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

Signature: Kristin Pope Date: December 12, 2013

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

approved

Jeffrey Lekins

Environmental Specialist

NMOCD-DIST 1

7/02/14

JUL 02 2014

R. T. HICKS CONSULTANTS, LTD.

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

December 12, 2013

Mr. Geoffrey Leking
NMOCD District 1
1625 French Drive
Hobbs, NM 88240
Via E-Mail and US Mail

RE: Temporary Pit Closure Report
Brininstool 4 State 3H, API #30-025-41030
Unit M, Section 4, T24S, R33E, Lea County

Dear Mr. Leking:

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, Terry Warnell

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

September 6, 2013

HOBBS OCD

DEC 16 2013

RECEIVED

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

RE: Murchison Brininstool 4 State 3H, In-place Burial Notice
Unit M, Section 4 T24S R33E, API #30-025-41030

Dear Geoffrey:

On behalf of Murchison Oil and Gas, R. T. Hicks Consultants is providing this notice to OCD with a copy to the State Land Office (certified, return receipt request). The above-referenced pit will begin closure operations on Thursday, September 12. The closure process should require about a week.

The "In-place Burial" closure plan for the above-referenced pit was approved on March 5, 2013 by the NMOCD, prior to the establishment of the June 2013 pit rule. Construction and operation of the temporary pit has been conducted to satisfy the rule under which it was approved as well as the June 2013 rule. In conformance with the 2013 Pit Rule, a five-point composite sample that is fully representative of the solids in the pit was recovered and stabilized with the available mixing soil at a 3:1 ratio[1].

Laboratory analyses demonstrate that the concentrations of the parameters listed in Table II of 19.15.17.13 NMAC (June 2013 pit rule) are below the limits that allow in-place burial. The summary table below shows results from two un-stabilized composite samples taken from the pit's outer horse shoe (brine and cut brine drilling fluids) and inner horse shoe (fresh water drilling fluid) and three samples for chloride only that were stabilized by mixing one part pit solids with 3 parts of the soil to be used for stabilization.

	Sample Date	Chloride	Benzene	BTEX	GRO+DRO+DROext	TPH	
Table II Limit		**80,000**	**10**	**50**	**1000**	**2500**	**mg/kg**
Outer Shoe Composite (unstabilized)	8/8/2013	67200	0.8	18.3	315.3	2360	mg/kg
Inner Pit Coposite (unstabilized)	8/8/2013	6130	0.05	0.3	10	269	mg/kg
Stabilized 1:3 Inner Pit Composite	8/8/2013	1560					mg/kg
Stabilized 1:3 Outer Pit Composite	8/8/2013	24800					mg/kg
Stabilized Complete Pit Composite	8/8/2013	14200					mg/kg

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

While all samples meet the criteria for in-place burial, R.T. Hicks Consultants is concerned that TPH by 418.1 may not be an accurate representation of petroleum hydrocarbons in the pit solids because several drilling mud additives and/or lost circulation materials, such as cotton seed hulls, become part of the result when using EPA method 418.1. We do not believe that the Rule intends to measure the concentration of non-petroleum organic material. Therefore, we asked the laboratory to analyze the samples by EPA method 8015B extended to included carbon numbers up to C35 (GRO+DRO+DROext). This analysis should include a complete range of purge-able and extractable hydrocarbons without also including the non-petroleum hydrocarbons that are measured by method 418.1. The order of magnitude difference between petroleum hydrocarbons analyzed by 8015B and 418.1 is not surprising, based upon some research we have done and the nature of non-petroleum organic material in drilling fluids, such as biopolymer drilling fluid additives and cellulose.

We will proceed with closure pursuant to the current Rule. Because there are no meaningful differences, we believe it best to comply with the closure protocols approved under the new Rule. As always, we appreciate your work to keep us on schedule.

Sincerely,
R.T. Hicks Consultants

Randall Hicks

Enclosure: Laboratory report

Copy: Murchison Oil and Gas

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

CARDINAL Laboratories

PHONE (575) 393-2326 ° 101 E. MARLAND ° HOBBS, NM 88240

August 22, 2013

RANDALL HICKS

R T HICKS CONSULTANTS

901 RIO GRANDE BLVD SUITE F-142

ALBUQUERQUE, NM 87104

HOBBS OCD

DEC 16 2013

RECEIVED

RE: BRININSTOOL 4 ST. 3H

Enclosed are the results of analyses for samples received by the laboratory on 08/09/13 7:00.

Cardinal Laboratories is accredited through Texas NELAP under certificate number T104704398-11-3. Accreditation applies to drinking water, non-potable water and solid and chemical materials. All accredited analytes are denoted by an asterisk (*). For a complete list of accredited analytes and matrices visit the TCEQ website at www.tceq.texas.gov/field/qa/lab_accred_certif.html.

Cardinal Laboratories is accreditated through the State of Colorado Department of Public Health and Environment for:

Method EPA 552.2	Haloacetic Acids (HAA-5)
Method EPA 524.2	Total Trihalomethanes (TTHM)
Method EPA 524.4	Regulated VOCs (V1, V2, V3)

Accreditation applies to public drinking water matrices.

This report meets NELAP requirements and is made up of a cover page, analytical results, and a copy of the original chain-of-custody. If you have any questions concerning this report, please feel free to contact me.

