R. T. HICKS CONSULTANTS, LTD.

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

May 14, 2015

REVIEWED
By OCD District 1 at 9:38 am, May 19, 2015

Kellie Jones
NMOCD District 1
1625 French Drive
Hobbs, NM 88240
Via E-Mail

RE: Temporary Pit Closure Report
Jackson Unit #17H, API #30-025-41087, Pit Permit #P1-05981
Unit A, Section 15, T24S, R33E, Lea County

Dear Ms. Jones:

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

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

Kristin Pope
Project Geologist

Copy: Murchison Oil and Gas
NM State Land Office, Ed Martin

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

January 6, 2015

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

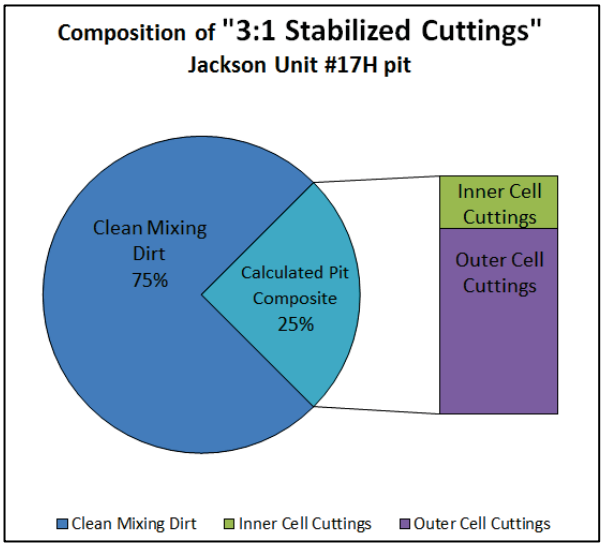
RE: Jackson Unit #17H Temporary Pit, In-place Burial Notice
API #30-025-41087, Pit Permit #P1-05981

Dear Mr. Oberding:

On behalf of Murchison Oil and Gas, R. T. Hicks Consultants is providing this notice to NMOCD with a copy to the State Land Office (certified mail, return receipt request) that closure operations at the above- referenced pit will begin on **Friday, January 9, 2015** around 1:00 pm local time. Depending on the availability of machinery and weather conditions, the closure process should require about two weeks. The "In-place Burial" closure plan for the pit was submitted on January 6, 2014 with the C-144 temporary pit application and approved by NMOCD on January 16, 2014. The rig was released from the Jackson Unit #17H well on April 14, 2014.

On August 12, 2014, NMOCD approved a variance request to transfer drilling waste from the nearby Brininstool 4 State Com#4H well, which was drilled using a closed loop system, to the Jackson Unit #17H temporary pit. The rig was released from the Brininstool 4 State Com #4H well on September 21, 2014 but heavy rains received in the area did not allow the immediate sampling of the contents of the Jackson Unit #17H pit. On October 14, 2014, NMOCD granted a 3-month extension for the closure of the pit, creating of new deadline of January 14, 2015.

Composite samples from the entire contents of the inner and outer cells of the pit were collected on October 28, 2014 for laboratory analyses in accordance with the Pit Rule. To simulate stabilization of drilling waste for in-place burial, the calculated value mathematically mixes 3 parts clean soil from the pit berms beneath the liner (mixing dirt) with 1 part of the weighted pit composite, as depicted in the adjacent chart. The calculated pit composite consists of 22.2% solids from the inner cell of the drilling pit and 77.7% of the solids from the outer cell (1:3.5 ratio), calculated by measuring the volume of cuttings in each cell after those



from both wells were deposited in the pit. The formula use in the table below is:

$$3{:}1\ \text{Stabilized Solids} = \frac{[(\text{Outer Composite}*0.777)+(0.222*\text{Inner Composite})+(\text{Mixing Dirt}*3)]}{4}$$

On December 18, 2014, NMOCD approved a variance to substitute GRO+DRO+MRO (Method 8015D) analysis for TPH 418.1. As shown in the table below, these analyses and calculations "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."

Jackson Unit #17H pit Sample Name	**Sample Type**	**Sample Date**	**Chloride** *80,000*	**Benzene** *10*	**BTEX** *50*	**GRO+ DRO** *1000*	**GRO+ DRO+MRO** *2500*
Inner Composite	Field comp.	10/28/2014	10,000	ND	ND	31	31
Outer Composite	Field comp.	10/28/2014	34,000	1.3	16.2	3,140	3,770
Mixing Dirt	Field comp.	10/28/2014	180	ND	ND	ND	ND
3:1 Stabilized Cuttings CALCULATED * *(3 parts mixing dirt, 1 part weighted pit cuttings)*			***7,301.67***	***0.25***	***3.15***	***612.28***	***734.78***

ND = Not detected at the laboratory's reporting limit

all values are mg/kg

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

Sincerely,

R.T. Hicks Consultants

Kristin Pope

Kristin Pope

Enclosure: Variance approval, statement of laboratory's carbon ranges for 8015D

Copy: Murchison Oil and Gas

Ed Martin, State Land Office
New Mexico State Land Office
PO Box 1148
Santa Fe, NM 87504-1148
CERTIFIED MAIL – RETURN RECIEPT REQUEST

From: Oberding, Tomas, EMNRD
To: Kristin Pope
Cc: ccottrell@jdmii.com; Chace Walls; gboans@jdmii.com; Randy Hicks; Griswold, Jim, EMNRD
Subject: RE: VARIANCE REQUEST: Murchison - Jackson Unit #17H
Date: Thursday, December 18, 2014 8:16:05 AM

Aloha Ms. Pope et al,

Thank you for sending in this variance request.
After discussions, OCD approves the substitution of 8015 B, C, or D for 418.1. Hydrocarbons between C6 and C36 must be included in the results.
As 8015M appears to cover GRO+DRO+MRO- this too is an appropriate alternate methodology.

