

Well Name: GHOST RIDER 22 15 FEDERAL COM	Well Location: T24S / R32E / SEC 15 / NWSE / 32.2168038 / -103.6606097	County or Parish/State: LEA / NM
Well Number: 403H	Type of Well: OIL WELL	Allottee or Tribe Name:
Lease Number: NMNM039880	Unit or CA Name:	Unit or CA Number:
US Well Number: 300254934400	Well Status: Approved Application for Permit to Drill	Operator: APACHE CORPORATION

Notice of Intent

Sundry ID: 2673486

Type of Submission: Notice of Intent

Date Sundry Submitted: 05/25/2022

Date proposed operation will begin: 09/07/2022

Type of Action: APD Change

Time Sundry Submitted: 11:34

**Procedure Description:** Apache Corp requests APD change in well number, csg/cmt, mud, BOPE due to change in lateral target and well spacing. Apache also request a variance, per mtg on 4/7/22, listed in #4 and #5 of drlg program attached. OLD WELL NAME AND NUMBER: Ghost Rider 22 15 Federal Com 42H; NEW WELL NAME AND NUMBER: Ghost Rider 22 15 Federal Com 403H. Please see attached drilling program. Revised plat and directional survey attached.

NOI Attachments

Procedure Description

- DirectionalPlan\_GhostRider22\_15FedCom403H\_8.8.21\_20220525113409.pdf
- Plat\_REV2\_GhostRider22\_15FedCom403H\_11.2021\_20220525113333.pdf
- Sundry\_DrlgProgram\_GhostRider22\_15FedCom403H\_5.22.2022\_20220525113141.xlsx

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Conditions of Approval

Specialist Review

Ghost\_Rider\_22\_15\_Federal\_Com\_403H\_Sundry2673486\_Drilling\_COA\_OTA\_20220613112046.pdf

Operator

I certify that the foregoing is true and correct. 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. Electronic submission of Sundry Notices through this system satisfies regulations requiring a

**Operator Electronic Signature:** SORINA FLORES  
**Signed on:** MAY 25, 2022 11:34 AM  
**Name:** APACHE CORPORATION  
**Title:** Supv of Drilling Services  
**Street Address:** 303 Veterans Airpark Ln #1000  
**City:** Midland **State:** TX  
**Phone:** (432) 818-1167  
**Email address:** sorina.flores@apachecorp.com

Field

**Representative Name:**  
**Street Address:**  
**City:** **State:** **Zip:**  
**Phone:**  
**Email address:**

BLM Point of Contact

<b>BLM POC Name:</b> AJIBOLA OLABODE	<b>BLM POC Title:</b> Engineer
<b>BLM POC Phone:</b> 5752342231	<b>BLM POC Email Address:</b> OAJIBOLAEIT@BLM.GOV
<b>Disposition:</b> Approved	<b>Disposition Date:</b> 06/13/2022
<b>Signature:</b> Olabode Thomas Ajibola	

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

~~XX~~ AMENDED REPORT

WELL LOCATION AND ACREAGE DEDICATION PLAT

<sup>1</sup> API Number <b>30-025-49344</b>	<sup>2</sup> Pool Code <b>96603</b>	<sup>3</sup> Pool Name <b>TRISTE DRAW; BONE SPRING</b>
<sup>4</sup> Property Code <b>320516</b>	<sup>5</sup> Property Name <b>GHOST RIDER 22 15 FEDERAL COM</b>	
<sup>7</sup> OGRID NO. <b>873</b>	<sup>8</sup> Operator Name <b>APACHE CORPORATION</b>	
		<sup>9</sup> Elevation <b>3594'</b>

<sup>10</sup> Surface Location

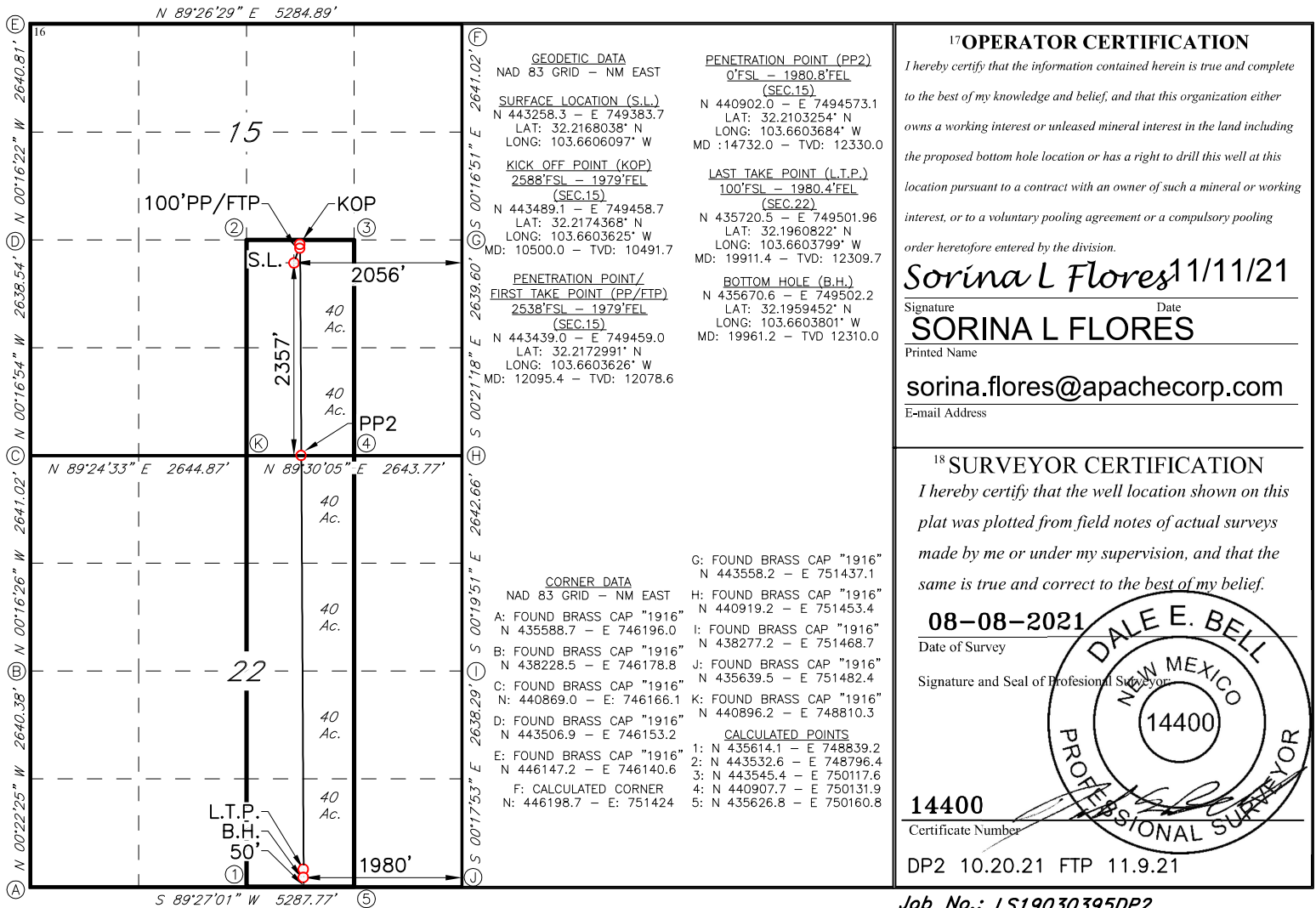
UL or lot no.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet From the	East/West line	County
<b>J</b>	<b>15</b>	<b>24S</b>	<b>32E</b>		<b>2357</b>	<b>SOUTH</b>	<b>2056</b>	<b>EAST</b>	<b>LEA</b>

<sup>11</sup> 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
<b>0</b>	<b>22</b>	<b>24S</b>	<b>32E</b>		<b>50</b>	<b>SOUTH</b>	<b>1980</b>	<b>EAST</b>	<b>LEA</b>

<sup>12</sup> Dedicated Acres <b>240</b>	<sup>13</sup> Joint or Infill	<sup>14</sup> Consolidation Code	<sup>15</sup> Order No.
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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.



