Form 3160-5
(June 2019)

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

FORM APPROVED
OMB No. 1004-0137
Expires: October 31, 2021

SUNDRY NOTICES AND REPORTS ON WELLS

Do not use this form for proposals to drill or to re-enter an abandoned well. Use Form 3160-3 (APD) for such proposals.

SUBMIT IN TRIPLICATE *- Other instructions on page 2*

5. Lease Serial No.

6. If Indian, Allottee or Tribe Name

7. If Unit of CA/Agreement, Name and/or No.

1. Type of Well
☐ Oil Well ☐ Gas Well ☐ Other

8. Well Name and No.

2. Name of Operator

9. API Well No. 159H

3a. Address

3b. Phone No. *(include area code)*

10. Field and Pool or Exploratory Area WC-025 G-08 S253235G; LWR BS

4. Location of Well *(Footage, Sec., T.,R.,M., or Survey Description)*

11. Country or Parish, State

12. CHECK THE APPROPRIATE BOX(ES) TO INDICATE NATURE OF NOTICE, REPORT OR OTHER DATA

TYPE OF SUBMISSION	TYPE OF ACTION			
☐ Notice of Intent	☐ Acidize	☐ Deepen	☐ Production (Start/Resume)	☐ Water Shut-Off
	☐ Alter Casing	☐ Hydraulic Fracturing	☐ Reclamation	☐ Well Integrity
☐ Subsequent Report	☐ Casing Repair	☐ New Construction	☐ Recomplete	☐ Other
	☐ Change Plans	☐ Plug and Abandon	☐ Temporarily Abandon	
☐ Final Abandonment Notice	☐ Convert to Injection	☐ Plug Back	☐ Water Disposal	

13. Describe Proposed or Completed Operation: Clearly state all pertinent details, including estimated starting date of any proposed work and approximate duration thereof. If the proposal is to deepen directionally or recomplete horizontally, give subsurface locations and measured and true vertical depths of all pertinent markers and zones. Attach the Bond under which the work will be perfonned or provide the Bond No. on file with BLM/BIA. Required subsequent reports must be filed within 30 days following completion of the involved operations. If the operation results in a multiple completion or recompletion in a new interval, a Form 3160-4 must be filed once testing has been completed. Final Abandonment Notices must be filed only after all requirements, including reclamation, have been completed and the operator has detennined that the site is ready for final inspection.)

14. I hereby certify that the foregoing is true and correct. Name *(Printed/Typed)*

Title

Signature

Date

THE SPACE FOR FEDERAL OR STATE OFICE USE

Approved by

Title

Date

Conditions of approval, if any, are attached. Approval of this notice 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.

Office

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.

(Instructions on page 2)

GENERAL INSTRUCTIONS

This form is designed for submitting proposals to perform certain well operations and reports of such operations when completed as indicated on Federal and Indian lands pursuant to applicable Federal law and regulations. Any necessary special instructions concerning the use of this form and the number of copies to be submitted, particularly with regard to local area or regional procedures and practices, are either shown below, will be issued by or may be obtained from the local Federal office.

SPECIFIC INSTRUCTIONS

Item 4 - Locations on Federal or Indian land should be described in accordance with Federal requirements. Consult the local Federal office for specific instructions.

Item 13: Proposals to abandon a well and subsequent reports of abandonment should include such special information as is required by the local Federal office. In addition, such proposals and reports should include reasons for the abandonment; data on any former or present productive zones or other zones with present significant fluid contents not sealed off by cement or otherwise; depths (top and bottom) and method of placement of cement plugs; mud or other material placed below, between and above plugs; amount, size, method of parting of any casing, liner or tubing pulled and the depth to the top of any tubing left in the hole; method of closing top of well and date well site conditioned for final inspection looking for approval of the abandonment. If the proposal will involve **hydraulic fracturing operations**, you must comply with 43 CFR 3162.3-3, including providing information about the protection of usable water. Operators should provide the best available information about all formations containing water and their depths. This information could include data and interpretation of resistivity logs run on nearby wells. Information may also be obtained from state or tribal regulatory agencies and from local BLM offices.