Thank you for continuing to work with the OCD.
Please let me know if you have any questions.
-Doc

Tomáš 'Doc' Oberding, PhD
Senior Environmental Specialist
New Mexico Oil Conservation Division, District 1
Energy, Minerals and Natural Resources Department
(575) 393-6161 ext 111
E-Mail: tomas.oberding@state.nm.us

OCD approval does not relieve the operator of liability should their operations fail to adequately investigate and remediate contamination that may pose a threat to ground water, surface water, human health or the environment. In addition, OCD approval does not relieve the operator of responsibility for compliance with any other federal, state, local laws and/or regulations.

If you have any questions or concerns, and for notification, please contact me.

From: Kristin Pope [mailto:kristin@rthicksconsult.com]
Sent: Tuesday, December 16, 2014 7:51 AM
To: Oberding, Tomas, EMNRD
Cc: ccottrell@jdmii.com; Chace Walls; gboans@jdmii.com; Randy Hicks; Griswold, Jim, EMNRD
Subject: VARIANCE REQUEST: Murchison - Jackson Unit #17H

Dr. Oberding:

Please find the attached variance request we discussed over the phone last week. During our phone call, I was mistaken on the closure deadline for this site; the closure deadline for this is January 14, 2015. Per our discussion, note that I've copied Jim Griswold on this submission.
Please let me know if we can assist NMOCD's review in any way. Thank you.

Kristin Pope
R.T. Hicks Consultants

From: Andy Freeman
To: "Kristin Pope" (kristin@rthicksconsult.com)
Subject: Hydrocarbon Ranges
Date: Monday, December 29, 2014 1:31:31 PM

Hi Kristin,

I have the hydrocarbon ranges listed below.

GRO C6-C10
DRO C10-C28
MRO C28-C36

Have a great New Year.

Thanks

andy

Jackson 17H 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
JAN - 9 2015
USPS

3. Service Type

☐ Certified Mail® ☐ Priority Mail Express™
☐ Registered ☐ Return Receipt for Merchandise
☐ Insured Mail ☐ Collect on Delivery

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

2. Article Number *(Transfer from service label)* 9414 7102 0079 3410 5804 65

PS Form 3811, July 2013 Domestic Return Receipt

From: Kristin Pope
To: "Oberding, Tomas, EMNRD"
Cc: "Chace Walls"; "gboans@jdmii.com"; "Randy Hicks"; "ccottrell@jdmii.com"; "Martin, Ed"
Subject: RE: Extension Request: Murchison - Jackson Unit #17H pit
Date: Tuesday, October 14, 2014 3:50:00 PM
Attachments: LAB_06.19.14_StabCuttings.pdf

Dr. Oberding,

Thank you for the prompt reply and for discussing this with me today. To clarify, we sampled the pit in June soon after the 17H well was drilled; I have attached the lab report. These preliminary results are NOT closure results and we are not submitting them as such. They are for information only and not representative of the final pit contents. After this sampling event, it was decided to use the pit to store cuttings from a nearby well, the Brininstool #4H. This well is complete. Since the Brininstool cuttings were added, we have not been able to sample the entire pit contents yet. Rainwater removal from this pit and others in the area is ongoing. This extension creates a new deadline of 1/14/2015. We anticipate sampling this pit within 1-2 weeks.

Please let me know if you have any questions about this pit. Thanks again.

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

From: Oberding, Tomas, EMNRD [mailto:Tomas.Oberding@state.nm.us]
Sent: Tuesday, October 14, 2014 11:57 AM
To: Kristin Pope
Cc: Chace Walls; gboans@jdmii.com; Randy Hicks; ccottrell@jdmii.com; Martin, Ed
Subject: RE: Extension Request: Murchison - Jackson Unit #17H pit

Aloha Ms. Pope et al,

Thank you for sending in this request. Please consider this the notice of receipt.

Based on the letter- OCD conditionally approves the extension.

The conditions are as follows- there is concern for the stability of the liners in extended pit operations.
Sampling data is requested to ensure compliance with posted regulations and concentrations of materials.
In addition, Santa Fe has begun to increase monitoring of these sorts of extensions, and have noted that pits once approved for closure in place may be changed to dig and haul permits if there are any concerns.

I appreciate your understanding and continued cooperation.

