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.: NMNM114348

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.: SOUTHERN HILLS 32-29 FEDERAL COM 3H

2. Name of Operator: CIMAREX ENERGY COMPANY

9. API Well No.: 30-015-49514

3a. Address: 600 N MARIENFELD STREET ST SUITE 600, MIDLAND

3b. Phone No. *(include area code)*: (432) 571-7800

10. Field and Pool, or Exploratory: PURPLE SAGE; WOLFCAMP (GAS)/PUR

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

At surface: SESW / 827 FSL / 1577 FWL / LAT 32.081286 / LONG -104.215835

At proposed prod. zone: NENW / 100 FNL / 1650 FWL / LAT 32.107893 / LONG -104.215241

11. Sec., T. R. M. or Blk. and Survey or Area: SEC 32/T25S/R27E/NMP

14. Distance in miles and direction from nearest town or post office*: 13 miles

12. County or Parish: EDDY

13. State: NM

15. Distance from proposed* location to nearest property or lease line, ft. (Also to nearest drig. unit line, if any): 827 feet

16. No of acres in lease:

17. Spacing Unit dedicated to this well: 640.0

18. Distance from proposed location* to nearest well, drilling, completed, applied for, on this lease, ft.: 20 feet

19. Proposed Depth: 9123 feet / 18529 feet

20. BLM/BIA Bond No. in file: FED: NMB001188

21. Elevations (Show whether DF, KDB, RT, GL, etc.): 3244 feet

22. Approximate date work will start*: 01/04/2021

23. Estimated duration: 30 days

24. Attachments

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

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

25. Signature	Name *(Printed/Typed)*	Date
(Electronic Submission)	AMITHY CRAWFORD / Ph: (432) 620-1936	03/17/2021

Title: Regulatory Analyst

Approved by *(Signature)*	Name *(Printed/Typed)*	Date
(Electronic Submission)	Cody Layton / Ph: (575) 234-5959	04/13/2022

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.

APPROVED WITH CONDITIONS

(Continued on page 2)

*(Instructions on page 2)

Approval Date: 04/13/2022

Additional Operator Remarks

Location of Well

0. SHL: SESW / 827 FSL / 1577 FWL / TWSP: 25S / RANGE: 27E / SECTION: 32 / LAT: 32.081286 / LONG: -104.215835 (TVD: 0 feet, MD: 0 feet)

PPP: SESW / 827 FSL / 1650 FWL / TWSP: 25S / RANGE: 27E / SECTION: 32 / LAT: 32.081285 / LONG: -104.215599 (TVD: 8748 feet, MD: 8753 feet)

BHL: NENW / 100 FNL / 1650 FWL / TWSP: 25S / RANGE: 27E / SECTION: 29 / LAT: 32.107893 / LONG: -104.215241 (TVD: 9123 feet, MD: 18529 feet)

BLM Point of Contact

Name: JORDAN NAVARRETTE

Title: LIE

Phone: (575) 234-5972

Email: jnavarrette@blm.gov

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
30-015 49514	98220	Purple Sage Wolfcamp Gas

[4] Property Code	[5] Property Name	[6] Well Number
332837	SOUTHERN HILLS 32-29 FED COM	3H

[7] OGRID No.	[8] Operator Name	[9] Elevation
215099	CIMAREX ENERGY CO.	3244.5'

[10] Surface Location

UL or lot no.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County
N	32	25S	27E		827	SOUTH	1577	WEST	EDDY

[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
C	29	25S	27E		100	NORTH	1650	WEST	EDDY

[12] Dedicated Acres	[13] Joint or Infill	[14] Consolidation Code	[15] Order No.
640			

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

[16]
2000' 1000' 0' 2000'
SCALE
DRAWN BY: D.J.S. 10-07-20

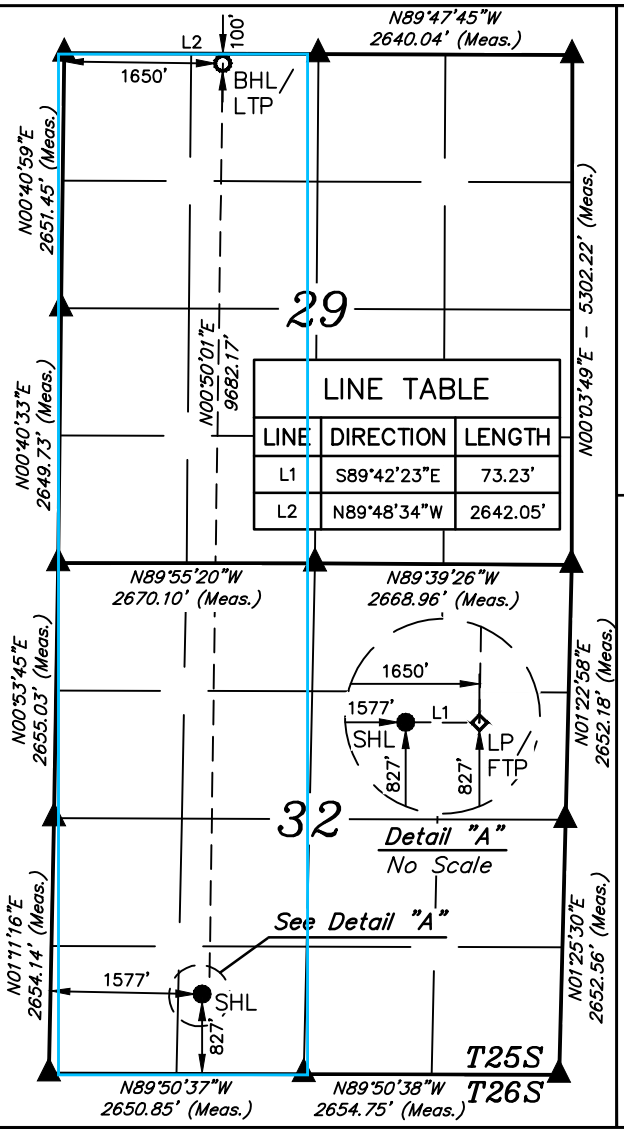
● = SURFACE HOLE LOCATION
◇ = LANDING POINT/FIRST TAKE POINT
○ = BOTTOM HOLE LOCATION/ LAST TAKE POINT
▲ = SECTION CORNER LOCATED

NAD 83 (SURFACE HOLE LOCATION)
LATITUDE = 32°04'52.63" (32.081286°)
LONGITUDE = 104°12'57.01" (104.215835°)
NAD 27 (SURFACE HOLE LOCATION)
LATITUDE = 32°04'52.19" (32.081164°)
LONGITUDE = 104°12'55.23" (104.215341°)
STATE PLANE NAD 83 (N.M. EAST)
N: 393328.72' E: 577728.30'
STATE PLANE NAD 27 (N.M. EAST)
N: 393271.63' E: 536544.83'

NAD 83 (LP/FTP)
LATITUDE = 32°04'52.63" (32.081285°)
LONGITUDE = 104°12'56.16" (104.215599°)
NAD 27 (LP/FTP)
LATITUDE = 32°04'52.19" (32.081164°)
LONGITUDE = 104°12'54.38" (104.215104°)
STATE PLANE NAD 83 (N.M. EAST)
N: 393328.65' E: 577801.51'
STATE PLANE NAD 27 (N.M. EAST)
N: 393271.56' E: 536618.05'

NAD 83 (BHL/LTP)
LATITUDE = 32°06'28.42" (32.107893°)
LONGITUDE = 104°12'54.87" (104.215241°)
NAD 27 (BHL/LTP)
LATITUDE = 32°06'27.98" (32.107772°)
LONGITUDE = 104°12'53.08" (104.214745°)
STATE PLANE NAD 83 (N.M. EAST)
N: 403008.04' E: 577901.93'
STATE PLANE NAD 27 (N.M. EAST)
N: 402950.77' E: 536718.62'

NOTE:
- Distances referenced on plat to section lines are perpendicular.
- Basis of Bearing is a Transverse Mercator Projection with a Central Meridian of W103°53'00" (NAD 83)



[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.

Amithy Crawford 3/15/21
Signature Date

Amithy Crawford
Printed Name

acrawford@cimarex.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.

August 31, 2020
Date of Survey

Signature and Seal of Professional Surveyor:

PAUL BUCHELE
NEW MEXICO
23782
PROFESSIONAL SURVEYOR
10-07-20

Certificate Number:

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: Cimarex Energy Company **OGRID:** 215099 **Date:** 5/3/2022

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

If Other, please describe: _____

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

Well Name	API	ULSTR	Footages	Anticipated Oil BBL/D	Anticipated Gas MCF/D	Anticipated Produced Water BBL/D
Southern Hills 32-29 Fed Com 3H		N, Sec 32 T25S, R27E	827 FSL/1577 FWL	1100	2750	5280

IV. Central Delivery Point Name: Southern Hills 32-29 CDP Sales [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
Southern Hills 32-29 Fed Com 3H		3/1/2024	7/1/2024	1/1/2025	4/1/2025	4/1/2025

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

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

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

Section 2 – Enhanced Plan
EFFECTIVE APRIL 1, 2022

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

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

IX. Anticipated Natural Gas Production:

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

X. Natural Gas Gathering System (NGGS):

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

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

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

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

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

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

Section 3 - Certifications

Effective May 25, 2021

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

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

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

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

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

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

Section 4 - Notices

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

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

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

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

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

Signature:	Sarah Jordan
Printed Name:	Sarah Jordan
Title:	Regulatory Analyst
E-mail Address:	sarah.jordan@coterra.com
Date:	5/3/2022
Phone:	432/620-1909

OIL CONSERVATION DIVISION

(Only applicable when submitted as a standalone form)

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

From State of New Mexico, Natural Gas Management Plan

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

XEC Standard Response

Standard facility gas process flow begins at the inlet separator. These vessels are designed based off of forecasted rates and residence times in accordance with, and often greater than, API 12J. The separated gas is then routed to an additional separation vessel (ie sales scrubber) in order to extract liquids that may have carried over or developed due to the decrease in pressure. The sales scrubber is sized based on API 521. From the sales scrubber, the gas leaves the facility and enters the gas midstream gathering network.

Cimarex
VII. Operational Practices

Cimarex values the sustainable development of New Mexico's natural resources. Venting and flaring of natural gas is a source of waste in the industry, and Cimarex will ensure that its values are aligned with those of NMOCD. As such, Cimarex plans to take pointed steps to ensure compliance with Subsection A through F of 19.15.27.8 NMAC.

Specifically, below are the steps Cimarex will plan to follow under routine well commissioning and operations.

1. Capture or combust natural gas during drilling operations where technically feasible, using the best industry practices and control technologies.
    a. All flares during these operations will be a minimum of 100ft away from the nearest surface-hole location.
2. All gas present during post-completion drill-out and flow back will be routed through separation equipment, and, if technically feasible, flare unsellable vapors rather than vent. Lastly, formal sales separator commissioning to process well-stream fluids and send gas to a gas flow line/collection system or use the gas for on-site fuel or beneficial usage, gas as soon as is safe and technically feasible.
3. Cimarex will ensure the flare or combustion equipment is properly sized to handle expected flow rates, ensure this equipment is equipped with an automatic or continuous ignition source, and ensure this equipment is designed for proper combustion efficiency.
4. If Cimarex must flare because gas is not meeting pipeline specifications, Cimarex will limit flaring to <60 days, analyze gas composition at least twice per week, and route gas into a gathering pipeline as soon as pipeline specifications are met.
5. Under routine production operations, Cimarex will not flare/vent unless:
    a. Venting or flaring occurs due to an emergency or equipment malfunction.
    b. Venting or flaring occurs as a result of unloading practices, and an operator is onsite (or within 30 minutes of drive time and posts contact information at the wellsite) until the end of unloading practice.
    c. The venting or flaring occurs during automated plungerlift operations, in which case the Cimarex operator will work to optimize the plungerlift system to minimize venting/flaring.
    d. The venting or flaring occurs during downhole well maintenance, in which case Cimarex will work to minimize venting or flaring operations to the extent that it does not pose a risk to safe operations.
    e. The well is an exploratory well, the division has approved the well as an exploratory well, venting or flaring is limited to 12 months, as approved by the division, and venting/flaring does not cause Cimarex to breach its State-wide 98% gas capture requirement.
    f. Venting or flaring occurs because the stock tanks or other low-pressure vessels are being gauged, sampled, or liquids are being loaded out.
    g. The venting or flaring occurs because pressurized vessels are being maintained and are being blown-down or depressurized.
    h. Venting or flaring occurs as a result of normal dehydration unit operations.

i. Venting or flaring occurs as a result of bradenhead testing.
j. Venting or flaring occurs as a result of normal compressor operations, including general compressor operations, compressor engines and turbines.
k. Venting or flaring occurs as a result of a packer leakage test.
l. Venting or flaring occurs as a result of a production test lasting less than 24 hours unless otherwise approved by the division.
m. Venting or flaring occurs as a result of new equipment commissioning and is necessary to purge impurities from the pipeline or production equipment.

6. Cimarex will maintain its equipment in accordance with its Operations and Maintenance Program, to ensure venting or flaring events are minimized and that equipment is properly functioning.
7. Cimarex will install automatic tank gauging equipment on all production facilities constructed after May 25, 2021, to ensure minimal emissions from tank gauging practices.
8. By November 25, 2022, all Cimarex facilities equipped with flares or combustors will be equipped with continuous pilots or automatic igniters, and technology to ensure proper function, i.e. thermocouple, fire-eye, etc…
9. Cimarex will perform AVO (audio, visual, olfactory) facility inspections in accordance with NMOCD requirements. Specifically, Cimarex will:
    a. Perform weekly inspections during the first year of production, and so long as production is greater than 60 MCFD.
    b. If production is less than 60 MCFD, Cimarex will perform weekly AVO inspections when an operator is present on location, and inspections at least once per calendar month with at least 20 calendar days between inspections.
10. Cimarex will measure or estimate the volume of vented, flared or beneficially used natural gas, regardless of the reason or authorization for such venting or flaring.
11. On all facilities constructed after May 25, 2021, Cimarex will install metering where feasible and in accordance with available technology and best engineering practices, in an effort to measure how much gas could have been vented or flared.
    a. In areas where metering is not technically feasible, such as low-pressure/low volume venting or flaring applications, engineering estimates will be used such that the methodology could be independently verified.
12. Cimarex will fulfill the division's requirements for reporting and filing of venting or flaring that exceeds 50 MCF in volume or last eight hours or more cumulatively within any 24-hour period.

VIII. Best Management Practices to minimize venting during active and planned maintenance

Cimarex strives to ensure minimal venting occurs during active and planned maintenance activities. Below is a description of common maintenance practices, and the steps Cimarex takes to limit venting exposure.

- **Workovers:**
  - Always strive to kill well when performing downhole maintenance.
  - If vapors or trapped pressure is present and must be relieved then:
    - Initial blowdown to production facility:
      - Route vapors to LP flare if possible/applicable
    - Blowdown to portable gas buster tank:
      - Vent to existing or portable flare if applicable.

- **Stock tank servicing:**
  - Minimize time spent with thief hatches open.
  - When cleaning or servicing via manway, suck tank bottoms to ensure minimal volatiles exposed to atmosphere.
    - Connect vacuum truck to low pressure flare while cleaning bottoms to limit venting.
  - Isolate the vent lines and overflows on the tank being serviced from other tanks.

- **Pressure vessel/compressor servicing and associated blowdowns:**
  - Route to flare where possible.
  - Blow vessel down to minimum available pressure via pipeline, prior to venting vessel.
  - Preemptively changing anodes to reduce failures and extended corrosion related servicing.
  - When cleaning or servicing via manway, suck vessel bottoms to ensure minimal volatiles exposed to atmosphere.

- **Flare/combustor maintenance:**
  - Minimize downtime by coordinating with vendor and Cimarex staff travel logistics.
  - Utilizing preventative and predictive maintenance programs to replace high wear components before failure.
  - Because the flare/combustor is the primary equipment used to limit venting practices, ensure flare/combustor is properly maintained and fully operational at all times via routine maintenance, temperature telemetry, onsite visual inspections.

The Cimarex expectation is to limit all venting exposure. Equipment that may not be listed on this document is still expected to be maintained and associated venting during such maintenance minimized.

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

Drilling Plan Data Report
04/25/2022

APD ID: 10400068085
Submission Date: 03/17/2021
Operator Name: CIMAREX ENERGY COMPANY
Well Name: SOUTHERN HILLS 32-29 FEDERAL COM
Well Number: 3H
Well Type: CONVENTIONAL GAS 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
1672779	RUSTLER	0	550	550	ANHYDRITE	USEABLE WATER	N
1672780	TOP SALT	-1255	1255	1255	SALT	NONE	N
1672781	CASTILE	-1879	1879	1879	SALT	NONE	N
1672782	BELL CANYON	-2086	2086	2086	SANDSTONE	NONE	N
1672783	CHERRY CANYON	-3004	3004	3004	SANDSTONE	NONE	N
1672784	BRUSHY CANYON	-4037	4037	4037	SANDSTONE	NATURAL GAS, OIL	N
1672785	BONE SPRING	-5623	5623	5623	LIMESTONE	NATURAL GAS, OIL	N
1672786	BONE SPRING 1ST	-6579	6579	6579	SANDSTONE	NATURAL GAS, OIL	N
1672787	BONE SPRING 2ND	-6827	6827	6827	SANDSTONE	NATURAL GAS, OIL	N
1672788	BONE SPRING 3RD	-8405	8405	8405	SANDSTONE	NATURAL GAS, OIL	N
1672789	WOLFCAMP	-8748	8748	8748	SHALE	NATURAL GAS, OIL	Y

Section 2 - Blowout Prevention

Pressure Rating (PSI): 2M
Rating Depth: 1950

Equipment: A BOP consisting of three rams, including one blind ram and two pipe rams and one annular preventer. An accumulator that meets the requirements in Onshore Order #2 for the pressure rating of the BOP stack. A rotating head may be installed as needed. A Kelly clock will be installed and maintained in operable condition and a drill string safety valve in the open position will be available on the rig floor.
Requesting Variance? YES

Variance request: Co-flex line between the BOP and choke manifold. Certification for proposed co-flex hose is attached. The hose is not required by the manufacturer to be anchored. In the event the specific hose is not available, one of equal or higher rating will be used. Variance to include Hammer Union connections on lines downstream of the buffer tank only.

Testing Procedure: A multi-bowl wellhead system will be utilized. After running the 13-3/8" surface casing, a 13 5/8 BOP/BOPE system with a minimum working pressure of 2000 psi will be installed on the wellhead system and will be

Operator Name: CIMAREX ENERGY COMPANY

Well Name: SOUTHERN HILLS 32-29 FEDERAL COM **Well Number:** 3H

pressure tested to 250 psi low followed by a 2000 psi test. Annular will be tested to 100% of working pressure. The pressure test will be repeated at least every 30 days, as per Onshore Order No. 2. The multi-bowl wellhead will be installed by vendors representative. A copy of the installation instructions has been sent to the BLM field office. The wellhead will be installed by a third-party welder, monitored by the wellhead vendor representative. All BOP equipment will be tested utilizing a conventional test plug. Not a cup or J-packer type. A solid steel body pack-off will be utilized after running and cementing the intermediate casing. After installation the pack-off and lower flange will be pressure tested to 2000 psi. The surface casing string will be tested as per Onshore Order No. 2 to at least 0.22 psi/ft or 1500 psi, whichever is greater. The casing strings utilizing steel body pack-off will be tested to 70% of casing burst. If well conditions dictate conventional slips will be set and BOPE will be tested to appropriate pressures based on permitted pressure requirements.