## DRILLING PLAN: BLM COMPLIANCE

Ghost Rider 22-15 Federal Com # 403H  
 Projected TD: 19961' MD / 12310' TVD  
 SHL: 2357' FSL & 2056' FEL , Section 15, T24S, R32E  
 BHL: 50' FSL & 1980' FEL , Section 22, T24S, R32E  
 Lea County, NM

30-025-49344

## 1. Geologic Name of Surface Formation

A. Permian

## 2. Estimated Tops of Geological Markers &amp; Depths of Anticipated Fresh Water, Oil or Gas

Formation	Well Depth (TVD)	Water/Oil/Gas
Rustler	1029'	Water
Salado	1373'	Water
Castile	3295'	Water
Delaware	4813'	Water/Oil/Gas
Cherry Canyon	5623'	Water/Oil/Gas
Brushy Canyon	7468'	Water/Oil/Gas
Bone Spring	8729'	Water/Oil/Gas
Avalon	8272'	Water/Oil/Gas
1st Bone Spring Sand	9891'	Water/Oil/Gas
2nd Bone Spring Carb	10104'	Water/Oil/Gas
2nd Bone Spring Sand	10453'	Water/Oil/Gas
3rd Bone Spring Carb	11017'	Water/Oil/Gas
3rd Bone Spring Sand	11830'	Water/Oil/Gas
Wolfcamp	12080'	Water/Oil/Gas
Wolfcamp A	12295'	Water/Oil/Gas
Target/Land Curve	12339'	Water/Oil/Gas

\*\*\* Hydrocarbons @ Brushy Canyon

\*\*\* Groundwater depth 40' (per NM State Engineers Office).

No other formations are expected to yield oil, gas or fresh water in measurable volumes. The surface fresh water sands will be protected by setting 13-3/8" casing @ 1054' (319' above the salt) and circulating cement back to surface. The 7-5/8" intermediate casing will be set at 11670' and bring TOC back to surface. A 6-3/4 inch curve and lateral hole will be drilled to MD/TD and 5-1/2" x 5-1/2" semi-flush casing will be set at TD and cemented back a minimum of 200' into the 7-5/8" casing shoe.

## 3. Casing Design

Hole Size	Depth	OD Csg	Weight	Collar	Grade	New/Used	SF Burst	SF Collapse	SF Tension
17-1/2"	0' – 1054'	13-3/8"	54.5	BTC	J-55	New	1.01	2.06	14.85
9-7/8"	0' – 11670'	7-5/8"	29.7	BTC	HCL-80	New	1.21	2.59	1.97
6-3/4"	0' – 11470'	5-1/2"	20	Semi-premium	CYP-110	New	1.05	1.32	2.11
6-3/4"	11470' - 19961'	5-1/2"	20	Semi-flush	CYP-110	New	1.05	1.32	1.82

- Apache Corporation requests to not utilize centralizers in the curve and lateral
- 7-5/8" Collapse analyzed using 50% evacuation based on regional experience.
- 5-1/2" Tension calculated using vertical hanging weight plus the lateral weight multiplied by a friction factor of 0.35
- Test on Casing will be limited to 70% burst of the casing or 1500 psi, whichever is less
- 5-1/2" 20 ppf casing will be run from surface to 11470 and crossed over to 5-1/2" 20 ppf semi-flush casing from 11470 to TD.
- Request to use 5" BTC Float equipment for the the production casing

## Wellhead:

Permanent Wellhead – Multibowl System

A. Starting Head: 13-5/8" 10M top flange x 13-3/8" 10M SOW/BTC bottom

B. Tubing Head: 13-5/8" 10M bottom flange x 7-1/16" 10M top flange

- Wellhead will be installed by manufacturer's representatives.
- Manufacturer will monitor welding process to ensure appropriate temperature of seal.
- Operator will test the 7-5/8" casing per BLM Onshore Order 2
- Wellhead Manufacturer representative will not be present for BOP test plug installation

#### 4. Cement Program

**Surface Casing: 13-3/8", 54.5 New J-55, BTC casing to be set at +/- 1054'**

Lead: 560 sxs Class - C + 1% CaCl (mixed at 12.8 ppg, 1.87 ft3/sx, 10.13 gal/sx water)

**TOC: Surface**

Tail: 300 sxs Class-C + 1% CaCl (mixed at 14.8 ppg, 1.35 ft3/sx, 6.39 gal/sx water)

Compressives: 12-hr = 900 psi 24 hr = 1500 psi

**Intermediate Casing: 7-5/8", 29.7 New HCL-80, BTC casing to be set at +/- 11670'**

ECP/DV Tool to be set at 2795' DV tool depth(s) will be adjusted on hole conditions & cement volumes will be adjusted proportionally.

Optional Lead: 660 sxs Class - C (mixed at 10.5 ppg, 2.77 ft3/sx, 15.59 gal/sx water)

**TOC: Surface**

Tail: 90 sxs Class - C (mixed at 14.8 ppg, 1.39 ft3/sx, 6.39 gal/sx water)

Compressives: 12-hr = 900 psi 24 hr = 1150psi

**TOC: Brushy Canyon 7468'**

2nd Stage

Tail: 320 sxs Class - C (mixed at 14.8 ppg, 1.33 ft3/sx, 5.29 gal/sx water)

Compressives: 12-hr = 900 psi 24 hr = 1150 psi

**TOC: Surface**

Per meeting on 4/7/2022, Apache requests to pump a two-stage cement job on the intermediate casing string with the first stage being pumped conventionally with the calculated top of cement at the Brushy Canyon and the second stage performed as a bradenhead squeeze with planned cement from the Brushy Canyon to surface. The final cement top after the second stage job will be verified by an Echometer. If necessary, a top out Job will be executed as a contingency to meet regulatory requirements. If cement is still not meeting the objective, then another Echometer will be performed for the cement top verification.

Apache will include the Echometer verified fluid top and the volume of displacement fluid above the cement slurry in the annulus in all post-drill sundries on wells utilizing this cement program.

Apache will report to the BLM the volume of fluid (limited to 5 bbl.) used to flush intermediate casing valves following the backside cementing procedures.

Apache requests to pump an Optional Lead if well conditions dictate to bring cement to surface on the first stage. If cement is brought to surface, the BLM will be notified and the second stage bradenhead squeeze and subsequent TOC verification will be negated.

In the event cement is not circulate to surface on the first stage, whether intentionally or unintentionally, Apache requests the option to conduct the bradenhead squeeze and TOC verification offline as per standard approval from BLM when unplanned remediate is needed and batch drilling is approved. In the event the bradenhead is conducted, we will ensure first stage cement job is cemented properly and the well is static with floats holding and no pressure on the casing annulus as with all other casing strings where batch drilling operations occur before moving off the rig. The TA cap will also be installed per wellhead manufacture procedure and pressure inside the casing will be monitored via the valve on the TA cap as per standard batch drilling operations.

**Production Casing: 5-1/2", 20 New CYP-110, casing to be set at +/- 19961'**

Due to possible lost circulation during the production cement jobs, Apache proposes a contingency bradenhead squeeze 4 hours after bumping the plug on the primary stage. A CBL will be ran after 7-10 days and will be submitted to the BLM.

