# R. T. HICKS CONSULTANTS, LTD.

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



RECEIVED
By OCD District 1 at 2:55 pm, Aug 27, 2015


August 12, 2015

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

RE: Temporary Pit Closure Report
Caravan "BVW" State No. 9H API #30-025-41641
Unit C, Section 33, T24S, R33E, Lea County

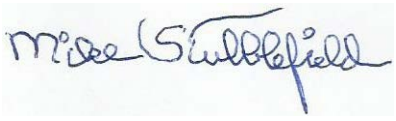
Dear Ms. Jones:

On behalf of Yates Petroleum Corporation, 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



Mike Stubblefield
Project Manager

# R. T. HICKS CONSULTANTS, LTD.

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


April 24, 2015

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

RE: Caravan BVW State #9H/Caravan BVV State 6H Temporary Pit,
In-place Burial Notice
Unit C, Section 33, T24S, R33E, API #30-025-41641
Unit C, Section 33, T24S, R33E, API #30-025-41610

Dr. Oberding:

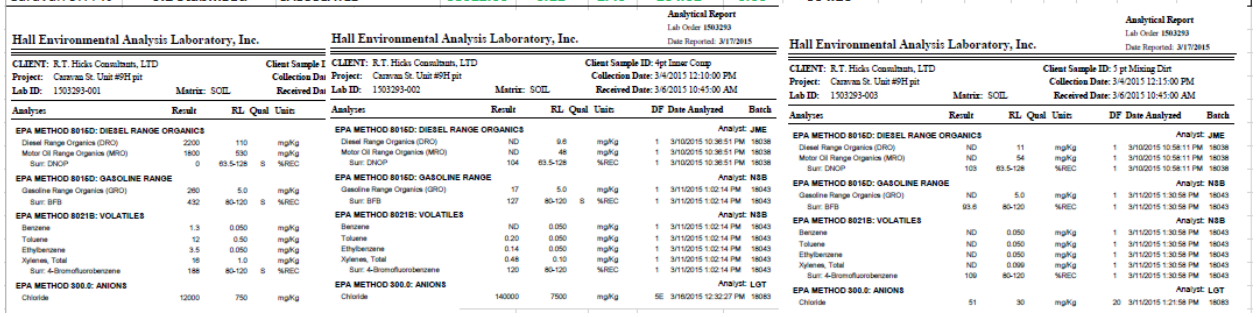
On behalf of Yates Petroleum Corporation, R. T. Hicks Consultants is provides this notice to NMOCD with a copy to the State Land Office (e-mail, return e-mail receipt ) that closure operations at the above- referenced pit will begin on April 28, 2015. The closure process should require about two weeks, depending on the availability of machinery. The rig was released on November 23, 2014.

After hydraulic fracturing and flow-back were completed, 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 on March 4, 2015 for laboratory analyses. The table below calculates the concentration for "3:1 stabilized" material to allow comparison with Table II the Pit Rule (Closure Criteria for Burial Trenches and Waste Left in Place in Temporary Pits). The formula use in the table below is:

3:1 Stabilized Solids = ((Outer Composite*0.66) + (0.34*Inner Composite)+(Mixing Dirt*3))



| Well Name | Sample Name | Sample Type | Sample Date | Chloride 80,000 | Benzene 10 | BTEX 50 | GRO+DRO 1000 | TPH 418.1 2500 | GRO+DRO+ DROext | GRO | DRO | MRO | T | E | X | Lab | Report |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Caravan 9H Pit | Outer Composite | | 3/4/2015 | 12000 | 1.3 | 16 | 1960 | | 4260 | 260 | 2200 | 1800 | 12 | 3.5 | 16 | Hall | 1 |
| Caravan 9H Pit | Inner Composite | | 3/4/2015 | 140000 | 0 | 0.48 | 17 | | 17 | 17 | 0 | 0 | 0.2 | 0.1 | 0.48 | Hall | 2 |
| Caravan 9H Pit | Mixing Dirt Comp. | | 3/4/2015 | 51 | 0 | 0 | 0 | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | Hall | 2 |
| Caravan 9H Pit | **3:1 Stabilized** | *CALCULATED* | | *38012.00* | *0.11* | *1.40* | *164.51* | *0.00* | *354.26* | | | | | | | | |



Hall Environmental Analysis Laboratory, Inc.

CLIENT: R.T. Hicks Consultants, LTD
Project: Caravan St. Unit #9H pit
Lab ID: 1503293-001 Matrix: SOIL

| Analyses | Result | RL | Qual | Units |
|---|---|---|---|---|
| EPA METHOD 8015D: DIESEL RANGE ORGANICS | | | | |
| Diesel Range Organics (DRO) | 2200 | 110 | | mg/Kg |
| Motor Oil Range Organics (MRO) | 1800 | 530 | | mg/Kg |
| Surr: DNOP | 0 | 63.5-128 | S | %REC |
| EPA METHOD 8015D: GASOLINE RANGE | | | | |
| Gasoline Range Organics (GRO) | 260 | 5.0 | | mg/Kg |
| Surr: BFB | 432 | 80-120 | S | %REC |
| EPA METHOD 8021B: VOLATILES | | | | |
| Benzene | 1.3 | 0.050 | | mg/Kg |
| Toluene | 12 | 0.50 | | mg/Kg |
| Ethylbenzene | 3.5 | 0.050 | | mg/Kg |
| Xylenes, Total | 16 | 1.0 | | mg/Kg |
| Surr: 4-Bromofluorobenzene | 188 | 80-120 | S | %REC |
| EPA METHOD 300.0: ANIONS | | | | |
| Chloride | 12000 | 750 | | mg/Kg |

Hall Environmental Analysis Laboratory, Inc.

Analytical Report
Lab Order 1503293
Date Reported: 3/17/2015

CLIENT: R.T. Hicks Consultants, LTD
Project: Caravan St. Unit #9H pit
Lab ID: 1503293-002 Matrix: SOIL
Client Sample ID: 4pt Inner Comp
Collection Date: 3/4/2015 12:10:00 PM
Received Date: 3/6/2015 10:45:00 AM

| Analyses | Result | RL | Qual | Units | DF | Date Analyzed | Batch |
|---|---|---|---|---|---|---|---|
| EPA METHOD 8015D: DIESEL RANGE ORGANICS | | | | | | Analyst: JME | |
| Diesel Range Organics (DRO) | ND | 9.6 | | mg/Kg | 1 | 3/10/2015 10:36:51 PM | 18038 |
| Motor Oil Range Organics (MRO) | ND | 48 | | mg/Kg | 1 | 3/10/2015 10:36:51 PM | 18038 |
| Surr: DNOP | 104 | 63.5-128 | | %REC | 1 | 3/10/2015 10:36:51 PM | 18038 |
| EPA METHOD 8015D: GASOLINE RANGE | | | | | | Analyst: NSB | |
| Gasoline Range Organics (GRO) | 17 | 5.0 | | mg/Kg | 1 | 3/11/2015 1:02:14 PM | 18043 |
| Surr: BFB | 127 | 80-120 | S | %REC | 1 | 3/11/2015 1:02:14 PM | 18043 |
| EPA METHOD 8021B: VOLATILES | | | | | | Analyst: NSB | |
| Benzene | ND | 0.050 | | mg/Kg | 1 | 3/11/2015 1:02:14 PM | 18043 |
| Toluene | 0.20 | 0.050 | | mg/Kg | 1 | 3/11/2015 1:02:14 PM | 18043 |
| Ethylbenzene | 0.14 | 0.050 | | mg/Kg | 1 | 3/11/2015 1:02:14 PM | 18043 |
| Xylenes, Total | 0.48 | 0.10 | | mg/Kg | 1 | 3/11/2015 1:02:14 PM | 18043 |
| Surr: 4-Bromofluorobenzene | 120 | 80-120 | | %REC | 1 | 3/11/2015 1:02:14 PM | 18043 |
| EPA METHOD 300.0: ANIONS | | | | | | Analyst: LGT | |
| Chloride | 140000 | 7500 | | mg/Kg | 5E | 3/16/2015 12:32:27 PM | 18083 |

Hall Environmental Analysis Laboratory, Inc.