Sincerely,

Celey D. Keene

Celey D. Keene

Lab Director/Quality Manager

CARDINAL Laboratories

PHONE (575) 393-2326 ° 101 E. MARLAND ° HOBBS, NM 88240

Analytical Results For:

R T HICKS CONSULTANTS
RANDALL HICKS
901 RIO GRANDE BLVD SUITE F-142
ALBUQUERQUE NM, 87104
Fax To: NONE

Received:	08/09/2013	Sampling Date:	08/08/2013
Reported:	08/22/2013	Sampling Type:	Soil
Project Name:	BRININSTOOL 4 ST. 3H	Sampling Condition:	Cool & Intact
Project Number:	NONE GIVEN	Sample Received By:	Daniel Wade
Project Location:	LEA COUNTY		

Sample ID: OUTER PIT COMP (H301879-01)

BTEX 8260B mg/kg **Analyzed By: MS** **S-04**

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	**0.807**	0.050	08/14/2013	ND	2.15	107	2.00	3.13	
Toluene*	**6.06**	0.050	08/14/2013	ND	2.18	109	2.00	3.47	
Ethylbenzene*	**2.48**	0.050	08/14/2013	ND	2.14	107	2.00	3.45	
Total Xylenes*	**8.99**	0.150	08/14/2013	ND	6.39	107	6.00	3.19	
Total BTEX	**18.3**	0.300	08/14/2013	ND					

Surrogate: Dibromofluoromethane	*98.5 %*	*61.3-142*
Surrogate: Toluene-d8	*123 %*	*71.3-129*
Surrogate: 4-Bromofluorobenzene	*196 %*	*65.7-141*

Chloride, SM4500Cl-B mg/kg **Analyzed By: AP**

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	**76000**	16.0	08/15/2013	ND	400	100	400	7.69	

TPH 418.1 mg/kg **Analyzed By: CK**

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
TPH 418.1	**2360**	100	08/16/2013	ND	5200	104	5000	9.17	

TPH 8015M mg/kg **Analyzed By: DW**

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10	**25.7**	10.0	08/13/2013	ND	176	88.0	200	3.63	
DRO >C10-C28	**237**	10.0	08/13/2013	ND	186	93.0	200	2.90	
EXT DRO >C28-C35	**52.6**	10.0	08/13/2013	ND					

Surrogate: 1-Chlorooctane	*96.5 %*	*65.2-140*

Cardinal Laboratories *=Accredited Analyte

Celey D. Keene, Lab Director/Quality Manager

CARDINAL Laboratories

PHONE (575) 393-2326 ° 101 E. MARLAND ° HOBBS, NM 88240

Analytical Results For:

R T HICKS CONSULTANTS
RANDALL HICKS
901 RIO GRANDE BLVD SUITE F-142
ALBUQUERQUE NM, 87104
Fax To: NONE

Received:	08/09/2013	Sampling Date:	08/08/2013
Reported:	08/22/2013	Sampling Type:	Soil
Project Name:	BRININSTOOL 4 ST. 3H	Sampling Condition:	Cool & Intact
Project Number:	NONE GIVEN	Sample Received By:	Daniel Wade
Project Location:	LEA COUNTY		

Sample ID: OUTER PIT COMP (H301879-01)

TPH 8015M **mg/kg** **Analyzed By: DW**

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Surrogate: 1-Chlorooctadecane	*109 %*	*63.6-154*							

Sample ID: OUTER PIT SP #5 (H301879-02)

Chloride, SM4500Cl-B **mg/kg** **Analyzed By: AP**

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	**67200**	16.0	08/15/2013	ND	400	100	400	7.69	

Cardinal Laboratories *=Accredited Analyte

Celey D. Keene, Lab Director/Quality Manager

CARDINAL Laboratories

PHONE (575) 393-2326 ° 101 E. MARLAND ° HOBBS, NM 88240

Analytical Results For:

R T HICKS CONSULTANTS
RANDALL HICKS
901 RIO GRANDE BLVD SUITE F-142
ALBUQUERQUE NM, 87104
Fax To: NONE

Received:	08/09/2013	Sampling Date:	08/08/2013
Reported:	08/22/2013	Sampling Type:	Soil
Project Name:	BRININSTOOL 4 ST. 3H	Sampling Condition:	Cool & Intact
Project Number:	NONE GIVEN	Sample Received By:	Daniel Wade
Project Location:	LEA COUNTY		

Sample ID: INNER PIT COMP (H301879-03)

BTEX 8260B mg/kg **Analyzed By: MS**

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.050	0.050	08/15/2013	ND	2.15	108	2.00	3.67	
Toluene*	<0.050	0.050	08/15/2013	ND	2.16	108	2.00	4.83	
Ethylbenzene*	<0.050	0.050	08/15/2013	ND	2.10	105	2.00	4.57	
Total Xylenes*	<0.150	0.150	08/15/2013	ND	6.24	104	6.00	4.81	
Total BTEX	<0.300	0.300	08/15/2013	ND					

Surrogate: Dibromofluoromethane	*95.6 %*	*61.3-142*
Surrogate: Toluene-d8	*102 %*	*71.3-129*
Surrogate: 4-Bromofluorobenzene	*104 %*	*65.7-141*

Chloride, SM4500Cl-B mg/kg **Analyzed By: AP**

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	**6130**	16.0	08/15/2013	ND	400	100	400	7.69	

TPH 418.1 mg/kg **Analyzed By: CK**

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
TPH 418.1	**269**	100	08/16/2013	ND	5200	104	5000	9.17	

TPH 8015M mg/kg **Analyzed By: DW**

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10	<10.0	10.0	08/13/2013	ND	176	88.0	200	3.63	
DRO >C10-C28	<10.0	10.0	08/13/2013	ND	186	93.0	200	2.90	
EXT DRO >C28-C35	<10.0	10.0	08/13/2013	ND					

