R. T. HICKS CONSULTANTS, LTD.

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

January 31, 2014

HOBBS OCD

FEB 03 2014

RECEIVED

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

RE: Caza Operating, Caza Ridge "14" State 4H, API: 30-025-40936, Unit P Section 14, T23S, R34E, Lea County, Temporary Pit Closure Report

Dear Geoffrey:

In keeping with the requirements of the approved C-144 closure plan for the temporary pit, this report includes the following information listed in Part 21 of the C-144 form:

Required Information	Location in Submission
Proof of closure Notice (to surface owner and Division)	Attachment 1
Proof of Deed Notice (required for on-site closure	State Land (no deed)
Plot Plan (for on-site closures and temporary pits)	C-105 and 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
Soil Backfilling and Cover Installation	Attachment 4
Re-vegetation Application and Seeding Technique	Attachment 5
Updated C-144 form	Attachment 6
Site Reclamation (Photo Documentation)	To follow later

On Site Closure Location (center of on-site burial area):
Latitude: N 32.298570° Longitude: W -103.434607° (NAD27)

We understand that OCD cannot formally release the site under the current Rule until we document re-vegetation. As shown above, please expect documentation of burial marker and re-vegetation when it is established in accordance with subsections F and H of 19.15.17.13 NMAC.

Sincerely,
R.T. Hicks Consultants, Ltd.

Dale T. Littlejohn

Dale Littlejohn
Geologist

approved
Geoffrey Leking
Environmental Specialist

NMOCD - DIST 1
2/20/14

Copy: Caza Operating, LLC
New Mexico State Land Office

R. T. HICKS CONSULTANTS, LTD.

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

September 17, 2013

HOBBS OCD

FEB 03 2014

RECEIVED

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

RE: Caza Operating LLC, Caza Ridge "14" State No. 4H C-144 Permit Modification

Dear Geoffrey:

On behalf of Caza Operating, enclosed are:

1. A C-144 Form to modify the existing application (approved on February 18, 2013) to comply with the new Rule and
2. Updated (and recent OCD-approved) closure plans that are consistent with the new Rule.

The site-specific write-up, figures, plates, and appendix are unchanged from the earlier approved plan. To date, we have conducted our initial sampling of the cuttings, but have not received the results, additionally we are continuing to remove chlorides via the drainage system.

Please contact me if you have any questions of need additional information.

Sincerely,
R.T. Hicks Consultants

Dale T. Littlejohn

Dale T. Littlejohn

Copy: Richard Wright, Caza Operating, LLC
Terry Warnell, NM State Land Office

R. T. HICKS CONSULTANTS, LTD.

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

November 27, 2013

HOBBS OCD

FEB 03 2014

RECEIVED

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

RE: Caza Operating, Caza Ridge "14" State 4H, API: 30-025-40936, Unit P Section 14 T23S R34E, In-place Burial Notice

Dear Geoffrey:

The "In-place Burial" closure plan for the above referenced pit was approved on February 13, 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. A modified closure plan, prepared using the June 2013 rule was submitted to the NMOCD on September 17, 2013 and approved on September 18, 2013.

On September 12, 2013 five-point composite samples were recovered from both the inner and outer cells of the pit, combined according to the appropriate waste volume in each cell, and stabilized with the available mixing soil at a 3:1 ratio. Laboratory analyses were performed to determine the concentrations of the parameters listed in Table II of 19.15.17.13 NMAC.

The table below shows that TPH (418.1) and Total BTEX from this sampling event exceed the standards set forth in the Rule. A decision was made to allow the waste to remain undisturbed in the pit for several weeks in order to allow aeration and natural attenuation to reduce the hydrocarbon concentrations of the waste before re-sampling. Please note that the TPH result is nearly 5 times higher than GRO+DRO+MRO.

Summary Comparison of Laboratory Results to Pit Rule Burial Standards	Sampling Date	**Laboratory Results of Stabilized Waste Material** (mg/kg)	**19.15.17.13 NMAC Table II Depth to GW below waste > 100 Feet** (mg/kg)	**Estimated Maximum Mix Ratio Required To Achieve Pit Rule Burial Standard** (must be <3:1)
GRO + DRO + MRO (EPA Method 8015M)	9/12/13	588	1,000	1.76 : 1
TPH (EPA Method 418.1)	9/12/13	**2,900**	2,500	**3.48** : 1
Chloride (EPA Method 300.0)	9/12/13	32,800	80,000	1.23 : 1
Benzene (EPA Meth. 8021B or 8260B)	9/12/13	3.01	10	0.90 : 1
Total BTEX (EPA Meth. 8021B or 8260B)	9/12/13	**62.7**	50	**3.76** : 1

[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.

Due to a communication failure between RT Hicks Consultants and the dirt contractor, on or about October 22, 2013 the in-place closure began prior to formal NMOCD notification or approval. Upon discovering this, the pit closure activity was immediately terminated and a soil-sampling event was scheduled to determine the concentrations of the constituents that exceeded the standards from the previous sampling event.

On October 23, 2013 a five-point composite sample was recovered from the waste that had not yet been mixed by the dirt contractor. It is believed that this sample is conservative with respect to hydrocarbons, in that most of the undisturbed sample was located around the outer edge of the pit and therefore represents a higher percentage of material from the outer cell which contained oil from the flow-back. The composite sample was stabilized with the clean soil at a 3:1 ratio. Laboratory analyses were performed to determine the concentrations of TPH (418.1) and Total BTEX (8021B) for comparison to Table II of 19.15.17.13 NMAC.

The table below shows that only TPH (418.1) from this sampling event continued to exceed the standards set forth in the Rule. We did not have the laboratory to analyze this sample for GRO+DRO+MRO because the standard was met with the previous sample.

Summary Comparison of Laboratory Results to Pit Rule Burial Standards	Sampling Date	**Laboratory Results of Stabilized Waste Material** (mg/kg)	**19.15.17.13 NMAC Table II Depth to GW below waste > 100 Feet** (mg/kg)	**Estimated Maximum Mix Ratio Required To Achieve Pit Rule Burial Standard** (must be <3:1)
TPH (EPA Method 418.1)	10/23/13	3,300	2,500	**3.96** : 1
Benzene (EPA Meth. 8021B or 8260B)	10/23/13	1.21	10	0.36 : 1
Total BTEX (EPA Meth. 8021B or 8260B)	10/23/13	37.1	50	2.23 : 1

Upon consulting with Cardinal and Hall Environmental Laboratories, we found that the method employed by Cardinal to prepare the sample for analysis is different from that of Hall. We were concerned that Cardinal's method, which does not use a silica gel sieve prior to analysis, may not effectively eliminate organic mud additives (e.g. cellulose) and/or lost circulation material (e.g. cottonseed hulls) from the analytical result. Therefore, on November 12, 2013 a third sampling event was conducted for analysis by Hall. The composite soil sample was recovered from the entire pit and stabilized with clean soil at a 3:1 ratio. No effort was made to represent the correct volumes of the inner and outer cells, since the premature mixing had made that task virtually impossible. Rather, the purpose of the sample was to compare the results of an analysis of GRO+DRO+MRO by 8015D with the results of an analysis of TPH by 418.1 prepared using a silica gel sieve.

Hall Environmental Laboratories performed the laboratory analysis and the results are shown as follows:

GRO (mg/kg)	DRO (mg/kg)	MRO (mg/kg)	TPH (8015D) (mg/kg)	TPH (418.1) (mg/kg)
30	1,300	770	2,100	2,400

RT Hicks Consultants believes that these results strongly indicate that an analysis of TPH by 418.1, when prepared using a silica gel sieve to remove the affects of the mud additives, provides a much better representation of the actual hydrocarbon contaminants than what we understand is an "oil and grease" method used by Cardinal Laboratories. For crude releases to sandy soil, an oil and grease method is probably fine. However, when non-petroleum organic compounds are present (e.g. drilling fluids), one should rely upon the more robust silica gel sieve technique or perhaps simply add GRO+DRO+MRO.

In light of these results, RT Hicks Consultants believes that the TPH by 418.1 analysis from the September 12, and October 23, 2013 sampling events should be disregarded in favor of the September 12, 2013 GRO+DRO+MRO results. On this bases be believe that the pit qualifies for closure under the current Rule and would like to move as quickly as possible to complete the closure.

In the future, RT Hicks Consultants will only perform analysis of TPH by 418.1 using the silica gel sieve preparation.

Sincerely,
R.T. Hicks Consultants

Dale T. Littlejohn

Dale Littlejohn

Copy: Caza Operating, LLC

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

R. T. HICKS CONSULTANTS, LTD.

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

November 27, 2013

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

RE: Caza Operating, Caza Ridge "14" State 4H, API: 30-025-40936, Unit P Section 14
T23S R34E, In-plac

Dear Geoffrey:

The "In-place Burial" closu
13, 2013 by the NMOCD, p
Construction and operatior
under which it was approv
prepared using the June 2(
and approved on Septemb

On September 12, 2013 fiv
and outer cells of the pit, c
cell, and stabilized with the
performed to determine the
19.15.17.13 NMAC.

