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.
NMNM0039880

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.
GHOST RIDER 22 15 FEDERAL COM
[325016]
41H

2. Name of Operator
APACHE CORPORATION **[873]**

9. API Well No. **30-025-49358**

3a. Address
303 Veterans Airpark Lane #1000, Midland, TX 79705

3b. Phone No. *(include area code)*
(432) 818-1000

10. Field and Pool, or Exploratory **[96603]**
WOLFCAMP/TRISTE DRAW BONE SPRI

4. Location of Well *(Report location clearly and in accordance with any State requirements.*)*
At surface NESE / 2272 FSL / 600 FEL / LAT 32.2165794 / LONG -103.6559047
At proposed prod. zone SESE / 51 FSL / 444 FEL / LAT 32.1959604 / LONG -103.6554109

11. Sec., T. R. M. or Blk. and Survey or Area
SEC 15/T24S/R32E/NMP

14. Distance in miles and direction from nearest town or post office*
30 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)
50 feet

16. No of acres in lease
520

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.
30 feet

19. Proposed Depth
9820 feet / 17325 feet

20. BLM/BIA Bond No. in file
FED: NMB000736

21. Elevations (Show whether DF, KDB, RT, GL, etc.)
3582 feet

22. Approximate date work will start*
08/29/2020

23. Estimated duration
15 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)	SORINA FLORES / Ph: (432) 818-1000	01/16/2020

Title
Supv of Drilling Services

Approved by *(Signature)*	Name *(Printed/Typed)*	Date
(Electronic Submission)	Cody Layton / Ph: (575) 234-5959	09/25/2020

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 08/26/2021

SL

APPROVED WITH CONDITIONS

KZ
08/30/2021

(Continued on page 2)

*(Instructions on page 2)

Approval Date: 09/25/2020

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

WELL LOCATION AND ACREAGE DEDICATION PLAT

1 API Number	2 Pool Code	3 Pool Name
30-025-49358	96603	TRISTE DRAW; BONE SPRING

4 Property Code	5 Property Name	6 Well Number
325016	GHOST RIDER 22 15 FEDERAL COM	41H

7 OGRID NO.	8 Operator Name	9 Elevation
873	APACHE CORPORATION	3582'

10 Surface Location

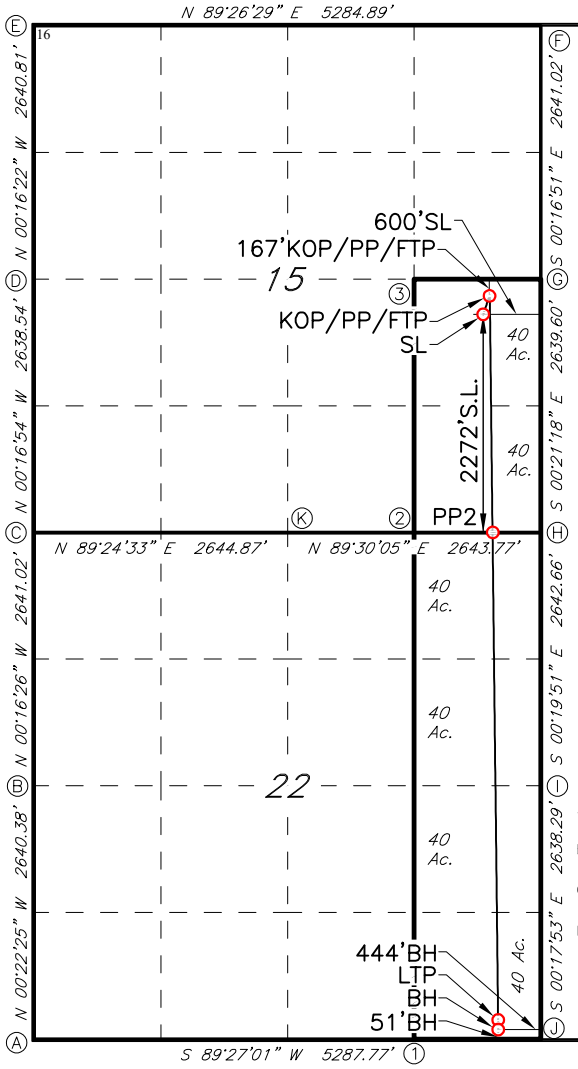
UL or lot no.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet From the	East/West line	County
I	15	24S	32E		2272	SOUTH	600	EAST	LEA

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
P	22	24S	32E		51	SOUTH	443	EAST	LEA

12 Dedicated Acres	13 Joint or Infill	14 Consolidation Code	15 Order No.
240			

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



GEODETIC DATA
NAD 83 GRID – NM EAST

SURFACE LOCATION (SL)
N 443185.8 – E 750839.3
LAT: 32.2165794° N
LONG: 103.6559047° W

KICK OFF POINT/PENETRATION POINT/ FIRST TAKE POINT (KOP/PP/FTP)
2472'FSL – 532'FEL (SEC.15)
N 443385.8 – E 750906.3
LAT: 32.2171279° N
LONG: 103.6556840° W
MD: 9351.0 – TVD: 9342.5

PENETRATION POINT 2 (PP2)
0'FSL – 505'FEL (SEC.15)
N 440914.8 – E 750949.0
LAT: 32.2103352° N
LONG: 103.6555963° W
MD: 12095.2 – TVD: 9820.0

LAST TAKE POINT (LTP)
100'FSL – 444'FEL (SEC.22)
N 435735.2 – E 751038.5
LAT: 32.1960962° N
LONG: 103.6554127° W
MD: 17275.6 – TVD: 9820.0

BOTTOM HOLE (BH)
N 435685.8 – E 751039.3
LAT: 32.1959604° N
LONG: 103.6554109° W
MD: 17325.0 – TVD: 9820.0

CORNER DATA
NAD 83 GRID – NM EAST

A: FOUND BRASS CAP "1916" N 435588.7 – E 746196.0
B: FOUND BRASS CAP "1916" N 438228.5 – E 746178.8
C: FOUND BRASS CAP "1916" N: 440869.0 – E: 746166.1
D: FOUND BRASS CAP "1916" N 443506.9 – E 746153.2
E: FOUND BRASS CAP "1916" N 446147.2 – E 746140.6
F: CALCULATED CORNER N: 446198.7 – E: 751424.1
G: FOUND BRASS CAP "1916" N 443558.2 – E 751437.1
H: FOUND BRASS CAP "1916" N 440919.2 – E 751453.4
I: FOUND BRASS CAP "1916" N 438277.2 – E 751468.7
J: FOUND BRASS CAP "1916" N 435639.5 – E 751482.4
K: FOUND BRASS CAP "1916" N 440896.2 – E 748810.3

CALCULATED POINTS
1: N 435626.8 – E 750160.8
2: N 440907.7 – E 750131.9
3: N 443545.4 – E 750117.6

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.

Sorina L Flores 1/14/2020
Signature Date

SORINA L FLORES
Printed Name

sorina.flores@apachecorp.com
E-mail Address

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.

11-07-2019
Date of Survey

Signature and Seal of Professional Surveyor

JEFFREY L. FANSLER
NEW MEXICO
10034
PROFESSIONAL SURVEYOR

10034
Certificate Number

DRILL PLAN – 01.13.20

Job No.: LS19030394DP1

PECOS DISTRICT
DRILLING CONDITIONS OF APPROVAL

OPERATOR'S NAME:	**APACHE CORPORATION**
LEASE NO.:	**NMNM0039880**
WELL NAME & NO.:	GHOST RIDER 22 15 FEDERAL COM 41H
SURFACE HOLE FOOTAGE:	2272'/S & 600'/E
BOTTOM HOLE FOOTAGE	51'/S & 444'/E
LOCATION:	Section 15, T.24 S., R.32 E., 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	[x] Fluid Filled	[x] Cement Squeeze	[ ] Pilot Hole
Special Requirements	[ ] Water Disposal	[x] COM	[ ] Unit

A. HYDROGEN SULFIDE

A Hydrogen Sulfide (H2S) Drilling Plan shall be activated 500 feet prior to drilling into the **Delaware Mountain Group**. 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

Casing Design:

1. The **13-3/8** inch surface casing shall be set at approximately **1145** 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

Approval Date: 09/25/2020

completing the cement job.

b. Wait on cement (WOC) time for a primary cement job will be a minimum of **8 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.

Intermediate casing must be kept fluid filled to meet BLM minimum collapse requirement.

2. The **9-5/8** inch intermediate casing shall be set at approximately **4800** feet. The minimum required fill of cement behind the **9-5/8** inch intermediate casing is:

Option 1 (Single Stage):

- Cement to surface. If cement does not circulate see B.1.a, c-d above. **Excess cement calculates to 20%, additional cement might be required.**

Option 2:

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.
  Excess cement calculates to 13%, additional cement might be required.

3. 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.
Excess cement calculates to -2%, additional cement might be required.

Operator has proposed to pump down 5-1/2" X 9-5/8" annulus. Operator must run a CBL / Echo-Meter from TD of the 5-1/2" casing to surface. Submit results to BLM.

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.

Option 1:

a. Minimum working pressure of the blowout preventer (BOP) and related equipment (BOPE) required for drilling below the surface casing shoe shall be **2000 (2M)** psi.

b. Minimum working pressure of the blowout preventer (BOP) and related equipment (BOPE) required for drilling below the intermediate casing shoe shall be **3000 (3M)** psi.

Option 2:

1. 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 **3000 (3M)** 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 Carlsbad Field Office, 620 E Greene St. Carlsbad, New Mexico 88220, 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.

OTA09172020

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

Operator Certification Data Report
09/25/2020

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: Sorina Flores **Signed on:** 01/09/2020

Title: Supv of Drilling Services

Street Address: 303 Veterans Airpark Ln #1000

City: Midland **State:** TX **Zip:** 79705

Phone: (432)818-1167

Email address: sorina.flores@apachecorp.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
09/25/2020

APD ID: 10400053338
Submission Date: 01/16/2020
Operator Name: APACHE CORPORATION
Well Name: GHOST RIDER 22 15 FEDERAL COM
Well Number: 41H
Well Type: OIL WELL
Well Work Type: Drill

Highlighted data reflects the most recent changes

Show Final Text

Section 1 - General

APD ID: 10400053338
Tie to previous NOS? N
Submission Date: 01/16/2020
BLM Office: CARLSBAD
User: Sorina Flores
Title: Supv of Drilling Services
Federal/Indian APD: FED
Is the first lease penetrated for production Federal or Indian? FED
Lease number: NMNM0039880
Lease Acres: 520
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: APACHE CORPORATION
Operator letter of designation:

Operator Info

Operator Organization Name: APACHE CORPORATION
Operator Address: 303 Veterans Airpark Lane #1000
Zip: 79705
Operator PO Box:
Operator City: Midland
State: TX
Operator Phone: (432)818-1000
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: GHOST RIDER 22 15 FEDERAL COM
Well Number: 41H
Well API Number:
Field/Pool or Exploratory? Field and Pool
Field Name: WOLFCAMP
Pool Name: TRISTE DRAW BONE SPRING
Is the proposed well in an area containing other mineral resources? USEABLE WATER,NATURAL GAS,OIL

Operator Name: APACHE CORPORATION

Well Name: GHOST RIDER 22 15 FEDERAL COM **Well Number:** 41H

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?** Y **New surface disturbance?** N

Type of Well Pad: MULTIPLE WELL **Multiple Well Pad Name:** GHOST RIDER 22 15 NORTHEAST **Number:** 1N

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

Well Work Type: Drill

Well Type: OIL WELL

Describe Well Type:

Well sub-Type: OTHER

Describe sub-type: DEVELOPMENT WELL

Distance to town: 30 Miles **Distance to nearest well:** 30 FT **Distance to lease line:** 50 FT

Reservoir well spacing assigned acres Measurement: 240 Acres

Well plat: GhostRider22_15FedCom41H_PlatSigned_20200116081705.pdf

Well work start Date: 08/29/2020 **Duration:** 15 DAYS

Section 3 - Well Location Table

Survey Type: RECTANGULAR

Describe Survey Type:

Datum: NAD83 **Vertical Datum:** NAVD88

Survey number: **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	2272	FSL	600	FEL	24S	32E	15	Aliquot NESE	32.2165794	-103.6559047	LEA	NEW MEXICO	NEW MEXICO	F	NMNM 0039880	3582	0	0	Y
KOP Leg #1	2472	FSL	532	FEL	24S	32E	15	Aliquot NESE	32.2171279	-103.655684	LEA	NEW MEXICO	NEW MEXICO	F	NMNM 0039880	-5760	9361	9342	Y

Operator Name: APACHE CORPORATION

Well Name: GHOST RIDER 22 15 FEDERAL COM **Well Number:** 41H

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 #1-1	2472	FSL	532	FEL	24S	32E	15	Aliquot NESE	32.2171279	-103.655684	LEA	NEW MEXICO	NEW MEXICO	F	NMNM 0039880	-5760	9351	9342	Y
PPP Leg #1-2	0	FSL	505	FEL	24S	32E	15	Aliquot SESE	32.2103352	-103.6555963	LEA	NEW MEXICO	NEW MEXICO	F	NMLC0 062269A	-6238	12095	9820	Y
EXIT Leg #1	51	FSL	444	FEL	24S	32E	22	Aliquot SESE	32.1959604	-103.6554109	LEA	NEW MEXICO	NEW MEXICO	F	NMLC0 062269A	-6238	17325	9820	Y
BHL Leg #1	51	FSL	444	FEL	24S	32E	22	Aliquot SESE	32.1959604	-103.6554109	LEA	NEW MEXICO	NEW MEXICO	F	NMLC0 062269A	-6238	17325	9820	Y

AFMSS

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

Drilling Plan Data Report

09/25/2020

APD ID: 10400053338 **Submission Date:** 01/16/2020

Operator Name: APACHE CORPORATION

Well Name: GHOST RIDER 22 15 FEDERAL COM **Well Number:** 41H

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

Highlighted data reflects the most recent changes

Show Final Text

Section 1 - Geologic Formations

Formation ID	Formation Name	Elevation	True Vertical Depth	Measured Depth	Lithologies	Mineral Resources	Producing Formation
636891	QUATERNARY	3580	0	0	ALLUVIUM	USEABLE WATER	N
636892	RUSTLER	2456	1124	1124	ANHYDRITE	POTASH	N
636893	SALADO	2139	1441	1441	ANHYDRITE	POTASH	N
636902	DELAWARE	-1244	4824	4833	LIMESTONE, MUDSTONE, SANDSTONE	NATURAL GAS, OIL	N
636908	BONE SPRING	-5188	8768	8777	LIMESTONE, MUDSTONE, SANDSTONE, SHALE	NATURAL GAS, OIL	Y