Surrogate: 1-Chlorooctane	*94.8 %*	*65.2-140*

Cardinal Laboratories *=Accredited Analyte

Celey D. Keene, Lab Director/Quality Manager

CARDINAL Laboratories

PHONE (575) 393-2326 ° 101 E. MARLAND ° HOBBS, NM 88240

Analytical Results For:

R T HICKS CONSULTANTS
RANDALL HICKS
901 RIO GRANDE BLVD SUITE F-142
ALBUQUERQUE NM, 87104
Fax To: NONE

Received:	08/09/2013	Sampling Date:	08/08/2013
Reported:	08/22/2013	Sampling Type:	Soil
Project Name:	BRININSTOOL 4 ST. 3H	Sampling Condition:	Cool & Intact
Project Number:	NONE GIVEN	Sample Received By:	Daniel Wade
Project Location:	LEA COUNTY		

Sample ID: INNER PIT COMP (H301879-03)

TPH 8015M **mg/kg** **Analyzed By: DW**

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Surrogate: 1-Chlorooctadecane	*106 %*	*63.6-154*							

Sample ID: MIXING DIRT (H301879-04)

Chloride, SM4500Cl-B **mg/kg** **Analyzed By: AP**

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	<16.0	16.0	08/15/2013	ND	400	100	400	7.69	

Sample ID: INNER PIT 1:3 COMP (H301879-05)

Chloride, SM4500Cl-B **mg/kg** **Analyzed By: AP**

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	**1560**	16.0	08/22/2013	ND	416	104	400	0.00	

Sample ID: OUTER PIT 1:3 COMP (H301879-06)

Chloride, SM4500Cl-B **mg/kg** **Analyzed By: AP**

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	**24800**	16.0	08/22/2013	ND	416	104	400	0.00	

Cardinal Laboratories *=Accredited Analyte

Celey D. Keene, Lab Director/Quality Manager

CARDINAL Laboratories

PHONE (575) 393-2326 ° 101 E. MARLAND ° HOBBS, NM 88240

Analytical Results For:

R T HICKS CONSULTANTS
RANDALL HICKS
901 RIO GRANDE BLVD SUITE F-142
ALBUQUERQUE NM, 87104
Fax To: NONE

Received:	08/09/2013	Sampling Date:	08/08/2013
Reported:	08/22/2013	Sampling Type:	Soil
Project Name:	BRININSTOOL 4 ST. 3H	Sampling Condition:	Cool & Intact
Project Number:	NONE GIVEN	Sample Received By:	Daniel Wade
Project Location:	LEA COUNTY		

Sample ID: COMPLETE PIT COMP (H301879-07)

Chloride, SM4500Cl-B **mg/kg** **Analyzed By: AP**

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	**14200**	16.0	08/22/2013	ND	416	104	400	0.00	

Cardinal Laboratories *=Accredited Analyte

Celey D. Keene, Lab Director/Quality Manager

CARDINAL Laboratories

PHONE (575) 393-2326 ° 101 E. MARLAND ° HOBBS, NM 88240

Notes and Definitions

S-04	The surrogate recovery for this sample is outside of established control limits due to a sample matrix effect.
QM-4X	The spike recovery was outside of QC acceptance limits for the MS and/or MSD due to analyte concentration at 4 times or greater the spike concentration. The QC batch was accepted based on LCS and/or LCSD recoveries within the acceptance limits.
ND	Analyte NOT DETECTED at or above the reporting limit
RPD	Relative Percent Difference
**	Samples not received at proper temperature of 6°C or below.
***	Insufficient time to reach temperature.
-	Chloride by SM4500Cl-B does not require samples be received at or below 6°C
	Samples reported on an as received basis (wet) unless otherwise noted on report

Celey D. Keene, Lab Director/Quality Manager

CARDINAL Laboratories

CHAIN-OF-CUSTODY AND ANALYSIS REQUEST

101 East Marland, Hobbs, NM
(575) 393-2326 FAX (575) 393-

Company Name:	R.T. Hicks Consultants	BILL TO P.O. #:	
Project Manager:		Company:	R.T. Hicks
Address:		Attn:	Randy Hicks
City:	State: Zip:	Address:	
Phone #:	(575) 302-6755 Fax #:	City:	
Project #:	Project Owner: Murchison	State: Zip:	
Project Name:	Brininstool 4 St. 3H	Phone #:	
Project Location:	Lea County	Fax #:	
Sampler Name:	Randy Hicks		

FOR LAB USE ONLY	Sample I.D.	(G)RAB OR (C)OMP.	# CONTAINERS	MATRIX: GROUNDWATER	WASTEWATER	SOIL	OIL	SLUDGE	OTHER:	PRESERV: ACID/BASE:	ICE / COOL	OTHER:	SAMPLING: DATE	TIME	Cl- 300.0	TPH 418.1	GRO + DRO 8015M (MRO)	BTEX 8021B or 8260B	Benzene 8021B or 8015M
H301879																			
1	Outer Pit Composite	C	4						X		X		8/8/13	1015	✓	✓	✓	✓	✓
2	Outer Pit SP #5	G	1						X		X		8/8/13	1020	✓				
3	Inner Pit Composite	C	4						X		X		8/8/13	1111	✓	✓	✓	✓	✓
4	Mixing Pit	G	1			1					X		8/8/13	1122	✓				
	EXTRA OUTER PIT SAMPLE	C	1												✓				
5	Inner Pit 1:3 Comp	C	1			✓									✓				
6	Outer Pit 1:3 Comp	C	1			✓									✓				
7	Complete Pit Comp	C	1			✓									✓				