Analytical Report
Lab Order 1503293
Date Reported: 3/17/2015

CLIENT: R.T. Hicks Consultants, LTD
Project: Caravan St. Unit #9H pit
Lab ID: 1503293-003 Matrix: SOIL
Client Sample ID: 5 pt Mixing Dirt
Collection Date: 3/4/2015 12:15:00 PM
Received Date: 3/6/2015 10:45:00 AM

| Analyses | Result | RL | Qual | Units | DF | Date Analyzed | Batch |
|---|---|---|---|---|---|---|---|
| EPA METHOD 8015D: DIESEL RANGE ORGANICS | | | | | | Analyst: JME | |
| Diesel Range Organics (DRO) | ND | 11 | | mg/Kg | 1 | 3/10/2015 10:58:11 PM | 18038 |
| Motor Oil Range Organics (MRO) | ND | 54 | | mg/Kg | 1 | 3/10/2015 10:58:11 PM | 18038 |
| Surr: DNOP | 103 | 63.5-128 | | %REC | 1 | 3/10/2015 10:58:11 PM | 18038 |
| EPA METHOD 8015D: GASOLINE RANGE | | | | | | Analyst: NSB | |
| Gasoline Range Organics (GRO) | ND | 5.0 | | mg/Kg | 1 | 3/11/2015 1:30:58 PM | 18043 |
| Surr: BFB | 93.6 | 80-120 | | %REC | 1 | 3/11/2015 1:30:58 PM | 18043 |
| EPA METHOD 8021B: VOLATILES | | | | | | Analyst: NSB | |
| Benzene | ND | 0.050 | | mg/Kg | 1 | 3/11/2015 1:30:58 PM | 18043 |
| Toluene | ND | 0.050 | | mg/Kg | 1 | 3/11/2015 1:30:58 PM | 18043 |
| Ethylbenzene | ND | 0.050 | | mg/Kg | 1 | 3/11/2015 1:30:58 PM | 18043 |
| Xylenes, Total | ND | 0.099 | | mg/Kg | 1 | 3/11/2015 1:30:58 PM | 18043 |
| Surr: 4-Bromofluorobenzene | 109 | 80-120 | | %REC | 1 | 3/11/2015 1:30:58 PM | 18043 |
| EPA METHOD 300.0: ANIONS | | | | | | Analyst: LGT | |
| Chloride | 51 | 30 | | mg/Kg | 20 | 3/11/2015 1:21:58 PM | 18083 |

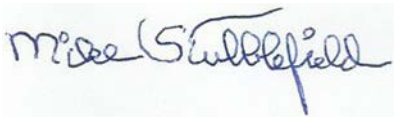
The inner composite and outer composite ratio in the formula approximates the solids volume generated during drilling. The solids placed in the outer shoe are derived from drilling the surface casing string and production string. The inner shoe contains solids from drilling intermediate casing string.

Laboratory analyses of the component samples (attached) and the calculation of stabilized cuttings "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."

On December 31, 2014, Hicks Consultants submitted a variance request to your office proposing replacement of certified US Mail notification to the State Land Office with e-mail notification plus a "read request". This variance applies only to the notice of on-site closure of temporary pits on State surface. This same variance request is attached to this letter for the above-referenced temporary pit on State surface.

I will follow up this notice with a phone call to determine if email notification to the SLO may be employed in lieu of US Mail notification. I will also call you the day before closure begins.

Sincerely,
R.T. Hicks Consultants



Mike Stubblefield
Project Manager

Copy: Yates Petroleum Corporation
Ed Martin
**New Mexico State Land Office**
PO Box 1148
Santa Fe, NM 87504-1148
E-mail read receipt requested

# R. T. HICKS CONSULTANTS, LTD.

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


December 16, 2014

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

RE: Variance Request
Murchison Oil and Gas, Inc., Jackson Unit #17H temporary pit
API# 30-025-41087, Pit Permit #P1-05981

Dear Dr. Oberding:

The "In-place Burial" closure plan for the above referenced pit was submitted with the C-144 pit application on January 6, 2014 and approved on January 16, 2014. The rig was released from this well on April 14, 2014. Following the well completion of the Jackson Unit #17H well, NMOCD granted a variance to allow cuttings from a nearby well on a different lease, Brininstool 4 St. #4H, to be deposited into the #17H pit during the closed loop drilling. The last cuttings were deposited into the pit in September 2014. NMOCD recently approved a 3-month extension, created a new closure deadline of January 14, 2015.

Hicks Consultants requests a variance to allow TPH by Method 8015M (GRO+DRO+MRO) to substitute for the required method of TPH by 418.1 (2,500 mg/kg) when determining compliance with Table II Standards for in-place closure.

R.T. Hicks Consultants

Kristin Pope
Project Geologist

Enclosure: Variance Request

Copy: Murchison Oil and Gas, Inc.

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

# Statement Explaining Why the Applicant Seeks a Variance

The prescriptive mandates of the Rule that are the subject of this variance request are the following subsections of 19.15.17.13.D:

**(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 listed in Table II of 19.15.17.13 NMAC.

**Table II**
**Closure Criteria for Burial Trenches and Waste Left in Place in Temporary Pits**

| Depth below bottom of pit to groundwater less than 10,000 mg/l TDS | Constituent | Method* | Limit** |
|---|---|---|---|
| 25-50 feet | Chloride | EPA Method 300.0 | 20,000 mg/kg |
| | TPH | EPA SW-846 Method 418.1 | 100 mg/kg |
| | BTEX | EPA SW-846 Method 8021B or 8260B | 50 mg/kg |
| | Benzene | EPA SW-846 Method 8021B | 10 mg/kg |



| | | | |
|---|---|---|---|
| | | or 8015M | |
| 51-100 feet | Chloride | EPA Method 300.0 | 40,000 mg/kg |
| | TPH | EPA SW-846 Method 418.1 | 2,500 mg/kg |
| | GRO+DRO | EPA SW-846 Method 8015M | 1,000 mg/kg |
| | BTEX | EPA SW-846 Method 8021B or 8260B | 50 mg/kg |
| | Benzene | EPA SW-846 Method 8021B or 8015M | 10 mg/kg |
| > 100 feet | Chloride | EPA Method 300.0 | 80,000 mg/kg |
| | TPH | EPA SW-846 Method 418.1 | 2,500 mg/kg |
| | GRO+DRO | EPA SW-846 Method 8015M | 1,000 mg/kg |
| | BTEX | EPA SW-846 Method 8021B or 8260B | 50 mg/kg |
| | Benzene | EPA SW-846 Method 8021B or 8015M | 10 mg/kg |