Please keep me informed as the situation warrants.
Mahalo for your assistance, if you have any questions please let me know,
-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, October 13, 2014 1:51 PM
To: Oberding, Tomas, EMNRD
Cc: Chace Walls; gboans@jdmii.com; Randy Hicks; ccottrell@jdmii.com; Martin, Ed
Subject: Extension Request: Murchison - Jackson Unit #17H pit

Dr. Oberding:

Please find the attached letter requesting an extension for closure of the Jackson Unit #17H temporary pit. The original deadline is October 14, 2014. The pit was used to store the cuttings of a 2nd well which was drilled during the unprecedented rainfall the area received. We plan to sample the entire pit contents as soon as the contents dry out a little more.

Please let me know if you have any questions regarding this request. Thank you.

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

From: Oberding, Tomas, EMNRD
To: Randall Hicks; Martin, Ed
Cc: "Greg Boans"; Chace Walls; kristin@rthicksconsult.com
Subject: RE: MOGI - Transfer closed loop solids/liquids from Brinninstool 4H across lease boundary to Jackson Unit 17H. Spud August 20
Date: Tuesday, August 12, 2014 8:14:33 AM

Aloha Mr. Hicks et al,

Thank you for providing the documentation for the transfer request.
After reviewing the documents and the regulations, NMOCD approves the planned transfer between the two locations.

Please keep me informed as the situation warrants.
Have a wonderful and safe week everyone.
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: Randall Hicks [mailto:r@rthicksconsult.com]
Sent: Monday, August 11, 2014 5:25 PM
To: Martin, Ed; Oberding, Tomas, EMNRD
Cc: 'Greg Boans'; Chace Walls; kristin@rthicksconsult.com
Subject: RE: MOGI - Transfer closed loop solids/liquids from Brinninstool 4H across lease boundary to Jackson Unit 17H. Spud August 20

Tomas

Here is the variance request for the transfer of solids and fluids from Brinninstool 4H to Jackson 17H.

As we will need to do a little work around the Jackson 17H to set it up for accepting waste from the Brinninstool 4H, your rapid review of this variance is appreciated.

Again, you may want to lean on Ed Martin, the OCD expert of Pits (now with the SLO) for guidance in this matter. Ed and I are probably the most knowledgeable about pits in NM. Of course, I think this is a great idea.

Randall Hicks
RT Hicks Consultants
Office: 505-266-5004
Cell: 505-238-9515

From: Randall Hicks [mailto:r@rthicksconsult.com]
Sent: Friday, August 08, 2014 11:30 AM
To: Martin, Ed; Oberding, Tomas, EMNRD (Tomas.Oberding@state.nm.us)
Cc: 'Greg Boans'; Chace Walls (cwalls@jdmii.com); 'kristin@rthicksconsult.com'
Subject: MOGI - Transfer closed loop solids/liquids from Brinninstool 4H across lease boundary to Jackson Unit 17H. Spud August 20

Ed and Tomas

To do the drilling waste transfer, which we believe provides better protection of the environment than other alternatives; we must request a variance from the Pit Rule and approval from the Land Office. Before I submit a formal request, I need to ask:

> Would the SLO consider allow waste transfer from one lease to an adjacent lease through a variance in the terms of the appropriate lease(s)?

The attached map shows the location of the Brinninstool 4 State Com 4H well, which will be drilled closed loop, and the Jackson Unit 17H pit into which we propose to place the closed-loop wastes (fluids and solids). The Brinninstool 4 State Com 4H well lies on a State Lease associated with Section 4 T24S R33E and the Jackson 17H pit lies within the Jackson Unit, both of which are leased by Murchison. Murchison also holds the lease for Section 9 T24S R33E. Thus, the holdings of Murchison are contiguous between the well and the pit, if that makes any difference. The Jackson Unit 17H pit has sufficient volume to hold the solids/liquids and sufficient life to allow Murchison to close the pit by the required date of 10/14/14.

In a variance request we can provide arguments that approval of this variance will provide better protection of the environment than

1. Hauling the cuttings many miles to R-360 or
2. Permitting and excavating a pit at the Brinninstool 4 State Com 3H, where a pit has been permitted and closed in 2013.

Is a variance request DOA or would you both like to see it on Monday for a very quick approval, as the rig will spud on or about August 20.

The Pit Rule allows drilling waste from one well to be placed in a “nearby” pit and buried. Here is what the Rule says specifically:

> D. Closure where wastes are destined for burial in place or into nearby division approved pits or trenches. This subsection applies to waste from temporary pits and closed-loop systems, when such waste may be disposed of in place in the existing temporary pit or disposed of at a nearby temporary pit or burial trench that is not a permitted commercial facility regulated under 19.15.36 NMAC. A nearby temporary pit or burial trench that receives waste from another temporary pit must be onsite within the same lease.

Let me know what you think and have a good weekend.