Section 2 - Blowout Prevention

Pressure Rating (PSI): 3M **Rating Depth:** 11000

Equipment: Rotating Head, Mud Gas Separator, Blow Down Pit, Flare Line, Ignitor

Requesting Variance? YES

Variance request: Apache request a variance to use a flexible hose between BOP and Choke Manifold. Flex hose may vary pending availability. A quality control inspection and test certificate will be available for review.
Testing Procedure: BOP/BOPE will be tested by independent service company to 250psi low and high pressure indicated above per Onshore Order 2 requirements. System may be upgraded to higher pressure but sill tested to WP listed . If system is upgraded, all components installed will be functional and tested. Pipe rams will be operationally checked each 24 hr period. Blind rams will be operationally checked on each TOOH. These checks will be noted on daily tour sheets. Other accessories to BOP equipment will include Kelly cock and floor safety valve (inside BOP), choke lines and choke manifold. (see attached schematic)

Choke Diagram Attachment:

GhostRider22_15FedCom_12.25_13.625_2M_BOP_Annular_Choke_Manifold_Schem_20200116082805.pdf

BOP Diagram Attachment:

GhostRider22_15FedCom_8.75_13.625_3M_BOP_Choke_Manifold_Schem_20200116082812.pdf

Operator Name: APACHE CORPORATION

Well Name: GHOST RIDER 22 15 FEDERAL COM **Well Number:** 41H

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	SURFACE	17.5	13.375	NEW	API	N	0	1145	0	1145	3582	2437	1145	J-55	54.5	BUTT	4.28	1.71	BUOY	4.31	BUOY	5.59
2	INTERMEDIATE	12.25	9.625	NEW	API	N	0	4800	0	4791		-1209	4800	J-55	40	LT&C	2.01	2.01	BUOY	2.19	BUOY	1.82
3	PRODUCTION	8.75	5.5	NEW	API	N	0	10103	0	9821		-6239	10103	P-110	17	OTHER - GB-CD	1.61	1.31	BUOY	2.17	BUOY	2.27
4	PRODUCTION	8.5	5.5	NEW	API	N	10103	17327	9821	9822	-6239	-6240	7224	P-110	17	OTHER - GB-CD	1.61	1.3	BUOY	2.17	BUOY	2.27

Casing Attachments

Casing ID: 1 **String Type:** SURFACE

Inspection Document:

Spec Document:

Tapered String Spec:

Casing Design Assumptions and Worksheet(s):

GhostRider22_15FedCom_SurfCsgDesignAssumpt_20200116082951.pdf

Operator Name: APACHE CORPORATION

Well Name: GHOST RIDER 22 15 FEDERAL COM **Well Number:** 41H

Casing Attachments

Casing ID: 2 **String Type:** INTERMEDIATE

Inspection Document:

Spec Document:

Tapered String Spec:

Casing Design Assumptions and Worksheet(s):

GhostRider22_15FedCom_IntermCsgDesignAssumpt_20200116083028.pdf

Casing ID: 3 **String Type:** PRODUCTION

Inspection Document:

Spec Document:

Tapered String Spec:

Casing Design Assumptions and Worksheet(s):

GhostRider22_15FedCom_ProdCsgDesignAssump_20200116083126.pdf

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

Inspection Document:

Spec Document:

Tapered String Spec:

Casing Design Assumptions and Worksheet(s):

GhostRider22_15FedCom_ProdCsgDesignAssump_20200116083224.pdf

Section 4 - Cement

Operator Name: APACHE CORPORATION

Well Name: GHOST RIDER 22 15 FEDERAL COM **Well Number:** 41H

String Type	Lead/Tail	Stage Tool Depth	Top MD	Bottom MD	Quantity(sx)	Yield	Density	Cu Ft	Excess%	Cement type	Additives
SURFACE	Lead		0	845	440	1.72	13.5	756.8	25	Cl C	4% Bentonite, 1% CaCl2
SURFACE	Tail		845	1145	225	1.33	14.8	299.25	25	Cl C	1% CaCl2
INTERMEDIATE	Lead		0	3840	635	2.32	12.7	1473.2	25	Cl C	10% NaCl, 6% Gel, 1% Premag M, 0.3% defoamer, 0.4% retarder
INTERMEDIATE	Tail		3840	4800	300	1.33	14.8	399	25	Cl C	0.1% retarder
PRODUCTION	Lead		4700	7800	330	2.86	10.5	943.8	20	Nine lite	5% lightweight 3M beads, 0.3% fluid loss, 0.2% dispersant, 0.2% GXT-C, 0.2% suspension aid, 0.15% retarder, 0.15% citric acid
PRODUCTION	Lead		7800	9353	215	2.21	11.5	475.15	20	Nine lite	3% salt, 1% premag M, 0.15% fluid loss, 0.15% GXT-C, 0.45% retarder
PRODUCTION	Tail		9353	16868	1555	1.43	13.2	2223.65	20	Nine lite	1.3% salt, 3% expanding agent, 0.5% fluid loss, 0.1% free water control, 0.65% retarder, 0.2% dispersant, 0.25% defoamer

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: BOP, Choke Manifold, Gas Buster, Blow Down Pit, Flare Line with Igniter, Pre-Mix Pit, Rotating Head

Describe the mud monitoring system utilized: PVT/Pason/Visual Monitoring

Operator Name: APACHE CORPORATION

Well Name: GHOST RIDER 22 15 FEDERAL COM **Well Number:** 41H

Circulating Medium Table

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	1145	SPUD MUD	8.3	9							
1145	4800	SALT SATURATED	9.8	10.5							
4800	17350	OTHER : CUT BRINE	8.6	9.5							

Section 6 - Test, Logging, Coring

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

Will run GR/CNL from TD to surf (horizontal well - vertical portion of hole). Stated logs run will be in the completion report & submitted to BLM.

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

DIRECTIONAL SURVEY,GAMMA RAY LOG,MUD LOG/GEOLOGIC LITHOLOGY LOG,CEMENT BOND LOG,MEASUREMENT WHILE DRILLING,CNL/FDC,MUD LOG/GEOLOGICAL LITHOLOGY LOG,TEMPERATURE LOG,

Coring operation description for the well:

N/A

Section 7 - Pressure

Anticipated Bottom Hole Pressure: 4322 **Anticipated Surface Pressure:** 2161

Anticipated Bottom Hole Temperature(F): 158

Anticipated abnormal pressures, temperatures, or potential geologic hazards? YES

Describe:

Loss circ in Brushy Canyon during production cement job.

Contingency Plans geoharzards description:

Intermediate - If lost circ is encountered, Apache may 2-stage Interm csg, DVT may be used in 9-5/8" csg & ECP may be placed below DVT - please see cmt detail attached. The primary production cement job will be pumped as planned. If lift pressures do not indicate tieback, then a contingency bradenhead squeeze will be pumped 4 hours after primary job to achieve cement tieback into intermediate casing. A CBL will be ran afterwards and submitted to the BLM.

Contingency Plans geohazards attachment:

Hydrogen Sulfide drilling operations plan required? YES

Hydrogen sulfide drilling operations plan:

Operator Name: APACHE CORPORATION

Well Name: GHOST RIDER 22 15 FEDERAL COM **Well Number:** 41H

GhostRider22_15FedCom_H2SOpsContgPlan_20190910135208.pdf

Section 8 - Other Information

Proposed horizontal/directional/multi-lateral plan submission:

GhostRider22_15FedCom41H_DirPlan_20200116084251.pdf

Other proposed operations facets description:

Apache Corp respectfully request approval to utilize a spudder rig to pre-set surf csg. Please see attachment for procedure. *Plan - To set interm into Lamar limestone and continue with 3-string csg design if no water flows in Delaware or if water flows are small. Apache will utilize standard three string Cameron MNDS multibowl wellhead system - procedure attached.

Other proposed operations facets attachment:

5.5_17lb_P110_GB_CD_Connection_Datasheet_20190910135827.pdf

CameronRunningProcedure003612_Rev_02_20190910135552.pdf

GhostRider22_15FedCom_MultibowlWellheadProcedure_20190911140636.pdf

GhostRider22_15FedCom41H_CmtDetail_20200116084319.pdf

GhostRider22_15FedCom41H_CsgDetail_20200116084340.pdf

GhostRider22_15FedCom41H_SpudderRigProcedure_20200116090426.pdf

Other Variance attachment:

HYDROGEN SULFIDE (H_2S) DRILLING OPERATIONS PLAN

Hydrogen Sulfide Training:

All regularly assigned personnel, contracted or employed by Apache Corporation will receive training from qualified instructor(s) in the following areas prior to commencing drilling possible hydrogen sulfide bearing formations in this well:

- The hazards and characteristics of hydrogen sulfide (H_2S)
- The proper use and maintenance of personal protective equipment and life support systems.
- The proper use of H_2S detectors, alarms, warning systems, briefing area, evacuation procedures & prevailing winds.
- The proper techniques for first aid and rescue procedures.

Supervisory personnel will be trained in the following areas:

- The effects of H_2S on metal components. If high tensile tubulars are to be utilized, personnel will be trained in their special maintenance requirements.
- Corrective action & shut-in procedures when drilling or reworking a well & blowout prevention / well control procedures.
- The contents and requirements of the H_2S Drilling Operations Plan

There will be an initial training session just prior to encountering a known or probable H_2S zone (within 3 days or 500') and weekly H_2S and well control drills for all personnel in each crew. The initial training session shall include a review of the site specific H_2S Drilling Operations Plan and the Public Protection Plan. This plan shall be available at the well site. All personnel will be required to carry documentation that they have received proper training.

H_2S SAFETY EQUIPMENT AND SYSTEMS:

Well Control Equipment that will be available & installed if H_2S is encountered:

- Flare Line with electronic igniter or continuous pilot.
- Choke manifold with a minimum of one remote choke.
- Blind rams & pipe rams to accommodate all pipe sizes with properly sized closing unit.
- Auxiliary equipment to include: annular preventer, mud-gas separator, rotating head & flare gun with flares

Protective Equipment for Essential Personnel:

- Mark II Survive-air 30 minute units located in dog house & at briefing areas, as indicated on wellsite diagram.

H2S Dection and Monitoring Equipment:

- Two portable H_2S monitors positioned on location for best coverage & response. These units have warning lights & audible sirens when H_2S levels of 20 ppm are reached.
- One portable H_2S monitor positioned near flare line.

H2S Visual Warning Systems:

- Wind direction indicators are shown on wellsite diagram.
- Caution / Danger signs shall be posted on roads providing direct access to location. Signs will be painted a high visibility yellow with black lettering of sufficient size to be readable at a reasonable distance from the immediate location. Bilingual signs will be used when appropriate.

Mud Program:

- The Mud Program has been designed to minimize the volume of H_2S circulated to the surface. Proper mud weights, safe drilling practices & the use of H_2S scavengers will minimize hazards when penetrating H_2S bearing zones.
- A mud-gas separator and H_2S gas buster will be utilized as needed.

Metallurgy:

- All drill strings, casing, tubing, wellhead, blowout preventers, drilling spool, kill lines, choke manifold & lines, & valves will be suitable for H_2S service.
- All elastomers used for packing & seals shall be H_2S trim.

Communication:

- Cellular telephone and 2-way radio communications in company vehicles, rig floor and mud logging trailer.

HYDROGEN SULFIDE (H_2S) CONTINGENCY PLAN

Assumed 100 ppm ROE = 3000'

100 ppm H_2S concentration shall trigger activation of this plan.

Emergency Procedures

In the event of a release of gas containing H_2S, the first responder(s) must

- Isolate the area and prevent entry by other persons into the 100 ppm ROE.
- Evacuate any public places encompassed by the 100 ppm ROE.
- Be equipped with H_2S monitors and air packs in order to control the release.
- Use the "buddy system" to ensure no injuries occur during the response
- Take precautions to avoid personal injury during this operation.
- Contact operators and/or local officials to aid in operation. See list of phone numbers attached.
- Have received training in the :
  - Detection of H_2S, and
  - Measures for protection against the gas,
  - Equipment used for protection and emergency response.

Ignition of Gas source

Should control of the well be considered lost and ignition considered, take care to protect against exposure to Sulfur Dioxide (SO_2). Intentional ignition must be coordinated with the NMOCD and local officials. Additionally the NM State Police may become involved. NM State Police shall be the Incident Command on scene of any major release. Take care to protect downwind whenever this is an ignition of the gas.

Characteristics of H_2S and SO_2

Common Name	Chemical Formula	Specific Gravity	Threshold Limit	Hazardous Limit	Lethal Concentration
Hydrogen Sulfide	H_2S	1.189 Air = I	10 ppm	100 ppm/hr	600 ppm
Sulfur Dioxide	SO_2	2.21 Air = I	2 ppm	N/A	1000 ppm

Contacting Authorities

Apache Corporation personnel must liaison with local and state agencies to ensure a proper response to a major release. Additionally, the OCD must be notified of the release as soon as possible but no later than 4 hours. Agencies will ask for information such as type and volume of release, wind direction, location of release, etc. Be prepared with all information available including directions to site. The following call list of essential and potential responders has been prepared for use during a release. Apache's response must be in coordination with the State of New Mexico's *"Hazardous Materials Emergency Response Plan" (HMER).*

WELL CONTROL EMERGENCY RESPONSE PLAN

I. GENERAL PHILOSOPHY

Our objective is to ensure that during an emergency, a predetermined procedure is followed so that prompt decisions can be made based on accurate information.

The best way to handle and emergency is with an experienced organization set up for the sole purpose of solving the problem. The *Well Control Emergency Response Team* was organized to handle dangerous & expensive well control problems. The *Team* is structured such that each individual can contribute the most from his area of expertise. Key decision-makers are determined prior to an emergency to avoid confusion about who is in charge.

