Form 3160-3
(June 2015)

FORM APPROVED
OMB No. 1004-0137
Expires: January 31, 2018

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

APPLICATION FOR PERMIT TO DRILL OR REENTER

5. Lease Serial No.: NMNM086172

6. If Indian, Allotee or Tribe Name:

1a. Type of work: ☑ DRILL ☐ REENTER

1b. Type of Well: ☑ Oil Well ☐ Gas Well ☐ Other

1c. Type of Completion: ☐ Hydraulic Fracturing ☑ Single Zone ☐ Multiple Zone

7. If Unit or CA Agreement, Name and No.:

8. Lease Name and Well No.: DESERT ROSE 17-8 FEDERAL [317383] 13H

2. Name of Operator: CAZA OPERATING LLC [249099]

9. API Well No.: 30-025-50454

3a. Address: 200 N. Loraine Street, Suite 1550, Midland , TX 79701

3b. Phone No. *(include area code)*: (432) 682-7424

10. Field and Pool, or Exploratory: [24250] WC-025 G-08 S203506D/BONE SPRING

4. Location of Well *(Report location clearly and in accordance with any State requirements.*)*

At surface: SESW / 190 FSL / 2000 FWL / LAT 32.5664365 / LONG -103.4815371

At proposed prod. zone: NESW / 2630 FSL / 2210 FWL / LAT 32.5876734 / LONG -103.4808613

11. Sec., T. R. M. or Blk. and Survey or Area: SEC 17/T20S/R35E/NMP

14. Distance in miles and direction from nearest town or post office*: 26 miles

12. County or Parish: LEA

13. State: NM

15. Distance from proposed* location to nearest property or lease line, ft. (Also to nearest drig. unit line, if any): 190 feet

16. No of acres in lease:

17. Spacing Unit dedicated to this well: 240.0

18. Distance from proposed location* to nearest well, drilling, completed, applied for, on this lease, ft.: 1300 feet

19. Proposed Depth: 10570 feet / 18429 feet

20. BLM/BIA Bond No. in file: FED: NMB000471

21. Elevations (Show whether DF, KDB, RT, GL, etc.): 3693 feet

22. Approximate date work will start*: 02/27/2021

23. Estimated duration: 30 days

24. Attachments

The following, completed in accordance with the requirements of Onshore Oil and Gas Order No. 1, and the Hydraulic Fracturing rule per 43 CFR 3162.3-3 (as applicable)

1. Well plat certified by a registered surveyor.
2. A Drilling Plan.
3. A Surface Use Plan (if the location is on National Forest System Lands, the SUPO must be filed with the appropriate Forest Service Office).
4. Bond to cover the operations unless covered by an existing bond on file (see Item 20 above).
5. Operator certification.
6. Such other site specific information and/or plans as may be requested by the BLM.

25. Signature	Name *(Printed/Typed)*	Date
(Electronic Submission)	STEVE MORRIS / Ph: (432) 682-7424	11/25/2019

Title: Engineer

Approved by *(Signature)*	Name *(Printed/Typed)*	Date
(Electronic Submission)	Cody Layton / Ph: (575) 234-5959	09/28/2021

Title	Office
Assistant Field Manager Lands & Minerals	Carlsbad Field Office

Application approval does not warrant or certify that the applicant holds legal or equitable title to those rights in the subject lease which would entitle the applicant to conduct operations thereon.
Conditions of approval, if any, are attached.

Title 18 U.S.C. Section 1001 and Title 43 U.S.C. Section 1212, make it a crime for any person knowingly and willfully to make to any department or agency of the United States any false, fictitious or fraudulent statements or representations as to any matter within its jurisdiction.

NGMP Rec 07/18/2022

KZ
08/11/2022

SL

APPROVED WITH CONDITIONS

(Continued on page 2)

*(Instructions on page 2)

Approval Date: 09/28/2021

District I
1625 N. French Dr., Hobbs, NM 88240
Phone: (575) 393-6161 Fax: (575) 393-0720
District II
811 S. First St., Artesia, NM 88210
Phone: (575) 748-1283 Fax: (575) 748-9720
District III
1000 Rio Brazos Road, Aztec, NM 87410
Phone: (505) 334-6178 Fax: (505) 334-6170
District IV
1220 S. St. Francis Dr., Santa Fe, NM 87505
Phone: (505) 476-3460 Fax: (505) 476-3462

State of New Mexico
Energy, Minerals & Natural Resources Department
OIL CONSERVATION DIVISION
1220 South St. Francis Dr.
Santa Fe, NM 87505

Form C-102
Revised August 1, 2011
Submit one copy to appropriate
District Office

☐ AMENDED REPORT

FEATHERSTONE;BONE SPRING

WELL LOCATION AND ACREAGE DEDICATION PLAT

1 API Number	2 Pool Code	3 Pool Name
30-025-50454	~~97983~~ 24250	~~WC-025 G-08 S203506D; BONE SPRING~~

4 Property Code	5 Property Name	6 Well Number
317383	DESERT ROSE 17-8 FEDERAL	13H

7 OGRID No.	8 Operator Name	9 Elevation
249099	CAZA OPERATING, LLC	3693'

10 Surface Location

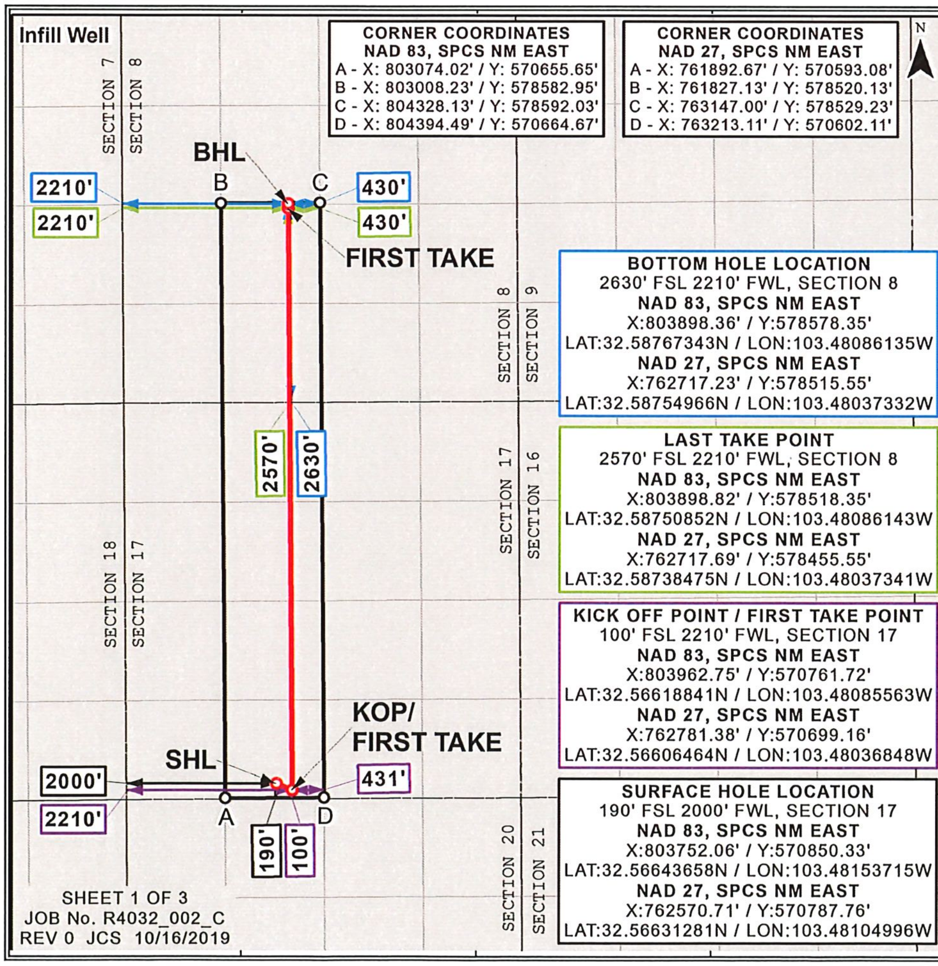
UL or lot no.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County
N	17	20S	35E		190	SOUTH	2000	WEST	LEA

11 Bottom Hole Location If Different From Surface

UL or lot no.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County
K	8	20S	35E		2630	SOUTH	2210	WEST	LEA

12 Dedicated Acres	13 Joint or Infill	14 Consolidation Code	15 Order No.
240.0			

No allowable will be assigned to this completion until all interests have been consolidated or a non-standard unit has been approved by the division.



17 OPERATOR CERTIFICATION

I hereby certify that the information contained herein is true and complete to the best of my knowledge and belief, and that this organization either owns a working interest or unleased mineral interest in the land including the proposed bottom hole location or has a right to drill this well at this location pursuant to a contract with an owner of such a mineral or working interest, or to a voluntary pooling agreement or a compulsory pooling order heretofore entered by the division.

Signature: [signature] Date: 11/11/2019

Printed Name: Steve Morris

E-mail Address: steve.morris@morcorengineering.com

18 SURVEYOR CERTIFICATION

I hereby certify that the well location shown on this plat was plotted from field notes of actual surveys made by me or under my supervision, and that the same is true and correct to the best of my belief.

Date of Survey: NOVEMBER 5, 2019

Signature and Seal of Professional Surveyor: [seal: DAVID W. MYERS, NEW MEXICO, 11403, PROFESSIONAL SURVEYOR] [signature]

Certificate Number
DAVID W. MYERS 11403

Distances/areas relative to NAD 83 Combined Scale Factor: 0.99981205 Convergence: 00°26'57.22001"

PECOS DISTRICT
DRILLING CONDITIONS OF APPROVAL

OPERATOR'S NAME:	Caza Operating LLC
WELL NAME & NO.:	Desert Rose 17-8 Federal 13H
LOCATION:	Sec 17-20S-35E-NMP
COUNTY:	Lea County, New Mexico

COA

H2S	◉ Yes	○ No	
Potash	◉ None	○ Secretary	○ R-111-P
Cave/Karst Potential	◉ Low	○ Medium	○ High
Cave/Karst Potential	○ Critical		
Variance	○ None	◉ Flex Hose	○ Other
Wellhead	○ Conventional	◉ Multibowl	○ Both
Other	☐ 4 String Area	☐ Capitan Reef	☐ WIPP
Other	☐ Fluid Filled	☐ Cement Squeeze	☐ Pilot Hole
Special Requirements	☐ Water Disposal	☑ COM	☐ Unit

A. HYDROGEN SULFIDE

A Hydrogen Sulfide (H2S) Drilling Plan shall be activated 500 feet prior to drilling into the Seven Rivers / Yates formation. As a result, the Hydrogen Sulfide area must meet Onshore Order 6 requirements, which includes equipment and personnel/public protection items. If Hydrogen Sulfide is encountered, please provide measured values and formations to the BLM.

B. CASING

1. The 20 inch conductor casing shall be set at approximately 120 feet and cemented to the surface.

2. The **13-3/8** inch surface casing shall be set at approximately 2000 feet (a minimum of 25 feet (Lea County) into the Rustler Anhydrite and above the salt) and cemented to the surface.

    a. If cement does not circulate to the surface, the appropriate BLM office shall be notified and a temperature survey utilizing an electronic type temperature survey with surface log readout will be used or a cement bond log shall be run to verify the top of the cement. Temperature survey will be run a minimum of six hours after pumping cement and ideally between 8-10 hours after completing the cement job.
    b. Wait on cement (WOC) time for a primary cement job will be a minimum of **8**

 Approval Date: 09/28/2021

hours or 500 pounds compressive strength, whichever is greater. (This is to include the lead cement)

c. Wait on cement (WOC) time for a remedial job will be a minimum of 4 hours after bringing cement to surface or 500 pounds compressive strength, whichever is greater.
d. If cement falls back, remedial cementing will be done prior to drilling out that string.

3. The minimum required fill of cement behind the **9-5/8** inch intermediate casing is:

Operator has proposed a DV tool, the depth may be adjusted as long as the cement is changed proportionally. The DV tool may be cancelled if cement circulates to surface on the first stage.

a. First stage to DV tool: Cement to circulate. If cement does not circulate off the DV tool, contact the appropriate BLM office before proceeding with second stage cement job.

b. Second stage above DV tool:

- Cement to surface. If cement does not circulate, contact the appropriate BLM office.

4. The minimum required fill of cement behind the **5 1/2** inch production casing is:

- Cement should tie-back at least **200 feet** into previous casing string. Operator shall provide method of verification.

C. PRESSURE CONTROL

1. Variance approved to use flex line from BOP to choke manifold. Manufacturer's specification to be readily available. No external damage to flex line. Flex line to be installed as straight as possible (no hard bends).'

2. Operator has proposed a multi-bowl wellhead assembly. This assembly will only be tested when installed on the surface casing. Minimum working pressure of the blowout preventer (BOP) and related equipment (BOPE) required for drilling below the surface casing shoe shall be **5000 (5M)** psi.

a. Wellhead shall be installed by manufacturer's representatives, submit documentation with subsequent sundry.
b. If the welding is performed by a third party, the manufacturer's representative shall monitor the temperature to verify that it does not exceed the maximum temperature of the seal.
c. Manufacturer representative shall install the test plug for the initial BOP test.

d. If the cement does not circulate and one inch operations would have been possible with a standard wellhead, the well head shall be cut off, cementing operations performed and another wellhead installed.
e. Whenever any seal subject to test pressure is broken, all the tests in OOGO2.III.A.2.i must be followed.

D. SPECIAL REQUIREMENT (S)

Communitization Agreement

- The operator will submit a Communitization Agreement to the Santa Fe Office, 301 Dinosaur Trail Santa Fe, New Mexico 87508, at least 90 days before the anticipated date of first production from a well subject to a spacing order issued by the New Mexico Oil Conservation Division. The Communitization Agreement will include the signatures of all working interest owners in all Federal and Indian leases subject to the Communitization Agreement (i.e., operating rights owners and lessees of record), or certification that the operator has obtained the written signatures of all such owners and will make those signatures available to the BLM immediately upon request.
- If the operator does not comply with this condition of approval, the BLM may take enforcement actions that include, but are not limited to, those specified in 43 CFR 3163.1.
- In addition, the well sign shall include the surface and bottom hole lease numbers. When the Communitization Agreement number is known, it shall also be on the sign.

GENERAL REQUIREMENTS

The BLM is to be notified in advance for a representative to witness:

a. Spudding well (minimum of 24 hours)
b. Setting and/or Cementing of all casing strings (minimum of 4 hours)
c. BOPE tests (minimum of 4 hours)

☒ Eddy County
Call the Carlsbad Field Office, 620 East Greene St., Carlsbad, NM 88220, (575) 361-2822

☒ Lea County
Call the Hobbs Field Station, 414 West Taylor, Hobbs NM 88240, (575) 393-3612

1. Unless the production casing has been run and cemented or the well has been properly plugged, the drilling rig shall not be removed from over the hole without prior approval.

a. In the event the operator has proposed to drill multiple wells utilizing a skid/walking rig. Operator shall secure the wellbore on the current well, after installing and testing the wellhead, by installing a blind flange of like pressure rating to the wellhead and a pressure gauge that can be monitored while drilling is performed on the other well(s).
b. When the operator proposes to set surface casing with Spudder Rig
   - Notify the BLM when moving in and removing the Spudder Rig.
   - Notify the BLM when moving in the 2nd Rig. Rig to be moved in within 90 days of notification that Spudder Rig has left the location.
   - BOP/BOPE test to be conducted per Onshore Oil and Gas Order No. 2 as soon as 2nd Rig is rigged up on well.

2. Floor controls are required for 3M or Greater systems. These controls will be on the rig floor, unobstructed, readily accessible to the driller and will be operational at all times during drilling and/or completion activities. Rig floor is defined as the area immediately around the rotary table; the area immediately above the substructure on which the draw works are located, this does not include the dog house or stairway area.

3. The record of the drilling rate along with the GR/N well log run from TD to surface (horizontal well – vertical portion of hole) shall be submitted to the BLM office as well as all other logs run on the borehole 30 days from completion. If available, a digital copy of the logs is to be submitted in addition to the paper copies. The Rustler top and top and bottom of Salt are to be recorded on the Completion Report.

A. CASING

1. Changes to the approved APD casing program need prior approval if the items substituted are of lesser grade or different casing size or are Non-API. The Operator can exchange the components of the proposal with that of superior strength (i.e. changing from J-55 to N-80, or from 36# to 40#). Changes to the approved cement program need prior approval if the altered cement plan has less volume or strength or if the changes are substantial (i.e. Multistage tool, ECP, etc.). The initial wellhead installed on the well will remain on the well with spools used as needed.

2. Wait on cement (WOC) for Potash Areas: After cementing but before commencing any tests, the casing string shall stand cemented under pressure until both of the following conditions have been met: 1) cement reaches a minimum compressive strength of 500 psi for all cement blends, 2) until cement has been in place at least 24 hours. WOC time will be recorded in the driller's log. The casing intergrity test can be done (prior to the cement setting up) immediately after bumping the plug.

3. Wait on cement (WOC) for Water Basin: After cementing but before commencing any tests, the casing string shall stand cemented under pressure until both of the following conditions have been met: 1) cement reaches a minimum compressive strength of 500 psi at the shoe, 2) until cement has been in place at least 8 hours.

WOC time will be recorded in the driller's log. See individual casing strings for details regarding lead cement slurry requirements. The casing intergrity test can be done (prior to the cement setting up) immediately after bumping the plug.

4. Provide compressive strengths including hours to reach required 500 pounds compressive strength prior to cementing each casing string. Have well specific cement details onsite prior to pumping the cement for each casing string.

5. No pea gravel permitted for remedial or fall back remedial without prior authorization from the BLM engineer.

6. On that portion of any well approved for a 5M BOPE system or greater, a pressure integrity test of each casing shoe shall be performed. Formation at the shoe shall be tested to a minimum of the mud weight equivalent anticipated to control the formation pressure to the next casing depth or at total depth of the well. This test shall be performed before drilling more than 20 feet of new hole.

7. If hardband drill pipe is rotated inside casing, returns will be monitored for metal. If metal is found in samples, drill pipe will be pulled and rubber protectors which have a larger diameter than the tool joints of the drill pipe will be installed prior to continuing drilling operations.
8. Whenever a casing string is cemented in the R-111-P potash area, the NMOCD requirements shall be followed.

B. PRESSURE CONTROL

1. All blowout preventer (BOP) and related equipment (BOPE) shall comply with well control requirements as described in Onshore Oil and Gas Order No. 2 and API RP 53 Sec. 17.

2. If a variance is approved for a flexible hose to be installed from the BOP to the choke manifold, the following requirements apply: The flex line must meet the requirements of API 16C. Check condition of flexible line from BOP to choke manifold, replace if exterior is damaged or if line fails test. Line to be as straight as possible with no hard bends and is to be anchored according to Manufacturer's requirements. The flexible hose can be exchanged with a hose of equal size and equal or greater pressure rating. Anchor requirements, specification sheet and hydrostatic pressure test certification matching the hose in service, to be onsite for review. These documents shall be posted in the company man's trailer and on the rig floor.

3. 5M or higher system requires an HCR valve, remote kill line and annular to match. The remote kill line is to be installed prior to testing the system and tested to stack pressure.

4. If the operator has proposed a multi-bowl wellhead assembly in the APD. The following requirements must be met:

a. Wellhead shall be installed by manufacturer's representatives, submit documentation with subsequent sundry.
b. If the welding is performed by a third party, the manufacturer's representative shall monitor the temperature to verify that it does not exceed the maximum temperature of the seal.
c. Manufacturer representative shall install the test plug for the initial BOP test.
d. Whenever any seal subject to test pressure is broken, all the tests in OOGO2.III.A.2.i must be followed.
e. If the cement does not circulate and one inch operations would have been possible with a standard wellhead, the well head shall be cut off, cementing operations performed and another wellhead installed.