NOTICES

The privacy Act of 1974 and the regulation in 43 CFR 2.48(d) provide that you be furnished the following information in connection with information required by this application.
AUTHORITY: 30 U.S.C. 181 et seq., 351 et seq., 25 U.S.C. 396; 43 CFR 3160.
PRINCIPAL PURPOSE: The information is used to: (1) Evaluate, when appropriate, approve applications, and report completion of subsequent well operations, on a Federal or Indian lease; and (2) document for administrative use, information for the management, disposal and use of National Resource lands and resources, such as: (a) evaluating the equipment and procedures to be used during a proposed subsequent well operation and reviewing the completed well operations for compliance with the approved plan; (b) requesting and granting approval to perform those actions covered by 43 CFR 3162.3-2, 3162.3-3, and 3162.3-4; (c) reporting the beginning or resumption of production, as required by 43 CFR 3162.4-1(c)and (d) analyzing future applications to drill or modify operations in light of data obtained and methods used.
ROUTINE USES: Information from the record and/or the record will be transferred to appropriate Federal, State, local or foreign agencies, when relevant to civil, criminal or regulatory investigations or prosecutions in connection with congressional inquiries or to consumer reporting agencies to facilitate collection of debts owed the Government.
EFFECT OF NOT PROVIDING THE INFORMATION: Filing of this notice and report and disclosure of the information is mandatory for those subsequent well operations specified in 43 CFR 3162.3-2, 3162.3-3, 3162.3-4.

The Paperwork Reduction Act of 1995 requires us to inform you that:
The BLM collects this information to evaluate proposed and/or completed subsequent well operations on Federal or Indian oil and gas leases.
Response to this request is mandatory.
The BLM would like you to know that you do not have to respond to this or any other Federal agency-sponsored information collection unless it displays a currently valid OMB control number.

BURDEN HOURS STATEMENT: Public reporting burden for this form is estimated to average 8 hours per response, including the time for reviewing instructions, gathering and maintaining data, and completing and reviewing the form. Direct comments regarding the burden estimate or any other aspect ofthis form to U.S. Department ofthe Interior, Bureau ofLand Management (1004-0137), Bureau Information Collection Clearance Officer (WO-630), 1849 C St., N.W., Mail Stop 401 LS, Washington, D.C. 20240

Additional Information

Additional Remarks

FROM: 20962' MD; 10900' TVD Bone Spring

TO: 20583' MD; 10355' TVD Bone Spring

NOTE: Pool will remain the same - 97903 - WC-025; G-08 S253235G; Lower Bone Spring

Please see attached new drilling plan and revised C-102, new directional survey and BOPs and chokes.

Location of Well

0. SHL: NENW / 330 FNL / 2285 FWL / TWSP: 25S / RANGE: 33E / SECTION: 32 / LAT: 32.09341 / LONG: -103.595478 (TVD: 0 feet, MD: 0 feet)

PPP: SENW / 1320 FNL / 2285 FWL / TWSP: 26S / RANGE: 33E / SECTION: 5 / LAT: 32.076167 / LONG: -103.595478 (TVD: 10900 feet, MD: 17107 feet)

PPP: NENW / 330 FNL / 2285 FWL / TWSP: 25S / RANGE: 33E / SECTION: 32 / LAT: 32.09341 / LONG: -103.595478 (TVD: 10202 feet, MD: 10207 feet)

PPP: NENW / 0 FNL / 2285 FWL / TWSP: 26S / RANGE: 33E / SECTION: 5 / LAT: 32.0798 / LONG: -103.595478 (TVD: 10900 feet, MD: 15784 feet)