If the well is flowing uncontrolled at the surface or subsurface, *The Emergency Response Team* will be mobilized. The *Team* is customized for the people currently on the Apache staff. Staff changes may require a change in the plan.

II. EMERGENCY PROCEDURE ON DRILLING OR COMPLETION OPERATIONS

A. In the event of an emergency the *Drilling Foreman or Tool-Pusher* will immediately contact only one of the following starting with the first name listed:

Name	Office	Mobile	Home
Danny Laman – Drlg Superintendent	432-818-1022	432-634-0288	
John Vacek – Drilling Engineer	432-818-1882	281-222-1812	
Bobby Smith – Drilling Manager	432-818-1020	432-556-7701	
Bill Jones – EH&S Coordinator		432-967-9576	

***This one phone call will free the Drilling Foreman to devote his full time to securing the safety of personnel & equipment. This call will initiate the process to mobilize the Well Control Emergency Response Team. Apache maintains an Emergency Telephone Conference Room in the Houston office. This room is available for us by the Permian Region. The room has 50 separate telephone lines.*

B. The Apache employee contacted by the Drilling Foreman will begin contacting the rest of the *Team*. If **DANNY LAMAN** is out of contact**, JOHN VACEK** will be notified.

C. If a member of the *Emergency Response Team* is away from the job, he must be available for call back. Telephone numbers should be left with secretaries or a key decision-maker.

D. Apache's reporting procedure for spills or releases of oil or hazardous materials will be implemented when spills or releases have occurred or are probable.

EMERGENCY RESPONSE NUMBERS:

SHERIFF DEPARTMENT	
Eddy County	575-887-7551
Lea County	575-396-3611
FIRE DEPARTMENT	911
Artesia	575-746-5050
Carlsbad	575-885-2111
Eunice	575-394-2111
Hobbs	575-397-9308
Jal	575-395-2221
Lovington	575-396-2359
HOSPITALS	911
Artesia Medical Emergency	575-746-5050
Carlsbad Medical Emergency	575-885-2111
Eunice Medical Emergency	575-394-2112
Hobbs Medical Emergency	575-397-9308
Jal Medical Emergency	575-395-2221
Lovington Medical Emergency	575-396-2359
AGENT NOTIFICATIONS	
Bureau of Land Management	575-393-3612
New Mexico Oil Conservation Division	575-393-6161

PERMIAN

NW DISTRICT - NM EZ NAD 83
GHOST RIDER 22-15 FED COM PAD (N East)
Ghost Rider 22-15 Fed Com 41

Ghost Rider 22-15 Fed Com 41

Plan: Design #1

Standard Planning Report

30 October, 2019

Planning Report

Database:	PEDM	**Local Co-ordinate Reference:**	Well Ghost Rider 22-15 Fed Com 41
Company:	PERMIAN	**TVD Reference:**	WELL @ 3606.0ft (Original Well Elev)
Project:	NW DISTRICT - NM EZ NAD 83	**MD Reference:**	WELL @ 3606.0ft (Original Well Elev)
Site:	GHOST RIDER 22-15 FED COM PAD (N East)	**North Reference:**	Grid
Well:	Ghost Rider 22-15 Fed Com 41	**Survey Calculation Method:**	Minimum Curvature
Wellbore:	Ghost Rider 22-15 Fed Com 41		
Design:	Design #1		

Project	NW DISTRICT - NM EZ NAD 83		
Map System:	US State Plane 1983	**System Datum:**	Mean Sea Level
Geo Datum:	North American Datum 1983		
Map Zone:	New Mexico Eastern Zone		

Site	GHOST RIDER 22-15 FED COM PAD (N East)				
Site Position:		**Northing:**	443,186.10 ft	**Latitude:**	32° 12' 59.678 N
From:	Map	**Easting:**	750,869.30 ft	**Longitude:**	103° 39' 20.925 W
Position Uncertainty:	0.0 ft	**Slot Radius:**	13.200 in	**Grid Convergence:**	0.36 °

Well	Ghost Rider 22-15 Fed Com 41					
Well Position	**+N/-S**	-0.3 ft	**Northing:**	443,185.80 ft	**Latitude:**	32° 12' 59.677 N
	+E/-W	-29.9 ft	**Easting:**	750,839.40 ft	**Longitude:**	103° 39' 21.273 W
Position Uncertainty		0.0 ft	**Wellhead Elevation:**		**Ground Level:**	3,580.0 ft

Wellbore	Ghost Rider 22-15 Fed Com 41				
Magnetics	**Model Name**	**Sample Date**	**Declination (°)**	**Dip Angle (°)**	**Field Strength (nT)**
	HDGM_FILE	10/30/2019	6.65	59.87	47,853.30000000

Design	Design #1				
Audit Notes:					
Version:		**Phase:**	PLAN	**Tie On Depth:**	0.0
Vertical Section:	**Depth From (TVD) (ft)**	**+N/-S (ft)**	**+E/-W (ft)**	**Direction (°)**	
	0.0	0.0	0.0	178.47	

Plan Survey Tool Program **Date** 10/30/2019

	Depth From (ft)	Depth To (ft)	Survey (Wellbore)	Tool Name	Remarks
1	0.0	9,300.0	Design #1 (Ghost Rider 22-15 Fe	200906_NS-Gyro-MS Fixed:v2:North-seeking gyro m	
2	9,300.0	17,325.0	Design #1 (Ghost Rider 22-15 Fe	SuperiorQC MWD+IFR1+SAG OWSG MWD + IFR1 + Sag + F	

Planning Report

Database:	PEDM	**Local Co-ordinate Reference:**	Well Ghost Rider 22-15 Fed Com 41
Company:	PERMIAN	**TVD Reference:**	WELL @ 3606.0ft (Original Well Elev)
Project:	NW DISTRICT - NM EZ NAD 83	**MD Reference:**	WELL @ 3606.0ft (Original Well Elev)
Site:	GHOST RIDER 22-15 FED COM PAD (N East)	**North Reference:**	Grid
Well:	Ghost Rider 22-15 Fed Com 41	**Survey Calculation Method:**	Minimum Curvature
Wellbore:	Ghost Rider 22-15 Fed Com 41		
Design:	Design #1		

Plan Sections

Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)	TFO (°)	Target
0.0	0.00	0.00	0.0	0.0	0.0	0.00	0.00	0.00	0.00	
1,500.0	0.00	0.00	1,500.0	0.0	0.0	0.00	0.00	0.00	0.00	
1,833.3	5.00	18.52	1,832.9	13.8	4.6	1.50	1.50	0.00	18.52	
3,919.9	5.00	18.52	3,911.5	186.2	62.4	0.00	0.00	0.00	0.00	
4,253.2	0.00	0.00	4,244.4	200.0	67.0	1.50	-1.50	0.00	180.00	
9,351.3	0.00	0.00	9,342.5	200.0	67.0	0.00	0.00	0.00	0.00	
10,101.3	90.00	179.01	9,820.0	-277.4	75.2	12.00	12.00	23.87	179.01	
17,325.0	90.00	179.01	9,820.0	-7,500.0	200.0	0.00	0.00	0.00	0.00	

Planning Report

Database:	PEDM	**Local Co-ordinate Reference:**	Well Ghost Rider 22-15 Fed Com 41
Company:	PERMIAN	**TVD Reference:**	WELL @ 3606.0ft (Original Well Elev)
Project:	NW DISTRICT - NM EZ NAD 83	**MD Reference:**	WELL @ 3606.0ft (Original Well Elev)
Site:	GHOST RIDER 22-15 FED COM PAD (N East)	**North Reference:**	Grid
Well:	Ghost Rider 22-15 Fed Com 41	**Survey Calculation Method:**	Minimum Curvature
Wellbore:	Ghost Rider 22-15 Fed Com 41		
Design:	Design #1		

Planned Survey

Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)
0.0	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00	0.00
100.0	0.00	0.00	100.0	0.0	0.0	0.0	0.00	0.00	0.00
200.0	0.00	0.00	200.0	0.0	0.0	0.0	0.00	0.00	0.00
300.0	0.00	0.00	300.0	0.0	0.0	0.0	0.00	0.00	0.00
400.0	0.00	0.00	400.0	0.0	0.0	0.0	0.00	0.00	0.00
500.0	0.00	0.00	500.0	0.0	0.0	0.0	0.00	0.00	0.00
600.0	0.00	0.00	600.0	0.0	0.0	0.0	0.00	0.00	0.00
700.0	0.00	0.00	700.0	0.0	0.0	0.0	0.00	0.00	0.00
800.0	0.00	0.00	800.0	0.0	0.0	0.0	0.00	0.00	0.00
900.0	0.00	0.00	900.0	0.0	0.0	0.0	0.00	0.00	0.00
1,000.0	0.00	0.00	1,000.0	0.0	0.0	0.0	0.00	0.00	0.00
1,100.0	0.00	0.00	1,100.0	0.0	0.0	0.0	0.00	0.00	0.00
1,200.0	0.00	0.00	1,200.0	0.0	0.0	0.0	0.00	0.00	0.00
1,300.0	0.00	0.00	1,300.0	0.0	0.0	0.0	0.00	0.00	0.00
1,400.0	0.00	0.00	1,400.0	0.0	0.0	0.0	0.00	0.00	0.00
1,500.0	0.00	0.00	1,500.0	0.0	0.0	0.0	0.00	0.00	0.00
1,600.0	1.50	18.52	1,600.0	1.2	0.4	-1.2	1.50	1.50	0.00
1,700.0	3.00	18.52	1,699.9	5.0	1.7	-4.9	1.50	1.50	0.00
1,800.0	4.50	18.52	1,799.7	11.2	3.7	-11.1	1.50	1.50	0.00
1,833.3	5.00	18.52	1,832.9	13.8	4.6	-13.7	1.50	1.50	0.00
1,900.0	5.00	18.52	1,899.3	19.3	6.5	-19.1	0.00	0.00	0.00
2,000.0	5.00	18.52	1,998.9	27.6	9.2	-27.3	0.00	0.00	0.00
2,100.0	5.00	18.52	2,098.6	35.8	12.0	-35.5	0.00	0.00	0.00
2,200.0	5.00	18.52	2,198.2	44.1	14.8	-43.7	0.00	0.00	0.00
2,300.0	5.00	18.52	2,297.8	52.3	17.5	-51.9	0.00	0.00	0.00
2,400.0	5.00	18.52	2,397.4	60.6	20.3	-60.0	0.00	0.00	0.00
2,500.0	5.00	18.52	2,497.0	68.9	23.1	-68.2	0.00	0.00	0.00
2,600.0	5.00	18.52	2,596.7	77.1	25.8	-76.4	0.00	0.00	0.00
2,700.0	5.00	18.52	2,696.3	85.4	28.6	-84.6	0.00	0.00	0.00
2,800.0	5.00	18.52	2,795.9	93.7	31.4	-92.8	0.00	0.00	0.00
2,900.0	5.00	18.52	2,895.5	101.9	34.1	-101.0	0.00	0.00	0.00
3,000.0	5.00	18.52	2,995.1	110.2	36.9	-109.2	0.00	0.00	0.00
3,100.0	5.00	18.52	3,094.8	118.5	39.7	-117.4	0.00	0.00	0.00
3,200.0	5.00	18.52	3,194.4	126.7	42.5	-125.5	0.00	0.00	0.00
3,300.0	5.00	18.52	3,294.0	135.0	45.2	-133.7	0.00	0.00	0.00
3,400.0	5.00	18.52	3,393.6	143.3	48.0	-141.9	0.00	0.00	0.00
3,500.0	5.00	18.52	3,493.2	151.5	50.8	-150.1	0.00	0.00	0.00
3,600.0	5.00	18.52	3,592.9	159.8	53.5	-158.3	0.00	0.00	0.00
3,700.0	5.00	18.52	3,692.5	168.0	56.3	-166.5	0.00	0.00	0.00
3,800.0	5.00	18.52	3,792.1	176.3	59.1	-174.7	0.00	0.00	0.00
3,900.0	5.00	18.52	3,891.7	184.6	61.8	-182.9	0.00	0.00	0.00
3,919.9	5.00	18.52	3,911.5	186.2	62.4	-184.5	0.00	0.00	0.00
4,000.0	3.80	18.52	3,991.4	192.0	64.3	-190.3	1.50	-1.50	0.00
4,100.0	2.30	18.52	4,091.3	197.1	66.0	-195.3	1.50	-1.50	0.00
4,200.0	0.80	18.52	4,191.2	199.6	66.9	-197.8	1.50	-1.50	0.00
4,253.2	0.00	0.00	4,244.4	200.0	67.0	-198.1	1.50	-1.50	0.00
4,300.0	0.00	0.00	4,291.2	200.0	67.0	-198.1	0.00	0.00	0.00
4,400.0	0.00	0.00	4,391.2	200.0	67.0	-198.1	0.00	0.00	0.00
4,500.0	0.00	0.00	4,491.2	200.0	67.0	-198.1	0.00	0.00	0.00
4,600.0	0.00	0.00	4,591.2	200.0	67.0	-198.1	0.00	0.00	0.00
4,700.0	0.00	0.00	4,691.2	200.0	67.0	-198.1	0.00	0.00	0.00
4,800.0	0.00	0.00	4,791.2	200.0	67.0	-198.1	0.00	0.00	0.00
4,900.0	0.00	0.00	4,891.2	200.0	67.0	-198.1	0.00	0.00	0.00

Planning Report

Database:	PEDM	**Local Co-ordinate Reference:**	Well Ghost Rider 22-15 Fed Com 41
Company:	PERMIAN	**TVD Reference:**	WELL @ 3606.0ft (Original Well Elev)
Project:	NW DISTRICT - NM EZ NAD 83	**MD Reference:**	WELL @ 3606.0ft (Original Well Elev)
Site:	GHOST RIDER 22-15 FED COM PAD (N East)	**North Reference:**	Grid
Well:	Ghost Rider 22-15 Fed Com 41	**Survey Calculation Method:**	Minimum Curvature
Wellbore:	Ghost Rider 22-15 Fed Com 41		
Design:	Design #1		