Choke Diagram Attachment:

Southern_Hills_32_29_Fed_Com_3H_Choke_2M_20210317152534.pdf

BOP Diagram Attachment:

Southern_Hills_32_29_Fed_Com_3H_BOP_2M_20210317152543.pdf

Pressure Rating (PSI): 5M **Rating Depth:** 18530

Equipment: A BOP consisting of three rams, including one blind ram and two pipe rams and one annular preventer. An accumulator that meets the requirements in Onshore Order #2 for the pressure rating of the BOP stack. A rotating head may be installed as needed. A Kelly clock will be installed and maintained in operable condition and a drill string safety valve in the open position will be available on the rig floor.

Requesting Variance? YES

Variance request: Co-flex line between the BOP and choke manifold. Certification for proposed co-flex hose is attached. The hose is not required by the manufacturer to be anchored. In the event the specific hose is not available, one of equal or higher rating will be used. Variance to include Hammer Union connections on lines downstream of the buffer tank only.

Testing Procedure: A multi-bowl wellhead system will be utilized. After running the 13-3/8" surface casing, a 13 5/8 BOP/BOPE system with a minimum working pressure of 5000 psi will be installed on the wellhead system and will be pressure tested to 250 psi low followed by a 5000 psi test. Annular will be tested to 100% of working pressure. The pressure test will be repeated at least every 30 days, as per Onshore Order No. 2. The multi-bowl wellhead will be installed by vendors representative. A copy of the installation instructions has been sent to the BLM field office. The wellhead will be installed by a third-party welder, monitored by the wellhead vendor representative. .All BOP equipment will be tested utilizing a conventional test plug. Not a cup or J-packer type. A solid steel body pack-off will be utilized after running and cementing the intermediate casing. After installation the pack-off and lower flange will be pressure tested to 5000 psi. Slips will be utilized after running and cementing the production casing. After installation of the slips and wellhead on the production casing, a 13 5/8 BOP/BOPE system with a minimum working pressure of 5000 psi will be installed on the wellhead system and will be pressure tested to 250 psi low followed by a 5000 psi test. Annular will be tested to 100% of working pressure. The pressure test will be repeated at least every 30 days, as per Onshore Order No. 2. The surface casing string will be tested as per Onshore Order No. 2 to at least 0.22 psi/ft or 1500 psi, whichever is greater. The casing string utilizing steel body pack-off will be tested to 70% of casing burst. If well conditions dictate conventional slips will be set and BOPE will be tested to appropriate pressures based on permitted pressure requirements.

Choke Diagram Attachment:

Southern_Hills_32_29_Fed_Com_3H_Choke_5M_20210317152845.pdf

BOP Diagram Attachment:

Southern_Hills_32_29_Fed_Com_3H_BOP_5M_6in_hole_20210317152850.pdf

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Operator Name: CIMAREX ENERGY COMPANY

Well Name: SOUTHERN HILLS 32-29 FEDERAL COM **Well Number:** 3H

Pressure Rating (PSI): 5M **Rating Depth:** 9209

Equipment: A BOP consisting of three rams, including one blind ram and two pipe rams and one annular preventer. An accumulator that meets the requirements in Onshore Order #2 for the pressure rating of the BOP stack. A rotating head may be installed as needed. A Kelly clock will be installed and maintained in operable condition and a drill string safety valve in the open position will be available on the rig floor.
Requesting Variance? YES

Variance request: Co-flex line between the BOP and choke manifold. Certification for proposed co-flex hose is attached. The hose is not required by the manufacturer to be anchored. In the event the specific hose is not available, one of equal or higher rating will be used. Variance to include Hammer Union connections on lines downstream of the buffer tank only.
Testing Procedure: A multi-bowl wellhead system will be utilized. After running the 13-3/8" surface casing, a 13 5/8 BOP/BOPE system with a minimum working pressure of 5000 psi will be installed on the wellhead system and will be pressure tested to 250 psi low followed by a 5000 psi test. Annular will be tested to 100% of working pressure. The pressure test will be repeated at least every 30 days, as per Onshore Order No. 2. The multi-bowl wellhead will be installed by vendors representative. A copy of the installation instructions has been sent to the BLM field office. The wellhead will be installed by a third-party welder, monitored by the wellhead vendor representative. .All BOP equipment will be tested utilizing a conventional test plug. Not a cup or J-packer type. A solid steel body pack-off will be utilized after running and cementing the intermediate casing. After installation the pack-off and lower flange will be pressure tested to 5000 psi. Slips will be utilized after running and cementing the production casing. After installation of the slips and wellhead on the production casing, a 13 5/8 BOP/BOPE system with a minimum working pressure of 5000 psi will be installed on the wellhead system and will be pressure tested to 250 psi low followed by a 5000 psi test. Annular will be tested to 100% of working pressure. The pressure test will be repeated at least every 30 days, as per Onshore Order No. 2. The surface casing string will be tested as per Onshore Order No. 2 to at least 0.22 psi/ft or 1500 psi, whichever is greater. The casing string utilizing steel body pack-off will be tested to 70% of casing burst. If well conditions dictate conventional slips will be set and BOPE will be tested to appropriate pressures based on permitted pressure requirements.
Choke Diagram Attachment:

Southern_Hills_32_29_Fed_Com_3H_Choke_5M_20210317152627.pdf

BOP Diagram Attachment:

Southern_Hills_32_29_Fed_Com_3H_BOP_5M_20210317152638.pdf

Section 3 - Casing

Casing ID	String Type	Hole Size	Csg Size	Condition	Standard	Tapered String	Top Set MD	Bottom Set MD	Top Set TVD	Bottom Set TVD	Top Set MSL	Bottom Set MSL	Calculated casing length MD	Grade	Weight	Joint Type	Collapse SF	Burst SF	Joint SF Type	Joint SF	Body SF Type	Body SF
1	SURFACE	17.5	13.375	NEW	API	N	0	600	0	600	3244	2644	600	OTHER	48	ST&C	2.85	6.66	BUOY	11.18	BUOY	11.18
2	INTERMEDIATE	12.25	9.625	NEW	API	N	0	1950	0	1950	3244	1294	1950	J-55	36	LT&C	1.93	3.37	BUOY	6.45	BUOY	6.45
3	PRODUCTION	8.75	7.0	NEW	API	N	0	7655	0	7655	3244	-4411	7655	L-80	26	LT&C	1.51	2.02	BUOY	2.18	BUOY	2.18
4	PRODUCTION	6.125	4.5	NEW	API	N	7655	9209	7655	9034	-4411	-5790	1554	L-80	26	BUTT	1.28	1.71	BUOY	16.85	BUOY	16.85

Operator Name: CIMAREX ENERGY COMPANY

Well Name: SOUTHERN HILLS 32-29 FEDERAL COM **Well Number:** 3H

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
5	COMPLETION SYSTEM	6	4.5	NEW	API	N	7555	18530	7555	9681	-4311	-6437	10975	P-110	11.6	BUTT	1.31	1.85	BUOY	14.88	BUOY	14.88

Casing Attachments

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

Inspection Document:

Spec Document:

Tapered String Spec:

Casing Design Assumptions and Worksheet(s):

Southern_Hills_32_29_Fed_Com_3H__Casing_Assumptions_20210317152957.pdf

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

Inspection Document:

Spec Document:

Tapered String Spec:

Casing Design Assumptions and Worksheet(s):

Southern_Hills_32_29_Fed_Com_3H__Casing_Assumptions_20210317153131.pdf

Operator Name: CIMAREX ENERGY COMPANY

Well Name: SOUTHERN HILLS 32-29 FEDERAL COM **Well Number:** 3H

Casing Attachments

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

Inspection Document:

Spec Document:

Tapered String Spec:

Casing Design Assumptions and Worksheet(s):

Southern_Hills_32_29_Fed_Com_3H__Casing_Assumptions_20210317153328.pdf

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

Inspection Document:

Spec Document:

Tapered String Spec:

Casing Design Assumptions and Worksheet(s):

Southern_Hills_32_29_Fed_Com_3H__Casing_Assumptions_20210317153435.pdf

Casing ID: 5 **String Type:** COMPLETION SYSTEM

Inspection Document:

Spec Document:

Tapered String Spec:

Casing Design Assumptions and Worksheet(s):

Southern_Hills_32_29_Fed_Com_3H__Casing_Assumptions_20210317153553.pdf

Section 4 - Cement

Operator Name: CIMAREX ENERGY COMPANY

Well Name: SOUTHERN HILLS 32-29 FEDERAL COM **Well Number:** 3H

String Type	Lead/Tail	Stage Tool Depth	Top MD	Bottom MD	Quantity(sx)	Yield	Density	Cu Ft	Excess%	Cement type	Additives
PRODUCTION	Lead		0	0	0	0	0	0	0	0	0
SURFACE	Lead		0	600	182	1.72	13.5	313	38	Class C	Bentonite
SURFACE	Tail		0	600	195	1.34	14.8	261	38	Class C	LCM
INTERMEDIATE	Lead		0	1950	361	1.88	12.9	678	52	35:65 (POZ C)	Salt Bentonite
INTERMEDIATE	Tail		0	1950	112	1.36	14.8	152	52	Class C	Retarder
PRODUCTION	Lead		0	9209	419	3.64	10.3	1525	25	Tuned Light	LCM
PRODUCTION	Tail		0	9209	114	1.3	14.5	148	25	50:50 (POZ H)	Salt Bentonite Fluis Loss Dispersant Expanding agent Retarder Antifoam
COMPLETION SYSTEM	Lead		7555	18530	694	1.3	14.2	902	10	50:50 (POZ H)	Salt Bentonite Fluid Loss Dispersant SMS

Section 5 - Circulating Medium

Mud System Type: Closed

Will an air or gas system be Used? NO

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

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

Describe what will be on location to control well or mitigate other conditions: Sufficient mud materials will be kept on location at all times in order to combat lost circulation or unexpected kicks. In order to run DSTs, open hole logs, and casing, the viscosity and water loss may have to be adjusted in order to meet these needs.
Describe the mud monitoring system utilized: PVT/Pason/Visual Monitoring

Circulating Medium Table

Operator Name: CIMAREX ENERGY COMPANY

Well Name: SOUTHERN HILLS 32-29 FEDERAL COM **Well Number:** 3H

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	600	OTHER : Fresh Water	7.83	8.33							
600	1950	SALT SATURATED	9.8	10.3							
1950	9209	OTHER : Cut Brine or OBM	8.5	9							
9209	18530	OIL-BASED MUD	11	11.5							

Section 6 - Test, Logging, Coring

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

No DST planned

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

GAMMA RAY LOG,DIRECTIONAL SURVEY,COMPENSATED NEUTRON LOG,

Coring operation description for the well:

N/A

Section 7 - Pressure

Anticipated Bottom Hole Pressure: 5789 **Anticipated Surface Pressure:** 3781

Anticipated Bottom Hole Temperature(F): 167

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

Describe:

Lost circulation may be encountered in the Delaware mountain group. Abnormal pressure as well as hole stability issues may be encountered in the Wolfcamp.

Contingency Plans geoharzards description:

Lost circulation material will be available, as well as additional drilling fluid along with the fluid volume in the drilling rig pit system. Drilling fluid can be mixed on location or mixed in vendor mud plant and trucked to location if needed. Sufficient barite will be available to maintain appropriate mud weight for the Wolfcamp interval.

Contingency Plans geohazards attachment:

Hydrogen Sulfide drilling operations plan required? YES

Hydrogen sulfide drilling operations plan:

Southern_Hills_32_29_Fed_Com_3H_H2S_Plan_20210317154524.pdf

Operator Name: CIMAREX ENERGY COMPANY

Well Name: SOUTHERN HILLS 32-29 FEDERAL COM **Well Number:** 3H

Section 8 - Other Information

Proposed horizontal/directional/multi-lateral plan submission:

Southern_HIlls_32_29_Fed_Com_3H_AC_Report_20210317154546.pdf

Southern_Hills_32_29_Fed_Com_3H_Directional_20210317154552.pdf

Other proposed operations facets description:

Other proposed operations facets attachment:

Southern_Hills_32_29_Fed_Com_3H_Drilling_Plan_20210317154600.pdf

Southern_Hills_32_29_Fed_Com_3H_Gas_Capture_Plan_20210317154624.pdf

Other Variance attachment:

Southern_Hills_32_29_Fed_Com_3H__Multibowl_Wellhead_20210317154633.pdf

Southern_Hills_32_29_Fed_Com_3H_Flex_Hose_20210317154654.pdf

1. Geological Formations

TVD of target 9,681
MD at TD 18,530

Pilot Hole TD N/A
Deepest expected fresh water

Formation	Depth (TVD) from KB	Water/Mineral Bearing/Target Zone	Hazards
Rustler	550	Useable Water	
Salt	1255	N/A	
Castille	1879	N/A	
Bell Canyon	2086	N/A	
Cherry Canyon	3004	N/A	
Brushy Canyon	4037	Hydrocarbons	
BoneSpring	5623	Hydrocarbons	
1st BoneSpring	6579	Hydrocarbons	
2nd BoneSpring	6827	Hydrocarbons	
3rd BoneSpring	8405	Hydrocarbons	
Wolfcamp	8748	Hydrocarbons	

2. Casing Program

Hole Size	Casing Depth From	Casing Depth To	Setting Depth TVD	Casing Size	Weight (lb/ft)	Grade	Conn.	SF Collapse	SF Burst	SF Tension
17 1/2	0	600	600	13-3/8"	48.00	H-40/J-55 Hybrid	ST&C	2.85	6.66	11.18
12 1/4	0	1950	1950	9-5/8"	36.00	J-55	LT&C	1.93	3.37	6.45
8 3/4	0	7655	7655	7"	26.00	L-80	LT&C	1.51	2.02	2.18
8 3/4	7655	9209	9034	7"	26.00	L-80	BT&C	1.28	1.71	16.85
6	7555	18530	9681	4-1/2"	11.60	P-110	BT&C	1.31	1.85	14.88
					BLM Minimum Safety Factor			1.125	1	1.6 Dry 1.8 Wet

TVD was used on all calculations.
All casing strings will be tested in accordance with Onshore Oil and Gas Order #2 III.B.1.h

	Y or N
Is casing new? If used, attach certification as required in Onshore Order #1	Y
Does casing meet API specifications? If no, attach casing specification sheet.	Y
Is premium or uncommon casing planned? If yes attach casing specification sheet.	N
Does the above casing design meet or exceed BLM's minimum standards? If not provide justification (loading assumptions, casing design criteria).	Y
Will the intermediate pipe be kept at a minimum 1/3 fluid filled to avoid approaching the collapse pressure rating of the casing?	Y
Is well located within Capitan Reef?	N
If yes, does production casing cement tie back a minimum of 50' above the Reef?	N
Is well within the designated 4 string boundary.	N
Is well located in SOPA but not in R-111-P?	N
If yes, are the first 2 strings cemented to surface and 3rd string cement tied back 500' into previous casing?	N
Is well located in R-111-P and SOPA?	N
If yes, are the first three strings cemented to surface?	N
Is 2nd string set 100' to 600' below the base of salt?	N
Is well located in high Cave/Karst?	N
If yes, are there two strings cemented to surface?	N
(For 2 string wells) If yes, is there a contingency casing if lost circulation occurs?	N
Is well located in critical Cave/Karst?	N
If yes, are there three strings cemented to surface?	N
Is AC Report included?	N

3. Cementing Program

Casing	# Sks	Wt. lb/gal	Yld ft3/sack	H2O gal/sk	500# Comp. Strength (hours)	Slurry Description
Surface	182	13.50	1.72	9.15	15.5	Lead: Class C + Bentonite
	195	14.80	1.34	6.32	9.5	Tail: Class C + LCM
Intermediate	361	12.90	1.88	9.65	12	Lead: 35:65 (Poz:C) + Salt + Bentonite
	112	14.80	1.36	6.57	9.5	Tail: Class C + Retarder
Production	419	10.30	3.64	22.18		Lead: Tuned Light + LCM
	114	14.50	1.30	5.79	20	Tail: 50:50 (Poz:H) + Salt + Bentonite + Fluid Loss + Dispersant + Expanding Agent + Retarder + Antifoam
Completion System	694	14.20	1.30	5.86	14:30	Tail: 50:50 (Poz:H) + Salt + Bentonite + Fluid Loss + Dispersant + SMS

Casing String	TOC	% Excess
Surface	0	38
Intermediate	0	52
Production	1750	25
Completion System	9009	10

Cimarex request the ability to perform casing integrity tests after plug bump of cement job.

4. Pressure Control Equipment

	A variance is requested for the use of a diverter on the surface casing. See attached for schematic.

BOP installed and tested before drilling which hole?	Size	Min Required WP	Type		Tested To
12 1/4	13 5/8	2M	Annular	X	2M
			Blind Ram		
			Pipe Ram		
			Double Ram	X	
			Other		
8 3/4	13 5/8	5M	Annular	X	5M
			Blind Ram		
			Pipe Ram	X	
			Double Ram	X	
			Other		
6	13 5/8	5M	Annular	X	5M
			Blind Ram		
			Pipe Ram	X	
			Double Ram	X	
			Other		

BOP/BOPE will be tested by an independent service company to 250 psi low and the high pressure indicated above per Onshore Order 2 requirements. The System may be upgraded to a higher pressure but still tested to the working pressure listed in the table above. If the system is upgraded all the components installed will be functional and tested.

Pipe rams will be operationally checked each 24 hour period. Blind rams will be operationally checked on each trip out of the hole. These checks will be noted on the daily tour sheets. Other accessories to the BOP equipment will include a Kelly cock and floor safety valve (inside BOP) and choke lines and choke manifold. See attached schematics.

X	Formation integrity test will be performed per Onshore Order #2. On Exploratory wells or 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. Will be tested in accordance with Onshore Oil and Gas Order #2 III.B.1.i.	
X	A variance is requested for the use of a flexible choke line from the BOP to Choke Manifold. See attached for specs and hydrostatic test chart.	
	N	Are anchors required by manufacturer?

5. Mud Program

Depth	Type	Weight (ppg)	Viscosity	Water Loss
0' to 600'	Fresh Water	7.83 - 8.33	28	N/C
600' to 1950'	Brine Water	9.80 - 10.30	30-32	N/C
1950' to 9209'	Cut Brine or OBM	8.50 - 9.00	27-70	N/C
9209' to 18530'	OBM	11.00 - 11.50	50-70	N/C

Sufficient mud materials to maintain mud properties and meet minimum lost circulation and weight increase requirements will be kept on location at all times.

What will be used to monitor the loss or gain of fluid?	PVT/Pason/Visual Monitoring

6. Logging and Testing Procedures

Logging, Coring and Testing	
	Will run GR/CNL fromTD to surface (horizontal well – vertical portion of hole). Stated logs run will be in the Completion Report and submitted to the BLM.
	No logs are planned based on well control or offset log information.
	Drill stem test?
	Coring?

Additional Logs Planned	Interval

7. Drilling Conditions

Condition	
BH Pressure at deepest TVD	5789 psi
Abnormal Temperature	No

Hydrogen Sulfide (H2S) monitors will be installed prior to drilling out the surface shoe. If H2S is detected in concentrations greater than 100 ppm, the operator will comply with the provisions of Onshore Oil and Gas Order #6. If Hydrogen Sulfide is encountered, measured values and formations will be provided to the BLM.	
	H2S is present
	H2S plan is attached

8. Other Facets of Operation

9. Wellhead

A multi-bowl wellhead system will be utilized.

After running the 13-3/8" surface casing, a 13 5/8" BOP/BOPE system with a minimum working pressure of 5000 psi will be installed on the wellhead system and will be pressure tested to 250 psi low followed by a 5000 psi test. Annular will be tested to 100% of working pressure. The pressure test will be repeated at least every 30 days, as per Onshore Order No. 2.

The multi-bowl wellhead will be installed by vendor's representative. A copy of the installation instructions has been sent to the BLM field office.

The wellhead will be installed by a third-party welder while being monitored by the wellhead vendor representative.