NOTE EXTRA SAMPLE IN PLASTIC IF YOU NEED IT

Relinquished By:	Date: 8/9/13 Time: 9:00 a.m.	Received By:	Phone Result: ☐ Yes ☐ No Add'l Phone #:
Kristin Pope			Fax Result: ☐ Yes ☐ No Add'l Fax #:
Relinquished By:	Date: 8/9/13 Time: 7:00	Received By:	REMARKS: r@rthicksconsult.com email to kristin@rthicksconsult.com Please composite 4 outer pit composite and inner pit composite samples in lab.
Delivered By: (Circle One) Sampler - UPS - Bus - Other:	4°C	Sample Condition Cool: Yes Intact: Yes	CHECKED BY: (Initials)

* Cardinal cannot accept verbal changes. Please fax written changes to [illegible]

PLACE STICKER AT TOP OF ENVELOPE TO THE RIGHT OF THE RETURN ADDRESS, FOLD AT DOTTED LINE

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:

TERRY WARNELL
SLO
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
SEP 10 2012
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 lab) 7012 0470 0001 5974 5899

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

From: Leking, Geoffrey R, EMNRD
To: Kristin Pope
Cc: ccottrell@jdmii.com; "Greg Boans"; Warnell, Terry G.; "Chace Walls"; "Randy Hicks"
Subject: RE: Murchison - Brininstool 4 State 3H temporary pit
Date: Tuesday, September 10, 2013 1:15:04 PM

Kristin

The Permit Modification C-144 Applications for the Murchison Brininstool 4 State 3H temporary pit and the Murchison Jackson Unit #18H temporary pit are approved. The approved applications fulfill the requirements for closing the pits under the revised NMAC Rule 19.15.17 effective 6/28/2013. Please contact me if you have any questions. Thank you.

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, September 10, 2013 7:37 AM
To: Leking, Geoffrey R, EMNRD
Cc: ccottrell@jdmii.com; 'Greg Boans'; Warnell, Terry G.; 'Chace Walls'; 'Randy Hicks'
Subject: Murchison - Brininstool 4 State 3H temporary pit

Mr. Leking:

The attached plan is submitted as a modification according to the June 2013 Pit Rule from the one you approved on March 19, 2013 under the previous Rule. The changes from the previous application include the Cover (change date), Transmittal Letter, C-144 Application Form, and the Closure plan. All of the site specific text, figures, and plates are unchanged. A hard copy will follow by regular mail.

As you have seen in our 9/6/2013 closure notification letter, we have sampled the pit following the 2013 Rule and it appears to be in compliance. We plan to begin closure activities on Thursday, September 12.

Thank you,

Kristin Pope
R.T. Hicks Consultants
Carlsbad Field Office

575.302.6755

From: Leking, Geoffrey R, EMNRD [mailto:GeoffreyR.Leking@state.nm.us]
Sent: Monday, September 09, 2013 10:55 AM
To: Kristin Pope
Cc: ccottrell@jdmii.com; Greg Boans; Warnell, Terry G.; Chace Walls; Randy Hicks
Subject: RE: CLOSURE NOTICE: Brininstool 4 State 3H temporary pit and Jackson Unit 8H

Kristin

The chloride concentrations fail the rules under which the Brinninstool 4 State 3H and Jackson Unit 8H were permitted. Before proceeding with field work, submit a modification to close under the new rule. I am still looking at the TPH situation. But you have to submit the mod to cover the chlorides. Thank you.

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: Friday, September 06, 2013 2:45 PM
To: Leking, Geoffrey R, EMNRD
Cc: ccottrell@jdmii.com; Greg Boans; Warnell, Terry G.; Chace Walls; Randy Hicks
Subject: CLOSURE NOTICE: Brininstool 4 State 3H temporary pit

Mr. Leking,

In addition to our phone conversation earlier today, please find the attached written closure notice for the Brininstool 4 State 3H temporary pit. As stated on the phone and in the letter, Murchison will begin closure of this site next Thursday.
Please contact me or Randy with any questions. 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.
30-025-41030

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
Brininstool 4 State

6. Well Number:
003H

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.)
		7/4/2013		

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 32.24042° Longitude W 103.58530° 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 MUCHISON Date 12/12/2013

E-mail Address kristin@rthicksconsult.com

INSTRUCTIONS

This form is to be filed with the appropriate District Office of the Division not later than 20 days after the completion of any newly-drilled or deepened well and not later than 60 days after completion of closure. When submitted as a completion report, this shall be accompanied by one copy of all electrical and radio-activity logs run on the well and a summary of all special tests conducted, including drill stem tests. All depths reported shall be measured depths. In the case of directionally drilled wells, true vertical depths shall also be reported. For multiple completions, items 11, 12 and 26-31 shall be reported for each zone.

INDICATE FORMATION TOPS IN CONFORMANCE WITH GEOGRAPHICAL SECTION OF STATE

Southeastern New Mexico		Northwestern New Mexico	
T. Anhy	T. Canyon	T. Ojo Alamo	T. Penn A"
T. Salt	T. Strawn	T. Kirtland	T. Penn. "B"
B. Salt	T. Atoka	T. Fruitland	T. Penn. "C"
T. Yates	T. Miss	T. Pictured Cliffs	T. Penn. "D"
T. 7 Rivers	T. Devonian	T. Cliff House	T. Leadville
T. Queen	T. Silurian	T. Menefee	T. Madison
T. Grayburg	T. Montoya	T. Point Lookout	T. Elbert
T. San Andres	T. Simpson	T. Mancos	T. McCracken
T. Glorieta	T. McKee	T. Gallup	T. Ignacio Otzte
T. Paddock	T. Ellenburger	Base Greenhorn	T.Granite
T. Blinebry	T. Gr. Wash	T. Dakota	
T.Tubb	T. Delaware Sand	T. Morrison	
T. Drinkard	T. Bone Springs	T.Todilto	
T. Abo	T.	T. Entrada	
T. Wolfcamp	T.	T. Wingate	
T. Penn	T.	T. Chinle	
T. Cisco (Bough C)	T.	T. Permian	

OIL OR GAS SANDS OR ZONES

No. 1, from.....to..... No. 3, from.....to.....