Planned Survey

Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)
5,000.0	0.00	0.00	4,991.2	200.0	67.0	-198.1	0.00	0.00	0.00
5,100.0	0.00	0.00	5,091.2	200.0	67.0	-198.1	0.00	0.00	0.00
5,200.0	0.00	0.00	5,191.2	200.0	67.0	-198.1	0.00	0.00	0.00
5,300.0	0.00	0.00	5,291.2	200.0	67.0	-198.1	0.00	0.00	0.00
5,400.0	0.00	0.00	5,391.2	200.0	67.0	-198.1	0.00	0.00	0.00
5,500.0	0.00	0.00	5,491.2	200.0	67.0	-198.1	0.00	0.00	0.00
5,600.0	0.00	0.00	5,591.2	200.0	67.0	-198.1	0.00	0.00	0.00
5,700.0	0.00	0.00	5,691.2	200.0	67.0	-198.1	0.00	0.00	0.00
5,800.0	0.00	0.00	5,791.2	200.0	67.0	-198.1	0.00	0.00	0.00
5,900.0	0.00	0.00	5,891.2	200.0	67.0	-198.1	0.00	0.00	0.00
6,000.0	0.00	0.00	5,991.2	200.0	67.0	-198.1	0.00	0.00	0.00
6,100.0	0.00	0.00	6,091.2	200.0	67.0	-198.1	0.00	0.00	0.00
6,200.0	0.00	0.00	6,191.2	200.0	67.0	-198.1	0.00	0.00	0.00
6,300.0	0.00	0.00	6,291.2	200.0	67.0	-198.1	0.00	0.00	0.00
6,400.0	0.00	0.00	6,391.2	200.0	67.0	-198.1	0.00	0.00	0.00
6,500.0	0.00	0.00	6,491.2	200.0	67.0	-198.1	0.00	0.00	0.00
6,600.0	0.00	0.00	6,591.2	200.0	67.0	-198.1	0.00	0.00	0.00
6,700.0	0.00	0.00	6,691.2	200.0	67.0	-198.1	0.00	0.00	0.00
6,800.0	0.00	0.00	6,791.2	200.0	67.0	-198.1	0.00	0.00	0.00
6,900.0	0.00	0.00	6,891.2	200.0	67.0	-198.1	0.00	0.00	0.00
7,000.0	0.00	0.00	6,991.2	200.0	67.0	-198.1	0.00	0.00	0.00
7,100.0	0.00	0.00	7,091.2	200.0	67.0	-198.1	0.00	0.00	0.00
7,200.0	0.00	0.00	7,191.2	200.0	67.0	-198.1	0.00	0.00	0.00
7,300.0	0.00	0.00	7,291.2	200.0	67.0	-198.1	0.00	0.00	0.00
7,400.0	0.00	0.00	7,391.2	200.0	67.0	-198.1	0.00	0.00	0.00
7,500.0	0.00	0.00	7,491.2	200.0	67.0	-198.1	0.00	0.00	0.00
7,600.0	0.00	0.00	7,591.2	200.0	67.0	-198.1	0.00	0.00	0.00
7,700.0	0.00	0.00	7,691.2	200.0	67.0	-198.1	0.00	0.00	0.00
7,800.0	0.00	0.00	7,791.2	200.0	67.0	-198.1	0.00	0.00	0.00
7,900.0	0.00	0.00	7,891.2	200.0	67.0	-198.1	0.00	0.00	0.00
8,000.0	0.00	0.00	7,991.2	200.0	67.0	-198.1	0.00	0.00	0.00
8,100.0	0.00	0.00	8,091.2	200.0	67.0	-198.1	0.00	0.00	0.00
8,200.0	0.00	0.00	8,191.2	200.0	67.0	-198.1	0.00	0.00	0.00
8,300.0	0.00	0.00	8,291.2	200.0	67.0	-198.1	0.00	0.00	0.00
8,400.0	0.00	0.00	8,391.2	200.0	67.0	-198.1	0.00	0.00	0.00
8,500.0	0.00	0.00	8,491.2	200.0	67.0	-198.1	0.00	0.00	0.00
8,600.0	0.00	0.00	8,591.2	200.0	67.0	-198.1	0.00	0.00	0.00
8,700.0	0.00	0.00	8,691.2	200.0	67.0	-198.1	0.00	0.00	0.00
8,800.0	0.00	0.00	8,791.2	200.0	67.0	-198.1	0.00	0.00	0.00
8,900.0	0.00	0.00	8,891.2	200.0	67.0	-198.1	0.00	0.00	0.00
9,000.0	0.00	0.00	8,991.2	200.0	67.0	-198.1	0.00	0.00	0.00
9,100.0	0.00	0.00	9,091.2	200.0	67.0	-198.1	0.00	0.00	0.00
9,200.0	0.00	0.00	9,191.2	200.0	67.0	-198.1	0.00	0.00	0.00
9,300.0	0.00	0.00	9,291.2	200.0	67.0	-198.1	0.00	0.00	0.00
9,351.3	0.00	0.00	9,342.5	200.0	67.0	-198.1	0.00	0.00	0.00
9,400.0	5.85	179.01	9,391.1	197.5	67.0	-195.7	12.00	12.00	0.00
9,500.0	17.85	179.01	9,488.8	177.0	67.4	-175.2	12.00	12.00	0.00
9,600.0	29.85	179.01	9,580.1	136.7	68.1	-134.8	12.00	12.00	0.00
9,700.0	41.85	179.01	9,661.0	78.2	69.1	-76.4	12.00	12.00	0.00
9,800.0	53.85	179.01	9,728.0	4.3	70.4	-2.4	12.00	12.00	0.00
9,900.0	65.85	179.01	9,778.2	-82.0	71.9	83.9	12.00	12.00	0.00
10,000.0	77.85	179.01	9,809.3	-176.9	73.5	178.8	12.00	12.00	0.00
10,100.0	89.85	179.01	9,820.0	-276.1	75.2	278.0	12.00	12.00	0.00

Planning Report

Database:	PEDM	**Local Co-ordinate Reference:**	Well Ghost Rider 22-15 Fed Com 41
Company:	PERMIAN	**TVD Reference:**	WELL @ 3606.0ft (Original Well Elev)
Project:	NW DISTRICT - NM EZ NAD 83	**MD Reference:**	WELL @ 3606.0ft (Original Well Elev)
Site:	GHOST RIDER 22-15 FED COM PAD (N East)	**North Reference:**	Grid
Well:	Ghost Rider 22-15 Fed Com 41	**Survey Calculation Method:**	Minimum Curvature
Wellbore:	Ghost Rider 22-15 Fed Com 41		
Design:	Design #1		

Planned Survey

Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)
10,101.3	90.00	179.01	9,820.0	-277.4	75.2	279.3	12.00	12.00	0.00
10,200.0	90.00	179.01	9,820.0	-376.1	77.0	378.0	0.00	0.00	0.00
10,300.0	90.00	179.01	9,820.0	-476.1	78.7	478.0	0.00	0.00	0.00
10,400.0	90.00	179.01	9,820.0	-576.1	80.4	578.0	0.00	0.00	0.00
10,500.0	90.00	179.01	9,820.0	-676.0	82.1	678.0	0.00	0.00	0.00
10,600.0	90.00	179.01	9,820.0	-776.0	83.9	778.0	0.00	0.00	0.00
10,700.0	90.00	179.01	9,820.0	-876.0	85.6	878.0	0.00	0.00	0.00
10,800.0	90.00	179.01	9,820.0	-976.0	87.3	978.0	0.00	0.00	0.00
10,900.0	90.00	179.01	9,820.0	-1,076.0	89.0	1,078.0	0.00	0.00	0.00
11,000.0	90.00	179.01	9,820.0	-1,176.0	90.8	1,178.0	0.00	0.00	0.00
11,100.0	90.00	179.01	9,820.0	-1,276.0	92.5	1,278.0	0.00	0.00	0.00
11,200.0	90.00	179.01	9,820.0	-1,375.9	94.2	1,378.0	0.00	0.00	0.00
11,300.0	90.00	179.01	9,820.0	-1,475.9	95.9	1,478.0	0.00	0.00	0.00
11,400.0	90.00	179.01	9,820.0	-1,575.9	97.7	1,578.0	0.00	0.00	0.00
11,500.0	90.00	179.01	9,820.0	-1,675.9	99.4	1,678.0	0.00	0.00	0.00
11,600.0	90.00	179.01	9,820.0	-1,775.9	101.1	1,777.9	0.00	0.00	0.00
11,700.0	90.00	179.01	9,820.0	-1,875.9	102.9	1,877.9	0.00	0.00	0.00
11,800.0	90.00	179.01	9,820.0	-1,975.9	104.6	1,977.9	0.00	0.00	0.00
11,900.0	90.00	179.01	9,820.0	-2,075.8	106.3	2,077.9	0.00	0.00	0.00
12,000.0	90.00	179.01	9,820.0	-2,175.8	108.0	2,177.9	0.00	0.00	0.00
12,100.0	90.00	179.01	9,820.0	-2,275.8	109.8	2,277.9	0.00	0.00	0.00
12,200.0	90.00	179.01	9,820.0	-2,375.8	111.5	2,377.9	0.00	0.00	0.00
12,300.0	90.00	179.01	9,820.0	-2,475.8	113.2	2,477.9	0.00	0.00	0.00
12,400.0	90.00	179.01	9,820.0	-2,575.8	114.9	2,577.9	0.00	0.00	0.00
12,500.0	90.00	179.01	9,820.0	-2,675.8	116.7	2,677.9	0.00	0.00	0.00
12,600.0	90.00	179.01	9,820.0	-2,775.7	118.4	2,777.9	0.00	0.00	0.00
12,700.0	90.00	179.01	9,820.0	-2,875.7	120.1	2,877.9	0.00	0.00	0.00
12,800.0	90.00	179.01	9,820.0	-2,975.7	121.9	2,977.9	0.00	0.00	0.00
12,900.0	90.00	179.01	9,820.0	-3,075.7	123.6	3,077.9	0.00	0.00	0.00
13,000.0	90.00	179.01	9,820.0	-3,175.7	125.3	3,177.9	0.00	0.00	0.00
13,100.0	90.00	179.01	9,820.0	-3,275.7	127.0	3,277.9	0.00	0.00	0.00
13,200.0	90.00	179.01	9,820.0	-3,375.6	128.8	3,377.9	0.00	0.00	0.00
13,300.0	90.00	179.01	9,820.0	-3,475.6	130.5	3,477.9	0.00	0.00	0.00
13,400.0	90.00	179.01	9,820.0	-3,575.6	132.2	3,577.9	0.00	0.00	0.00
13,500.0	90.00	179.01	9,820.0	-3,675.6	133.9	3,677.9	0.00	0.00	0.00
13,600.0	90.00	179.01	9,820.0	-3,775.6	135.7	3,777.9	0.00	0.00	0.00
13,700.0	90.00	179.01	9,820.0	-3,875.6	137.4	3,877.9	0.00	0.00	0.00
13,800.0	90.00	179.01	9,820.0	-3,975.6	139.1	3,977.9	0.00	0.00	0.00
13,900.0	90.00	179.01	9,820.0	-4,075.5	140.9	4,077.8	0.00	0.00	0.00
14,000.0	90.00	179.01	9,820.0	-4,175.5	142.6	4,177.8	0.00	0.00	0.00
14,100.0	90.00	179.01	9,820.0	-4,275.5	144.3	4,277.8	0.00	0.00	0.00
14,200.0	90.00	179.01	9,820.0	-4,375.5	146.0	4,377.8	0.00	0.00	0.00
14,300.0	90.00	179.01	9,820.0	-4,475.5	147.8	4,477.8	0.00	0.00	0.00
14,400.0	90.00	179.01	9,820.0	-4,575.5	149.5	4,577.8	0.00	0.00	0.00
14,500.0	90.00	179.01	9,820.0	-4,675.5	151.2	4,677.8	0.00	0.00	0.00
14,600.0	90.00	179.01	9,820.0	-4,775.4	152.9	4,777.8	0.00	0.00	0.00
14,700.0	90.00	179.01	9,820.0	-4,875.4	154.7	4,877.8	0.00	0.00	0.00
14,800.0	90.00	179.01	9,820.0	-4,975.4	156.4	4,977.8	0.00	0.00	0.00
14,900.0	90.00	179.01	9,820.0	-5,075.4	158.1	5,077.8	0.00	0.00	0.00
15,000.0	90.00	179.01	9,820.0	-5,175.4	159.8	5,177.8	0.00	0.00	0.00
15,100.0	90.00	179.01	9,820.0	-5,275.4	161.6	5,277.8	0.00	0.00	0.00
15,200.0	90.00	179.01	9,820.0	-5,375.3	163.3	5,377.8	0.00	0.00	0.00
15,300.0	90.00	179.01	9,820.0	-5,475.3	165.0	5,477.8	0.00	0.00	0.00

Planning Report

Database:	PEDM	**Local Co-ordinate Reference:**	Well Ghost Rider 22-15 Fed Com 41
Company:	PERMIAN	**TVD Reference:**	WELL @ 3606.0ft (Original Well Elev)
Project:	NW DISTRICT - NM EZ NAD 83	**MD Reference:**	WELL @ 3606.0ft (Original Well Elev)
Site:	GHOST RIDER 22-15 FED COM PAD (N East)	**North Reference:**	Grid
Well:	Ghost Rider 22-15 Fed Com 41	**Survey Calculation Method:**	Minimum Curvature
Wellbore:	Ghost Rider 22-15 Fed Com 41		
Design:	Design #1		