All BOP equipment will be tested utilizing a conventional test plug. Not a cup or J-packer type.

A solid steel body pack-off will be utilized after running and cementing the intermediate casing. After installation the pack-off and lower flange will be pressure tested to 5000 psi.

A solid steel body pack-off will be utilized after running and cementing the production casing. After installation the pack-off and lower flange will be pressure tested to 5000 psi.

All casing strings will be tested as per Onshore Order No.2 to atleast 0.22 psi/ft or 1,500 whichever is greater and not to exceed 70% of casing burst.

If well conditions dictate conventional slips will be set and BOPE will be tested to appropriate pressures based on permitted pressure requirements.

Schlumberger CIMAREX

Cimarex Southern Hills 32-29 Fed Com 3H Rev0 RM 18Jan21 Anti-Collision Summary Report

Analysis Date-24hr Time:	January 19, 2021 - 09:04	**Analysis Method:**	3D Least Distance
Client:	Cimarex Energy	**Reference Trajectory:**	Cimarex Southern Hills 32-29 Fed Com 3H Rev0 RM 18Jan21 (Non-Def Plan)
Field:	NM Eddy County (NAD 83)	**Depth Interval:**	Every 10.00 Measured Depth (ft)
Structure:	Cimarex Southern Hills 32-29 Fed Com 3H	**Rule Set:**	NAL Procedure: D&M AntiCollision Standard S002
Slot:	New Slot	**Min Pts:**	All local minima indicated.
Well:	Southern Hills 32-29 Fed Com 3H	**Version / Patch:**	2.10.824.0
Borehole:	Southern Hills 32-29 Fed Com 3H	**Database \ Project:**	US1455VSM3115\DRILLING-NM Eddy County 2.10
Scan MD Range:	0.00ft ~ 18529.76ft		

Trajectory Error Model: ISCWSA0 3-D 95.000% Confidence 2.7955 sigma, for subject well. For offset wells, error model version is specified with each well respectively.

Offset Trajectories Summary

Offset Selection Criteria
Wellhead distance scan: Not performed!
Selection filters: Definitive Surveys - Definitive Plans - Definitive surveys exclude definitive plans
- All Non-Def Surveys when no Def-Survey is set in a borehole - All Non-Def Plans when no Def-Plan is set in a borehole

Offset Trajectory	Separation			Allow	Sep.	Controlling	Reference Trajectory		Risk Level			Alert	Status
	Ct-Ct (ft)	MAS (ft)	EOU (ft)	Dev. (ft)	Fact.	Rule	MD (ft)	TVD (ft)	Alert	Minor	Major		
Results highlighted: Sep-Factor separation <= 1.50 ft													
Cimarex Southern Hills 32-29 Fed Com 4H Rev0 RM 18Jan21 (Non-Def Plan)													Fail Minor
	19.99	16.25	18.71	3.74	N/A	MAS = 4.95 (m)	0.00	0.00	CtCt<=15m<15.00			Enter Alert	
	19.99	16.25	18.71	3.74	42098.57	MAS = 4.95 (m)	23.00	23.00				WRP	
	19.99	20.03	6.21	-0.04	1.50	OSF1.50	2050.00	2050.00		OSF<1.50		Enter Minor	
	19.99	20.41	5.96	-0.42	1.47	OSF1.50	2090.00	2090.00				MinPt-CtCt	
	20.01	20.57	5.87	-0.56	1.46	OSF1.50	2110.00	2110.00				MINPT-O-EOU	
	20.06	20.64	5.87	-0.58	1.45	OSF1.50	2120.00	2120.00				MinPts	
	21.04	21.07	6.57	-0.02	1.50	OSF1.50	2180.00	2180.00		OSF>1.50		Exit Minor	
	74.90	23.51	58.80	51.39	4.97	OSF1.50	2670.00	2670.00	OSF>5.00			Exit Alert	
	659.94	199.05	526.82	460.89	5.00	OSF1.50	14180.00	9103.56	OSF<5.00			Enter Alert	
	659.89	334.67	436.35	325.22	2.96	OSF1.50	18529.76	9123.00				MinPts	
Cimarex Southern Hills 32-29 Fed Com 2H Rev0 RM 18Jan21 (Non-Def Plan)													Fail Minor
	20.01	16.26	18.72	3.75	N/A	MAS = 4.96 (m)	0.00	0.00	CtCt<=15m<15.00			Enter Alert	
	20.00	16.26	18.72	3.74	N/A	MAS = 4.96 (m)	23.00	23.00				WRP	
	20.00	20.03	6.22	-0.03	1.50	OSF1.50	2050.00	2050.00		OSF<1.50		Enter Minor	
	20.00	22.39	4.65	-2.38	1.33	OSF1.50	2300.00	2300.00				MinPt-CtCt	
	20.02	22.46	4.62	-2.44	1.33	OSF1.50	2310.00	2310.00				MINPT-O-EOU	
	20.07	22.53	4.62	-2.46	1.33	OSF1.50	2320.00	2320.00				MinPts	
	23.20	23.28	7.26	-0.07	1.49	OSF1.50	2440.00	2440.00		OSF>1.50		Exit Minor	
	80.76	25.45	63.36	55.31	4.93	OSF1.50	2900.00	2900.00	OSF>5.00			Exit Alert	
	586.98	70.15	539.78	516.83	12.76	OSF1.50	8560.00	8560.00				MINPT-O-EOU	
	587.06	70.24	539.81	516.82	12.74	OSF1.50	8570.00	8570.00				MinPt-O-ADP	
	589.84	70.82	542.20	519.02	12.70	OSF1.50	8640.00	8639.55				MinPt-O-SF	
	659.95	199.13	526.76	460.81	4.99	OSF1.50	14170.00	9103.52	OSF<5.00			Enter Alert	
	659.89	334.75	436.30	325.14	2.96	OSF1.50	18520.00	9122.96				MinPt-CtCt	
	659.93	335.00	436.17	324.93	2.96	OSF1.50	18529.76	9123.00				MinPts	
Cimarex Southern Hills 32-29 Fed Com 1H Rev0 RM 18Jan21 (Non-Def Plan)													Warning Alert
	40.01	32.25	38.73	7.76	N/A	MAS = 9.83 (m)	0.00	0.00	CtCt<=15m<15.00			Enter Alert	
	40.00	32.25	38.71	7.74	N/A	MAS = 9.83 (m)	23.00	23.00				WRP	
	40.00	32.25	29.67	7.74	4.28	MAS = 9.83 (m)	1500.00	1500.00				MinPts	
	40.05	32.25	29.64	7.80	4.24	MAS = 9.83 (m)	1520.00	1520.00				MINPT-O-EOU	
	40.56	32.25	29.95	8.30	4.21	MAS = 9.83 (m)	1560.00	1560.00				MinPt-O-SF	
	50.96	32.25	39.62	18.70	4.94	MAS = 9.83 (m)	1760.00	1760.00	OSF>5.00			Exit Alert	
	1193.62	58.25	1154.35	1135.36	31.40	OSF1.50	6350.00	6350.00				MinPt-O-SF	
	1247.15	71.34	1199.15	1175.80	26.67	OSF1.50	8560.00	8560.00				MinPts	
	1255.36	72.29	1206.74	1183.07	26.49	OSF1.50	8700.00	8697.79				MinPt-O-SF	
	1319.78	333.02	1097.34	986.76	5.96	OSF1.50	18510.00	9122.91				MinPt-CtCt	
	1319.86	333.57	1097.05	986.29	5.95	OSF1.50	18529.76	9123.00				MinPts	
COG Populus Federal 3H (Offset) API# 30-015-43256 Gyro 0ft-9600ft (Def Survey)													Warning Alert
	9884.91	32.81	9883.63	9852.11	N/A	MAS = 10.00 (m)	0.00	0.00				Surface	
	9884.67	32.81	9883.35	9851.87	234420.43	MAS = 10.00 (m)	23.00	23.00				MinPt-O-SF	
	9882.88	32.81	9879.82	9850.08	5565.84	MAS = 10.00 (m)	420.00	420.00				MINPT-O-EOU	
	9837.00	44.25	9807.15	9792.74	341.37	OSF1.50	6030.00	6030.00				MinPt-CtCt	
	9837.20	44.95	9806.90	9792.26	335.89	OSF1.50	6150.00	6150.00				MINPT-O-EOU	
	9837.96	45.89	9807.03	9792.07	328.84	OSF1.50	6320.00	6320.00				MinPt-O-ADP	
	9843.08	48.33	9810.53	9794.76	312.09	OSF1.50	6740.00	6740.00				MinPt-O-ADP	
	9854.17	52.54	9818.80	9801.62	286.86	OSF1.50	7440.00	7440.00				MinPt-O-SF	
	9852.75	53.80	9816.54	9798.95	279.99	OSF1.50	7660.00	7660.00				MinPt-CtCt	
	9852.88	54.19	9816.42	9798.70	277.96	OSF1.50	7720.00	7720.00				MINPT-O-EOU	
	9853.05	54.38	9816.45	9798.67	276.96	OSF1.50	7750.00	7750.00				MinPt-O-ADP	
	625.13	189.63	497.71	435.50	5.00	OSF1.50	18310.00	9122.02	OSF<5.00			Enter Alert	
	518.88	219.81	372.00	299.07	3.55	OSF1.50	18529.76	9123.00				MinPts	
Cimarex Cottonwood Hills 32 State #3H MWD 0ft to 11920ft (Def Survey)													Pass
	633.63	32.81	631.65	600.82	N/A	MAS = 10.00 (m)	0.00	0.00				Surface	
	633.38	32.81	631.37	600.58	19296.75	MAS = 10.00 (m)	10.00	10.00				MinPt-O-SF	
	633.30	32.81	631.32	600.49	202560.22	MAS = 10.00 (m)	20.00	20.00				MINPT-O-EOU	
	633.30	32.81	631.32	600.49	346323.83	MAS = 10.00 (m)	23.00	23.00				WRP	
	609.13	32.81	601.24	576.32	102.75	MAS = 10.00 (m)	1330.00	1330.00				MinPts	
	609.16	32.81	601.21	576.36	101.61	MAS = 10.00 (m)	1350.00	1350.00				MINPT-O-EOU	
	629.24	32.81	612.43	596.43	42.28	MAS = 10.00 (m)	3360.00	3360.00				MinPts	
	624.15	32.81	603.50	591.35	33.32	MAS = 10.00 (m)	4150.00	4150.00				MinPts	
	624.38	32.81	603.30	591.58	32.57	MAS = 10.00 (m)	4240.00	4240.00				MINPT-O-EOU	

Offset Trajectory	Separation			Allow	Sep.	Controlling	Reference Trajectory		Risk Level			Alert	Status
	Ct-Ct (ft)	MAS (ft)	EOU (ft)	Dev. (ft)	Fact.	Rule	MD (ft)	TVD (ft)	Alert	Minor	Major		
	678.52	45.79	647.33	632.73	23.16	OSF1.50	6580.00	6580.00				MinPt-CtCt	
	678.61	46.07	647.24	632.55	23.02	OSF1.50	6620.00	6620.00				MINPT-O-EOU	
	678.78	46.27	647.27	632.51	22.92	OSF1.50	6650.00	6650.00				MinPt-O-ADP	
	680.95	47.82	648.41	633.13	22.22	OSF1.50	6870.00	6870.00				MinPt-O-SF	
	641.78	43.74	611.96	598.04	22.98	OSF1.50	6960.00	6960.00				MinPt-O-SF	
	388.07	58.09	348.66	329.98	10.33	OSF1.50	7500.00	7500.00				MinPts	
	388.24	58.15	348.79	330.09	10.32	OSF1.50	7510.00	7510.00				MinPt-O-SF	
	1452.58	32.81	1432.22	1419.77	78.93	MAS = 10.00 (m)	8970.00	8921.10				MinPt-O-SF	
	1602.99	39.16	1576.23	1563.83	64.59	OSF1.50	9590.00	9083.06				MinPt-O-ADP	
	1603.88	53.26	1567.72	1550.62	46.86	OSF1.50	10080.00	9085.24				MinPt-CtCt	
	1603.25	60.29	1562.39	1542.95	41.19	OSF1.50	10330.00	9086.36				MinPt-CtCt	
	1602.41	68.17	1556.30	1534.24	36.27	OSF1.50	10600.00	9087.57				MinPt-CtCt	
	1602.52	68.62	1556.12	1533.90	36.03	OSF1.50	10630.00	9087.70				MINPT-O-EOU	
	1602.76	68.92	1556.16	1533.84	35.87	OSF1.50	10650.00	9087.79				MinPt-O-ADP	
	1604.83	77.01	1552.83	1527.82	32.05	OSF1.50	10900.00	9088.91				MinPt-CtCt	
	1593.41	90.11	1532.68	1503.30	27.09	OSF1.50	11350.00	9090.92				MinPt-CtCt	
	1593.62	90.79	1532.44	1502.83	26.88	OSF1.50	11390.00	9091.10				MINPT-O-EOU	
	1593.90	91.13	1532.49	1502.77	26.78	OSF1.50	11410.00	9091.19				MinPt-O-ADP	
	1596.00	95.34	1531.77	1500.65	25.61	OSF1.50	11530.00	9091.72				MinPt-CtCt	
	1596.39	96.50	1531.40	1499.89	25.30	OSF1.50	11590.00	9091.99				MINPT-O-EOU	
	1596.90	97.09	1531.51	1499.81	25.15	OSF1.50	11620.00	9092.13				MinPt-O-ADP	
	1599.33	99.38	1532.42	1499.96	24.60	OSF1.50	11710.00	9092.53				MinPt-O-ADP	
	1617.33	112.62	1541.59	1504.72	21.90	OSF1.50	12120.00	9094.36				MINPT-O-EOU	
	1617.59	112.93	1541.65	1504.66	21.84	OSF1.50	12130.00	9094.40				MinPt-O-ADP	
	1630.61	133.64	1540.86	1496.97	18.55	OSF1.50	12720.00	9097.04				MinPt-CtCt	
	1630.53	138.16	1537.76	1492.37	17.94	OSF1.50	12870.00	9097.71				MinPt-CtCt	
	1630.73	146.40	1532.47	1484.33	16.92	OSF1.50	12990.00	9098.25				MinPts	
	1630.94	146.43	1532.66	1484.51	16.92	OSF1.50	13010.00	9098.34				MinPt-O-SF	
	5781.59	78.70	5728.46	5702.89	112.99	OSF1.50	18529.76	9123.00				TD	
30-015-39967 Cimarex Energy Cottonwood Hills 32 State Com #001 Gyro+MWD 0ft to 13586ft MD - A (Def Survey)													Pass
	904.06	32.81	902.08	871.25	N/A	MAS = 10.00 (m)	0.00	0.00				Surface	
	904.03	32.81	902.03	871.22	64664.31	MAS = 10.00 (m)	23.00	23.00				WRP	
	899.67	32.81	894.81	866.86	311.75	MAS = 10.00 (m)	640.00	640.00				MinPts	
	899.80	32.81	894.71	866.99	288.96	MAS = 10.00 (m)	700.00	700.00				MINPT-O-EOU	
	852.97	32.81	838.92	820.16	70.54	MAS = 10.00 (m)	2430.00	2430.00				MinPts	
	853.10	32.81	838.74	820.30	68.74	MAS = 10.00 (m)	2520.00	2520.00				MINPT-O-EOU	
	852.54	32.81	836.46	819.73	60.36	MAS = 10.00 (m)	2900.00	2900.00				MinPts	
	852.61	32.81	836.40	819.81	59.76	MAS = 10.00 (m)	2940.00	2940.00				MINPT-O-EOU	
	843.20	40.13	815.79	803.07	33.08	OSF1.50	5240.00	5240.00				MinPt-CtCt	
	843.25	40.28	815.74	802.97	32.95	OSF1.50	5270.00	5270.00				MINPT-O-EOU	
	843.34	40.38	815.75	802.95	32.86	OSF1.50	5290.00	5290.00				MinPt-O-ADP	
	844.72	41.32	816.51	803.40	32.13	OSF1.50	5530.00	5530.00				MINPT-O-EOU	
	844.90	41.53	816.55	803.37	31.97	OSF1.50	5580.00	5580.00				MinPt-O-ADP	
	870.44	52.27	834.94	818.18	25.91	OSF1.50	7530.00	7530.00				MinPt-CtCt	
	870.62	52.79	834.77	817.83	25.64	OSF1.50	7610.00	7610.00				MINPT-O-EOU	
	870.88	53.10	834.82	817.78	25.50	OSF1.50	7660.00	7660.00				MinPt-O-ADP	
	879.54	58.67	839.77	820.87	23.22	OSF1.50	8555.16	8555.16				MINPT-O-EOU	
	879.56	58.70	839.77	820.86	23.21	OSF1.50	8560.00	8560.00				MinPt-O-ADP	
	882.74	59.06	842.71	823.68	23.14	OSF1.50	8620.00	8619.80				MinPt-O-SF	
	1140.65	68.05	1094.62	1072.60	25.85	OSF1.50	9480.00	9079.24				MinPt-CtCt	
	1112.43	112.62	1036.69	999.81	15.06	OSF1.50	10600.00	9087.57				MinPt-CtCt	
	1115.80	121.02	1034.46	994.78	14.03	OSF1.50	10810.00	9088.51				MINPT-O-EOU	
	1117.04	122.49	1034.71	994.54	13.88	OSF1.50	10850.00	9088.69				MinPt-O-ADP	
	1123.60	132.29	1034.75	991.31	12.91	OSF1.50	11050.00	9089.58				MINPT-O-EOU	
	1123.90	132.73	1034.76	991.18	12.87	OSF1.50	11060.00	9089.62				MinPt-O-ADP	
	1135.98	141.68	1040.86	994.30	12.18	OSF1.50	11260.00	9090.52				MINPT-O-EOU	
	1142.08	149.11	1042.01	992.97	11.62	OSF1.50	11410.00	9091.19				MinPt-O-ADP	
	1142.25	165.64	1031.17	976.61	10.45	OSF1.50	11720.00	9092.57				MinPt-CtCt	
	1143.41	170.35	1029.19	973.06	10.17	OSF1.50	11840.00	9093.11				MINPT-O-EOU	
	1144.54	171.74	1029.38	972.80	10.10	OSF1.50	11880.00	9093.29				MinPt-O-ADP	
	1112.37	199.24	978.89	913.14	8.44	OSF1.50	12460.00	9095.88				MinPt-CtCt	
	1113.22	201.04	978.53	912.17	8.37	OSF1.50	12520.00	9096.15				MINPT-O-EOU	
	1115.48	204.09	978.76	911.39	8.26	OSF1.50	12600.00	9096.50				MinPt-O-ADP	
	1116.29	204.27	979.44	912.01	8.26	OSF1.50	12620.00	9096.59				MinPt-O-SF	
	6067.81	89.28	6007.63	5978.53	104.23	OSF1.50	18529.76	9123.00				TD	
Cimarex Cottonwood Hills 32 State Com #2H Gyro+MWD 0ft to 12092ft MD (Def Survey)													Pass
	1343.37	32.81	1341.39	1310.56	N/A	MAS = 10.00 (m)	0.00	0.00				Surface	
	1343.36	32.81	1341.37	1310.55	114779.49	MAS = 10.00 (m)	23.00	23.00				WRP	
	1342.60	32.81	1339.44	1309.79	1134.99	MAS = 10.00 (m)	270.00	270.00				MinPts	
	1342.76	32.81	1339.34	1309.95	935.11	MAS = 10.00 (m)	360.00	360.00				MINPT-O-EOU	
	1342.85	32.81	1339.34	1310.04	873.94	MAS = 10.00 (m)	390.00	390.00				MINPT-O-EOU	
	1344.85	32.81	1338.79	1312.04	329.17	MAS = 10.00 (m)	950.00	950.00				MINPT-O-EOU	
	1338.40	32.81	1325.33	1305.59	120.55	MAS = 10.00 (m)	2540.00	2540.00				MinPts	
	1338.38	32.81	1324.87	1305.57	115.92	MAS = 10.00 (m)	2640.00	2640.00				MinPts	
	1338.54	32.81	1324.71	1305.73	112.91	MAS = 10.00 (m)	2710.00	2710.00				MINPT-O-EOU	
	1339.81	32.81	1324.88	1307.01	103.32	MAS = 10.00 (m)	2960.00	2960.00				MINPT-O-EOU	
	1341.16	32.81	1324.70	1308.35	92.46	MAS = 10.00 (m)	3300.00	3300.00				MINPT-O-EOU	
	1180.33	64.13	1136.92	1116.20	28.44	OSF1.50	7500.00	7500.00				MinPts	
	1181.99	64.39	1138.41	1117.60	28.36	OSF1.50	7560.00	7560.00				MinPt-O-SF	
	1990.15	112.51	1914.48	1877.64	26.98	OSF1.50	10820.00	9088.55				MinPt-CtCt	
	1984.95	155.00	1880.96	1829.95	19.44	OSF1.50	11900.00	9093.38				MinPt-CtCt	
	1973.36	190.89	1845.44	1782.47	15.65	OSF1.50	12810.00	9097.44				MinPt-CtCt	
	1974.44	210.80	1833.25	1763.64	14.17	OSF1.50	13000.00	9098.29				MinPts	
	1974.59	210.82	1833.38	1763.77	14.17	OSF1.50	13010.00	9098.34				MinPt-O-SF	
	5894.46	102.12	5825.72	5792.34	88.27	OSF1.50	18529.76	9123.00				TD	
EOG Tamboril BGQ State Com #1 (Offset) API# 30-015-34016 P&A Blind 0ft-125ft (Def Survey)													Pass
	1229.21	32.81	1227.92	1196.40	N/A	MAS = 10.00 (m)	0.00	0.00				Surface	
	1228.61	32.81	1227.24	1195.80	16202.68	MAS = 10.00 (m)	23.00	23.00				MinPt-O-SF	
	1228.44	32.81	1214.94	1195.63	100.48	MAS = 10.00 (m)	160.00	160.00				MinPts	
	1228.44	32.81	1214.05	1195.63	93.64	MAS = 10.00 (m)	170.00	170.00				MINPT-O-EOU	
	1228.49	32.81	1214.10	1195.68	93.64	MAS = 10.00 (m)	180.00	180.00				MinPt-O-SF	
	8922.76	32.81	8903.37	8889.95	492.88	MAS = 10.00 (m)	9970.00	9084.75				MinPts	