The table below shows thai
the standards set forth in tl
undisturbed in the pit for several weeks in order to allow
to reduce the hydrocarbon concentrations of the waste t
that the TPH result is nearly 5 times higher than GRO+D

Summary Comparison of Laboratory Results to Pit Rule Burial Standards

	Sampling Date	Laboratory Results of Stabilized Waste Material (mg/kg)
GRO + DRO + MRO (EPA Method 8015M)	9/12/13	588
TPH (EPA Method 418.1)	9/12/13	2,900
Chloride (EPA Method 300.0)	9/12/13	32,800
Benzene (EPA Meth. 8021B or 8260B)	9/12/13	3.01
Total BTEX (EPA Meth. 8021B or 8260B)	9/12/13	62.7

(5) The operator shall collect, at a minimum, a five point composite of the pad/tank associated with a closed-loop system to demonstrate that, after the other non-waste material at a ratio of no more than 3:1 soil or other non-wa contaminant in the stabilized waste is not higher than the parameters in Tab

SENDER: COMPLETE THIS SECTION

- Complete items 1, 2, and 3. Also complete item 4 if Restricted Delivery is desired.
- Print your name and address on the reverse so that we can return the card to you.
- Attach this card to the back of the mailpiece, or on the front if space permits.

1. Article Addressed to:
Terry Warnell
NM. SLO
PO Box 1148
Santa Fe, NM 87504

COMPLETE THIS SECTION ON DELIVERY

A. Signature
X ☐ Agent ☐ Addressee

B. Received by (Printed Name) C. Date of Delivery

D. Is delivery address different from item 1? ☐ Yes
If YES, enter delivery address below: ☐ No

DEC - 5 2013

3. Service Type
☑ Certified Mail ☐ Express Mail
☐ Registered ☐ Return Receipt for Merchandise
☐ Insured Mail ☐ C.O.D.

4. Restricted Delivery? (Extra Fee) ☐ Yes

2. Article Number (Transfer from service label) 7008 1300 0002 4410 5993

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

U.S. Postal Service™
CERTIFIED MAIL™ RECEIPT
(Domestic Mail Only; No Insurance Coverage Provided)

For delivery information visit our website at www.usps.com®

OFFICIAL USE

Postage	$ 1.32
Certified Fee	5.65
Return Receipt Fee (Endorsement Required)	
Restricted Delivery Fee (Endorsement Required)	
Total Postage & Fees	$ 6.97

11/27/13
Postmark Here

Sent To Terry Warnell SLO
Street, Apt. No., or PO Box No.
City, State, ZIP+4 Santa Fe NM

PS Form 3800, August 2006 See Reverse for Instructions

7008 1300 0002 4410 5993

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

HOBBS OCD
AUG 14 2013
RECEIVED

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 40936
2. Type of Lease ☒ STATE ☐ FEE ☐ FED/INDIAN
3. State Oil & Gas Lease No. VB 1184

WELL COMPLETION OR RECOMPLETION REPORT AND LOG

4. Reason for filing:

☒ **COMPLETION REPORT** (Fill in boxes #1 through #31 for State and Fee wells only)

☐ **C-144 CLOSURE ATTACHMENT** (Fill in boxes #1 through #9, #15 Date Rig Released and #32 and/or #33; attach this and the plat to the C-144 closure report in accordance with 19.15.17.13.K NMAC)

5. Lease Name or Unit Agreement Name: Caza Ridge 14 State
6. Well Number: 4H

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

8. Name of Operator: Caza Operating, LLC
9. OGRID: 249099
10. Address of Operator: 200 N. Loraine, Suite 1550, Midland, Texas 79701
11. Pool name or Wildcat: Antelope Ridge Bone Spring 2209 West

12. Location	Unit Ltr	Section	Township	Range	Lot	Feet from the	N/S Line	Feet from the	E/W Line	County
Surface:	P	14	T23S	R34E		330	S	660	E	Lea
BH:	A	14	T23S	R34E		4935	S	596	E	Lea

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.)
6-15-13	7-10-13	7-15-13	8/6/13	3366 GR

18. Total Measured Depth of Well	19. Plug Back Measured Depth	20. Was Directional Survey Made?	21. Type Electric and Other Logs Run
15,775	15,649	Yes	CNL/Den/Gr/DLL

22. Producing Interval(s), of this completion - Top, Bottom, Name
11,733-15,606 Bone Spring

23. **CASING RECORD** (Report all strings set in well)

CASING SIZE	WEIGHT LB./FT.	DEPTH SET	HOLE SIZE	CEMENTING RECORD	AMOUNT PULLED
13-3/8	54.5	735 ft	17-1/2	720 Sks-Circ	
9-5/8	40.0	4962 ft	12-1/4	1575 sks-Circ	
5-1/2	20.0	15731 ft	8-3/4	2720 sks-	TOC 2700' FS

24. LINER RECORD

SIZE	TOP	BOTTOM	SACKS CEMENT	SCREEN

25. TUBING RECORD

SIZE	DEPTH SET	PACKER SET

26. Perforation record (interval, size, and number)
Cemented Sleeves: 24 3/4" holes each. 15606,15476,15307,15136,14964
14792,14618,14449,14276,14110,13936,13768,13595,13423,13253,
13082,12910,12748,12576,12411,12244,12074, 11907,11733

27. ACID, SHOT, FRACTURE, CEMENT, SQUEEZE, ETC.

DEPTH INTERVAL	AMOUNT AND KIND MATERIAL USED
11733-15606	41,496 gals 15% HCL Acid
11733-15606	91,200 lbs 40/70 sd; 720,800 lbs 20/40 Opti Prop
	2,039,980 lbs 20/40 Econo Prop

28. **PRODUCTION**

Date First Production	Production Method (*Flowing, gas lift, pumping - Size and type pump*)	Well Status (*Prod. or Shut-in*)
8-6-2013	Flowing	Producing

Date of Test	Hours Tested	Choke Size	Prod'n For Test Period	Oil - Bbl	Gas - MCF	Water - Bbl.	Gas - Oil Ratio
8-8-2013	24	30/64		1004	1302	1457	1297/1

Flow Tubing Press.	Casing Pressure	Calculated 24-Hour Rate	Oil - Bbl.	Gas - MCF	Water - Bbl.	Oil Gravity - API - (*Corr.*)
NA	1200		1004	1302	1457	42°

29. Disposition of Gas (*Sold, used for fuel, vented, etc.*): Vented
30. Test Witnessed By: Jerrod Norton

31. List Attachments: Schematic,C102,C104,Directional

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 Longitude NAD 1927 1983

I hereby certify that the information shown on both sides of this form is true and complete to the best of my knowledge and belief

Signature Richard L. Wright Printed Name Richard L. Wright Title Operations Manager Date 8-12-13

E-mail Address rwright@cazapetro.com

DEC 11 2013

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	1150	T. Canyon		T. Ojo Alamo	T. Penn A"
T. Salt	1608	T. Strawn		T. Kirtland	T. Penn. "B"
B. Salt	3671	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	5943	T. Morrison	
T. Drinkard		T. Bone Springs	8585	T.Todilto	
T. Abo		T. Bell Canyon	3685	T. Entrada	
T. Wolfcamp		T. Brushy Cyn	7327	T. Wingate	
T. Penn		T. Avalon	8680	T. Chinle	
T. Cisco (Bough C)		T. 2nd Bone Sprg	10180	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

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. 30-025-40936
2. Type of Lease ☒ STATE ☐ FEE ☐ FED/INDIAN
3. State Oil & Gas Lease No. VB 1184

WELL COMPLETION OR RECOMPLETION REPORT AND LOG

4. Reason for filing:

☐ **COMPLETION REPORT** (Fill in boxes #1 through #31 for State and Fee wells only)

☒ **C-144 CLOSURE ATTACHMENT** (Fill in boxes #1 through #9, #15 Date Rig Released and #32 and/or #33; attach this and the plat to the C-144 closure report in accordance with 19.15.17.13.K NMAC)

5. Lease Name or Unit Agreement Name: Caza Ridge "14" State
6. Well Number: 4H

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

8. Name of Operator: Caza Operating, LLC
9. OGRID: 249099
10. Address of Operator
11. Pool name or Wildcat

12. Location	Unit Ltr	Section	Township	Range	Lot	Feet from the	N/S Line	Feet from the	E/W Line	County
Surface:										
BH:										

13. Date Spudded	14. Date T.D. Reached	15. Date Rig Released	16. Date Completed (Ready to Produce)	17. Elevations (DF and RKB, RT, GR, etc.)
		7/15/13		

18. Total Measured Depth of Well	19. Plug Back Measured Depth	20. Was Directional Survey Made?	21. Type Electric and Other Logs Run

22. Producing Interval(s), of this completion - Top, Bottom, Name

23. **CASING RECORD** (Report all strings set in well)

CASING SIZE	WEIGHT LB./FT.	DEPTH SET	HOLE SIZE	CEMENTING RECORD	AMOUNT PULLED

24. LINER RECORD

SIZE	TOP	BOTTOM	SACKS CEMENT	SCREEN

25. TUBING RECORD

SIZE	DEPTH SET	PACKER SET

26. Perforation record (interval, size, and number)

27. ACID, SHOT, FRACTURE, CEMENT, SQUEEZE, ETC.

DEPTH INTERVAL	AMOUNT AND KIND MATERIAL USED

28. **PRODUCTION**

Date First Production	Production Method *(Flowing, gas lift, pumping - Size and type pump)*	Well Status *(Prod. or Shut-in)*

Date of Test	Hours Tested	Choke Size	Prod'n For Test Period	Oil - Bbl	Gas - MCF	Water - Bbl.	Gas - Oil Ratio

Flow Tubing Press.	Casing Pressure	Calculated 24-Hour Rate	Oil - Bbl.	Gas - MCF	Water - Bbl.	Oil Gravity - API - *(Corr.)*