Planned Survey

Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)
15,400.0	90.00	179.01	9,820.0	-5,575.3	166.8	5,577.8	0.00	0.00	0.00
15,500.0	90.00	179.01	9,820.0	-5,675.3	168.5	5,677.8	0.00	0.00	0.00
15,600.0	90.00	179.01	9,820.0	-5,775.3	170.2	5,777.8	0.00	0.00	0.00
15,700.0	90.00	179.01	9,820.0	-5,875.3	171.9	5,877.8	0.00	0.00	0.00
15,800.0	90.00	179.01	9,820.0	-5,975.3	173.7	5,977.8	0.00	0.00	0.00
15,900.0	90.00	179.01	9,820.0	-6,075.2	175.4	6,077.8	0.00	0.00	0.00
16,000.0	90.00	179.01	9,820.0	-6,175.2	177.1	6,177.8	0.00	0.00	0.00
16,100.0	90.00	179.01	9,820.0	-6,275.2	178.8	6,277.8	0.00	0.00	0.00
16,200.0	90.00	179.01	9,820.0	-6,375.2	180.6	6,377.7	0.00	0.00	0.00
16,300.0	90.00	179.01	9,820.0	-6,475.2	182.3	6,477.7	0.00	0.00	0.00
16,400.0	90.00	179.01	9,820.0	-6,575.2	184.0	6,577.7	0.00	0.00	0.00
16,500.0	90.00	179.01	9,820.0	-6,675.2	185.8	6,677.7	0.00	0.00	0.00
16,600.0	90.00	179.01	9,820.0	-6,775.1	187.5	6,777.7	0.00	0.00	0.00
16,700.0	90.00	179.01	9,820.0	-6,875.1	189.2	6,877.7	0.00	0.00	0.00
16,800.0	90.00	179.01	9,820.0	-6,975.1	190.9	6,977.7	0.00	0.00	0.00
16,900.0	90.00	179.01	9,820.0	-7,075.1	192.7	7,077.7	0.00	0.00	0.00
17,000.0	90.00	179.01	9,820.0	-7,175.1	194.4	7,177.7	0.00	0.00	0.00
17,100.0	90.00	179.01	9,820.0	-7,275.1	196.1	7,277.7	0.00	0.00	0.00
17,200.0	90.00	179.01	9,820.0	-7,375.0	197.8	7,377.7	0.00	0.00	0.00
17,300.0	90.00	179.01	9,820.0	-7,475.0	199.6	7,477.7	0.00	0.00	0.00
17,325.0	90.00	179.01	9,820.0	-7,500.0	200.0	7,502.7	0.00	0.00	0.00

Torque Chart

Recommended Makeup Torques for Flange Bolting Ft•Lbf Per API 6A: preload = .50Sy				
Bolt Size Nom OD - TPI	B7M, L7M (Sy=80 ksi)		B7, L7, 660 (Sy=105 ksi)	
	cf=0.07	cf=0.13	cf=0.07	cf=0.13
.500-13	27	45	35	59
.625-11	52	88	68	115
.750-10	90	153	118	200
.875-9	143	243	188	319
1.000-8	213	361	279	474
1.125-8	305	523	401	686
1.250-8	421	726	553	953
1.375-8	563	976	739	1280
1.500-8	733	1280	962	1680
1.625-8	934	1640	1230	2150
1.750-8	1170	2050	1530	2700
1.875-8	1440	2540	1890	3330
2.000-8	1750	3090	2300	4060
2.250-8	2500	4440	3280	5820
2.500-8	3430	6120	4500	8030
2.625-8	3970	7100	4720	8430
2.750-8	4570	8180	5420	9700
3.000-8	5930	10700	7050	12700
3.250-8	7550	13600	8970	16100
3.500-8	9430	17000	11200	20200
3.750-8	11600	21000	13800	24900
3.875-8	12800	23200	15200	27500
4.000-8	14100	25500	16700	30300

NOTE

The information in this table is based on API-6A's recommended torque for a given bolt size. The information is presented for the convenience of the user and is based on assumptions of certain coefficients of friction (cf). The coefficients of friction are based on approximations of the friction between the studs and nuts, as well as the nuts and flange face. A coefficient friction of 0.13 assumes the threads and nut bearing surfaces are bare metal and are well lubricated with thread compound. A coefficient of friction of 0.07 assumes the thread and nuts are coated with a fluoropolymer material.

- Lubrication

  It is essential that threads and nut faces be well lubricated with an appropriate grease prior to assembly. Cameron clamps and fast clamps require lubrication on the hub-clamp contact area. Acceptable lubricants include thread joint compounds which meet the formulation, evaluation and testing requirements specified in API Recommended Practice 5A3/ISO13678. (Reference - Jet Lube Grease, 1 lb can PN: 2737980-02).

  Studs and nuts coated with Xylan/PTFE compound in accordance with a Cameron procedure do not require lubrication. However, a light coat of API Recommended Practice 5A3/ISO13678 thread compound is recommended for Xyland-coated bolting as an aid to assembly.

  Material gaskets should be lightly coated with lubricant prior to assembly. Acceptable lubricants include motor oil or Cameron gate valve greases.

IC Test Plug Load Chart

IC Test Plug Maximum Load							
Bowl		Maximum Hanging Load (in 1000s lbs) at Test Pressure					
Size	Pressure	0 psi	2,000 psi	3,000 psi	5,000 psi	10,000 psi	15,000 psi
7-1/16"	2,000 to 5,000 psi	213	135	96	19	N/A	N/A
	10,000 psi	253	175	136	59	0	N/A
	15,000 psi	477	399	360	282	88	0
9"	2,000 to 10,000 psi	600	479	419	299	0	N/A
	15,000 psi	751	630	570	450	149	0
11"	2,000 to 10,000 psi	1277	1091	998	812	348	N/A
	15,000 psi	1596	1410	1317	1131	667	202
13-5/8"	2,000 to 10,000 psi	1713	1426	1283	997	281	N/A
	15,000 psi	2142	1855	1712	1426	710	5
16-3/4"	2,000 to 5,000 psi	3076	2641	2424	1990	N/A	N/A
20"	2,000 to 5,000 psi	2733	2096	1778	1142	N/A	N/A

Minimum Casing Load Chart for IC Type Hangers

Minimum Casing Load for IC-2 & IC-6 Casing Hangers		
Hanger Nom. Size	Casing Size	Load (Pounds)
9"	4-1/2"	46,000
	5-1/2"	42,000
11"	4-1/2"	78,000
	5"	74,000
	5-1/2"	70,000
	6-5/8"	59,000
	7"	55,000
	7-5/8"	48,000
13-5/8"	5-1/2"	120,000
	7"	106,000
	7-5/8"	99,000
	8-5/8"	86,000
	9-5/8"	72,000
	10-3/4"	54,000

Minimum Casing Load for IC-2 & IC-6 Casing Hangers		
Hanger Nom. Size	Casing Size	Load (Pounds)
16-3/4"	9-5/8"	146,000
	10-3/4"	128,000
	11-3/4"	110,000
	11-7/8"	109,000
	13-3/8"	79,000
20-3/4" 21-1/4"	10-3/4"	228,000
	13-3/8"	180,000
	13-5/8"	175,000
	16"	120,000

RP-000573

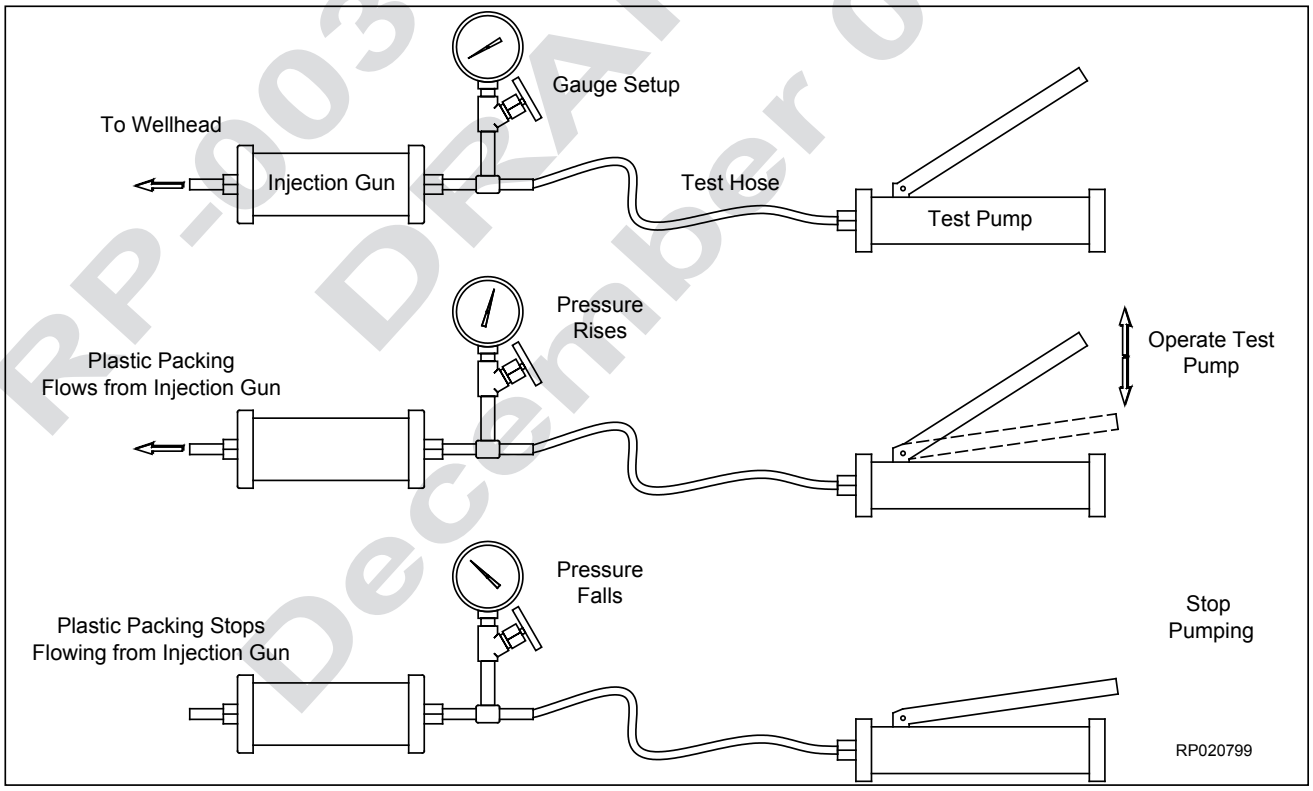
Injection Gun Preparation

1. Maintaining the Injection Gun at ambient temperatures, prepare Test Pump and Injection Gun for injecting P seals.
2. Operate Test Pump to inject fluid into Injection gun.
3. Monitor open end of Injection Gun for signs of plastic packing.
4. After plastic packing begins to flow from open end of Injection Gun continue to inject fluid from Test Pump increasing pressure an additional 200 to 400 psi.
5. Stop pumping Test Pump and monitor plastic packing movement and pressure on the pressure gauge.
6. Once packing has stopped flowing and the pressure gauge has stabilized observe the reading on gauge and record the pressure. **This will be your P1 pressure.**

Screw Type Injection Gun	
Applied Torque (ft-lb)	**Packing Pressure (psi)**
25	1,600
50	5,000
75	7,000
100	8,800
150	14,100
200	17,700
220	20,000

NOTE The pressure recorded will become "0". This is the pressure required to move the plastic packing and is not included in the actual injection pressure.

NOTE The amount of pressure required to force plastic packing to flow from the Injection Gun is dependent on several factors including outside temperature and the plastic injection gun itself. The example given above is for illustration purposes only.



Fraction to Decimal Conversion Chart

FRACTION TO DECIMAL CONVERSION CHART

4THS	8THS	16THS	32NDS	64THS	TO 3 PLACES	TO 2 PLACES	4THS	8THS	16THS	32NDS	64THS	TO 3 PLACES	TO 2 PLACES
				1/64	.016	.02					33/64	.516	.52
			1/32		.031	.03				17/32		.531	.53
				3/64	.047	.05					35/64	.547	.55
		1/16			.062	.06			9/16			.562	.56
				5/64	.078	.08					37/64	.578	.58
			3/32		.094	.09				19/32		.594	.59
				7/64	.109	.11					39/64	.609	.61
	1/8				.125	.12		5/8				.625	.62
				9/64	.141	.14					41/64	.641	.64
			5/32		.156	.16				21/32		.656	.66
				11/64	.172	.17					43/64	.672	.67
		3/16			.188	.19			11/16			.688	.69
				13/64	.203	.20					45/64	.703	.70
			7/32		.219	.22				23/32		.719	.72
				15/64	.234	.23					47/64	.734	.73
1/4					.250	.25	3/4					.750	.75
				17/64	.266	.27					49/64	.766	.77
			9/32		.281	.28				25/32		.781	.78
				19/64	.297	.30					51/64	.797	.80
		5/16			.312	.31			13/16			.812	.81
				21/64	.328	.33					53/64	.828	.83
			11/32		.344	.34				27/32		.844	.84
				23/64	.359	.36					55/64	.859	.86
	3/8				.375	.38		7/8				.875	.88
				25/64	.391	.39					57/64	.891	.89
			13/32		.406	.41				29/32		.906	.91
				27/64	.422	.42					59/64	.922	.92
		7/16			.438	.44			15/16			.938	.94
				29/64	.453	.45					61/64	.953	.95
			15/32		.469	.47				31/32		.969	.97
				31/64	.484	.48					63/64	.984	.98
1/2					.500	.50	1					1.000	1.00

Reference Documents

Refer to Operation and Maintenance Manuals and Standard Running Procedures.

Running Procedure	Description
TC-000148-02	Cameron Type FL & FLS Operation and Maintenance Manual
TC-009084-02	WKM Model M Power R-Seal Operation and Maintenance Manual
RP-002153	Make-up Requirements for API Flange Connections
RP-001558	Valve Removal Plugs
RP-003737	Standard MN-DS Housing with Landing Base Running Procedure
RP-003767	Standard MN-DS Housing through Rotary Table Running Procedure
RP-000654	Standard IC Test Plug Procedure for BOP Test
RP-003740	Standard MN-DS Intermediate Hanger Running Procedure
RP-003734	Standard Wash Tool Procedure
RP-003741	Standard MN-DS Intermediate Packoff Support Bushing Running Procedure
RP-003757	Standard MN-DS Production Packoff Running Procedure
RP-000573	Standard IC-2 Casing Hanger Running Procedure
RP-000592	Standard 'NX' Bushing Running Procedure

Document Control

Revision History

Revision	Date	Description	Prepared by:
01	April 26, 2016	Initial Release per 650205763 Houston Surface Systems Engineering	Maria Contreras
02	Draft A December 05, 2018	Revised Publication per 650356691	Eric Ayres

About this Revision

Owner: **Surface Systems Engineering - Running Procedures Department, Houston, TX**

Author: **Eric Ayres**

Reviewer:

Approver:

Released by: **Maria Contreras, SAP**

Apache Corp respectfully requests approval for the following changes and additions to the drilling plan:

1. Utilize Cameron's MN-DS multibowl wellhead.
2. Description of Operations
    a. Cameron's MN-DS multibowl wellhead will be installed after the surface rig presets surface. A T/A cap will be installed with a 1K pressure gauge to monitor pressures while the rig is not on the well.
2. The rig will N/U BOP and test the BOPE/surface casing to required pressures (Onshore Oil and Gas Order 2).
3. Intermediate will be drilled to casing depth and 9-5/8" intermediate casing will be ran & landed with a mandrel hanger on the MN-DS interior load shoulder.
4. The landing joint will be backed off and the packoff will be installed.
    a. The packoff's upper and lower seals will be tested.
5. Since no BOP seal was broken during this process, Apache respectfully requests to continue operations without performing a BOP test. The initial pressure test should still be valid as long as no seal was broken and <30 days from the initial pressure test.
6. Intermediate casing will be tested to required pressures (Onshore Oil and Gas Order 2).
7. The vertical, curve and lateral will then be drilled according to plan.
8. Production casing will be ran and 5-1/2" slips will be used after the production cement job.
9. Once the rig is removed, Apache Corp will secure the wellhead with a tubing head and cap. The wellhead area will be protected by placing a guard rail around the cellar area.

