

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

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

SEP 06 2013

RECEIVED

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 ratio¹.

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.

September 6, 2013

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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 include 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

A handwritten signature in black ink, appearing to read "Randall Hicks", with a stylized, cursive script.

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 RECEIPT REQUEST

August 22, 2013

RANDALL HICKS

R T HICKS CONSULTANTS

901 RIO GRANDE BLVD SUITE F-142

ALBUQUERQUE, NM 87104

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 accredited 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

Lab Director/Quality Manager

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

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Celey D. Keene, Lab Director/Quality Manager

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
Reported: 08/22/2013
Project Name: BRININSTOOL 4 ST. 3H
Project Number: NONE GIVEN
Project Location: LEA COUNTY

Sampling Date: 08/08/2013
Sampling Type: Soil
Sampling Condition: Cool & Intact
Sample Received By: Daniel Wade

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	

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

Received: 08/09/2013
Reported: 08/22/2013
Project Name: BRINSTOOL 4 ST. 3H
Project Number: NONE GIVEN
Project Location: LEA COUNTY

Sampling Date: 08/08/2013
Sampling Type: Soil
Sampling Condition: Cool & Intact
Sample Received By: Daniel Wade

Sample ID: INNER PIT COMP (H301879-03)

BTX 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 BTX	<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

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*=Accredited Analyte

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Celey D. Keene, Lab Director/Quality Manager

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	

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Analytical Results For:

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

Received: 08/09/2013
Reported: 08/22/2013
Project Name: BRININSTOOL 4 ST. 3H
Project Number: NONE GIVEN
Project Location: LEA COUNTY

Sampling Date: 08/08/2013
Sampling Type: Soil
Sampling Condition: Cool & Intact
Sample Received By: Daniel Wade

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	

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Celey D. Keene, Lab Director/Quality Manager

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

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*=Accredited Analyte

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Celey D. Keene, Lab Director/Quality Manager