No. 2, from.....to..... No. 4, from.....to.....

IMPORTANT WATER SANDS

Include data on rate of water inflow and elevation to which water rose in hole.

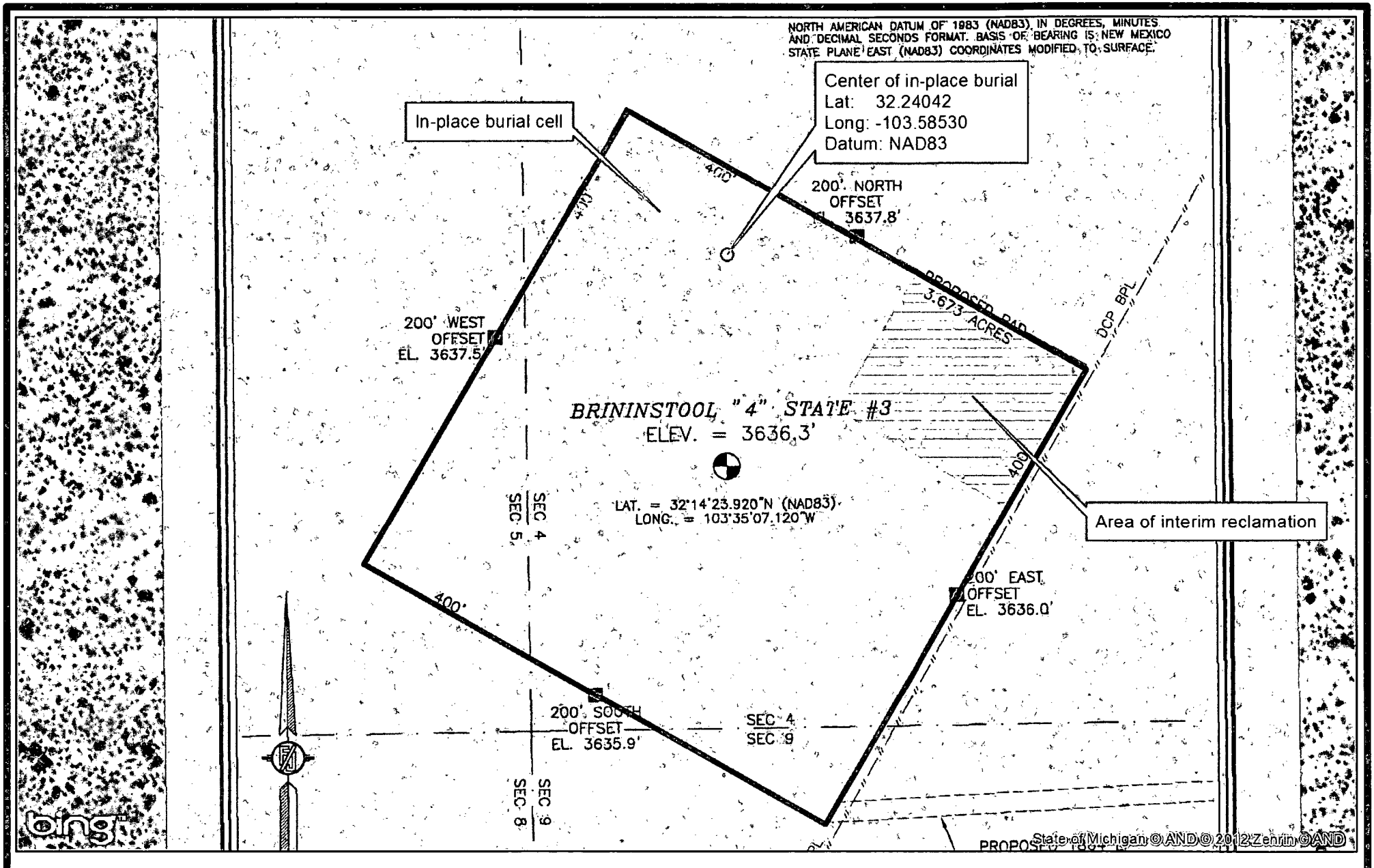
No. 1, from.....to.....feet.....

No. 2, from.....to.....feet.....

No. 3, from.....to.....feet.....

LITHOLOGY RECORD (Attach additional sheet if necessary)

From	To	Thickness In Feet	Lithology		From	To	Thickness In Feet	Lithology



N
W E
S

0 50 100
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
in relation to well pad

Murchison Oil and Gas
Brininstool "4" State #3H

Plate 1
of C-105 form

December
2013

ATTACHMENT 3

Waste Material Sampling Analytical Results

On August 8, 2013, five-point composite samples were collected from the temporary pit location and submitted to Cardinal Laboratories in Hobbs, New Mexico for BTEX (8260B), GRO/GRO (8015M), TPH (418.1), and Chloride (SM4500) analyses.

The table below depicts the samples collected from the cuttings in this pit and their concentrations of the parameters listed in Table II of 19.15.17.13 NMAC (June 2013 Pit Rule). These analyses demonstrate that this site meets the criteria for in-place closure. The full laboratory report is included in Attachment 1 of this report.