5. The appropriate BLM office shall be notified a minimum of 4 hours in advance for a representative to witness the tests.

a. In a water basin, for all casing strings utilizing slips, these are to be set as soon as the crew and rig are ready and any fallback cement remediation has been done. The casing cut-off and BOP installation can be initiated four hours after installing the slips, which will be approximately six hours after bumping the plug. For those casing strings not using slips, the minimum wait time before cut-off is eight hours after bumping the plug. BOP/BOPE testing can begin after cut-off or once cement reaches 500 psi compressive strength (including lead when specified), whichever is greater. However, if the float does not hold, cut-off cannot be initiated until cement reaches 500 psi compressive strength (including lead when specified).

b. In potash areas, for all casing strings utilizing slips, these are to be set as soon as the crew and rig are ready and any fallback cement remediation has been done. For all casing strings, casing cut-off and BOP installation can be initiated at twelve hours after bumping the plug. However, **no tests** shall commence until the cement has had a minimum of 24 hours setup time, except the casing pressure test can be initiated immediately after bumping the plug (only applies to single stage cement jobs).

c. The tests shall be done by an independent service company utilizing a test plug not a cup or J-packer. The operator also has the option of utilizing an independent tester to test without a plug (i.e. against the casing) pursuant to Onshore Order 2 with the pressure not to exceed 70% of the burst rating for the casing. Any test against the casing must meet the WOC time for water basin (8 hours) or potash (24 hours) or 500 pounds compressive strength, whichever is greater, prior to initiating the test (see casing segment as lead cement may be critical item).

d. The test shall be run on a 5000 psi chart for a 2-3M BOP/BOP, on a 10000 psi chart for a 5M BOP/BOPE and on a 15000 psi chart for a 10M BOP/BOPE. If a linear chart is used, it shall be a one hour chart. A circular chart shall have a maximum 2 hour clock. If a twelve hour or twenty-four hour chart is used, tester shall make a notation that it is run with a two hour clock.

e. The results of the test shall be reported to the appropriate BLM office.

f. All tests are required to be recorded on a calibrated test chart. A copy of the BOP/BOPE test chart and a copy of independent service company test will be submitted to the appropriate BLM office.

g. The BOP/BOPE test shall include a low pressure test from 250 to 300 psi. The test will be held for a minimum of 10 minutes if test is done with a test plug and 30 minutes without a test plug. This test shall be performed prior to the test at full stack pressure.

h. BOP/BOPE must be tested by an independent service company within 500 feet of the top of the Wolfcamp formation if the time between the setting of the intermediate casing and reaching this depth exceeds 20 days. This test does not exclude the test prior to drilling out the casing shoe as per Onshore Order No. 2.

C. DRILLING MUD

Mud system monitoring equipment, with derrick floor indicators and visual and audio alarms, shall be operating before drilling into the Wolfcamp formation, and shall be used until production casing is run and cemented.

D. WASTE MATERIAL AND FLUIDS

All waste (i.e. drilling fluids, trash, salts, chemicals, sewage, gray water, etc.) created as a result of drilling operations and completion operations shall be safely contained and disposed of properly at a waste disposal facility. No waste material or fluid shall be disposed of on the well location or surrounding area.

Porto-johns and trash containers will be on-location during fracturing operations or any other crew-intensive operations.

AFMSS
U.S. Department of the Interior
BUREAU OF LAND MANAGEMENT

Operator Certification Data Report
10/04/2021

Operator Certification

I hereby certify that I, or someone under my direct supervision, have inspected the drill site and access route proposed herein; that I am familiar with the conditions which currently exist; that I have full knowledge of state and Federal laws applicable to this operation; that the statements made in this APD package are, to the best of my knowledge, true and correct; and that the work associated with the operations proposed herein will be performed in conformity with this APD package and the terms and conditions under which it is approved. I also certify that I, or the company I represent, am responsible for the operations conducted under this application. These statements are subject to the provisions of 18 U.S.C. 1001 for the filing of false statements.

NAME: STEVE MORRIS **Signed on:** 11/25/2019

Title: Engineer

Street Address: 14102 WCR 173

City: ODESSA **State:** TX **Zip:** 79766

Phone: (985)415-9729

Email address: steve.morris@morcorengineering.com

Field Representative

Representative Name:

Street Address:

City: **State:** **Zip:**

Phone:

Email address:

AFMSS
U.S. Department of the Interior
BUREAU OF LAND MANAGEMENT

Application Data Report
10/04/2021

APD ID: 10400050944
Submission Date: 11/25/2019
Operator Name: CAZA OPERATING LLC
Well Name: DESERT ROSE 17-8 FEDERAL
Well Number: 13H
Well Type: OIL WELL
Well Work Type: Drill

Highlighted data reflects the most recent changes

Show Final Text

Section 1 - General

APD ID: 10400050944
Tie to previous NOS? N
Submission Date: 11/25/2019
BLM Office: Carlsbad
User: STEVE MORRIS
Title: Engineer
Federal/Indian APD: FED
Is the first lease penetrated for production Federal or Indian? FED
Lease number: NMNM086172
Lease Acres:
Surface access agreement in place?
Allotted?
Reservation:
Agreement in place? NO
Federal or Indian agreement:
Agreement number:
Agreement name:
Keep application confidential? Y
Permitting Agent? NO
APD Operator: CAZA OPERATING LLC
Operator letter of designation:

Operator Info

Operator Organization Name: CAZA OPERATING LLC
Operator Address: 200 N. Loraine Street, Suite 1550
Zip: 79701
Operator PO Box:
Operator City: Midland
State: TX
Operator Phone: (432)682-7424
Operator Internet Address:

Section 2 - Well Information

Well in Master Development Plan? NO
Master Development Plan name:
Well in Master SUPO? NO
Master SUPO name:
Well in Master Drilling Plan? NO
Master Drilling Plan name:
Well Name: DESERT ROSE 17-8 FEDERAL
Well Number: 13H
Well API Number:
Field/Pool or Exploratory? Field and Pool
Field Name: WC-025 G-08 S203506D
Pool Name: BONE SPRING
Is the proposed well in an area containing other mineral resources? USEABLE WATER,NATURAL GAS,OIL

Operator Name: CAZA OPERATING LLC

Well Name: DESERT ROSE 17-8 FEDERAL **Well Number:** 13H

Is the proposed well in an area containing other mineral resources? USEABLE WATER,NATURAL GAS,OIL

Is the proposed well in a Helium production area? N **Use Existing Well Pad?** N **New surface disturbance?**

Type of Well Pad: MULTIPLE WELL **Multiple Well Pad Name:** Desert Rose 17-8 Federal **Number:** 11H

Well Class: HORIZONTAL **Number of Legs:** 1

Well Work Type: Drill

Well Type: OIL WELL

Describe Well Type:

Well sub-Type: DELINEATION

Describe sub-type:

Distance to town: 26 Miles **Distance to nearest well:** 1300 FT **Distance to lease line:** 190 FT

Reservoir well spacing assigned acres Measurement: 240 Acres

Well plat: Desert_Rose_17_8_Federal_13H___C_102_signed_20191125071548.pdf

Well work start Date: 02/27/2021 **Duration:** 30 DAYS

Section 3 - Well Location Table

Survey Type: RECTANGULAR

Describe Survey Type:

Datum: NAD83 **Vertical Datum:** NAVD88

Survey number: R4032_002 **Reference Datum:** GROUND LEVEL

Wellbore	NS-Foot	NS Indicator	EW-Foot	EW Indicator	Twsp	Range	Section	Aliquot/Lot/Tract	Latitude	Longitude	County	State	Meridian	Lease Type	Lease Number	Elevation	MD	TVD	Will this well produce from this lease?
SHL Leg #1	190	FSL	2000	FWL	20S	35E	17	Aliquot SESW	32.5664365	-103.4815371	LEA	NEW MEXICO	NEW MEXICO	F	NMNM 86172	3693	0	0	Y
KOP Leg #1	100	FSL	2210	FWL	20S	35E	17	Aliquot SESW	32.5661884	-103.4808556	LEA	NEW MEXICO	NEW MEXICO	F	NMNM 86172	-6531	10238	10224	Y
PPP Leg #1-1	100	FSL	2210	FWL	20S	35E	17	Aliquot SESW	32.5661884	-103.4808556	LEA	NEW MEXICO	NEW MEXICO	F	NMNM 86172	-6735	10448	10428	Y

Operator Name: CAZA OPERATING LLC

Well Name: DESERT ROSE 17-8 FEDERAL **Well Number:** 13H

Wellbore	NS-Foot	NS Indicator	EW-Foot	EW Indicator	Twsp	Range	Section	Aliquot/Lot/Tract	Latitude	Longitude	County	State	Meridian	Lease Type	Lease Number	Elevation	MD	TVD	Will this well produce from this lease?
PPP Leg #1-2	0	FSL	2210	FWL	20S	35E	8	Aliquot SESW	32.580449	-103.480866	LEA	NEW MEXICO	NEW MEXICO	F	NMNM 137464	-6933	15800	10626	Y
PPP Leg #1-3	1320	FSL	2210	FWL	20S	35E	8	Aliquot NESW	32.584077	-103.480867	LEA	NEW MEXICO	NEW MEXICO	F	NMNM 04786	-6905	17120	10598	Y
EXIT Leg #1	2570	FSL	2210	FWL	20S	35E	8	Aliquot NESW	32.587508 5	-103.480861 4	LEA	NEW MEXICO	NEW MEXICO	F	NMNM 04786	-6887	18369	10580	Y
BHL Leg #1	2630	FSL	2210	FWL	20S	35E	8	Aliquot NESW	32.587673 4	-103.480861 3	LEA	NEW MEXICO	NEW MEXICO	F	NMNM 04786	-6877	18429	10570	Y

AFMSS
U.S. Department of the Interior
BUREAU OF LAND MANAGEMENT

Drilling Plan Data Report
10/04/2021

APD ID: 10400050944
Submission Date: 11/25/2019
Operator Name: CAZA OPERATING LLC
Well Name: DESERT ROSE 17-8 FEDERAL
Well Number: 13H
Well Type: OIL WELL
Well Work Type: Drill

Highlighted data reflects the most recent changes

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Section 1 - Geologic Formations

Formation ID	Formation Name	Elevation	True Vertical Depth	Measured Depth	Lithologies	Mineral Resources	Producing Formation
596563	---	3693	0	0	ALLUVIUM	NONE	N
596564	RUSTLER	1792	1901	1901	DOLOMITE, LIMESTONE, SILTSTONE	USEABLE WATER	N
596565	TOP SALT	1447	2246	2246	SALT	NONE	N
596566	BASE OF SALT	117	3576	3576	SALT	NONE	N
596567	CAPITAN REEF	-423	4116	4116	LIMESTONE	USEABLE WATER	N
596568	DELAWARE	-1943	5636	5636	CONGLOMERATE, LIMESTONE, SANDSTONE	NATURAL GAS, OIL	N
596569	BONE SPRING	-4738	8431	8436	DOLOMITE, LIMESTONE, SANDSTONE	NONE	N
596570	BONE SPRING 1ST	-6013	9706	9718	SANDSTONE	NATURAL GAS, OIL	N
596571	BONE SPRING 2ND	-6713	10406	10426	SANDSTONE	NATURAL GAS, OIL	Y

Section 2 - Blowout Prevention

Pressure Rating (PSI): 5M
Rating Depth: 15000

Equipment: Rotating head with a rating of 500psi will be used. A remote kill line and gas buster will be used

Requesting Variance? YES

Variance request: Variance is requested for the use of a coflex hose for the choke line to from the BOP to the choke manifold. A variance is requested to use 1502(15,000psi working pressure) hammer unions downstream of the Choke Manifold used to connect the mud/gas separator and panic line. See choke manifold diagram
Testing Procedure: Minimum Working pressure of the blowout preventer (BOP) and related equipment (BOPE) required for drilling below the 13-3/8 inch casing shoe shall be 5000 (5M) psi. 5M system requires an HCR valve, remote kill line and annular to match. The remote kill line is to be installed prior to testing the system and tested to stack pressure. The appropriate BLM office shall be notified a minimum of 4 hours in advance for a representative to witness the tests. In a water basin, for all casing strings utilizing slips, these are to be set as soon as the crew and rig are ready and any fallback cement remediation has been done. The casing cut-off and BOP installation can be initiated four hours after installing the slips, which will be approximately six hours after bumping the plug. For those casing strings not using slips the minimum wait time before cut-off is eight hours after bumping the plug. BOP/BOPE testing can begin after cut-off or once cement reaches 500PSI compressive strength (including lead when specified), whichever is greater. However, if the float does not hold, cut-off cannot

Operator Name: CAZA OPERATING LLC

Well Name: DESERT ROSE 17-8 FEDERAL **Well Number:** 13H

be initiated until cement reaches 500 psi compressive strength (including lead when specified). The tests shall be done by an independent service company utilizing a test plug not a cup or J-packer. The operator also has the option of utilizing an independent tester to test without a plug (i.e. against the casing) pursuant to Onshore Order 2 with the pressure not to exceed 70% of the burst rating for the casing. Any test against the casing must meet the WOC time for water basin (18 hours) or potash (24 hours) or 500 pounds compressive strength, whichever is greater prior to initiating the test (see casing segment as lead cement may be critical item). a. The results of the test shall be reported to the appropriate BLM office. b. All Tests are required to be recorded on a calibrated test chart. A copy of the BOP/BOPE test chart and a copy of independent service company test will be submitted to the appropriate BLM office. c. The BOP/BOPE test shall include a low pressure test from 250 to 300 psi. The test will be held for a minimum of 10 minutes if test is done with a test plug and 30 minutes without a test plug.

Choke Diagram Attachment:

Desert_Rose_17_8_Federal_13H___Choke_Schematic_20191125075036.pdf

Desert_Rose_17_8_Federal_13H___Coflex_Hyd_Test_Cert_20191125075036.pdf

Desert_Rose_17_8_Federal_13H___Coflex_Hose_Test_Chart_20191125075038.pdf

BOP Diagram Attachment:

Desert_Rose_17_8_Federal_13H___5M_BOP_Schematic_20191125075043.pdf

Section 3 - Casing

Casing ID	String Type	Hole Size	Csg Size	Condition	Standard	Tapered String	Top Set MD	Bottom Set MD	Top Set TVD	Bottom Set TVD	Top Set MSL	Bottom Set MSL	Calculated casing length MD	Grade	Weight	Joint Type	Collapse SF	Burst SF	Joint SF Type	Joint SF	Body SF Type	Body SF
1	CONDUCTOR	26	20.0	NEW	API	N	0	120	0	120	3693	3573	120	H-40	94	SLIM LINE HIGH PERFORMANCE						
2	SURFACE	17.5	13.375	NEW	API	N	0	2150	0	2150	3693	1543	2150	J-55	54.5	ST&C	1.14	1.62	DRY	4.39	DRY	4.39
3	INTERMEDIATE	12.25	9.625	NEW	API	N	0	5610	0	5610	3693	-1917	5610	HCL-80	40	BUTT	1.45	1.79	DRY	4.08	DRY	4.08
4	PRODUCTION	8.75	5.5	NEW	API	N	0	18429	0	10726	3693	-7033	18429	P-110	20	BUTT	1.99	2.27	DRY	2.99	DRY	2.99

Casing Attachments

Operator Name: CAZA OPERATING LLC

Well Name: DESERT ROSE 17-8 FEDERAL **Well Number:** 13H

Casing Attachments

Casing ID: 1 **String Type:** CONDUCTOR

Inspection Document:

Spec Document:

Tapered String Spec:

Casing Design Assumptions and Worksheet(s):

Casing ID: 2 **String Type:** SURFACE

Inspection Document:

Spec Document:

Tapered String Spec:

Casing Design Assumptions and Worksheet(s):

Desert_Rose_17_8_Federal_13H___Casing_and_Cement_Design_20191125075453.pdf

Casing ID: 3 **String Type:** INTERMEDIATE

Inspection Document:

Spec Document:

Tapered String Spec:

Casing Design Assumptions and Worksheet(s):

Desert_Rose_17_8_Federal_13H___Casing_and_Cement_Design_20191125075558.pdf

Operator Name: CAZA OPERATING LLC

Well Name: DESERT ROSE 17-8 FEDERAL **Well Number:** 13H

Casing Attachments

Casing ID: 4 **String Type:** PRODUCTION

Inspection Document:

Spec Document:

Tapered String Spec:

Casing Design Assumptions and Worksheet(s):

Desert_Rose_17_8_Federal_13H___Casing_and_Cement_Design_20191125075652.pdf

Section 4 - Cement

String Type	Lead/Tail	Stage Tool Depth	Top MD	Bottom MD	Quantity(sx)	Yield	Density	Cu Ft	Excess%	Cement type	Additives
CONDUCTOR	Lead		0	120	140	1.35	14.8	135	5	Class C	CaCl2
SURFACE	Lead		0	1850	1335	1.93	13.5	2576	100	Class C	4% bwoc Bentonite II + 2% bwoc Calcium Chloride + 0.25 lbs/sack Cello Flake + 0.005% bwoc Static Free + 0.005 gps FP- 6L
SURFACE	Tail		1850	2150	309	1.35	14.8	417	100	Class C	CaCl2
INTERMEDIATE	Lead	3900	0	3800	1150	2.13	12.6	2449	100	Class C	(35:65) + Poz (Fly Ash) + 4% bwoc Bentonite II + 5% bwoc MPA-5 + 0.25% bwoc FL-52 + 5lbs/sack LCM- 1 + 0.125 lbs/sack Cello Flake + 0.005 lbs/sack Static Free + 0.005 gps FP-6L + 1.2% bwoc Sodium Metasilicate + 5% bwow Sodium Chloride
INTERMEDIATE	Tail		3800	3900	150	1.35	14.8	202	100	Class C	CaCl2

Operator Name: CAZA OPERATING LLC

Well Name: DESERT ROSE 17-8 FEDERAL **Well Number:** 13H

String Type	Lead/Tail	Stage Tool Depth	Top MD	Bottom MD	Quantity(sx)	Yield	Density	Cu Ft	Excess%	Cement type	Additives
INTERMEDIATE	Lead	3900	3900	5110	355	2.13	12.6	770	100	Class C	(35:65) + Poz (Fly Ash) + 4% bwoc Bentonite II + 5% bwoc MPA-5 + 0.25% bwoc FL-52 + 5lbs/sack LCM- 1 + 0.125 lbs/sack Cello Flake + 0.005 lbs/sack Static Free + 0.005 gps FP-6L + 1.2% bwoc Sodium Metasilicate + 5% bwow Sodium Chloride
INTERMEDIATE	Tail		5110	5610	232	1.35	14.8	313	100	Class C	CaCl2
PRODUCTION	Lead		0	11020	2250	2.38	11.6	5355	100	Class H	(50:50) + Poz (Fly Ash) + 10% bwoc Bentonite II + 5% bwow Sodium Chloride + 5 lbs/sack LCM-1 + 0.005 lbs/sack Static Free + 0.005 gps
PRODUCTION	Tail		11020	18429	2505	1.62	13.2	4058	100	Class H	(15:61:11) Poz (Fly Ash):Class H Cement:CSE-2 + 4%

Section 5 - Circulating Medium

Mud System Type: Closed

Will an air or gas system be Used? NO

Description of the equipment for the circulating system in accordance with Onshore Order #2:

Diagram of the equipment for the circulating system in accordance with Onshore Order #2:

Describe what will be on location to control well or mitigate other conditions: Sufficient mud will be on location to control any abnormal conditions encountered. Such as but not limited to a kick, lost circulation and hole sloughing.

Describe the mud monitoring system utilized: A Pason PVT system will be rigged up prior to spudding the well. A volume monitoring system that measures, calculates, and displays readings from the mud system on the rig to alert the rig crew of impending gas kicks and lost circulation issues. Components a) PVT Pit Bull monitor: Acts as the heart of the system, containing all the controls, switches, and alarms. Typically, it is mounted near the driller's console. b) Junction box: Provides a safe, convenient place for making the wiring connections. c) Mud probes: Measure the volume of drilling fluid in each individual tank. d) Flow sensor: Measures the relative amount of mud flowing in the return line.