Lead: 16 sxs Class - TXI (mixed at 11.5 ppg, 2.69 ft3/sx, 15.0 gal/sx water)

**TOC inside the previous shoe by: 200'**

Tail: 580 sxs Class - TXI (mixed at 13.2 ppg, 1.51 ft3/sx, 7.20 gal/sx water)

Compressives 12-hr = 800 psi 24 hr = 1500 psi

## 5. Pressure Control Equipment

Once the permanent WH is installed on the 13-3/8" casing, the blow out preventer equipment (BOP) will consist of a 13-5/8" minimum 3M Hydril and a 13-5/8" minimum 10M 3-Ram BOP. MASP should not exceed 2712 psi. In any instance where 10M BOP is required by BLM, Apache requests a variance to utilize 5M annular with 10M ram preventers (a common BOP configuration, which allows use of 10M rams in unlikely event that pressures exceed 5M). Also a variance is requested to test the 5M annular to 70% of working pressure at 3500 psi.

BOP installed and tested before drilling which hole?	Size?	Min. Required WP	Type	✓	Tested to:
9-7/8"	13-5/8"	5M	Annular	x	70% of working
			Blind Ram	x	5M
			Pipe Ram	x	
			Double Ram	x	
6-3/4"	13-5/8"	10M	Annular	x	70% of working
			Blind Ram	x	10M
			Pipe Ram	x	
			Double Ram	x	

All BOP testing will be done by an independent service company. Annular pressure tests will be limited to 70% of the working pressure. When nipping up on the 13-3/8", 10M bradenhead and flange, the BOP test will be limited to 10000 psi. All BOP tests will include a low pressure test as per BLM regulations. The 10M BOP diagrams are attached. Blind rams will be functioned tested each trip, pipe rams will be functioned tested at a minimum every 7 days.

Equipment will consist of rotating head, mud gas separator, blowdown pit (panic line) and flare line just to name a few

A variance is requested to allow use of a flex hose as the choke line from the BOP to the Choke Manifold. If this hose is used, a copy of the manufacturer's certification and pressure test chart will be kept on the rig. The manufacture does not require anchors.

Per meeting on 4/7/2022, Apache requests a variance to be able to batch drill this well if necessary. In doing so, Apache will set each casing string and ensure that the well is cemented properly and the well is static. With floats holding, no pressure on the csg annulus, and the installation of a TA cap as per wellhead recommendations, Apache will contact the BLM on each rig skid on the pad. Once surface and intermediate strings are all completed, **Apache will start preparing for the next production hole on each of the wells but will avoid drilling new formation while performing offline cementing simultaneously. Complete offline cementing on one well before embarking on drilling new formation on the next well on the same pad.**

Per meeting on 4/7/2022, A variance is requested to **ONLY** test broken pressure seals on the BOP equipment when moving from wellhead to wellhead which is in compliance with API Standard 53. API standard 53 states, that for pad drilling operation, moving from one wellhead to another within 21 days, pressure testing is required for pressure-containing and pressure-controlling connections when the integrity of a pressure seal is broken. We will also function test BOP equipment after each nipple up. A full BOP test will be required prior to drilling the 1st production hole and every 21 day after.

## 6. Proposed Mud Circulation System

INTERVAL	Hole Size	Mud Type	MW (ppg)	Viscosity (sec/qt)	Fluid Loss (cc)
0' - 1054'	17-1/2"	FW / Native (Spud mud)	9.3 - 10.5	35-40	NC
1054' - 11670'	9-7/8"	Brine / Cut Brine / Direct	8 - 9.2	30-32	NC
11670' to 19961'	6-3/4"	Cut Brine / WBM / OBM	12.4 - 13.6	32-36	NC

The necessary mud products for weight addition and fluid loss control will be on location at all times.

The mud system type will be; **Closed**

Will an air gas system be used; **No**

Spud with fresh water/native mud and set 13-3/8" surface casing, isolating the fresh water aquifer. Drill out from under 13-3/8" surface casing with a brine/oil direct emulsion mud system. Use fibrous materials as needed to control seepage and lost circulation. Pump viscous sweeps as needed for hole cleaning. Pump speed will be recorded on a daily drilling report after mudding up. A Pason or Totco will be used to detect changes in loss or gain of mud volume. A mud test will be performed every 24 hours to determine: density, viscosity, strength, filtration and pH as necessary. Use available solids controls equipment to help keep mud weight down after mud up. Rig up solids control equipment to operate as a closed loop system.

## 7. Auxiliary Well Control and Monitoring Equipment

- An upper kelly valve will be used for the drill string at all times.
- A full opening drill pipe stabbing valve having appropriate connections will be on the rig floor at all times.
- H2S monitors will be on location when drilling below the 13-3/8" casing.

**8. Logging, Coring and Testing Program**

Mud Logger: Mud Logging Unit (2 man) below intermediate casing.

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.

Open & cased hole logs run in well:

<input type="checkbox"/> CALIPER	<input type="checkbox"/> CEMENT BOND LOG	<input type="checkbox"/> CNL (Neutron log) /FDC (Formation Density log)
<input type="checkbox"/> COMPENSATED DENSILOG	<input type="checkbox"/> COMPENSATED NEUTRON LOG	<input type="checkbox"/> COMPUTER GENERATED LOG
<input type="checkbox"/> DIP METER LOG	<input type="checkbox"/> DIRECTIONAL SURVEY	<input type="checkbox"/> DUAL INDUCTION/MICRO-RESISTIVITY
<input type="checkbox"/> DUAL LATERAL LOG/MICRO-SPHERICALLY FOCUSED	<input type="checkbox"/> ELECTRIC LOG	<input type="checkbox"/> FORMATION DENSITY COMPENSATED LOG
<input checked="" type="checkbox"/> GAMMA RAY LOG	<input checked="" type="checkbox"/> MEASUREMENT WHILE DRILLING POROSITY-RESISTIVITY LOG	<input checked="" type="checkbox"/> MUD LOG/GEOLOGIC LITHOLOGY LOG
<input type="checkbox"/> OTHER	<input type="checkbox"/> SPONTANEOUS POTENTIAL LOG	<input type="checkbox"/> SIDEWALL NEUTRON LOG
<input type="checkbox"/> SONIC LOG		<input type="checkbox"/> TEMPERATURE LOG

**9. Abnormal Pressures and Temperatures / Potential Hazards**

BHT of 140 to 160 F is anticipated. No H<sub>2</sub>S is expected but monitors will be in place to detect any H<sub>2</sub>S occurrences. Should these circumstances be encountered the operator and drilling contractor are prepared to take all necessary steps to ensure safety of all personnel and environment. Lost circulation could occur but is not expected to be a serious problem in this area and hole seepage will be compensated for by additions of small amounts of LCM in the drilling fluid. Lost circulation during production cement job can occur in which 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. The maximum anticipated bottom hole pressure for this well during the production section is 8405 psi.

**10. Anticipated Starting Date and Duration of Operations**

Road and location construction will begin after BLM have approved the APD. Anticipated spud date will be as soon after BLM approval and as soon as a rig will be available. Move in operations and drilling is expected to take 45 days. If production casing is run, an additional 30 days will be needed to complete well and construct surface facilities and/or lay flow lines in order to place well on production.