Offset Trajectory	Separation			Allow	Sep.	Controlling	Reference Trajectory		Risk Level			Alert	Status
	Ct-Ct (ft)	MAS (ft)	EOU (ft)	Dev. (ft)	Fact.	Rule	MD (ft)	TVD (ft)	Alert	Minor	Major		
	8923.26	32.81	8902.90	8890.45	467.81	MAS = 10.00 (m)	10060.00	9085.16				MINPT-O-EOU	
	11933.63	139.85	11839.96	11793.77	129.17	OSF1.50	17890.00	9120.14				MinPt-O-SF	
	12367.71	144.52	12270.93	12223.18	129.50	OSF1.50	18529.76	9123.00				TD	
COG Populus Federal 3H (Offset) API# 30-015-43256 ST01 Gyro+MWD 0ft-12119ft (Def Survey)													Pass
	8953.06	92.65	8890.97	8860.42	146.50	OSF1.50	0.00	0.00				Surface	
	8933.72	92.76	8871.55	8840.96	145.99	OSF1.50	23.00	23.00				WRP	
	5711.57	74.43	5660.88	5637.14	120.25	OSF1.50	4500.00	4500.00				MinPt-O-SF	
	4840.55	66.60	4794.00	4773.95	120.53	OSF1.50	7530.00	7530.00				MinPt-CtCt	
	4840.55	66.63	4793.99	4773.93	120.47	OSF1.50	7540.00	7540.00				MINPT-O-EOU	
	4840.58	66.66	4794.00	4773.92	120.41	OSF1.50	7550.00	7550.00				MinPt-O-ADP	
	1605.98	156.48	1501.34	1449.51	15.48	OSF1.50	13810.00	9101.91				MinPts	
	1606.46	156.56	1501.76	1449.90	15.48	OSF1.50	13880.00	9102.22				MinPt-O-SF	
	1610.31	156.29	1505.79	1454.02	15.54	OSF1.50	14060.00	9103.03				MinPt-O-SF	
	1611.33	156.72	1506.52	1454.61	15.51	OSF1.50	14580.00	9105.35				MinPt-CtCt	
	1611.37	156.84	1506.49	1454.53	15.50	OSF1.50	14610.00	9105.49				MINPT-O-EOU	
	1611.41	156.88	1506.50	1454.53	15.50	OSF1.50	14620.00	9105.53				MinPt-O-ADP	
	1612.73	157.37	1507.48	1455.35	15.46	OSF1.50	14750.00	9106.11				MinPt-O-SF	
	1610.77	158.07	1505.06	1452.70	15.37	OSF1.50	14930.00	9106.92				MinPt-CtCt	
	1607.03	160.68	1499.58	1446.35	15.09	OSF1.50	15310.00	9108.61				MinPt-CtCt	
	1607.15	161.00	1499.49	1446.15	15.06	OSF1.50	15350.00	9108.79				MINPT-O-EOU	
	1607.28	161.16	1499.51	1446.12	15.04	OSF1.50	15370.00	9108.88				MinPt-O-ADP	
	1608.65	163.42	1499.38	1445.23	14.85	OSF1.50	15620.00	9110.00				MinPt-CtCt	
	1608.81	163.92	1499.21	1444.89	14.80	OSF1.50	15670.00	9110.22				MINPT-O-EOU	
	1608.99	164.12	1499.25	1444.87	14.79	OSF1.50	15690.00	9110.31				MinPt-O-ADP	
	1610.17	165.50	1499.51	1444.67	14.67	OSF1.50	15820.00	9110.89				MINPT-O-EOU	
	1610.35	165.71	1499.55	1444.64	14.66	OSF1.50	15840.00	9110.98				MinPt-O-ADP	
	1612.82	167.70	1500.69	1445.12	14.50	OSF1.50	16010.00	9111.74				MinPt-CtCt	
	1611.81	170.45	1497.85	1441.37	14.26	OSF1.50	16230.00	9112.72				MinPt-CtCt	
	1612.01	170.92	1497.73	1441.09	14.22	OSF1.50	16270.00	9112.90				MINPT-O-EOU	
	1612.40	174.03	1496.05	1438.36	13.97	OSF1.50	16490.00	9113.89				MinPt-CtCt	
	1611.84	176.51	1493.84	1435.33	13.77	OSF1.50	16660.00	9114.65				MinPt-CtCt	
	1612.05	177.03	1493.70	1435.02	13.73	OSF1.50	16700.00	9114.82				MINPT-O-EOU	
	1612.28	177.28	1493.76	1435.00	13.71	OSF1.50	16720.00	9114.91				MinPt-O-ADP	
	1613.57	179.03	1493.89	1434.54	13.59	OSF1.50	16830.00	9115.41				MINPT-O-EOU	
	1613.79	179.31	1493.93	1434.49	13.57	OSF1.50	16850.00	9115.49				MinPt-O-ADP	
	1617.20	182.44	1495.25	1434.76	13.36	OSF1.50	17030.00	9116.30				MinPt-CtCt	
	1617.48	183.33	1494.93	1434.15	13.30	OSF1.50	17090.00	9116.57				MINPT-O-EOU	
	1617.86	183.77	1495.01	1434.08	13.27	OSF1.50	17120.00	9116.70				MinPt-O-ADP	
	1619.52	186.31	1494.99	1433.22	13.10	OSF1.50	17260.00	9117.33				MINPT-O-EOU	
	1619.90	186.76	1495.07	1433.15	13.07	OSF1.50	17290.00	9117.46				MinPt-O-ADP	
	1621.81	191.19	1494.02	1430.62	12.78	OSF1.50	17520.00	9118.49				MinPt-CtCt	
	1622.11	192.14	1493.69	1429.97	12.72	OSF1.50	17580.00	9118.76				MINPT-O-EOU	
	1622.37	192.45	1493.74	1429.92	12.70	OSF1.50	17600.00	9118.85				MinPt-O-ADP	
	1623.66	196.95	1492.03	1426.71	12.42	OSF1.50	17820.00	9119.83				MinPt-CtCt	
	1623.73	197.22	1491.92	1426.51	12.40	OSF1.50	17840.00	9119.92				MINPT-O-EOU	
	1623.81	197.34	1491.92	1426.47	12.40	OSF1.50	17850.00	9119.96				MinPt-O-ADP	
	1628.64	198.64	1495.89	1430.00	12.35	OSF1.50	17980.00	9120.54				MinPt-O-SF	
	1634.00	199.37	1500.75	1434.62	12.35	OSF1.50	18050.00	9120.86				MinPt-O-SF	
	1710.36	202.38	1575.11	1507.98	12.73	OSF1.50	18529.76	9123.00				TD	
Cimarex Cottonwood Hills 32 State #4H ST01 MWD Tie-in to 11861ft (Def Survey)													Pass
	1809.32	32.81	1807.34	1776.51	N/A	MAS = 10.00 (m)	0.00	0.00				Surface	
	1809.06	32.81	1807.05	1776.25	61342.80	MAS = 10.00 (m)	20.00	20.00				MinPt-O-SF	
	1809.04	32.81	1807.03	1776.23	68580.50	MAS = 10.00 (m)	23.00	23.00				WRP	
	1768.74	32.81	1755.88	1735.93	162.45	MAS = 10.00 (m)	2460.00	2460.00				MinPts	
	1722.41	46.03	1691.03	1676.37	58.67	OSF1.50	6640.00	6640.00				MinPt-O-SF	
	1670.04	49.81	1636.12	1620.23	52.49	OSF1.50	7160.00	7160.00				MinPt-CtCt	
	1670.06	49.88	1636.09	1620.18	52.41	OSF1.50	7170.00	7170.00				MINPT-O-EOU	
	1670.12	49.95	1636.10	1620.17	52.33	OSF1.50	7180.00	7180.00				MinPt-O-ADP	
	1736.89	54.43	1699.94	1682.46	49.62	OSF1.50	7820.00	7820.00				MinPt-O-SF	
	1745.88	54.70	1708.75	1691.18	49.62	OSF1.50	7860.00	7860.00				MinPt-O-SF	
	2298.32	75.70	2247.20	2222.62	46.73	OSF1.50	9760.00	9083.81				MinPt-O-ADP	
	2303.21	99.22	2236.41	2204.00	35.50	OSF1.50	10290.00	9086.18				MinPt-CtCt	
	2304.12	101.92	2235.52	2202.20	34.55	OSF1.50	10390.00	9086.63				MINPT-O-EOU	
	2300.87	126.70	2215.74	2174.17	27.65	OSF1.50	10970.00	9089.22				MinPt-CtCt	
	2301.56	128.71	2215.09	2172.84	27.22	OSF1.50	11050.00	9089.58				MINPT-O-EOU	
	2303.41	130.97	2215.44	2172.44	26.76	OSF1.50	11130.00	9089.94				MinPt-O-ADP	
	2308.11	148.51	2208.45	2159.61	23.61	OSF1.50	11510.00	9091.63				MinPt-CtCt	
	2308.95	152.04	2206.93	2156.91	23.06	OSF1.50	11620.00	9092.13				MINPT-O-EOU	
	2309.31	152.45	2207.01	2156.85	23.00	OSF1.50	11640.00	9092.21				MinPt-O-ADP	
	2316.46	167.81	2203.93	2148.66	20.94	OSF1.50	11950.00	9093.60				MinPt-CtCt	
	2306.24	194.90	2175.65	2111.34	17.92	OSF1.50	12560.00	9096.33				MinPt-CtCt	
	2312.86	214.83	2168.98	2098.03	16.29	OSF1.50	13040.00	9098.47				MinPts	
	2315.12	215.22	2170.98	2099.90	16.27	OSF1.50	13110.00	9098.78				MinPt-O-SF	
	5993.58	121.29	5912.06	5872.29	75.33	OSF1.50	18529.76	9123.00				TD	
Cimarex Cottonwood Hills 32 State #4H Pilot MWD 0ft to 8250ft (Def Survey)													Pass
	1809.32	32.81	1807.34	1776.51	N/A	MAS = 10.00 (m)	0.00	0.00				Surface	
	1809.06	32.81	1807.05	1776.25	61342.80	MAS = 10.00 (m)	20.00	20.00				MinPt-O-SF	
	1809.04	32.81	1807.03	1776.23	68580.50	MAS = 10.00 (m)	23.00	23.00				WRP	
	1768.74	32.81	1755.88	1735.93	162.45	MAS = 10.00 (m)	2460.00	2460.00				MinPts	
	1700.04	52.82	1664.13	1647.22	50.20	OSF1.50	7650.00	7650.00				MinPt-CtCt	
	1699.80	54.77	1662.58	1645.02	48.34	OSF1.50	7950.00	7950.00				MinPt-CtCt	
	1699.99	55.37	1662.38	1644.62	47.80	OSF1.50	8040.00	8040.00				MINPT-O-EOU	
	1700.15	55.57	1662.41	1644.59	47.63	OSF1.50	8070.00	8070.00				MinPt-O-ADP	
	1714.21	58.46	1674.56	1655.75	45.52	OSF1.50	8460.00	8460.00				MinPt-O-SF	
	10289.32	71.98	10240.67	10217.34	220.44	OSF1.50	18529.76	9123.00				TD	
COG Populus Federal 4H (Offset) API#30-015-44103 Gyro+MWD 0ft-12105ft (Def Survey)													Pass
	8899.00	93.17	8836.55	8805.82	144.78	OSF1.50	0.00	0.00				Surface	
	8879.57	93.31	8817.04	8786.27	144.26	OSF1.50	23.00	23.00				WRP	
	4761.26	78.88	4706.72	4682.38	97.69	OSF1.50	7520.00	7520.00				MinPt-CtCt	
	4761.27	78.91	4706.71	4682.36	97.65	OSF1.50	7530.00	7530.00				MinPts	

Offset Trajectory	Separation			Allow	Sep.	Controlling	Reference Trajectory		Risk Level			Alert	Status
	Ct-Ct (ft)	MAS (ft)	EOU (ft)	Dev. (ft)	Fact.	Rule	MD (ft)	TVD (ft)	Alert	Minor	Major		
	1863.16	192.98	1734.18	1670.18	14.55	OSF1.50	13510.00	9100.57				MinPts	
	1861.74	189.27	1735.23	1672.47	14.82	OSF1.50	13760.00	9101.69				MINPT-O-EOU	
	1857.73	185.95	1733.43	1671.78	15.06	OSF1.50	14060.00	9103.03				MinPt-O-ADP	
	1857.64	185.83	1733.42	1671.80	15.07	OSF1.50	14080.00	9103.12				MINPT-O-EOU	
	1857.59	185.66	1733.49	1671.93	15.08	OSF1.50	14110.00	9103.25				MinPt-CtCt	
	1858.46	183.50	1735.80	1674.96	15.27	OSF1.50	14370.00	9104.41				MinPt-CtCt	
	1871.19	180.52	1750.51	1690.66	15.63	OSF1.50	15890.00	9111.20				MinPt-O-SF	
	1859.89	187.90	1734.30	1671.99	14.92	OSF1.50	16800.00	9115.27				MinPt-CtCt	
	1860.69	190.75	1733.19	1669.93	14.70	OSF1.50	17020.00	9116.25				MINPT-O-EOU	
	1860.90	191.01	1733.23	1669.89	14.68	OSF1.50	17040.00	9116.34				MinPt-O-ADP	
	1904.01	208.70	1764.55	1695.31	13.74	OSF1.50	18140.00	9121.26				MinPt-O-SF	
	1964.17	209.06	1824.47	1755.11	14.15	OSF1.50	18529.76	9123.00				TD	
COG Populus Federal 2H (Offset) API# 30-015-44102 Gyro+MWD 0ft-12200ft (Def Survey)													Pass
	9102.70	105.43	9032.08	8997.27	130.71	OSF1.50	0.00	0.00				Surface	
	9083.57	105.59	9012.86	8977.99	130.25	OSF1.50	23.00	23.00				WRP	
	5051.78	118.35	4970.98	4933.42	67.19	OSF1.50	7570.00	7570.00				MinPt-CtCt	
	5051.78	118.37	4970.97	4933.41	67.17	OSF1.50	7580.00	7580.00				MinPts	
	5069.02	119.05	4987.80	4949.97	66.94	OSF1.50	7990.00	7990.00				MinPt-O-SF	
	2316.11	238.53	2156.76	2077.58	14.62	OSF1.50	13490.00	9100.48				MinPt-O-SF	
	2311.72	234.68	2154.93	2077.03	14.83	OSF1.50	13660.00	9101.24				MinPt-O-ADP	
	2310.85	233.79	2154.66	2077.05	14.88	OSF1.50	13700.00	9101.42				MINPT-O-EOU	
	2300.56	225.09	2150.16	2075.46	15.39	OSF1.50	14080.00	9103.12				MinPt-O-ADP	
	2300.36	224.84	2150.14	2075.52	15.41	OSF1.50	14090.00	9103.16				MINPT-O-EOU	
	2290.19	216.55	2145.50	2073.64	15.93	OSF1.50	14530.00	9105.13				MinPt-O-ADP	
	2289.67	215.91	2145.40	2073.76	15.97	OSF1.50	14580.00	9105.35				MINPT-O-EOU	
	2287.45	212.44	2145.50	2075.01	16.22	OSF1.50	14770.00	9106.20				MINPT-O-EOU	
	2284.27	207.23	2145.79	2077.04	16.61	OSF1.50	15140.00	9107.85				MinPt-O-ADP	
	2278.13	202.87	2142.56	2075.27	16.92	OSF1.50	15690.00	9110.31				MinPt-O-ADP	
	2278.12	202.84	2142.56	2075.27	16.92	OSF1.50	15700.00	9110.36				MINPT-O-EOU	
	2278.11	202.82	2142.57	2075.29	16.92	OSF1.50	15710.00	9110.40				MinPt-CtCt	
	2276.20	201.02	2141.86	2075.19	17.06	OSF1.50	16180.00	9112.50				MinPt-O-SF	
	2276.13	200.99	2141.81	2075.14	17.06	OSF1.50	16190.00	9112.55				MinPt-O-ADP	
	2211.09	216.33	2066.55	1994.77	15.39	OSF1.50	17980.00	9120.54				MinPt-CtCt	
	2211.40	217.33	2066.18	1994.06	15.33	OSF1.50	18040.00	9120.81				MINPT-O-EOU	
	2211.65	217.66	2066.22	1993.99	15.30	OSF1.50	18060.00	9120.90				MinPt-O-ADP	
	2222.86	220.29	2075.67	2002.57	15.20	OSF1.50	18270.00	9121.84				MinPt-O-SF	
	2259.39	221.72	2111.25	2037.67	15.35	OSF1.50	18529.76	9123.00				TD	
Cimarex Cottonwood Hills 32 State #5H XEM+MWD 0ft to 11855ft MD (Def Survey)													Pass
	3426.90	32.81	3424.92	3394.09	N/A	MAS = 10.00 (m)	0.00	0.00				Surface	
	3426.37	32.81	3424.30	3393.56	38289.82	MAS = 10.00 (m)	23.00	23.00				MinPt-O-SF	
	3419.15	32.81	3415.01	3386.34	1578.12	MAS = 10.00 (m)	520.00	520.00				MinPts	
	3419.20	32.81	3414.97	3386.39	1519.67	MAS = 10.00 (m)	540.00	540.00				MINPT-O-EOU	
	3403.46	32.81	3394.20	3370.65	467.68	MAS = 10.00 (m)	1680.00	1680.00				MinPts	
	3403.55	32.81	3394.11	3370.74	456.23	MAS = 10.00 (m)	1720.00	1720.00				MINPT-O-EOU	
	3404.44	32.81	3393.61	3371.63	180.54	MAS = 10.00 (m)	4270.00	4270.00				MinPts	
	3396.51	46.08	3365.12	3350.43	115.51	OSF1.50	6560.00	6560.00				MinPt-CtCt	
	3396.62	46.49	3364.96	3350.13	114.45	OSF1.50	6620.00	6620.00				MINPT-O-EOU	
	3396.73	46.62	3364.99	3350.12	114.13	OSF1.50	6640.00	6640.00				MinPt-O-ADP	
	3350.88	58.62	3311.13	3292.26	88.75	OSF1.50	7550.00	7550.00				MinPt-CtCt	
	3350.90	58.70	3311.10	3292.21	88.62	OSF1.50	7560.00	7560.00				MINPT-O-EOU	
	3350.96	58.78	3311.10	3292.18	88.49	OSF1.50	7570.00	7570.00				MinPt-O-ADP	
	3429.95	63.23	3387.14	3366.72	83.95	OSF1.50	8290.00	8290.00				MinPt-O-SF	
	3553.47	72.50	3504.47	3480.97	75.54	OSF1.50	8890.00	8863.39				MinPts	
	3394.26	279.17	3207.48	3115.09	18.36	OSF1.50	13020.00	9098.38				MinPt-CtCt	
	3394.27	279.21	3207.47	3115.06	18.35	OSF1.50	13030.00	9098.43				MinPts	
	3395.15	279.40	3208.23	3115.76	18.35	OSF1.50	13100.00	9098.74				MinPt-O-SF	
	6469.74	178.24	6350.26	6291.51	55.04	OSF1.50	18529.76	9123.00				TD	
Dinero State M T S #1 (Offset) API# 30-015-23971 D&A Blind 0ft-293ft (Def Survey)													Pass
	4954.81	32.81	4953.52	4922.00	N/A	MAS = 10.00 (m)	0.00	0.00				Surface	
	4954.41	32.81	4953.05	4921.60	72074.06	MAS = 10.00 (m)	23.00	23.00				MinPt-O-SF	
	4953.84	47.23	4921.92	4906.61	161.71	OSF1.50	390.00	390.00				MinPt-CtCt	
	4953.85	47.39	4921.83	4906.46	161.15	OSF1.50	400.00	400.00				MinPts	
	4955.27	47.42	4923.23	4907.85	161.09	OSF1.50	510.00	510.00				MinPt-O-SF	
	9793.35	40.81	9765.71	9752.54	371.64	OSF1.50	9000.00	8940.47				MinPt-O-SF	
	9222.01	89.43	9161.96	9132.58	156.92	OSF1.50	12660.00	9096.77				MinPt-CtCt	
	9222.78	91.68	9161.23	9131.10	153.02	OSF1.50	12780.00	9097.31				MINPT-O-EOU	
	9223.56	92.62	9161.38	9130.94	151.46	OSF1.50	12830.00	9097.53				MinPt-O-ADP	
	10930.99	176.32	10813.02	10754.67	93.67	OSF1.50	18529.76	9123.00				MinPt-O-SF	