29. Disposition of Gas *(Sold, used for fuel, vented, etc.)*
30. Test Witnessed By

31. List Attachments

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

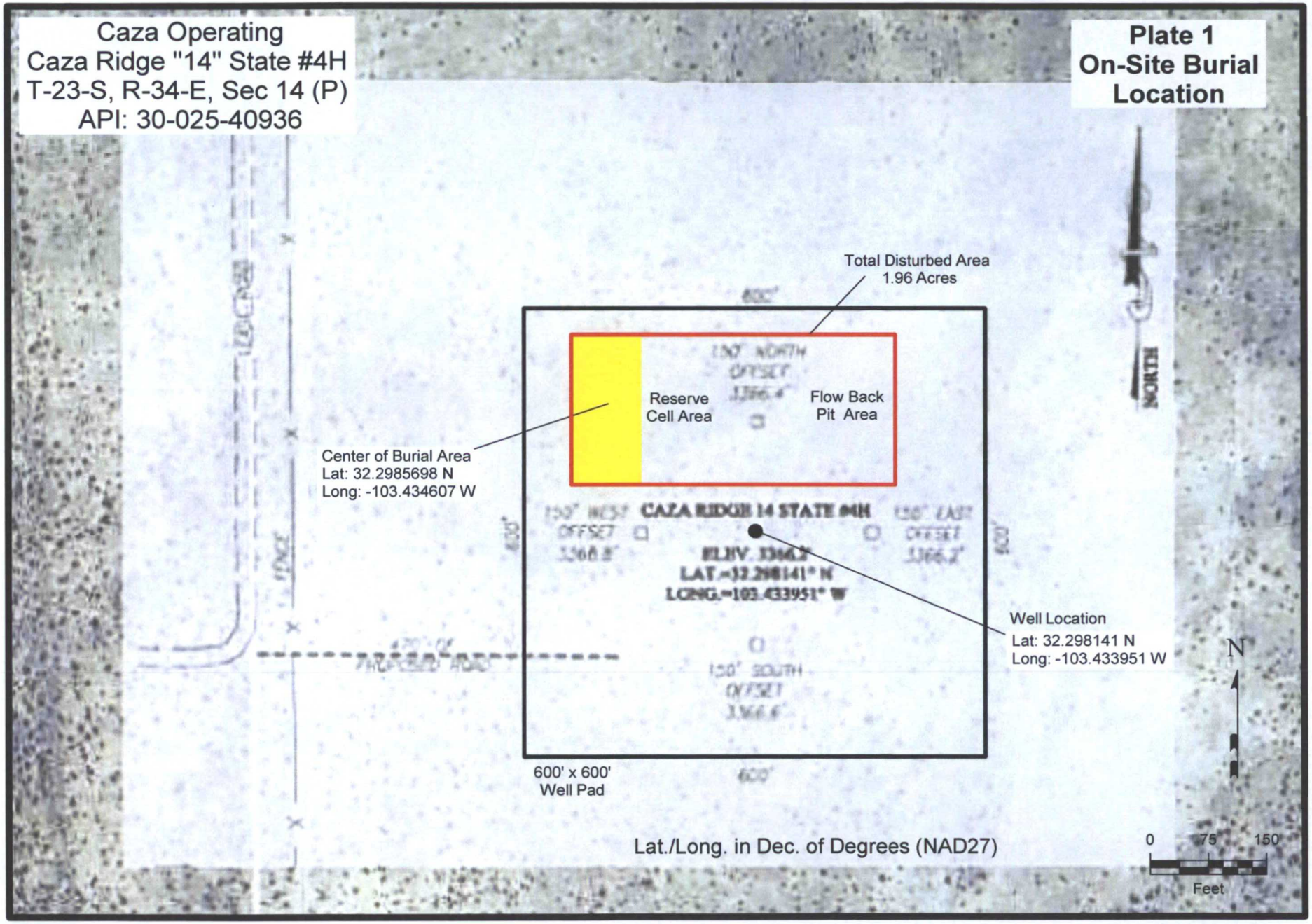
33. If an on-site burial was used at the well, report the exact location of the on-site burial:

Latitude N 32.2985698° Longitude W -103.434607° NAD 1927

I hereby certify that the information shown on both sides of this form is true and complete to the best of my knowledge and belief

Signature Dale T. Littlejohn Printed Name Dale Littlejohn Title Geologist Date 1-31-14

E-mail Address dale@rthicksconsult.com


Caza Operating
Caza Ridge "14" State #4H
T-23-S, R-34-E, Sec 14 (P)
API: 30-025-40936
Plate 1
On-Site Burial Location
Total Disturbed Area
1.96 Acres
Reserve Cell Area
Flow Back Pit Area
Center of Burial Area
Lat: 32.2985698 N
Long: -103.434607 W
CAZA RIDGE 14 STATE #4H
ELEV. 3366.2'
LAT.=32.298141° N
LONG.=103.433951° W
Well Location
Lat: 32.298141 N
Long: -103.433951 W
600' x 600'
Well Pad
Lat./Long. in Dec. of Degrees (NAD27)
N
0
75
150
Feet

CARDINAL Laboratories

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

October 03, 2013

DALE LITTLEJOHN

R T HICKS CONSULTANTS

901 RIO GRANDE BLVD SUITE F-142

ALBUQUERQUE, NM 87104

RE: CAZA RIDGE #4H

Enclosed are the results of analyses for samples received by the laboratory on 09/12/13 10:30.

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

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

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

Accreditation applies to public drinking water matrices.

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

Sincerely,

Celey D. Keene

Celey D. Keene

Lab Director/Quality Manager

CARDINAL Laboratories

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

Analytical Results For:

R T HICKS CONSULTANTS 901 RIO GRANDE BLVD SUITE F-142 ALBUQUERQUE NM, 87104	Project: CAZA RIDGE #4H Project Number: NONE GIVEN Project Manager: DALE LITTLEJOHN Fax To: NONE	Reported: 03-Oct-13 10:13

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
STABLE 3:1 MIX	H302211-01	Soil	12-Sep-13 08:50	12-Sep-13 10:30

Cardinal Laboratories

*=Accredited Analyte

Celey D. Keene

Celey D. Keene, Lab Director/Quality Manager

CARDINAL Laboratories

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

Analytical Results For:

R T HICKS CONSULTANTS 901 RIO GRANDE BLVD SUITE F-142 ALBUQUERQUE NM, 87104	Project: CAZA RIDGE #4H Project Number: NONE GIVEN Project Manager: DALE LITTLEJOHN Fax To: NONE	Reported: 03-Oct-13 10:13

STABLE 3:1 MIX

H302211-01 (Soil)

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Analyst	Analyzed	Method	Notes
Cardinal Laboratories									
Inorganic Compounds									
Chloride	**32800**	16.0	mg/kg	4	3091602	AP	16-Sep-13	4500-Cl-B	
Organic Compounds									
TPH 418.1	**2900**	100	mg/kg	10	3092605	CK	02-Oct-13	418.1	SUB-SS
Volatile Organic Compounds by EPA Method 8021									**S-04**
Benzene*	**3.01**	0.500	mg/kg	500	3091601	MS	17-Sep-13	8021B	
Toluene*	**20.8**	0.500	mg/kg	500	3091601	MS	17-Sep-13	8021B	
Ethylbenzene*	**10.1**	0.500	mg/kg	500	3091601	MS	17-Sep-13	8021B	
Total Xylenes*	**28.8**	1.50	mg/kg	500	3091601	MS	17-Sep-13	8021B	
Total BTEX	**62.7**	3.00	mg/kg	500	3091601	MS	17-Sep-13	8021B	
Surrogate: 4-Bromofluorobenzene (PID)		*134 %*	*89.4-126*		*3091601*	MS	*17-Sep-13*	*8021B*	
Petroleum Hydrocarbons by GC FID									
GRO C6-C10	**85.5**	10.0	mg/kg	1	3091207	MS	13-Sep-13	8015B	
DRO >C10-C28	**413**	10.0	mg/kg	1	3091207	MS	13-Sep-13	8015B	
EXT DRO >C28-C35	**89.2**	10.0	mg/kg	1	3091207	MS	13-Sep-13	8015B	
Surrogate: 1-Chlorooctane		*88.3 %*	*65.2-140*		*3091207*	MS	*13-Sep-13*	*8015B*	
Surrogate: 1-Chlorooctadecane		*100 %*	*63.6-154*		*3091207*	MS	*13-Sep-13*	*8015B*	

Cardinal Laboratories

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Analytical Results For:

R T HICKS CONSULTANTS 901 RIO GRANDE BLVD SUITE F-142 ALBUQUERQUE NM, 87104	Project: CAZA RIDGE #4H Project Number: NONE GIVEN Project Manager: DALE LITTLEJOHN Fax To: NONE	Reported: 03-Oct-13 10:13

Inorganic Compounds - Quality Control

Cardinal Laboratories

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 3091602 - 1:4 DI Water										
Blank (3091602-BLK1)				Prepared & Analyzed: 16-Sep-13						
Chloride	ND	16.0	mg/kg							
LCS (3091602-BS1)				Prepared & Analyzed: 16-Sep-13						
Chloride	416	16.0	mg/kg	400		104	80-120			
LCS Dup (3091602-BSD1)				Prepared & Analyzed: 16-Sep-13						
Chloride	432	16.0	mg/kg	400		108	80-120	3.77	20	

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Analytical Results For:

R T HICKS CONSULTANTS 901 RIO GRANDE BLVD SUITE F-142 ALBUQUERQUE NM, 87104	Project: CAZA RIDGE #4H Project Number: NONE GIVEN Project Manager: DALE LITTLEJOHN Fax To: NONE	Reported: 03-Oct-13 10:13

Organic Compounds - Quality Control

Cardinal Laboratories

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 3092605 - Solvent Extraction										
Blank (3092605-BLK1)				Prepared & Analyzed: 02-Oct-13						
TPH 418.1	ND	10.0	mg/kg							