# **PERMIAN**

**NW DISTRICT - NM EZ NAD 83**

**GHOST RIDER 22-15 FED COM PAD (N West) NEW**

**Ghost Rider 22-15 Fed Com 403H**

**Ghost Rider 22-15 Fed Com 403H**

**30-025-49344**

**Plan: w/ lateral targets**

## **Standard Planning Report**

**08 August, 2021**



## Planning Report

<b>Database:</b>	PEDM	<b>Local Co-ordinate Reference:</b>	Well Ghost Rider 22-15 Fed Com 403H
<b>Company:</b>	PERMIAN	<b>TVD Reference:</b>	WELL @ 3619.0ft (Original Well Elev)
<b>Project:</b>	NW DISTRICT - NM EZ NAD 83	<b>MD Reference:</b>	WELL @ 3619.0ft (Original Well Elev)
<b>Site:</b>	GHOST RIDER 22-15 FED COM PAD (N West) NEW	<b>North Reference:</b>	Grid
<b>Well:</b>	Ghost Rider 22-15 Fed Com 403H	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	Ghost Rider 22-15 Fed Com 403H		
<b>Design:</b>	w/ lateral targets		

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

<b>Site</b>	GHOST RIDER 22-15 FED COM PAD (N West) NEW		
<b>Site Position:</b>		<b>Northing:</b>	443,251.80 ft
<b>From:</b>	Map	<b>Easting:</b>	748,709.90 ft
<b>Position Uncertainty:</b>	0.0 ft	<b>Slot Radius:</b>	13.200 in
		<b>Latitude:</b>	32° 13' 0.462 N
		<b>Longitude:</b>	103° 39' 46.056 W
		<b>Grid Convergence:</b>	0.36 °

<b>Well</b>	Ghost Rider 22-15 Fed Com 403H		
<b>Well Position</b>	<b>+N/-S</b>	6.4 ft	<b>Northing:</b>
	<b>+E/-W</b>	673.8 ft	<b>Easting:</b>
<b>Position Uncertainty</b>		0.0 ft	<b>Wellhead Elevation:</b>
			<b>Latitude:</b>
			<b>Longitude:</b>
			<b>Ground Level:</b>

<b>Wellbore</b>	Ghost Rider 22-15 Fed Com 403H				
<b>Magnetics</b>	<b>Model Name</b>	<b>Sample Date</b>	<b>Declination (°)</b>	<b>Dip Angle (°)</b>	<b>Field Strength (nT)</b>
	HDGM_FILE	10/30/2019	6.65	59.87	47,853.30000000

<b>Design</b>	w/ lateral targets			
<b>Audit Notes:</b>				
<b>Version:</b>	<b>Phase:</b>	PLAN	<b>Tie On Depth:</b>	0.0
<b>Vertical Section:</b>	<b>Depth From (TVD) (ft)</b>	<b>+N/-S (ft)</b>	<b>+E/-W (ft)</b>	<b>Direction (°)</b>
	0.0	0.0	0.0	179.11

<b>Plan Survey Tool Program</b>	<b>Date</b>	8/8/2021		
<b>Depth From (ft)</b>	<b>Depth To (ft)</b>	<b>Survey (Wellbore)</b>	<b>Tool Name</b>	<b>Remarks</b>
1	0.0	0.0	w/ lateral targets (Ghost Rider 22	200906_NS-Gyro-MS
				Fixed:v2:North-seeking gyro m
2	9,300.0	19,961.2	w/ lateral targets (Ghost Rider 22	SuperiorQC MWD+IFR1+SAG
				OWSG MWD + IFR1 + Sag + F

## Planning Report

<b>Database:</b>	PEDM	<b>Local Co-ordinate Reference:</b>	Well Ghost Rider 22-15 Fed Com 403H
<b>Company:</b>	PERMIAN	<b>TVD Reference:</b>	WELL @ 3619.0ft (Original Well Elev)
<b>Project:</b>	NW DISTRICT - NM EZ NAD 83	<b>MD Reference:</b>	WELL @ 3619.0ft (Original Well Elev)
<b>Site:</b>	GHOST RIDER 22-15 FED COM PAD (N West) NEW	<b>North Reference:</b>	Grid
<b>Well:</b>	Ghost Rider 22-15 Fed Com 403H	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	Ghost Rider 22-15 Fed Com 403H		
<b>Design:</b>	w/ lateral targets		

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	
2,000.0	0.00	0.00	2,000.0	0.0	0.0	0.00	0.00	0.00	0.00	
2,266.7	4.00	18.00	2,266.5	8.8	2.9	1.50	1.50	0.00	18.00	
5,478.9	4.00	18.00	5,470.8	222.0	72.1	0.00	0.00	0.00	0.00	
5,745.5	0.00	0.00	5,737.3	230.8	75.0	1.50	-1.50	0.00	180.00	
11,869.8	0.00	0.00	11,861.5	230.8	75.0	0.00	0.00	0.00	0.00	
12,621.8	90.24	179.68	12,339.0	-248.7	77.7	12.00	12.00	23.89	179.68	
14,732.0	90.24	179.68	12,330.0	-2,358.9	89.4	0.00	0.00	0.00	0.00	T2 Ghost Rider 22-15
14,758.8	90.78	179.68	12,329.8	-2,385.7	89.6	2.00	2.00	0.00	0.00	
17,462.4	90.78	179.68	12,293.0	-5,089.0	104.6	0.00	0.00	0.00	0.00	T3 Ghost Rider 22-15
17,521.6	89.60	179.68	12,292.8	-5,148.1	104.9	2.00	-2.00	0.00	180.00	
19,961.2	89.60	179.68	12,310.0	-7,587.7	118.5	0.00	0.00	0.00	0.00	BHL Ghost Rider 22-1

## Planning Report

<b>Database:</b>	PEDM	<b>Local Co-ordinate Reference:</b>	Well Ghost Rider 22-15 Fed Com 403H
<b>Company:</b>	PERMIAN	<b>TVD Reference:</b>	WELL @ 3619.0ft (Original Well Elev)
<b>Project:</b>	NW DISTRICT - NM EZ NAD 83	<b>MD Reference:</b>	WELL @ 3619.0ft (Original Well Elev)
<b>Site:</b>	GHOST RIDER 22-15 FED COM PAD (N West) NEW	<b>North Reference:</b>	Grid
<b>Well:</b>	Ghost Rider 22-15 Fed Com 403H	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	Ghost Rider 22-15 Fed Com 403H		
<b>Design:</b>	w/ lateral targets		