Schlumberger

Cimarex Southern Hills 32-29 Fed Com 3H Rev0 RM 18Jan21 Proposal
Geodetic Report
(Non-Def Plan)

CIMAREX

Report Date:	January 19, 2021 - 09:04 AM	**Survey / DLS Computation:**	Minimum Curvature / Lubinski
Client:	Cimarex Energy	**Vertical Section Azimuth:**	0.594 ° (Grid North)
Field:	NM Eddy County (NAD 83)	**Vertical Section Origin:**	0.000 ft, 0.000 ft
Structure / Slot:	Cimarex Southern Hills 32-29 Fed Com 3H / New Slot	**TVD Reference Datum:**	RKB
Well:	Southern Hills 32-29 Fed Com 3H	**TVD Reference Elevation:**	3267.500 ft above MSL
Borehole:	Southern Hills 32-29 Fed Com 3H	**Seabed / Ground Elevation:**	3244.500 ft above MSL
UWI / API#:	Unknown / Unknown	**Magnetic Declination:**	7.056 °
Survey Name:	Cimarex Southern Hills 32-29 Fed Com 3H Rev0 RM 18Jan21	**Total Gravity Field Strength:**	998.4345mgn (9.80665 Based)
Survey Date:	January 18, 2021	**Gravity Model:**	GARM
Tort / AHD / DDI / ERD Ratio:	93.214 ° / 9692.223 ft / 6.264 / 1.062	**Total Magnetic Field Strength:**	47619.283 nT
Coordinate Reference System:	NAD83 New Mexico State Plane, Eastern Zone, US Feet	**Magnetic Dip Angle:**	59.668 °
Location Lat / Long:	N 32° 4' 52.62890", W 104° 12' 57.00742"	**Declination Date:**	January 18, 2021
Location Grid N/E Y/X:	N 393328.720 ftUS, E 577728.300 ftUS	**Magnetic Declination Model:**	HDGM 2020
CRS Grid Convergence Angle:	0.0624 °	**North Reference:**	Grid North
Grid Scale Factor:	0.99991061	**Grid Convergence Used:**	0.0624 °
Version / Patch:	2.10.824.0	**Total Corr Mag North->Grid North:**	6.9938 °
		Local Coord Referenced To:	Well Head

Comments	MD (ft)	Incl (°)	Azim Grid (°)	TVD (ft)	VSEC (ft)	NS (ft)	EW (ft)	DLS (°/100ft)	Northing (ftUS)	Easting (ftUS)	Latitude (N/S ° ' ")	Longitude (E/W ° ' ")
SHL [827' FSL, 1577' FWL]	0.00	0.00	90.05	0.00	0.00	0.00	0.00	N/A	393328.72	577728.30	N 32 4 52.63	W 104 12 57.01
	100.00	0.00	22.59	100.00	0.00	0.00	0.00	0.00	393328.72	577728.30	N 32 4 52.63	W 104 12 57.01
	200.00	0.00	22.59	200.00	0.00	0.00	0.00	0.00	393328.72	577728.30	N 32 4 52.63	W 104 12 57.01
	300.00	0.00	22.59	300.00	0.00	0.00	0.00	0.00	393328.72	577728.30	N 32 4 52.63	W 104 12 57.01
	400.00	0.00	22.59	400.00	0.00	0.00	0.00	0.00	393328.72	577728.30	N 32 4 52.63	W 104 12 57.01
	500.00	0.00	22.59	500.00	0.00	0.00	0.00	0.00	393328.72	577728.30	N 32 4 52.63	W 104 12 57.01
Rustler	*550.00*	*0.00*	*22.59*	*550.00*	*0.00*	*0.00*	*0.00*	*0.00*	*393328.72*	*577728.30*	*N 32 4 52.63*	*W 104 12 57.01*
	600.00	0.00	22.59	600.00	0.00	0.00	0.00	0.00	393328.72	577728.30	N 32 4 52.63	W 104 12 57.01
	700.00	0.00	22.59	700.00	0.00	0.00	0.00	0.00	393328.72	577728.30	N 32 4 52.63	W 104 12 57.01
	800.00	0.00	22.59	800.00	0.00	0.00	0.00	0.00	393328.72	577728.30	N 32 4 52.63	W 104 12 57.01
	900.00	0.00	22.59	900.00	0.00	0.00	0.00	0.00	393328.72	577728.30	N 32 4 52.63	W 104 12 57.01
	1000.00	0.00	22.59	1000.00	0.00	0.00	0.00	0.00	393328.72	577728.30	N 32 4 52.63	W 104 12 57.01
	1100.00	0.00	22.59	1100.00	0.00	0.00	0.00	0.00	393328.72	577728.30	N 32 4 52.63	W 104 12 57.01
	1200.00	0.00	22.59	1200.00	0.00	0.00	0.00	0.00	393328.72	577728.30	N 32 4 52.63	W 104 12 57.01
Salado (Top Salt)	*1255.00*	*0.00*	*22.59*	*1255.00*	*0.00*	*0.00*	*0.00*	*0.00*	*393328.72*	*577728.30*	*N 32 4 52.63*	*W 104 12 57.01*
	1300.00	0.00	22.59	1300.00	0.00	0.00	0.00	0.00	393328.72	577728.30	N 32 4 52.63	W 104 12 57.01
	1400.00	0.00	22.59	1400.00	0.00	0.00	0.00	0.00	393328.72	577728.30	N 32 4 52.63	W 104 12 57.01
	1500.00	0.00	22.59	1500.00	0.00	0.00	0.00	0.00	393328.72	577728.30	N 32 4 52.63	W 104 12 57.01
	1600.00	0.00	22.59	1600.00	0.00	0.00	0.00	0.00	393328.72	577728.30	N 32 4 52.63	W 104 12 57.01
	1700.00	0.00	22.59	1700.00	0.00	0.00	0.00	0.00	393328.72	577728.30	N 32 4 52.63	W 104 12 57.01
	1800.00	0.00	22.59	1800.00	0.00	0.00	0.00	0.00	393328.72	577728.30	N 32 4 52.63	W 104 12 57.01
Catille (Base Salt)	*1879.00*	*0.00*	*22.59*	*1879.00*	*0.00*	*0.00*	*0.00*	*0.00*	*393328.72*	*577728.30*	*N 32 4 52.63*	*W 104 12 57.01*
	1900.00	0.00	22.59	1900.00	0.00	0.00	0.00	0.00	393328.72	577728.30	N 32 4 52.63	W 104 12 57.01
	2000.00	0.00	22.59	2000.00	0.00	0.00	0.00	0.00	393328.72	577728.30	N 32 4 52.63	W 104 12 57.01
Bell Canyon (Top Delaware)	*2086.00*	*0.00*	*22.59*	*2086.00*	*0.00*	*0.00*	*0.00*	*0.00*	*393328.72*	*577728.30*	*N 32 4 52.63*	*W 104 12 57.01*
	2100.00	0.00	22.59	2100.00	0.00	0.00	0.00	0.00	393328.72	577728.30	N 32 4 52.63	W 104 12 57.01
	2200.00	0.00	22.59	2200.00	0.00	0.00	0.00	0.00	393328.72	577728.30	N 32 4 52.63	W 104 12 57.01
	2300.00	0.00	22.59	2300.00	0.00	0.00	0.00	0.00	393328.72	577728.30	N 32 4 52.63	W 104 12 57.01
	2400.00	0.00	22.59	2400.00	0.00	0.00	0.00	0.00	393328.72	577728.30	N 32 4 52.63	W 104 12 57.01
	2500.00	0.00	22.59	2500.00	0.00	0.00	0.00	0.00	393328.72	577728.30	N 32 4 52.63	W 104 12 57.01
	2600.00	0.00	22.59	2600.00	0.00	0.00	0.00	0.00	393328.72	577728.30	N 32 4 52.63	W 104 12 57.01
	2700.00	0.00	22.59	2700.00	0.00	0.00	0.00	0.00	393328.72	577728.30	N 32 4 52.63	W 104 12 57.01
	2800.00	0.00	22.59	2800.00	0.00	0.00	0.00	0.00	393328.72	577728.30	N 32 4 52.63	W 104 12 57.01
	2900.00	0.00	22.59	2900.00	0.00	0.00	0.00	0.00	393328.72	577728.30	N 32 4 52.63	W 104 12 57.01
	3000.00	0.00	22.59	3000.00	0.00	0.00	0.00	0.00	393328.72	577728.30	N 32 4 52.63	W 104 12 57.01
Cherry Canyon	*3004.00*	*0.00*	*22.59*	*3004.00*	*0.00*	*0.00*	*0.00*	*0.00*	*393328.72*	*577728.30*	*N 32 4 52.63*	*W 104 12 57.01*
	3100.00	0.00	22.59	3100.00	0.00	0.00	0.00	0.00	393328.72	577728.30	N 32 4 52.63	W 104 12 57.01
	3200.00	0.00	22.59	3200.00	0.00	0.00	0.00	0.00	393328.72	577728.30	N 32 4 52.63	W 104 12 57.01
	3300.00	0.00	22.59	3300.00	0.00	0.00	0.00	0.00	393328.72	577728.30	N 32 4 52.63	W 104 12 57.01
	3400.00	0.00	22.59	3400.00	0.00	0.00	0.00	0.00	393328.72	577728.30	N 32 4 52.63	W 104 12 57.01
	3500.00	0.00	22.59	3500.00	0.00	0.00	0.00	0.00	393328.72	577728.30	N 32 4 52.63	W 104 12 57.01
	3600.00	0.00	22.59	3600.00	0.00	0.00	0.00	0.00	393328.72	577728.30	N 32 4 52.63	W 104 12 57.01
	3700.00	0.00	22.59	3700.00	0.00	0.00	0.00	0.00	393328.72	577728.30	N 32 4 52.63	W 104 12 57.01
	3800.00	0.00	22.59	3800.00	0.00	0.00	0.00	0.00	393328.72	577728.30	N 32 4 52.63	W 104 12 57.01
	3900.00	0.00	22.59	3900.00	0.00	0.00	0.00	0.00	393328.72	577728.30	N 32 4 52.63	W 104 12 57.01
	4000.00	0.00	22.59	4000.00	0.00	0.00	0.00	0.00	393328.72	577728.30	N 32 4 52.63	W 104 12 57.01
Brushy Canyon	*4037.00*	*0.00*	*22.59*	*4037.00*	*0.00*	*0.00*	*0.00*	*0.00*	*393328.72*	*577728.30*	*N 32 4 52.63*	*W 104 12 57.01*
	4100.00	0.00	22.59	4100.00	0.00	0.00	0.00	0.00	393328.72	577728.30	N 32 4 52.63	W 104 12 57.01
	4200.00	0.00	22.59	4200.00	0.00	0.00	0.00	0.00	393328.72	577728.30	N 32 4 52.63	W 104 12 57.01
	4300.00	0.00	22.59	4300.00	0.00	0.00	0.00	0.00	393328.72	577728.30	N 32 4 52.63	W 104 12 57.01
	4400.00	0.00	22.59	4400.00	0.00	0.00	0.00	0.00	393328.72	577728.30	N 32 4 52.63	W 104 12 57.01
	4500.00	0.00	22.59	4500.00	0.00	0.00	0.00	0.00	393328.72	577728.30	N 32 4 52.63	W 104 12 57.01
	4600.00	0.00	22.59	4600.00	0.00	0.00	0.00	0.00	393328.72	577728.30	N 32 4 52.63	W 104 12 57.01
	4700.00	0.00	22.59	4700.00	0.00	0.00	0.00	0.00	393328.72	577728.30	N 32 4 52.63	W 104 12 57.01
	4800.00	0.00	22.59	4800.00	0.00	0.00	0.00	0.00	393328.72	577728.30	N 32 4 52.63	W 104 12 57.01
	4900.00	0.00	22.59	4900.00	0.00	0.00	0.00	0.00	393328.72	577728.30	N 32 4 52.63	W 104 12 57.01
	5000.00	0.00	22.59	5000.00	0.00	0.00	0.00	0.00	393328.72	577728.30	N 32 4 52.63	W 104 12 57.01
	5100.00	0.00	22.59	5100.00	0.00	0.00	0.00	0.00	393328.72	577728.30	N 32 4 52.63	W 104 12 57.01
	5200.00	0.00	22.59	5200.00	0.00	0.00	0.00	0.00	393328.72	577728.30	N 32 4 52.63	W 104 12 57.01
	5300.00	0.00	22.59	5300.00	0.00	0.00	0.00	0.00	393328.72	577728.30	N 32 4 52.63	W 104 12 57.01
	5400.00	0.00	22.59	5400.00	0.00	0.00	0.00	0.00	393328.72	577728.30	N 32 4 52.63	W 104 12 57.01
	5500.00	0.00	22.59	5500.00	0.00	0.00	0.00	0.00	393328.72	577728.30	N 32 4 52.63	W 104 12 57.01
	5600.00	0.00	22.59	5600.00	0.00	0.00	0.00	0.00	393328.72	577728.30	N 32 4 52.63	W 104 12 57.01
Top Bone Spring	*5623.00*	*0.00*	*22.59*	*5623.00*	*0.00*	*0.00*	*0.00*	*0.00*	*393328.72*	*577728.30*	*N 32 4 52.63*	*W 104 12 57.01*
	5700.00	0.00	22.59	5700.00	0.00	0.00	0.00	0.00	393328.72	577728.30	N 32 4 52.63	W 104 12 57.01
	5800.00	0.00	22.59	5800.00	0.00	0.00	0.00	0.00	393328.72	577728.30	N 32 4 52.63	W 104 12 57.01
	5900.00	0.00	22.59	5900.00	0.00	0.00	0.00	0.00	393328.72	577728.30	N 32 4 52.63	W 104 12 57.01
	6000.00	0.00	22.59	6000.00	0.00	0.00	0.00	0.00	393328.72	577728.30	N 32 4 52.63	W 104 12 57.01
	6100.00	0.00	22.59	6100.00	0.00	0.00	0.00	0.00	393328.72	577728.30	N 32 4 52.63	W 104 12 57.01
	6200.00	0.00	22.59	6200.00	0.00	0.00	0.00	0.00	393328.72	577728.30	N 32 4 52.63	W 104 12 57.01
	6300.00	0.00	22.59	6300.00	0.00	0.00	0.00	0.00	393328.72	577728.30	N 32 4 52.63	W 104 12 57.01
	6400.00	0.00	22.59	6400.00	0.00	0.00	0.00	0.00	393328.72	577728.30	N 32 4 52.63	W 104 12 57.01
	6500.00	0.00	22.59	6500.00	0.00	0.00	0.00	0.00	393328.72	577728.30	N 32 4 52.63	W 104 12 57.01