Celey D. Keene

Celey D. Keene, Lab Director/Quality Manager

CARDINAL Laboratories

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Analytical Results For:

R T HICKS CONSULTANTS 901 RIO GRANDE BLVD SUITE F-142 ALBUQUERQUE NM, 87104	Project: CAZA RIDGE #4H Project Number: NONE GIVEN Project Manager: DALE LITTLEJOHN Fax To: NONE	Reported: 03-Oct-13 10:13

Volatile Organic Compounds by EPA Method 8021 - Quality Control

Cardinal Laboratories

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 3091601 - Volatiles										
Blank (3091601-BLK1)				Prepared & Analyzed: 16-Sep-13						
Benzene	ND	0.050	mg/kg							
Toluene	ND	0.050	mg/kg							
Ethylbenzene	ND	0.050	mg/kg							
Total Xylenes	ND	0.150	mg/kg							
Total BTEX	ND	0.300	mg/kg							
Surrogate: 4-Bromofluorobenzene (PID)	*0.0571*		mg/kg	*0.0500*		*114*	*89.4-126*			
LCS (3091601-BS1)				Prepared & Analyzed: 16-Sep-13						
Benzene	1.98	0.050	mg/kg	2.00		99.0	76.4-135			
Toluene	2.14	0.050	mg/kg	2.00		107	80.2-135			
Ethylbenzene	2.27	0.050	mg/kg	2.00		113	78.5-133			
Total Xylenes	6.92	0.150	mg/kg	6.00		115	80.1-135			
Surrogate: 4-Bromofluorobenzene (PID)	*0.0564*		mg/kg	*0.0500*		*113*	*89.4-126*			
LCS Dup (3091601-BSD1)				Prepared & Analyzed: 16-Sep-13						
Benzene	2.07	0.050	mg/kg	2.00		104	76.4-135	4.45	16.4	
Toluene	2.23	0.050	mg/kg	2.00		112	80.2-135	4.08	16.6	
Ethylbenzene	2.37	0.050	mg/kg	2.00		118	78.5-133	4.29	16.1	
Total Xylenes	7.12	0.150	mg/kg	6.00		119	80.1-135	2.88	15.8	
Surrogate: 4-Bromofluorobenzene (PID)	*0.0582*		mg/kg	*0.0500*		*116*	*89.4-126*			

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CARDINAL Laboratories

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

Analytical Results For:

R T HICKS CONSULTANTS 901 RIO GRANDE BLVD SUITE F-142 ALBUQUERQUE NM, 87104	Project: CAZA RIDGE #4H Project Number: NONE GIVEN Project Manager: DALE LITTLEJOHN Fax To: NONE	Reported: 03-Oct-13 10:13

Petroleum Hydrocarbons by GC FID - Quality Control

Cardinal Laboratories

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 3091207 - General Prep - Organics										
Blank (3091207-BLK1)				Prepared & Analyzed: 12-Sep-13						
GRO C6-C10	ND	10.0	mg/kg							
DRO >C10-C28	ND	10.0	mg/kg							
EXT DRO >C28-C35	ND	10.0	mg/kg							
Total TPH C6-C28	ND	10.0	mg/kg							
Surrogate: 1-Chlorooctane	*37.9*		mg/kg	*50.0*		*75.9*	*65.2-140*			
Surrogate: 1-Chlorooctadecane	*43.7*		mg/kg	*50.0*		*87.4*	*63.6-154*			
LCS (3091207-BS1)				Prepared & Analyzed: 12-Sep-13						
GRO C6-C10	200	10.0	mg/kg	200		100	66.4-124			
DRO >C10-C28	192	10.0	mg/kg	200		96.1	61.6-132			
Total TPH C6-C28	392	10.0	mg/kg	400		98.0	69.7-122			
Surrogate: 1-Chlorooctane	*44.2*		mg/kg	*50.0*		*88.4*	*65.2-140*			
Surrogate: 1-Chlorooctadecane	*49.4*		mg/kg	*50.0*		*98.7*	*63.6-154*			
LCS Dup (3091207-BSD1)				Prepared & Analyzed: 12-Sep-13						
GRO C6-C10	210	10.0	mg/kg	200		105	66.4-124	4.71	23.4	
DRO >C10-C28	200	10.0	mg/kg	200		99.8	61.6-132	3.84	23.1	
Total TPH C6-C28	409	10.0	mg/kg	400		102	69.7-122	4.29	20.6	
Surrogate: 1-Chlorooctane	*46.9*		mg/kg	*50.0*		*93.8*	*65.2-140*			
Surrogate: 1-Chlorooctadecane	*52.5*		mg/kg	*50.0*		*105*	*63.6-154*			

Cardinal Laboratories

*=Accredited Analyte

Celey D. Keene

Celey D. Keene, Lab Director/Quality Manager

CARDINAL Laboratories

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

Notes and Definitions

SUB-SS	Analysis subcontracted to SunStar Laboratories, Inc.
S-04	The surrogate recovery for this sample is outside of established control limits due to a sample matrix effect.
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

Cardinal Laboratories

*=Accredited Analyte

Celey D. Keene, Lab Director/Quality Manager

CARDINAL Laboratories

CHAIN-OF-CUSTODY AND ANALYSIS REQUEST

101 East Marland, Hobbs, NM 88240
(575) 393-2326 FAX (575) 393-2476

Company Name:	R T Hicks Consultants Ltd	**BILL TO**	
Project Manager:	Dale Littlejohn	**P.O. #:**	
Address:	901 Rio Grande BLVD, Suite F-142	**Company:**	RT Hicks Consult.
City:	Albuquerque **State:** NM **Zip:** 87104	**Attn:**	Krista
Phone #:	(432) 528-3878 **Fax #:** dale@rthicksconsult.com	**Address:**	901 Rio G. F-142
Project #:	**Project Owner:** Caza Oper.	**City:**	Albuquerque
Project Name:	Caza Ridge #4H	**State:**	NM **Zip:** 87104
Project Location:	Lea County New Mexico	**Phone #:**	(505) 266-5004
Sampler Name:	Dale Littlejohn	**Fax #:**	k@rthicksconsult.com

FOR LAB USE ONLY				MATRIX						PRESERV.			SAMPLING		ANALYSIS REQUEST									
Lab I.D.	**Sample I.D.**	(G)RAB OR (C)OMP.	# CONTAINERS	GROUNDWATER	WASTEWATER	SOIL	OIL	SLUDGE	OTHER :	ACID/BASE:	ICE / COOL	OTHER :	DATE	TIME	BTEX (8021B or 8260B)	GRO (8015M)	DRO (8015M)	MRO (8015M)	TPH (418.1)	Chloride (300.0 or approved)				
H302211																								
1	Stable 3:1 Mix	C	2			✓					✓		9/12	850	✓	✓	✓	✓	✓	✓				

PLEASE NOTE: Liability and Damages. Cardinal's liability and client's exclusive remedy for any claim arising whether based in contract or tort, shall be limited to the amount paid by the client for the analyses. All claims including those for negligence and any other cause whatsoever shall be deemed waived unless made in writing and received by Cardinal within 30 days after completion of the applicable service. In no event shall Cardinal be liable for incidental or consequential damages, including without limitation, business interruptions, loss of use, or loss of profits incurred by client, its subsidiaries, affiliates or successors arising out of or related to the performance of services hereunder by Cardinal, regardless of whether such claim is based upon any of the above stated reasons or otherwise.

Relinquished By:	Date: 9/12	**Received By:**	Jodi Henson
Dale Littlejohn	Time: 1030		
Relinquished By:	Date:	**Received By:**	
	Time:		

Delivered By: (Circle One)
Sampler - UPS - Bus - Other: 5.8°C

Sample Condition
Cool: ☐ Yes ☐ No
Intact: ☑ Yes ☐ No

CHECKED BY: (Initials)

Phone Result:	☐ Yes	☐ No	**Add'l Phone #:**
Fax Result:	☐ Yes	☐ No	**Add'l Fax #:**
REMARKS:			

CARDINAL Laboratories

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

November 05, 2013

DALE LITTLEJOHN

R T HICKS CONSULTANTS

901 RIO GRANDE BLVD SUITE F-142

ALBUQUERQUE, NM 87104

RE: CAZA RIDGE '14' STATE #4H

Enclosed are the results of analyses for samples received by the laboratory on 10/23/13 14:12.

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

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

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

Accreditation applies to public drinking water matrices.