BHL: SESW / 100 FSL / 2285 FWL / TWSP: 26S / RANGE: 33E / SECTION: 5 / LAT: 32.065569 / LONG: -103.595476 (TVD: 10900 feet, MD: 20962 feet)

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

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

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

AMENDED REPORT

WELL LOCATION AND ACREAGE DEDICATION PLAT

[1] API Number	[2] Pool Code	[3] Pool Name
30-025-50209	97903	WC-025; G-08 S253235G; Lower Bone Spring

[4] Property Code	[5] Property Name	[6] Well Number
330240	RED HILLS 32-5 FED COM	159H

[7] OGRID No.	[8] Operator Name	[9] Elevation
215099	CIMAREX ENERGY CO.	3409.0'

[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
C	32	25S	33E		330	NORTH	2285	WEST	LEA

[11] Bottom Hole Location If Different From Surface

UL or lot no.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County
O	5	26S	33E		100	SOUTH	2017	EAST	LEA

[12] Dedicated Acres	[13] Joint or Infill	[14] Consolidation Code	[15] Order No.
1280			NSP-2145

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]

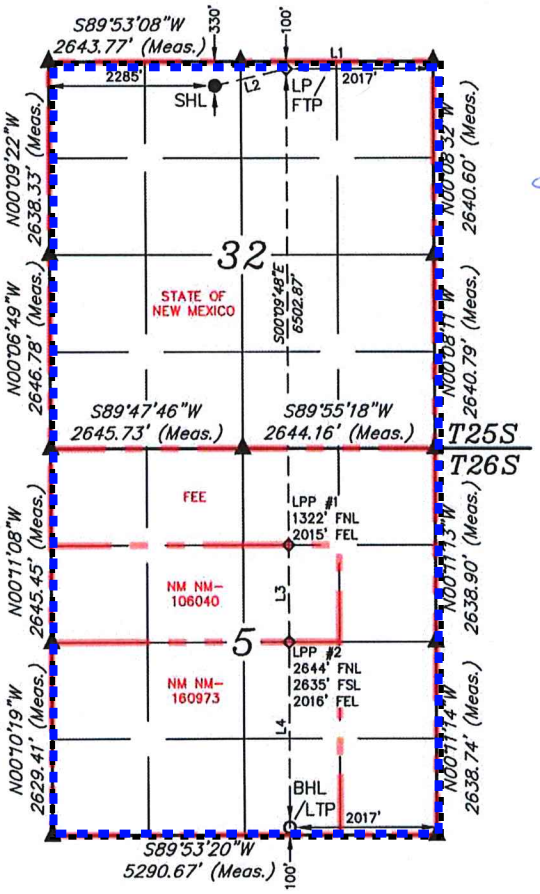
NAD 83 (SURFACE HOLE LOCATION)
LATITUDE = 32°05'36.27" (32.093410°)
LONGITUDE = 103°35'43.72" (103.595478°)
NAD 27 (SURFACE HOLE LOCATION)
LATITUDE = 32°05'35.83" (32.093285°)
LONGITUDE = 103°35'42.02" (103.595007°)
STATE PLANE NAD 83 (N.M. EAST)
N: 398500.97' E: 769834.49'
STATE PLANE NAD 27 (N.M. EAST)
N: 398443.33' E: 728648.05'

NAD 83 (LP/FTP)
LATITUDE = 32°05'38.54" (32.094039°)
LONGITUDE = 103°35'32.24" (103.592290°)
NAD 27 (LP/FTP)
LATITUDE = 32°05'38.09" (32.093914°)
LONGITUDE = 103°35'30.55" (103.591819°)
STATE PLANE NAD 83 (N.M. EAST)
N: 398736.72' E: 770820.12'
STATE PLANE NAD 27 (N.M. EAST)
N: 398679.08' E: 729633.68'