Please refer to Cameron's MN-DS multibowl wellhead running procedures.

GHOST RIDER 22 15 FEDERAL COM 41H - CMT DETAIL

CEMENT: SURFACE

Stage Tool Depth: N/A

Lead:

Top MD of Segment:	0	Btm MD of Segment:	845
Cmt Type:	C	Cmt Additives:	4% Bentonite + 1% CaCl2
Quantity (sks):	440		
Yield (cu/ft/sk):	1.72	Volume (cu/ft):	756.8
Density (lbs/gal):	13.5	Percent OH Excess:	25%

Tail:

Top MD of Segment:	845	Btm MD of Segment:	1145
Cmt Type:	C	Cmt Additives:	1% CaCl2
Quantity (sks):	225		
Yield (cu/ft/sk):	1.33	Volume (cu/ft):	299.25
Density (lbs/gal):	14.8	Percent OH Excess:	25%

CEMENT: INTERMEDIATE

Single Stage

Lead:

Top MD of Segment:	0	Btm MD of Segment:	3840
Cmt Type:	C	Cmt Additives:	10% NaCl + 6% Bentonite + 1% Premag M + 0.3% Defoamer + 0.4% Retarder
Quantity (sks):	635		
Yield (cu/ft/sk):	2.32	Volume (cu/ft):	1473.2
Density (lbs/gal):	12.7	Percent OH Excess:	25%

Tail:

Top MD of Segment:	3840	Btm MD of Segment:	4800
Cmt Type:	C	Cmt Additives:	0.1% Retarder

Quantity (sks):	300		
Yield (cu/ft/sk):	1.33	Volume (cu/ft):	399
Density (lbs/gal):	14.8	Percent OH Excess:	25%

2 Stage Cement Job

* DV tool depth(s) will be adjusted based on hole conditions and cement volumes will be adjusted proportionally. DV tool will be set a minimum of 50 feet below previous casing and a minimum of 200 feet above current shoe. Lab reports with the 500 psi compressive strength time for the cement will be onsite for review.

*If lost circulation is encountered, Apache may 2-stage Interm csg. A DVT may be used in the 9-5/8" csg & ECP may be placed below DVT.

1st Stage

Lead:

Top MD of Segment:	2280	Btm MD of Segment:	3840
Cmt Type:	C	Cmt Additives:	10% NaCl + 6% Bentonite + 1% Premag M + 0.3% Defoamer + 0.4% Retarder

Quantity (sks):	315		
Yield (cu/ft/sk):	2.32	Volume (cu/ft):	730.8
Density (lbs/gal):	12.7	Percent OH Excess:	25%

Tail:

Top MD of Segment:	3840	Btm MD of Segment:	4800
Cmt Type:	C	Cmt Additives:	0.1% Retarder

Quantity (sks):	300		
Yield (cu/ft/sk):	1.33	Volume (cu/ft):	399
Density (lbs/gal):	14.8	Percent OH Excess:	25%

Stage Tool / ECP Depth: ± 2280'

2nd Stage

Lead:

Top MD of Segment:	0	Btm MD of Segment:	1600

Cmt Type:	C		Cmt Additives:	10% NaCl + 6% Bentonite + 1% Premag M + 0.3% Defoamer + 0.4% Retarder
Quantity (sks):	260			
Yield (cu/ft/sk):	2.32	Volume (cu/ft):	603.2	
Density (lbs/gal):	12.7	Percent OH Excess:	25%	

Tail:

Top MD of Segment:	1600	Btm MD of Segment:	2280

Cmt Type:	C	Cmt Additives:	0.1% Retarder
Quantity (sks):	200		
Yield (cu/ft/sk):	1.33	Volume (cu/ft):	266
Density (lbs/gal):	14.8	Percent OH Excess:	25%

CEMENT: PRODUCTION

Single Stage

Lead 1:

Top MD of Segment:	4700	Btm MD of Segment:	7800

Cmt Type:	Nine Lite	Cmt Additives:	5% Lightweight 3M beads + 0.3% Fluid Loss + 0.2% Dispersant + 0.2% GXT-C + 0.2% Suspension Aid + 0.15% Retarder + 0.15% Citric Acid
Quantity (sks):	330		
Yield (cu/ft/sk):	2.86	Volume (cu/ft):	943.8
Density (lbs/gal):	10.5	Percent OH Excess:	20%

Lead 2:

Top MD of Segment:	7800	Btm MD of Segment:	9353

Cmt Type:	Nine Lite	Cmt Additives:	3% Salt + 1% Premag M + 0.15% Fluid Loss + 0.15% GXT-C + 0.45% Retarder
Quantity (sks):	215		

Yield (cu/ft/sk):	2.21	Volume (cu/ft):	475.15
Density (lbs/gal):	11.5	Percent OH Excess:	20%

Tail:

Top MD of Segment:	9353	Btm MD of Segment:	16868

Cmt Type:	Nine Lite	Cmt Additives:	1.3% Salt + 3% Expanding Agent + 0.5% Fluid Loss + 0.1% Free Water Control + 0.65% Retarder + 0.2% Dispersant + 0.25% Defoamer

Quantity (sks):	1555		
Yield (cu/ft/sk):	1.43	Volume (cu/ft):	2223.65
Density (lbs/gal):	13.2	Percent OH Excess:	20%

Production Bradenhead Squeeze Contingency

*Due to the Brushy Canyon being a known zone for lost circulation during the production cement jobs, Apache proposes a contingency bradenhead squeeze 4 hours after bumping the plug on the primary stage if the lift pressure is less than known tieback lift pressures. Slips will be set previous to pumping the Bradenhead squeeze (right after bumping the plug) due to issues with getting slips set after previous Bradenhead squeeze experiences. A CBL will be ran after 7-10 days and will be submitted to BLM.

Tail:

Top MD of Segment:	0	Btm MD of Segment:	7500

Cmt Type:	H	Cmt Additives:	Class H Neat

Quantity (sks):	1885		
Yield (cu/ft/sk):	1.18	Volume (cu/ft):	2224.3
Density (lbs/gal):	15.6	Percent OH Excess:	15%

GHOST RIDER 22 15 FEDERAL COM 41H - CSG DETAIL

String: SURFACE

Hole Size:	17.5						
Top Setting Depth (MD):	0	Top Setting Depth (TVD):	0	Btm setting depth (MD):	1145	Btm setting depth (TVD):	1145
Size:	13-3/8"	Grade:	J-55	Weight (lbs/ft):	54.5	Joint (Butt,FJ, LTC,STC, SLH, N/A, Other):	Buttress

Condition (New/Used): New Standard (API/Non-API): API

Tapered String (Y/N)?: N
If yes, need spec attachment

Safety Factors

Collapse Design Safety Factor: 4.28 Burst Design Safety Factor: 1.71

Body Tensile Design Safety Factor type?: Dry/Buoyant Buoyant
Body Tensile Design Safety Factor: 4.31

Joint Tensile Design Safety Factor type?: Dry/Buoyant Buoyant
Joint Tensile Design Safety Factor: 4.59

String: INTERMEDIATE

Hole Size:	12.25						
Top Setting Depth (MD):	0	Top Setting Depth (TVD):	0	Btm setting depth (MD):	4800	Btm setting depth (TVD):	4791
Size:	9-5/8"	Grade:	J-55	Weight (lbs/ft):	40	Joint (Butt,FJ, LTC,STC, SLH, N/A, Other):	LTC

Condition (New/Used): New Standard (API/Non-API): API

Tapered String (Y/N)?: N
If yes, need spec attachment

Safety Factors

Collapse Design Safety Factor: 2.01 Burst Design Safety Factor: 2.01

Body Tensile Design Safety Factor type?: Dry/Buoyant Buoyant
Body Tensile Design Safety Factor: 2.19

Joint Tensile Design Safety Factor type?: Dry/Buoyant Buoyant
Joint Tensile Design Safety Factor: 1.82

String: **PRODUCTION**

Hole Size: 8.75

Top Setting Depth (MD):	0	Top Setting Depth (TVD):	0	Btm setting depth (MD):	10103	Btm setting depth (TVD):	9821
Size:	5-1/2"	Grade:	P-110	Weight (lbs/ft):	17	Joint (Butt,FJ, LTC,STC, SLH, N/A, Other):	GB-CD

Hole Size: 8.5

Top Setting Depth (MD):	10103	Top Setting Depth (TVD):	9821	Btm setting depth (MD):	17327	Btm setting depth (TVD):	9822
Size:	5-1/2"	Grade:	P-110	Weight (lbs/ft):	17	Joint (Butt,FJ, LTC,STC, SLH, N/A, Other):	GB-CD

Condition (New/Used): New Standard (API/Non-API): API

Safety Factors

Collapse Design Safety Factor: 1.61 Burst Design Safety Factor: 1.3

Body Tensile Design Safety Factor type?: Dry/Buoyant Buoyant
Body Tensile Design Safety Factor: 2.17

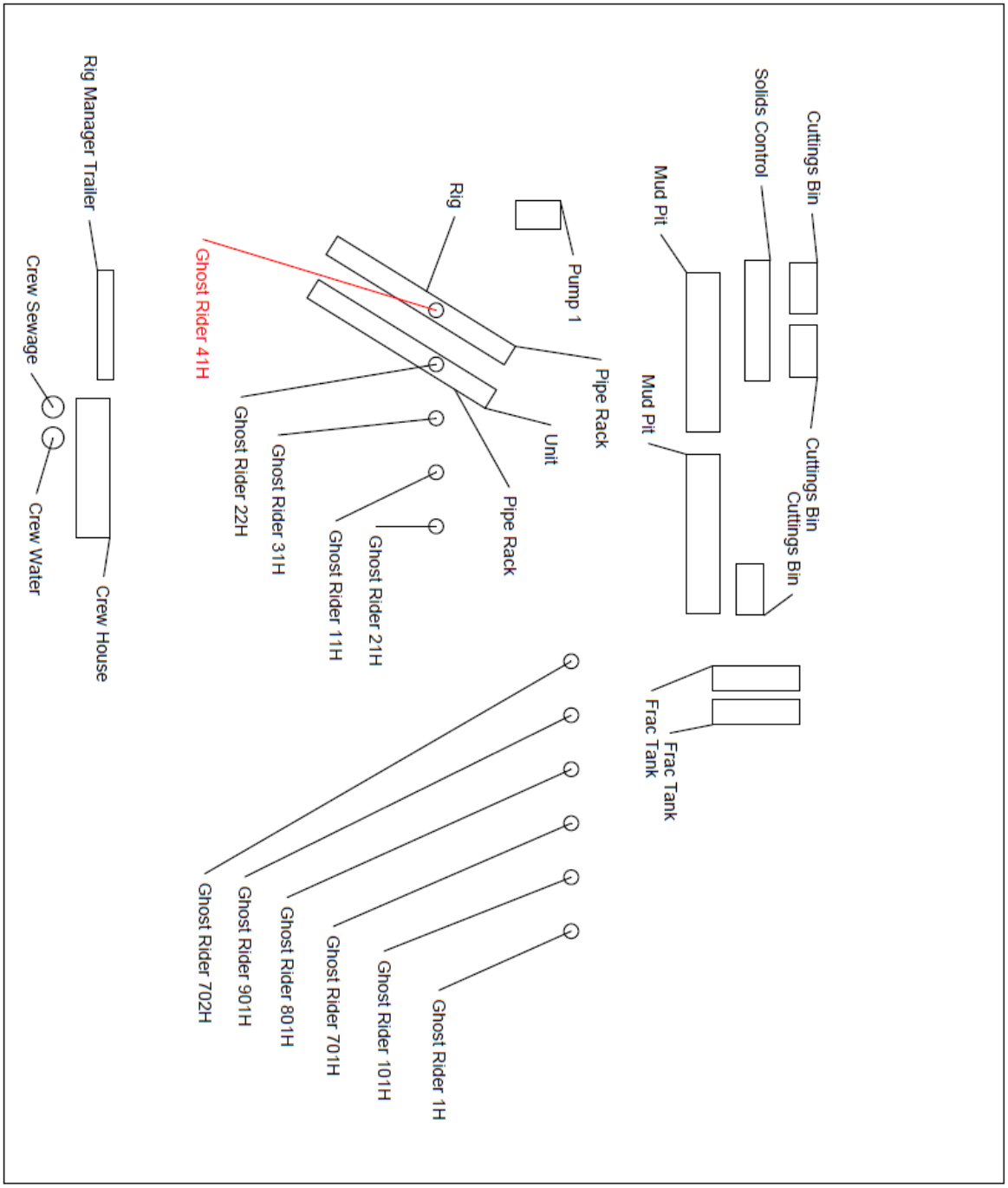
Joint Tensile Design Safety Factor type?: Dry/Buoyant Buoyant
Joint Tensile Design Safety Factor: 2.27