*Or other test methods approved by the division
**Numerical limits or natural background level, whichever is greater
[19.15.17.13 NMAC - Rp, 19.15.17.13 NMAC, 6/28/13]

On October 28, 2014 composite samples were recovered from the Jackson Unit #17H pit, one from the inner and one from the outer cells, as well as a composite sample of available mixing dirt from the berms of the pit below the liner. These three composites were submitted for individual analyses for parameters listed in Table II of 19.15.17.13 NMAC. As approved previously by OCD, an accurate demonstration 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" may be derived by mathematically mixing the laboratory results. First, we calculated "pit composite" concentration based on the volume of cuttings of each cell (3.5 parts outer, 1 part inner cell) and the individual laboratory results. Next we mathematically mixed the composite pit concentration with the mixing dirt concentrations at a ratio of 3 parts mixing dirt to 1 part pit contents. When compared to Table II closure criteria, TPH (418.1) target concentrations were not met, as shown in the table below. TPH (418.1) is approximately 17% over the Pit Rule standard while TPH by 8015 (GRO+DRO+MRO) is 29% of the 2,500-mg/kg limit. All other constituents meet the in-place burial limits of the Rule.

| Jackson Unit #17H | 3:1 STABILIZED CUTTINGS CALCULATIONS | |
|---|---|---|
| Constituent | Table II Limit (GW>100') | 10/28/2014 Samples* |
| Chloride | 80,000 mg/kg | 7302 |
| TPH | 2,500 mg/kg | **2927** |
| GRO+DRO | 1,000 mg/kg | 612 |
| BTEX | 50 mg/kg | 3.15 |
| Benzene | 10 mg/kg | 0.25 |
| ***GRO+DRO+MRO*** | | ***735*** |

*Concentrations of stabilized cuttings determined using component concentrations inserted into the follow formula:

$$\text{3:1 Stabilized Cuttings} = \frac{[\text{inner pit cell} + (3.5 * \text{outer pit cell})/4.5] + (\text{mixing dirt} * 3)}{4}$$

EPA Method 418.1 measures carbon-hydrogen bonds (hydrocarbons) and is not specific to petroleum-based material. Several analytical laboratories have informed us that many non-petroleum organic additives used during drilling (e.g. cellulose, pine pulp, vegetable oils, cottonseed hulls, nut shells) will be captured by the 418.1 analytical method. Method 418.1 can also capture other naturally-occurring material in a sample such as dry grass and humic material in topsoil. For example, TPH concentrations of grass (14,000 mg/kg), pine needles (16,000 mg/kg), and oak leaves (18,000 mg/kg) [1] would not meet the Table II concentration limits and the Commission did not intend that the in-place burial limit for TPH include hydrocarbons associated with leaves or pine pulp.

We conclude that TPH by 418.1 captures a broader spectrum of hydrocarbons than was envisioned by the Commission when evaluating the burial standards for drilling solids. In contrast, TPH by 8015M (GRO+DRO+MRO) appears to better reflect the intent of the Commission as reflected in the Findings of Fact, which state (emphasis added):

> P. The Commission finds that constituents reflected in Tables I and II (other than chloride), benzene, and toluene, ethylbenzene and xylene (a compound commonly referred to as BTEX), as well as the *gasoline range organics ("GRO") and diesel range organics ("DRO"), which are compounds in the total petroleum hydrocarbons ("TPH"), are light aromatics.* While they are soluble and are able to travel to groundwater, they are slower than chlorides in unsaturated flow, which is why chlorides are used as the outer boundary marker for contaminates. Moreover, the light aromatics are volatile, particularly benzene, which is highly volatile. The resident time for light aromatics is very short, and they will evaporate quickly and degrade in the soil. This is

[1] "Frequently Asked Questions About TPH Analytical Methods for Crude Oil" see http://www.api.org/environment-health-and-safety/environmental-performance/~/~/media/cd8032db1be74914a6b3c816bab33786.ashx

particularly true during closure and mixing. The benzene level that is reflected in Tables I and II, is lower than the levels recommended by the American Petroleum Institute, and GRO and DRO, while they could affect the odor and taste of water, are not a matter of concern with respect to toxicity. *The other compounds in TPH, the oil range organics and asphaltenes, are made up of large molecules and are not sufficiently mobile to pose a concern for human health or fresh water.*

# Demonstration that the Variance Will Provide Equal or Better Protection of Fresh Water, Public Health and the Environment

The modified Method 8015 uses solvent extraction followed by gas chromatography and is more widely used in the regulation of the petroleum industry than the 418.1. The evaluation of TPH using method 8015M (GRO+DRO+MRO) provide a more accurate representation of the *petroleum* hydrocarbons without interference from organic, biodegradable, drilling additives such as vegetable/pine oils, cottonseed hulls, and nuts shells, which we believe are not intended for regulation. Our analyses of drilling pit solids demonstrates how "total" TPH results from 418.1 do not contribute to the protection of fresh water relative to SPLP (synthetic precipitation leaching procedure) TPH analysis by 418.1 with respect to the potential of the hydrocarbon to migrate into the underlying groundwater via leaching or into the root zone via wicking upward.

Reviewing the analyses of seven sample sets from five Murchison pits in 2014, the percentage of TPH by SPLP relative to "total" TPH ranges from 0% to 1.42%. This is likely because nearly all of the TPH in the stabilized cutting samples at this site are from the insoluble (or nearly insoluble) matter. The TPH analysis using the SPLP sample preparation method provides a better understanding of the actual risks to human health and the environment than the "total" TPH analysis, but currently there are no regulatory standard concentrations established for samples prepared by SPLP.

GRO+DRO+MRO analysis by 8015M offers greater characterization of leacheability by reporting actual petroleum hydrocarbon concentrations by their known chromatograph fingerprints. TPH using Method 418.1 is not the best indicator for risk to human health or the environment and we do not believe it was the intent of the Pit Rule to preclude in-place closure of a temporary pit due to non-petroleum organic matter, either naturally-occurring or in drilling additives. We believe that the approval of a variance allowing the use of TPH by method 8015M (GRO+DRO+MRO) in place of TPH by method 418.1 for comparison to the existing TPH standard (2,500 mg/kg) will provide equal or better protection of fresh water, public health, and the environment.

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*

March 17, 2015

Mike Stubblefield

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: Caravan St. Unit #9H pit OrderNo.: 1503293

Dear Mike Stubblefield:

Hall Environmental Analysis Laboratory received 3 sample(s) on 3/6/2015 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