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	0.00	0.00	1,600.0	0.0	0.0	0.0	0.00	0.00	0.00	
1,700.0	0.00	0.00	1,700.0	0.0	0.0	0.0	0.00	0.00	0.00	
1,800.0	0.00	0.00	1,800.0	0.0	0.0	0.0	0.00	0.00	0.00	
1,900.0	0.00	0.00	1,900.0	0.0	0.0	0.0	0.00	0.00	0.00	
2,000.0	0.00	0.00	2,000.0	0.0	0.0	0.0	0.00	0.00	0.00	
2,100.0	1.50	18.00	2,100.0	1.2	0.4	-1.2	1.50	1.50	0.00	
2,200.0	3.00	18.00	2,199.9	5.0	1.6	-5.0	1.50	1.50	0.00	
2,266.7	4.00	18.00	2,266.5	8.8	2.9	-8.8	1.50	1.50	0.00	
2,300.0	4.00	18.00	2,299.7	11.1	3.6	-11.0	0.00	0.00	0.00	
2,400.0	4.00	18.00	2,399.5	17.7	5.8	-17.6	0.00	0.00	0.00	
2,500.0	4.00	18.00	2,499.2	24.3	7.9	-24.2	0.00	0.00	0.00	
2,600.0	4.00	18.00	2,599.0	31.0	10.1	-30.8	0.00	0.00	0.00	
2,700.0	4.00	18.00	2,698.7	37.6	12.2	-37.4	0.00	0.00	0.00	
2,800.0	4.00	18.00	2,798.5	44.2	14.4	-44.0	0.00	0.00	0.00	
2,900.0	4.00	18.00	2,898.2	50.9	16.5	-50.6	0.00	0.00	0.00	
3,000.0	4.00	18.00	2,998.0	57.5	18.7	-57.2	0.00	0.00	0.00	
3,100.0	4.00	18.00	3,097.8	64.1	20.8	-63.8	0.00	0.00	0.00	
3,200.0	4.00	18.00	3,197.5	70.8	23.0	-70.4	0.00	0.00	0.00	
3,300.0	4.00	18.00	3,297.3	77.4	25.2	-77.0	0.00	0.00	0.00	
3,400.0	4.00	18.00	3,397.0	84.0	27.3	-83.6	0.00	0.00	0.00	
3,500.0	4.00	18.00	3,496.8	90.7	29.5	-90.2	0.00	0.00	0.00	
3,600.0	4.00	18.00	3,596.5	97.3	31.6	-96.8	0.00	0.00	0.00	
3,700.0	4.00	18.00	3,696.3	103.9	33.8	-103.4	0.00	0.00	0.00	
3,800.0	4.00	18.00	3,796.0	110.6	35.9	-110.0	0.00	0.00	0.00	
3,900.0	4.00	18.00	3,895.8	117.2	38.1	-116.6	0.00	0.00	0.00	
4,000.0	4.00	18.00	3,995.6	123.8	40.2	-123.2	0.00	0.00	0.00	
4,100.0	4.00	18.00	4,095.3	130.5	42.4	-129.8	0.00	0.00	0.00	
4,200.0	4.00	18.00	4,195.1	137.1	44.6	-136.4	0.00	0.00	0.00	
4,300.0	4.00	18.00	4,294.8	143.7	46.7	-143.0	0.00	0.00	0.00	
4,400.0	4.00	18.00	4,394.6	150.4	48.9	-149.6	0.00	0.00	0.00	
4,500.0	4.00	18.00	4,494.3	157.0	51.0	-156.2	0.00	0.00	0.00	
4,600.0	4.00	18.00	4,594.1	163.6	53.2	-162.8	0.00	0.00	0.00	
4,700.0	4.00	18.00	4,693.9	170.3	55.3	-169.4	0.00	0.00	0.00	
4,800.0	4.00	18.00	4,793.6	176.9	57.5	-176.0	0.00	0.00	0.00	
4,900.0	4.00	18.00	4,893.4	183.5	59.6	-182.6	0.00	0.00	0.00	
5,000.0	4.00	18.00	4,993.1	190.2	61.8	-189.2	0.00	0.00	0.00	
5,100.0	4.00	18.00	5,092.9	196.8	64.0	-195.8	0.00	0.00	0.00	

## Planning Report

<b>Database:</b>	PEDM	<b>Local Co-ordinate Reference:</b>	Well Ghost Rider 22-15 Fed Com 403H
<b>Company:</b>	PERMIAN	<b>TVD Reference:</b>	WELL @ 3619.0ft (Original Well Elev)
<b>Project:</b>	NW DISTRICT - NM EZ NAD 83	<b>MD Reference:</b>	WELL @ 3619.0ft (Original Well Elev)
<b>Site:</b>	GHOST RIDER 22-15 FED COM PAD (N West) NEW	<b>North Reference:</b>	Grid
<b>Well:</b>	Ghost Rider 22-15 Fed Com 403H	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	Ghost Rider 22-15 Fed Com 403H		
<b>Design:</b>	w/ lateral targets		

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)	
5,200.0	4.00	18.00	5,192.6	203.5	66.1	-202.4	0.00	0.00	0.00	
5,300.0	4.00	18.00	5,292.4	210.1	68.3	-209.0	0.00	0.00	0.00	
5,400.0	4.00	18.00	5,392.2	216.7	70.4	-215.6	0.00	0.00	0.00	
5,478.9	4.00	18.00	5,470.8	222.0	72.1	-220.8	0.00	0.00	0.00	
5,500.0	3.68	18.00	5,491.9	223.3	72.6	-222.1	1.50	-1.50	0.00	
5,600.0	2.18	18.00	5,591.8	228.2	74.1	-227.0	1.50	-1.50	0.00	
5,700.0	0.68	18.00	5,691.7	230.5	74.9	-229.3	1.50	-1.50	0.00	
5,745.5	0.00	0.00	5,737.3	230.8	75.0	-229.6	1.50	-1.50	0.00	
5,800.0	0.00	0.00	5,791.7	230.8	75.0	-229.6	0.00	0.00	0.00	
5,900.0	0.00	0.00	5,891.7	230.8	75.0	-229.6	0.00	0.00	0.00	
6,000.0	0.00	0.00	5,991.7	230.8	75.0	-229.6	0.00	0.00	0.00	
6,100.0	0.00	0.00	6,091.7	230.8	75.0	-229.6	0.00	0.00	0.00	
6,200.0	0.00	0.00	6,191.7	230.8	75.0	-229.6	0.00	0.00	0.00	
6,300.0	0.00	0.00	6,291.7	230.8	75.0	-229.6	0.00	0.00	0.00	
6,400.0	0.00	0.00	6,391.7	230.8	75.0	-229.6	0.00	0.00	0.00	
6,500.0	0.00	0.00	6,491.7	230.8	75.0	-229.6	0.00	0.00	0.00	
6,600.0	0.00	0.00	6,591.7	230.8	75.0	-229.6	0.00	0.00	0.00	
6,700.0	0.00	0.00	6,691.7	230.8	75.0	-229.6	0.00	0.00	0.00	
6,800.0	0.00	0.00	6,791.7	230.8	75.0	-229.6	0.00	0.00	0.00	
6,900.0	0.00	0.00	6,891.7	230.8	75.0	-229.6	0.00	0.00	0.00	
7,000.0	0.00	0.00	6,991.7	230.8	75.0	-229.6	0.00	0.00	0.00	
7,100.0	0.00	0.00	7,091.7	230.8	75.0	-229.6	0.00	0.00	0.00	
7,200.0	0.00	0.00	7,191.7	230.8	75.0	-229.6	0.00	0.00	0.00	
7,300.0	0.00	0.00	7,291.7	230.8	75.0	-229.6	0.00	0.00	0.00	
7,400.0	0.00	0.00	7,391.7	230.8	75.0	-229.6	0.00	0.00	0.00	
7,500.0	0.00	0.00	7,491.7	230.8	75.0	-229.6	0.00	0.00	0.00	
7,600.0	0.00	0.00	7,591.7	230.8	75.0	-229.6	0.00	0.00	0.00	
7,700.0	0.00	0.00	7,691.7	230.8	75.0	-229.6	0.00	0.00	0.00	
7,800.0	0.00	0.00	7,791.7	230.8	75.0	-229.6	0.00	0.00	0.00	
7,900.0	0.00	0.00	7,891.7	230.8	75.0	-229.6	0.00	0.00	0.00	
8,000.0	0.00	0.00	7,991.7	230.8	75.0	-229.6	0.00	0.00	0.00	
8,100.0	0.00	0.00	8,091.7	230.8	75.0	-229.6	0.00	0.00	0.00	
8,200.0	0.00	0.00	8,191.7	230.8	75.0	-229.6	0.00	0.00	0.00	
8,300.0	0.00	0.00	8,291.7	230.8	75.0	-229.6	0.00	0.00	0.00	
8,400.0	0.00	0.00	8,391.7	230.8	75.0	-229.6	0.00	0.00	0.00	
8,500.0	0.00	0.00	8,491.7	230.8	75.0	-229.6	0.00	0.00	0.00	
8,600.0	0.00	0.00	8,591.7	230.8	75.0	-229.6	0.00	0.00	0.00	
8,700.0	0.00	0.00	8,691.7	230.8	75.0	-229.6	0.00	0.00	0.00	
8,800.0	0.00	0.00	8,791.7	230.8	75.0	-229.6	0.00	0.00	0.00	
8,900.0	0.00	0.00	8,891.7	230.8	75.0	-229.6	0.00	0.00	0.00	
9,000.0	0.00	0.00	8,991.7	230.8	75.0	-229.6	0.00	0.00	0.00	
9,100.0	0.00	0.00	9,091.7	230.8	75.0	-229.6	0.00	0.00	0.00	
9,200.0	0.00	0.00	9,191.7	230.8	75.0	-229.6	0.00	0.00	0.00	
9,300.0	0.00	0.00	9,291.7	230.8	75.0	-229.6	0.00	0.00	0.00	
9,400.0	0.00	0.00	9,391.7	230.8	75.0	-229.6	0.00	0.00	0.00	
9,500.0	0.00	0.00	9,491.7	230.8	75.0	-229.6	0.00	0.00	0.00	
9,600.0	0.00	0.00	9,591.7	230.8	75.0	-229.6	0.00	0.00	0.00	
9,700.0	0.00	0.00	9,691.7	230.8	75.0	-229.6	0.00	0.00	0.00	
9,800.0	0.00	0.00	9,791.7	230.8	75.0	-229.6	0.00	0.00	0.00	
9,900.0	0.00	0.00	9,891.7	230.8	75.0	-229.6	0.00	0.00	0.00	
10,000.0	0.00	0.00	9,991.7	230.8	75.0	-229.6	0.00	0.00	0.00	
10,100.0	0.00	0.00	10,091.7	230.8	75.0	-229.6	0.00	0.00	0.00	
10,200.0	0.00	0.00	10,191.7	230.8	75.0	-229.6	0.00	0.00	0.00	