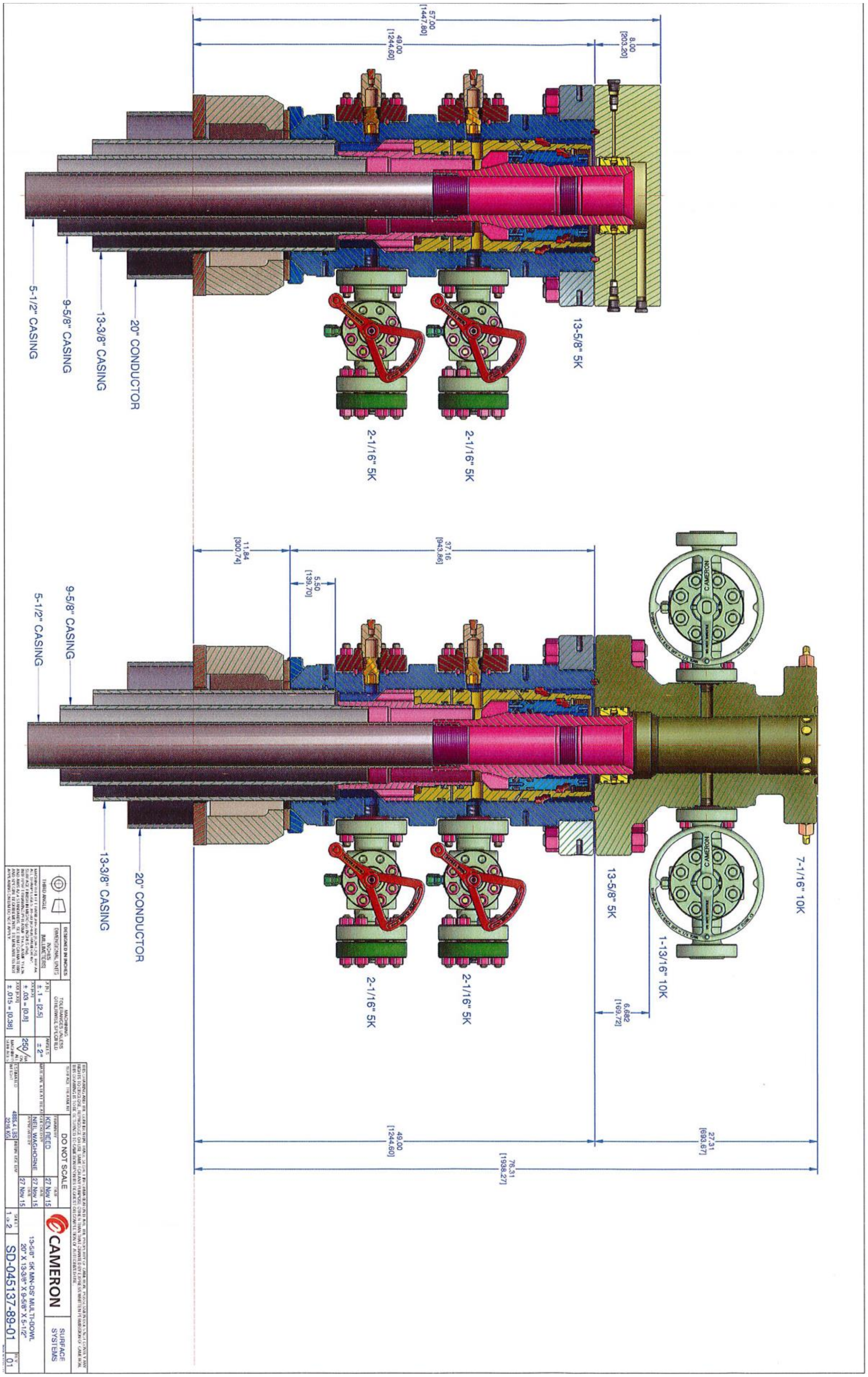
Tapered String (Y/N)?: N
If yes, need spec attachment

Apache Corp respectfully requests approval for the following changes and additions to the drilling plan:

1. Utilize a spudder rig to pre-set surface casing.
2. Description of Operations
    1. Spudder rig will move in their rig to drill the surface hole section and pre-set surface casing on the Ghost Rider 22-15 Federal COM 41H.
        a. After drilling the surface hole section, the rig will run casing and cement following all of the applicable rules and regulations (Onshore Oil and Gas Order No. 2).
        b. Rig will utilize fresh water based mud to drill 17-1/2" surface hole to TD. Solids control will be handled entirely on a closed loop basis.
2. The wellhead (page 3) will be installed and tested once the 13-3/8" surface casing is cut off and the WOC time has been reached.
3. A blind flange with the same pressure rating as the wellhead will be installed to seal the wellbore. Pressure will be monitored with a pressure gauge installed on the wellhead.
    a. A means for intervention will be maintained while the drilling rig is not over the well.
4. Spudder rig operations is expected to take 1-2 days on a single well pad.
5. The BLM will be contacted and notified 24 hours prior to commencing spudder rig operations.
6. Drilling operations will be performed with the drilling rig. At that time an approved BOP stack will be nippled up and tested on the wellhead before drilling operations commences on each well.
    a. The BLM will be contacted / notified 24 hours before the drilling rig moves back on to the pad with the pre-set surface casing.
7. Apache Corp will have supervision over the rig to ensure compliance with all BLM regulations and to oversee operations.
8. Once the rig is removed, Apache Corp will secure the wellhead area by placing a guard rail around the cellar area.

Ghost Rider Pad 1N

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20" CONDUCTOR
13-3/8" CASING
9-5/8" CASING
5-1/2" CASING
2-1/16" 5K
2-1/16" 5K
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11.84 [300.74]
5.50 [139.70]
9-5/8" CASING
5-1/2" CASING
7-1/16" 10K
13-5/8" 5K
1-13/16" 10K
20" CONDUCTOR
13-3/8" CASING
2-1/16" 5K
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49.00 [1244.60]
27.31 [693.67]
76.31 [1938.27]
DO NOT SCALE
KEN REED
NEIL WACHOWSKI
27 Nov 15
CAMERON
SURFACE SYSTEMS
13-5/8" 5K MN-DS MULTI-BOWL
20" X 13-3/8" X 9-5/8" X 5-1/2"
SD-045137-89-01
01

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

SUPO Data Report
09/25/2020

APD ID: 10400053338
Submission Date: 01/16/2020
Operator Name: APACHE CORPORATION
Well Name: GHOST RIDER 22 15 FEDERAL COM
Well Number: 41H
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:

GhostRider22_15FedCom41H_ExistingRoads_20200116084628.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:

GhostRider22_15FedCom41H_1MiRadius_20200116084649.pdf

Operator Name: APACHE CORPORATION

Well Name: GHOST RIDER 22 15 FEDERAL COM **Well Number:** 41H

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

Submit or defer a Proposed Production Facilities plan? DEFER

Estimated Production Facilities description: Proposed facilities have been submitted with Ghost Rider 22 15 Fed Com 101H.

Section 5 - Location and Types of Water Supply

Water Source Table

Water source type: OTHER

Describe type: BRINE

Water source use type: INTERMEDIATE/PRODUCTION CASING

Source latitude: 32.429596 **Source longitude:** -103.14983

Source datum: NAD83

Water source permit type: PRIVATE CONTRACT

Water source transport method: TRUCKING

Source land ownership: STATE

Source transportation land ownership: STATE

Water source volume (barrels): 2214.2856 **Source volume (acre-feet):** 0.28540614

Source volume (gal): 93000

Water source type: GW WELL

Water source use type: SURFACE CASING

DUST CONTROL

INTERMEDIATE/PRODUCTION CASING

Source latitude: 31.977877 **Source longitude:** -103.73879

Source datum: NAD83

Water source permit type: PRIVATE CONTRACT

Water source transport method:

Operator Name: APACHE CORPORATION

Well Name: GHOST RIDER 22 15 FEDERAL COM **Well Number:** 41H

TRUCKING

Source land ownership: PRIVATE

Source transportation land ownership: PRIVATE

Water source volume (barrels): 2214.2856 **Source volume (acre-feet):** 0.28540614

Source volume (gal): 93000

Water source and transportation map:

GhostRider22_15FedCom_BrineWaterSource_20190910142652.pdf
GhostRider22_15FedCom_FW_Source_20190910142652.pdf

Water source comments:

New water well? N

New Water Well Info

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: NO

Construction Materials description:

Construction Materials source location attachment:

Operator Name: APACHE CORPORATION

Well Name: GHOST RIDER 22 15 FEDERAL COM **Well Number:** 41H

Section 7 - Methods for Handling Waste

Waste type: GARBAGE

Waste content description: Garbage and trash produced during drilling and completion operations will be collected in a trash container and disposed of at a state approved disposal facility. All trash on and around well site will be collected for disposal.

Amount of waste: 1500 pounds

Waste disposal frequency : Weekly

Safe containment description: Garbage will be disposed of in portable trash trailers

Safe containmant attachment:

Waste disposal type: OTHER **Disposal location ownership:** STATE

Disposal type description: Land fill

Disposal location description: Lea County Landfill or Eddy County Landfill

Waste type: SEWAGE

Waste content description: Human waste and grey water will be properly contained and disposed of at a state approved facility.

Amount of waste: 2000 gallons

Waste disposal frequency : Weekly

Safe containment description: Sewage will be stored in steel waste tanks

Safe containmant attachment:

Waste disposal type: OTHER **Disposal location ownership:** STATE

Disposal type description: Municipal waste facility

Disposal location description: Hobbs Municipal Waste Facility

Waste type: PRODUCED WATER

Waste content description: Produced water will be hauled to private SWD

Amount of waste: 1500 barrels

Waste disposal frequency : Daily

Safe containment description: Produced water will be transported via pipeline to battery and from battery to SWD

Safe containmant attachment:

Waste disposal type: OTHER **Disposal location ownership:** PRIVATE

Disposal type description: Private SWD

Disposal location description: OWL/Mesquite

Operator Name: APACHE CORPORATION

Well Name: GHOST RIDER 22 15 FEDERAL COM **Well Number:** 41H

Waste type: CHEMICALS

Waste content description: After drilling and completions, chemicals, salts, frac sand and other waste material will be removed and disposed of at a state approved disposal facility.
Amount of waste: 2000 pounds

Waste disposal frequency : Weekly

Safe containment description: Chemicals will be stored in frac tanks

Safe containmant attachment:

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

Disposal location description: R360, 6601 W Hobbs Hwy, Carlsbad, NM 88220

Waste type: DRILLING

Waste content description: Excess cement returns

Amount of waste: 40 barrels

Waste disposal frequency : Weekly

Safe containment description: Cement returns will be stored in steel roll off bins then transferred to disposal vacuum trucks

Safe containmant attachment:

Waste disposal type: OTHER **Disposal location ownership:** PRIVATE

Disposal type description: Haul to private facility

Disposal location description: R360, 6601 W. Hobbs Hwy, Carlsbad, NM

Waste type: DRILLING

Waste content description: Drilling fluid from well, during drilling ops, will be stored safely and recycled to next well. Any excess will be hauled to approved NMOCD disposal facility.
Amount of waste: 2500 barrels

Waste disposal frequency : One Time Only

Safe containment description: Drilling fluids will be stored in sealed frac tanks

Safe containmant attachment:

Waste disposal type: RECYCLE **Disposal location ownership:** OTHER

Disposal type description:

Disposal location description: Operators next well

Reserve Pit

Reserve Pit being used? NO

Temporary disposal of produced water into reserve pit? NO

Operator Name: APACHE CORPORATION

Well Name: GHOST RIDER 22 15 FEDERAL COM **Well Number:** 41H

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? Y

Description of cuttings location Cuttings will be stored in steel haul off bins and taken to an NMOCD approved disposal facility.

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?: Y

Ancillary Facilities attachment:

GhostRider22_15FedCom41_GasCapturePlan_20200116085628.pdf

Comments: Gas capture plan

Section 9 - Well Site Layout

Well Site Layout Diagram:

GhostRider22_15FedCom41H_TopsoilPlat_20200116085648.pdf
GhostRider22_15FedCom41H_SpudderWellsiteLayout_20200116090450.pdf

Comments:

Operator Name: APACHE CORPORATION

Well Name: GHOST RIDER 22 15 FEDERAL COM **Well Number:** 41H

Section 10 - Plans for Surface Reclamation

Type of disturbance: No New Surface Disturbance **Multiple Well Pad Name:** GHOST RIDER 22 15 NORTHEAST

Multiple Well Pad Number: 1N

Recontouring attachment:

GhostRider22_15FedCom41H_ReclaimPlat_20200116085741.pdf

Drainage/Erosion control construction: During construction proper erosion control methods will be used to control erosion, runoff and siltation of surrounding area

Drainage/Erosion control reclamation: Reclamation is going to follow natural terrain to control erosion, runoff and siltation of surrounding area.

Well pad proposed disturbance (acres):

Road proposed disturbance (acres):

Powerline proposed disturbance (acres):

Pipeline proposed disturbance (acres):

Other proposed disturbance (acres):

Total proposed disturbance: 0

Well pad interim reclamation (acres): 0

Road interim reclamation (acres): 0

Powerline interim reclamation (acres): 0

Pipeline interim reclamation (acres): 0

Other interim reclamation (acres): 0

Total interim reclamation: 0

Well pad long term disturbance (acres): 0

Road long term disturbance (acres): 0

Powerline long term disturbance (acres): 0

Pipeline long term disturbance (acres): 0

Other long term disturbance (acres): 0

Total long term disturbance: 0

Disturbance Comments:

Reconstruction method: Areas planned for interim reclamation will be contoured to original contour if feasible, or if not feasible, to an interim contour that blends with surrounding topography as much as possible. Where applicable, fill material of well pad will be back filled into the cut to bring area back to original contour.

Topsoil redistribution: Topsoil that was spread over interim reclamation areas will be stockpiled prior to recontouring. Topsoil will be redistributed evenly over entire disturbed site to ensure successful revegetation.

Soil treatment: No soil treatment expected.

Existing Vegetation at the well pad: Plants are sparse but include grasses, some mesquite and shinnery oak.