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

Sincerely,

Celey D. Keene

Celey D. Keene

Lab Director/Quality Manager

CARDINAL Laboratories

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

Analytical Results For:

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

Received:	10/23/2013	Sampling Date:	10/23/2013
Reported:	11/05/2013	Sampling Type:	Soil
Project Name:	CAZA RIDGE '14' STATE #4H	Sampling Condition:	** (See Notes)
Project Number:	NONE GIVEN	Sample Received By:	Jodi Henson
Project Location:	LEA COUNTY, NM		

Sample ID: 3:1 MIX SAMPLE (H302568-01)

BTEX 8021B mg/kg **Analyzed By: MS**

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	**1.21**	0.050	10/24/2013	ND	2.05	103	2.00	0.398	
Toluene*	**11.1**	0.050	10/24/2013	ND	2.14	107	2.00	0.0304	
Ethylbenzene*	**6.45**	0.050	10/24/2013	ND	2.17	108	2.00	0.263	
Total Xylenes*	**18.3**	0.150	10/24/2013	ND	6.55	109	6.00	1.57	
Total BTEX	**37.1**	0.300	10/24/2013	ND					

Surrogate: 4-Bromofluorobenzene (PIL *104 %* *89.4-126*

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	**3300**	100	10/31/2013	ND	76.0	92.7	82.0	11.1	SUB-SS

Cardinal Laboratories

*=Accredited Analyte

Celey D. Keene

Celey D. Keene, Lab Director/Quality Manager

CARDINAL Laboratories

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

Notes and Definitions

SUB-SS	Analysis subcontracted to SunStar Laboratories, Inc.
ND	Analyte NOT DETECTED at or above the reporting limit
RPD	Relative Percent Difference
**	Samples not received at proper temperature of 6°C or below.
***	Insufficient time to reach temperature.
-	Chloride by SM4500Cl-B does not require samples be received at or below 6°C
	Samples reported on an as received basis (wet) unless otherwise noted on report

Celey D. Keene

Celey D. Keene, Lab Director/Quality Manager

CARDINAL Laboratories

CHAIN-OF-CUSTODY AND ANALYSIS REQUEST

101 East Marland, Hobbs, NM 88240
(575) 393-2326 FAX (575) 393-2476

Company Name:	R T Hicks Consultants Ltd	**BILL TO**	
Project Manager:	Dale Littlejohn	**P.O. #:**	
Address:	901 Rio Grande BLVD, Suite F-142	**Company:**	RT Hicks Consult.
City:	Albuquerque **State:** NM **Zip:** 87104	**Attn:**	Krista
Phone #:	(432) 528-3878 **Fax #:** dale@rthicksconsult.com	**Address:**	901 Rio G. F-142
Project #:	**Project Owner:** Caza Oper.	**City:**	Albuquerque
Project Name:	Caza Ridge "14" State 4H	**State:** NM **Zip:** 87104	
Project Location:	Lea County, NM	**Phone #:**	(505) 266-5004
Sampler Name:	Dale Littlejohn	**Fax #:**	k@rthicksconsult.com

FOR LAB USE ONLY		MATRIX							PRESERV.			SAMPLING		ANALYSIS REQUEST										
Lab I.D.	Sample I.D.	(G)RAB OR (C)OMP.	# CONTAINERS	GROUNDWATER	WASTEWATER	SOIL	OIL	SLUDGE	OTHER :	ACID/BASE:	ICE / COOL	OTHER :	DATE	TIME	BTEX (8021B or 8260B)	GRO (8015M)	DRO (8015M)	MRO (8015M)	TPH (418.1)	Chloride (300.0 or approved)					
H30256[illegible]																								
1	3:1 Mix Sample	C	1			✓					✓		10/23/13	1245	✓				✓						

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Relinquished By: Dale Littlejohn	**Date:** 10/23 **Time:** 2:12	**Received By:** Jodi Henson	
Relinquished By:	**Date:** **Time:**	**Received By:**	
Delivered By: (Circle One) Sampler - UPS - Bus - Other:	17.6°C	**Sample Condition** Cool: ☐ Yes ☑ No; Intact: ☑ Yes ☐ No	**CHECKED BY:** (Initials)

Phone Result: ☐ Yes ☐ No **Add'l Phone #:**
Fax Result: ☐ Yes ☐ No **Add'l Fax #:**
REMARKS: samples taken & brought directly to lab. JH

+ Cardinal cannot accept verbal changes. Please fax written changes to (575) 393-2326

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

November 22, 2013

Randall Hicks
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: Caza Ridge 4H OrderNo.: 1311617

Dear Randall Hicks:

Hall Environmental Analysis Laboratory received 1 sample(s) on 11/14/2013 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 **1311617**
Date Reported: **11/22/2013**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: R.T. Hicks Consultants, LTD
Client Sample ID: Caza Ridge 4H Pit 3:1 Final Min
Project: Caza Ridge 4H
Collection Date: 11/12/2013 3:05:00 PM
Lab ID: 1311617-001 **Matrix:** SOIL **Received Date:** 11/14/2013 9:35:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8015D: DIESEL RANGE ORGANICS						Analyst: **BCN**	
Diesel Range Organics (DRO)	1300	100		mg/Kg	10	11/19/2013 1:17:22 PM	10373
Motor Oil Range Organics (MRO)	770	500		mg/Kg	10	11/19/2013 1:17:22 PM	10373
Surr: DNOP	0	66-131	S	%REC	10	11/19/2013 1:17:22 PM	10373
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **NSB**	
Gasoline Range Organics (GRO)	30	4.9		mg/Kg	1	11/18/2013 11:54:27 AM	10364
Surr: BFB	240	74.5-129	S	%REC	1	11/18/2013 11:54:27 AM	10364
EPA METHOD 418.1: TPH						Analyst: **BCN**	
Petroleum Hydrocarbons, TR	2400	200		mg/Kg	10	11/19/2013	10341

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	ND	Not Detected at the Reporting Limit
O	RSD is greater than RSDlimit	P	Sample pH greater than 2 for VOA and TOC only.
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#: **1311617**

22-Nov-13

Client: R.T. Hicks Consultants, LTD

Project: Caza Ridge 4H

Sample ID **MB-10341**	SampType: **MBLK**	TestCode: **EPA Method 418.1: TPH**							
Client ID: **PBS**	Batch ID: **10341**	RunNo: **14899**							
Prep Date: **11/14/2013**	Analysis Date: **11/19/2013**	SeqNo: **429708**	Units: **mg/Kg**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Petroleum Hydrocarbons, TR	ND	20								

Sample ID **LCS-10341**	SampType: **LCS**	TestCode: **EPA Method 418.1: TPH**							
Client ID: **LCSS**	Batch ID: **10341**	RunNo: **14899**							
Prep Date: **11/14/2013**	Analysis Date: **11/19/2013**	SeqNo: **429709**	Units: **mg/Kg**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Petroleum Hydrocarbons, TR	100	20	100.0	0	104	80	120			

Sample ID **LCSD-10341**	SampType: **LCSD**	TestCode: **EPA Method 418.1: TPH**							
Client ID: **LCSS02**	Batch ID: **10341**	RunNo: **14899**							
Prep Date: **11/14/2013**	Analysis Date: **11/19/2013**	SeqNo: **429710**	Units: **mg/Kg**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Petroleum Hydrocarbons, TR	100	20	100.0	0	104	80	120	0	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 greater than 2 for VOA and TOC only.
- RL Reporting Detection Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1311617**

22-Nov-13

Client: R.T. Hicks Consultants, LTD

Project: Caza Ridge 4H

Sample ID **MB-10373**	SampType: **MBLK**	TestCode: **EPA Method 8015D: Diesel Range Organics**
Client ID: **PBS**	Batch ID: **10373**	RunNo: **14849**
Prep Date: **11/18/2013**	Analysis Date: **11/18/2013**	SeqNo: **428499** 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	9.4		10.00		94.2	66	131			

Sample ID **MB-10375**	SampType: **MBLK**	TestCode: **EPA Method 8015D: Diesel Range Organics**
Client ID: **PBS**	Batch ID: **10375**	RunNo: **14849**
Prep Date: **11/18/2013**	Analysis Date: **11/18/2013**	SeqNo: **428500** Units: **%REC**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: DNOP	9.1		10.00		91.3	66	131			

Sample ID **MB-10380**	SampType: **MBLK**	TestCode: **EPA Method 8015D: Diesel Range Organics**
Client ID: **PBS**	Batch ID: **10380**	RunNo: **14849**
Prep Date: **11/18/2013**	Analysis Date: **11/18/2013**	SeqNo: **428534** Units: **%REC**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: DNOP	8.6		10.00		86.0	66	131			

Sample ID **LCS-10373**	SampType: **LCS**	TestCode: **EPA Method 8015D: Diesel Range Organics**
Client ID: **LCSS**	Batch ID: **10373**	RunNo: **14849**
Prep Date: **11/18/2013**	Analysis Date: **11/18/2013**	SeqNo: **428570** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	48	10	50.00	0	95.2	62.1	127			
Surr: DNOP	4.5		5.000		90.9	66	131			

Sample ID **LCS-10375**	SampType: **LCS**	TestCode: **EPA Method 8015D: Diesel Range Organics**
Client ID: **LCSS**	Batch ID: **10375**	RunNo: **14849**
Prep Date: **11/18/2013**	Analysis Date: **11/18/2013**	SeqNo: **428571** Units: **%REC**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: DNOP	4.6		5.000		91.5	66	131			

Sample ID **LCS-10380**	SampType: **LCS**	TestCode: **EPA Method 8015D: Diesel Range Organics**
Client ID: **LCSS**	Batch ID: **10380**	RunNo: **14849**
Prep Date: **11/18/2013**	Analysis Date: **11/18/2013**	SeqNo: **428651** Units: **%REC**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: DNOP	4.4		5.000		88.3	66	131			

Qualifiers:

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

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1311617**

22-Nov-13

Client: R.T. Hicks Consultants, LTD

Project: Caza Ridge 4H

Sample ID **MB-10364** SampType: **MBLK** TestCode: **EPA Method 8015D: Gasoline Range**

Client ID: **PBS** Batch ID: **10364** RunNo: **14860**

Prep Date: **11/15/2013** Analysis Date: **11/18/2013** SeqNo: **428823** 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		91.3	74.5	129			

Sample ID **LCS-10364** SampType: **LCS** TestCode: **EPA Method 8015D: Gasoline Range**

Client ID: **LCSS** Batch ID: **10364** RunNo: **14860**

Prep Date: **11/15/2013** Analysis Date: **11/18/2013** SeqNo: **428824** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	25	5.0	25.00	0	99.8	74.5	126			
Surr: BFB	1000		1000		99.9	74.5	129			

Sample ID **1311617-001AMS** SampType: **MS** TestCode: **EPA Method 8015D: Gasoline Range**