NAD 83 (LPP #1)
LATITUDE = 32°04'34.20" (32.076167°)
LONGITUDE = 103°35'32.23" (103.592287°)
NAD 27 (LPP #1)
LATITUDE = 32°04'33.75" (32.076042°)
LONGITUDE = 103°35'30.54" (103.591817°)
STATE PLANE NAD 83 (N.M. EAST)
N: 392235.13' E: 770865.77'
STATE PLANE NAD 27 (N.M. EAST)
N: 392177.66' E: 729679.02'

NAD 83 (LPP #2)
LATITUDE = 32°04'21.12" (32.072534°)
LONGITUDE = 103°35'32.23" (103.592286°)
NAD 27 (LPP #2)
LATITUDE = 32°04'20.67" (32.072409°)
LONGITUDE = 103°35'30.54" (103.591817°)
STATE PLANE NAD 83 (N.M. EAST)
N: 390913.59' E: 770875.04'
STATE PLANE NAD 27 (N.M. EAST)
N: 390856.15' E: 729688.24'

NAD 83 (BHL/LTP)
LATITUDE = 32°03'56.04" (32.065567°)
LONGITUDE = 103°35'32.23" (103.592285°)
NAD 27 (BHL/LTP)
LATITUDE = 32°03'55.59" (32.065442°)
LONGITUDE = 103°35'30.54" (103.591816°)
STATE PLANE NAD 83 (N.M. EAST)
N: 388378.91' E: 770892.83'
STATE PLANE NAD 27 (N.M. EAST)
N: 388321.53' E: 729705.91'



LINE TABLE		
LINE	DIRECTION	LENGTH
L1	S89°54'44"W	2645.70'
L2	N76°47'14"E	1013.61'
L3	S00°09'48"E	1321.80'
L4	S00°09'48"E	2535.18'

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

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"

2000' 1000' 0' 2000'
SCALE

DRAWN BY: J.A. 08-09-19
REV: 3 D.M.C. 06-27-22
(FTP, BHL CHANGES & ADDED LEASE CROSSINGS)

[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.

Rusty Klein 9/12/22
Signature Date

RUSTY KLEIN
Printed Name

rusty.klein@coterra.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.

May 01, 2018
Date of Survey
Signature and Seal of Professional Surveyor:

PAUL BUCHELE NEW MEXICO 23782 PROFESSIONAL SURVEYOR
06-27-22

Certificate Number:

PECOS DISTRICT
DRILLING CONDITIONS OF APPROVAL

OPERATOR'S NAME:	**Cimarex Energy**
LEASE NO.:	**NMNM0106040A**
LOCATION:	Section 32, T.25 S., R.33 E., NMPM
COUNTY:	Lea County, New Mexico

WELL NAME & NO.:	**Red Hills 32 Fed Com 159H**
SURFACE HOLE FOOTAGE:	330'/N & 2285'/W
BOTTOM HOLE FOOTAGE	100'/S & 2017'/E

COA

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

A. HYDROGEN SULFIDE

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

B. CASING

1. The **13-3/8** inch surface casing shall be set at approximately **1000** feet (a minimum of 25 feet (Lea County) into the Rustler Anhydrite and above the salt) and cemented to the surface.

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

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

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

Intermediate casing must be kept 1/3 fluid filled to meet BLM minimum collapse requirement.

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.

3. The minimum required fill of cement behind the **7** inch production casing is:
   - 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 calculate to be 23%. Additional cement maybe required.**

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.
ZS 021423

1. Geological Formations

TVD of target 10,355
MD at TD 20,583

Pilot Hole TD N/A
Deepest expected fresh water

Formation	Depth (TVD) from KB	Water/Mineral Bearing/Target Zone	Hazards
Rustler	875	Useable Water	
Top Salt	1235	N/A	
Base Salt	4900	N/A	
Bell Canyon	4930	N/A	
Cherry Canyon	5960	N/A	
Brushy Canyon	7480	Hydrocarbons	
Bone Spring	9045	Hydrocarbons	
Upper Avalon shale	9305	Hydrocarbons	
1st Bone Spring	10040	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	925	925	13-3/8"	48.00	H-40	ST&C	1.85	4.32	7.25
12 1/4	0	4980	4980	9-5/8"	40.00	HCK-55	LT&C	1.43	1.48	2.82
8 3/4	0	9889	9889	7"	29.00	L-80	LT&C	1.52	1.76	1.96
8 3/4	9889	10639	10345	7"	29.00	P-110	BT&C	1.76	2.32	70.25
6	8889	20582	10355	4-1/2"	11.60	P-110	BT&C	1.56	2.21	21.58
						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?	Y