## Planning Report

<b>Database:</b>	PEDM	<b>Local Co-ordinate Reference:</b>	Well Ghost Rider 22-15 Fed Com 403H
<b>Company:</b>	PERMIAN	<b>TVD Reference:</b>	WELL @ 3619.0ft (Original Well Elev)
<b>Project:</b>	NW DISTRICT - NM EZ NAD 83	<b>MD Reference:</b>	WELL @ 3619.0ft (Original Well Elev)
<b>Site:</b>	GHOST RIDER 22-15 FED COM PAD (N West) NEW	<b>North Reference:</b>	Grid
<b>Well:</b>	Ghost Rider 22-15 Fed Com 403H	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	Ghost Rider 22-15 Fed Com 403H		
<b>Design:</b>	w/ lateral targets		

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)	
10,300.0	0.00	0.00	10,291.7	230.8	75.0	-229.6	0.00	0.00	0.00	
10,400.0	0.00	0.00	10,391.7	230.8	75.0	-229.6	0.00	0.00	0.00	
10,500.0	0.00	0.00	10,491.7	230.8	75.0	-229.6	0.00	0.00	0.00	
10,600.0	0.00	0.00	10,591.7	230.8	75.0	-229.6	0.00	0.00	0.00	
10,700.0	0.00	0.00	10,691.7	230.8	75.0	-229.6	0.00	0.00	0.00	
10,800.0	0.00	0.00	10,791.7	230.8	75.0	-229.6	0.00	0.00	0.00	
10,900.0	0.00	0.00	10,891.7	230.8	75.0	-229.6	0.00	0.00	0.00	
11,000.0	0.00	0.00	10,991.7	230.8	75.0	-229.6	0.00	0.00	0.00	
11,100.0	0.00	0.00	11,091.7	230.8	75.0	-229.6	0.00	0.00	0.00	
11,200.0	0.00	0.00	11,191.7	230.8	75.0	-229.6	0.00	0.00	0.00	
11,300.0	0.00	0.00	11,291.7	230.8	75.0	-229.6	0.00	0.00	0.00	
11,400.0	0.00	0.00	11,391.7	230.8	75.0	-229.6	0.00	0.00	0.00	
11,500.0	0.00	0.00	11,491.7	230.8	75.0	-229.6	0.00	0.00	0.00	
11,600.0	0.00	0.00	11,591.7	230.8	75.0	-229.6	0.00	0.00	0.00	
11,700.0	0.00	0.00	11,691.7	230.8	75.0	-229.6	0.00	0.00	0.00	
11,800.0	0.00	0.00	11,791.7	230.8	75.0	-229.6	0.00	0.00	0.00	
11,869.8	0.00	0.00	11,861.5	230.8	75.0	-229.6	0.00	0.00	0.00	
11,900.0	3.63	179.68	11,891.7	229.8	75.0	-228.6	12.00	12.00	0.00	
12,000.0	15.63	179.68	11,990.1	213.1	75.1	-211.9	12.00	12.00	0.00	
12,100.0	27.63	179.68	12,082.9	176.4	75.3	-175.2	12.00	12.00	0.00	
12,200.0	39.63	179.68	12,166.0	121.1	75.6	-119.9	12.00	12.00	0.00	
12,300.0	51.63	179.68	12,235.8	49.7	76.0	-48.5	12.00	12.00	0.00	
12,400.0	63.63	179.68	12,289.3	-34.6	76.5	35.8	12.00	12.00	0.00	
12,500.0	75.63	179.68	12,324.0	-128.2	77.0	129.3	12.00	12.00	0.00	
12,600.0	87.63	179.68	12,338.6	-226.9	77.5	228.1	12.00	12.00	0.00	
12,621.8	90.24	179.68	12,339.0	-248.7	77.7	249.9	12.00	12.00	0.00	
12,700.0	90.24	179.68	12,338.6	-326.9	78.1	328.1	0.00	0.00	0.00	
12,800.0	90.24	179.68	12,338.2	-426.9	78.7	428.1	0.00	0.00	0.00	
12,900.0	90.24	179.68	12,337.8	-526.9	79.2	528.1	0.00	0.00	0.00	
13,000.0	90.24	179.68	12,337.4	-626.9	79.8	628.1	0.00	0.00	0.00	
13,100.0	90.24	179.68	12,336.9	-726.9	80.3	728.1	0.00	0.00	0.00	
13,200.0	90.24	179.68	12,336.5	-826.9	80.9	828.0	0.00	0.00	0.00	
13,300.0	90.24	179.68	12,336.1	-926.9	81.4	928.0	0.00	0.00	0.00	
13,400.0	90.24	179.68	12,335.7	-1,026.9	82.0	1,028.0	0.00	0.00	0.00	
13,500.0	90.24	179.68	12,335.2	-1,126.9	82.6	1,128.0	0.00	0.00	0.00	
13,600.0	90.24	179.68	12,334.8	-1,226.9	83.1	1,228.0	0.00	0.00	0.00	
13,700.0	90.24	179.68	12,334.4	-1,326.9	83.7	1,328.0	0.00	0.00	0.00	
13,800.0	90.24	179.68	12,334.0	-1,426.9	84.2	1,428.0	0.00	0.00	0.00	
13,900.0	90.24	179.68	12,333.5	-1,526.9	84.8	1,528.0	0.00	0.00	0.00	
14,000.0	90.24	179.68	12,333.1	-1,626.9	85.3	1,628.0	0.00	0.00	0.00	
14,100.0	90.24	179.68	12,332.7	-1,726.9	85.9	1,728.0	0.00	0.00	0.00	
14,200.0	90.24	179.68	12,332.3	-1,826.9	86.4	1,828.0	0.00	0.00	0.00	
14,300.0	90.24	179.68	12,331.8	-1,926.9	87.0	1,928.0	0.00	0.00	0.00	
14,400.0	90.24	179.68	12,331.4	-2,026.9	87.6	2,028.0	0.00	0.00	0.00	
14,500.0	90.24	179.68	12,331.0	-2,126.9	88.1	2,128.0	0.00	0.00	0.00	
14,600.0	90.24	179.68	12,330.6	-2,226.9	88.7	2,228.0	0.00	0.00	0.00	
14,700.0	90.24	179.68	12,330.1	-2,326.8	89.2	2,328.0	0.00	0.00	0.00	
14,732.0	90.24	179.68	12,330.0	-2,358.9	89.4	2,360.0	0.00	0.00	0.00	
14,758.8	90.78	179.68	12,329.8	-2,385.7	89.6	2,386.8	2.00	2.00	0.00	
14,800.0	90.78	179.68	12,329.2	-2,426.8	89.8	2,427.9	0.00	0.00	0.00	
14,900.0	90.78	179.68	12,327.8	-2,526.8	90.3	2,527.9	0.00	0.00	0.00	
15,000.0	90.78	179.68	12,326.5	-2,626.8	90.9	2,627.9	0.00	0.00	0.00	
15,100.0	90.78	179.68	12,325.1	-2,726.8	91.5	2,727.9	0.00	0.00	0.00	