Client ID: **Caza Ridge 4H Pit 3** Batch ID: **10364** RunNo: **14860**

Prep Date: **11/15/2013** Analysis Date: **11/18/2013** SeqNo: **428826** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	58	4.9	24.46	30.49	111	76	156			
Surr: BFB	2600		978.5		261	74.5	129			S

Sample ID **1311617-001AMSD** SampType: **MSD** TestCode: **EPA Method 8015D: Gasoline Range**

Client ID: **Caza Ridge 4H Pit 3** Batch ID: **10364** RunNo: **14860**

Prep Date: **11/15/2013** Analysis Date: **11/18/2013** SeqNo: **428827** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	50	4.9	24.46	30.49	81.2	76	156	13.5	17.7	
Surr: BFB	2400		978.5		242	74.5	129	0	0	S

Qualifiers:

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

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: 1311617 | RcptNo: 1

Received by/date: A.F. 11/14/13

Logged By: Ashley Gallegos 11/14/2013 9:35:00 AM

Completed By: Ashley Gallegos 11/14/2013 1:53:07 PM

Reviewed By: 11/15/13

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 ☐	# of preserved bottles checked for pH: (<2 or >12 unless noted)
13. Are matrices correctly identified on Chain of Custody?	Yes ☑	No ☐	Adjusted?
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 ☐	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	2.6	Good	Not Present			

Chain-of-Custody Record

Client: R.T. Hicks

Mailing Address:

Phone #: 2616-5004

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: Caza Ridge 4H

Project #:

Project Manager: Randall Hicks

Sampler:

On Ice: ☑ Yes ☐ No

Sample Temperature: 2.6°C

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.
1.12	305	Soil	CAZA RIDGE 4H PIT 3:1 FINAL MIX	2 GLASS		1311017 -001

Analysis Request

BTEX + MTBE + TMB's (8021)	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)					Air Bubbles (Y or N)
		X	X												

Date	Time	Relinquished by:	Received by:	Date	Time
11.14.13	935	Randall Hicks			
Date:	Time:	Relinquished by:	Received by:	Date	Time
				11/14/13	0935

Remarks:

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.

Protocols and Procedures used for the In-Place Burial

As described in the November 27, 2013 Burial Notice Letter (see Attachment 1) the closure of the temporary pit began prematurely as a result of a communication error between the RT Hicks office and the dirt contractor. The premature closure activities were terminated immediately upon discovery and resumed following completion of the waste characterization and formal notification.

In accordance with to 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.

1. The closure notice letter was submitted to the NMOCD District 1 Office on November 27, 2013 (Attachment 1). In-place burial field activities began prematurely on October 22, 2013, were terminated on October 23, 2013, and resumed on December 3, 2013.

2. The waste burial location and depth is in compliance with the siting criteria presented in the C-144 application submitted to the NMOCD District 1 Office on September 17, 2013 and approved on September 18, 2013.

3. From July 22 to October 9, 2013, fresh water from the initial frac flow-back was used via the drainage system in the inner cell to reduce the salt concentration of the waste. All free liquids (above the cuttings) were removed from the outer cell by September 12, 2013, the inner cell by October 9, 2013, and flow-back pit by December 4, 2013. The waste material was allowed to dry out until closure field activities began prematurely on October 22, 2013 and officially on December 3, 2013.

4. From October 22, to October 23, 2013 and from December 3, to December 4, 2013 the temporary pit contents were stabilized to a capacity sufficient to support the final cover, as verified by a paint filter test conducted by a representative of RT Hicks Consultants on December 4, 2013. The final mixing ratio was greater than 2:1 but did not exceed 3:1 (clean soil to waste material).

5. On September 12, 2013, prior to the initiation of closure activities, five-point composite samples were recovered from both the inner and outer cells of the temporary pit. These samples were mixed together according to the relative volume of waste material in each cell. The resulting sample was mixed with clean soil from the walls and dividers surrounding the temporary pit at a ratio of 3 parts clean soil to 1 part waste material in order to create a "stabilized sample". The stabilized sample was submitted to Cardinal Laboratories for analyses of GRO, DRO, MRO (EPA method 8015M), TPH (EPA method 418.1), BTEX (EPA method 8260B), and Chloride (SM4500). The results, as noted in the November 17, 2013 Closure Notice letter, indicated that the waste

material contaminant concentrations, stabilized at a ratio of 3:1 exceeded the concentration limits listed in Table II of 19.15.17.13 NMAC only for TPH (418.1) and Total BTEX (see letter in Attachment 1 and Lab report in Attachment 3).

On October 23, 2013, following the premature start-up of closure activities, a five-point composite sample was recovered from the remaining undisturbed waste, most of which was located on the outer edge of the outer cell. This sample should be considered conservative, with respect to hydrocarbons as the outer cell contained oil from the flow-back operation. The composite sample was mixed with clean soil from the walls and dividers surrounding the temporary pit at a ratio of 3 parts clean soil to 1 part waste material in order to create a "stabilized sample". The stabilized sample was submitted to Cardinal Laboratories for analyses of TPH (418.1) and Total BTEX. The results, as noted in the November 17, 2013 Closure Notice letter, indicated that the waste material contaminant concentrations, stabilized at a ratio of 3:1 exceeded the prescribed concentration limits listed in Table II of 19.15.17.13 NMAC only for TPH (418.1).

On November 12, 2013 a five-point sample was recovered from the stabilized waste within the temporary pit. The purpose of the sample was to determine the waste concentration of TPH by 418.1 using the more advanced silica gel sieve method and compare the results with an analysis of GRO+DRO+MRO. No effort was made to represent the correct volumes of the inner and outer cells since the premature mixing had made the task virtually impossible. The sample was submitted to Hall Environmental Laboratories for analyses of TPH (418.1) and GRO+DRO+MRO (8015D). The results, as noted in the November 17, 2013 Closure Notice letter, indicated that the waste material concentration did not exceed the prescribed limit listed in Table II of 19.15.17.13 NMAC for TPH (418.1) and was a much more favorable match to the TPH (418.1) versus GRO+DRO+MRO results from the September 12, 2013 samples.

6. Following the December 4, 2013 inspection, having achieved all applicable waste stabilization associated with in-place burial, the 20-mil string reinforced LLDPE liner from the flow-back pit was folded over the waste material in a manner that prevents the collection of infiltration water in the temporary pit and on the geomembrane cover after the soil cover is in place.

7. Once the geomembrane cover was in place, at least 4 feet of non-waste containing, uncontaminated, earthen material and topsoil was installed as prescribed in Paragraph (3) of Subsection H of 19.15.17.13 NMAC.

Stabilized Waste (12-4-13)

Paint Filter Test (12-4-13)

Final Cover and Topsoil (1-8-14)

Site Reclamation and Soil Cover Plan

After the temporary pit was closed, topsoil and subsoil was replaced to their original relative positions and contoured so as to achieve erosion control, long-term stability, and blend with the surrounding undisturbed area and topography according to Subsection H of 19.15.17.13 NMAC. There were no road or surface drainage features nearby that required restoration or preservation.

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 of about one foot. It is nowhere less than one foot of suitable material in order to establish vegetation at the site in accordance with Paragraph (5), Subsection H of 19.15.17.13 NMAC.

Re-vegetation Plan

Upon completion of the soil cover the surface of the topsoil contained small ripples from the bulldozer treads, therefore no additional soil preparation was required.

1. On January 8, 2014, an employee of the owners of the former Eagle Eye Excavation (a company that was disbanded during the pit closure operations) seeded the pit area by hand broadcast spreading 40 lbs. of seed over the 1.96-acre reclamation area. The seed was then covered with soil by dragging a heavy steel harrow across the area for several hours with a four-wheel drive pick-up truck.
2. The seed mix used for this site to reestablish the native perennial vegetative cover was the BLM #1 assortment.
3. During the next two growing seasons to prove viability, there will be no artificial irrigation of the vegetation.
4. The operator will repeat seeding or planting until it successfully achieves the required vegetative cover.
5. If conditions are not favorable for the establishment of vegetation, such as periods of drought, the operator may request that the division allow a delay in additional seeding until soil moisture conditions become favorable. The operator will notify the division when it successfully achieves re-vegetation.

Spreading the Seed

Covering the Seed

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

HOBBS OCD
SEP 18 2013
RECEIVED

State of New Mexico
Energy Minerals and Natural Resources
Department
Oil Conservation Division
1220 South St. Francis Dr.
Santa Fe, NM 87505

Form C-144
Revised June 6, 2013

For temporary pits, below-grade tanks, and multi-well fluid management pits, submit to the appropriate NMOCD District Office.
For permanent pits submit to the Santa Fe Environmental Bureau office and provide a copy to the appropriate NMOCD District Office.

Pit, Below-Grade Tank, or Proposed Alternative Method Permit or Closure Plan Application

Type of action:
- ☐ Below grade tank registration
- ☒ Permit of a pit or proposed alternative method
- ☐ Closure of a pit, below-grade tank, or proposed alternative method
- ☒ Modification to an existing permit/or registration
- ☐ Closure plan only submitted for an existing permitted or non-permitted pit, below-grade tank, or proposed alternative method

Instructions: Please submit one application (Form C-144) per individual pit, below-grade tank or alternative request

Please be advised that approval of this request does not relieve the operator of liability should operations result in pollution of surface water, ground water or the environment. Nor does approval relieve the operator of its responsibility to comply with any other applicable governmental authority's rules, regulations or ordinances.