Circulating Medium Table

Operator Name: CAZA OPERATING LLC

Well Name: DESERT ROSE 17-8 FEDERAL **Well Number:** 13H

Top Depth	Bottom Depth	Mud Type	Min Weight (lbs/gal)	Max Weight (lbs/gal)	Density (lbs/cu ft)	Gel Strength (lbs/100 sqft)	PH	Viscosity (CP)	Salinity (ppm)	Filtration (cc)	Additional Characteristics
0	2150	SPUD MUD	8.4	8.9	62.8	0.1	9.5	2	0	0	
2150	5610	SALT SATURATED	9.2	10	75	0.1	9.5	2	150000	0	
5610	10726	OIL-BASED MUD	9.2	10	72	0.4	9.5	6	135000	18	

Section 6 - Test, Logging, Coring

List of production tests including testing procedures, equipment and safety measures:

No production tests

List of open and cased hole logs run in the well:

GAMMA RAY LOG,DIRECTIONAL SURVEY,MEASUREMENT WHILE DRILLING,MUD LOG/GEOLOGICAL LITHOLOGY LOG,

Coring operation description for the well:

No coring

Section 7 - Pressure

Anticipated Bottom Hole Pressure: 5550 **Anticipated Surface Pressure:** 3212

Anticipated Bottom Hole Temperature(F): 160

Anticipated abnormal pressures, temperatures, or potential geologic hazards? NO

Describe:

Contingency Plans geoharzards description:

Contingency Plans geohazards attachment:

Hydrogen Sulfide drilling operations plan required? YES

Hydrogen sulfide drilling operations plan:

Desert_Rose_17_8_Federal_13H___H2S_Plan_20191125080721.pdf

Operator Name: CAZA OPERATING LLC

Well Name: DESERT ROSE 17-8 FEDERAL **Well Number:** 13H

Section 8 - Other Information

Proposed horizontal/directional/multi-lateral plan submission:

Desert_Rose_17_8_Federal_13H___Directional_Plot_20191125080741.pdf

Desert_Rose_17_8_Federal_13H___Directional_Plan_20191125080741.pdf

Other proposed operations facets description:

Closed Loop Docs
Gas Capture Plan
Mutlibowl wellhead variance

Other proposed operations facets attachment:

Desert_Rose_17_8_Federal_13H___Closed_Loop_Design_Operating_and_Closure_Plan_20191125080805.pdf

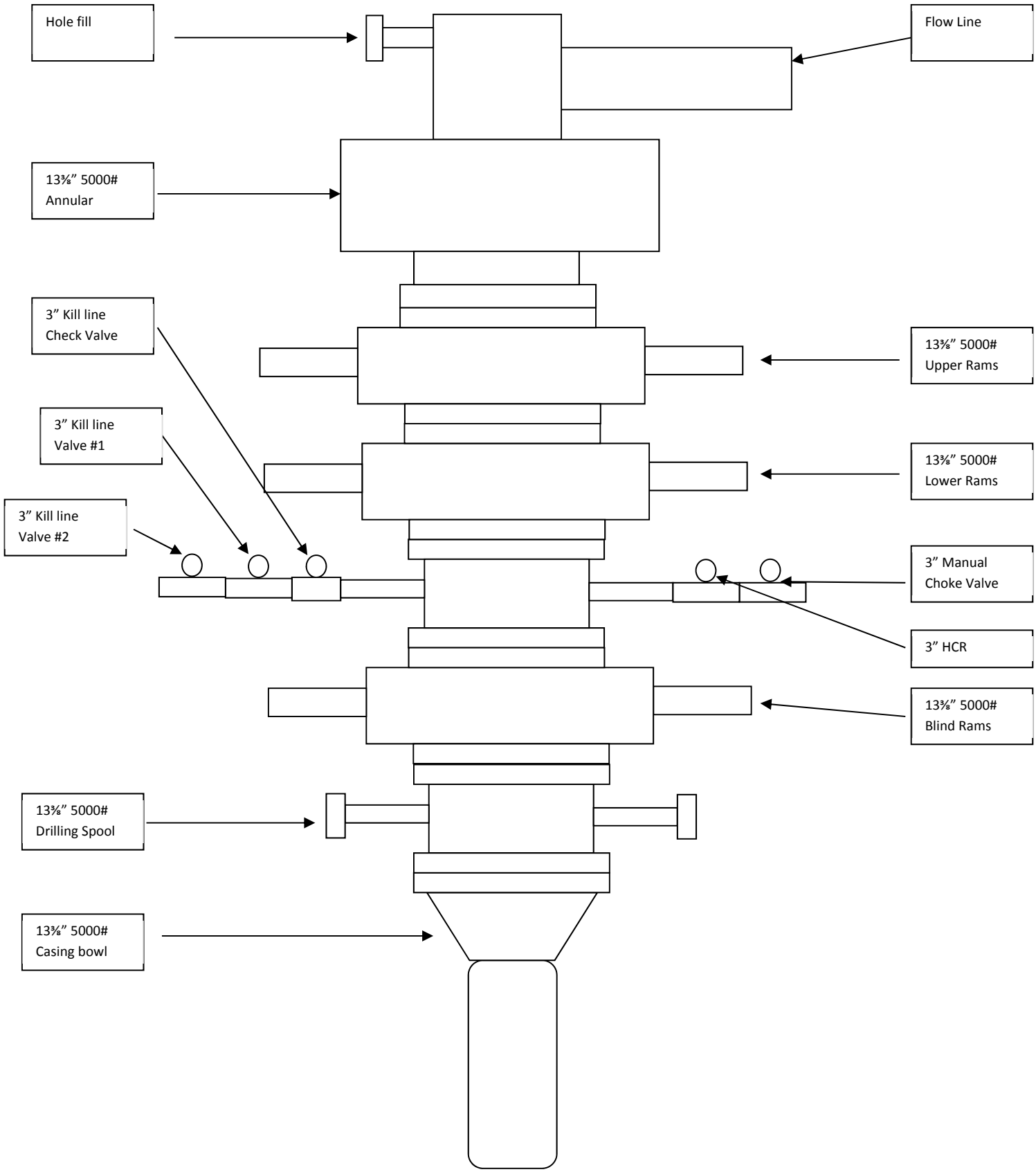
Desert_Rose_17_8_Federal_13H___Gas_Capture_Plan_20191125080805.pdf

Desert_Rose_17_8_Federal_13H___Closed_Loop_Diagram_Design_Plan_20191125080805.pdf

Desert_Rose_17_8_Federal_13H___Multibowl_Wellhead_20191125080806.pdf

Other Variance attachment:

Desert_Rose_17_8_Federal_13H___Multibowl_Wellhead_20191125080814.pdf


Hole fill
Flow Line
13⅝" 5000#
Annular
3" Kill line
Check Valve
13⅝" 5000#
Upper Rams
3" Kill line
Valve #1
13⅝" 5000#
Lower Rams
3" Kill line
Valve #2
3" Manual
Choke Valve
3" HCR
13⅝" 5000#
Blind Rams
13⅝" 5000#
Drilling Spool
13⅝" 5000#
Casing bowl

Operator	Caza Operating LLC
Well Name & No.	Desert Rose 17-8 Fed 13H
County	Lea
Location (S/T/R/Ali)	
Lease Number	
ATS or EC #	APD### or EC###

Colors:	
Choose casings	
Fill in, if applicable	

Name	
Date	
Version	

Remarks

ral 6H Lea NM114998 Caza Operating LLC 13-22 10052019 LV

Type of Casing	Size of Hole (in)	Size of Casing (in)	Weight per Foot (lbs/ft)	Grade	Yield	Coupling #:	Top (ft)	Bottom (MD) (ft)	Setting Depth (TVD) (TVD of entire string) (ft)	Min Mud Weight (ppg)	Max Mud Weight (ppg)	ID	Drift ID	Cplg OD
Surface	17.500	13.375	54.50	j	55	stc	0	2150	2150	8.40	8.90	12.6150	12.4900	14.3750
Int 1	12.250	9.625	40.00	hcl	80	btc	0	5610	5610	9.20	10.00	8.8350	8.7500	10.6250
Int 1 Taper 1														
<Choose Casing>														
Prod 1	8.750	5.500	20.00	p	110	btc	0	18429	10726	9.20	10.00	4.7780	4.6530	6.0500
<Choose Casing>														
<Choose Casing>														

Cement

Surface			Int 1			Prod 1			<Choose Casing>			<Choose Casing>		
TOC	0		TOC	0		TOC	0		TOC			TOC		
DV Depth			DV Depth	3900		DV Depth			DV Depth			DV Depth		
	Sacks	Yield (ft3/sx)			Yield (ft3/sx)		Sacks	Yield (ft3/sx)		Sacks	Yield (ft3/sx)		Sacks	Yield (ft3/sx)
Lead	1335	1.93	Lead	355	2.13	Lead 1	2250	2.38	Lead 1			Lead 1		
Tail	309	1.35	Tail	232	1.35	Tail 1	2505	1.62	Tail 1			Tail 1		
DV Lead			DV Lead	1150	2.13	DV Lead			DV Lead			DV Lead		
DV Tail			DV Tail	150	1.35	DV Tail			DV Tail			DV Tail		
Cmt Added	2993.70	cuft	Cement Added	1069.4 / 2652	cuft	Cement Added	9413.10	cuft	Cement Added	#N/A	cuft	Cement Added	#N/A	cuft
Cmt Req.	1493	cuft	Cement Req.	535.6 / 1327.9	cuft	Cement Req.	4701	cuft	Cement Req.	0	cuft	Cement Req.	0	cuft
Excess	100.45%		Excess	99.7% / 99.7%		Excess	100.24%		Excess	#N/A		Excess	#N/A	

Clearances	in Hole	In Surface	In Int 1	In Int 1 Taper 1		In Prod 1		
Surface	Pass = 1.5625							
Int 1	Pass = 0.8125	Pass = 0.995						
Int 1 Taper 1								
Prod 1	Pass = 1.35	Pass = 3.2825	Pass = 1.3925	No Overlap	No Overlap			

Safety Factors	Joint/Body	Collapse	Burst	Alt Burst
Surface	4.39	1.14	0.94	1.62
Int 1	4.08	1.45	1.03	1.79
Int 1 Taper 1				
Prod 1	2.99	1.99	2.27	3.93

BOP Requirements After the Shoe

Surface		Int 1		Prod 1	
Max. Surf. Pressure	1680 psi	Max. Surf. Pressure	3212 psi	Max. Surf. Pressur	psi
BOP Required	2M System	BOP Required	5M System	BOP Required	System
<Choose Casing>					
Max. Surf. Pressure	psi				
BOP Required	System				

Operator	Caza Operating LLC
Well Name & No.	Desert Rose 17-8 Fed 13H
County	Lea
Location (S/T/R/Ali)	
Lease Number	
ATS or EC #	APD### or EC###

Colors:	
Choose casings	
Fill in, if applicable	

Name	
Date	
Version	

Remarks

ral 6H Lea NM114998 Caza Operating LLC 13-22 10052019 LV

Type of Casing	Size of Hole (in)	Size of Casing (in)	Weight per Foot (lbs/ft)	Grade	Yield	Coupling #:	Top (ft)	Bottom (MD) (ft)	Setting Depth (TVD) (TVD of entire string) (ft)	Min Mud Weight (ppg)	Max Mud Weight (ppg)	ID	Drift ID	Cplg OD
Surface	17.500	13.375	54.50	j	55	stc	0	2150	2150	8.40	8.90	12.6150	12.4900	14.3750
Int 1	12.250	9.625	40.00	hcl	80	btc	0	5610	5610	9.20	10.00	8.8350	8.7500	10.6250
Int 1 Taper 1														
<Choose Casing>														
Prod 1	8.750	5.500	20.00	p	110	btc	0	18429	10726	9.20	10.00	4.7780	4.6530	6.0500
<Choose Casing>														
<Choose Casing>														

Cement

Surface			Int 1			Prod 1			<Choose Casing>			<Choose Casing>		
TOC	0		TOC	0		TOC	0		TOC			TOC		
DV Depth			DV Depth	3900		DV Depth			DV Depth			DV Depth		
	Sacks	Yield (ft3/sx)			Yield (ft3/sx)		Sacks	Yield (ft3/sx)		Sacks	Yield (ft3/sx)		Sacks	Yield (ft3/sx)
Lead	1335	1.93	Lead	355	2.13	Lead 1	2250	2.38	Lead 1			Lead 1		
Tail	309	1.35	Tail	232	1.35	Tail 1	2505	1.62	Tail 1			Tail 1		
DV Lead			DV Lead	1150	2.13	DV Lead			DV Lead			DV Lead		
DV Tail			DV Tail	150	1.35	DV Tail			DV Tail			DV Tail		
Cmt Added	2993.70	cuft	Cement Added	1069.4 / 2652	cuft	Cement Added	9413.10	cuft	Cement Added	#N/A	cuft	Cement Added	#N/A	cuft
Cmt Req.	1493	cuft	Cement Req.	535.6 / 1327.9	cuft	Cement Req.	4701	cuft	Cement Req.	0	cuft	Cement Req.	0	cuft
Excess	100.45%		Excess	99.7% / 99.7%		Excess	100.24%		Excess	#N/A		Excess	#N/A	

Clearances	in Hole	In Surface	In Int 1	In Int 1 Taper 1		In Prod 1		
Surface	Pass = 1.5625							
Int 1	Pass = 0.8125	Pass = 0.995						
Int 1 Taper 1								
Prod 1	Pass = 1.35	Pass = 3.2825	Pass = 1.3925	No Overlap	No Overlap			

Safety Factors	Joint/Body	Collapse	Burst	Alt Burst
Surface	4.39	1.14	0.94	1.62
Int 1	4.08	1.45	1.03	1.79
Int 1 Taper 1				
Prod 1	2.99	1.99	2.27	3.93

BOP Requirements After the Shoe

Surface		Int 1		Prod 1	
Max. Surf. Pressure	1680 psi	Max. Surf. Pressure	3212 psi	Max. Surf. Pressur	psi
BOP Required	2M System	BOP Required	5M System	BOP Required	System
<Choose Casing>					
Max. Surf. Pressure	psi				
BOP Required	System				

Operator	Caza Operating LLC
Well Name & No.	Desert Rose 17-8 Fed 13H
County	Lea
Location (S/T/R/Ali)	
Lease Number	
ATS or EC #	APD### or EC###

Colors:	
Choose casings	
Fill in, if applicable	

Name	
Date	
Version	

Remarks

ral 6H Lea NM114998 Caza Operating LLC 13-22 10052019 LV

Type of Casing	Size of Hole (in)	Size of Casing (in)	Weight per Foot (lbs/ft)	Grade	Yield	Coupling #:	Top (ft)	Bottom (MD) (ft)	Setting Depth (TVD) (TVD of entire string) (ft)	Min Mud Weight (ppg)	Max Mud Weight (ppg)	ID	Drift ID	Cplg OD
Surface	17.500	13.375	54.50	j	55	stc	0	2150	2150	8.40	8.90	12.6150	12.4900	14.3750
Int 1	12.250	9.625	40.00	hcl	80	btc	0	5610	5610	9.20	10.00	8.8350	8.7500	10.6250
Int 1 Taper 1														
<Choose Casing>														
Prod 1	8.750	5.500	20.00	p	110	btc	0	18429	10726	9.20	10.00	4.7780	4.6530	6.0500
<Choose Casing>														
<Choose Casing>														

Cement

Surface			Int 1			Prod 1			<Choose Casing>			<Choose Casing>		
TOC	0		TOC	0		TOC	0		TOC			TOC		
DV Depth			DV Depth	3900		DV Depth			DV Depth			DV Depth		
	Sacks	Yield (ft3/sx)			Yield (ft3/sx)		Sacks	Yield (ft3/sx)		Sacks	Yield (ft3/sx)		Sacks	Yield (ft3/sx)
Lead	1335	1.93	Lead	355	2.13	Lead 1	2250	2.38	Lead 1			Lead 1		
Tail	309	1.35	Tail	232	1.35	Tail 1	2505	1.62	Tail 1			Tail 1		
DV Lead			DV Lead	1150	2.13	DV Lead			DV Lead			DV Lead		
DV Tail			DV Tail	150	1.35	DV Tail			DV Tail			DV Tail		
Cmt Added	2993.70	cuft	Cement Added	1069.4 / 2652	cuft	Cement Added	9413.10	cuft	Cement Added	#N/A	cuft	Cement Added	#N/A	cuft
Cmt Req.	1493	cuft	Cement Req.	535.6 / 1327.9	cuft	Cement Req.	4701	cuft	Cement Req.	0	cuft	Cement Req.	0	cuft
Excess	100.45%		Excess	99.7% / 99.7%		Excess	100.24%		Excess	#N/A		Excess	#N/A	

Clearances	in Hole	In Surface	In Int 1	In Int 1 Taper 1		In Prod 1		
Surface	Pass = 1.5625							
Int 1	Pass = 0.8125	Pass = 0.995						
Int 1 Taper 1								
Prod 1	Pass = 1.35	Pass = 3.2825	Pass = 1.3925	No Overlap	No Overlap			

Safety Factors	Joint/Body	Collapse	Burst	Alt Burst
Surface	4.39	1.14	0.94	1.62
Int 1	4.08	1.45	1.03	1.79
Int 1 Taper 1				
Prod 1	2.99	1.99	2.27	3.93

BOP Requirements After the Shoe

Surface		Int 1		Prod 1	
Max. Surf. Pressure	1680 psi	Max. Surf. Pressure	3212 psi	Max. Surf. Pressur	psi
BOP Required	2M System	BOP Required	5M System	BOP Required	System
<Choose Casing>					
Max. Surf. Pressure	psi				
BOP Required	System				

Caza Oil and Gas, Inc

H2S Drilling Operations Plan

Prepared by: Steve Morris

Table of Contents

H2S Contingency Plan Section

Scope:

This contingency plan provides an organized plan of action for alerting and protecting the public within an area of exposure prior to an intentional release, of following the accidental release of a potentially hazardous volume of hydrogen sulfide. The plan establishes guidelines for all personnel whose work activity may involve exposure to Hydrogen Sulfide Gas (H2S).

Objective:

Prevent any and all accidents, and prevent the uncontrolled release of H2S into the atmosphere.

Provide proper evacuation procedures to cope with emergencies.

Provide immediate and adequate medical attention should an injury occur.

Implementation: This plan, with all details, is to be fully implemented 1000’ before drilling into the first sour zone.

Emergency Response Procedure: This section outlines the conditions and denotes steps to be taken in the event of an emergency.

Emergency Equipment and Procedure: This section outlines the safety and emergency equipment that will be required for the drilling of this well.

Training Provisions: This section outlines the training provisions that must be adhered to 1000’ before drilling into the first sour zone.

Emergency Call Lists: Included are the telephone numbers of all persons that would need to be contacted, should an H2S emergency occur.

Briefing: This section deals with the briefing of all persons involved with the drilling of this well.

Public Safety: Public safety personnel will be made aware of the drilling of this well.

Check Lists: Status check lists and procedural check lists have been included to ensure adherence to the plan.

General Information: A general information section has been included to supply support information.

Emergency Procedures Section

Emergency Procedures

I. **In the event of any evidence of H2S level above 10 ppm, take the following steps immediately:**
   A. Secure breathing apparatus.
   B. Order non-essential personnel out of the danger zone.
   C. Take steps to determine if the H2S level can be corrected or suppressed, and if so, proceed with normal operations.

II. **If uncontrollable conditions occur, proceed with the following:**
   A. Take steps to protect and/or remove any public downwind of the rig, including partial evacuation or isolation. Notify necessary public safety personnel and the New Mexico Oil & Gas of the situation.
   B. Remove all personnel to the safe briefing area.
   C. Notify public safety personnel for help with maintaining roadblocks and implementing evacuation.
   D. Determine and proceed with the best possible plan to regain control of the well. Maintain tight security and safety measures.

III. **Responsibility:**
   A. The company approved supervisor shall be responsible for the total implementation of the plan.
   B. The company approved supervisor shall be in complete command during any emergency.
   C. The company approved supervisor shall designate a backup supervisor in the event that he/she is not available.

Emergency Procedure Implementation

I. **Drilling or Tripping:**
   A. All Personnel
      1. When alarm sounds, don escape unit and report to upwind safe briefing area.
      2. Check status of other personnel (buddy system).
      3. Secure breathing apparatus.
      4. Wait for orders from supervisor.
   B. Drilling Foreman
      1. Report to the upwind safe briefing area.
      2. Don breathing apparatus and return to the point of release with the Tool pusher of Driller (buddy system).
      3. Determine the concentration of H2S.
      4. Address the situation and take appropriate control measures.
   C. Tool Pusher
      1. Report to the upwind safe briefing area.
      2. Don breathing apparatus and return to the point of release with the Drilling Foreman or the Driller (buddy system).

3. Determine the concentration.
4. Address the situation and take appropriate control measures.

D. Driller
1. Check the status of other personnel (in a rescue attempt, always use the buddy system).
2. Assign the least essential person to notify the Drilling Foreman and Tool Pusher, in the event of their absence.
3. Assume the responsibility of the Drilling Foreman and the Tool Pusher until they arrive, in the event of their absence.

E. Derrick Man and Floor Hands
1. Remain in the upwind safe briefing area until otherwise instructed by a supervisor.

F. Mud Engineer
1. Report to the upwind safe briefing area.
2. When instructed, begin check of mud for PH level and H2S level.

G. Safety Personnel
1. Don breathing apparatus.
2. Check the status of all personnel.
3. Wait for instructions from Drilling Foreman or Tool Pusher.

II. Taking a Kick:

A. All personnel report to the upwind safe briefing area.
B. Follow standard BOP procedures.

III. Open Hole Logging:

A. All unnecessary personnel should leave the rig floor.
B. Drilling Foreman and Safety personnel should monitor the conditions and make necessary safety equipment recommendations.

IV. Running Casing or Plugging:

A. Follow “Drilling or Tripping” procedures.
B. Assure that all personnel have access to protective equipment.

Simulated Blowout Control Drills

All drills will be initiated by activating alarm devices (air horn). One long blast on the air horn for ACTUAL and SIMULATED blowout control drills. This operation will be performed by the Drilling Foreman or Tool Pusher at least one time per week for each of the following conditions, with each crew:

Drill #1	On-bottom Drilling
Drill #2	Tripping Drill Pipe

In each of these drills, the initial reaction time to shutting in the well shall be timed as well as the total time for the crew to complete its entire put drill assignment. The times must be recorded on the IADC Driller’s log as “Blowout Control Drill”.