**Analytical Report**
Lab Order **1503293**
Date Reported: **3/17/2015**

# Hall Environmental Analysis Laboratory, Inc.

**CLIENT:** R.T. Hicks Consultants, LTD
**Client Sample ID:** 4pt Outer Comp
**Project:** Caravan St. Unit #9H pit
**Collection Date:** 3/4/2015 11:45:00 AM
**Lab ID:** 1503293-001 **Matrix:** SOIL **Received Date:** 3/6/2015 10:45:00 AM

| Analyses | Result | RL | Qual | Units | DF | Date Analyzed | Batch |
|---|---|---|---|---|---|---|---|
| **EPA METHOD 8015D: DIESEL RANGE ORGANICS** | | | | | | Analyst: **JME** | |
| Diesel Range Organics (DRO) | 2200 | 110 | | mg/Kg | 10 | 3/10/2015 10:15:20 PM | 18038 |
| Motor Oil Range Organics (MRO) | 1800 | 530 | | mg/Kg | 10 | 3/10/2015 10:15:20 PM | 18038 |
| Surr: DNOP | 0 | 63.5-128 | S | %REC | 10 | 3/10/2015 10:15:20 PM | 18038 |
| **EPA METHOD 8015D: GASOLINE RANGE** | | | | | | Analyst: **NSB** | |
| Gasoline Range Organics (GRO) | 260 | 5.0 | | mg/Kg | 1 | 3/11/2015 12:33:30 PM | 18043 |
| Surr: BFB | 432 | 80-120 | S | %REC | 1 | 3/11/2015 12:33:30 PM | 18043 |
| **EPA METHOD 8021B: VOLATILES** | | | | | | Analyst: **NSB** | |
| Benzene | 1.3 | 0.050 | | mg/Kg | 1 | 3/11/2015 12:33:30 PM | 18043 |
| Toluene | 12 | 0.50 | | mg/Kg | 10 | 3/12/2015 2:54:27 AM | 18043 |
| Ethylbenzene | 3.5 | 0.050 | | mg/Kg | 1 | 3/11/2015 12:33:30 PM | 18043 |
| Xylenes, Total | 16 | 1.0 | | mg/Kg | 10 | 3/12/2015 2:54:27 AM | 18043 |
| Surr: 4-Bromofluorobenzene | 188 | 80-120 | S | %REC | 1 | 3/11/2015 12:33:30 PM | 18043 |
| **EPA METHOD 300.0: ANIONS** | | | | | | Analyst: **LGT** | |
| Chloride | 12000 | 750 | | mg/Kg | 500 | 3/11/2015 12:44:44 PM | 18083 |

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 Not In Range |
| 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:** 4pt Inner Comp
**Project:** Caravan St. Unit #9H pit
**Collection Date:** 3/4/2015 12:10:00 PM
**Lab ID:** 1503293-002 **Matrix:** SOIL **Received Date:** 3/6/2015 10:45:00 AM

| Analyses | Result | RL | Qual | Units | DF | Date Analyzed | Batch |
|---|---|---|---|---|---|---|---|
| **EPA METHOD 8015D: DIESEL RANGE ORGANICS** | | | | | | Analyst: **JME** | |
| Diesel Range Organics (DRO) | ND | 9.6 | | mg/Kg | 1 | 3/10/2015 10:36:51 PM | 18038 |
| Motor Oil Range Organics (MRO) | ND | 48 | | mg/Kg | 1 | 3/10/2015 10:36:51 PM | 18038 |
| Surr: DNOP | 104 | 63.5-128 | | %REC | 1 | 3/10/2015 10:36:51 PM | 18038 |
| **EPA METHOD 8015D: GASOLINE RANGE** | | | | | | Analyst: **NSB** | |
| Gasoline Range Organics (GRO) | 17 | 5.0 | | mg/Kg | 1 | 3/11/2015 1:02:14 PM | 18043 |
| Surr: BFB | 127 | 80-120 | S | %REC | 1 | 3/11/2015 1:02:14 PM | 18043 |
| **EPA METHOD 8021B: VOLATILES** | | | | | | Analyst: **NSB** | |
| Benzene | ND | 0.050 | | mg/Kg | 1 | 3/11/2015 1:02:14 PM | 18043 |
| Toluene | 0.20 | 0.050 | | mg/Kg | 1 | 3/11/2015 1:02:14 PM | 18043 |
| Ethylbenzene | 0.14 | 0.050 | | mg/Kg | 1 | 3/11/2015 1:02:14 PM | 18043 |
| Xylenes, Total | 0.48 | 0.10 | | mg/Kg | 1 | 3/11/2015 1:02:14 PM | 18043 |
| Surr: 4-Bromofluorobenzene | 120 | 80-120 | | %REC | 1 | 3/11/2015 1:02:14 PM | 18043 |
| **EPA METHOD 300.0: ANIONS** | | | | | | Analyst: **LGT** | |
| Chloride | 140000 | 7500 | | mg/Kg | 5E | 3/16/2015 12:32:27 PM | 18083 |

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 Not In Range |
| 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:** 5 pt Mixing Dirt
**Project:** Caravan St. Unit #9H pit
**Collection Date:** 3/4/2015 12:15:00 PM
**Lab ID:** 1503293-003 **Matrix:** SOIL **Received Date:** 3/6/2015 10:45:00 AM

| Analyses | Result | RL | Qual | Units | DF | Date Analyzed | Batch |
|---|---|---|---|---|---|---|---|
| **EPA METHOD 8015D: DIESEL RANGE ORGANICS** | | | | | | Analyst: **JME** | |
| Diesel Range Organics (DRO) | ND | 11 | | mg/Kg | 1 | 3/10/2015 10:58:11 PM | 18038 |
| Motor Oil Range Organics (MRO) | ND | 54 | | mg/Kg | 1 | 3/10/2015 10:58:11 PM | 18038 |
| Surr: DNOP | 103 | 63.5-128 | | %REC | 1 | 3/10/2015 10:58:11 PM | 18038 |
| **EPA METHOD 8015D: GASOLINE RANGE** | | | | | | Analyst: **NSB** | |
| Gasoline Range Organics (GRO) | ND | 5.0 | | mg/Kg | 1 | 3/11/2015 1:30:58 PM | 18043 |
| Surr: BFB | 93.6 | 80-120 | | %REC | 1 | 3/11/2015 1:30:58 PM | 18043 |
| **EPA METHOD 8021B: VOLATILES** | | | | | | Analyst: **NSB** | |
| Benzene | ND | 0.050 | | mg/Kg | 1 | 3/11/2015 1:30:58 PM | 18043 |
| Toluene | ND | 0.050 | | mg/Kg | 1 | 3/11/2015 1:30:58 PM | 18043 |
| Ethylbenzene | ND | 0.050 | | mg/Kg | 1 | 3/11/2015 1:30:58 PM | 18043 |
| Xylenes, Total | ND | 0.099 | | mg/Kg | 1 | 3/11/2015 1:30:58 PM | 18043 |
| Surr: 4-Bromofluorobenzene | 109 | 80-120 | | %REC | 1 | 3/11/2015 1:30:58 PM | 18043 |
| **EPA METHOD 300.0: ANIONS** | | | | | | Analyst: **LGT** | |
| Chloride | 51 | 30 | | mg/Kg | 20 | 3/11/2015 1:21:58 PM | 18083 |

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 Not In Range |
| 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#: **1503293**

***17-Mar-15***

**Client:** R.T. Hicks Consultants, LTD

**Project:** Caravan St. Unit #9H pit

| Sample ID | **MB-18083** | SampType: | **MBLK** | TestCode: | **EPA Method 300.0: Anions** | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Client ID: | **PBS** | Batch ID: | **18083** | RunNo: | **24785** | | | | | |
| Prep Date: | **3/11/2015** | Analysis Date: | **3/11/2015** | SeqNo: | **730064** | Units: | **mg/Kg** | | | |

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

| Sample ID | **LCS-18083** | SampType: | **LCS** | TestCode: | **EPA Method 300.0: Anions** | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Client ID: | **LCSS** | Batch ID: | **18083** | RunNo: | **24785** | | | | | |
| Prep Date: | **3/11/2015** | Analysis Date: | **3/11/2015** | SeqNo: | **730065** | Units: | **mg/Kg** | | | |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|
| Chloride | 14 | 1.5 | 15.00 | 0 | 92.0 | 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 Not In Range |
| 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#: **1503293**