1.
Operator: Caza Operating LLC OGRID #: 249099
Address: 200 North Loraine, Suite 1550, Midland, Texas 79701
Facility or well name: Caza Ridge "14" State Well No. 4H
API Number: 30-025-40936 OCD Permit Number: P1-05637
U/L or Qtr/Qtr P Section 14 Township 23S Range 34E County: Lea
Center of Proposed Design: Latitude 32.298141° N Longitude -103.433951° W NAD: ☒ 1927 ☐ 1983
Surface Owner: ☐ Federal ☒ State ☐ Private ☐ Tribal Trust or Indian Allotment

2.
☒ **Pit:** Subsection F, G or J of 19.15.17.11 NMAC
Temporary: ☒ Drilling ☐ Workover
☐ Permanent ☐ Emergency ☐ Cavitation ☐ P&A ☐ Multi-Well Fluid Management Low Chloride Drilling Fluid ☐ yes ☒ no
☒ Lined ☐ Unlined Liner type: Thickness 20 mil ☐ LLDPE ☒ HDPE ☐ PVC ☐ Other
☒ String-Reinforced
Liner Seams: ☒ Welded ☒ Factory ☐ Other Volume: 40,961 bbl Dimensions: L 116 x W 327 x D 6-8 ft (drilling) 12 ft (fluids cell)

3.
☐ **Below-grade tank:** Subsection I of 19.15.17.11 NMAC
Volume: bbl Type of fluid:
Tank Construction material:
☐ Secondary containment with leak detection ☐ Visible sidewalls, liner, 6-inch lift and automatic overflow shut-off
☐ Visible sidewalls and liner ☐ Visible sidewalls only ☐ Other
Liner type: Thickness mil ☐ HDPE ☐ PVC ☐ Other

4.
☐ **Alternative Method:**
Submittal of an exception request is required. Exceptions must be submitted to the Santa Fe Environmental Bureau office for consideration of approval.

5.
Fencing: Subsection D of 19.15.17.11 NMAC *(Applies to permanent pits, temporary pits, and below-grade tanks)*
☐ Chain link, six feet in height, two strands of barbed wire at top *(Required if located within 1000 feet of a permanent residence, school, hospital, institution or church)*
☒ Four foot height, four strands of barbed wire evenly spaced between one and four feet
☐ Alternate. Please specify

6.
Netting: Subsection E of 19.15.17.11 NMAC *(Applies to permanent pits and permanent open top tanks)*

☐ Screen ☐ Netting ☐ Other_____

☐ Monthly inspections (If netting or screening is not physically feasible)

7.
Signs: Subsection C of 19.15.17.11 NMAC

☐ 12"x 24", 2" lettering, providing Operator's name, site location, and emergency telephone numbers

☒ Signed in compliance with 19.15.16.8 NMAC

8.
Variances and Exceptions:

Justifications and/or demonstrations of equivalency are required. Please refer to 19.15.17 NMAC for guidance.

Please check a box if one or more of the following is requested, if not leave blank:

☐ Variance(s): Requests must be submitted to the appropriate division district for consideration of approval.

☐ Exception(s): Requests must be submitted to the Santa Fe Environmental Bureau office for consideration of approval.

9.
Siting Criteria (regarding permitting): 19.15.17.10 NMAC

Instructions: The applicant must demonstrate compliance for each siting criteria below in the application. Recommendations of acceptable source material are provided below. **Siting criteria does not apply to drying pads or above-grade tanks.**

General siting	
Ground water is less than 25 feet below the bottom of a low chloride temporary pit or below-grade tank. - ☐ NM Office of the State Engineer - iWATERS database search; ☐ USGS; ☐ Data obtained from nearby wells	☐ Yes ☐ No ☒ NA
Ground water is less than 50 feet below the bottom of a Temporary pit, permanent pit, or Multi-Well Fluid Management pit . NM Office of the State Engineer - iWATERS database search; USGS; Data obtained from nearby wells **See Figures 1&2**	☐ Yes ☒ No ☐ NA
Within incorporated municipal boundaries or within a defined municipal fresh water well field covered under a municipal ordinance adopted pursuant to NMSA 1978, Section 3-27-3, as amended. **(Does not apply to below grade tanks) See Figure 5** - Written confirmation or verification from the municipality; Written approval obtained from the municipality	☐ Yes ☒ No
Within the area overlying a subsurface mine. **(Does not apply to below grade tanks) See Figure 7** - Written confirmation or verification or map from the NM EMNRD-Mining and Mineral Division	☐ Yes ☒ No
Within an unstable area. **(Does not apply to below grade tanks) See Figure 8** - Engineering measures incorporated into the design; NM Bureau of Geology & Mineral Resources; USGS; NM Geological Society; Topographic map	☐ Yes ☒ No
Within a 100-year floodplain. **(Does not apply to below grade tanks) See Figure 9** - FEMA map	☐ Yes ☒ No
Below Grade Tanks	
Within 100 feet of a continuously flowing watercourse, significant watercourse, lake bed, sinkhole, wetland or playa lake (measured from the ordinary high-water mark). - *Topographic map; Visual inspection (certification) of the proposed site*	☐ Yes ☐ No
Within 200 horizontal feet of a spring or a fresh water well used for public or livestock consumption;. - NM Office of the State Engineer - iWATERS database search; Visual inspection (certification) of the proposed site	☐ Yes ☐ No
Temporary Pit using Low Chloride Drilling Fluid *(maximum chloride content 15,000 mg/liter)*	
Within 100 feet of a continuously flowing watercourse, or any other significant watercourse or within 200 feet of any lakebed, sinkhole, or playa lake (measured from the ordinary high-water mark). (Applies to low chloride temporary pits.) - Topographic map; Visual inspection (certification) of the proposed site	☐ Yes ☐ No
Within 300 feet from a occupied permanent residence, school, hospital, institution, or church in existence at the time of initial application. - Visual inspection (certification) of the proposed site; Aerial photo; Satellite image	☐ Yes ☐ No
Within 200 horizontal feet of a spring or a private, domestic fresh water well used by less than five households for domestic or stock watering purposes, or 300feet of any other fresh water well or spring, in existence at the time of the initial application. NM Office of the State Engineer - iWATERS database search; Visual inspection (certification) of the proposed site	☐ Yes ☐ No

Within 100 feet of a wetland. - US Fish and Wildlife Wetland Identification map; Topographic map; Visual inspection (certification) of the proposed site	☐ Yes ☐ No
Temporary Pit Non-low chloride drilling fluid	
Within 300 feet of a continuously flowing watercourse, or any other significant watercourse, or within 200 feet of any lakebed, sinkhole, or playa lake (measured from the ordinary high-water mark). **See Figure 3** - Topographic map; Visual inspection (certification) of the proposed site	☐ Yes ☒ No
Within 300 feet from a permanent residence, school, hospital, institution, or church in existence at the time of initial application. - Visual inspection (certification) of the proposed site; Aerial photo; Satellite image. **See Figure 4**	☐ Yes ☒ No
Within 500 horizontal feet of a spring or a private, domestic fresh water well used by less than five households for domestic or stock watering purposes, or 1000 feet of any other fresh water well or spring, in the existence at the time of the initial application; - NM Office of the State Engineer - iWATERS database search; Visual inspection (certification) of the proposed site **See Figures 1 & 2**	☐ Yes ☒ No
Within 300 feet of a wetland. **See Figure 6** - US Fish and Wildlife Wetland Identification map; Topographic map; Visual inspection (certification) of the proposed site	☐ Yes ☒ No
Permanent Pit or Multi-Well Fluid Management Pit	
Within 300 feet of a continuously flowing watercourse, or 200 feet of any other significant watercourse, or lakebed, sinkhole, or playa lake (measured from the ordinary high-water mark). - Topographic map; Visual inspection (certification) of the proposed site	☐ Yes ☐ No
Within 1000 feet from a permanent residence, school, hospital, institution, or church in existence at the time of initial application. - Visual inspection (certification) of the proposed site; Aerial photo; Satellite image	☐ Yes ☐ No
Within 500 horizontal feet of a spring or a fresh water well used for domestic or stock watering purposes, in existence at the time of initial application. - NM Office of the State Engineer - iWATERS database search; Visual inspection (certification) of the proposed site	☐ Yes ☐ No
Within 500 feet of a wetland. - US Fish and Wildlife Wetland Identification map; Topographic map; Visual inspection (certification) of the proposed site	☐ Yes ☐ No

10.

Temporary Pits, Emergency Pits, and Below-grade Tanks Permit Application Attachment Checklist: Subsection B of 19.15.17.9 NMAC

Instructions: Each of the following items must be attached to the application. Please indicate, by a check mark in the box, that the documents are attached.

☐ Hydrogeologic Report (Below-grade Tanks) - based upon the requirements of Paragraph (4) of Subsection B of 19.15.17.9 NMAC
☒ Hydrogeologic Data (Temporary and Emergency Pits) - based upon the requirements of Paragraph (2) of Subsection B of 19.15.17.9 NMAC
☒ Siting Criteria Compliance Demonstrations - based upon the appropriate requirements of 19.15.17.10 NMAC
☒ Design Plan - based upon the appropriate requirements of 19.15.17.11 NMAC
☒ Operating and Maintenance Plan - based upon the appropriate requirements of 19.15.17.12 NMAC
☒ Closure Plan (Please complete Boxes 14 through 18, if applicable) - based upon the appropriate requirements of Subsection C of 19.15.17.9 NMAC and 19.15.17.13 NMAC

☐ Previously Approved Design (attach copy of design) API Number: _____ or Permit Number: _____

11.

Multi-Well Fluid Management Pit Checklist: Subsection B of 19.15.17.9 NMAC

Instructions: Each of the following items must be attached to the application. Please indicate, by a check mark in the box, that the documents are attached.