Drill No.:		
Reaction Time to Shut-in:	minutes,	seconds.
Total Time to Complete Assignment:	minutes,	seconds.

I. Drill Overviews:
   A. Drill No. 1 – On-bottom Drilling
      1. Sound the alarm immediately.
      2. Stop the rotary and hoist the Kelly joint above the rotary table.
      3. Stop the circulatory pump.
      4. Close the drill pipe rams.
      5. Record casing and drill pipe shut-in pressures and pit volume increases.
   B. Drill No. 2 – Tripping Drill Pipe:
      1. Sound the alarm immediately.
      2. Position the upper tool joint just above the rotary table and set the slips.
      3. Install a full opening valve inside blowout preventer tool in order to close the drill pipe.
      4. Close the drill pipe rams.
      5. Record the shut-in annular pressure.

II. Crew Assignments
   A. Drill No. 1 – On-bottom Drilling:
      1. Driller
         a) Stop the rotary and hoist the Kelly joint above the rotary table.
         b) Stop the circulatory pump.
         c) Check flow.
         d) If flowing, sound the alarm immediately.
         e) Record the shut-in drill pipe pressure.
         f) Determine the mud weight increase needed or other courses of action.
      2. Derrick Man
         a) Open choke line valve at BOP.
         b) Signal Floor Man #1 at accumulator that choke line is open.
         c) Close choke upstream valve after pipe rams have been closed.
         d) Read the shut-in annular pressure and report readings to Driller.
      3. Floor Man #1
         a) Close the pipe rams after receiving the signal from the Derrick Man.
         b) Report to Driller for further instructions.
      4. Floor Man #2
         a) Notify the Tool Pusher and Operator Representative of the H2S alarms.
         b) Check for open fires and, if safe to do so, extinguish them.
         c) Stop all welding operations.
         d) Turn-off all non-explosive proof lights and instruments.

e) Report to Driller for further instructions.

5. Tool Pusher
   a) Report to the rig floor.
   b) Have a meeting with all crews.
   c) Compile and summarize all information.
   d) Calculate the proper kill weight.
   e) Ensure that proper well procedures are put into action.
6. Operator Representative
   a) Notify the Drilling Superintendent.
   b) Determine if an emergency exists and if so, activate the contingency plan.

B. Drill No. 2 – Tripping Pipe:
1. Driller
   a) Sound the alarm immediately when mud volume increase has been detected.
   b) Position the upper tool joint just above the rotary table and set slips.
   c) Install a full opening valve or inside blowout preventer tool to close the drill pipe.
   d) Check flow.
   e) Record all data reported by the crew.
   f) Determine the course of action.
2. Derrick Man
   a) Come down out of derrick.
   b) Notify Tool Pusher and Operator Representative.
   c) Check for open fires and, if safe to do so, extinguish them.
   d) Stop all welding operations.
   e) Report to Driller for further instructions.

3. Floor Man #1
   a) Pick up full opening valve or inside blowout preventer tool and slab into tool join above rotary table (with Floor Man #2)
   b) Tighten valve with back-up tongs.
   c) Close pipe rams after signal from Floor Man #2.
   d) Read accumulator pressure and check for possible high pressure fluid leaks in valves or piping.
   e) Report to Driller for further instructions.
4. Floor Man #2
   a) Pick-up full opening valve or inside blowout preventer tool and tab into tool joint above rotary table (with Floor Man #1)
   b) Position back-up tongs on drill pipe.
   c) Open choke line valve at BOP.
   d) Signal Floor Man #1 at accumulator that choke line is open.
   e) Close choke and upstream valve after pipe rams have been closed.
   f) Check for leaks on BOP stack and choke manifold.

g) Read annular pressure.
h) Report readings to the Driller.

5. Tool Pusher
   a) Report to the rig floor.
   b) Have a meeting with all of the crews.
   c) Compile and summarize all information.
   d) See that proper well kill procedures are put into action.
6. Operator Representative
   a) Notify Drilling Superintendent.
   b) Determine if an emergency exists, and if so, activate the contingency plan

Ignition Procedures

Responsibility:

The decision to ignite the well is responsibility of the DRILLING FOREMAN in concurrence with the STATE POLICE. In the event of the Drilling Foreman is incapacitated, it becomes the responsibility of the RIG TOOL PUSHER. This decision should be made only as a last resort and in a situation where it is clear that:

1. Human life and property are endangered.
2. There is no hope of controlling the blowout under the prevailing conditions.

If time permits, notify the main office, but do not delay if human life is in danger. Initiate the first phase of the evacuation plan.

Instructions for Igniting the Well:

1. Two people are required for the actual igniting operation. Both men must wear self-contained breathing apparatus and must use a full body harness and attach a retrievable safety line to the D-Ring in the back. One man must monitor the atmosphere for explosive gases with the LEL monitor, while the Drilling Foreman is responsible for igniting the well.
2. The primary method to ignite is a 25mm flare gun with a range of approximately 500 feet.
3. Ignite from upwind and do not approach any closer than is warranted.
4. Select the ignition site best suited for protection and which offers an easy escape route.
5. Before igniting, check for the presence of combustible gases.
6. After igniting, continue emergency actions and procedures as before.
7. All unassigned personnel will limit their actions to those directed by the Drilling Foreman.

NOTE: After the well is ignited, burning Hydrogen Sulfide will convert to Sulfur Dioxide, which is also highly toxic. Do not assume the area is safe after the well is ignited.

Training Program

When working in an area where Hydrogen Sulfide (H2S) might be encountered, definite training requirements for all personnel must be carried out. The Company Supervisor will ensure that all personnel at the well site have had adequate training in the following:

1. Hazards and Characteristics of Hydrogen Sulfide.
2. Physicals effects of Hydrogen Sulfide on the human body.
3. Toxicity of Hydrogen Sulfide and Sulfur Dioxide.
4. H2S detection, emergency alarm and sensor location.
5. Emergency rescue.
6. Resuscitators.
7. First aid and artificial resuscitation.
8. The effects of Hydrogen Sulfide on metals.
9. Location safety.

Service company personnel and visiting personnel must be notified if the zone contains H2S, and each service company must provide adequate training and equipment for their employees before they arrive at the well site.

Emergency Equipment Requirements

Lease Entrance Sign:

Should be located at the lease entrance with the following information:

CAUTION- POTENTIAL POISON GAS HYDROGEN SULFIDE

Well Control Equipment:

- A flare line will be located a minimum of 150' from the wellhead to be ignited by a flare gun.
- The choke manifold will include a remotely operated choke.
- A mud/gas separator will be installed to separate gas from the drilling mud.

Mud Program:

The drilling mud program has been designed to minimize the volume of hydrogen sulfide (H2S) circulated to surface. The operator will have the necessary mud products on location to minimize the hazards while drilling in H2S-bearing zones.

Metallurgy:

- All drill strings , casings, tubing, wellhead equipment , the blowout preventer , the drilling spool, kill lines, choke manifold and lines, and all valves shall be suitable for H2S service.
- All elastomers used for packing and seals shall be H2S trim.

Respiratory Equipment:

- Fresh air breathing equipment should be placed at the safe briefing areas and should include the following: Two SCBA's will be placed at each briefing area. A moveable breathing air trailer with 2 SCBA's, 5 work/escape units, ample breathing air hose and manifolds will be on location. The breathing air hose will be installed on the rig floor and derrick along with breathing air manifolds so that it will not restrict work activity. All employees that may wear respiratory will complete a MEQ and be quantitative fit tested 1000' prior to the 1st zone that may contain H2S.

Windsocks or Wind Streamers:

- A minimum of two 10" windsocks located at strategic locations so that they may be seen from any point on location. More will be used if necessary for wind consciousness.
- Wind streamers (if preferred) should be placed at various locations on the well site to ensure wind consciousness at all times. (Corners of location).

Hydrogen Sulfide Detector and Alarms:

- 1 - Four channel H2S monitor with audible and visual alarms, strategically located to be seen and heard by all employees working on the well site. All sensors will be bump tested or calibrated if necessary on a weekly basis. The alarms will be set to visually alarm at 10 PPM and audible at 14 PPM.
- Four (4) sensors located as follows: #1 -Rig Floor, #2 & #3- Bell Nipple, #4- End of flow line where wellbore fluid is discharged.
- Portable color metric tube detector with tubes will be stored in the Tool Pusher trailer.

Well Condition Sign and Flags:

The Well Condition Sign with flags should be placed a minimum of 150' before entry to the location. It should have three (3) color coded flags (green, yellow and red) that will be used to denote the following location conditions:

GREEN - Normal Operating Conditions

YELLOW - Potential Danger

RED - Danger, H2S Gas Present

Auxiliary Rescue Equipment:

- Stretcher (drilling contractor)
- 2- 100' OSHA approved Rescue lines (drilling contractor)
- First Aid Kit properly stocked (drilling contractor)

Mud Inspection Equipment:

Garret Gas Train or Hach Tester for inspection of Hydrogen Sulfide in the drilling mud system.

Fire Extinguishers:

Adequate fire extinguishers shall be located at strategic locations (provided by drilling contractor)

Blowout Preventer:

- The well shall have hydraulic BOP equipment for the anticipated BHP.
- The BOP should be tested upon installation.
- BOP, Choke Line and Kill Line will be tested as specified by Operator.

Confined Space Monitor:

There should be a portable multi-gas monitor with at least 3 sensors (02, LEL & H2S). This instrument should be used to test the atmosphere of any confined space before entering. It should also be used for atmospheric testing for LEL gas before beginning any type of Hot Work. Proper calibration documentation will need to be provided. (Supplied by Drilling Contractor)

Communication Equipment:

- Proper communication equipment such as cell phones or 2 -way radios should be available at the rig.
- Radio communication shall be available for communication between the company man's trailer, rig floor and the tool pusher's trailer.
- Communication equipment shall be available on the vehicles.

Special Control Equipment:

- Hydraulic BOP equipment with remote control on the ground.
- Rotating head at the surface casing point.
- BOP, Choke Manifold and Process Flow Diagrams (see the attached - previously submitted)
- Patriot Rig #5 SM Choke Manifold Equipment (see the attached - previously submitted)

Evacuation Plan:

- Evacuation routes should be established prior to spudding the well.
- Should be discussed with all rig personnel.

Designated Areas:

Parking and Visitor area:

- All vehicles are to be parked at a pre-determined safe distance from the wellhead.
- Designated smoking area.

Safe Briefing Areas:

- Two safe briefing Areas shall be designated on either side of the location at the maximum allowable distance from the well bore so they offset prevailing winds or they are at a 180 degree angle if wind directions tend to shift in the area.
- Personal protective equipment should be stored at both briefing areas or if a moveable cascade trailer is used, it should be kept upwind of existing winds. When wind is from the prevailing direction, both briefing areas should be accessible.

NOTES:

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- Additional personal H2S monitors are available for all employees on location.
- Automatic Flare Igniters are recommended for installation on the rig.

CHECK LISTS

Status Check List

Note: Date each item as they are implemented.

1. Sign at location entrance.
2. Two (2) wind socks (in required locations).
3. Wind Streamers (if required).
4. SCBA's on location for all rig personnel and mud loggers.
5. Air packs, inspected and ready for use.
6. Spare bottles for each air pack (if required).
7. Cascade system for refilling air bottles.
8. Cascade system and hose line hook up.
9. Choke manifold hooked-up and tested. (Before drilling out surface casing.)
10. Remote Hydraulic BOP control (hooked-up and tested before drilling out surface casing).
11. BOP tested (before drilling out surface casing).
12. Mud engineer on location with equipment to test mud for H2S.
13. Safe Briefing Areas set-up.
14. Well Condition sign and flags on location and ready.
15. Hydrogen Sulfide detection system hooked-up & tested.
16. Hydrogen Sulfide alarm system hooked-up & tested.
17. Stretcher on location at Safe Briefing Area.
18. 2-100' OSHA Approved Life Lines on location.
19. 1-20# Fire Extinguisher in safety trailer.
20. Confined Space Monitor on location and tested.
21. All rig crews and supervisor trained (as required).
22. Access restricted for unauthorized personnel.
23. Drills on H2S and well control procedures.
24. All outside service contractors advised of potential H2S on the well.
25. NO SMOKING sign posted.
26. H2S Detector Pump w/tubes on location.
27. 25mm Flare Gun on location w/flares.
28. Automatic Flare Igniter installed on rig.

Procedural Check List

Perform the following on each tour:

1. Check fire extinguishers to see that they have the proper charge.
2. Check breathing equipment to insure that they have not been tampered with.
3. Check pressure on the supply air bottles to make sure they are capable of recharging.
4. Make sure all of the Hydrogen Sulfide detection systems are operative.

Perform the following each week:

1. Check each piece of breathing equipment to make sure that they are fully charged and operational. This requires that the air cylinder be opened and the mask assembly be put on and tested to make sure that the regulators and

masks are properly working. Negative and positive pressure should be conducted on all masks.
2. BOP skills.
3. Check supply pressure on BOP accumulator stand-by source.
4. Check all breathing air mask assemblies to see that straps are loosened and turned back, ready to use.
5. Check pressure on cascade air cylinders to make sure they are fully charged and ready to use for refill purposes if necessary.
6. Check all cascade system regulators to make sure they work properly.
7. Perform breathing drills with on-site personnel.
8. Check the following supplies for availability:
    - Stretcher
    - Safety Belts and ropes.
    - Spare air bottles.
    - Spare oxygen bottles (if resuscitator required).
    - Gas Detector Pump and tubes.
    - Emergency telephone lists.
9. Test the Confined Space Monitor to verify the batteries are good and that the unit is in good working condition and has been properly calibrated according to manufacturer's recommendations.

Briefing Procedures

The following scheduled briefings will be held to ensure the effective drilling and operation of this project:

Pre-Spud Meeting

Date: Prior to spudding the well.

Attendance: Drilling Supervisor
Drilling Engineer
Drilling Foreman
Rig Tool Pushers
Mud Engineer
All Safety Personnel
Key Service Company Personnel

Purpose: Review and discuss the well program, step-by-step, to ensure complete understanding of assignments and responsibilities.

Evacuation Plan

General Plan

The direct lines of action prepared by Caza SAFETY, to protect the public from hazardous gas situations are as follows:

1. When the company approved supervisor (Drilling Foremen, Tool Pusher or Driller) determine that Hydrogen Sulfide gas cannot be limited to the well location, and the public will be involved, he will activate the evacuation plan. Escape routes are noted on the Area Map.
2. Company safety personnel or designee will notify the appropriate local government agency that a hazardous condition exists and evacuation needs to be implemented.
3. Company approved safety personnel that have been trained in the use of the proper emergency equipment will be utilized.
4. Law enforcement personnel (State Police, Local Police Department, Fire Department, and the Sheriff's Department) will be called to aid in setting up and maintaining road blocks. Also, they will aid in evacuation of the public if necessary.

NOTE: Law enforcement personnel will not be asked to come into a contaminated area. Their assistance will be limited to uncontaminated areas. Constant radio contact will be maintained with them.

5. After the discharge of gas has been controlled, "Company" safety personnel will determine when the area is safe for re-entry.

Emergency Assistance Telephone List

PUBLIC SAFETY: 911 or

Lea County Sheriff or Police..... (575) 396-3611

Fire Department .....(575) 397-9308

Hospital ..... (575) 492-5000

Ambulance 911

Department of Public Safety..... (392) 392-5588

Oil Conservation Division .....(575) 748-1823

New Mexico Energy, Minerals & Natural Resources Department .....(575) 748-1283

Caza Oil and Gas, Inc:

Office .....(423) 682-7424

VP Operations: Tony Sam

Office .....(423) 682-7424

Cell .....(432) 556-6708

The geologic zones that will be encountered during drilling may contain hazardous quantities of H2S. The accompanying map illustrates the affected areas of the community. The residents within this radius will be notified via a hand delivered written notice describing the activities, potential hazards, and conditions of evacuation, evacuation drill siren alarms and other precautionary measures.

Evacuee Description:

Residents: THERE ARE NO RESIDENTS WITHIN 3000' ROE.

Notification Process:

A continuous siren audible to all residence will be activated, signaling evacuation of previously notified and informed residents.

Evacuation Plan:

All evacuees will migrate laterally toward the wind direction.

Caza Oil and Gas, Inc. will identify all home bound or highly susceptible individuals and make special evacuation preparations, interfacing with the local and emergency medical service as necessary.

MAPS AND PLATS

See the attached map showing the 3000' ROE clarification.

Project: Desert Rose 17-8 Federal 13H
Site: Desert Rose 17-8 Federal 13H
Well: Desert Rose 17-8 Federal 13H
Wellbore: Desert Rose 17-8 Federal 13H
Design: 191113 Desert Rose 17-8 Federal 13H

Caza Petroleum

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Azimuths to Grid North
True North: -0.46°
Magnetic North: 6.06°

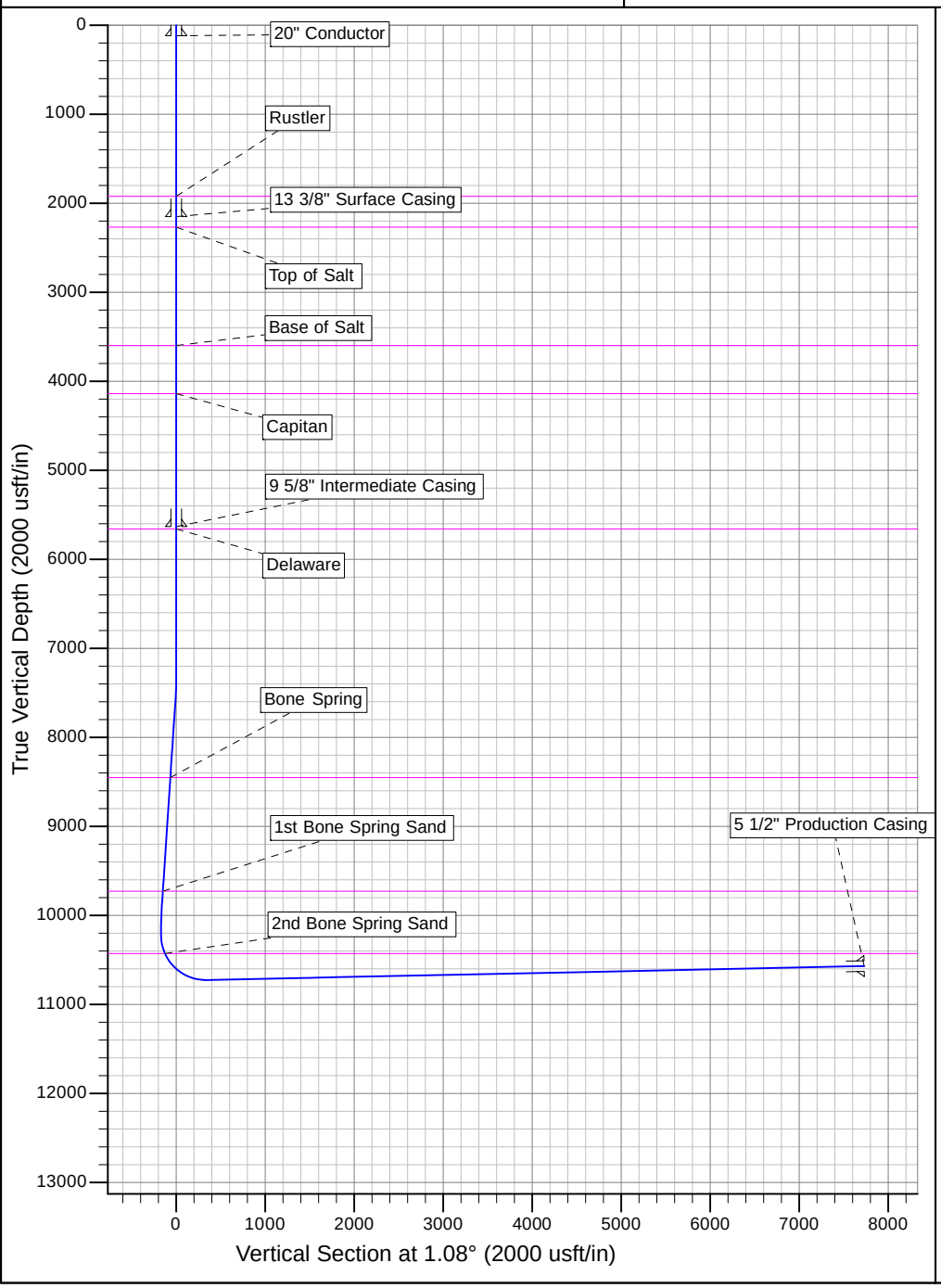
Magnetic Field
Strength: 47985.7snT
Dip Angle: 60.30°
Date: 11/13/2019
Model: IGRF2010