Table II Limits (mg/kg)	Sample Date	Chloride 80,000	TPH 2,500	GRO+DROext 1,000	BTEX 50	Benzene 10
Outer Pit Composite (unstabilized)	8/8/2013	76,000	2,360	315.3	18.3	8.07
Inner Pit Composite (unstabilized)		6,130	269	ND	ND	ND
Mixing Dirt Composite		ND	---	---	---	---
1:3 Stabilized Outer Pit Composite		24,800	---	---	---	---
1:3 Stabilized Inner Pit Composite		1,560	---	---	---	---
1:3 Stabilized Complete Pit Composite		14,200	---	---	---	---

The composite samples from the unstabilized cuttings in the outer horseshoe cell (used for brine and cut brine drilling fluids) and the inner horseshoe cell (fresh water drilling fluids) were analyzed for all Table II constituents before mixing with stabilizing dirt. The unstabilized sample from the outer cell and inner independently met Table II limits for each constituent. The TPH concentration of 2,360 mg/kg by method 418.1 in the unstabilized outer cell is surprising, especially when one totals the TPH concentration using GC FID methods (EPA 8015B) as 315.3 mg/kg (results are shown at right).

Petroleum Hydrocarbons by GC FID	
GRO C6–C10	25.7
DRO >C10–C28	237
EXT DRO >C28-C35	52.6
	315.3

The material for stabilizing and cover above the liner ("mixing dirt composite") was collected from the berms of the pit under the liner and from material stockpiled on site. Laboratory analysis for chloride confirm that the material is less than the laboratory's detection limits of 16 mg/kg, meeting the requirements of Paragraph (3) of Subsection H of 19.15.17.13 NMAC. The outer and inner composite samples were mixed in a ratio that reflects the volume of cuttings in each cell and then mixed with the "mixing dirt" at a ratio of 1:3 for the stabilized 1:3 "Complete Pit Composite" sample which was analyzed for chloride and yielded 14,200 mg/kg.

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. The on-site burial location and its depth is in compliance with the siting criteria presented in the C-144 application and the Pit Rule under which it was submitted to the NMOCD on March 4, 2013 and approved on March 19, 2013. After the rig was released on May 20, 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. On August 8, 2013, prior to the initiation of closure activities, composite samples from the inner and outer cells and clean soil from the berms of the pit below the liner were recovered from the pit. These were mixed in a ratio of 1 part cuttings to 3 parts clean soil and were analyzed for Chloride, TPH, GRO, DRO, MRO, Benzene, and BTEX at Cardinal Laboratories in Hobbs, New Mexico. The results, as noted in the subsequent closure notice, demonstrate that the stabilized pit contents would not exceed the parameter limits listed in Table II of the new Pit Rule (June 2013).

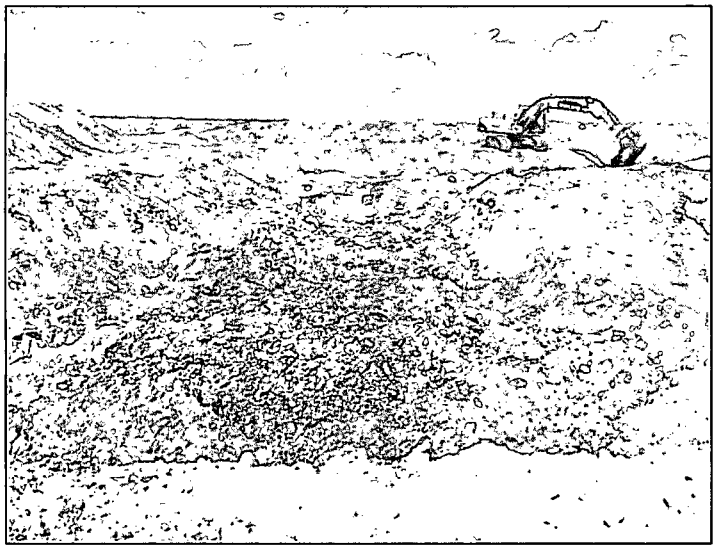
3. On September 6, 2013, a closure notice was submitted to the NMOCD, District 1 office in Hobbs and to the State Land Office. On September 9, NMOCD requested a modification to the C-144 permit to meet the closure criteria of the new Pit Rule. On September 10, R.T. Hicks Consultants submitted a modification request to the C-144 permit along with a closure plan that satisfied the new Pit Rule and NMOCD granted approval via email on the same day.

4. On September 12, 2013, 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. The liner material was cut off above the cuttings level and the large panels were reserved for later. Stabilization continued until September 24 when a paint filter test was performed by R.T. Hicks Consultants that confirmed that the process was complete and that the resultant floor of the excavation was at least 4 feet deep.