Randall Hicks
RT Hicks Consultants
Office: 505-266-5004
Cell: 505-238-9515

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.
30-025-41087

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
Jackson Unit

6. Well Number:
#17H

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.)
		4/14/2014		

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 32.224181° Longitude W 103.55527° 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 Kristin Pope Printed Name KRISTIN POPE Title PROJECT GEOLOGIST, AGENT FOR MURCHISON Date 5/14/2015

E-mail Address kristin@rthicksconsult.com

N
W E
S

0 40 80
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

Murchison Oil and Gas, Inc.
Jackson Unit #17H

Plot Plan
form C-105

May 2015

ATTACHMENT 3

Waste Material Sampling Analytical Results

Sampling Pit Contents 10/28/2014

October 28, 2014, four-point composite samples of the pit solids from the inner and outer cells respectively and from the berms of the pit below the liner were collected in accordance with the Pit Rule and were representative of the cuttings from both the #17H and Brininstool 4 St. Com #4H wells. These composite samples were submitted to Hall Environmental Analysis Laboratory in Albuquerque for BTEX (8260B), GRO+DRO+MRO (8015D), TPH (418.1), and Chloride (SM4500) analyses. These component samples were used to determine a calculated concentration for the "3:1 stabilized cuttings" by mathematically combining 1 part pit contents and 3 parts clean soil (mixing dirt). The weighted pit composite calculation consists of 22.2% solids from the inner cell of the drilling pit and 77.7% of the solids from the outer cell (1:3.5 ratio), representative of the volume of cuttings measured in each cell.

On December 18, 2014, NMOCD approved a variance to substitute GRO+DRO+MRO (Method 8015D) analysis for TPH 418.1 (Attachment 1 of this report). As shown in the table below, laboratory analyses of the component samples and the calculation of the "3:1 Stabilized Cuttings" concentration "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."

Jackson Unit #17H pit Sample Name	**Sample Type**	**Sample Date**	**Chloride** *80,000*	**Benzene** *10*	**BTEX** *50*	**GRO+ DRO** *1000*	**GRO+ DRO+MRO** *2500*
Inner Composite	Field comp.	10/28/2014	10,000	ND	ND	31	31
Outer Composite	Field comp.	10/28/2014	34,000	1.3	16.2	3,140	3,770
Mixing Dirt	Field comp.	10/28/2014	180	ND	ND	ND	ND
3:1 Stabilized Cuttings CALCULATED * *(3 parts mixing dirt, 1 part weighted pit cuttings)*			***7,301.67***	***0.25***	***3.15***	***612.28***	***734.78***

ND = Not detected at the laboratory's reporting limit

all values are mg/kg

* =[((Inner+(3.5*Outer))/4.5)+(Mixing*3)]/4

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

November 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: Murchison - Jackson Unit #17H OrderNo.: 1410D67

Dear Kristin Pope:

Hall Environmental Analysis Laboratory received 3 sample(s) on 10/30/2014 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: Inner Comp.
Project: Murchison - Jackson Unit #17H
Collection Date: 10/28/2014 1:40:00 PM
Lab ID: 1410D67-001 **Matrix:** SOIL
Received Date: 10/30/2014 10:00:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8015D: DIESEL RANGE ORGANICS						Analyst: **BCN**	
Diesel Range Organics (DRO)	31	10		mg/Kg	1	11/4/2014 1:54:01 PM	16170
Motor Oil Range Organics (MRO)	ND	51		mg/Kg	1	11/4/2014 1:54:01 PM	16170
Surr: DNOP	119	63.5-128		%REC	1	11/4/2014 1:54:01 PM	16170
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **NSB**	
Gasoline Range Organics (GRO)	ND	5.0		mg/Kg	1	11/5/2014 1:33:07 PM	16173
Surr: BFB	106	80-120		%REC	1	11/5/2014 1:33:07 PM	16173
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**	
Benzene	ND	0.050		mg/Kg	1	11/5/2014 1:33:07 PM	16173
Toluene	ND	0.050		mg/Kg	1	11/5/2014 1:33:07 PM	16173
Ethylbenzene	ND	0.050		mg/Kg	1	11/5/2014 1:33:07 PM	16173
Xylenes, Total	ND	0.10		mg/Kg	1	11/5/2014 1:33:07 PM	16173
Surr: 4-Bromofluorobenzene	97.7	80-120		%REC	1	11/5/2014 1:33:07 PM	16173
EPA METHOD 300.0: ANIONS						Analyst: **LGP**	
Chloride	10000	750		mg/Kg	500	11/5/2014 3:36:22 PM	16208
EPA METHOD 418.1: TPH						Analyst: **JME**	
Petroleum Hydrocarbons, TR	180	17		mg/Kg	1	11/4/2014 12:00:00 PM	16175

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: Outer Comp.
Project: Murchison - Jackson Unit #17H
Collection Date: 10/28/2014 1:30:00 PM
Lab ID: 1410D67-002 **Matrix:** SOIL **Received Date:** 10/30/2014 10:00:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8015D: DIESEL RANGE ORGANICS						Analyst: **BCN**	
Diesel Range Organics (DRO)	3000	46		mg/Kg	5	11/4/2014 6:26:51 PM	16170
Motor Oil Range Organics (MRO)	630	230		mg/Kg	5	11/4/2014 6:26:51 PM	16170
Surr: DNOP	171	63.5-128	S	%REC	5	11/4/2014 6:26:51 PM	16170
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **NSB**	
Gasoline Range Organics (GRO)	140	25		mg/Kg	5	11/4/2014 12:20:39 AM	16173
Surr: BFB	143	80-120	S	%REC	5	11/4/2014 12:20:39 AM	16173
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**	
Benzene	1.3	0.25		mg/Kg	5	11/4/2014 12:20:39 AM	16173
Toluene	6.3	0.25		mg/Kg	5	11/4/2014 12:20:39 AM	16173
Ethylbenzene	1.9	0.25		mg/Kg	5	11/4/2014 12:20:39 AM	16173
Xylenes, Total	6.7	0.50		mg/Kg	5	11/4/2014 12:20:39 AM	16173
Surr: 4-Bromofluorobenzene	105	80-120		%REC	5	11/4/2014 12:20:39 AM	16173
EPA METHOD 300.0: ANIONS						Analyst: **LGP**	
Chloride	34000	1500		mg/Kg	1E	11/10/2014 10:21:22 PM	16208
EPA METHOD 418.1: TPH						Analyst: **JME**	
Petroleum Hydrocarbons, TR	15000	2000		mg/Kg	100	11/4/2014 12:00:00 PM	16175