Existing Vegetation at the well pad attachment:

Existing Vegetation Community at the road: Plants are sparse but include grasses, some mesquite and shinnery oak

Existing Vegetation Community at the road attachment:

Existing Vegetation Community at the pipeline: Plants are sparse but include grasses, some mesquite and shinnery oak

Existing Vegetation Community at the pipeline attachment:

Existing Vegetation Community at other disturbances: Plants are sparse but include grasses, some mesquite and shinnery oak

Existing Vegetation Community at other disturbances attachment:

Non native seed used?

Operator Name: APACHE CORPORATION

Well Name: GHOST RIDER 22 15 FEDERAL COM **Well Number:** 41H

Non native seed description:

Seedling transplant description:

Will seedlings be transplanted for this project?

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

Total pounds/Acre:

Seed Type	Pounds/Acre

Seed reclamation attachment:

Operator Contact/Responsible Official Contact Info

First Name: **Last Name:**

Phone: **Email:**

Seedbed prep:

Seed BMP:

Seed method:

Existing invasive species? N

Existing invasive species treatment description:

Existing invasive species treatment attachment:

Weed treatment plan description: Operator will consult with authorized officer for acceptable weed control methods,which include following EPA and BLM requirements and policies.
Weed treatment plan attachment:

Monitoring plan description: Reclaimed areas will be monitored periodically to ensure vegetation has re-established, that area is not re-disturbed, and erosion is controlled.
Monitoring plan attachment:

Success standards: Maintain all disturbed areas as per Gold Book Standards.

Pit closure description: Not applicable

Pit closure attachment:

Operator Name: APACHE CORPORATION

Well Name: GHOST RIDER 22 15 FEDERAL COM **Well Number:** 41H

Section 11 - Surface Ownership

Disturbance type: WELL PAD

Describe:

Surface Owner: BUREAU OF LAND MANAGEMENT

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:**

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? Y

Previous Onsite information: Onsite for the Ghost Rider 22 15 Federal Com Northeast and Northwest pad conducted on March 26, 2019 with BLM Rep: Aaron Chastain.

Other SUPO Attachment

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BUREAU OF LAND MANAGEMENT

PWD Data Report

09/25/2020

APD ID: 10400053338 **Submission Date:** 01/16/2020

Operator Name: APACHE CORPORATION

Well Name: GHOST RIDER 22 15 FEDERAL COM **Well Number:** 41H

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: APACHE CORPORATION

Well Name: GHOST RIDER 22 15 FEDERAL COM **Well Number:** 41H

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: APACHE CORPORATION

Well Name: GHOST RIDER 22 15 FEDERAL COM **Well Number:** 41H

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: APACHE CORPORATION

Well Name: GHOST RIDER 22 15 FEDERAL COM **Well Number:** 41H

Other PWD type description:

Other PWD type attachment:

Have other regulatory requirements been met?

Other regulatory requirements attachment:

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BUREAU OF LAND MANAGEMENT

Bond Info Data Report

09/25/2020

APD ID: 10400053338

Submission Date: 01/16/2020

Operator Name: APACHE CORPORATION

Well Name: GHOST RIDER 22 15 FEDERAL COM

Well Number: 41H

Well Type: OIL WELL

Well Work Type: Drill

Highlighted data reflects the most recent changes

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Bond Information

Federal/Indian APD: FED

BLM Bond number: NMB000736

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: APACHE CORPORATION **OGRID:** 873 **Date:** 08 / 18 / 2021

II. Type: XX 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
Ghost Rider 22 15 Fed Com 11H		Sec 15 T24S R32E	2272' FSL 510' FEL	775	2600	1800
Ghost Rider 22 15 Fed Com 21H		Sec 15 T24S R32E	2272' FSL 480' FEL	775	2600	1800
Ghost Rider 22 15 Fed Com 22H		Sec 15 T24S R32E	2272' FSL 570' FEL	1380	2400	3100
Ghost Rider 22 15 Fed Com 31H		Sec 15 T24S R32E	2272' FSL 540' FEL	1380	2400	3100
Ghost Rider 22 15 Fed Com 41H	30-025-49358	Sec 15 T24S R32E	2272' FSL 600' FEL	775	2600	1800

IV. Central Delivery Point Name: GHOST RIDER 22 15 FED 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
Ghost Rider 22 15 Fed Com 11H		2023	2023	Not yet scheduled	Not yet scheduled	Not yet scheduled
Ghost Rider 22 15 Fed Com 21H		2023	2023	Not yet scheduled	Not yet scheduled	Not yet scheduled
Ghost Rider 22 15 Fed Com 22H		2023	2023	Not yet scheduled	Not yet scheduled	Not yet scheduled
Ghost Rider 22 15 Fed Com 31H		2023	2023	Not yet scheduled	Not yet scheduled	Not yet scheduled
Ghost Rider 22 15 Fed Com 41H	30-025-49358	2023	2023	Not yet scheduled	Not yet scheduled	Not yet scheduled

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

VII. Operational Practices: XX 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: XX 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:

XX 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:	Sorina L Flores
Printed Name:	Sorina L Flores
Title:	Sr Regulatory Analyst
E-mail Address:	sorina.flores@apachecorp.com
Date:	8/18/2021
Phone:	432-818-1167

OIL CONSERVATION DIVISION

(Only applicable when submitted as a standalone form)

Approved By:	
Title:	
Approval Date:	
Conditions of Approval:	

VI. SEPARATION EQUIPMENT

(Complete description of how Apache will size separation equipment to optimize gas capture)

Apache Corporation production tank batteries will include separation equipment designed to efficiently separate gas from liquid phases to optimize gas capture based on projected and estimated volumes from the targeted pool in conjunction with the total number of wells planned to/or existing within the facility. If determined to be undersized or needed, separation equipment will be upgraded prior to well(s) being drilled or completed. The separation equipment will be designed and built according to relevant industry specifications, ie API specifications 12J and ASME Sec VIII Div 1. Other recognized industry publications such as Gas Processors Suppliers Association will be referenced when designing separation equipment to optimize gas capture.

VII. OPERATIONAL PRACTICES

(Complete description of actions Apache will take to comply with the requirements of Subsection A-F of 19.15.27.8 NMAC)

(A) Venting & flaring of natural gas

- Apache acknowledges venting or flaring of natural gas during drilling, completion, or production operations constitutes was as defined in 19.15.2 NMAC is prohibited. Apache will maximize recovery of natural gas by minimizing waste of natural gas through venting and flaring. During drilling, completion and production operations, Apache will vent, or flare natural gas only as authorized in subsections B, C and D of 19.15.27.8 NMAC. Apache shall flare rather than vent natural gas except when flaring technically infeasible or would pose a risk to safe operations or personnel safety, and venting is a safer alternative than flaring.

(B) Venting & flaring during drilling operations

- Apache shall capture or combust natural gas, if technically feasible, using best industry practices and control technologies
- A properly sized flare stack will be located at a minimum of 100 feet from the nearest surface hole location unless otherwise approved by the division.
- In the event of an emergency or malfunction, Apache may vent natural gas to avoid risk of an immediate and substantial adverse impact on safety, public health, or the environment. Apache shall report natural gas vented or flared during an emergency or malfunction to the NMOCD division pursuant Paragraph (1) of Subsection G of 19.15.27.8 NMAC.

(C) Venting & flaring during completions and recompletion

- During initial flowback, Apache shall route flowback fluids into a completion or storage tank and, if technically feasible under the applicable well conditions, flare rather than vent and commence operations of a separator as soon as it is technically feasible for a separator to function.
- During separation flowback, Apache shall capture and route natural gas from separation equipment:
  - To a gas flowline or collection system, reinject into the well, or use on-site as a fuel source or other purpose that a purchased fuel or raw material would serve; or
  - To flare if routing natural gas to a gas flowline or collecting system, reinjecting it into the well, or using it on-site as fuel source or other purpose that a purchased fuel or raw material would serve would pose a risk to safe operation or personnel safety.
- If natural gas does not meet gathering pipeline quality specifications, Apache may flare natural gas for 60 days or until the natural gas meets pipeline quality specifications, whichever is sooner, provided:
  - A properly sized flare stack is equipped with an automatic igniter or continuous pilot
  - Apache analyzes natural gas samples twice per week
  - Apache routs natural gas into a gathering pipeline as soon as pipeline specifications are met
  - Apache provides pipeline specifications and natural gas analyses to NMOCD division upon request

(D) Venting & flaring during production operations

- Apache shall not vent or flare natural gas except:
  - During an emergency or malfunction
  - To unload or clean up liquid holdup in a well to atmospheric pressure, provided:
    - Apache does not vent after well achieves stabilized rate and pressure
    - For liquids unloading by manual purging, Apache remains present on-site until the end of unloading or posts at the well site, contact information of personnel conducting liquids unloading operations in close proximity (<30 minutes' drive time) of well being unloaded until end of unloading, takes all

reasonable actions to achieve stabilized rate and pressure at earliest practical time and takes reasonable actions to minimize venting to maximum extent practicable
- Apache will optimize system to minimize venting of natural gas for any well equipped with a plunger lift system or automated control system
- During downhole maintenance, best management practices will be used to the extent that it does not pose a risk to safe operations and personnel safety.

♦ During first 12 months of production from an exploratory well, or as extended by the division for good cause shown, provided:
- Apache proposes and the division approves well as exploratory
- Apache is in compliance with its' statewide gas capture requirements
- Apache submits an updated C-129 form to the division, including a NGMP and timeline for connecting well to a natural gas gathering system or otherwise approved by the division

♦ During the following activities unless prohibited
- Gauging or sampling a storage tank or other low pressure production vessel
- Loading out liquids from a storage tank or other low pressure production vessel to a transport vehicle
- Repair and maintenance, including blowing down and depressurizing production equipment to perform repair and maintenance
- Normal operation of gas activated pneumatic controller or pump
- Normal operation of storage tank or other low pressure production vessel, but not including venting from a thief hatch that is not properly closed or maintained on an established schedule
- Normal operations of dehydration units and amine treatment units
- Normal operations of compressors, compressor engines, and turbines
- Normal operations of valves, flanges and connectors that is not the result of inadequate equipment design or maintenance
- Bradenhead, packer leakage test or production test lasting less than 24 hours unless the division requires or approves a longer test period
- When natural gas does not meet gathering pipeline specifications
- Commissioning of pipelines, equipment, or facilities only for as long as necessary to purge introduced impurities from pipeline or equipment

(E) Performance standards

➢ All tanks and separation equipment are designed for maximum thoughput and pressure to minimize waste
➢ Permanent storage tanks associated with production operations that is routed to a flare or control device installed after May 25, 2021, shall equip storage tank with an automatic gauging system that reduces venting of natural gas
➢ Apache will install a flare properly sized and designed to ensure proper combustion efficiency
  ♦ Flare stack installed or replaced after May 25, 2021, shall be equipped with an automatic ignitor or continuous pilot
  ♦ Flare stack installed before May 25, 2021, shall be retrofitted with an automatic ignitor, continuous pilot or technology that alerts operator that flare may have malfunctioned no later than 18 months after May 25, 2021
  ♦ Flare stack located at well or facility, with an average daily production of equal to or less than 60 mcf of natural gas shall be equipped with an automatic ignitor or continuous pilot if flare stack is replaced after May 25, 2021
➢ Flare stack constructed after May 25, 2021, shall be securely anchored, and located at least 100 feet from well and storage tanks unless otherwise approved by the division
➢ At any point in the life of the well (drilling, completion, production, inactive) an audio, visual and olfactory (AVO) inspection will be performed weekly, during first year of production and on well or facility with average daily production greater than 60,000 cubic feet of natural gas, to confirm all production components are operating properly and there are no leaks or releases except as allowed in Subsection D of 19.15.27.8 NMAC.
➢ Apache will make and keep records of AVO inspections available to NMOCD for at least 5 years
➢ Apache may use a remote or automated monitoring technology to detect leaks and release in lieu of AVO inspections with prior NMOCD approval
➢ Facilities will be designed to minimize waste
➢ Apache will minimize waste and shall resolve emergencies as quickly and safely as feasible

(F) Measurement or estimation of vented and flared natural gas

- Apache shall measure or estimate volume of natural gas it vents, flares, or beneficially uses during drilling, completion, and production operations regardless of the reason or authorization for such venting or flaring
- Measurement equipment will be installed to measure volume of natural gas flared from existing process piping or flowline piped from equipment associated with a well or facility associated with approved application for permit to drill that has an average daily production greater than 60 mcf of natural gas
- Measuring equipment shall conform to an industry standard
- Measuring equipment shall not be designed or equipped with a manifold that allows diversion of natural gas around the metering element except for the sole purpose of inspecting and servicing the measurement equipment
- Apache may estimate volume of vented or flared natural gas using methodology that can be independently verified if metering is not practicable due to low flow rate or pressure
- Apache will estimate volume of vented and flared natural gas based on result of an annual GOR test for that well reported on form C-116 to allow division to independently verify volume and rate of flared natural gas for a well that does not require measuring equipment
- Apache shall install measuring equipment whenever the division determines metering is practicable or the existing measuring equipment or GOR test is not sufficient to measure volume of vented and flared natural gas

VIII. BEST MANAGEMENT PRACTICES

(Complete description of Apache's best management practices to minimize venting during active and planned maintenance)

- Apache has a flare stack designed to handle sufficient volume to ensure proper combustion efficiency. Flare stacks are securely anchored at lease 100 feed from wells and storage tanks and are equipped with continuous pilots.
- Apache will not produce oil or gas but will maintain adequate well control through completion operations
- Apache will not flow well during initial production until all flowlines, tank batteries, and oil/gas takeaway are installed, tested, and determined operational
- Apache will equip storage tanks with automatic gauging system to reduce venting of natural gas
- When feasible, Apache will combust natural gas that would otherwise be vented or flared
- When feasible, Apache will minimize venting through pump downs of vessels and reducing time required to purge equipment before returning to service
- When feasible, Apache will shut in wells in the event of a takeaway disruption, emergency situations, or other operations where venting or flaring may occur due to equipment failures
- Reduce number of blowdowns by looking for opportunities to coordinate repair and maintenance activities

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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 44511

CONDITIONS

Operator: APACHE CORPORATION 303 Veterans Airpark Ln Midland, TX 79705	OGRID: 873
	Action Number: 44511
	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	8/31/2021
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	8/31/2021
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	8/31/2021
pkautz	Cement is required to circulate on both surface and intermediate1 strings of casing	8/31/2021