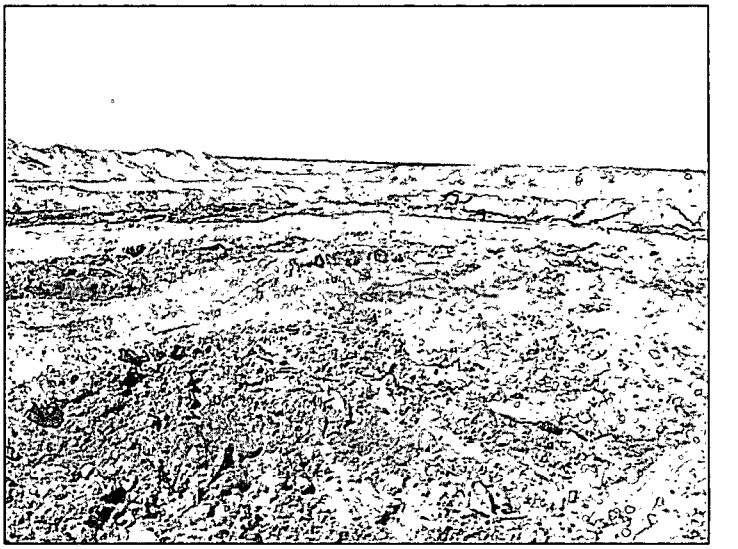
5. Following the September 24, 2013 inspection, having achieved all applicable stabilization requirements associated with in-place burial, the reserved liner material was arranged on top of the stabilized cuttings. Additional liner was required and overlapped to completely cover the stabilized cuttings. The pit contents and liner were shaped to shed infiltrating water, slightly higher in the middle.

6. Once the geomembrane cover was in place, at least 4 feet of non-waste contained, uncontaminated earthen material and 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.

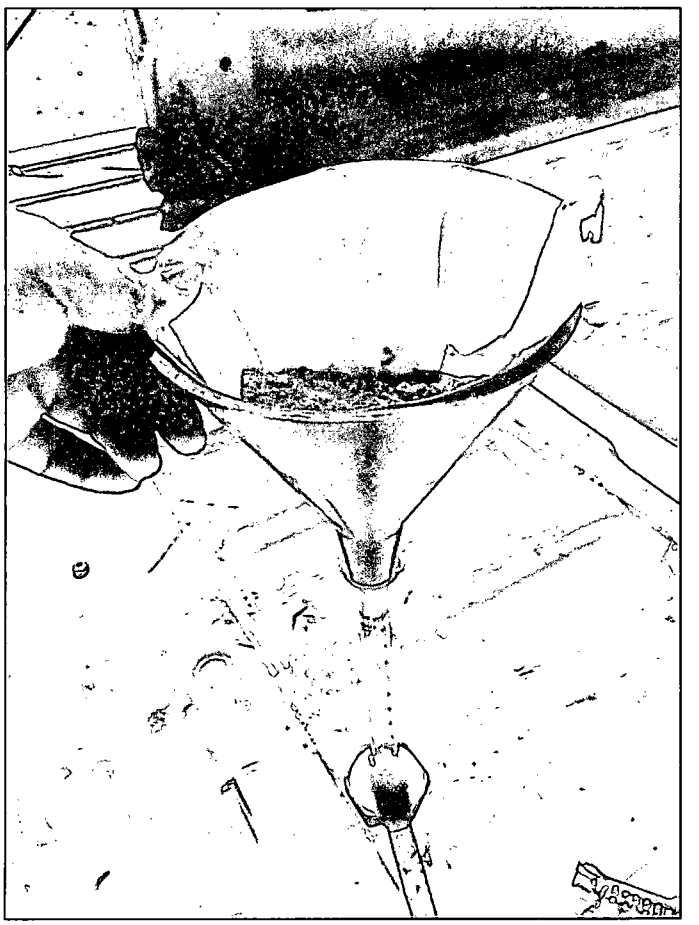
7. The surface was contoured to blend with the surrounding topography and to prevent erosion and the ponding of water over the on-site closure. This work was completed on September 27, 2013. Soon after completion, the area received heavy, sustained rains which noticeably settled the surface. On November 18, 2013, additional topsoil was imported and added to the surface of the on-site burial to re-contour the site.



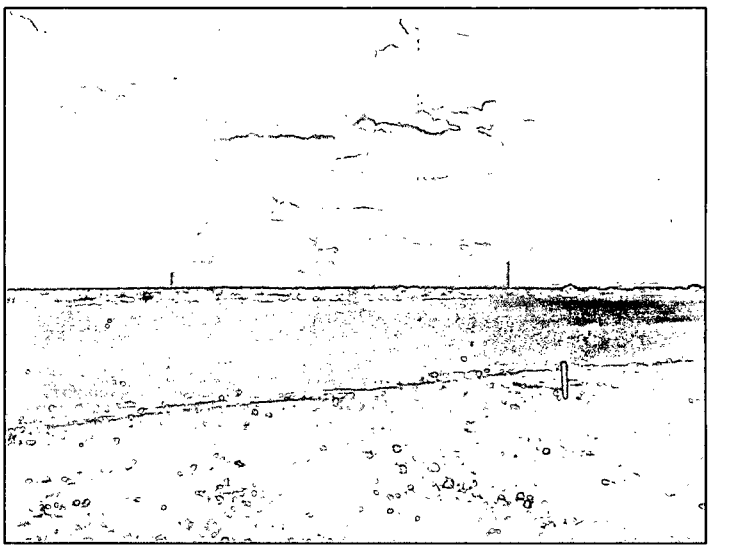
Stabilizing Cuttings 9-18-2013



Stabilized Cuttings 9-24-2013



Paint Filter Test on Stabilized Cuttings 9-24-2013



Topsoil Spread on On-Site Burial 9-27-2013

ATTACHMENT 5

RE-VEGETATION PROCEDURES

There were no road or surface drainage features nearby that required restoration or preservation, however, interim reclamation was initiated on an area of the well pad east of the pit area as shown on plate 1 of Attachment 2. The caliche pad was removed from this area and replaced with topsoil and seeded at the same time as the on-site pit closure in the manner described below.

1. On November 18, 2013, TNT Backhoe Services of Artesia seeded the topsoil on the on-site burial and interim reclamation areas by hand broadcasting the seed and then covering it by dragging a chain harrow with a tractor across the surface.