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: Mixing Dirt Comp.
Project: Murchison - Jackson Unit #17H
Collection Date: 10/28/2014 1:38:00 PM
Lab ID: 1410D67-003 **Matrix:** SOIL **Received Date:** 10/30/2014 10:00:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8015D: DIESEL RANGE ORGANICS						Analyst: **BCN**	
Diesel Range Organics (DRO)	ND	10		mg/Kg	1	11/4/2014 12:53:31 PM	16170
Motor Oil Range Organics (MRO)	ND	50		mg/Kg	1	11/4/2014 12:53:31 PM	16170
Surr: DNOP	73.0	63.5-128		%REC	1	11/4/2014 12:53:31 PM	16170
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **NSB**	
Gasoline Range Organics (GRO)	ND	5.0		mg/Kg	1	11/5/2014 2:01:44 PM	16173
Surr: BFB	96.1	80-120		%REC	1	11/5/2014 2:01:44 PM	16173
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**	
Benzene	ND	0.050		mg/Kg	1	11/5/2014 2:01:44 PM	16173
Toluene	ND	0.050		mg/Kg	1	11/5/2014 2:01:44 PM	16173
Ethylbenzene	ND	0.050		mg/Kg	1	11/5/2014 2:01:44 PM	16173
Xylenes, Total	ND	0.10		mg/Kg	1	11/5/2014 2:01:44 PM	16173
Surr: 4-Bromofluorobenzene	98.7	80-120		%REC	1	11/5/2014 2:01:44 PM	16173
EPA METHOD 300.0: ANIONS						Analyst: **LGP**	
Chloride	180	30		mg/Kg	20	11/3/2014 3:45:26 PM	16208
EPA METHOD 418.1: TPH						Analyst: **JME**	
Petroleum Hydrocarbons, TR	ND	21		mg/Kg	1	11/4/2014 12:00:00 PM	16175

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#: **1410D67**

12-Nov-14

Client: R.T. Hicks Consultants, LTD

Project: Murchison - Jackson Unit #17H

Sample ID	**MB-16208**	SampType:	**MBLK**	TestCode:	**EPA Method 300.0: Anions**					
Client ID:	**PBS**	Batch ID:	**16208**	RunNo:	**22317**					
Prep Date:	**11/3/2014**	Analysis Date:	**11/3/2014**	SeqNo:	**657536**	Units:	**mg/Kg**			

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

Sample ID	**LCS-16208**	SampType:	**LCS**	TestCode:	**EPA Method 300.0: Anions**					
Client ID:	**LCSS**	Batch ID:	**16208**	RunNo:	**22317**					
Prep Date:	**11/3/2014**	Analysis Date:	**11/3/2014**	SeqNo:	**657537**	Units:	**mg/Kg**			

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	14	1.5	15.00	0	92.1	90	110			

Qualifiers:

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

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1410D67**

12-Nov-14

Client: R.T. Hicks Consultants, LTD

Project: Murchison - Jackson Unit #17H

Sample ID	**MB-16175**	SampType:	**MBLK**	TestCode:	**EPA Method 418.1: TPH**					
Client ID:	**PBS**	Batch ID:	**16175**	RunNo:	**22232**					
Prep Date:	**10/30/2014**	Analysis Date:	**10/31/2014**	SeqNo:	**655905**	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-16175**	SampType:	**LCS**	TestCode:	**EPA Method 418.1: TPH**					
Client ID:	**LCSS**	Batch ID:	**16175**	RunNo:	**22232**					
Prep Date:	**10/30/2014**	Analysis Date:	**10/31/2014**	SeqNo:	**655906**	Units:	**mg/Kg**			

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Petroleum Hydrocarbons, TR	95	20	100.0	0	95.1	80	120			

Sample ID	**LCSD-16175**	SampType:	**LCSD**	TestCode:	**EPA Method 418.1: TPH**					
Client ID:	**LCSS02**	Batch ID:	**16175**	RunNo:	**22232**					
Prep Date:	**10/30/2014**	Analysis Date:	**10/31/2014**	SeqNo:	**655907**	Units:	**mg/Kg**			

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Petroleum Hydrocarbons, TR	100	20	100.0	0	101	80	120	5.84	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#: **1410D67**