Comments	MD (ft)	Incl (°)	Azim Grid (°)	TVD (ft)	VSEC (ft)	NS (ft)	EW (ft)	DLS (°/100ft)	Northing (ftUS)	Easting (ftUS)	Latitude (N/S ° ' ")	Longitude (E/W ° ' ")
Top 1st BSPG SS	*6579.00*	*0.00*	*22.59*	*6579.00*	*0.00*	*0.00*	*0.00*	*0.00*	*393328.72*	*577728.30*	*N 32 4 52.63*	*W 104 12 57.01*
	6600.00	0.00	22.59	6600.00	0.00	0.00	0.00	0.00	393328.72	577728.30	N 32 4 52.63	W 104 12 57.01
	6700.00	0.00	22.59	6700.00	0.00	0.00	0.00	0.00	393328.72	577728.30	N 32 4 52.63	W 104 12 57.01
	6800.00	0.00	22.59	6800.00	0.00	0.00	0.00	0.00	393328.72	577728.30	N 32 4 52.63	W 104 12 57.01
Top 2nd BSPG Carb	*6827.00*	*0.00*	*22.59*	*6827.00*	*0.00*	*0.00*	*0.00*	*0.00*	*393328.72*	*577728.30*	*N 32 4 52.63*	*W 104 12 57.01*
	6900.00	0.00	22.59	6900.00	0.00	0.00	0.00	0.00	393328.72	577728.30	N 32 4 52.63	W 104 12 57.01
	7000.00	0.00	22.59	7000.00	0.00	0.00	0.00	0.00	393328.72	577728.30	N 32 4 52.63	W 104 12 57.01
Top 2nd BSPG SS	*7087.00*	*0.00*	*22.59*	*7087.00*	*0.00*	*0.00*	*0.00*	*0.00*	*393328.72*	*577728.30*	*N 32 4 52.63*	*W 104 12 57.01*
	7100.00	0.00	22.59	7100.00	0.00	0.00	0.00	0.00	393328.72	577728.30	N 32 4 52.63	W 104 12 57.01
	7200.00	0.00	22.59	7200.00	0.00	0.00	0.00	0.00	393328.72	577728.30	N 32 4 52.63	W 104 12 57.01
	7300.00	0.00	22.59	7300.00	0.00	0.00	0.00	0.00	393328.72	577728.30	N 32 4 52.63	W 104 12 57.01
	7400.00	0.00	22.59	7400.00	0.00	0.00	0.00	0.00	393328.72	577728.30	N 32 4 52.63	W 104 12 57.01
	7500.00	0.00	22.59	7500.00	0.00	0.00	0.00	0.00	393328.72	577728.30	N 32 4 52.63	W 104 12 57.01
Top 3rd BSPG Carb	*7549.00*	*0.00*	*22.59*	*7549.00*	*0.00*	*0.00*	*0.00*	*0.00*	*393328.72*	*577728.30*	*N 32 4 52.63*	*W 104 12 57.01*
	7600.00	0.00	22.59	7600.00	0.00	0.00	0.00	0.00	393328.72	577728.30	N 32 4 52.63	W 104 12 57.01
	7700.00	0.00	22.59	7700.00	0.00	0.00	0.00	0.00	393328.72	577728.30	N 32 4 52.63	W 104 12 57.01
	7800.00	0.00	22.59	7800.00	0.00	0.00	0.00	0.00	393328.72	577728.30	N 32 4 52.63	W 104 12 57.01
Top Harkey SS	*7865.00*	*0.00*	*22.59*	*7865.00*	*0.00*	*0.00*	*0.00*	*0.00*	*393328.72*	*577728.30*	*N 32 4 52.63*	*W 104 12 57.01*
	7900.00	0.00	22.59	7900.00	0.00	0.00	0.00	0.00	393328.72	577728.30	N 32 4 52.63	W 104 12 57.01
	8000.00	0.00	22.59	8000.00	0.00	0.00	0.00	0.00	393328.72	577728.30	N 32 4 52.63	W 104 12 57.01
	8100.00	0.00	22.59	8100.00	0.00	0.00	0.00	0.00	393328.72	577728.30	N 32 4 52.63	W 104 12 57.01
	8200.00	0.00	22.59	8200.00	0.00	0.00	0.00	0.00	393328.72	577728.30	N 32 4 52.63	W 104 12 57.01
	8300.00	0.00	22.59	8300.00	0.00	0.00	0.00	0.00	393328.72	577728.30	N 32 4 52.63	W 104 12 57.01
	8400.00	0.00	22.59	8400.00	0.00	0.00	0.00	0.00	393328.72	577728.30	N 32 4 52.63	W 104 12 57.01
Top 3rd BSPG SS	*8405.00*	*0.00*	*22.59*	*8405.00*	*0.00*	*0.00*	*0.00*	*0.00*	*393328.72*	*577728.30*	*N 32 4 52.63*	*W 104 12 57.01*
	8500.00	0.00	22.59	8500.00	0.00	0.00	0.00	0.00	393328.72	577728.30	N 32 4 52.63	W 104 12 57.01
KOP - Build 12°/100' DLS	8555.16	0.00	22.59	8555.16	0.00	0.00	0.00	0.00	393328.72	577728.30	N 32 4 52.63	W 104 12 57.01
	8600.00	5.38	22.59	8599.93	1.95	1.94	0.81	12.00	393330.66	577729.11	N 32 4 52.65	W 104 12 57.00
	8700.00	17.38	22.59	8697.79	20.21	20.13	8.37	12.00	393348.85	577736.67	N 32 4 52.83	W 104 12 56.91
Top Wolfcamp	*8753.67*	*23.82*	*22.59*	*8748.00*	*37.72*	*37.56*	*15.62*	*12.00*	*393366.27*	*577743.92*	*N 32 4 53.00*	*W 104 12 56.83*
	8800.00	29.38	22.59	8789.41	56.94	56.70	23.59	12.00	393385.42	577751.88	N 32 4 53.19	W 104 12 56.73
Build & Turn 12°/100' DLS	8846.83	35.00	22.59	8829.02	80.07	79.73	33.16	12.00	393408.44	577761.46	N 32 4 53.42	W 104 12 56.62
Wolfcamp A1 Shale	*8862.83*	*36.65*	*20.89*	*8842.00*	*88.80*	*88.43*	*36.63*	*12.00*	*393417.14*	*577764.93*	*N 32 4 53.50*	*W 104 12 56.58*
	8900.00	40.55	17.43	8871.05	110.78	110.33	44.21	12.00	393439.04	577772.50	N 32 4 53.72	W 104 12 56.49
	9000.00	51.43	10.34	8940.47	180.68	180.05	61.02	12.00	393508.76	577789.32	N 32 4 54.41	W 104 12 56.30
	9100.00	62.62	5.16	8994.84	263.76	263.03	72.08	12.00	393591.73	577800.37	N 32 4 55.23	W 104 12 56.17
	9200.00	73.97	0.95	9031.78	356.41	355.64	76.88	12.00	393684.32	577805.17	N 32 4 56.15	W 104 12 56.11
Build 4°/100' DLS	9209.07	75.00	0.59	9034.21	365.16	364.38	77.00	12.00	393693.07	577805.29	N 32 4 56.23	W 104 12 56.11
	9300.00	78.64	0.59	9054.94	453.67	452.89	77.92	4.00	393781.57	577806.21	N 32 4 57.11	W 104 12 56.10
	9400.00	82.64	0.59	9071.20	552.32	551.53	78.94	4.00	393880.20	577807.23	N 32 4 58.09	W 104 12 56.08
	9500.00	86.64	0.59	9080.55	651.86	651.07	79.97	4.00	393979.73	577808.27	N 32 4 59.07	W 104 12 56.07
Wolfcamp 'A1' Taget Landing Point	9577.67	89.74	0.59	9083.00	729.49	728.69	80.78	4.00	394057.34	577809.07	N 32 4 59.84	W 104 12 56.06
	9600.00	89.74	0.59	9083.10	751.81	751.01	81.01	0.00	394079.67	577809.30	N 32 5 0.06	W 104 12 56.06
	9700.00	89.74	0.59	9083.55	851.81	851.01	82.05	0.00	394179.65	577810.34	N 32 5 1.05	W 104 12 56.04
	9800.00	89.74	0.59	9083.99	951.81	951.00	83.09	0.00	394279.63	577811.38	N 32 5 2.04	W 104 12 56.03
	9900.00	89.74	0.59	9084.44	1051.81	1050.99	84.12	0.00	394379.62	577812.42	N 32 5 3.03	W 104 12 56.02
	10000.00	89.74	0.59	9084.89	1151.81	1150.99	85.16	0.00	394479.60	577813.45	N 32 5 4.02	W 104 12 56.00
	10100.00	89.74	0.59	9085.33	1251.81	1250.98	86.20	0.00	394579.59	577814.49	N 32 5 5.01	W 104 12 55.99
	10200.00	89.74	0.59	9085.78	1351.81	1350.98	87.23	0.00	394679.57	577815.53	N 32 5 6.00	W 104 12 55.98
	10300.00	89.74	0.59	9086.23	1451.81	1450.97	88.27	0.00	394779.56	577816.56	N 32 5 6.99	W 104 12 55.96
	10400.00	89.74	0.59	9086.67	1551.81	1550.96	89.31	0.00	394879.54	577817.60	N 32 5 7.98	W 104 12 55.95
	10500.00	89.74	0.59	9087.12	1651.80	1650.96	90.35	0.00	394979.53	577818.64	N 32 5 8.96	W 104 12 55.94
	10600.00	89.74	0.59	9087.57	1751.80	1750.95	91.38	0.00	395079.51	577819.68	N 32 5 9.95	W 104 12 55.92
	10700.00	89.74	0.59	9088.01	1851.80	1850.94	92.42	0.00	395179.49	577820.71	N 32 5 10.94	W 104 12 55.91
	10800.00	89.74	0.59	9088.46	1951.80	1950.94	93.46	0.00	395279.48	577821.75	N 32 5 11.93	W 104 12 55.90
	10900.00	89.74	0.59	9088.91	2051.80	2050.93	94.50	0.00	395379.46	577822.79	N 32 5 12.92	W 104 12 55.88
	11000.00	89.74	0.59	9089.36	2151.80	2150.92	95.53	0.00	395479.45	577823.83	N 32 5 13.91	W 104 12 55.87
	11100.00	89.74	0.59	9089.80	2251.80	2250.92	96.57	0.00	395579.43	577824.86	N 32 5 14.90	W 104 12 55.86
	11200.00	89.74	0.59	9090.25	2351.80	2350.91	97.61	0.00	395679.42	577825.90	N 32 5 15.89	W 104 12 55.84
	11300.00	89.74	0.59	9090.70	2451.80	2450.91	98.65	0.00	395779.40	577826.94	N 32 5 16.88	W 104 12 55.83
	11400.00	89.74	0.59	9091.14	2551.80	2550.90	99.68	0.00	395879.39	577827.97	N 32 5 17.87	W 104 12 55.82
	11500.00	89.74	0.59	9091.59	2651.79	2650.89	100.72	0.00	395979.37	577829.01	N 32 5 18.86	W 104 12 55.80
	11600.00	89.74	0.59	9092.04	2751.79	2750.89	101.76	0.00	396079.35	577830.05	N 32 5 19.85	W 104 12 55.79
	11700.00	89.74	0.59	9092.48	2851.79	2850.88	102.80	0.00	396179.34	577831.09	N 32 5 20.84	W 104 12 55.78
	11800.00	89.74	0.59	9092.93	2951.79	2950.87	103.83	0.00	396279.32	577832.12	N 32 5 21.83	W 104 12 55.76
	11900.00	89.74	0.59	9093.38	3051.79	3050.87	104.87	0.00	396379.31	577833.16	N 32 5 22.82	W 104 12 55.75
	12000.00	89.74	0.59	9093.82	3151.79	3150.86	105.91	0.00	396479.29	577834.20	N 32 5 23.81	W 104 12 55.74
	12100.00	89.74	0.59	9094.27	3251.79	3250.85	106.95	0.00	396579.28	577835.24	N 32 5 24.80	W 104 12 55.72
	12200.00	89.74	0.59	9094.72	3351.79	3350.85	107.98	0.00	396679.26	577836.27	N 32 5 25.79	W 104 12 55.71
	12300.00	89.74	0.59	9095.16	3451.79	3450.84	109.02	0.00	396779.25	577837.31	N 32 5 26.78	W 104 12 55.70
	12400.00	89.74	0.59	9095.61	3551.79	3550.84	110.06	0.00	396879.23	577838.35	N 32 5 27.76	W 104 12 55.68
	12500.00	89.74	0.59	9096.06	3651.78	3650.83	111.09	0.00	396979.22	577839.38	N 32 5 28.75	W 104 12 55.67
	12600.00	89.74	0.59	9096.50	3751.78	3750.82	112.13	0.00	397079.20	577840.42	N 32 5 29.74	W 104 12 55.66
	12700.00	89.74	0.59	9096.95	3851.78	3850.82	113.17	0.00	397179.18	577841.46	N 32 5 30.73	W 104 12 55.64
	12800.00	89.74	0.59	9097.40	3951.78	3950.81	114.21	0.00	397279.17	577842.50	N 32 5 31.72	W 104 12 55.63
	12900.00	89.74	0.59	9097.84	4051.78	4050.80	115.24	0.00	397379.15	577843.53	N 32 5 32.71	W 104 12 55.62
	13000.00	89.74	0.59	9098.29	4151.78	4150.80	116.28	0.00	397479.14	577844.57	N 32 5 33.70	W 104 12 55.60
	13100.00	89.74	0.59	9098.74	4251.78	4250.79	117.32	0.00	397579.12	577845.61	N 32 5 34.69	W 104 12 55.59
	13200.00	89.74	0.59	9099.19	4351.78	4350.78	118.36	0.00	397679.11	577846.65	N 32 5 35.68	W 104 12 55.58
	13300.00	89.74	0.59	9099.63	4451.78	4450.78	119.39	0.00	397779.09	577847.68	N 32 5 36.67	W 104 12 55.56
	13400.00	89.74	0.59	9100.08	4551.78	4550.77	120.43	0.00	397879.08	577848.72	N 32 5 37.66	W 104 12 55.55
	13500.00	89.74	0.59	9100.53	4651.77	4650.77	121.47	0.00	397979.06	577849.76	N 32 5 38.65	W 104 12 55.54
	13600.00	89.74	0.59	9100.97	4751.77	4750.76	122.51	0.00	398079.04	577850.79	N 32 5 39.64	W 104 12 55.52
	13700.00	89.74	0.59	9101.42	4851.77	4850.75	123.54	0.00	398179.03	577851.83	N 32 5 40.63	W 104 12 55.51
	13800.00	89.74	0.59	9101.87	4951.77	4950.75	124.58	0.00	398279.01	577852.87	N 32 5 41.62	W 104 12 55.50
	13900.00	89.74	0.59	9102.31	5051.77	5050.74	125.62	0.00	398379.00	577853.91	N 32 5 42.61	W 104 12 55.48
	14000.00	89.74	0.59	9102.76	5151.77	5150.73	126.66	0.00	398478.98	577854.94	N 32 5 43.60	W 104 12 55.47
	14100.00	89.74	0.59	9103.21	5251.77	5250.73	127.69	0.00	398578.97	577855.98	N 32 5 44.59	W 104 12 55.46
	14200.00	89.74	0.59	9103.65	5351.77	5350.72	128.73	0.00	398678.95	577857.02	N 32 5 45.57	W 104 12 55.44
	14300.00	89.74	0.59	9104.10	5451.77	5450.71	129.77	0.00	398778.94	577858.06	N 32 5 46.56	W 104 12 55.43
	14400.00	89.74	0.59	9104.55	5551.77	5550.71	130.80	0.00	398878.92	577859.09	N 32 5 47.55	W 104 12 55.42
	14500.00	89.74	0.59	9104.99	5651.76	5650.70	131.84	0.00	398978.90	577860.13	N 32 5 48.54	W 104 12 55.40
	14600.00	89.74	0.59	9105.44	5751.76	5750.69	132.88	0.00	399078.89	577861.17	N 32 5 49.53	W 104 12 55.39
	14700.00	89.74	0.59	9105.89	5851.76	5850.69	133.92	0.00	399178.87	577862.20	N 32 5 50.52	W 104 12 55.38
	14800.00	89.74	0.59	9106.33	5951.76	5950.68	134.95	0.00	399278.86	577863.24	N 32 5 51.51	W 104 12 55.36
	14900.00	89.74	0.59	9106.78	6051.76	6050.68	135.99	0.00	399378.84	577864.28	N 32 5 52.50	W 104 12 55.35
	15000.00	89.74	0.59	9107.23	6151.76	6150.67	137.03	0.00	399478.83	577865.32	N 32 5 53.49	W 104 12 55.34
	15100.00	89.74	0.59	9107.68	6251.76	6250.66	138.07	0.00	399578.81	577866.35	N 32 5 54.48	W 104 12 55.32

Comments	MD (ft)	Incl (°)	Azim Grid (°)	TVD (ft)	VSEC (ft)	NS (ft)	EW (ft)	DLS (°/100ft)	Northing (ftUS)	Easting (ftUS)	Latitude (N/S ° ' ")	Longitude (E/W ° ' ")
	15200.00	89.74	0.59	9108.12	6351.76	6350.66	139.10	0.00	399678.80	577867.39	N 32 5 55.47	W 104 12 55.31
	15300.00	89.74	0.59	9108.57	6451.76	6450.65	140.14	0.00	399778.78	577868.43	N 32 5 56.46	W 104 12 55.30
	15400.00	89.74	0.59	9109.02	6551.76	6550.64	141.18	0.00	399878.77	577869.47	N 32 5 57.45	W 104 12 55.28
	15500.00	89.74	0.59	9109.46	6651.75	6650.64	142.22	0.00	399978.75	577870.50	N 32 5 58.44	W 104 12 55.27
	15600.00	89.74	0.59	9109.91	6751.75	6750.63	143.25	0.00	400078.73	577871.54	N 32 5 59.43	W 104 12 55.26
	15700.00	89.74	0.59	9110.36	6851.75	6850.62	144.29	0.00	400178.72	577872.58	N 32 6 0.42	W 104 12 55.24
	15800.00	89.74	0.59	9110.80	6951.75	6950.62	145.33	0.00	400278.70	577873.61	N 32 6 1.41	W 104 12 55.23
	15900.00	89.74	0.59	9111.25	7051.75	7050.61	146.37	0.00	400378.69	577874.65	N 32 6 2.40	W 104 12 55.22
	16000.00	89.74	0.59	9111.70	7151.75	7150.61	147.40	0.00	400478.67	577875.69	N 32 6 3.39	W 104 12 55.20
	16100.00	89.74	0.59	9112.14	7251.75	7250.60	148.44	0.00	400578.66	577876.73	N 32 6 4.37	W 104 12 55.19
	16200.00	89.74	0.59	9112.59	7351.75	7350.59	149.48	0.00	400678.64	577877.76	N 32 6 5.36	W 104 12 55.18
	16300.00	89.74	0.59	9113.04	7451.75	7450.59	150.51	0.00	400778.63	577878.80	N 32 6 6.35	W 104 12 55.16
	16400.00	89.74	0.59	9113.48	7551.75	7550.58	151.55	0.00	400878.61	577879.84	N 32 6 7.34	W 104 12 55.15
	16500.00	89.74	0.59	9113.93	7651.74	7650.57	152.59	0.00	400978.59	577880.88	N 32 6 8.33	W 104 12 55.14
	16600.00	89.74	0.59	9114.38	7751.74	7750.57	153.63	0.00	401078.58	577881.91	N 32 6 9.32	W 104 12 55.12
	16700.00	89.74	0.59	9114.82	7851.74	7850.56	154.66	0.00	401178.56	577882.95	N 32 6 10.31	W 104 12 55.11
	16800.00	89.74	0.59	9115.27	7951.74	7950.55	155.70	0.00	401278.55	577883.99	N 32 6 11.30	W 104 12 55.10
	16900.00	89.74	0.59	9115.72	8051.74	8050.55	156.74	0.00	401378.53	577885.02	N 32 6 12.29	W 104 12 55.08
	17000.00	89.74	0.59	9116.16	8151.74	8150.54	157.78	0.00	401478.52	577886.06	N 32 6 13.28	W 104 12 55.07
	17100.00	89.74	0.59	9116.61	8251.74	8250.54	158.81	0.00	401578.50	577887.10	N 32 6 14.27	W 104 12 55.06
	17200.00	89.74	0.59	9117.06	8351.74	8350.53	159.85	0.00	401678.49	577888.14	N 32 6 15.26	W 104 12 55.04
	17300.00	89.74	0.59	9117.51	8451.74	8450.52	160.89	0.00	401778.47	577889.17	N 32 6 16.25	W 104 12 55.03
	17400.00	89.74	0.59	9117.95	8551.74	8550.52	161.93	0.00	401878.45	577890.21	N 32 6 17.24	W 104 12 55.02
	17500.00	89.74	0.59	9118.40	8651.73	8650.51	162.96	0.00	401978.44	577891.25	N 32 6 18.23	W 104 12 55.00
	17600.00	89.74	0.59	9118.85	8751.73	8750.50	164.00	0.00	402078.42	577892.29	N 32 6 19.22	W 104 12 54.99
	17700.00	89.74	0.59	9119.29	8851.73	8850.50	165.04	0.00	402178.41	577893.32	N 32 6 20.21	W 104 12 54.98
	17800.00	89.74	0.59	9119.74	8951.73	8950.49	166.08	0.00	402278.39	577894.36	N 32 6 21.20	W 104 12 54.96
	17900.00	89.74	0.59	9120.19	9051.73	9050.48	167.11	0.00	402378.38	577895.40	N 32 6 22.18	W 104 12 54.95
	18000.00	89.74	0.59	9120.63	9151.73	9150.48	168.15	0.00	402478.36	577896.43	N 32 6 23.17	W 104 12 54.94
	18100.00	89.74	0.59	9121.08	9251.73	9250.47	169.19	0.00	402578.35	577897.47	N 32 6 24.16	W 104 12 54.92
	18200.00	89.74	0.59	9121.53	9351.73	9350.47	170.23	0.00	402678.33	577898.51	N 32 6 25.15	W 104 12 54.91
	18300.00	89.74	0.59	9121.97	9451.73	9450.46	171.26	0.00	402778.32	577899.55	N 32 6 26.14	W 104 12 54.90
	18400.00	89.74	0.59	9122.42	9551.73	9550.45	172.30	0.00	402878.30	577900.58	N 32 6 27.13	W 104 12 54.88
	18500.00	89.74	0.59	9122.87	9651.72	9650.45	173.34	0.00	402978.28	577901.62	N 32 6 28.12	W 104 12 54.87
Cimarex Southern Hills 32-29 Fed Com 3H - PBHL[100'FNL,1650'FWL]	18529.76	89.74	0.59	9123.00	9681.48	9680.20	173.65	0.00	403008.04	577901.93	N 32 6 28.42	W 104 12 54.87