2. Approximately 60 pounds of a seed mixture consisting of 50% BLM #2 seed blend and 50% Homesteader's Choice blend was applied in accordance with the supplier's instructions to approximately 2 acres of the pit closure and interim reclamation areas. Species constituents of each blend are listed below and are appropriate for the soil type and conditions at this site. Note that Plains Bristlegrass, a majority component of the BLM #2 assortment, was unavailable so appropriate substitute species approved by the BLM were used.

BLM #2	***Homesteader's Choice***
Sideoats Grama	Blue Grama
Little Bluestem	Buffalograss
Sand Dropseed	Sideoats Grama
Indian Ricegrass	Western Wheatgrass
Plains Coreopsis	Sand Dropseed

3. 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.

4. 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.

Curtis & Curtis, Inc
4500 North Prince
Clovis, NM 88130
Phone: (575) 762-4759

TNT Backhoe Service
2 Acre Custom Mix
2 - 1 Acre Bags @ 29.84 Bulk Pounds Each
Job: Murchison Oil - Brinstoll

Lot#: M-11870

Item	Origin	Purity	Germ	Dormant	Germ & Dormant	Test Date	Total Pounds
Homesteader's Choice Mix	New Mexico	42.98%	85.00%	0.00%	85.00%	10/13	30.00 Bulk
Sand Dropseed VNS	Colorado	6.84%	2.00%	96.00%	98.00%	03/13	4.00 PLS
Little Bluestem Itasca	Minnesota	10.58%	50.00%	45.00%	95.00%	03/13	6.00 PLS
Coreopsis Plains	Oregon	7.89%	85.00%	0.00%	85.00%	08/13	4.00 PLS
Sideoats Grama Niner	Texas	11.43%	83.00%	5.00%	88.00%	06/13	6.00 PLS
Indian Ricegrass Paloma	Colorado	7.28%	2.00%	90.00%	92.00%	10/13	4.00 PLS

Other Crop: 0.06%
Weed Seed: 0.32%
Inert Matter: 12.62%

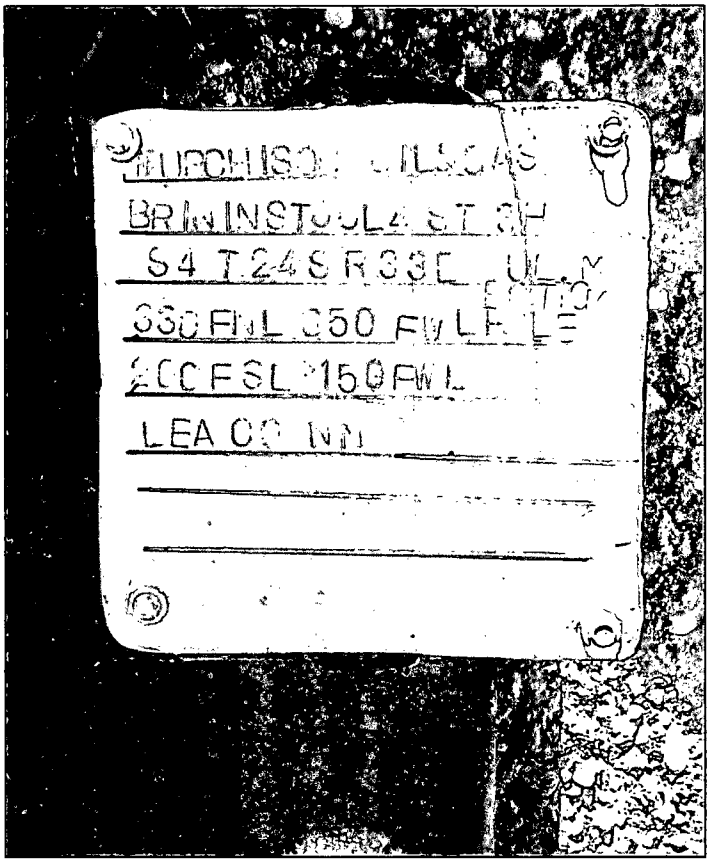
There Are 2 Bags For This Mix
This Bag Weighs 29.84 Bulk Pounds
Use This Bag For 1 Acres

Total Bulk Pounds: 60

Label on seed sack describing composition species

Chain harrow pulled by tractor 11-18-2013

Broadcasting seed by hand 11-18-2013



Steel marker plate
to be placed on surface of on-site burial

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
SEP 12 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: Brininstool 4 State 3H
API Number: 30-025-41030 OCD Permit Number: P1-05829
U/L or Qtr/Qtr M Section 4 Township 24S Range 33E County: Lea
Center of Proposed Design: Latitude 32° 14' 23.920" N Longitude 103° 35' 07.120" 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: 39,610 bbl Dimensions: L 309 x W 122 x D 7-12 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: September 10, 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: Jeffery Jekins Environmental Specialist **Approval Date:** 9/13/13

Title: **OCD Permit Number:** P1-05829

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:** November 18, 2013

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 (in-place burial)*
- ☑ Waste Material Sampling Analytical Results (required for on-site closure)
- ☐ Disposal Facility Name and Permit Number *n/a (in-place burial)*
- ☑ Soil Backfilling and Cover Installation
- ☑ Re-vegetation Application Rates and Seeding Technique
- ☐ Site Reclamation (Photo Documentation)

On-site Closure Location: Latitude N 32.24042° Longitude W 103.58530° 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

Signature: Kristin Pope Date: December 12, 2013

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

approved

Jeffrey Lekins

Environmental Specialist

NMOCD - DIST 1

7/02/14