12-Nov-14

Client: R.T. Hicks Consultants, LTD

Project: Murchison - Jackson Unit #17H

Sample ID	**MB-16170**	SampType:	**MBLK**	TestCode:	**EPA Method 8015D: Diesel Range Organics**					
Client ID:	**PBS**	Batch ID:	**16170**	RunNo:	**22285**					
Prep Date:	**10/30/2014**	Analysis Date:	**11/3/2014**	SeqNo:	**656933**	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	8.5		10.00		85.0	63.5	128			

Sample ID	**LCS-16170**	SampType:	**LCS**	TestCode:	**EPA Method 8015D: Diesel Range Organics**					
Client ID:	**LCSS**	Batch ID:	**16170**	RunNo:	**22285**					
Prep Date:	**10/30/2014**	Analysis Date:	**11/3/2014**	SeqNo:	**657047**	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	98.5	68.6	130			
Surr: DNOP	4.0		5.000		80.9	63.5	128			

Sample ID	**MB-16224**	SampType:	**MBLK**	TestCode:	**EPA Method 8015D: Diesel Range Organics**					
Client ID:	**PBS**	Batch ID:	**16224**	RunNo:	**22316**					
Prep Date:	**11/4/2014**	Analysis Date:	**11/4/2014**	SeqNo:	**657533**	Units:	**%REC**			

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: DNOP	11		10.00		114	63.5	128			

Sample ID	**LCS-16224**	SampType:	**LCS**	TestCode:	**EPA Method 8015D: Diesel Range Organics**					
Client ID:	**LCSS**	Batch ID:	**16224**	RunNo:	**22316**					
Prep Date:	**11/4/2014**	Analysis Date:	**11/4/2014**	SeqNo:	**657587**	Units:	**%REC**			

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: DNOP	5.5		5.000		110	63.5	128			

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#: **1410D67**

12-Nov-14

Client: R.T. Hicks Consultants, LTD

Project: Murchison - Jackson Unit #17H

Sample ID **MB-16173**	SampType: **MBLK**	TestCode: **EPA Method 8015D: Gasoline Range**
Client ID: **PBS**	Batch ID: **16173**	RunNo: **22283**
Prep Date: **10/30/2014**	Analysis Date: **11/2/2014**	SeqNo: **656419** 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	930		1000		93.2	80	120			

Sample ID **LCS-16173**	SampType: **LCS**	TestCode: **EPA Method 8015D: Gasoline Range**
Client ID: **LCSS**	Batch ID: **16173**	RunNo: **22283**
Prep Date: **10/30/2014**	Analysis Date: **11/2/2014**	SeqNo: **656420** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	26	5.0	25.00	0	104	65.8	139			
Surr: BFB	970		1000		97.3	80	120			

Sample ID **LCSD-16173**	SampType: **LCSD**	TestCode: **EPA Method 8015D: Gasoline Range**
Client ID: **LCSS02**	Batch ID: **16173**	RunNo: **22283**
Prep Date: **10/30/2014**	Analysis Date: **11/2/2014**	SeqNo: **656421** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	27	5.0	25.00	0	106	65.8	139	2.09	20	
Surr: BFB	990							0	0	

Sample ID **MB-16232**	SampType: **MBLK**	TestCode: **EPA Method 8015D: Gasoline Range**
Client ID: **PBS**	Batch ID: **16232**	RunNo: **22348**
Prep Date: **11/4/2014**	Analysis Date: **11/5/2014**	SeqNo: **658747** Units: **%REC**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: BFB	960		1000		95.6	80	120			

Sample ID **LCS-16232**	SampType: **LCS**	TestCode: **EPA Method 8015D: Gasoline Range**
Client ID: **LCSS**	Batch ID: **16232**	RunNo: **22348**
Prep Date: **11/4/2014**	Analysis Date: **11/5/2014**	SeqNo: **658748** Units: **%REC**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: BFB	1000		1000		99.9	80	120			

Qualifiers:

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

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1410D67**

12-Nov-14

Client: R.T. Hicks Consultants, LTD

Project: Murchison - Jackson Unit #17H

Sample ID	**MB-16173**	SampType:	**MBLK**	TestCode:	**EPA Method 8021B: Volatiles**					
Client ID:	**PBS**	Batch ID:	**16173**	RunNo:	**22283**					
Prep Date:	**10/30/2014**	Analysis Date:	**11/2/2014**	SeqNo:	**656474**	Units:	**mg/Kg**			

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	ND	0.050								
Toluene	ND	0.050								
Ethylbenzene	ND	0.050								
Xylenes, Total	ND	0.10								
Surr: 4-Bromofluorobenzene	0.96		1.000		95.5	80	120			

Sample ID	**LCS-16173**	SampType:	**LCS**	TestCode:	**EPA Method 8021B: Volatiles**					
Client ID:	**LCSS**	Batch ID:	**16173**	RunNo:	**22283**					
Prep Date:	**10/30/2014**	Analysis Date:	**11/2/2014**	SeqNo:	**656476**	Units:	**mg/Kg**			

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	0.97	0.050	1.000	0	96.6	80	120			
Toluene	0.96	0.050	1.000	0	95.7	80	120			
Ethylbenzene	0.99	0.050	1.000	0	98.7	80	120			
Xylenes, Total	2.9	0.10	3.000	0	98.0	80	120			
Surr: 4-Bromofluorobenzene	1.0		1.000		102	80	120			