***17-Mar-15***

**Client:** R.T. Hicks Consultants, LTD

**Project:** Caravan St. Unit #9H pit

| Sample ID **MB-18038** | SampType: **MBLK** | TestCode: **EPA Method 8015D: Diesel Range Organics** |
|---|---|---|
| Client ID: **PBS** | Batch ID: **18038** | RunNo: **24711** |
| Prep Date: **3/9/2015** | Analysis Date: **3/10/2015** | SeqNo: **728323** Units: **mg/Kg** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|
| Diesel Range Organics (DRO) | ND | 10 | | | | | | | | |
| Motor Oil Range Organics (MRO) | ND | 50 | | | | | | | | |
| Surr: DNOP | 8.4 | | 10.00 | | 84.2 | 63.5 | 128 | | | |

| Sample ID **LCS-18038** | SampType: **LCS** | TestCode: **EPA Method 8015D: Diesel Range Organics** |
|---|---|---|
| Client ID: **LCSS** | Batch ID: **18038** | RunNo: **24711** |
| Prep Date: **3/9/2015** | Analysis Date: **3/10/2015** | SeqNo: **728325** Units: **mg/Kg** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|
| Diesel Range Organics (DRO) | 45 | 10 | 50.00 | 0 | 90.9 | 67.8 | 130 | | | |
| Surr: DNOP | 4.5 | | 5.000 | | 89.3 | 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 Not In Range |
| 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#: **1503293**

***17-Mar-15***

**Client:** R.T. Hicks Consultants, LTD

**Project:** Caravan St. Unit #9H pit

| Sample ID **MB-18044** | SampType: **MBLK** | TestCode: **EPA Method 8015D: Gasoline Range** |
|---|---|---|
| Client ID: **PBS** | Batch ID: **18044** | RunNo: **24730** |
| Prep Date: **3/9/2015** | Analysis Date: **3/10/2015** | SeqNo: **728732** Units: **%REC** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|
| Surr: BFB | 900 | | 1000 | | 89.5 | 80 | 120 | | | |

| Sample ID **LCS-18044** | SampType: **LCS** | TestCode: **EPA Method 8015D: Gasoline Range** |
|---|---|---|
| Client ID: **LCSS** | Batch ID: **18044** | RunNo: **24730** |
| Prep Date: **3/9/2015** | Analysis Date: **3/10/2015** | SeqNo: **728733** Units: **%REC** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|
| Surr: BFB | 1100 | | 1000 | | 108 | 80 | 120 | | | |

| Sample ID **MB-18043** | SampType: **MBLK** | TestCode: **EPA Method 8015D: Gasoline Range** |
|---|---|---|
| Client ID: **PBS** | Batch ID: **18043** | RunNo: **24730** |
| Prep Date: **3/9/2015** | Analysis Date: **3/10/2015** | SeqNo: **728754** 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 | 910 | | 1000 | | 90.8 | 80 | 120 | | | |

| Sample ID **LCS-18043** | SampType: **LCS** | TestCode: **EPA Method 8015D: Gasoline Range** |
|---|---|---|
| Client ID: **LCSS** | Batch ID: **18043** | RunNo: **24730** |
| Prep Date: **3/9/2015** | Analysis Date: **3/10/2015** | SeqNo: **728755** 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 | 105 | 64 | 130 | | | |
| Surr: BFB | 980 | | 1000 | | 97.5 | 80 | 120 | | | |

| Sample ID **LCSD-18043** | SampType: **LCSD** | TestCode: **EPA Method 8015D: Gasoline Range** |
|---|---|---|
| Client ID: **LCSS02** | Batch ID: **18043** | RunNo: **24730** |
| Prep Date: **3/9/2015** | Analysis Date: **3/10/2015** | SeqNo: **728756** Units: **%REC** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|
| Surr: BFB | 990 | | | | | | | 0 | 0 | |

**Qualifiers:**

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

# QC SUMMARY REPORT

## Hall Environmental Analysis Laboratory, Inc.

WO#: **1503293**

***17-Mar-15***

**Client:** R.T. Hicks Consultants, LTD

**Project:** Caravan St. Unit #9H pit

| Sample ID **MB-18044** | SampType: **MBLK** | TestCode: **EPA Method 8021B: Volatiles** |
|---|---|---|
| Client ID: **PBS** | Batch ID: **18044** | RunNo: **24730** |
| Prep Date: **3/9/2015** | Analysis Date: **3/10/2015** | SeqNo: **728766** 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-18044** | SampType: **LCS** | TestCode: **EPA Method 8021B: Volatiles** |
|---|---|---|
| Client ID: **LCSS** | Batch ID: **18044** | RunNo: **24730** |
| Prep Date: **3/9/2015** | Analysis Date: **3/10/2015** | SeqNo: **728767** Units: **%REC** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|
| Surr: 4-Bromofluorobenzene | 1.1 | | 1.000 | | 112 | 80 | 120 | | | |

| Sample ID **MB-18043** | SampType: **MBLK** | TestCode: **EPA Method 8021B: Volatiles** |
|---|---|---|
| Client ID: **PBS** | Batch ID: **18043** | RunNo: **24730** |
| Prep Date: **3/9/2015** | Analysis Date: **3/10/2015** | SeqNo: **728781** Units: **mg/Kg** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|
| Benzene | ND | 0.050 | | | | | | | | |
| Toluene | ND | 0.050 | | | | | | | | |
| Ethylbenzene | ND | 0.050 | | | | | | | | |
| Xylenes, Total | ND | 0.10 | | | | | | | | |
| Surr: 4-Bromofluorobenzene | 1.0 | | 1.000 | | 103 | 80 | 120 | | | |

| Sample ID **LCS-18043** | SampType: **LCS** | TestCode: **EPA Method 8021B: Volatiles** |
|---|---|---|
| Client ID: **LCSS** | Batch ID: **18043** | RunNo: **24730** |
| Prep Date: **3/9/2015** | Analysis Date: **3/10/2015** | SeqNo: **728782** Units: **mg/Kg** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|
| Benzene | 1.1 | 0.050 | 1.000 | 0 | 111 | 76.6 | 128 | | | |
| Toluene | 1.1 | 0.050 | 1.000 | 0 | 109 | 75 | 124 | | | |
| Ethylbenzene | 1.1 | 0.050 | 1.000 | 0 | 109 | 79.5 | 126 | | | |
| Xylenes, Total | 3.2 | 0.10 | 3.000 | 0 | 108 | 78.8 | 124 | | | |
| Surr: 4-Bromofluorobenzene | 1.1 | | 1.000 | | 112 | 80 | 120 | | | |

| Sample ID **LCSD-18043** | SampType: **LCSD** | TestCode: **EPA Method 8021B: Volatiles** |
|---|---|---|
| Client ID: **LCSS02** | Batch ID: **18043** | RunNo: **24730** |
| Prep Date: **3/9/2015** | Analysis Date: **3/10/2015** | SeqNo: **728783** Units: **mg/Kg** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|
| Benzene | 1.1 | 0.050 | 1.000 | 0 | 107 | 76.6 | 128 | 3.68 | 20 | |
| Toluene | 1.1 | 0.050 | 1.000 | 0 | 105 | 75 | 124 | 3.09 | 20 | |
| Ethylbenzene | 1.1 | 0.050 | 1.000 | 0 | 107 | 79.5 | 126 | 2.53 | 20 | |
| Xylenes, Total | 3.2 | 0.10 | 3.000 | 0 | 106 | 78.8 | 124 | 1.71 | 20 | |