## Planning Report

<b>Database:</b>	PEDM	<b>Local Co-ordinate Reference:</b>	Well Ghost Rider 22-15 Fed Com 403H
<b>Company:</b>	PERMIAN	<b>TVD Reference:</b>	WELL @ 3619.0ft (Original Well Elev)
<b>Project:</b>	NW DISTRICT - NM EZ NAD 83	<b>MD Reference:</b>	WELL @ 3619.0ft (Original Well Elev)
<b>Site:</b>	GHOST RIDER 22-15 FED COM PAD (N West) NEW	<b>North Reference:</b>	Grid
<b>Well:</b>	Ghost Rider 22-15 Fed Com 403H	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	Ghost Rider 22-15 Fed Com 403H		
<b>Design:</b>	w/ lateral targets		

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)	
15,200.0	90.78	179.68	12,323.8	-2,826.8	92.0	2,827.9	0.00	0.00	0.00	
15,300.0	90.78	179.68	12,322.4	-2,926.8	92.6	2,927.9	0.00	0.00	0.00	
15,400.0	90.78	179.68	12,321.0	-3,026.8	93.1	3,027.9	0.00	0.00	0.00	
15,500.0	90.78	179.68	12,319.7	-3,126.8	93.7	3,127.8	0.00	0.00	0.00	
15,600.0	90.78	179.68	12,318.3	-3,226.8	94.2	3,227.8	0.00	0.00	0.00	
15,700.0	90.78	179.68	12,317.0	-3,326.7	94.8	3,327.8	0.00	0.00	0.00	
15,800.0	90.78	179.68	12,315.6	-3,426.7	95.3	3,427.8	0.00	0.00	0.00	
15,900.0	90.78	179.68	12,314.2	-3,526.7	95.9	3,527.8	0.00	0.00	0.00	
16,000.0	90.78	179.68	12,312.9	-3,626.7	96.5	3,627.8	0.00	0.00	0.00	
16,100.0	90.78	179.68	12,311.5	-3,726.7	97.0	3,727.8	0.00	0.00	0.00	
16,200.0	90.78	179.68	12,310.2	-3,826.7	97.6	3,827.7	0.00	0.00	0.00	
16,300.0	90.78	179.68	12,308.8	-3,926.7	98.1	3,927.7	0.00	0.00	0.00	
16,400.0	90.78	179.68	12,307.4	-4,026.7	98.7	4,027.7	0.00	0.00	0.00	
16,500.0	90.78	179.68	12,306.1	-4,126.7	99.2	4,127.7	0.00	0.00	0.00	
16,600.0	90.78	179.68	12,304.7	-4,226.6	99.8	4,227.7	0.00	0.00	0.00	
16,700.0	90.78	179.68	12,303.4	-4,326.6	100.4	4,327.7	0.00	0.00	0.00	
16,800.0	90.78	179.68	12,302.0	-4,426.6	100.9	4,427.7	0.00	0.00	0.00	
16,900.0	90.78	179.68	12,300.6	-4,526.6	101.5	4,527.6	0.00	0.00	0.00	
17,000.0	90.78	179.68	12,299.3	-4,626.6	102.0	4,627.6	0.00	0.00	0.00	
17,100.0	90.78	179.68	12,297.9	-4,726.6	102.6	4,727.6	0.00	0.00	0.00	
17,200.0	90.78	179.68	12,296.6	-4,826.6	103.1	4,827.6	0.00	0.00	0.00	
17,300.0	90.78	179.68	12,295.2	-4,926.6	103.7	4,927.6	0.00	0.00	0.00	
17,400.0	90.78	179.68	12,293.8	-5,026.6	104.3	5,027.6	0.00	0.00	0.00	
17,462.4	90.78	179.68	12,293.0	-5,089.0	104.6	5,090.0	0.00	0.00	0.00	
17,500.0	90.03	179.68	12,292.7	-5,126.6	104.8	5,127.6	2.00	-2.00	0.00	
17,521.6	89.60	179.68	12,292.8	-5,148.1	104.9	5,149.1	2.00	-2.00	0.00	
17,600.0	89.60	179.68	12,293.4	-5,226.5	105.4	5,227.6	0.00	0.00	0.00	
17,700.0	89.60	179.68	12,294.1	-5,326.5	105.9	5,327.5	0.00	0.00	0.00	
17,800.0	89.60	179.68	12,294.8	-5,426.5	106.5	5,427.5	0.00	0.00	0.00	
17,900.0	89.60	179.68	12,295.5	-5,526.5	107.0	5,527.5	0.00	0.00	0.00	
18,000.0	89.60	179.68	12,296.2	-5,626.5	107.6	5,627.5	0.00	0.00	0.00	
18,100.0	89.60	179.68	12,296.9	-5,726.5	108.1	5,727.5	0.00	0.00	0.00	
18,200.0	89.60	179.68	12,297.6	-5,826.5	108.7	5,827.5	0.00	0.00	0.00	
18,300.0	89.60	179.68	12,298.3	-5,926.5	109.3	5,927.5	0.00	0.00	0.00	
18,400.0	89.60	179.68	12,299.0	-6,026.5	109.8	6,027.5	0.00	0.00	0.00	
18,500.0	89.60	179.68	12,299.7	-6,126.5	110.4	6,127.5	0.00	0.00	0.00	
18,600.0	89.60	179.68	12,300.4	-6,226.5	110.9	6,227.5	0.00	0.00	0.00	
18,700.0	89.60	179.68	12,301.1	-6,326.5	111.5	6,327.5	0.00	0.00	0.00	
18,800.0	89.60	179.68	12,301.8	-6,426.5	112.0	6,427.5	0.00	0.00	0.00	
18,900.0	89.60	179.68	12,302.5	-6,526.5	112.6	6,527.5	0.00	0.00	0.00	
19,000.0	89.60	179.68	12,303.2	-6,626.5	113.2	6,627.5	0.00	0.00	0.00	
19,100.0	89.60	179.68	12,303.9	-6,726.5	113.7	6,727.4	0.00	0.00	0.00	
19,200.0	89.60	179.68	12,304.6	-6,826.5	114.3	6,827.4	0.00	0.00	0.00	
19,300.0	89.60	179.68	12,305.3	-6,926.5	114.8	6,927.4	0.00	0.00	0.00	
19,400.0	89.60	179.68	12,306.0	-7,026.5	115.4	7,027.4	0.00	0.00	0.00	
19,500.0	89.60	179.68	12,306.7	-7,126.5	115.9	7,127.4	0.00	0.00	0.00	
19,600.0	89.60	179.68	12,307.5	-7,226.5	116.5	7,227.4	0.00	0.00	0.00	
19,700.0	89.60	179.68	12,308.2	-7,326.5	117.0	7,327.4	0.00	0.00	0.00	
19,800.0	89.60	179.68	12,308.9	-7,426.5	117.6	7,427.4	0.00	0.00	0.00	
19,900.0	89.60	179.68	12,309.6	-7,526.5	118.2	7,527.4	0.00	0.00	0.00	
19,961.2	89.60	179.68	12,310.0	-7,587.7	118.5	7,588.6	0.00	0.00	0.00	