Sample ID	**LCSD-16173**	SampType:	**LCSD**	TestCode:	**EPA Method 8021B: Volatiles**					
Client ID:	**LCSS02**	Batch ID:	**16173**	RunNo:	**22283**					
Prep Date:	**10/30/2014**	Analysis Date:	**11/2/2014**	SeqNo:	**656477**	Units:	**mg/Kg**			

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	0.96	0.050	1.000	0	96.1	80	120	0.513	20	
Toluene	0.96	0.050	1.000	0	95.6	80	120	0.128	20	
Ethylbenzene	0.99	0.050	1.000	0	99.4	80	120	0.704	20	
Xylenes, Total	3.0	0.10	3.000	0	98.5	80	120	0.493	20	
Surr: 4-Bromofluorobenzene	1.0		1.000		103	80	120	0		

Sample ID	**MB-16232**	SampType:	**MBLK**	TestCode:	**EPA Method 8021B: Volatiles**					
Client ID:	**PBS**	Batch ID:	**16232**	RunNo:	**22348**					
Prep Date:	**11/4/2014**	Analysis Date:	**11/5/2014**	SeqNo:	**658779**	Units:	**%REC**			

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: 4-Bromofluorobenzene	1.0		1.000		102	80	120			

Sample ID	**LCS-16232**	SampType:	**LCS**	TestCode:	**EPA Method 8021B: Volatiles**					
Client ID:	**LCSS**	Batch ID:	**16232**	RunNo:	**22348**					
Prep Date:	**11/4/2014**	Analysis Date:	**11/5/2014**	SeqNo:	**658780**	Units:	**%REC**			

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

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#: **1410D67**

12-Nov-14

Client: R.T. Hicks Consultants, LTD

Project: Murchison - Jackson Unit #17H

Sample ID	**LCS-16232**	SampType:	**LCS**	TestCode:	**EPA Method 8021B: Volatiles**
Client ID:	**LCSS**	Batch ID:	**16232**	RunNo:	**22348**
Prep Date:	**11/4/2014**	Analysis Date:	**11/5/2014**	SeqNo:	**658780** Units: **%REC**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: 4-Bromofluorobenzene	1.1		1.000		107	80	120			

Qualifiers:

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

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: 1410D67 | RcptNo: 1

Received by/date: CT 10/30/14

Logged By: **Michelle Garcia** 10/30/2014 10:00:00 AM Michelle Garcia

Completed By: **Michelle Garcia** 10/30/2014 11:33:13 AM Michelle Garcia

Reviewed By: 10/30/14

Chain of Custody

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

Log In

4. Was an attempt made to cool the samples?	Yes ☑	No ☐	NA ☐
5. Were all samples received at a temperature of >0° C to 6.0°C	Yes ☑	No ☐	NA ☐
6. Sample(s) in proper container(s)?	Yes ☑	No ☐	
7. Sufficient sample volume for indicated test(s)?	Yes ☑	No ☐	
8. Are samples (except VOA and ONG) properly preserved?	Yes ☑	No ☐	
9. Was preservative added to bottles?	Yes ☐	No ☑	NA ☐
10. VOA vials have zero headspace?	Yes ☐	No ☐	No VOA Vials ☑
11. Were any sample containers received broken?	Yes ☐	No ☑	
12. Does paperwork match bottle labels? (Note discrepancies on chain of custody)	Yes ☑	No ☐	
13. Are matrices correctly identified on Chain of Custody?	Yes ☑	No ☐	
14. Is it clear what analyses were requested?	Yes ☑	No ☐	
15. Were all holding times able to be met? (If no, notify customer for authorization.)	Yes ☑	No ☐	

# of preserved bottles checked for pH: _____ (<2 or >12 unless noted)

Adjusted? _____

Checked by: _____

Special Handling (if applicable)

16. Was client notified of all discrepancies with this order? Yes ☐ No ☐ NA ☑

Person Notified: _____ Date: _____

By Whom: _____ Via: ☐ eMail ☐ Phone ☐ Fax ☐ In Person

Regarding: _____

Client Instructions: _____

17. Additional remarks:

18. **Cooler Information**

Cooler No	Temp °C	Condition	Seal Intact	Seal No	Seal Date	Signed By
1	1.0	Good	Not Present			

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 - Jackson Unit #17H
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	On Ice: ☒ Yes ☐ No
☐ EDD (Type)	Sample Temperature: 1.0

Date	Time	Matrix	Sample Request ID	Container Type and #	Preservative Type	HEAL No. 1410D67	BTEX + MTBE + TMB's (8021)	BTEX + MTBE + TPH (Gas only)	TPH Method 8015B (Gas/Diesel)	TPH (Method 418.1)	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)
10/28/14	1340	soil	Inner Comp.	1 glass	ice	-001	X		X	X				X					X			
"	1330	"	Outer Comp.	"	"	-002	X		X	X				X					X			
"	1338	"	Mixing Dirt Comp.	"	"	-003	X		X	X				X					X			

Date:	Time:	Relinquished by:	Received by:	Date	Time
10/22/14	10/22/14	Kristin Pope			
Date:	Time:	Relinquished by:	Received by:	Date	Time
10/30	10:00			10/30/14	1000

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

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.