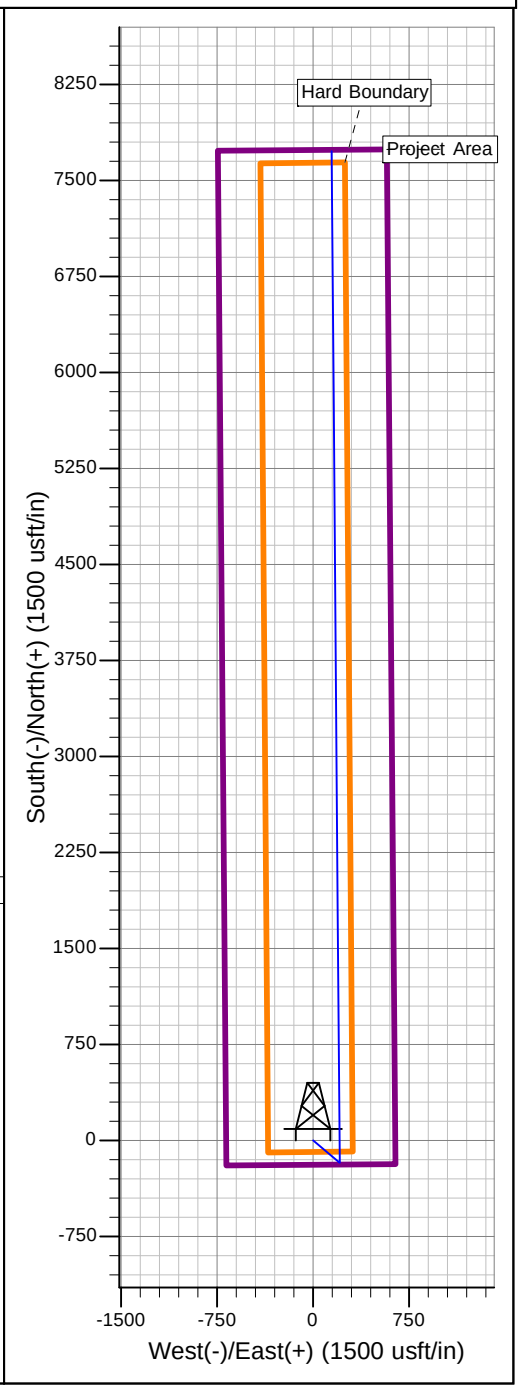
CASING DETAILS

TVD	MD	Name	Size
120.0	120.0	20" Conductor	20
2150.0	2150.0	13 3/8" Surface Casing	13-3/8
5632.0	5632.0	9 5/8" Intermediate Casing	9-5/8
10570.5	18429.0	5 1/2" Production Casing	5-1/2

FORMATION TOP DETAILS

TVDPath	MDPath	Formation	DipAngle	DipDir
1923.0	1923.0	Rustler	0.00	
2268.0	2268.0	Top of Salt	0.00	
3598.0	3598.0	Base of Salt	0.00	
4138.0	4138.0	Capitan	0.00	
5658.0	5658.0	Delaware	0.00	
8453.0	8458.3	Bone Spring	0.00	
9728.0	9740.4	1st Bone Spring Sand	0.00	
10428.0	10447.9	2nd Bone Spring Sand	0.00	





Caza Petroleum

Caza Operating LLC

Desert Rose 17-8 Federal 13H
Desert Rose 17-8 Federal 13H
Desert Rose 17-8 Federal 13H
Desert Rose 17-8 Federal 13H

Plan: 191113 Desert Rose 17-8 Federal 13H

Morcor Standard Plan

14 November, 2019

Caza Petroleum

Morcor Engineering

Morcor Standard Plan

Company:	Caza Operating LLC	**Local Co-ordinate Reference:**	Well Desert Rose 17-8 Federal 13H
Project:	Desert Rose 17-8 Federal 13H	**TVD Reference:**	WELL @ 3715.0usft (Original Well Elev)
Site:	Desert Rose 17-8 Federal 13H	**MD Reference:**	WELL @ 3715.0usft (Original Well Elev)
Well:	Desert Rose 17-8 Federal 13H	**North Reference:**	Grid
Wellbore:	Desert Rose 17-8 Federal 13H	**Survey Calculation Method:**	Minimum Curvature
Design:	191113 Desert Rose 17-8 Federal 13H	**Database:**	EDM 5000.1 Single User Db

Project Desert Rose 17-8 Federal 13H

Map System:	US State Plane 1983	**System Datum:**	Mean Sea Level
Geo Datum:	North American Datum 1983		
Map Zone:	New Mexico Eastern Zone		

Site Desert Rose 17-8 Federal 13H

Site Position:		**Northing:**	570,850.33 usft	**Latitude:**	32° 33' 59.172 N
From:	Map	**Easting:**	803,752.06 usft	**Longitude:**	103° 28' 53.534 W
Position Uncertainty:	1.0 usft	**Slot Radius:**	17-1/2 "	**Grid Convergence:**	0.46 °

Well Desert Rose 17-8 Federal 13H

Well Position	**+N/-S**	0.0 usft	**Northing:**	570,850.33 usft	**Latitude:**	32° 33' 59.172 N
	+E/-W	0.0 usft	**Easting:**	803,752.06 usft	**Longitude:**	103° 28' 53.534 W
Position Uncertainty		0.0 usft	**Wellhead Elevation:**	usft	**Ground Level:**	3,693.0 usft

Wellbore Desert Rose 17-8 Federal 13H

Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2010	11/13/2019	6.52	60.30	47,986

Design 191113 Desert Rose 17-8 Federal 13H

Audit Notes:

Version:		**Phase:**	PLAN	**Tie On Depth:**	0.0

Vertical Section:	Depth From (TVD) (usft)	+N/-S (usft)	+E/-W (usft)	Direction (°)
	0.0	0.0	0.0	1.08

Survey Tool Program **Date** 11/14/2019

From (usft)	To (usft)	Survey (Wellbore)	Tool Name	Description
0.0	18,429.0	191113 Desert Rose 17-8 Federal 13H (De	MWD	MWD - Standard

Caza Petroleum

Morcor Engineering

Morcor Standard Plan

Company:	Caza Operating LLC	**Local Co-ordinate Reference:**	Well Desert Rose 17-8 Federal 13H
Project:	Desert Rose 17-8 Federal 13H	**TVD Reference:**	WELL @ 3715.0usft (Original Well Elev)
Site:	Desert Rose 17-8 Federal 13H	**MD Reference:**	WELL @ 3715.0usft (Original Well Elev)
Well:	Desert Rose 17-8 Federal 13H	**North Reference:**	Grid
Wellbore:	Desert Rose 17-8 Federal 13H	**Survey Calculation Method:**	Minimum Curvature
Design:	191113 Desert Rose 17-8 Federal 13H	**Database:**	EDM 5000.1 Single User Db

Planned Survey

MD (usft)	Inc (°)	Azi (azimuth) (°)	TVD (usft)	TVDSS (usft)	N/S (usft)	E/W (usft)	Easting (usft)	Northing (usft)	V. Sec (usft)	DLeg (°/100usft)
0.0	0.00	0.00	0.0	-3,715.0	0.0	0.0	803,752.06	570,850.33	0.00	0.00
100.0	0.00	0.00	100.0	-3,615.0	0.0	0.0	803,752.06	570,850.33	0.00	0.00
120.0	0.00	0.00	120.0	-3,595.0	0.0	0.0	803,752.06	570,850.33	0.00	0.00
20" Conductor										
200.0	0.00	0.00	200.0	-3,515.0	0.0	0.0	803,752.06	570,850.33	0.00	0.00
300.0	0.00	0.00	300.0	-3,415.0	0.0	0.0	803,752.06	570,850.33	0.00	0.00
400.0	0.00	0.00	400.0	-3,315.0	0.0	0.0	803,752.06	570,850.33	0.00	0.00
500.0	0.00	0.00	500.0	-3,215.0	0.0	0.0	803,752.06	570,850.33	0.00	0.00
600.0	0.00	0.00	600.0	-3,115.0	0.0	0.0	803,752.06	570,850.33	0.00	0.00
700.0	0.00	0.00	700.0	-3,015.0	0.0	0.0	803,752.06	570,850.33	0.00	0.00
800.0	0.00	0.00	800.0	-2,915.0	0.0	0.0	803,752.06	570,850.33	0.00	0.00
900.0	0.00	0.00	900.0	-2,815.0	0.0	0.0	803,752.06	570,850.33	0.00	0.00
1,000.0	0.00	0.00	1,000.0	-2,715.0	0.0	0.0	803,752.06	570,850.33	0.00	0.00
1,100.0	0.00	0.00	1,100.0	-2,615.0	0.0	0.0	803,752.06	570,850.33	0.00	0.00
1,200.0	0.00	0.00	1,200.0	-2,515.0	0.0	0.0	803,752.06	570,850.33	0.00	0.00
1,300.0	0.00	0.00	1,300.0	-2,415.0	0.0	0.0	803,752.06	570,850.33	0.00	0.00
1,400.0	0.00	0.00	1,400.0	-2,315.0	0.0	0.0	803,752.06	570,850.33	0.00	0.00
1,500.0	0.00	0.00	1,500.0	-2,215.0	0.0	0.0	803,752.06	570,850.33	0.00	0.00
1,600.0	0.00	0.00	1,600.0	-2,115.0	0.0	0.0	803,752.06	570,850.33	0.00	0.00
1,700.0	0.00	0.00	1,700.0	-2,015.0	0.0	0.0	803,752.06	570,850.33	0.00	0.00
1,800.0	0.00	0.00	1,800.0	-1,915.0	0.0	0.0	803,752.06	570,850.33	0.00	0.00
1,900.0	0.00	0.00	1,900.0	-1,815.0	0.0	0.0	803,752.06	570,850.33	0.00	0.00
1,923.0	0.00	0.00	1,923.0	-1,792.0	0.0	0.0	803,752.06	570,850.33	0.00	0.00
Rustler										
2,000.0	0.00	0.00	2,000.0	-1,715.0	0.0	0.0	803,752.06	570,850.33	0.00	0.00
2,100.0	0.00	0.00	2,100.0	-1,615.0	0.0	0.0	803,752.06	570,850.33	0.00	0.00
2,150.0	0.00	0.00	2,150.0	-1,565.0	0.0	0.0	803,752.06	570,850.33	0.00	0.00
13 3/8" Surface Casing										

Caza Petroleum

Morcor Engineering

Morcor Standard Plan

Company:	Caza Operating LLC	**Local Co-ordinate Reference:**	Well Desert Rose 17-8 Federal 13H
Project:	Desert Rose 17-8 Federal 13H	**TVD Reference:**	WELL @ 3715.0usft (Original Well Elev)
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Wellbore:	Desert Rose 17-8 Federal 13H	**Survey Calculation Method:**	Minimum Curvature
Design:	191113 Desert Rose 17-8 Federal 13H	**Database:**	EDM 5000.1 Single User Db

Planned Survey

MD (usft)	Inc (°)	Azi (azimuth) (°)	TVD (usft)	TVDSS (usft)	N/S (usft)	E/W (usft)	Easting (usft)	Northing (usft)	V. Sec (usft)	DLeg (°/100usft)
2,200.0	0.00	0.00	2,200.0	-1,515.0	0.0	0.0	803,752.06	570,850.33	0.00	0.00
2,268.0	0.00	0.00	2,268.0	-1,447.0	0.0	0.0	803,752.06	570,850.33	0.00	0.00
Top of Salt										
2,300.0	0.00	0.00	2,300.0	-1,415.0	0.0	0.0	803,752.06	570,850.33	0.00	0.00
2,400.0	0.00	0.00	2,400.0	-1,315.0	0.0	0.0	803,752.06	570,850.33	0.00	0.00
2,500.0	0.00	0.00	2,500.0	-1,215.0	0.0	0.0	803,752.06	570,850.33	0.00	0.00
2,600.0	0.00	0.00	2,600.0	-1,115.0	0.0	0.0	803,752.06	570,850.33	0.00	0.00
2,700.0	0.00	0.00	2,700.0	-1,015.0	0.0	0.0	803,752.06	570,850.33	0.00	0.00
2,800.0	0.00	0.00	2,800.0	-915.0	0.0	0.0	803,752.06	570,850.33	0.00	0.00
2,900.0	0.00	0.00	2,900.0	-815.0	0.0	0.0	803,752.06	570,850.33	0.00	0.00
3,000.0	0.00	0.00	3,000.0	-715.0	0.0	0.0	803,752.06	570,850.33	0.00	0.00
3,100.0	0.00	0.00	3,100.0	-615.0	0.0	0.0	803,752.06	570,850.33	0.00	0.00
3,200.0	0.00	0.00	3,200.0	-515.0	0.0	0.0	803,752.06	570,850.33	0.00	0.00
3,300.0	0.00	0.00	3,300.0	-415.0	0.0	0.0	803,752.06	570,850.33	0.00	0.00
3,400.0	0.00	0.00	3,400.0	-315.0	0.0	0.0	803,752.06	570,850.33	0.00	0.00
3,500.0	0.00	0.00	3,500.0	-215.0	0.0	0.0	803,752.06	570,850.33	0.00	0.00
3,598.0	0.00	0.00	3,598.0	-117.0	0.0	0.0	803,752.06	570,850.33	0.00	0.00
Base of Salt										
3,600.0	0.00	0.00	3,600.0	-115.0	0.0	0.0	803,752.06	570,850.33	0.00	0.00
3,700.0	0.00	0.00	3,700.0	-15.0	0.0	0.0	803,752.06	570,850.33	0.00	0.00
3,800.0	0.00	0.00	3,800.0	85.0	0.0	0.0	803,752.06	570,850.33	0.00	0.00
3,900.0	0.00	0.00	3,900.0	185.0	0.0	0.0	803,752.06	570,850.33	0.00	0.00
4,000.0	0.00	0.00	4,000.0	285.0	0.0	0.0	803,752.06	570,850.33	0.00	0.00
4,100.0	0.00	0.00	4,100.0	385.0	0.0	0.0	803,752.06	570,850.33	0.00	0.00
4,138.0	0.00	0.00	4,138.0	423.0	0.0	0.0	803,752.06	570,850.33	0.00	0.00
Capitan										
4,200.0	0.00	0.00	4,200.0	485.0	0.0	0.0	803,752.06	570,850.33	0.00	0.00
4,300.0	0.00	0.00	4,300.0	585.0	0.0	0.0	803,752.06	570,850.33	0.00	0.00

Caza Petroleum

Morcor Engineering

Morcor Standard Plan

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Wellbore:	Desert Rose 17-8 Federal 13H	**Survey Calculation Method:**	Minimum Curvature
Design:	191113 Desert Rose 17-8 Federal 13H	**Database:**	EDM 5000.1 Single User Db

Planned Survey

MD (usft)	Inc (°)	Azi (azimuth) (°)	TVD (usft)	TVDSS (usft)	N/S (usft)	E/W (usft)	Easting (usft)	Northing (usft)	V. Sec (usft)	DLeg (°/100usft)
4,400.0	0.00	0.00	4,400.0	685.0	0.0	0.0	803,752.06	570,850.33	0.00	0.00
4,500.0	0.00	0.00	4,500.0	785.0	0.0	0.0	803,752.06	570,850.33	0.00	0.00
4,600.0	0.00	0.00	4,600.0	885.0	0.0	0.0	803,752.06	570,850.33	0.00	0.00
4,700.0	0.00	0.00	4,700.0	985.0	0.0	0.0	803,752.06	570,850.33	0.00	0.00
4,800.0	0.00	0.00	4,800.0	1,085.0	0.0	0.0	803,752.06	570,850.33	0.00	0.00
4,900.0	0.00	0.00	4,900.0	1,185.0	0.0	0.0	803,752.06	570,850.33	0.00	0.00
5,000.0	0.00	0.00	5,000.0	1,285.0	0.0	0.0	803,752.06	570,850.33	0.00	0.00
5,100.0	0.00	0.00	5,100.0	1,385.0	0.0	0.0	803,752.06	570,850.33	0.00	0.00
5,200.0	0.00	0.00	5,200.0	1,485.0	0.0	0.0	803,752.06	570,850.33	0.00	0.00
5,300.0	0.00	0.00	5,300.0	1,585.0	0.0	0.0	803,752.06	570,850.33	0.00	0.00
5,400.0	0.00	0.00	5,400.0	1,685.0	0.0	0.0	803,752.06	570,850.33	0.00	0.00
5,500.0	0.00	0.00	5,500.0	1,785.0	0.0	0.0	803,752.06	570,850.33	0.00	0.00
5,600.0	0.00	0.00	5,600.0	1,885.0	0.0	0.0	803,752.06	570,850.33	0.00	0.00
5,632.0	0.00	0.00	5,632.0	1,917.0	0.0	0.0	803,752.06	570,850.33	0.00	0.00
9 5/8" Intermediate Casing										
5,658.0	0.00	0.00	5,658.0	1,943.0	0.0	0.0	803,752.06	570,850.33	0.00	0.00
Delaware										
5,700.0	0.00	0.00	5,700.0	1,985.0	0.0	0.0	803,752.06	570,850.33	0.00	0.00
5,800.0	0.00	0.00	5,800.0	2,085.0	0.0	0.0	803,752.06	570,850.33	0.00	0.00
5,900.0	0.00	0.00	5,900.0	2,185.0	0.0	0.0	803,752.06	570,850.33	0.00	0.00
6,000.0	0.00	0.00	6,000.0	2,285.0	0.0	0.0	803,752.06	570,850.33	0.00	0.00
6,100.0	0.00	0.00	6,100.0	2,385.0	0.0	0.0	803,752.06	570,850.33	0.00	0.00
6,200.0	0.00	0.00	6,200.0	2,485.0	0.0	0.0	803,752.06	570,850.33	0.00	0.00
6,300.0	0.00	0.00	6,300.0	2,585.0	0.0	0.0	803,752.06	570,850.33	0.00	0.00
6,400.0	0.00	0.00	6,400.0	2,685.0	0.0	0.0	803,752.06	570,850.33	0.00	0.00
6,500.0	0.00	0.00	6,500.0	2,785.0	0.0	0.0	803,752.06	570,850.33	0.00	0.00
6,600.0	0.00	0.00	6,600.0	2,885.0	0.0	0.0	803,752.06	570,850.33	0.00	0.00

Caza Petroleum

Morcor Engineering

Morcor Standard Plan

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Wellbore:	Desert Rose 17-8 Federal 13H	**Survey Calculation Method:**	Minimum Curvature
Design:	191113 Desert Rose 17-8 Federal 13H	**Database:**	EDM 5000.1 Single User Db

Planned Survey

MD (usft)	Inc (°)	Azi (azimuth) (°)	TVD (usft)	TVDSS (usft)	N/S (usft)	E/W (usft)	Easting (usft)	Northing (usft)	V. Sec (usft)	DLeg (°/100usft)
6,700.0	0.00	0.00	6,700.0	2,985.0	0.0	0.0	803,752.06	570,850.33	0.00	0.00
6,800.0	0.00	0.00	6,800.0	3,085.0	0.0	0.0	803,752.06	570,850.33	0.00	0.00
6,900.0	0.00	0.00	6,900.0	3,185.0	0.0	0.0	803,752.06	570,850.33	0.00	0.00
7,000.0	0.00	0.00	7,000.0	3,285.0	0.0	0.0	803,752.06	570,850.33	0.00	0.00
7,100.0	0.00	0.00	7,100.0	3,385.0	0.0	0.0	803,752.06	570,850.33	0.00	0.00
7,200.0	0.00	0.00	7,200.0	3,485.0	0.0	0.0	803,752.06	570,850.33	0.00	0.00
7,300.0	0.00	0.00	7,300.0	3,585.0	0.0	0.0	803,752.06	570,850.33	0.00	0.00
7,350.0	0.00	0.00	7,350.0	3,635.0	0.0	0.0	803,752.06	570,850.33	0.00	0.00
Start Build 3.00										
7,400.0	1.50	130.00	7,400.0	3,685.0	-0.4	0.5	803,752.56	570,849.91	-0.41	3.00
7,500.0	4.50	130.00	7,499.8	3,784.8	-3.8	4.5	803,756.57	570,846.55	-3.70	3.00
7,550.0	6.00	130.00	7,549.6	3,834.6	-6.7	8.0	803,760.07	570,843.60	-6.57	3.00
Start 2390.0 hold at 7550.0 MD										
7,600.0	6.00	130.00	7,599.4	3,884.4	-10.1	12.0	803,764.08	570,840.25	-9.86	0.00
7,700.0	6.00	130.00	7,698.8	3,983.8	-16.8	20.0	803,772.09	570,833.53	-16.42	0.00
7,800.0	6.00	130.00	7,798.3	4,083.3	-23.5	28.0	803,780.09	570,826.81	-22.99	0.00
7,900.0	6.00	130.00	7,897.7	4,182.7	-30.2	36.0	803,788.10	570,820.09	-29.56	0.00
8,000.0	6.00	130.00	7,997.2	4,282.2	-37.0	44.0	803,796.11	570,813.37	-36.13	0.00
8,100.0	6.00	130.00	8,096.6	4,381.6	-43.7	52.1	803,804.12	570,806.65	-42.69	0.00
8,200.0	6.00	130.00	8,196.1	4,481.1	-50.4	60.1	803,812.12	570,799.93	-49.26	0.00
8,300.0	6.00	130.00	8,295.5	4,580.5	-57.1	68.1	803,820.13	570,793.21	-55.83	0.00
8,400.0	6.00	130.00	8,395.0	4,680.0	-63.8	76.1	803,828.14	570,786.49	-62.39	0.00
8,458.3	6.00	130.00	8,453.0	4,738.0	-67.8	80.7	803,832.81	570,782.57	-66.23	0.00
Bone Spring										
8,500.0	6.00	130.00	8,494.4	4,779.4	-70.6	84.1	803,836.14	570,779.77	-68.96	0.00
8,600.0	6.00	130.00	8,593.9	4,878.9	-77.3	92.1	803,844.15	570,773.06	-75.53	0.00
8,700.0	6.00	130.00	8,693.3	4,978.3	-84.0	100.1	803,852.16	570,766.34	-82.10	0.00
8,800.0	6.00	130.00	8,792.8	5,077.8	-90.7	108.1	803,860.17	570,759.62	-88.66	0.00