## Planning Report

<b>Database:</b>	PEDM	<b>Local Co-ordinate Reference:</b>	Well Ghost Rider 22-15 Fed Com 403H
<b>Company:</b>	PERMIAN	<b>TVD Reference:</b>	WELL @ 3619.0ft (Original Well Elev)
<b>Project:</b>	NW DISTRICT - NM EZ NAD 83	<b>MD Reference:</b>	WELL @ 3619.0ft (Original Well Elev)
<b>Site:</b>	GHOST RIDER 22-15 FED COM PAD (N West) NEW	<b>North Reference:</b>	Grid
<b>Well:</b>	Ghost Rider 22-15 Fed Com 403H	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	Ghost Rider 22-15 Fed Com 403H		
<b>Design:</b>	w/ lateral targets		

Design Targets									
Target Name - hit/miss target - Shape	Dip Angle (°)	Dip Dir. (°)	TVD (ft)	+N/-S (ft)	+E/-W (ft)	Northing (ft)	Easting (ft)	Latitude	Longitude
T3 Ghost Rider 22-15 Fε - plan hits target center - Point	0.00	0.01	12,293.0	-5,089.0	104.6	438,169.21	749,488.29	32° 12' 10.120 N	103° 39' 37.366 W
BHL Ghost Rider 22-15 I - plan hits target center - Point	0.00	0.00	12,310.0	-7,587.7	118.5	435,670.50	749,502.20	32° 11' 45.393 N	103° 39' 37.386 W
T2 Ghost Rider 22-15 Fε - plan hits target center - Point	0.00	0.00	12,330.0	-2,358.9	89.4	440,899.31	749,473.11	32° 12' 37.136 N	103° 39' 37.343 W



## PECOS DISTRICT DRILLING CONDITIONS OF APPROVAL

<b>OPERATOR'S NAME:</b>	<b>APACHE CORPORATION</b>
<b>LEASE NO.:</b>	<b>NMNM039880</b>
<b>WELL NAME &amp; NO.:</b>	<b>GHOST RIDER 22 15 FEDERAL COM 403H</b>
<b>SURFACE HOLE FOOTAGE:</b>	2357'/S & 2056'/E <b>30-025-49344</b>
<b>BOTTOM HOLE FOOTAGE:</b>	50'/S & 1980'/E
<b>LOCATION:</b>	Section 15, T.24 S., R.32 E., NMP
<b>COUNTY:</b>	Lea County, New Mexico

### COA

H2S	<input checked="" type="radio"/> Yes	<input type="radio"/> No	
Potash	<input checked="" type="radio"/> None	<input type="radio"/> Secretary	<input type="radio"/> R-111-P
Cave/Karst Potential	<input checked="" type="radio"/> Low	<input type="radio"/> Medium	<input type="radio"/> High
Cave/Karst Potential	<input type="radio"/> Critical		
Variance	<input type="radio"/> None	<input checked="" type="radio"/> Flex Hose	<input type="radio"/> Other
Wellhead	<input type="radio"/> Conventional	<input type="radio"/> Multibowl	<input checked="" type="radio"/> Both
Other	<input type="checkbox"/> 4 String Area	<input type="checkbox"/> Capitan Reef	<input type="checkbox"/> WIPP
Other	<input type="checkbox"/> Fluid Filled	<input checked="" type="checkbox"/> Cement Squeeze	<input type="checkbox"/> Pilot Hole
Special Requirements	<input type="checkbox"/> Water Disposal	<input checked="" type="checkbox"/> COM	<input type="checkbox"/> Unit

### All Previous COAs Still Apply.

**NOTE:** Approved for 10M BOP / BOPE and testing accordance to OO#2 requirements.

Flex hose variance is approved.

Break Testing is approved (**Note: For 5M BOPE or less**).

Batch drilling is approved.

### A. CASING

#### Casing Design:

1. The **13-3/8** inch surface casing shall be set at approximately **1,054** feet (a minimum of **25 feet (Lea County)** into the Rustler Anhydrite and above the salt) and cemented to the surface.
  - a. If cement does not circulate to the surface, the appropriate BLM office shall be notified and a temperature survey utilizing an electronic type temperature survey with surface log readout will be used or a cement bond log shall be run to verify the top of the cement. Temperature survey will be run a minimum of six hours after pumping cement and ideally between 8-10 hours after completing the cement job.



- b. Wait on cement (WOC) time for a primary cement job will be a minimum of **8 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.
2. The 7-5/8 inch intermediate casing shall be set at approximately **11,670** feet. The minimum required fill of cement behind the 7-5/8 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 -32%, 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 -78%, additional cement might be required**

**Operator has proposed to pump down 7-5/8" X 13-3/8" annulus. Operator must run a CBL / Echo-Meter from TD of the 7-5/8" casing to surface. Submit results to BLM.**

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.

**Operator has proposed to pump down 5-1/2" X 7-5/8" annulus. Operator must run a CBL / Echo-Meter from TD of the 5-1/2" casing to surface. Submit results to BLM.**

**B. 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 **5000 (5M) psi**.
- b. Minimum working pressure of the blowout preventer (BOP) and related equipment (BOPE) required for drilling below the intermediate casing shoe shall be **10,000 (10M) psi**. **Variance is approved to use a 5000 (5M) Annular which shall be tested to 5000 (5M) 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 **10,000 (10M) psi**. **Variance is approved to use a 5000 (5M) Annular which shall be tested to 5000 (5M) psi.**
  - a. Wellhead shall be installed by manufacturer's representatives, submit documentation with subsequent sundry.
  - b. If the welding is performed by a third party, the manufacturer's representative shall monitor the temperature to verify that it does not exceed the maximum temperature of the seal.
  - c. Manufacturer representative shall install the test plug for the initial BOP test.
  - d. If the cement does not circulate and one inch operations would have been possible with a standard wellhead, the well head shall be cut off, cementing operations performed and another wellhead installed.
  - e. Whenever any seal subject to test pressure is broken, all the tests in OOGO2.III.A.2.i must be followed.

## C. 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.

### **BOPE Break Testing Variance (Note: For 5M BOPE or less)**

- BOPE Break Testing is ONLY permitted for 5M BOPE or less.
- BOPE Break Testing is NOT permitted to drilling the production hole section.
- While in transfer between wells, the BOPE shall be secured by the hydraulic carrier or cradle.
- Any well control event while drilling require notification to the BLM Petroleum Engineer prior to the commencement of any BOPE Break Testing operations.
- A full BOPE test is required prior to drilling the first deep intermediate hole section. If any subsequent hole interval is deeper than the first, a full BOPE test will be required.
- The BLM is to be contacted **(575-393-3612 Lea County)** 4 hours prior to BOPE tests.
- As a minimum, a full BOPE test shall be performed at 21-day intervals.
- In the event any repairs or replacement of the BOPE is required, the BOPE shall test as per Onshore Oil and Gas Order No. 2.

**OTA06132022**

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

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

CONDITIONS  
  
Action 116759

CONDITIONS

Operator:  APACHE CORPORATION 303 Veterans Airpark Ln Midland, TX 79705	OGRID:  873
	Action Number:  116759
	Action Type: [C-103] NOI Change of Plans (C-103A)

CONDITIONS

Created By	Condition	Condition Date
pkautz	PREVIOUS COA'S APPLY	6/16/2022