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 January 6, 2014 and approved on January 16, 2014. The rig was released on April 14, 2014 and fluid in the pit was removed while the cuttings were allowed to dry.

2. After inspection of the liner's integrity by R.T. Hicks Consultants and approval from NMOCD and the State Land Office, the #17H pit was then used to store the cuttings from the drilling of the nearby Brininstool 4 St. #4H well. The rig was released from the Brininstool well on September 21, 2014 but heavy rains prohibited the immediate sampling of the pit contents. A 3-month extension for closure was granted by NMOCD on October 14, 2014.

3. On October 28, 2014, prior to the initiation of closure activities, samples of the inner and outer cells and clean soil from the berms of the pit below the liner were recovered from the pit. These samples were mathematically "mixed" in a ratio of 3 parts clean soil to 1 part pit cuttings and were analyzed for Chloride, TPH, GRO, DRO, MRO, Benzene, and BTEX at Hall Environmental Analysis Laboratory of Albuquerque, New Mexico. On December 18, 2014, NMOCD approved a variance request to use method 8015 (MRO+DRO+GRO) for TPH compliance instead of method 418.1. The results, as noted in the subsequent closure notice and Attachment 3 of this report, demonstrated that the stabilized pit contents would not exceed the parameter limits listed in Table II of the Pit Rule.

4. A closure notice was submitted to the NMOCD, District 1 office in Hobbs and to the State Land Office on January 6, 2015. Verbal notice in the form of a phone call to NMOCD was placed on the same day.

5. On January 10, 2015, 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. Winter precipitation and mechanical failures caused a delay in the staging of the stabilized material for the cap liner was completed on March 27, 2015. On April 6, 2015 a paint filter test was performed by Hicks Consultants that confirmed that the process was complete and that the stabilized cuttings were located at least 4 feet

below grade.

6. Having achieved all applicable stabilization requirements associated with in-place burial, a geomembrane liner was installed to cover the stabilized cuttings on April 9, 2015. The pit contents and liner were staged to shed infiltrating water, slightly higher in the center.

7. 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. Inclement winter weather delayed closure activities but this work was completed on April 14, 2015.

Stabilization mixing of pit contents 1/20/2015

Paint filter test on stabilized cuttings 4/6/2015

Stabilized cuttings staged for geomembrane cover 4/6/2015

Backfilling over geomembrane cover installed at 4 ft BGS 4/9/2015

ATTACHMENT 5

RE-VEGETATION PROCEDURES

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

1. Storm Construction will seed the topsoil of the on-site burial area using a seed drill pulled by a tractor that prepares the seedbed in the same pass using discs. The seed furrows were oriented perpendicular to the prevailing western wind to minimize erosion. The seeding will be completed in summer 2015.

2. Approximately 48 pounds of a seed mixture consisting of 50% BLM #2 seed blend and 50% Homesteader's Choice blend will be 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. At times, some component species of the blends are unavailable so appropriate substitutions may be selected by the supplier.

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

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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.

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: Jackson Unit No. 17H
API Number: 30-025-41087 OCD Permit Number: P1-05981
U/L or Qtr/Qtr A Section 15 Township 24S Range 33E County: Lea
Center of Proposed Design: Latitude 32° 13' 27.531" N Longitude 103° 33' 17.257" 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. - ☐ NM Office of the State Engineer - iWATERS database search; ☐ USGS; ☐ Data obtained from nearby wells	☐ Yes ☐ No ☒ NA
Ground water is less than 50 feet below the bottom of a Temporary pit, permanent pit, or Multi-Well Fluid Management pit . NM Office of the State Engineer - iWATERS database search; USGS; Data obtained from nearby wells **See Figures 1 & 2**	☐ Yes ☒ No ☐ NA
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** - Written confirmation or verification from the municipality; Written approval obtained from the municipality	☐ Yes ☒ No
Within the area overlying a subsurface mine. **(Does not apply to below grade tanks) See Figure 7** - Written confirmation or verification or map from the NM EMNRD-Mining and Mineral Division	☐ Yes ☒ No
Within an unstable area. **(Does not apply to below grade tanks) See Figure 8** - 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. **(Does not apply to below grade tanks) See Figure 9** - FEMA map	☐ Yes ☒ No
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). - Topographic map; Visual inspection (certification) of the proposed site	☐ Yes ☐ No
Within 200 horizontal feet of a spring or a fresh water well used for public or livestock consumption;. - NM Office of the State Engineer - iWATERS database search; Visual inspection (certification) of the proposed site	☐ Yes ☐ No
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.) - Topographic map; Visual inspection (certification) of the proposed site	☐ Yes ☐ No
Within 300 feet from a occupied 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 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. NM Office of the State Engineer - iWATERS database search; Visual inspection (certification) of the proposed site	☐ Yes ☐ No

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: October 1, 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:** 01/16/2014

Title: Environmental Specialist **OCD Permit Number:** P1-05981

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:** April 14, 2015

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 32.224181° Longitude W 103.55527° 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: May 14, 2015

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