Caza Petroleum

Morcor Engineering

Morcor Standard Plan

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MD (usft)	Inc (°)	Azi (azimuth) (°)	TVD (usft)	TVDSS (usft)	N/S (usft)	E/W (usft)	Easting (usft)	Northing (usft)	V. Sec (usft)	DLeg (°/100usft)
8,900.0	6.00	130.00	8,892.2	5,177.2	-97.4	116.1	803,868.17	570,752.90	-95.23	0.00
9,000.0	6.00	130.00	8,991.7	5,276.7	-104.2	124.1	803,876.18	570,746.18	-101.80	0.00
9,100.0	6.00	130.00	9,091.1	5,376.1	-110.9	132.1	803,884.19	570,739.46	-108.36	0.00
9,200.0	6.00	130.00	9,190.6	5,475.6	-117.6	140.1	803,892.20	570,732.74	-114.93	0.00
9,300.0	6.00	130.00	9,290.0	5,575.0	-124.3	148.1	803,900.20	570,726.02	-121.50	0.00
9,400.0	6.00	130.00	9,389.5	5,674.5	-131.0	156.2	803,908.21	570,719.30	-128.07	0.00
9,500.0	6.00	130.00	9,489.0	5,774.0	-137.7	164.2	803,916.22	570,712.59	-134.63	0.00
9,600.0	6.00	130.00	9,588.4	5,873.4	-144.5	172.2	803,924.23	570,705.87	-141.20	0.00
9,700.0	6.00	130.00	9,687.9	5,972.9	-151.2	180.2	803,932.23	570,699.15	-147.77	0.00
9,740.4	6.00	130.00	9,728.0	6,013.0	-153.9	183.4	803,935.46	570,696.44	-150.42	0.00
1st Bone Spring Sand										
9,800.0	6.00	130.00	9,787.3	6,072.3	-157.9	188.2	803,940.24	570,692.43	-154.34	0.00
9,900.0	6.00	130.00	9,886.8	6,171.8	-164.6	196.2	803,948.25	570,685.71	-160.90	0.00
9,940.0	6.00	130.00	9,926.5	6,211.5	-167.3	199.4	803,951.45	570,683.02	-163.53	0.00
Start Drop -3.00										
10,000.0	4.20	130.00	9,986.3	6,271.3	-170.7	203.5	803,955.54	570,679.59	-166.88	3.00
10,100.0	1.20	130.00	10,086.2	6,371.2	-173.8	207.1	803,959.14	570,676.57	-169.84	3.00
10,140.0	0.00	0.00	10,126.2	6,411.2	-174.0	207.4	803,959.46	570,676.30	-170.10	3.00
Start 98.0 hold at 10140.0 MD										
10,200.0	0.00	0.00	10,186.2	6,471.2	-174.0	207.4	803,959.46	570,676.30	-170.10	0.00
10,238.0	0.00	0.00	10,224.2	6,509.2	-174.0	207.4	803,959.46	570,676.30	-170.10	0.00
Start Build 11.40										
10,300.0	7.07	359.55	10,286.0	6,571.0	-170.2	207.4	803,959.43	570,680.12	-166.28	11.40
10,400.0	18.47	359.55	10,383.4	6,668.4	-148.1	207.2	803,959.26	570,702.18	-144.23	11.40
10,447.9	23.93	359.55	10,428.0	6,713.0	-130.8	207.1	803,959.13	570,719.49	-126.93	11.40
2nd Bone Spring Sand										
10,500.0	29.87	359.55	10,474.5	6,759.5	-107.3	206.9	803,958.94	570,743.06	-103.36	11.40
10,600.0	41.27	359.55	10,555.7	6,840.7	-49.2	206.4	803,958.48	570,801.13	-45.31	11.40

Caza Petroleum

Morcor Engineering

Morcor Standard Plan

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10,700.0	52.67	359.55	10,623.8	6,908.8	23.8	205.9	803,957.91	570,874.11	27.65	11.40
10,800.0	64.08	359.55	10,676.1	6,961.1	108.8	205.2	803,957.24	570,959.12	112.63	11.40
10,900.0	75.48	359.55	10,710.7	6,995.7	202.5	204.4	803,956.51	571,052.80	206.28	11.40
11,000.0	86.88	359.55	10,726.0	7,011.0	301.1	203.7	803,955.73	571,151.45	304.89	11.40
11,038.0	91.21	359.55	10,726.6	7,011.6	339.1	203.4	803,955.43	571,189.43	342.87	11.40
Start 6862.0 hold at 11038.0 MD										
11,100.0	91.21	359.55	10,725.3	7,010.3	401.1	202.9	803,954.95	571,251.42	404.83	0.00
11,200.0	91.21	359.55	10,723.2	7,008.2	501.1	202.1	803,954.16	571,351.39	504.77	0.00
11,300.0	91.21	359.55	10,721.1	7,006.1	601.0	201.3	803,953.38	571,451.37	604.71	0.00
11,400.0	91.21	359.55	10,719.0	7,004.0	701.0	200.5	803,952.59	571,551.34	704.66	0.00
11,500.0	91.21	359.55	10,716.8	7,001.8	801.0	199.7	803,951.81	571,651.32	804.60	0.00
11,600.0	91.21	359.55	10,714.7	6,999.7	901.0	199.0	803,951.02	571,751.29	904.54	0.00
11,700.0	91.21	359.55	10,712.6	6,997.6	1,000.9	198.2	803,950.24	571,851.26	1,004.48	0.00
11,800.0	91.21	359.55	10,710.5	6,995.5	1,100.9	197.4	803,949.45	571,951.24	1,104.43	0.00
11,900.0	91.21	359.55	10,708.4	6,993.4	1,200.9	196.6	803,948.67	572,051.21	1,204.37	0.00
12,000.0	91.21	359.55	10,706.3	6,991.3	1,300.9	195.8	803,947.88	572,151.19	1,304.31	0.00
12,100.0	91.21	359.55	10,704.2	6,989.2	1,400.8	195.0	803,947.10	572,251.16	1,404.25	0.00
12,200.0	91.21	359.55	10,702.1	6,987.1	1,500.8	194.3	803,946.31	572,351.14	1,504.19	0.00
12,300.0	91.21	359.55	10,700.0	6,985.0	1,600.8	193.5	803,945.53	572,451.11	1,604.14	0.00
12,400.0	91.21	359.55	10,697.8	6,982.8	1,700.8	192.7	803,944.74	572,551.09	1,704.08	0.00
12,500.0	91.21	359.55	10,695.7	6,980.7	1,800.7	191.9	803,943.95	572,651.06	1,804.02	0.00
12,600.0	91.21	359.55	10,693.6	6,978.6	1,900.7	191.1	803,943.17	572,751.04	1,903.96	0.00
12,700.0	91.21	359.55	10,691.5	6,976.5	2,000.7	190.3	803,942.38	572,851.01	2,003.91	0.00
12,800.0	91.21	359.55	10,689.4	6,974.4	2,100.7	189.5	803,941.60	572,950.99	2,103.85	0.00
12,900.0	91.21	359.55	10,687.3	6,972.3	2,200.6	188.8	803,940.81	573,050.96	2,203.79	0.00
13,000.0	91.21	359.55	10,685.2	6,970.2	2,300.6	188.0	803,940.03	573,150.93	2,303.73	0.00
13,100.0	91.21	359.55	10,683.1	6,968.1	2,400.6	187.2	803,939.24	573,250.91	2,403.67	0.00

Caza Petroleum

Morcor Engineering

Morcor Standard Plan

Company:	Caza Operating LLC	**Local Co-ordinate Reference:**	Well Desert Rose 17-8 Federal 13H
Project:	Desert Rose 17-8 Federal 13H	**TVD Reference:**	WELL @ 3715.0usft (Original Well Elev)
Site:	Desert Rose 17-8 Federal 13H	**MD Reference:**	WELL @ 3715.0usft (Original Well Elev)
Well:	Desert Rose 17-8 Federal 13H	**North Reference:**	Grid
Wellbore:	Desert Rose 17-8 Federal 13H	**Survey Calculation Method:**	Minimum Curvature
Design:	191113 Desert Rose 17-8 Federal 13H	**Database:**	EDM 5000.1 Single User Db

Planned Survey

MD (usft)	Inc (°)	Azi (azimuth) (°)	TVD (usft)	TVDSS (usft)	N/S (usft)	E/W (usft)	Easting (usft)	Northing (usft)	V. Sec (usft)	DLeg (°/100usft)
13,200.0	91.21	359.55	10,680.9	6,965.9	2,500.6	186.4	803,938.46	573,350.88	2,503.62	0.00
13,300.0	91.21	359.55	10,678.8	6,963.8	2,600.5	185.6	803,937.67	573,450.86	2,603.56	0.00
13,400.0	91.21	359.55	10,676.7	6,961.7	2,700.5	184.8	803,936.89	573,550.83	2,703.50	0.00
13,500.0	91.21	359.55	10,674.6	6,959.6	2,800.5	184.0	803,936.10	573,650.81	2,803.44	0.00
13,600.0	91.21	359.55	10,672.5	6,957.5	2,900.5	183.3	803,935.32	573,750.78	2,903.39	0.00
13,700.0	91.21	359.55	10,670.4	6,955.4	3,000.4	182.5	803,934.53	573,850.76	3,003.33	0.00
13,800.0	91.21	359.55	10,668.3	6,953.3	3,100.4	181.7	803,933.75	573,950.73	3,103.27	0.00
13,900.0	91.21	359.55	10,666.2	6,951.2	3,200.4	180.9	803,932.96	574,050.71	3,203.21	0.00
14,000.0	91.21	359.55	10,664.1	6,949.1	3,300.4	180.1	803,932.18	574,150.68	3,303.15	0.00
14,100.0	91.21	359.55	10,661.9	6,946.9	3,400.3	179.3	803,931.39	574,250.66	3,403.10	0.00
14,200.0	91.21	359.55	10,659.8	6,944.8	3,500.3	178.5	803,930.61	574,350.63	3,503.04	0.00
14,300.0	91.21	359.55	10,657.7	6,942.7	3,600.3	177.8	803,929.82	574,450.60	3,602.98	0.00
14,400.0	91.21	359.55	10,655.6	6,940.6	3,700.2	177.0	803,929.04	574,550.58	3,702.92	0.00
14,500.0	91.21	359.55	10,653.5	6,938.5	3,800.2	176.2	803,928.25	574,650.55	3,802.86	0.00
14,600.0	91.21	359.55	10,651.4	6,936.4	3,900.2	175.4	803,927.47	574,750.53	3,902.81	0.00
14,700.0	91.21	359.55	10,649.3	6,934.3	4,000.2	174.6	803,926.68	574,850.50	4,002.75	0.00
14,800.0	91.21	359.55	10,647.2	6,932.2	4,100.1	173.8	803,925.89	574,950.48	4,102.69	0.00
14,900.0	91.21	359.55	10,645.1	6,930.1	4,200.1	173.0	803,925.11	575,050.45	4,202.63	0.00
15,000.0	91.21	359.55	10,642.9	6,927.9	4,300.1	172.3	803,924.32	575,150.43	4,302.58	0.00
15,100.0	91.21	359.55	10,640.8	6,925.8	4,400.1	171.5	803,923.54	575,250.40	4,402.52	0.00
15,200.0	91.21	359.55	10,638.7	6,923.7	4,500.0	170.7	803,922.75	575,350.38	4,502.46	0.00
15,300.0	91.21	359.55	10,636.6	6,921.6	4,600.0	169.9	803,921.97	575,450.35	4,602.40	0.00
15,400.0	91.21	359.55	10,634.5	6,919.5	4,700.0	169.1	803,921.18	575,550.33	4,702.34	0.00
15,500.0	91.21	359.55	10,632.4	6,917.4	4,800.0	168.3	803,920.40	575,650.30	4,802.29	0.00
15,600.0	91.21	359.55	10,630.3	6,915.3	4,899.9	167.6	803,919.61	575,750.27	4,902.23	0.00
15,700.0	91.21	359.55	10,628.2	6,913.2	4,999.9	166.8	803,918.83	575,850.25	5,002.17	0.00
15,800.0	91.21	359.55	10,626.0	6,911.0	5,099.9	166.0	803,918.04	575,950.22	5,102.11	0.00

Caza Petroleum

Morcor Engineering

Morcor Standard Plan

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Wellbore:	Desert Rose 17-8 Federal 13H	**Survey Calculation Method:**	Minimum Curvature
Design:	191113 Desert Rose 17-8 Federal 13H	**Database:**	EDM 5000.1 Single User Db

Planned Survey

MD (usft)	Inc (°)	Azi (azimuth) (°)	TVD (usft)	TVDSS (usft)	N/S (usft)	E/W (usft)	Easting (usft)	Northing (usft)	V. Sec (usft)	DLeg (°/100usft)
15,900.0	91.21	359.55	10,623.9	6,908.9	5,199.9	165.2	803,917.26	576,050.20	5,202.06	0.00
16,000.0	91.21	359.55	10,621.8	6,906.8	5,299.8	164.4	803,916.47	576,150.17	5,302.00	0.00
16,100.0	91.21	359.55	10,619.7	6,904.7	5,399.8	163.6	803,915.69	576,250.15	5,401.94	0.00
16,200.0	91.21	359.55	10,617.6	6,902.6	5,499.8	162.8	803,914.90	576,350.12	5,501.88	0.00
16,300.0	91.21	359.55	10,615.5	6,900.5	5,599.8	162.1	803,914.12	576,450.10	5,601.82	0.00
16,400.0	91.21	359.55	10,613.4	6,898.4	5,699.7	161.3	803,913.33	576,550.07	5,701.77	0.00
16,500.0	91.21	359.55	10,611.3	6,896.3	5,799.7	160.5	803,912.55	576,650.05	5,801.71	0.00
16,600.0	91.21	359.55	10,609.2	6,894.2	5,899.7	159.7	803,911.76	576,750.02	5,901.65	0.00
16,700.0	91.21	359.55	10,607.0	6,892.0	5,999.7	158.9	803,910.98	576,850.00	6,001.59	0.00
16,800.0	91.21	359.55	10,604.9	6,889.9	6,099.6	158.1	803,910.19	576,949.97	6,101.53	0.00
16,900.0	91.21	359.55	10,602.8	6,887.8	6,199.6	157.3	803,909.41	577,049.94	6,201.48	0.00
17,000.0	91.21	359.55	10,600.7	6,885.7	6,299.6	156.6	803,908.62	577,149.92	6,301.42	0.00
17,100.0	91.21	359.55	10,598.6	6,883.6	6,399.6	155.8	803,907.83	577,249.89	6,401.36	0.00
17,200.0	91.21	359.55	10,596.5	6,881.5	6,499.5	155.0	803,907.05	577,349.87	6,501.30	0.00
17,300.0	91.21	359.55	10,594.4	6,879.4	6,599.5	154.2	803,906.26	577,449.84	6,601.25	0.00
17,400.0	91.21	359.55	10,592.3	6,877.3	6,699.5	153.4	803,905.48	577,549.82	6,701.19	0.00
17,500.0	91.21	359.55	10,590.1	6,875.1	6,799.5	152.6	803,904.69	577,649.79	6,801.13	0.00
17,600.0	91.21	359.55	10,588.0	6,873.0	6,899.4	151.8	803,903.91	577,749.77	6,901.07	0.00
17,700.0	91.21	359.55	10,585.9	6,870.9	6,999.4	151.1	803,903.12	577,849.74	7,001.01	0.00
17,800.0	91.21	359.55	10,583.8	6,868.8	7,099.4	150.3	803,902.34	577,949.72	7,100.96	0.00
17,900.0	91.21	359.55	10,581.7	6,866.7	7,199.4	149.5	803,901.55	578,049.69	7,200.90	0.00
18,000.0	91.21	359.55	10,579.6	6,864.6	7,299.3	148.7	803,900.77	578,149.67	7,300.84	0.00
18,100.0	91.21	359.55	10,577.5	6,862.5	7,399.3	147.9	803,899.98	578,249.64	7,400.78	0.00
18,200.0	91.21	359.55	10,575.4	6,860.4	7,499.3	147.1	803,899.20	578,349.61	7,500.73	0.00
18,300.0	91.21	359.55	10,573.3	6,858.3	7,599.3	146.4	803,898.41	578,449.59	7,600.67	0.00
18,400.0	91.21	359.55	10,571.1	6,856.1	7,699.2	145.6	803,897.63	578,549.56	7,700.61	0.00

Caza Petroleum

Morcor Engineering

Morcor Standard Plan

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Wellbore:	Desert Rose 17-8 Federal 13H	**Survey Calculation Method:**	Minimum Curvature
Design:	191113 Desert Rose 17-8 Federal 13H	**Database:**	EDM 5000.1 Single User Db

Planned Survey

MD (usft)	Inc (°)	Azi (azimuth) (°)	TVD (usft)	TVDSS (usft)	N/S (usft)	E/W (usft)	Easting (usft)	Northing (usft)	V. Sec (usft)	DLeg (°/100usft)
18,429.0	91.21	359.55	10,570.5	6,855.5	7,728.2	145.3	803,897.40	578,578.56	7,729.59	0.00

TD at 17900.0 - 5 1/2" Production Casing

Casing Points

Measured Depth (usft)	Vertical Depth (usft)	Name	Casing Diameter (")	Hole Diameter (")
2,150.0	2,150.0	13 3/8" Surface Casing	13-3/8	17-1/2
5,632.0	5,632.0	9 5/8" Intermediate Casing	9-5/8	12-1/4
120.0	120.0	20" Conductor	20	26
18,429.0	10,570.5	5 1/2" Production Casing	5-1/2	8-3/4

Formations

Measured Depth (usft)	Vertical Depth (usft)	Name	Lithology	Dip (°)	Dip Direction (°)
5,658.0	5,658.0	Delaware		0.00	
4,138.0	4,138.0	Capitan		0.00	
2,268.0	2,268.0	Top of Salt		0.00	
8,458.3	8,453.0	Bone Spring		0.00	
9,740.4	9,728.0	1st Bone Spring Sand		0.00	
10,447.9	10,428.0	2nd Bone Spring Sand		0.00	
3,598.0	3,598.0	Base of Salt		0.00	
1,923.0	1,923.0	Rustler		0.00	

Caza Petroleum

Morcor Engineering

Morcor Standard Plan

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Wellbore:	Desert Rose 17-8 Federal 13H	**Survey Calculation Method:**	Minimum Curvature
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Plan Annotations

Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates +N/-S (usft)	Local Coordinates +E/-W (usft)	Comment
7,350.0	7,350.0	0.0	0.0	Start Build 3.00
7,550.0	7,549.6	-6.7	8.0	Start 2390.0 hold at 7550.0 MD
9,940.0	9,926.5	-167.3	199.4	Start Drop -3.00
10,140.0	10,126.2	-174.0	207.4	Start 98.0 hold at 10140.0 MD
10,238.0	10,224.2	-174.0	207.4	Start Build 11.40
11,038.0	10,726.6	339.1	203.4	Start 6862.0 hold at 11038.0 MD
18,429.0	10,570.5	7,728.2	145.3	TD at 17900.0

Checked By: _____ Approved By: _____ Date: _____

Design Plan, Operating Plan and Maintenance Plan, and Closure Plan for the OCD form C-144

Design Plan:

Fluid and cuttings coming from drilling operations will pass over the shale shaker with the cuttings going to the haul off bin and the cleaned fluid returning to the working steel pits.