**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 Not In Range
- RL Reporting Detection Limit

# QC SUMMARY REPORT

## Hall Environmental Analysis Laboratory, Inc.

WO#: **1503293**

***17-Mar-15***

**Client:** R.T. Hicks Consultants, LTD

**Project:** Caravan St. Unit #9H pit

| Sample ID | **LCSD-18043** | SampType: | **LCSD** | TestCode: | **EPA Method 8021B: Volatiles** |
|---|---|---|---|---|---|
| Client ID: | **LCSS02** | Batch ID: | **18043** | RunNo: | **24730** |
| Prep Date: | **3/9/2015** | Analysis Date: | **3/10/2015** | SeqNo: | **728783** Units: **mg/Kg** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|
| Surr: 4-Bromofluorobenzene | 1.1 | | 1.000 | | 111 | 80 | 120 | 0 | | |

**Qualifiers:**

| | | | |
|---|---|---|---|
| * | Value exceeds Maximum Contaminant Level. | B | Analyte detected in the associated Method Blank |
| E | Value above quantitation range | H | Holding times for preparation or analysis exceeded |
| J | Analyte detected below quantitation limits | ND | Not Detected at the Reporting Limit |
| O | RSD is greater than RSDlimit | P | Sample pH Not In Range |
| 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: 1503293 | RcptNo: 1

Received by/date: AT 03/06/15

Logged By: **Anne Thorne** 3/6/2015 10:45:00 AM

Completed By: **Anne Thorne** 3/9/2015

Reviewed By: 03/09/15

## 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 | 1.2 | Good | Not Present | | | |

# Chain-of-Custody Record

Client: R.T. Hicks Consultants
901 Rio Grande Blvd NW
Mailing Address: Suite F-142
Albuquerque, NM 87104
Phone #: (505) 266-5004
email or Fax#: R@rthicksconsult.com
QA/QC Package:
☒ Standard ☐ Level 4 (Full Validation)
Accreditation
☐ NELAP ☐ Other
☐ EDD (Type)

Turn-Around Time:
☒ Standard ☐ Rush
Project Name: Caravan St. Unit #9H pit
Project #:
Project Manager: Mike Stubblefield
Sampler: M. Stubblefield
On Ice: ☑ Yes ☐ No
Sample Temperature: 1.2


HALL ENVIRONMENTAL ANALYSIS LABORATORY
www.hallenvironmental.com
4901 Hawkins NE - Albuquerque, NM 87109
Tel. 505-345-3975 Fax 505-345-4107


| Date | Time | Matrix | Sample Request ID | Container Type and # | Preservative Type | HEAL No. 1503293 | BTEX + MTBE + TMB's (8021) (BTEX) | BTEX + MTBE + TPH (Gas only) | TPH 8015B (GRO / DRO / MRO) | TPH (Method 418.1) | EDB (Method 504.1) | PAH's (8310 or 8270 SIMS) | RCRA 8 Metals | Anions ($F^-$, $Cl^-$, $NO_3$, $NO_2$, $PO_4$, $SO_4$) | 8081 Pesticides / 8082 PCB's | 8260B (VOA) | 8270 (Semi-VOA) | | 100 grams | | | Air Bubbles (Y or N) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 4/15 | 1145 | soil | 4-pt Outer Comp. | 1 glass | ice | -001 | X | | X | | | | | X | | | | | X | | | |
| " | 1210 | " | 4-pt. Inner Comp. | " | " | -002 | X | | X | | | | | X | | | | | X | | | |
| " | 1215 | " | 5-pt. Mixing Dirt | " | " | -003 | X | | X | | | | | X | | | | | | | | |

Date: 4/15 Time: Relinquished by: Mike Stubblefield
Received by: Date: 4/15 Time: 1100
Date: 4/15 Time: 1045 Relinquished by:
Received by: Date: 03/06/15 Time: 1045

Remarks: Email to Mike@rthicksconsult.com, R@"

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.

**From:** Oberding, Tomas, EMNRD
**To:** mike@rthicksconsult.com
**Cc:** "Tim Bussell"; "Randall Hicks"
**Subject:** RE: Yates Petroleum Corporation Caravan BVW State No.9H Notice for Closure Letter
**Date:** Friday, April 24, 2015 12:30:28 PM
**Attachments:** image001.png

---

Aloha all,
Thank you Mr. Stubblefield for the notice of closure. Based on the numbers provided OCD appreciates the notice and looks forward to completing this site.
Have a safe and wonderful afternoon all.
-Doc

Tomáš 'Doc' Oberding PhD
Hydrologist, Adv-District 1
Oil Conservation Division, EMNRD
(505) 476-3403
575-370-3180 (emergency-cell)
E-Mail: tomas.oberding@state.nm.us
一期一会

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.

Please note:
-The OCD is no longer granting "risk-based," or standard closure of events/RPs with remediation deferred to site abandonment/sale/closure. The RP will remain open until such time as historic contamination is addressed.
-Photographic documentation is stipulated for all events involving liquids.

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

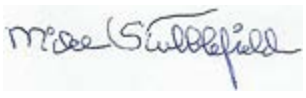
---

**From:** Mike Stubblefield [mailto:mike@rthicksconsult.com]
**Sent:** Friday, April 24, 2015 9:58 AM
**To:** Oberding, Tomas, EMNRD
**Cc:** 'Tim Bussell'; 'Randall Hicks'
**Subject:** Yates Petroleum Corporation Caravan BVW State No.9H Notice for Closure Letter

Dear Dr. Tomas Oberding,

Acting as agent for Yates Petroleum Corporation, R.T. Hicks Consultants is submitting the Notice for Closure on Caravan BVW State No. 9H drilling pit. I will contact you by phone this afternoon.

Sincerely,



**From:** Martin, Ed
**To:** mike@rthicksconsult.com
**Cc:** "Tim Bussell"; "Randall Hicks"
**Subject:** RE: Yates Petroleum Corporation Notice For Closure on Caravan BVW State No.9H
**Date:** Monday, April 27, 2015 7:35:25 AM
**Attachments:** image001.png

---

Hey Mike. Long time no see. Receipt of your notice acknowledged.

Take care.

Ed Martin
New Mexico State Land Office
Oil & Gas Manager
Oil, Gas, and Minerals Division
Phone: 505-827-5746
Fax: 505-827-4739

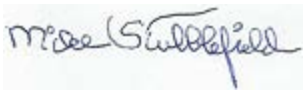
---

**From:** Mike Stubblefield [mailto:mike@rthicksconsult.com]
**Sent:** Friday, April 24, 2015 10:04 AM
**To:** Martin, Ed
**Cc:** 'Tim Bussell'; 'Randall Hicks'
**Subject:** Yates Petroleum Corporation Notice For Closure on Caravan BVW State No.9H

Dear Mr. Ed Martin,

Acting as agent for Yates Petroleum Corporation R.T. Hicks Consultants is submitting the Notice for Closure on Caravan BVW State No. 9H drilling pit. Please provide return e-mail as received.