☐ Design Plan - based upon the appropriate requirements of 19.15.17.11 NMAC
☐ Operating and Maintenance Plan - based upon the appropriate requirements of 19.15.17.12 NMAC
☐ A List of wells with approved application for permit to drill associated with the pit.
☐ Closure Plan (Please complete Boxes 14 through 18, if applicable) - based upon the appropriate requirements of Subsection C of 19.15.17.9 NMAC and 19.15.17.13 NMAC
☐ Hydrogeologic Data - based upon the requirements of Paragraph (4) of Subsection B of 19.15.17.9 NMAC
☐ Siting Criteria Compliance Demonstrations - based upon the appropriate requirements of 19.15.17.10 NMAC

☐ Previously Approved Design (attach copy of design) API Number: _____ or Permit Number: _____

12.
Permanent Pits Permit Application Checklist: Subsection B of 19.15.17.9 NMAC
Instructions: Each of the following items must be attached to the application. Please indicate, by a check mark in the box, that the documents are attached.

- ☐ Hydrogeologic Report - based upon the requirements of Paragraph (1) of Subsection B of 19.15.17.9 NMAC
- ☐ Siting Criteria Compliance Demonstrations - based upon the appropriate requirements of 19.15.17.10 NMAC
- ☐ Climatological Factors Assessment
- ☐ Certified Engineering Design Plans - based upon the appropriate requirements of 19.15.17.11 NMAC
- ☐ Dike Protection and Structural Integrity Design - based upon the appropriate requirements of 19.15.17.11 NMAC
- ☐ Leak Detection Design - based upon the appropriate requirements of 19.15.17.11 NMAC
- ☐ Liner Specifications and Compatibility Assessment - based upon the appropriate requirements of 19.15.17.11 NMAC
- ☐ Quality Control/Quality Assurance Construction and Installation Plan
- ☐ Operating and Maintenance Plan - based upon the appropriate requirements of 19.15.17.12 NMAC
- ☐ Freeboard and Overtopping Prevention Plan - based upon the appropriate requirements of 19.15.17.11 NMAC
- ☐ Nuisance or Hazardous Odors, including H_2S, Prevention Plan
- ☐ Emergency Response Plan
- ☐ Oil Field Waste Stream Characterization
- ☐ Monitoring and Inspection Plan
- ☐ Erosion Control Plan
- ☐ Closure Plan - based upon the appropriate requirements of Subsection C of 19.15.17.9 NMAC and 19.15.17.13 NMAC

13.
Proposed Closure: 19.15.17.13 NMAC
Instructions: Please complete the applicable boxes, Boxes 14 through 18, in regards to the proposed closure plan.

Type: ☒ Drilling ☐ Workover ☐ Emergency ☐ Cavitation ☐ P&A ☐ Permanent Pit ☐ Below-grade Tank ☐ Multi-well Fluid Management Pit ☐ Alternative

Proposed Closure Method: ☐ Waste Excavation and Removal
☐ Waste Removal (Closed-loop systems only)
☒ On-site Closure Method (Only for temporary pits and closed-loop systems)
☒ In-place Burial ☐ On-site Trench Burial
☐ Alternative Closure Method

14.
Waste Excavation and Removal Closure Plan Checklist: (19.15.17.13 NMAC) ***Instructions: Each of the following items must be attached to the closure plan. Please indicate, by a check mark in the box, that the documents are attached.***

- ☐ Protocols and Procedures - based upon the appropriate requirements of 19.15.17.13 NMAC
- ☐ Confirmation Sampling Plan (if applicable) - based upon the appropriate requirements of Subsection C of 19.15.17.13 NMAC
- ☐ Disposal Facility Name and Permit Number (for liquids, drilling fluids and drill cuttings)
- ☐ Soil Backfill and Cover Design Specifications - based upon the appropriate requirements of Subsection H of 19.15.17.13 NMAC
- ☐ Re-vegetation Plan - based upon the appropriate requirements of Subsection H of 19.15.17.13 NMAC
- ☐ Site Reclamation Plan - based upon the appropriate requirements of Subsection H of 19.15.17.13 NMAC

15.
Siting Criteria (regarding on-site closure methods only): 19.15.17.10 NMAC
Instructions: Each siting criteria requires a demonstration of compliance in the closure plan. Recommendations of acceptable source material are provided below. Requests regarding changes to certain siting criteria require justifications and/or demonstrations of equivalency. Please refer to 19.15.17.10 NMAC for guidance.

Ground water is less than 25 feet below the bottom of the buried waste. - NM Office of the State Engineer - iWATERS database search; USGS; Data obtained from nearby wells	☐ Yes ☒ No ☐ NA
Ground water is between 25-50 feet below the bottom of the buried waste - NM Office of the State Engineer - iWATERS database search; USGS; Data obtained from nearby wells	☐ Yes ☒ No ☐ NA
Ground water is more than 100 feet below the bottom of the buried waste. - NM Office of the State Engineer - iWATERS database search; USGS; Data obtained from nearby wells	☒ Yes ☐ No ☐ NA
Within 100 feet of a continuously flowing watercourse, or 200 feet of any other significant watercourse, lakebed, sinkhole, or playa lake (measured from the ordinary high-water mark). - Topographic map; Visual inspection (certification) of the proposed site	☐ Yes ☒ No
Within 300 feet from a permanent residence, school, hospital, institution, or church in existence at the time of initial application. - Visual inspection (certification) of the proposed site; Aerial photo; Satellite image	☐ Yes ☒ No
Within 300 horizontal feet of a private, domestic fresh water well or spring used for domestic or stock watering purposes, in existence at the time of initial application. - NM Office of the State Engineer - iWATERS database; Visual inspection (certification) of the proposed site	☐ Yes ☒ No
Written confirmation or verification from the municipality; Written approval obtained from the municipality	☐ Yes ☒ No
Within 300 feet of a wetland. US Fish and Wildlife Wetland Identification map; Topographic map; Visual inspection (certification) of the proposed site	☐ Yes ☒ No
Within incorporated municipal boundaries or within a defined municipal fresh water well field covered under a municipal ordinance	

adopted pursuant to NMSA 1978, Section 3-27-3, as amended. - Written confirmation or verification from the municipality; Written approval obtained from the municipality	☐ Yes ☒ No
Within the area overlying a subsurface mine. - Written confirmation or verification or map from the NM EMNRD-Mining and Mineral Division	☐ Yes ☒ No
Within an unstable area. - Engineering measures incorporated into the design; NM Bureau of Geology & Mineral Resources; USGS; NM Geological Society; Topographic map	☐ Yes ☒ No
Within a 100-year floodplain. - FEMA map	☐ Yes ☒ No

16.
On-Site Closure Plan Checklist: (19.15.17.13 NMAC) ***Instructions: Each of the following items must be attached to the closure plan. Please indicate, by a check mark in the box, that the documents are attached.***

- ☒ Siting Criteria Compliance Demonstrations - based upon the appropriate requirements of 19.15.17.10 NMAC
- ☒ Proof of Surface Owner Notice - based upon the appropriate requirements of Subsection E of 19.15.17.13 NMAC
- ☐ Construction/Design Plan of Burial Trench (if applicable) based upon the appropriate requirements of Subsection K of 19.15.17.11 NMAC
- ☒ Construction/Design Plan of Temporary Pit (for in-place burial of a drying pad) - based upon the appropriate requirements of 19.15.17.11 NMAC
- ☒ Protocols and Procedures - based upon the appropriate requirements of 19.15.17.13 NMAC
- ☐ Confirmation Sampling Plan (if applicable) - based upon the appropriate requirements of 19.15.17.13 NMAC
- ☒ Waste Material Sampling Plan - based upon the appropriate requirements of 19.15.17.13 NMAC
- ☐ Disposal Facility Name and Permit Number (for liquids, drilling fluids and drill cuttings or in case on-site closure standards cannot be achieved)
- ☒ Soil Cover Design - based upon the appropriate requirements of Subsection H of 19.15.17.13 NMAC
- ☒ Re-vegetation Plan - based upon the appropriate requirements of Subsection H of 19.15.17.13 NMAC
- ☒ Site Reclamation Plan - based upon the appropriate requirements of Subsection H of 19.15.17.13 NMAC

17.
Operator Application Certification:

I hereby certify that the information submitted with this application is true, accurate and complete to the best of my knowledge and belief.

Name (Print): Richard Wright Title: Production Superintendent

Signature: Richard L. Wright Date: September 17, 2013

e-mail address: rwright@cazapetro.com Telephone: (432) 682-7472 (x1006)

18.
OCD Approval: ☒ MOD Permit Application (including closure plan) ☐ Closure Plan (only) ☐ OCD Conditions (see attachment)

OCD Representative Signature: Geoffrey Leking **Approval Date:** 9/18/13

Title: Environmental Specialist **OCD Permit Number:** P1-05637

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) NA (State Land)
- ☒ Plot Plan (for on-site closures and temporary pits)
- ☐ Confirmation Sampling Analytical Results (if applicable) NA (In-Place Burial)
- ☒ Waste Material Sampling Analytical Results (required for on-site closure)
- ☐ Disposal Facility Name and Permit Number NA (No Off-site Disposal)
- ☒ Soil Backfilling and Cover Installation
- ☒ Re-vegetation Application Rates and Seeding Technique
- ☐ Site Reclamation (Photo Documentation)

On-site Closure Location: Latitude N 32.2985698° Longitude W -103.434607° 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): Richard L. Wright Title: Production Superintendent

Signature: Richard L. Wright Date: January 31, 2014

e-mail address: rwight@cazapetro.com Telephone: (432) 682-7472 (x-1006)