Equipment Includes:

1-670bbl steel working pit
2-100bbl steel working suction pits
2-500bbl steel tanks
2-20yd^3 steel haul off bins
2-pumps (HHF-1600)
2-Shale shakers
1-Centrifuge
1-Desilter/Desander

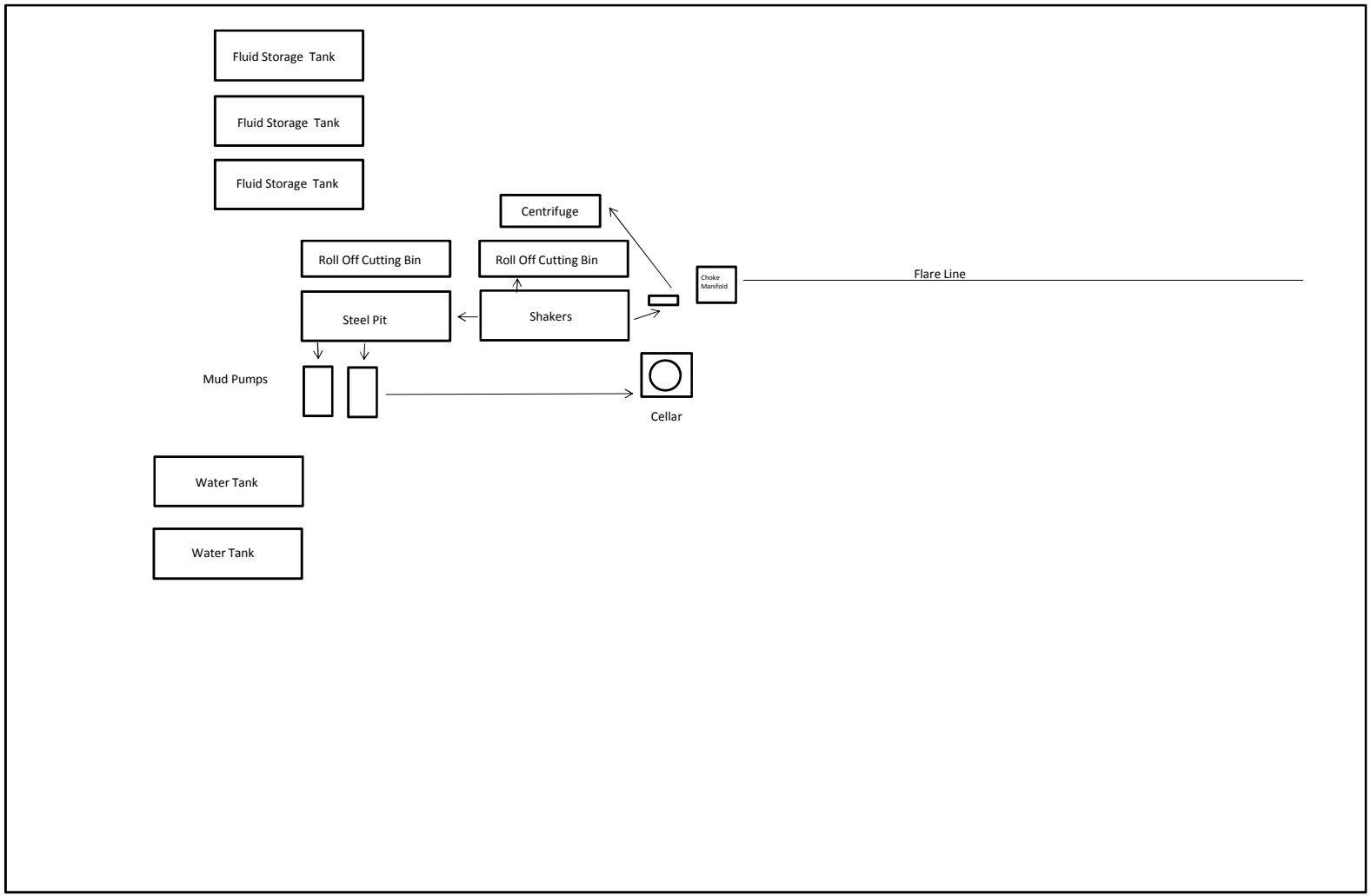
Operating and Maintenance Plan:

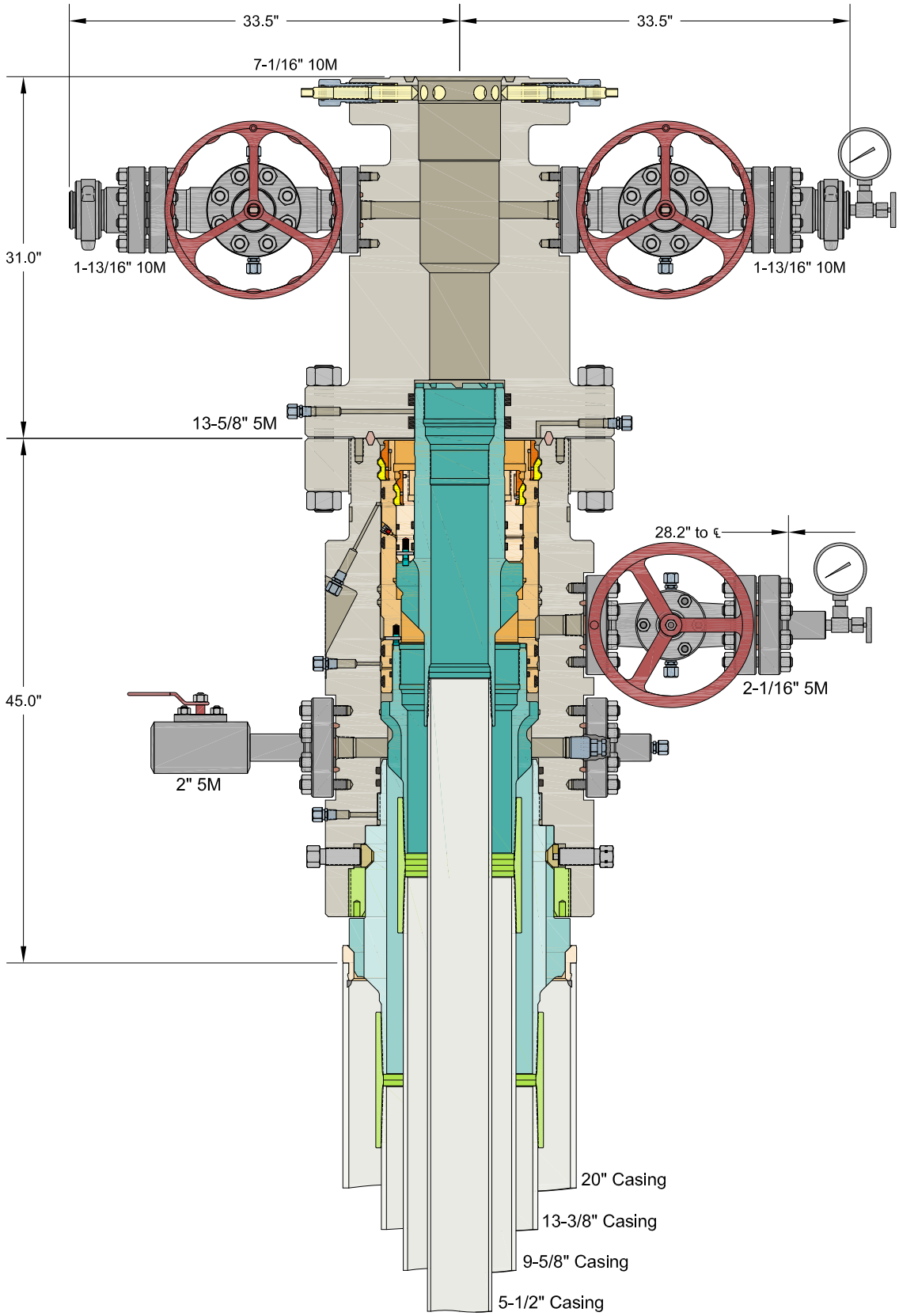
Inspection to occur every tour for proper operation of system and individual components. If any problems are found they will be repaired and/or corrected immediately.

Closure Plan:

All haul off bins containing cuttings will be removed from location and hauled to R-360 (NM-01-0006) disposal site located 30 miles east of Carlsbad.

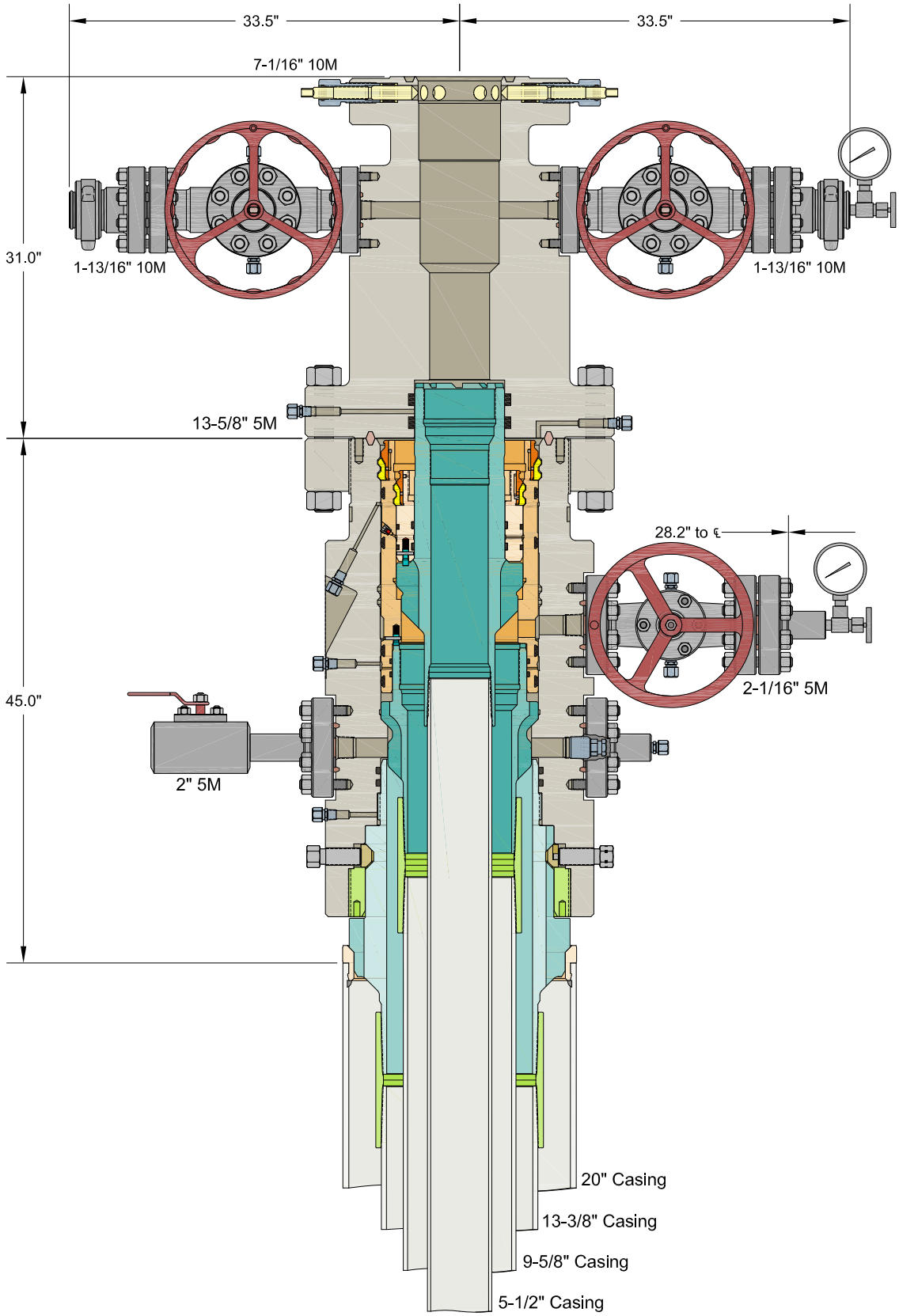
Closed Loop Diagram Design Plan





ALL DIMENSIONS APPROXIMATE

CACTUS WELLHEAD LLC		CAZA PETROLEUM PERMIAN BASIN	
13-3/8" x 9-5/8" x 5-1/2" MBU-3T-CFL-R-DBLO-SF Wellhead Sys. With 13-5/8" 5M x 7-1/16" 10M CTH-DBLHPS Tubing Head, 31" Tall And 9-5/8" & 5-1/2" Mandrel Casing Hangers	DRAWN	DLE	11OCT19
	APPRV		
	DRAWING NO.	ODE0003162	



ALL DIMENSIONS APPROXIMATE

CACTUS WELLHEAD LLC

CAZA PETROLEUM
PERMIAN BASIN

13-3/8" x 9-5/8" x 5-1/2" MBU-3T-CFL-R-DBLO-SF Wellhead Sys.
With 13-5/8" 5M x 7-1/16" 10M CTH-DBLHPS Tubing Head, 31" Tall
And 9-5/8" & 5-1/2" Mandrel Casing Hangers

DRAWN	DLE	11OCT19
APPRV		

DRAWING NO. ODE0003162

AFMSS
U.S. Department of the Interior
BUREAU OF LAND MANAGEMENT

SUPO Data Report
10/04/2021

APD ID: 10400050944
Submission Date: 11/25/2019
Operator Name: CAZA OPERATING LLC
Well Name: DESERT ROSE 17-8 FEDERAL
Well Number: 13H
Well Type: OIL WELL
Well Work Type: Drill

Highlighted data reflects the most recent changes

Show Final Text

Section 1 - Existing Roads

Will existing roads be used? YES

Existing Road Map:

Desert_Rose_17_8_Federal_13H___Vicinity_Map_20191125080903.pdf
Desert_Rose_17_8_Federal_13H___Vicinity_and_Existing_Road_Map_20191125080904.pdf

Existing Road Purpose: ACCESS,FLUID TRANSPORT
Row(s) Exist? NO

ROW ID(s)

ID:

Do the existing roads need to be improved? NO

Existing Road Improvement Description:

Existing Road Improvement Attachment:

Section 2 - New or Reconstructed Access Roads

Will new roads be needed? NO

Section 3 - Location of Existing Wells

Existing Wells Map? YES

Attach Well map:

Desert_Rose_17_8_Federal_13H___1_Mile_Radius_Map_20191125080922.pdf

Operator Name: CAZA OPERATING LLC

Well Name: DESERT ROSE 17-8 FEDERAL **Well Number:** 13H

Section 4 - Location of Existing and/or Proposed Production Facilities

Submit or defer a Proposed Production Facilities plan? SUBMIT

Production Facilities description: The existing production facility at the Desert Rose Federal 1H will be expanded and used. Each well will have its own FWKO, 3 phase metered separator and treater. 4 - 500bbl steel tanks will be added. Attached is the facility plat and plat with the pipeline.

Production Facilities map:

Desert_Rose_17_8_Federal_13H___Well_Location_Plat_20191125082501.pdf

Desert_Rose_17_8_Federal_13H___Production_Facility_Map_20191125082504.pdf

Desert_Rose_17_8_Federal_13H___Well_Location_Plat_20201018080552.pdf

Section 5 - Location and Types of Water Supply

Water Source Table

Water source type: GW WELL

Water source use type: SURFACE CASING

STIMULATION

INTERMEDIATE/PRODUCTION CASING

Source latitude: 32.520557 **Source longitude:** -103.53917

Source datum: NAD83

Water source permit type: WATER WELL

Water source transport method: TRUCKING

Source land ownership: PRIVATE

Source transportation land ownership: PRIVATE

Water source volume (barrels): 400000 **Source volume (acre-feet):** 51.55723853

Source volume (gal): 16800000

Water source and transportation map:

Desert_Rose_17_8_Federal_13H___Water_and_Caliche_Supply_Map_20191125081343.pdf

Water source comments: S1 T21S R33E NWNE

New water well? N

New Water Well Info

Operator Name: CAZA OPERATING LLC

Well Name: DESERT ROSE 17-8 FEDERAL **Well Number:** 13H

Well latitude: **Well Longitude:** **Well datum:**

Well target aquifer:

Est. depth to top of aquifer(ft): **Est thickness of aquifer:**

Aquifer comments:

Aquifer documentation:

Well depth (ft): **Well casing type:**

Well casing outside diameter (in.): **Well casing inside diameter (in.):**

New water well casing? **Used casing source:**

Drilling method: **Drill material:**

Grout material: **Grout depth:**

Casing length (ft.): **Casing top depth (ft.):**

Well Production type: **Completion Method:**

Water well additional information:

State appropriation permit:

Additional information attachment:

Section 6 - Construction Materials

Using any construction materials: YES

Construction Materials description: 6" packed caliche will be used for the pad construction S17 T20S R35E SESE

Construction Materials source location attachment:

Desert_Rose_17_8_Federal_13H___Water_and_Caliche_Supply_Map_20191125081421.pdf

Section 7 - Methods for Handling Waste

Waste type: DRILLING

Waste content description: Drill cuttings

Amount of waste: 1136460 pounds

Waste disposal frequency : Daily

Safe containment description: 4 sided steel bins

Safe containmant attachment:

Waste disposal type: HAUL TO COMMERCIAL FACILITY **Disposal location ownership:** COMMERCIAL

Disposal type description:

Disposal location description: R360 Commercial Disposal Facility

Operator Name: CAZA OPERATING LLC

Well Name: DESERT ROSE 17-8 FEDERAL **Well Number:** 13H

Waste type: SEWAGE

Waste content description: Onsite housing sewage

Amount of waste: 300 gallons

Waste disposal frequency : Daily

Safe containment description: Closed above ground septic system

Safe containmant attachment:

Waste disposal type: HAUL TO COMMERCIAL FACILITY **Disposal location ownership:** OTHER

Disposal type description:

Disposal location description: Hobbs Waste Water Management

Waste type: GARBAGE

Waste content description: Onsite housing trash

Amount of waste: 100 pounds

Waste disposal frequency : Daily

Safe containment description: Steel closed trash trailer

Safe containmant attachment:

Waste disposal type: HAUL TO COMMERCIAL FACILITY **Disposal location ownership:** OTHER

Disposal type description:

Disposal location description: Lea County Landfill

Reserve Pit

Reserve Pit being used? NO

Temporary disposal of produced water into reserve pit? NO

Reserve pit length (ft.) **Reserve pit width (ft.)**

Reserve pit depth (ft.) **Reserve pit volume (cu. yd.)**

Is at least 50% of the reserve pit in cut?

Reserve pit liner

Reserve pit liner specifications and installation description

Cuttings Area

Cuttings Area being used? NO

Are you storing cuttings on location? N

Operator Name: CAZA OPERATING LLC

Well Name: DESERT ROSE 17-8 FEDERAL **Well Number:** 13H

Description of cuttings location

Cuttings area length (ft.) **Cuttings area width (ft.)**

Cuttings area depth (ft.) **Cuttings area volume (cu. yd.)**

Is at least 50% of the cuttings area in cut?

WCuttings area liner

Cuttings area liner specifications and installation description

Section 8 - Ancillary Facilities

Are you requesting any Ancillary Facilities?: N

Ancillary Facilities attachment:

Comments:

Section 9 - Well Site Layout

Well Site Layout Diagram:

Desert_Rose_17_8_Federal_13H___Well_Pad_Plat_20191125081823.pdf
Desert_Rose_17_8_Federal_13H___Rig_Layout_20201018081058.pdf

Comments:

Section 10 - Plans for Surface Reclamation

Type of disturbance: New Surface Disturbance **Multiple Well Pad Name:** Desert Rose 17-8 Federal

Multiple Well Pad Number: 11H

Recontouring attachment:

Drainage/Erosion control construction: Ditching will be used for drainage and erosion control

Drainage/Erosion control reclamation: Ditching will be used around the pad long term disturbance area

Well pad proposed disturbance (acres): 4.93	**Well pad interim reclamation (acres):** 1.49	**Well pad long term disturbance (acres):** 3.44
Road proposed disturbance (acres):	**Road interim reclamation (acres):** 0	**Road long term disturbance (acres):** 0
Powerline proposed disturbance (acres): 0	**Powerline interim reclamation (acres):** 0	**Powerline long term disturbance (acres):** 0
Pipeline proposed disturbance (acres): 0.12	**Pipeline interim reclamation (acres):** 0.12	**Pipeline long term disturbance (acres):** 0
Other proposed disturbance (acres): 0	**Other interim reclamation (acres):** 0	**Other long term disturbance (acres):** 0
Total proposed disturbance: 5.05	**Total interim reclamation:** 1.6099999999999999	**Total long term disturbance:** 3.44

Operator Name: CAZA OPERATING LLC

Well Name: DESERT ROSE 17-8 FEDERAL **Well Number:** 13H

Disturbance Comments:

Reconstruction method: Interim reclamation as identified during onsite

Topsoil redistribution: Interim reclamation as identified during onsite

Soil treatment: Interim reclamation as identified during onsite

Existing Vegetation at the well pad: Sage brush and native grasses

Existing Vegetation at the well pad attachment:

Existing Vegetation Community at the road: Sage brush and native grasses

Existing Vegetation Community at the road attachment:

Existing Vegetation Community at the pipeline: Sage brush and native grasses

Existing Vegetation Community at the pipeline attachment:

Existing Vegetation Community at other disturbances: Sage brush and native grasses

Existing Vegetation Community at other disturbances attachment:

Non native seed used? N

Non native seed description:

Seedling transplant description:

Will seedlings be transplanted for this project? N

Seedling transplant description attachment:

Will seed be harvested for use in site reclamation?