Sincerely,



Mike Stubblefield
RT Hicks Consultants
Cell: 575-365-5034

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For more information please visit http://www.symanteccloud.com

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For more information please visit http://www.symanteccloud.com

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. 30-025-41641

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

3. State Oil & Gas Lease No.
VO-7363

# 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)

X **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
Caravan 'BVW" State

6. Well Number: 9H

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

8. Name of Operator **Yates Petroleum Corporation**

9. OGRID 025575

10. Address of Operator 105 South Fourth Street Artesia, New Mexico

11. Pool name or Wildcat Triple X Bone Spring, West

| 12.Location | Unit Ltr | Section | Township | Range | Lot | Feet from the | N/S Line | Feet from the | E/W Line | County |
|---|---|---|---|---|---|---|---|---|---|---|
| **Surface:** | C | 33 | 24S | 33E | | 50' | N | 1950' | W | Lea |
| **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.) |
|---|---|---|---|---|
| 10/18/14 | 11/23/14 | 11/23/14 | 2/19/15 | |

| 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.)* |
|---|---|---|---|---|---|---|
| | | | | | | |

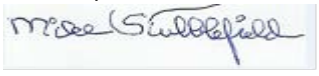
30. Test Witnessed By

31. List Attachments

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

33. If an on-site burial was used at the well, report the exact location of the on-site burial:
Latitude 32° 10' 54.63" N Longitude 103° 34' 46.15" W NAD 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 belief3*

Signature 
Printed Name Mike Stubblefield Title Agent for YPC
Date 8/12/15

E-mail Address mike@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.

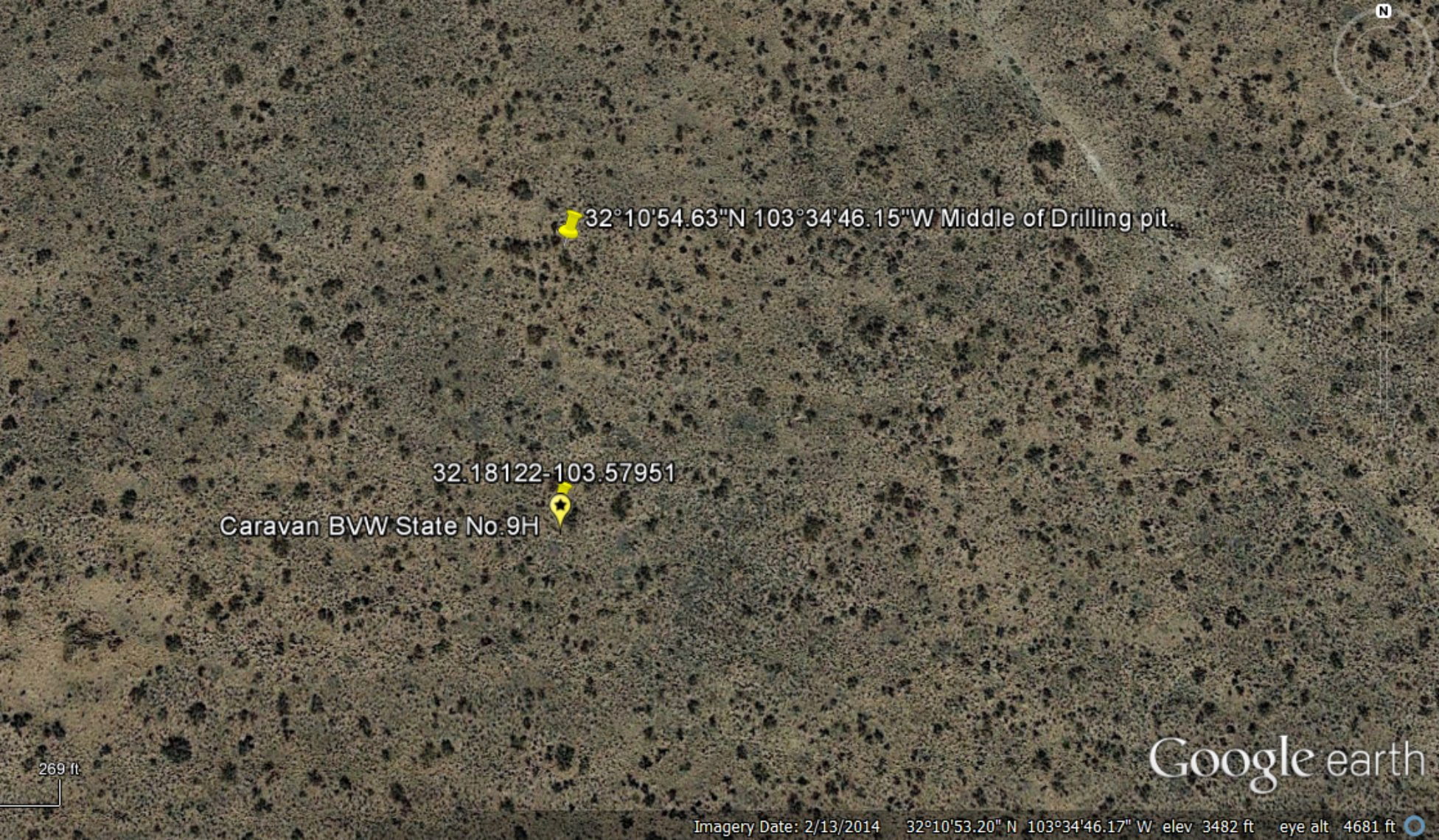
No. 1, from…….to……feet……

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 |
|---|---|---|---|---|---|---|---|---|
| | | | | | | | | |


32°10'54.63"N 103°34'46.15"W Middle of Drilling pit.
32.18122-103.57951
Caravan BVW State No.9H
269 ft
Google earth
Imagery Date: 2/13/2014 32°10'53.20" N 103°34'46.17" W elev 3482 ft eye alt 4681 ft

# Waste Material Sampling Analytical Results

On March 4, 2015, eight-point composite samples were collected from the temporary pit. Clean mixing soil was collected from under the liner. The composite samples was submitted to Hall Environmental Analysis Laboratory in Albuquerque, New Mexico for BTEX (8260B), GRO/ GRO (8015M), 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.

| Well Name | Sample Name | Sample Type | Sample Date | Chloride *80,000* | Benzene *10* | BTEX *50* | GRO+DRO *1000* | TPH 418.1 *2500* | GRO+DRO+ DROext | GRO | DRO | MRO | T | E | X | Lab | Report |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Caravan 9H Pit | Outer Composite | | 3/4/2015 | 12000 | 1.3 | 16 | 1960 | | 4260 | 260 | 2200 | 1800 | 12 | 3.5 | 16 | Hall | 1 |
| Caravan 9H Pit | Inner Composite | | 3/4/2015 | 140000 | 0 | 0.48 | 17 | | 17 | 17 | 0 | 0 | 0.2 | 0.1 | 0.48 | Hall | 2 |
| Caravan 9H Pit | Mixing Dirt Comp. | | 3/4/2015 | 51 | 0 | 0 | 0 | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | Hall | 2 |
| Caravan 9H Pit | 3:1 Stabilized | *CALCULATED* | | *38012.00* | *0.11* | *1.40* | *164.51* | *0.00* | *354.26* | | | | | | | | |

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# 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 June 26, 2014 and approved on June 30, 2014. After the workover rig was released on Febuary 19, 2015, 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 March 4, 2015, 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. Samples were analyzed for Chloride, TPH, GRO, DRO, MRO, Benzene, and BTEX at Hall Environmental Analysis Laboratory in Albuquerque, New Mexico. The results, as noted in the subsequent closure notice, demonstrate that the mathematic mixed pit contents would not exceed the parameter limits listed in Table II of the new Pit Rule (June 2013).

