

R. T. HICKS CONSULTANTS, LTD.

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February 10, 2015

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

RE: Jackson Unit #22H Temporary Pit, In-place Burial Notice
API #30-025-41228, Pit Permit #P1-06386
Unit M, Section 22, T24S, R33E, Lea County

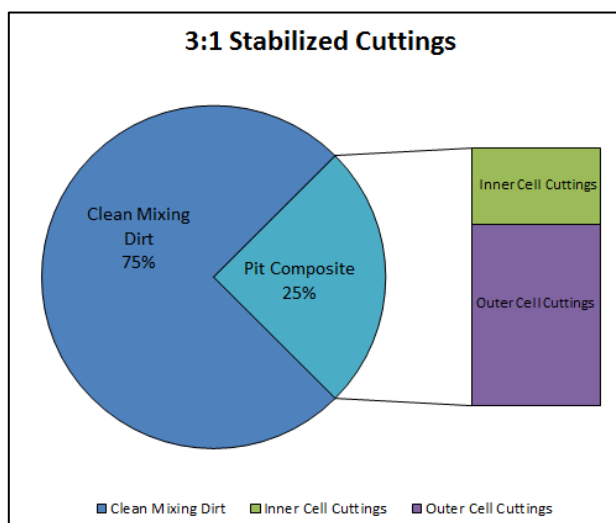
Dr. Oberding:

On behalf of Murchison Oil and Gas, Inc., R. T. Hicks Consultants provides this notice to NMOCD with a copy to the State Land Office (email return receipt in lieu of US Mail per previously-approved variance) that closure operations at the above-referenced pit is scheduled to begin as early as **Friday, February 13, 2015**. The closure process should require about two weeks, depending on the weather conditions and the availability of machinery.

The "In-place Burial" closure plan for the pit was approved by NMOCD on December 23, 2013 with the C-144 temporary pit application. The rig was released on May 23, 2014 and the pit was utilized during fracturing and flowback.

On October 28, in accordance with the Pit Rule¹, 4-point composite samples were collected from the inner horseshoe cell, outer horseshoe cell, and from the clean soil of the berms (beneath the liner) of the pit for laboratory analyses. The outer cell exhibited elevated hydrocarbon concentrations and the calculated concentrations of the "3:1 stabilized cuttings" did not meet Table II in-place closure criteria for GRO+DRO. The calculated value mathematically mixes 3 parts clean soil (mixing dirt) with 1 part of the weighted pit composite calculation, as depicted in the adjacent chart. On November 20, 2014, NMOCD approved a 3-month extension for closure.

The outer cell was sampled again on December 3, 2014. In anticipation of chemical heterogeneity as observed in other pits, 2 representative composite samples were collected from the outer cell of the pit—2 points from the discharge side (AB) and 2 from the suction side (CD). We used these two composite samples to mathematically compose a weighted composite of the outer cell. Because the thickness of solids



Composition of "3:1 Stabilized Cuttings" Calculation

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.

on the coarser-grained discharge side was 33 inches and the thickness of solids on the finer-grained suction side was 4 inches, we used the following formula to determine the chemical characteristics of the outer cell of the pit:

$$\text{Outer cell concentrations} = \frac{(AB*33)+(CD*4)}{33+4}$$

The table below demonstrates the calculated concentration for "3:1 stabilized cuttings" that results when the pit contents are combined with available mixing soil during the closure process. The pit composite consists of 29.4% solids from the inner cell of the drilling pit (10/28/2014 sample) and 70.6% of solids from the outer cell (1:2.4 ratio), representative of the volume of cuttings in each cell. As shown in the table below, GRO+DRO concentration limits, as well as those for all other Table II constituents, will be met when pit contents are mechanically mixed with approximately 3 parts of clean mixing dirt from the pit berms during the closure process.

Jackson Unit #22H pit Sample Name	Sample Type	Sample Date	Chloride 80,000	Benzene 10	BTEX 50	GRO+ DRO 1000	TPH 2500
Outer Composite (A+B)	2-pt comp. (discharge)	12/3/2014	41,000	0.23	8.53	2,130	640
Outer Composite (C+D)	2-pt comp. (suction)	12/3/2014	26,000	ND	0.51	1,112	4,400
<i>Outer Pit Composite ((AB*33)+(CD*4))/(33+4)</i>			<i>39,378.38</i>	<i>0.21</i>	<i>7.66</i>	<i>2,019.95</i>	<i>1,046.49</i>
Inner Composite	4-pt comp.	10/28/2014	21,000	ND	ND	50	74
Mixing Dirt Composite	5-pt comp.	10/28/2014	ND	ND	ND	ND	ND
3:1 Stabilized Cuttings CALCULATED <i>(3 parts mixing dirt, 1 part weighted pit cuttings)</i>			8,493.24	0.04	1.35	360.14	190.12

ND = Not detected at the laboratory's reporting limit

all values are mg/kg

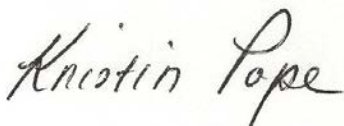
The formula used in the table to calculate the 3:1 Stabilized Cuttings is:

$$3:1 \text{ Stabilized Cuttings} = \frac{[(\text{Outer Composite} * 0.706) + (0.294 * \text{Inner Composite}) + (\text{Mixing Dirt} * 3)]}{4}$$

Thank you for your consideration of this notice of in-place closure. 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

Copy: Murchison Oil and Gas, New Mexico State Land Office (e-mail, Ed Martin)

From: [Oberding, Tomas, EMNRD](#)
To: [Kristin Pope](#)
Cc: [ccottrell@jdmii.com](#); [Randy Hicks](#); [gboans@jdmii.com](#); [Chace Walls](#); [Martin, Ed](#)
Subject: RE: VARIANCE REQUEST: Email substitution for pit closure notices
Date: Wednesday, January 07, 2015 10:13:08 AM

Ms. Pope,

This email is fine for OCD documentation, for the current site closure.

Mahalo

-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: Wednesday, December 31, 2014 1:35 PM
To: Oberding, Tomas, EMNRD
Cc: [ccottrell@jdmii.com](#); [Randy Hicks](#); [gboans@jdmii.com](#); [Chace Walls](#); [Martin, Ed](#)
Subject: VARIANCE REQUEST: Email substitution for pit closure notices

Dr. Oberding:

Please find the attached variance request for a substitution of email to SLO in lieu of temporary pit closure notices submitted via US Mail, return receipt requested. It is referenced for the Murchison – Jackson Unit #14H but I also submitted a closure report for the Jackson Unit #16H.

Please contact me with any questions about this upon your return to work. Thank you.

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