Seed harvest description:

Seed harvest description attachment:

Seed Management

Seed Table

Seed Summary	
Seed Type	**Pounds/Acre**

Total pounds/Acre:

Seed reclamation attachment:

Operator Name: CAZA OPERATING LLC

Well Name: DESERT ROSE 17-8 FEDERAL **Well Number:** 13H

Operator Contact/Responsible Official Contact Info

First Name: **Last Name:**

Phone: (985)415-9729 **Email:** steve.morris@morcorengineering.com

Seedbed prep: Harrow

Seed BMP: Per BLM instructions

Seed method: Broadcast followed by a drag chain

Existing invasive species? N

Existing invasive species treatment description:

Existing invasive species treatment attachment:

Weed treatment plan description: Spray for cheat grass

Weed treatment plan attachment:

Monitoring plan description: Visual inspection in spring and late fall

Monitoring plan attachment:

Success standards: 80% coverage by 2nd growing season of native species with less than 5% invasive species

Pit closure description: No pits being used

Pit closure attachment:

Section 11 - Surface Ownership

Disturbance type: WELL PAD

Describe:

Surface Owner: PRIVATE OWNERSHIP

Other surface owner description:

BIA Local Office:

BOR Local Office:

COE Local Office:

DOD Local Office:

NPS Local Office:

State Local Office:

Military Local Office:

USFWS Local Office:

Other Local Office:

USFS Region:

USFS Forest/Grassland: **USFS Ranger District:**

Operator Name: CAZA OPERATING LLC

Well Name: DESERT ROSE 17-8 FEDERAL **Well Number:** 13H

Fee Owner: NGL Partners LP **Fee Owner Address:** 6120 South Yale Ave #805

Phone: (918)481-1119 **Email:**

Surface use plan certification: YES

Surface use plan certification document:

Desert_Rose_17_8_Federal_13H___Surface_use_plan_of_operations_certification_signed_20191125082215.pdf

Surface access agreement or bond: AGREEMENT

Surface Access Agreement Need description: Fee per well drilled on pad

Surface Access Bond BLM or Forest Service:

BLM Surface Access Bond number:

USFS Surface access bond number:

Section 12 - Other Information

Right of Way needed? N **Use APD as ROW?**

ROW Type(s):

ROW Applications

SUPO Additional Information:

Use a previously conducted onsite? N

Previous Onsite information:

Other SUPO Attachment

Desert_Rose_17_8_Federal_13H___Interim_Reclamation_Plat_20191125082314.pdf
Desert_Rose_17_8_Federal_13H___Vicinity_Map_20191125082315.pdf
Desert_Rose_17_8_Federal_13H___Well_Location_Plat_20191125082316.pdf
Desert_Rose_17_8_Federal_13H___Location_Verification_Map_20191125082316.pdf

AFMSS

U.S. Department of the Interior
BUREAU OF LAND MANAGEMENT

PWD Data Report

10/04/2021

APD ID: 10400050944 **Submission Date:** 11/25/2019

Operator Name: CAZA OPERATING LLC

Well Name: DESERT ROSE 17-8 FEDERAL **Well Number:** 13H

Well Type: OIL WELL **Well Work Type:** Drill

Section 1 - General

Would you like to address long-term produced water disposal? NO

Section 2 - Lined Pits

Would you like to utilize Lined Pit PWD options? N

Produced Water Disposal (PWD) Location:

PWD surface owner: **PWD disturbance (acres):**

Lined pit PWD on or off channel:

Lined pit PWD discharge volume (bbl/day):

Lined pit specifications:

Pit liner description:

Pit liner manufacturers information:

Precipitated solids disposal:

Decribe precipitated solids disposal:

Precipitated solids disposal permit:

Lined pit precipitated solids disposal schedule:

Lined pit precipitated solids disposal schedule attachment:

Lined pit reclamation description:

Lined pit reclamation attachment:

Leak detection system description:

Leak detection system attachment:

Operator Name: CAZA OPERATING LLC

Well Name: DESERT ROSE 17-8 FEDERAL **Well Number:** 13H

Lined pit Monitor description:

Lined pit Monitor attachment:

Lined pit: do you have a reclamation bond for the pit?

Is the reclamation bond a rider under the BLM bond?

Lined pit bond number:

Lined pit bond amount:

Additional bond information attachment:

Section 3 - Unlined Pits

Would you like to utilize Unlined Pit PWD options? N

Produced Water Disposal (PWD) Location:

PWD disturbance (acres): **PWD surface owner:**

Unlined pit PWD on or off channel:

Unlined pit PWD discharge volume (bbl/day):

Unlined pit specifications:

Precipitated solids disposal:

Decribe precipitated solids disposal:

Precipitated solids disposal permit:

Unlined pit precipitated solids disposal schedule:

Unlined pit precipitated solids disposal schedule attachment:

Unlined pit reclamation description:

Unlined pit reclamation attachment:

Unlined pit Monitor description:

Unlined pit Monitor attachment:

Do you propose to put the produced water to beneficial use?

Beneficial use user confirmation:

Estimated depth of the shallowest aquifer (feet):

Does the produced water have an annual average Total Dissolved Solids (TDS) concentration equal to or less than that of the existing water to be protected?

TDS lab results:

Geologic and hydrologic evidence:

State authorization:

Unlined Produced Water Pit Estimated percolation:

Unlined pit: do you have a reclamation bond for the pit?

Operator Name: CAZA OPERATING LLC

Well Name: DESERT ROSE 17-8 FEDERAL **Well Number:** 13H

Is the reclamation bond a rider under the BLM bond?

Unlined pit bond number:

Unlined pit bond amount:

Additional bond information attachment:

Section 4 - Injection

Would you like to utilize Injection PWD options? N

Produced Water Disposal (PWD) Location:

PWD surface owner: **PWD disturbance (acres):**

Injection PWD discharge volume (bbl/day):

Injection well mineral owner:

Injection well type:

Injection well number: **Injection well name:**

Assigned injection well API number? **Injection well API number:**

Injection well new surface disturbance (acres):

Minerals protection information:

Mineral protection attachment:

Underground Injection Control (UIC) Permit?

UIC Permit attachment:

Section 5 - Surface Discharge

Would you like to utilize Surface Discharge PWD options? N

Produced Water Disposal (PWD) Location:

PWD surface owner: **PWD disturbance (acres):**

Surface discharge PWD discharge volume (bbl/day):

Surface Discharge NPDES Permit?

Surface Discharge NPDES Permit attachment:

Surface Discharge site facilities information:

Surface discharge site facilities map:

Section 6 - Other

Would you like to utilize Other PWD options? N

Produced Water Disposal (PWD) Location:

PWD surface owner: **PWD disturbance (acres):**

Other PWD discharge volume (bbl/day):

Operator Name: CAZA OPERATING LLC

Well Name: DESERT ROSE 17-8 FEDERAL **Well Number:** 13H

Other PWD type description:

Other PWD type attachment:

Have other regulatory requirements been met?

Other regulatory requirements attachment:

AFMSS

U.S. Department of the Interior
BUREAU OF LAND MANAGEMENT

Bond Info Data Report

10/04/2021

APD ID: 10400050944

Submission Date: 11/25/2019

Operator Name: CAZA OPERATING LLC

Well Name: DESERT ROSE 17-8 FEDERAL

Well Number: 13H

Well Type: OIL WELL

Well Work Type: Drill

Highlighted data reflects the most recent changes

Show Final Text

Bond Information

Federal/Indian APD: FED

BLM Bond number: NMB000471

BIA Bond number:

Do you have a reclamation bond? NO

Is the reclamation bond a rider under the BLM bond?

Is the reclamation bond BLM or Forest Service?

BLM reclamation bond number:

Forest Service reclamation bond number:

Forest Service reclamation bond attachment:

Reclamation bond number:

Reclamation bond amount:

Reclamation bond rider amount:

Additional reclamation bond information attachment:

State of New Mexico
Energy, Minerals and Natural Resources Department

Submit Electronically
Via E-permitting

Oil Conservation Division
1220 South St. Francis Dr.
Santa Fe, NM 87505

NATURAL GAS MANAGEMENT PLAN

This Natural Gas Management Plan must be submitted with each Application for Permit to Drill (APD) for a new or recompleted well.

Section 1 – Plan Description
Effective May 25, 2021

I. Operator: Caza Operating LLC **OGRID:** 249099 **Date:** 6 / 17 / 2022

II. Type: ☒ Original ☐ Amendment due to ☐ 19.15.27.9.D(6)(a) NMAC ☐ 19.15.27.9.D(6)(b) NMAC ☐ Other.

If Other, please describe: _____

III. Well(s): Provide the following information for each new or recompleted well or set of wells proposed to be drilled or proposed to be recompleted from a single well pad or connected to a central delivery point.

Well Name	API	ULSTR	Footages	Anticipated Oil BBL/D	Anticipated Gas MCF/D	Anticipated Produced Water BBL/D
Desert Rose 17-8 Federal 13H	**30-025-50454**	N-17-20S-35E	190FSL 2000FWL	500	1200	700

IV. Central Delivery Point Name: Desert Rose 17-8 CTB [See 19.15.27.9(D)(1) NMAC]

V. Anticipated Schedule: Provide the following information for each new or recompleted well or set of wells proposed to be drilled or proposed to be recompleted from a single well pad or connected to a central delivery point.

Well Name	API	Spud Date	TD Reached Date	Completion Commencement Date	Initial Flow Back Date	First Production Date
Desert Rose 17-8 Federal 13H	**30-025-50454**	09/01/2022	10/01/2022	10/15/2022	11/01/2022	11/15/2022

VI. Separation Equipment: ☒ Attach a complete description of how Operator will size separation equipment to optimize gas capture.

VII. Operational Practices: ☒ Attach a complete description of the actions Operator will take to comply with the requirements of Subsection A through F of 19.15.27.8 NMAC.

VIII. Best Management Practices: ☒ Attach a complete description of Operator's best management practices to minimize venting during active and planned maintenance.

Section 2 – Enhanced Plan

EFFECTIVE APRIL 1, 2022

Beginning April 1, 2022, an operator that is not in compliance with its statewide natural gas capture requirement for the applicable reporting area must complete this section.

☒ Operator certifies that it is not required to complete this section because Operator is in compliance with its statewide natural gas capture requirement for the applicable reporting area.

IX. Anticipated Natural Gas Production:

Well	API	Anticipated Average Natural Gas Rate MCF/D	Anticipated Volume of Natural Gas for the First Year MCF

X. Natural Gas Gathering System (NGGS):

Operator	System	ULSTR of Tie-in	Anticipated Gathering Start Date	Available Maximum Daily Capacity of System Segment Tie-in

XI. Map. ☐ Attach an accurate and legible map depicting the location of the well(s), the anticipated pipeline route(s) connecting the production operations to the existing or planned interconnect of the natural gas gathering system(s), and the maximum daily capacity of the segment or portion of the natural gas gathering system(s) to which the well(s) will be connected.

XII. Line Capacity. The natural gas gathering system ☐ will ☐ will not have capacity to gather 100% of the anticipated natural gas production volume from the well prior to the date of first production.

XIII. Line Pressure. Operator ☐ does ☐ does not anticipate that its existing well(s) connected to the same segment, or portion, of the natural gas gathering system(s) described above will continue to meet anticipated increases in line pressure caused by the new well(s).

☐ Attach Operator's plan to manage production in response to the increased line pressure.

XIV. Confidentiality: ☐ Operator asserts confidentiality pursuant to Section 71-2-8 NMSA 1978 for the information provided in Section 2 as provided in Paragraph (2) of Subsection D of 19.15.27.9 NMAC, and attaches a full description of the specific information for which confidentiality is asserted and the basis for such assertion.

Section 3 - Certifications

Effective May 25, 2021

Operator certifies that, after reasonable inquiry and based on the available information at the time of submittal:

☒ Operator will be able to connect the well(s) to a natural gas gathering system in the general area with sufficient capacity to transport one hundred percent of the anticipated volume of natural gas produced from the well(s) commencing on the date of first production, taking into account the current and anticipated volumes of produced natural gas from other wells connected to the pipeline gathering system; or

☐ Operator will not be able to connect to a natural gas gathering system in the general area with sufficient capacity to transport one hundred percent of the anticipated volume of natural gas produced from the well(s) commencing on the date of first production, taking into account the current and anticipated volumes of produced natural gas from other wells connected to the pipeline gathering system. ***If Operator checks this box, Operator will select one of the following:***

Well Shut-In. ☐ Operator will shut-in and not produce the well until it submits the certification required by Paragraph (4) of Subsection D of 19.15.27.9 NMAC; or

Venting and Flaring Plan. ☐ Operator has attached a venting and flaring plan that evaluates and selects one or more of the potential alternative beneficial uses for the natural gas until a natural gas gathering system is available, including:

- **(a)** power generation on lease;
- **(b)** power generation for grid;
- **(c)** compression on lease;
- **(d)** liquids removal on lease;
- **(e)** reinjection for underground storage;
- **(f)** reinjection for temporary storage;
- **(g)** reinjection for enhanced oil recovery;
- **(h)** fuel cell production; and
- **(i)** other alternative beneficial uses approved by the division.

Section 4 - Notices

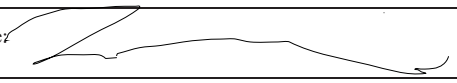
1. If, at any time after Operator submits this Natural Gas Management Plan and before the well is spud:

(a) Operator becomes aware that the natural gas gathering system it planned to connect the well(s) to has become unavailable or will not have capacity to transport one hundred percent of the production from the well(s), no later than 20 days after becoming aware of such information, Operator shall submit for OCD's approval a new or revised venting and flaring plan containing the information specified in Paragraph (5) of Subsection D of 19.15.27.9 NMAC; or

(b) Operator becomes aware that it has, cumulatively for the year, become out of compliance with its baseline natural gas capture rate or natural gas capture requirement, no later than 20 days after becoming aware of such information, Operator shall submit for OCD's approval a new or revised Natural Gas Management Plan for each well it plans to spud during the next 90 days containing the information specified in Paragraph (2) of Subsection D of 19.15.27.9 NMAC, and shall file an update for each Natural Gas Management Plan until Operator is back in compliance with its baseline natural gas capture rate or natural gas capture requirement.

2. OCD may deny or conditionally approve an APD if Operator does not make a certification, fails to submit an adequate venting and flaring plan which includes alternative beneficial uses for the anticipated volume of natural gas produced, or if OCD determines that Operator will not have adequate natural gas takeaway capacity at the time a well will be spud.

I certify that, after reasonable inquiry, the statements in and attached to this Natural Gas Management Plan are true and correct to the best of my knowledge and acknowledge that a false statement may be subject to civil and criminal penalties under the Oil and Gas Act.

Signature: 
Printed Name: Steve Morris
Title: Engineer
E-mail Address: steve.morris@morcorengineering.com
Date: 06/17/2022
Phone: 985-415-9729

OIL CONSERVATION DIVISION **(Only applicable when submitted as a standalone form)**
Approved By:
Title:
Approval Date:
Conditions of Approval:

Natural Gas Management Plan
Items VI-VIII

VI. Separation Equipment: Attach a complete description of how Operator will size separation equipment to optimize gas capture.

- Separation equipment will be sized to provide adequate separation for anticipated rates.
- Adequate separation relates to retention time for Liquid – Liquid separation and velocity for Gas-Liquid separation.
- Collection systems are appropriately sized to handle facility production rates on all (3) phases.
- Ancillary equipment and metering is selected to be serviced without flow interruptions or the need to release gas from the well.

VII. Operational Practices: Attach a complete description of the actions Operator will take to comply with the requirements of Subsection A through F 19.15.27.8 NMAC.

Drilling Operations

- All flare stacks will be properly sized. The flare stacks will be located at a minimum 100' from the nearest surface hole location on the pad.
- All natural gas produced during drilling operations will be flared, unless there is an equipment malfunction and/or to avoid risk of an immediate and substantial adverse impact on safety and the environment, at which point the gas will be vented.

Completions/Recompletions Operations

- New wells will not be flowed back until they are connected to a properly sized gathering system.
- The facility will be built/sized for maximum anticipated flowrates and pressures to minimize waste.
- For flowback operations, multiple stages of separation will be used as well as excess VRU and blowers to make sure waste is minimized off the storage tanks and facility.
- During initial flowback, the well stream will be routed to separation equipment.
- At an existing facility, when necessary, post separation natural gas will be flared until it meets pipeline specifications, at which point it will be turned into a collection system.
- At a new facility, post separation natural gas will be vented until storage tanks can safely function, at which point it will be flared until it meets pipeline spec.

Production Operations

- Weekly AVOs will be performed on all facilities.
- All flares will be equipped with auto-ignition systems and continuous pilot operations.
- After a well is stabilized from liquid unloading, the well will be turned back into the collection system.
- All plunger lift systems will be optimized to limit the amount of waste.
- All tanks will have automatic gauging equipment installed.
- Leaking thief hatches found during AVOs will be cleaned and properly re-sealed.

Performance Standards

- Production equipment will be designed to handle maximum anticipated rates and pressure.
- All flared gas will be combusted in a flare stack that is properly sized and designed to ensure proper combustion.
- Weekly AVOs will be performed on all wells and facilities that produce more than 60 Mcfd.

Measurement & Estimation

- All volume that is flared and vented that is not measured will be estimated.
- All measurement equipment for flared volumes will conform to API 14.10.
- No meter bypasses with be installed.

- When metering is not practical due to low pressure/low rate, the vented or flared volume will be estimated.

VIII. Best Management Practices: Attach a complete description of Operator's best management practices to minimize venting during active and planned maintenance.

- During downhole well maintenance,Caza will use best management practices to vent as minimally as possible.
- Prior to the commencement of any maintenance, the tank or vessel will be isolated from the rest of the facilities.
- All valves upstream of the equipment will be closed and isolated.
- After equipment has been isolated, the equipment will be blown down to as low a pressure as possible into the collection system.
- If the equipment being maintained cannot be relieved into the collection system, it shall be released to a tank where the vapor can either be captured or combusted if possible.
- After downhole well maintenance, natural gas will be flared until it reaches pipeline specification.

District I
1625 N. French Dr., Hobbs, NM 88240
Phone:(575) 393-6161 Fax:(575) 393-0720
District II
811 S. First St., Artesia, NM 88210
Phone:(575) 748-1283 Fax:(575) 748-9720
District III
1000 Rio Brazos Rd., Aztec, NM 87410
Phone:(505) 334-6178 Fax:(505) 334-6170
District IV
1220 S. St Francis Dr., Santa Fe, NM 87505
Phone:(505) 476-3470 Fax:(505) 476-3462

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

CONDITIONS

Action 126112

CONDITIONS

Operator:	OGRID:
CAZA OPERATING, LLC 200 N Loraine St Midland, TX 79701	249099
	Action Number: 126112
	Action Type: [C-101] BLM - Federal/Indian Land Lease (Form 3160-3)

CONDITIONS

Created By	Condition	Condition Date
pkautz	Will require a File As Drilled C-102 and a Directional Survey with the C-104	8/12/2022
pkautz	Once the well is spud, to prevent ground water contamination through whole or partial conduits from the surface, the operator shall drill without interruption through the fresh water zone or zones and shall immediately set in cement the water protection string	8/12/2022
pkautz	Oil base muds are not to be used until fresh water zones are cased and cemented providing isolation from the oil or diesel. This includes synthetic oils. Oil based mud, drilling fluids and solids must be contained in a steel closed loop system	8/12/2022
pkautz	Cement is required to circulate on both surface and intermediate1 strings of casing	8/12/2022