3. Cementing Program

Casing	# Sks	Wt. lb/gal	Yld ft3/sack	H2O gal/sk	500# Comp. Strength (hours)	Slurry Description
Surface	379	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	950	12.90	1.88	9.65	12	Lead: 35:65 (Poz:C) + Salt + Bentonite
	291	14.80	1.34	6.32	9.5	Tail: Class C + LCM
Production	313	10.30	3.64	22.18		Lead: Tuned Light + LCM
	125	14.80	1.36	6.57	9.5	Tail: Class C + Retarder
Completion System	738	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	42
Intermediate	0	49
Production	4780	25
Completion System	10439	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		
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 925'	Fresh Water	7.83 - 8.33	28	N/C
925' to 4980'	Brine Water	9.80 - 10.30	30-32	N/C
4980' to 10639' 10639' to 20583'	Cut Brine or OBM OBM	8.50 - 9.00 8.50-9.00	27-70 50-70	N/C 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.
X	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	4841 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.
X	H2S is present
X	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 working pressure, or a maximum test pressure of 5000 psi. 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.

All casing strings will be tested as per Onshore Order No.2 to at least 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.

10.Other Variances

Cimarex requests to perform offline cementing. OLC procedure as follows: 1. Land casing on solid body mandrel hanger. Engage packoff and lock ring 2. Install BPV. 3. Skid rig. 4. Check for pressure and remove BPV. 5. Circulate down casing, taking returns through casing valves. 6. Pump lead and tail cement. 7. Displace cement and bump the plug. 8. Ensure floats are holding pressure. 9. RD cement crew. 10. Install BPV and TA cap.

Cimarex requests permission to skid the rig to the next well on the pad to begin operations instead of waiting 8 hours for surface cement to harden on this 159H well. Surface cement will be pumped and we will ensure floats hold, do a green cement test and then skid to the next well on pad. We will not perform any operations on this 159H well until at least 8 hours and when both tail and lead slurry reach 500 psi. The mandrel hanger is made up on the last joint of 13 3/8” casing and then lowered down with and landing joint. It is then lowered down until the mandrel contacts the landing ring which is pre-welded to the conductor pipe. At this point the 13 3/8”casing is entirely supported by the conductor pipe via the landing ring/mandrel and is independent from the rig. This allows us to walk the rig away from the 159H well and begin work on the next well while the cement is hardening. There is no way for the casing to be moved or knocked off center since it is hanging from the landing ring.

Schlumberger

Cimarex Red Hills 32-5 Fed Com 159H Rev4 kFc 01Sep22 Proposal
Geodetic Report
(Def Plan)