Survey Type: Non-Def Plan

Survey Error Model: ISCWSA Rev 0 *** 3-D 95.000% Confidence 2.7955 sigma

Survey Program:

Description	Part	MD From (ft)	MD To (ft)	EOU Freq (ft)	Hole Size (in)	Casing Diameter (in)	Expected Max Inclination (deg)	Survey Tool Type	Borehole / Survey
	1	0.000	23.000	1/100.000	17.500	13.375		NAL_MWD_IFR1+MS-Depth Only	Southern Hills 32-29 Fed Com 3H / Cimarex Southern Hills 32-29 Fed Com 3H Rev0 RM 18Jan21
	1	23.000	18529.761	1/100.000	17.500	13.375		NAL_MWD_IFR1+MS	Southern Hills 32-29 Fed Com 3H / Cimarex Southern Hills 32-29

Schlumberger

Cimarex Southern Hills 32-29 Fed Com 3H Rev0 RM 18Jan21 Proposal
Geodetic Report
(Non-Def Plan)

CIMAREX

Report Date:	January 19, 2021 - 09:04 AM	**Survey / DLS Computation:**	Minimum Curvature / Lubinski
Client:	Cimarex Energy	**Vertical Section Azimuth:**	0.594 ° (Grid North)
Field:	NM Eddy County (NAD 83)	**Vertical Section Origin:**	0.000 ft, 0.000 ft
Structure / Slot:	Cimarex Southern Hills 32-29 Fed Com 3H / New Slot	**TVD Reference Datum:**	RKB
Well:	Southern Hills 32-29 Fed Com 3H	**TVD Reference Elevation:**	3267.500 ft above MSL
Borehole:	Southern Hills 32-29 Fed Com 3H	**Seabed / Ground Elevation:**	3244.500 ft above MSL
UWI / API#:	Unknown / Unknown	**Magnetic Declination:**	7.056 °
Survey Name:	Cimarex Southern Hills 32-29 Fed Com 3H Rev0 RM 18Jan21	**Total Gravity Field Strength:**	998.4345mgn (9.80665 Based)
Survey Date:	January 18, 2021	**Gravity Model:**	GARM
Tort / AHD / DDI / ERD Ratio:	93.214 ° / 9692.223 ft / 6.264 / 1.062	**Total Magnetic Field Strength:**	47619.283 nT
Coordinate Reference System:	NAD83 New Mexico State Plane, Eastern Zone, US Feet	**Magnetic Dip Angle:**	59.668 °
Location Lat / Long:	N 32° 4' 52.62890", W 104° 12' 57.00742"	**Declination Date:**	January 18, 2021
Location Grid N/E Y/X:	N 393328.720 ftUS, E 577728.300 ftUS	**Magnetic Declination Model:**	HDGM 2020
CRS Grid Convergence Angle:	0.0624 °	**North Reference:**	Grid North
Grid Scale Factor:	0.99991061	**Grid Convergence Used:**	0.0624 °
Version / Patch:	2.10.824.0	**Total Corr Mag North->Grid North:**	6.9938 °
		Local Coord Referenced To:	Well Head

Comments	MD (ft)	Incl (°)	Azim Grid (°)	TVD (ft)	VSEC (ft)	NS (ft)	EW (ft)	DLS (°/100ft)	Northing (ftUS)	Easting (ftUS)	Latitude (N/S ° ' ")	Longitude (E/W ° ' ")
SHL [827' FSL, 1577' FWL]	0.00	0.00	90.05	0.00	0.00	0.00	0.00	N/A	393328.72	577728.30	N 32 4 52.63	W 104 12 57.01
KOP - Build 12°/100' DLS	8555.16	0.00	22.59	8555.16	0.00	0.00	0.00	0.00	393328.72	577728.30	N 32 4 52.63	W 104 12 57.01
Build & Turn 12°/100' DLS	8846.83	35.00	22.59	8829.02	80.07	79.73	33.16	12.00	393408.44	577761.46	N 32 4 53.42	W 104 12 56.62
Build 4°/100' DLS	9209.07	75.00	0.59	9034.21	365.16	364.38	77.00	12.00	393693.07	577805.29	N 32 4 56.23	W 104 12 56.11
Landing Point	9577.67	89.74	0.59	9083.00	729.49	728.69	80.78	4.00	394057.34	577809.07	N 32 4 59.84	W 104 12 56.06
Cimarex Southern Hills 32-29 Fed Com 3H - PBHL[100'FNL,1650'FWL]	18529.76	89.74	0.59	9123.00	9681.48	9680.20	173.65	0.00	403008.04	577901.93	N 32 6 28.42	W 104 12 54.87

Survey Type: Non-Def Plan

Survey Error Model: ISCWSA Rev 0 *** 3-D 95.000% Confidence 2.7955 sigma
Survey Program:

Description	Part	MD From (ft)	MD To (ft)	EOU Freq (ft)	Hole Size (in)	Casing Diameter (in)	Expected Max Inclination (deg)	Survey Tool Type	Borehole / Survey
	1	0.000	23.000	1/100.000	17.500	13.375		NAL_MWD_IFR1+MS-Depth Only	Southern Hills 32-29 Fed Com 3H / Cimarex Southern Hills 32-29 Fed Com 3H Rev0 RM 18Jan21
	1	23.000	18529.761	1/100.000	17.500	13.375		NAL_MWD_IFR1+MS	Southern Hills 32-29 Fed Com 3H / Cimarex Southern Hills 32-29

Schlumberger

Cimarex Energy

Rev 0

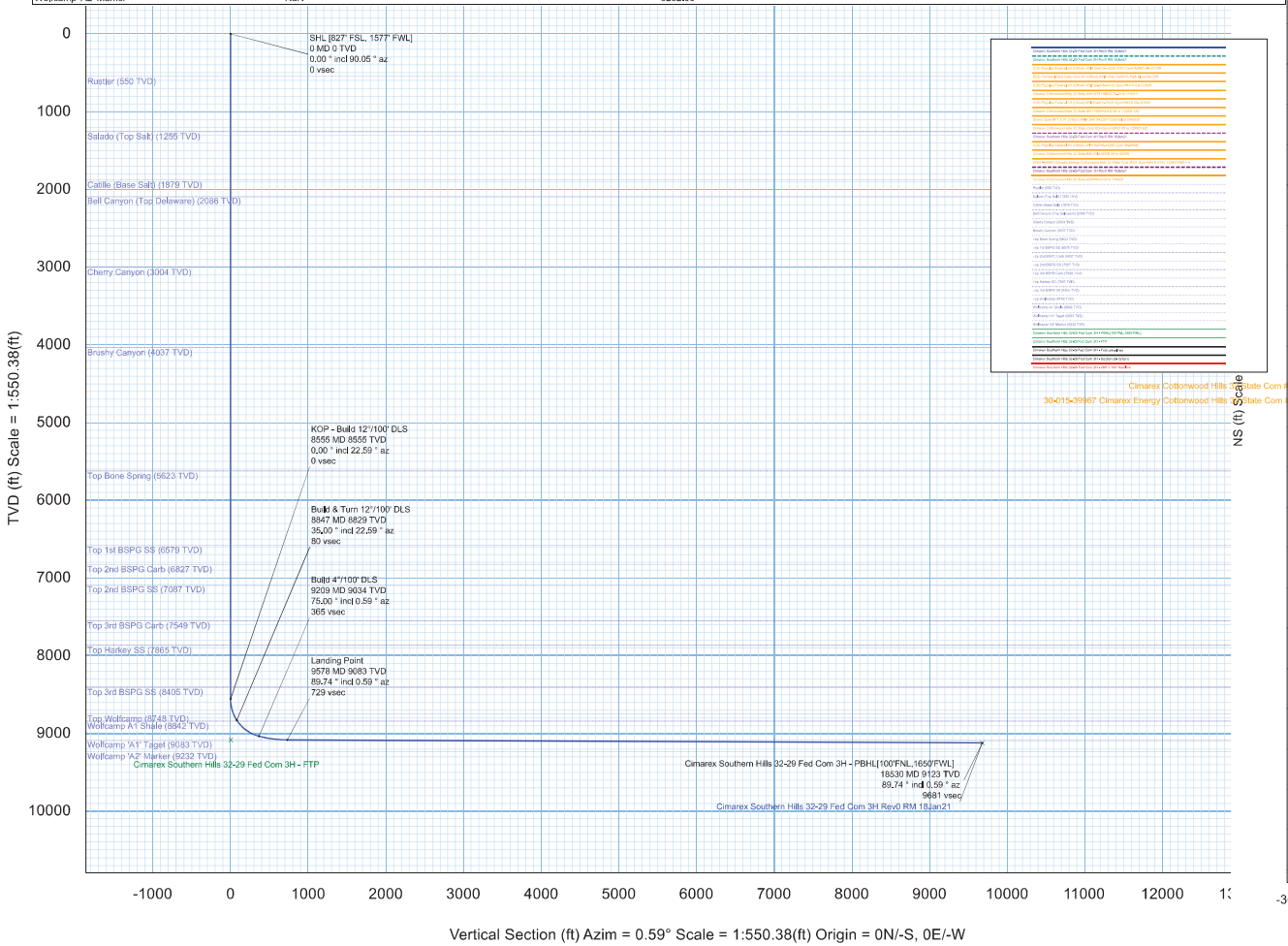
CIMAREX

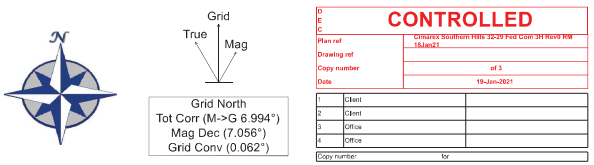
Borehole:	Well:	Field:	Structure:
Southern Hills 32-29 Fed Com 3H	Southern Hills 32-29 Fed Com 3H	NM Eddy County (NAD 83)	Cimarex Southern Hills 32-29 Fed Com 3H

Gravity & Magnetic Parameters						Surface Location	NAD83 New Mexico State Plane, Eastern Zone, US Feet					Miscellaneous			
Model:	HDGM 2020	Dip:	59.668°	Date:	18-Jan-2021	Lat:	N 32 4 52.63	Northing:	393328.72ftUS	Grid Conv:	0.0624°	Slot:	New Slot	TVD Ref:	RKB(3267.5ft above MSL)
MagDec:	7.056°	FS:	47619.283nT	Gravity FS:	998.434mgn (9.80665 Based)	Lon:	W 104 12 57.01	Easting:	577728.3ftUS	Scale Fact:	0.99991061	Plan:	Cimarex Southern Hills 32-29 Fed Com 3H Rev0 RM 18Jan21		

Critical Points

Critical Point	MD	INCL	AZIM	TVD	VSEC	N(+)/S(-)	E(+)/W(-)	DLS
SHL [827' FSL, 1577' FWL]	0.00	0.00	90.05	0.00	0.00	0.00	0.00	
Rustler	550.00	0.00	22.59	550.00	0.00	0.00	0.00	0.00
Salado (Top Salt)	1255.00	0.00	22.59	1255.00	0.00	0.00	0.00	0.00
Castille (Base Salt)	1879.00	0.00	22.59	1879.00	0.00	0.00	0.00	0.00
Bell Canyon (Top Delaware)	2086.00	0.00	22.59	2086.00	0.00	0.00	0.00	0.00
Cherry Canyon	3004.00	0.00	22.59	3004.00	0.00	0.00	0.00	0.00
Brushy Canyon	4037.00	0.00	22.59	4037.00	0.00	0.00	0.00	0.00
Top Bone Spring	5623.00	0.00	22.59	5623.00	0.00	0.00	0.00	0.00
Top 1st BSPG SS	6579.00	0.00	22.59	6579.00	0.00	0.00	0.00	0.00
Top 2nd BSPG Carb	6827.00	0.00	22.59	6827.00	0.00	0.00	0.00	0.00
Top 2nd BSPG SS	7087.00	0.00	22.59	7087.00	0.00	0.00	0.00	0.00
Top 3rd BSPG Carb	7549.00	0.00	22.59	7549.00	0.00	0.00	0.00	0.00
Top Harkey SS	7865.00	0.00	22.59	7865.00	0.00	0.00	0.00	0.00
Top 3rd BSPG SS	8405.00	0.00	22.59	8405.00	0.00	0.00	0.00	0.00
KOP - Build 12°/100' DLS	8555.16	0.00	22.59	8555.16	0.00	0.00	0.00	0.00
Top Wolfcamp	8753.67	23.82	22.59	8748.00	37.72	37.56	15.62	12.00
Build & Turn 12°/100' DLS	8846.83	35.00	22.59	8829.02	80.07	79.73	33.16	12.00
Wolfcamp A1 Shale	8862.83	36.65	20.89	8842.00	88.80	88.43	36.63	12.00
Build 4°/100' DLS	9209.07	75.00	0.59	9034.21	365.16	364.38	77.00	12.00
Landing Point	9577.67	89.74	0.59	9083.00	729.49	728.69	80.78	4.00
Wolfcamp 'A1' Taget	9577.68	89.74	0.59	9083.00	729.49	728.69	80.78	0.00
Cimarex Southern Hills 32-29 Fed Com 3H - PBHL[100'FNL,1650'FWL]	18529.76	89.74	0.59	9123.00	9681.48	9680.20	173.65	0.00
Wolfcamp 'A2' Marker	NaN			9232.00				



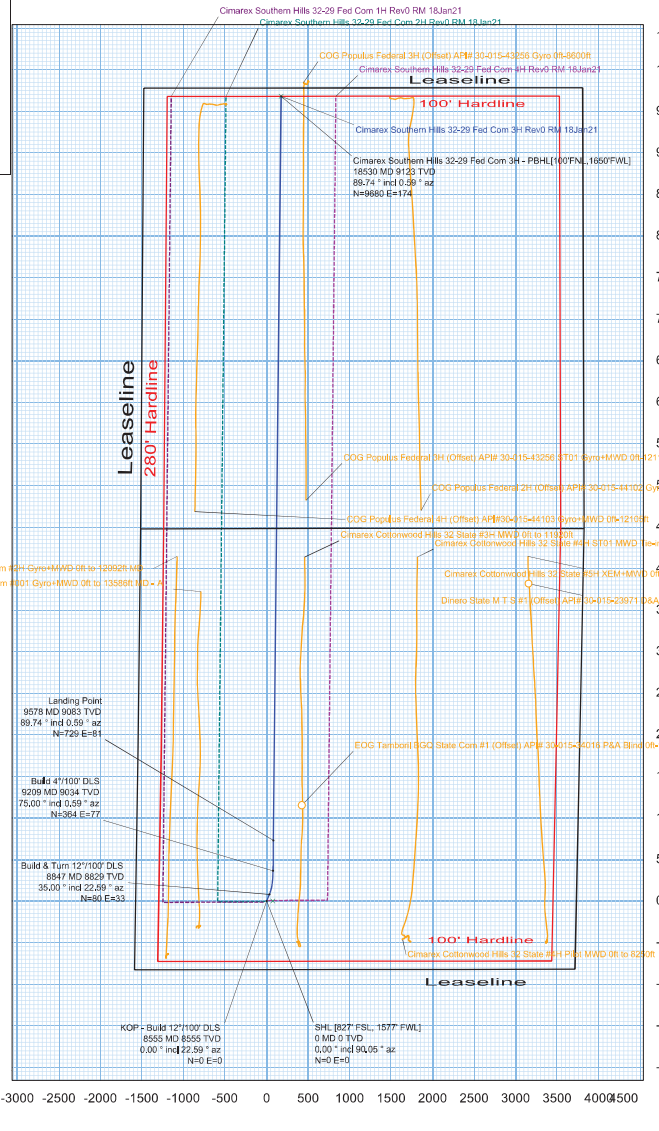


CONTROLLED

Plan ref	Cimarex Southern Hills 32-29 Fed Com 3H Rev0 RM 18Jan21
Drawing ref	
Copy number	of 3
Date	19-Jan-2021

1	Client	
2	Client	
3	Office	
4	Office	

Copy number for



PECOS DISTRICT
DRILLING CONDITIONS OF APPROVAL

OPERATOR'S NAME:	**Cimarex**
LEASE NO.:	**NMNM114348**
LOCATION:	Section 23, T.26 S., R.34 E., NMPM
COUNTY:	Lea County, New Mexico

WELL NAME & NO.:	Southern Hills 32-29 Fed Com 3H
SURFACE HOLE FOOTAGE:	827'/S & 1577'/W
BOTTOM HOLE FOOTAGE	100'/N & 1650'/W

COA

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

A. HYDROGEN SULFIDE

Hydrogen Sulfide (H2S) monitors shall be installed prior to drilling out the surface shoe. If H2S is detected in concentrations greater than 100 ppm, the Hydrogen Sulfide area shall meet Onshore Order 6 requirements, which includes equipment and personnel/public protection items. If Hydrogen Sulfide is encountered, provide measured values and formations to the BLM.

B. CASING

1. The **13-3/8** inch surface casing shall be set at approximately **600** feet (a minimum of 70 feet (Eddy 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 minimum required fill of cement behind the **9-5/8** inch intermediate casing is:
   - Cement to surface. If cement does not circulate see B.1.a, c-d above.

Wait on cement (WOC) time for a primary cement job is to include the lead cement slurry due to cave/karst or potash.

❖ In High Cave/Karst Areas if cement does not circulate to surface on the first two casing strings, the cement on the 3rd casing string must come to surface.

3. The minimum required fill of cement behind the **7** inch production casing Cement should tie-back at least **200 feet** into previous casing string. Operator shall provide method of verification.

4. The minimum required fill of cement behind the **4-1/2** inch production liner is:
   - Cement should tie-back **100 feet** into the previous casing. Operator shall provide method of verification. **Excess calculates to be 12%. Additional cement maybe requried.**

C. PRESSURE CONTROL

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

2. Operator has proposed a multi-bowl wellhead assembly. This assembly will only be tested when installed on the surface casing. Minimum working pressure of the blowout preventer (BOP) and related equipment (BOPE) required for drilling below the surface casing shoe shall be **5000 (5M)** psi.
a. Wellhead shall be installed by manufacturer's representatives, submit documentation with subsequent sundry.
b. If the welding is performed by a third party, the manufacturer's representative shall monitor the temperature to verify that it does not exceed the maximum temperature of the seal.
c. Manufacturer representative shall install the test plug for the initial BOP test.
d. If the cement does not circulate and one inch operations would have been possible with a standard wellhead, the well head shall be cut off, cementing operations performed and another wellhead installed.

e. Whenever any seal subject to test pressure is broken, all the tests in OOGO2.III.A.2.i must be followed.

