mineral Division	☐ Yes ☒ No
Within an unstable area. - Engineering measures incorporated into the design; NM Bureau of Geology & Mineral Resources; USGS; NM Geological Society; Topographic map	☐ Yes ☒ No
Within a 100-year floodplain. - FEMA map	☐ Yes ☒ No

16.
On-Site Closure Plan Checklist: (19.15.17.13 NMAC) ***Instructions: Each of the following items must be attached to the closure plan. Please indicate, by a check mark in the box, that the documents are attached.***

- ☒ Siting Criteria Compliance Demonstrations - based upon the appropriate requirements of 19.15.17.10 NMAC
- ☒ Proof of Surface Owner Notice - based upon the appropriate requirements of Subsection E of 19.15.17.13 NMAC
- ☐ Construction/Design Plan of Burial Trench (if applicable) based upon the appropriate requirements of Subsection K of 19.15.17.11 NMAC
- ☒ Construction/Design Plan of Temporary Pit (for in-place burial of a drying pad) - based upon the appropriate requirements of 19.15.17.11 NMAC
- ☒ Protocols and Procedures - based upon the appropriate requirements of 19.15.17.13 NMAC
- ☐ Confirmation Sampling Plan (if applicable) - based upon the appropriate requirements of 19.15.17.13 NMAC
- ☒ Waste Material Sampling Plan - based upon the appropriate requirements of 19.15.17.13 NMAC
- ☐ Disposal Facility Name and Permit Number (for liquids, drilling fluids and drill cuttings or in case on-site closure standards cannot be achieved)
- ☒ Soil Cover Design - based upon the appropriate requirements of Subsection H of 19.15.17.13 NMAC
- ☒ Re-vegetation Plan - based upon the appropriate requirements of Subsection H of 19.15.17.13 NMAC
- ☒ Site Reclamation Plan - based upon the appropriate requirements of Subsection H of 19.15.17.13 NMAC

17.
Operator Application Certification:

I hereby certify that the information submitted with this application is true, accurate and complete to the best of my knowledge and belief.

Name (Print): Greg Boans Title: Production Superintendent

Signature: [signature] Date: August 26, 2013

e-mail address: gboans@jdmii.com Telephone: (575) 361-4962

18.
OCD Approval: ☐ Permit Application (including closure plan) ☐ Closure Plan (only) ☐ OCD Conditions (see attachment)

OCD Representative Signature: [signature] **Approval Date:** 08/30/13

Title: Environmental Specialist **OCD Permit Number:** P1-05938

19.
Closure Report (required within 60 days of closure completion): 19.15.17.13 NMAC

Instructions: Operators are required to obtain an approved closure plan prior to implementing any closure activities and submitting the closure report. The closure report is required to be submitted to the division within 60 days of the completion of the closure activities. Please do not complete this section of the form until an approved closure plan has been obtained and the closure activities have been completed.

☑ **Closure Completion Date:** October 24, 2014

20.
Closure Method:

☐ Waste Excavation and Removal ☑ On-Site Closure Method ☐ Alternative Closure Method ☐ Waste Removal (Closed-loop systems only)

☐ If different from approved plan, please explain.

21.
Closure Report Attachment Checklist: ***Instructions: Each of the following items must be attached to the closure report. Please indicate, by a check mark in the box, that the documents are attached.***

- ☑ Proof of Closure Notice (surface owner and division)
- ☐ Proof of Deed Notice (required for on-site closure for private land only) n/a (State Land)
- ☑ Plot Plan (for on-site closures and temporary pits)
- ☐ Confirmation Sampling Analytical Results (if applicable) n/a (on-site closure)
- ☑ Waste Material Sampling Analytical Results (required for on-site closure)
- ☐ Disposal Facility Name and Permit Number n/a (on-site closure)
- ☑ Soil Backfilling and Cover Installation
- ☑ Re-vegetation Application Rates and Seeding Technique
- ☐ Site Reclamation (Photo Documentation) to follow

On-site Closure Location: Latitude N 32.225527° Longitude W 103.572204° NAD: ☐ 1927 ☑ 1983

22.

Operator Closure Certification:

I hereby certify that the information and attachments submitted with this closure report is true, accurate and complete to the best of my knowledge and belief. I also certify that the closure complies with all applicable closure requirements and conditions specified in the approved closure plan.

Name (Print): Kristin Pope Title: Agent for Murchison Oil and Gas, Inc.

Signature: Kristin Pope Date: December 11, 2014

e-mail address: kristin@rthicksconsult.com Telephone: (575) 302-6755