CIMAREX

30.025.50209

Report Date:	September 02, 2022 - 04:38 PM	**Survey / DLS Computation:**	Minimum Curvature / Lubinski
Client:	Cimarex Energy	**Vertical Section Azimuth:**	179.600 ° (Grid North)
Field:	NM Lea County (NAD 83)	**Vertical Section Origin:**	0.000 ft, 0.000 ft
Structure / Slot:	Cimarex Red Hills 32-5 Fed Com 159H / 159H	**TVD Reference Datum:**	RKB = 22ft
Well:	Red Hills 32-5 Fed Com 159H	**TVD Reference Elevation:**	3431.000 ft above MSL
Borehole:	Red Hills 32-5 Fed Com 159H	**Seabed / Ground Elevation:**	3409.000 ft above MSL
UWI / API#:	Unknown / Unknown	**Magnetic Declination:**	6.305 °
Survey Name:	Cimarex Red Hills 32-5 Fed Com 159H Rev4 kFc 01Sep22	**Total Gravity Field Strength:**	998.4290mgn (9.80665 Based)
Survey Date:	September 01, 2022	**Gravity Model:**	GARM
Tort / AHD / DDI / ERD Ratio:	121.142 ° / 11297.312 ft / 6.433 / 1.087	**Total Magnetic Field Strength:**	47434.573 nT
Coordinate Reference System:	NAD83 New Mexico State Plane, Eastern Zone, US Feet	**Magnetic Dip Angle:**	59.650 °
Location Lat / Long:	N 32° 5' 36.27488", W 103° 35' 43.72010"	**Declination Date:**	September 01, 2022
Location Grid N/E Y/X:	N 398500.970 ftUS, E 769834.490 ftUS	**Magnetic Declination Model:**	HDGM 2022
CRS Grid Convergence Angle:	0.3920 °	**North Reference:**	Grid North
Grid Scale Factor:	0.99996889	**Grid Convergence Used:**	0.3920 °
Version / Patch:	2.10.832.2	**Total Corr Mag North->Grid North:**	5.9133 °
		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 [330' FNL, 2285' FWL]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	N/A	398500.97	769834.49	N 32.093410	W 103.595478
	100.00	0.00	75.41	100.00	0.00	0.00	0.00	0.00	398500.97	769834.49	N 32.093410	W 103.595478
	200.00	0.00	75.41	200.00	0.00	0.00	0.00	0.00	398500.97	769834.49	N 32.093410	W 103.595478
	300.00	0.00	75.41	300.00	0.00	0.00	0.00	0.00	398500.97	769834.49	N 32.093410	W 103.595478
	400.00	0.00	75.41	400.00	0.00	0.00	0.00	0.00	398500.97	769834.49	N 32.093410	W 103.595478
	500.00	0.00	75.41	500.00	0.00	0.00	0.00	0.00	398500.97	769834.49	N 32.093410	W 103.595478
	600.00	0.00	75.41	600.00	0.00	0.00	0.00	0.00	398500.97	769834.49	N 32.093410	W 103.595478
	700.00	0.00	75.41	700.00	0.00	0.00	0.00	0.00	398500.97	769834.49	N 32.093410	W 103.595478
	800.00	0.00	75.41	800.00	0.00	0.00	0.00	0.00	398500.97	769834.49	N 32.093410	W 103.595478
Rustler	*875.00*	*0.00*	*75.41*	*875.00*	*0.00*	*0.00*	*0.00*	*0.00*	*398500.97*	*769834.49*	*N 32.093410*	*W 103.595478*
	900.00	0.00	75.41	900.00	0.00	0.00	0.00	0.00	398500.97	769834.49	N 32.093410	W 103.595478
	1000.00	0.00	75.41	1000.00	0.00	0.00	0.00	0.00	398500.97	769834.49	N 32.093410	W 103.595478
	1100.00	0.00	75.41	1100.00	0.00	0.00	0.00	0.00	398500.97	769834.49	N 32.093410	W 103.595478