D. SPECIAL REQUIREMENT (S)

Communitization Agreement

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

GENERAL REQUIREMENTS

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

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

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

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

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

a. In the event the operator has proposed to drill multiple wells utilizing a skid/walking rig. Operator shall secure the wellbore on the current well, after installing and testing the wellhead, by installing a blind flange of like pressure

rating to the wellhead and a pressure gauge that can be monitored while drilling is performed on the other well(s).

b. When the operator proposes to set surface casing with Spudder Rig
   - Notify the BLM when moving in and removing the Spudder Rig.
   - Notify the BLM when moving in the 2nd Rig. Rig to be moved in within 90 days of notification that Spudder Rig has left the location.
   - BOP/BOPE test to be conducted per Onshore Oil and Gas Order No. 2 as soon as 2nd Rig is rigged up on well.

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

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

A. CASING

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

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

3. Wait on cement (WOC) for Water Basin: After cementing but before commencing any tests, the casing string shall stand cemented under pressure until both of the following conditions have been met: 1) cement reaches a minimum compressive strength of 500 psi at the shoe, 2) until cement has been in place at least 8 hours. WOC time will be recorded in the driller's log. See individual casing strings for details regarding lead cement slurry requirements. The casing intergrity test can be done (prior to the cement setting up) immediately after bumping the plug.

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

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

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

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

B. PRESSURE CONTROL

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

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

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

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

    a. Wellhead shall be installed by manufacturer's representatives, submit documentation with subsequent sundry.

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

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

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

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

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

d. The test shall be run on a 5000 psi chart for a 2-3M BOP/BOP, on a 10000 psi chart for a 5M BOP/BOPE and on a 15000 psi chart for a 10M BOP/BOPE. If a linear chart is used, it shall be a one hour chart. A circular chart shall

have a maximum 2 hour clock. If a twelve hour or twenty-four hour chart is used, tester shall make a notation that it is run with a two hour clock.

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

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

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

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

C. DRILLING MUD

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

D. WASTE MATERIAL AND FLUIDS

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

Porto-johns and trash containers will be on-location during fracturing operations or any other crew-intensive operations.
ZS101321

Hydrogen Sulfide Drilling Operations Plan
Southern Hills 32-5 Fed Com 3H
Cimarex Energy Co.
Sec. 32, 25S, 27E
Eddy Co., NM

1 All Company and Contract personnel admitted on location must be trained by a qualified H2S safety instructor to the following:

A. Characteristics of H_2S
B. Physical effects and hazards
C. Principal and operation of H2S detectors, warning system and briefing areas.
D. Evacuation procedure, routes and first aid.
E. Proper use of safety equipment & life support systems
F. Essential personnel meeting Medical Evaluation criteria will receive additional training on the proper use of 30 minute pressure demand air packs.

H_2S Detection and Alarm Systems:

A. H2S sensors/detectors to be located on the drilling rig floor, in the base of the sub structure/cellar area, on the mud pits in the shale shaker area. Additional H2S detectors may play placed as deemed necessary.

B. An audio alarm system will be installed on the derrick floor and in the top doghouse.

3 Windsock and/or wind streamers:

A. Windsock at mudpit area should be high enough to be visible.
B. Windsock on the rig floor and / or top doghouse should be high enough to be visible.

4 Condition Flags and Signs

A. Warning sign on access road to location.
B. Flags to be displayed on sign at entrance to location. Green flag indicates normal safe condition. Yellow flag indicates potential pressure and danger. Red flag indicates danger (H_2S present in dangerous concentration). Only H2S trained and certified personnel admitted to location.

5 Well control equipment:

A. See exhibit "E-1"

6 Communication:

A. While working under masks chalkboards will be used for communication.
B. Hand signals will be used where chalk board is inappropriate.
C. Two way radio will be used to communicate off location in case of emergency help is required. In most cases cellular telephones will be available at most drilling foreman's trailer or living quarters.

7 Drillstem Testing:
No DSTs r cores are planned at this time.

8 Drilling contractor supervisor will be required to be familiar with the effects H_2S has on tubular goods and other mechanical equipment.

9 If H2S is encountered, mud system will be altered if necessary to maintain control of formation. A mud gas separator will be brought into service along with H2S scavengers if necessary.

H_2S Contingency Plan
Southern Hills 32-29 Fed Com 3H
Cimarex Energy Co.
Sec. 32, 25S, 27E
Eddy Co., NM

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 432-620-1975
« Take precautions to avoid personal injury during this operation.
« Contact operator 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 there is an ignition of the gas.

Characteristics of H_2S and SO_2

Please see attached International Chemical Safety Cards.

Contacting Authorities

Cimarex Energy Co. of Colorado's personnel must liaise 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. Cimarex Energy Co. of Colorado's response must be in coordination with the State of New Mexico's "Hazardous Materials Emergency Response Plan" (HMER).

H_2S Contingency Plan Emergency Contac t s
Southern Hills 32-29 fed Com 3H
Cimarex Energy Co.
Sec. 32, 25S, 27E
Eddy Co., NM

Company Office			
Cimarex Energy Co. of Colorado		800-969-4789	
Co. Office and After-Hours Menu			

Key Personnel

Name	**Title**	**Office**	**Mobile**
Larry Seigrist	Drilling Manager	432-620-1934	580-243-8485
Charlie Pritchard	Drilling Superintendent	432-620-1975	432-238-7084
Roy Shirley	Construction Superintendent		432-634-2136

Artesia		
Ambulance	911	
State Police	575-746-2703	
City Police	575-746-2703	
Sheriff's Office	575-746-9888	
Fire Department	**575-746-2701**	
Local Emergency Planning Committee	575-746-2122	
New Mexico Oil Conservation Division	575-748-1283	

Carlsbad		
Ambulance	911	
State Police	575-885-3137	
City Police	575-885-2111	
Sheriff's Office	575-887-7551	
Fire Department	**575-887-3798**	
Local Emergency Planning Committee	575-887-6544	
US Bureau of Land Management	575-887-6544	

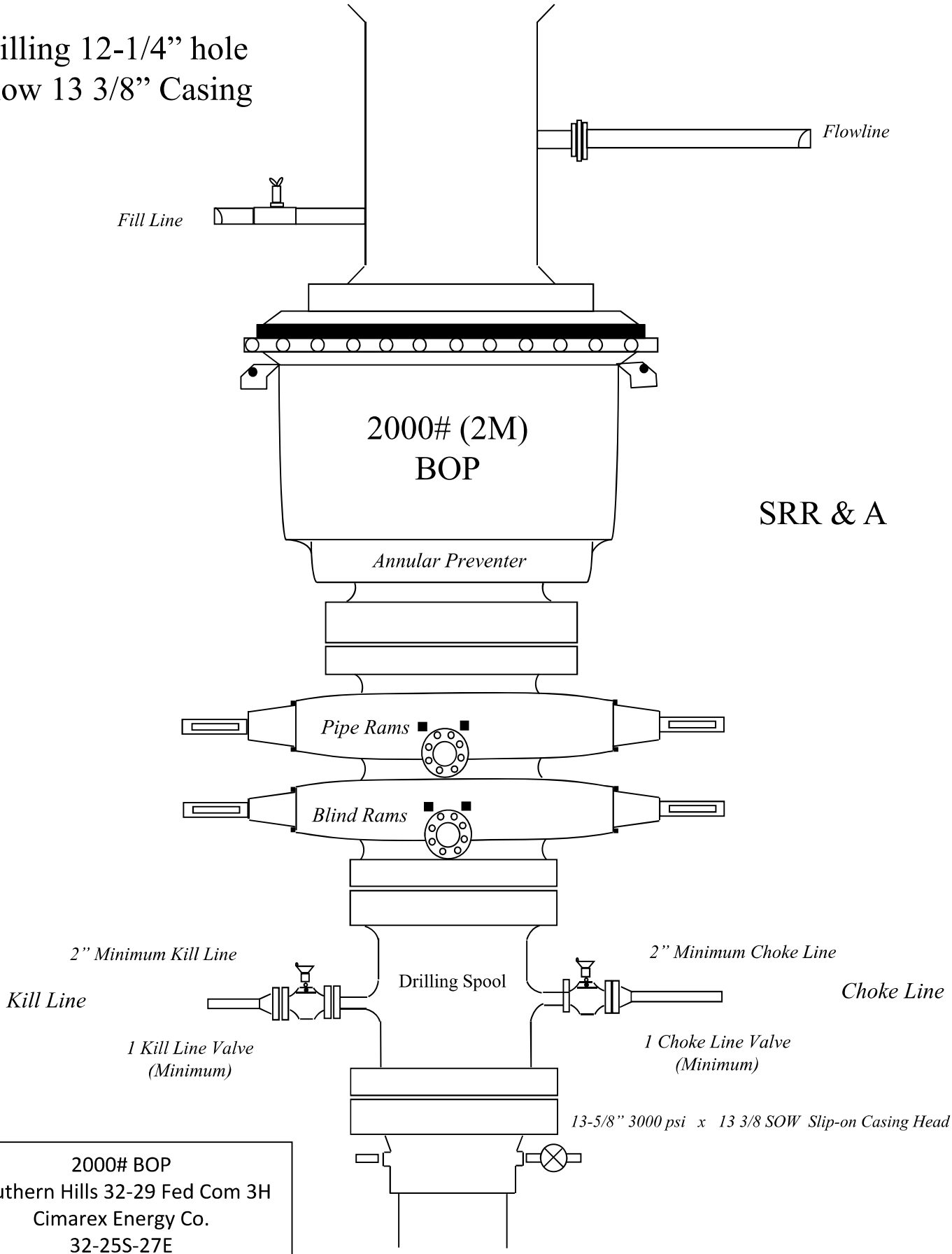
Santa Fe		
New Mexico Emergency Response Commission (Santa Fe)	505-476-9600	
New Mexico Emergency Response Commission (Santa Fe) 24 Hrs	505-827-9126	
New Mexico State Emergency Operations Center	505-476-9635	

National		
National Emergency Response Center (Washington, D.C.)	800-424-8802	

Medical		
Flight for Life - 4000 24th St.; Lubbock, TX	806-743-9911	
Aerocare - R3, Box 49F; Lubbock, TX	806-747-8923	
Med Flight Air Amb - 2301 Yale Blvd S.E., #D3; Albuquerque, NM	505-842-4433	
SB Air Med Service - 2505 Clark Carr Loop S.E.; Albuquerque, NM	505-842-4949	

Other			
Boots & Coots IWC	800-256-9688	or	281-931-8884
Cudd Pressure Control	432-699-0139	or	432-563-3356
Halliburton	575-746-2757		
B.J. Services	575-746-3569		

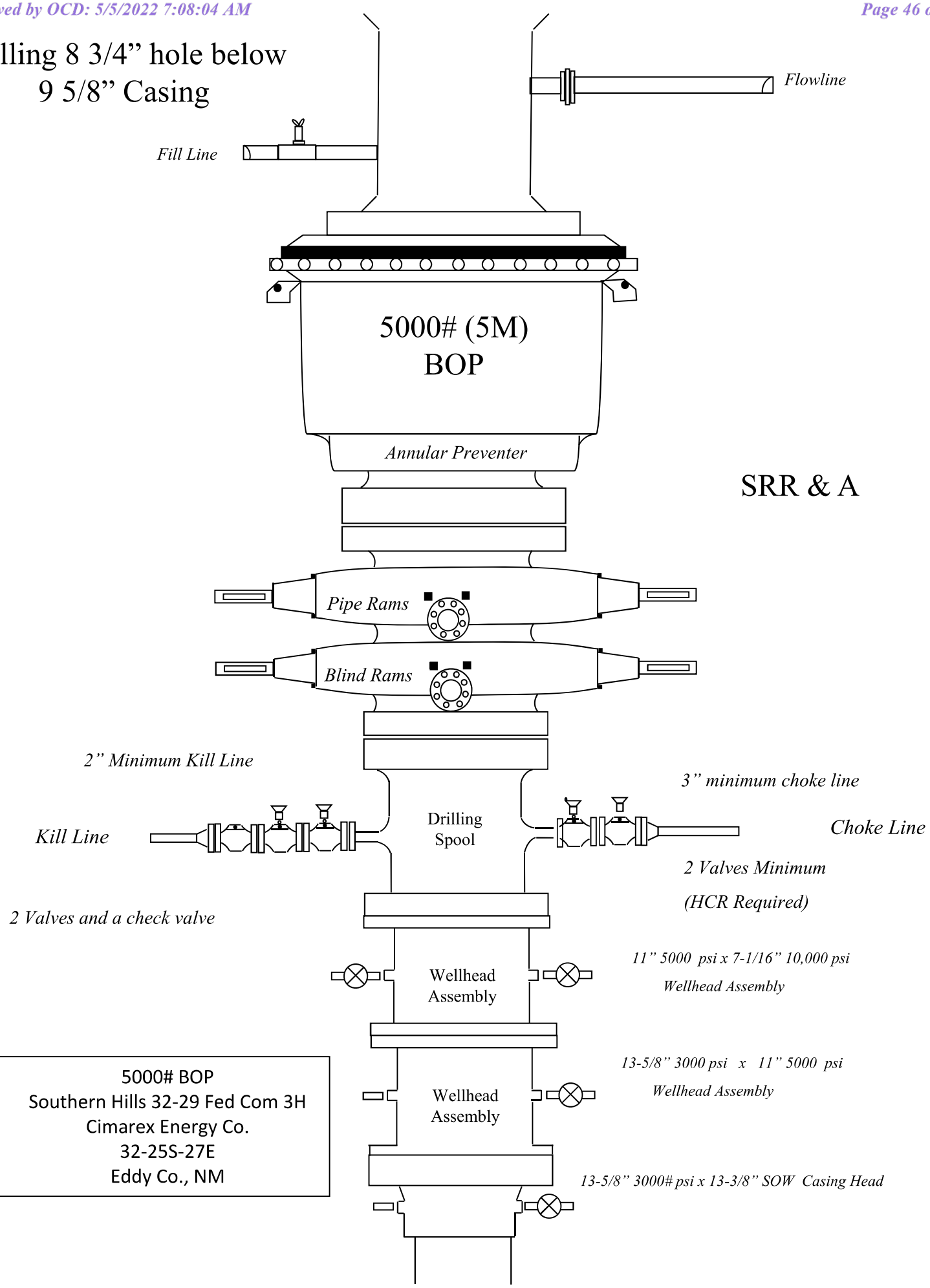
Drilling 12-1/4" hole
below 13 3/8" Casing



SRR & A

2000# BOP
Southern Hills 32-29 Fed Com 3H
Cimarex Energy Co.
32-25S-27E
Eddy Co., NM

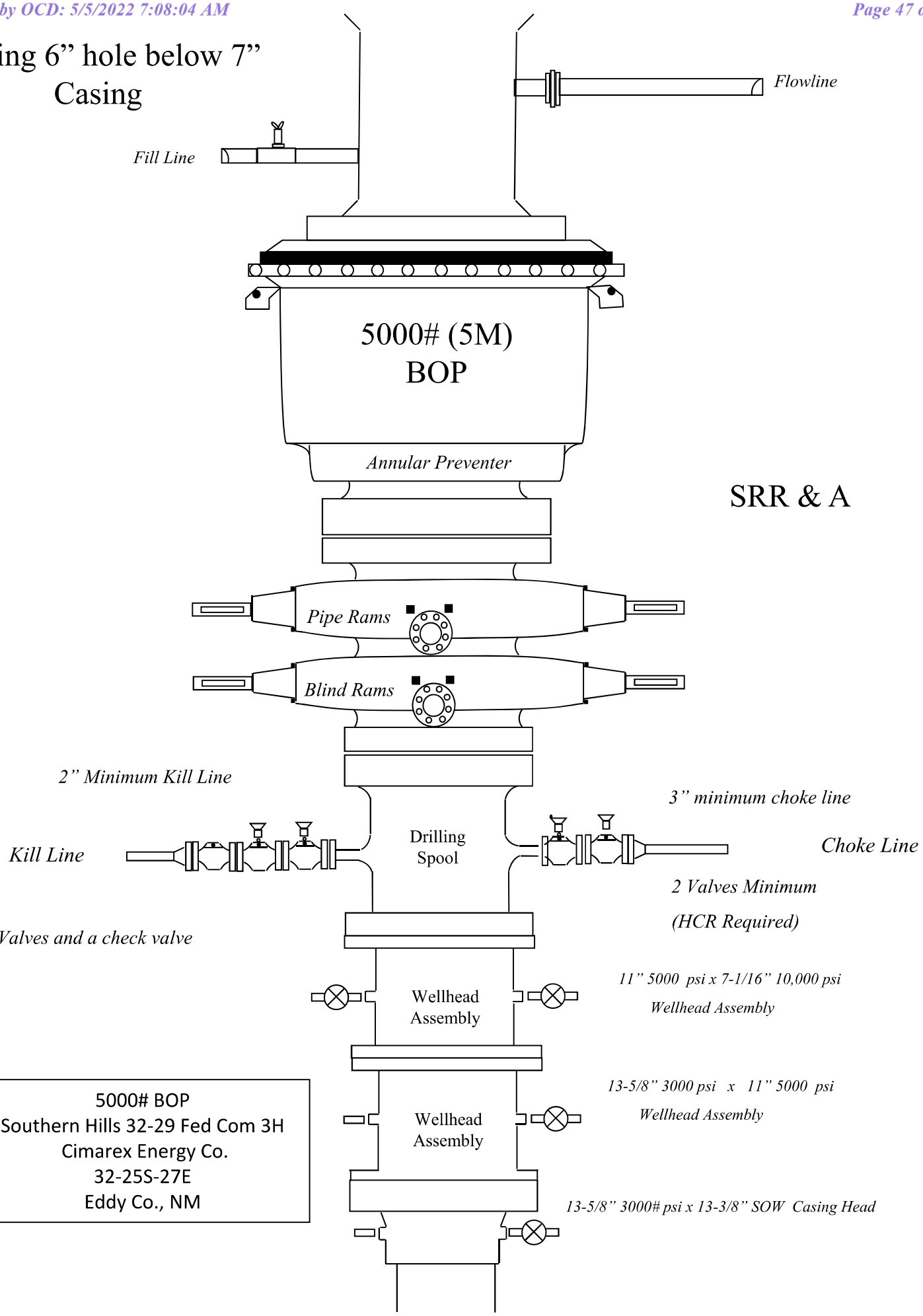
Drilling 8 3/4" hole below 9 5/8" Casing



SRR & A

5000# BOP
Southern Hills 32-29 Fed Com 3H
Cimarex Energy Co.
32-25S-27E
Eddy Co., NM

Drilling 6” hole below 7” Casing



SRR & A

5000# BOP
Southern Hills 32-29 Fed Com 3H
Cimarex Energy Co.
32-25S-27E
Eddy Co., NM

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 104246

CONDITIONS

Operator: CIMAREX ENERGY CO. 600 N. Marienfeld Street Midland, TX 79701	OGRID: 215099
	Action Number: 104246
	Action Type: [C-101] BLM - Federal/Indian Land Lease (Form 3160-3)

CONDITIONS

Created By	Condition	Condition Date
kpickford	Will require a administrative order for non-standard location prior to placing the well on production	5/10/2022
kpickford	Notify OCD 24 hours prior to casing & cement	5/10/2022
kpickford	Will require a File As Drilled C-102 and a Directional Survey with the C-104	5/10/2022
kpickford	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	5/10/2022
kpickford	Cement is required to circulate on both surface and intermediate1 strings of casing	5/10/2022
kpickford	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	5/10/2022