3. On June 26, 2014, R.T. Hicks Consultants submitted a C-144 form and closure plan to NMOCD for approval to close the pit under the June 2013 Pit Rule. NMOCD granted approval on June 30, 2014, a closure notice was submitted on April 24, 2015 to the NMOCD, District 1 office in Hobbs and to Ed Martin at the State of New Mexico Land office on the same day. Verbal notice in the form of a phone call to NMOCD followed on April 24, 2015. Dr. Tomas Oberding granted approval by email on the closure notice to Mike Stubblefield on April 24, 2015.

4. On April 28, 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. Stabilization continued until June 10, 2015 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 June 10, 2015 inspection, having achieved all applicable stabilization requirements associated with in-place burial, a 20 Mil. geomembrane liner was installed to completely cover the stabilized cuttings on June 10, 2015. The pit contents and liner were shaped to shed infiltrating water, sloping from west to east.

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6. Once the geomembrane cover was in place, 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.

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 June 23, 2015.

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# RE-VEGETATION PROCEDURES

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

1. In September when the ambient ground temperature are more favorable to support new vegetation, YPC Environmental Department will seed the topsoil on the on-site burial and interim reclamation areas using a seed drill pulled by a tractor that prepared the seedbed in the same pass using discs. The seed furrows will be oriented perpendicular to the prevailing western wind to minimize erosion.

2. Approximately 70 pounds of a seed mixture consisting of BLM #2 seed will be applied in accordance with the supplier's instructions to approximately 1 acre of the former temporary pit area. Species constituents of BLM #2 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***
   Sideoats Grama
   Little Bluestem
   Sand Dropseed
   Indian Ricegrass
   Plains Coreopsis

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.

Labels on seed sacks describing composition species

©2014 R.T. Hicks Consultants, Ltd


Paint Filter Test on 6/10/15.

Capping liner photo on 6/10/15

©2014 R.T. Hicks Consultants, Ltd

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.

# 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
S
☐ 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: Yates Petroleum Corporation OGRID #: 025575
Address: 105 South 4th Street, Artesia, New Mexico 88210
Facility or well name: Caravan "BVW" State No.9H
API Number: 30-025-41641 OCD Permit Number: P1-06550
U/L or Qtr/Qtr C Section 33 Township T24S Range R33E County: Eddy
Center of Proposed Design: Latitude 50' FNL Longitude 1950' FWL NAD: ☐1927 X 1983
Surface Owner: ☐ Federal X State ☐ Private ☐ Tribal Trust or Indian Allotment

**2.**
X **Pit:** Subsection F, G or J of 19.15.17.11 NMAC
Temporary: X Drilling ☐ Workover
☐ Permanent ☐ Emergency ☐ Cavitation ☐ P&A ☐ Multi-Well Fluid Management Low Chloride Drilling Fluid ☐ yes ☐ no
X Lined ☐ Unlined Liner type: Thickness 20 mil X LLDPE ☐ HDPE ☐ PVC ☐ Other _____ X☐ String-Reinforced
Liner Seams: ☒ Welded ☐ Factory ☐ Other _____ Volume: 67,367 bbl Dimensions: L255' x W235' x D 6'-10'

**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.**<br>- ☐ NM Office of the State Engineer - iWATERS database search; ☐ USGS; ☐ Data obtained from nearby wells | ☐ Yes ☒ N<br>☐ NA |
| **Ground water is less than 50 feet below the bottom of a Temporary pit, permanent pit, or Multi-Well Fluid Management pit .**<br>NM Office of the State Engineer - iWATERS database search; USGS; Data obtained from nearby wells | ☐ Yes ☒ No<br>☐ 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)**<br>- 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)**<br>- 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)**<br>- 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)**<br>- 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).<br>- 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;.<br>- 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)<br>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.)<br>- 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.<br>- 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.<br>NM Office of the State Engineer - iWATERS database search; Visual inspection (certification) of the proposed site | ☐ Yes ☐ No |

| | |
|---|---|
| Within 100 feet of a wetland.<br>- 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).<br>- 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.<br>- Visual inspection (certification) of the proposed site; Aerial photo; Satellite image | ☐ 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;<br>- NM Office of the State Engineer - iWATERS database search; Visual inspection (certification) of the proposed site | ☐ Yes ☒ No |
| Within 300 feet of a wetland.<br>- 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).<br>- 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.<br>- 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.<br>- NM Office of the State Engineer - iWATERS database search; Visual inspection (certification) of the proposed site | ☐ Yes ☐ No |
| Within 500 feet of a wetland.<br>- 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.<br>- NM Office of the State Engineer - iWATERS database search; USGS; Data obtained from nearby wells | ☐ Yes ☒ No<br>☐ NA |
| Ground water is between 25-50 feet below the bottom of the buried waste<br>- NM Office of the State Engineer - iWATERS database search; USGS; Data obtained from nearby wells | ☐ Yes ☒ No<br>☐ NA |
| Ground water is more than 100 feet below the bottom of the buried waste.<br>- NM Office of the State Engineer - iWATERS database search; USGS; Data obtained from nearby wells | ☒ Yes ☐ No<br>☐ 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).<br>- 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.<br>- 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.<br>- 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.<br>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.<br>- Written confirmation or verification from the municipality; Written approval obtained from the municipality | ☐ Yes ☒ No |
| Within the area overlying a subsurface mine.<br>- Written confirmation or verification or map from the NM EMNRD-Mining and Mineral Division | ☐ Yes ☒ No |
| Within an unstable area.<br>- 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.<br>- 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.***

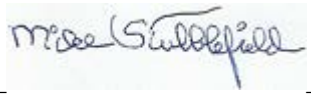
- ☒ Siting Criteria Compliance Demonstrations - based upon the appropriate requirements of 19.15.17.10 NMAC
- ☒ Proof of Surface Owner Notice - based upon the appropriate requirements of Subsection E of 19.15.17.13 NMAC
- ☐ Construction/Design Plan of Burial Trench (if applicable) based upon the appropriate 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): Mike Stubblefield Title: Agent for Yates Petroleum Corporation

Signature  Date: 8/12/2015

e-mail address: mike@rthicksconsult.com Telephone: 575-365-5034

**18.**

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

**OCD Representative Signature:** _____ **Approval Date:** _____

**Title:** _____ **OCD Permit Number:** _____

**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:** _____

**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)
- ☒ Plot Plan (for on-site closures and temporary pits)
- ☒ Confirmation Sampling Analytical Results (if applicable)
- ☐ Waste Material Sampling Analytical Results (required for on-site closure)
- ☐ Disposal Facility Name and Permit Number
- ☒ Soil Backfilling and Cover Installation
- ☒ Re-vegetation Application Rates and Seeding Technique
- ☐ Site Reclamation (Photo Documentation)

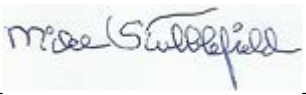
On-site Closure Location: Latitude **N 32° 10' 54.61"** Longitude **W 103° 34' 46.12"** NAD: ☐1927 ☒ 1983

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): Mike Stubblefield Title: Project Manager/R.T. Hicks Consultants, LTD



Signature: Date August 12, 2015

e-mail address: mike@rthichsconsult.com Telephone: 575-365-5034