	1200.00	0.00	75.41	1200.00	0.00	0.00	0.00	0.00	398500.97	769834.49	N 32.093410	W 103.595478
Top of Salt	*1235.00*	*0.00*	*75.41*	*1235.00*	*0.00*	*0.00*	*0.00*	*0.00*	*398500.97*	*769834.49*	*N 32.093410*	*W 103.595478*
	1300.00	0.00	75.41	1300.00	0.00	0.00	0.00	0.00	398500.97	769834.49	N 32.093410	W 103.595478
	1400.00	0.00	75.41	1400.00	0.00	0.00	0.00	0.00	398500.97	769834.49	N 32.093410	W 103.595478
	1500.00	0.00	75.41	1500.00	0.00	0.00	0.00	0.00	398500.97	769834.49	N 32.093410	W 103.595478
	1600.00	0.00	75.41	1600.00	0.00	0.00	0.00	0.00	398500.97	769834.49	N 32.093410	W 103.595478
	1700.00	0.00	75.41	1700.00	0.00	0.00	0.00	0.00	398500.97	769834.49	N 32.093410	W 103.595478
	1800.00	0.00	75.41	1800.00	0.00	0.00	0.00	0.00	398500.97	769834.49	N 32.093410	W 103.595478
	1900.00	0.00	75.41	1900.00	0.00	0.00	0.00	0.00	398500.97	769834.49	N 32.093410	W 103.595478
	2000.00	0.00	75.41	2000.00	0.00	0.00	0.00	0.00	398500.97	769834.49	N 32.093410	W 103.595478
	2100.00	0.00	75.41	2100.00	0.00	0.00	0.00	0.00	398500.97	769834.49	N 32.093410	W 103.595478
	2200.00	0.00	75.41	2200.00	0.00	0.00	0.00	0.00	398500.97	769834.49	N 32.093410	W 103.595478
	2300.00	0.00	75.41	2300.00	0.00	0.00	0.00	0.00	398500.97	769834.49	N 32.093410	W 103.595478
	2400.00	0.00	75.41	2400.00	0.00	0.00	0.00	0.00	398500.97	769834.49	N 32.093410	W 103.595478
	2500.00	0.00	75.41	2500.00	0.00	0.00	0.00	0.00	398500.97	769834.49	N 32.093410	W 103.595478
Nudge, Build 2°/100ft	2600.00	0.00	75.41	2600.00	0.00	0.00	0.00	0.00	398500.97	769834.49	N 32.093410	W 103.595478
	2700.00	2.00	75.41	2699.98	-0.43	0.44	1.69	2.00	398501.41	769836.18	N 32.093411	W 103.595472
	2800.00	4.00	75.41	2799.84	-1.71	1.76	6.75	2.00	398502.73	769841.24	N 32.093414	W 103.595456
	2900.00	6.00	75.41	2899.45	-3.85	3.95	15.19	2.00	398504.92	769849.68	N 32.093420	W 103.595429
	3000.00	8.00	75.41	2998.70	-6.84	7.03	26.98	2.00	398507.99	769861.47	N 32.093428	W 103.595391
	3100.00	10.00	75.41	3097.47	-10.67	10.97	42.12	2.00	398511.94	769876.61	N 32.093439	W 103.595342
	3200.00	12.00	75.41	3195.62	-15.35	15.77	60.58	2.00	398516.74	769895.07	N 32.093452	W 103.595282
Hold	3225.00	12.50	75.41	3220.06	-16.65	17.11	65.72	2.00	398518.08	769900.20	N 32.093455	W 103.595265
	3300.00	12.50	75.41	3293.28	-20.63	21.20	81.43	0.00	398522.17	769915.91	N 32.093466	W 103.595214
	3400.00	12.50	75.41	3390.91	-25.94	26.65	102.37	0.00	398527.62	769936.86	N 32.093481	W 103.595147
	3500.00	12.50	75.41	3488.54	-31.25	32.11	123.32	0.00	398533.08	769957.80	N 32.093496	W 103.595079
	3600.00	12.50	75.41	3586.16	-36.55	37.56	144.26	0.00	398538.53	769978.75	N 32.093510	W 103.595011
	3700.00	12.50	75.41	3683.79	-41.86	43.02	165.21	0.00	398543.98	769999.69	N 32.093525	W 103.594943
	3800.00	12.50	75.41	3781.42	-47.17	48.47	186.15	0.00	398549.44	770020.64	N 32.093539	W 103.594876
	3900.00	12.50	75.41	3879.05	-52.48	53.92	207.10	0.00	398554.89	770041.58	N 32.093554	W 103.594808
	4000.00	12.50	75.41	3976.68	-57.78	59.38	228.04	0.00	398560.35	770062.53	N 32.093569	W 103.594740
	4100.00	12.50	75.41	4074.31	-63.09	64.83	248.99	0.00	398565.80	770083.47	N 32.093583	W 103.594672
	4200.00	12.50	75.41	4171.94	-68.40	70.28	269.94	0.00	398571.25	770104.42	N 32.093598	W 103.594605
	4300.00	12.50	75.41	4269.57	-73.71	75.74	290.88	0.00	398576.71	770125.36	N 32.093612	W 103.594537
	4400.00	12.50	75.41	4367.20	-79.01	81.19	311.83	0.00	398582.16	770146.31	N 32.093627	W 103.594469
	4500.00	12.50	75.41	4464.83	-84.32	86.65	332.77	0.00	398587.61	770167.25	N 32.093642	W 103.594401
	4600.00	12.50	75.41	4562.46	-89.63	92.10	353.72	0.00	398593.07	770188.20	N 32.093656	W 103.594334
	4700.00	12.50	75.41	4660.09	-94.94	97.55	374.66	0.00	398598.52	770209.14	N 32.093671	W 103.594266
	4800.00	12.50	75.41	4757.72	-100.24	103.01	395.61	0.00	398603.97	770230.09	N 32.093685	W 103.594198
	4900.00	12.50	75.41	4855.35	-105.55	108.46	416.56	0.00	398609.43	770251.03	N 32.093700	W 103.594130
Base of Salt	*4945.73*	*12.50*	*75.41*	*4900.00*	*-107.98*	*110.98*	*426.13*	*0.00*	*398611.92*	*770260.61*	*N 32.093707*	*W 103.594099*
Bell Canyon	*4976.46*	*12.50*	*75.41*	*4930.00*	*-109.61*	*112.63*	*432.57*	*0.00*	*398613.60*	*770267.05*	*N 32.093711*	*W 103.594079*
	5000.00	12.50	75.41	4952.98	-110.86	113.91	437.50	0.00	398614.88	770271.98	N 32.093715	W 103.594063
	5100.00	12.50	75.41	5050.61	-116.17	119.37	458.45	0.00	398620.33	770292.92	N 32.093729	W 103.593995
	5200.00	12.50	75.41	5148.24	-121.47	124.82	479.39	0.00	398625.79	770313.87	N 32.093744	W 103.593927
	5300.00	12.50	75.41	5245.87	-126.78	130.28	500.34	0.00	398631.24	770334.81	N 32.093758	W 103.593859
	5400.00	12.50	75.41	5343.50	-132.09	135.73	521.28	0.00	398636.70	770355.76	N 32.093773	W 103.593792
	5500.00	12.50	75.41	5441.13	-137.39	141.18	542.23	0.00	398642.15	770376.70	N 32.093788	W 103.593724
	5600.00	12.50	75.41	5538.76	-142.70	146.64	563.17	0.00	398647.60	770397.65	N 32.093802	W 103.593656
	5700.00	12.50	75.41	5636.39	-148.01	152.09	584.12	0.00	398653.06	770418.59	N 32.093817	W 103.593588
	5800.00	12.50	75.41	5734.02	-153.32	157.54	605.07	0.00	398658.51	770439.54	N 32.093831	W 103.593521
	5900.00	12.50	75.41	5831.65	-158.62	163.00	626.01	0.00	398663.96	770460.48	N 32.093846	W 103.593453
	6000.00	12.50	75.41	5929.27	-163.93	168.45	646.96	0.00	398669.42	770481.43	N 32.093861	W 103.593385
Cherry Canyon	*6031.47*	*12.50*	*75.41*	*5960.00*	*-165.60*	*170.17*	*653.55*	*0.00*	*398671.13*	*770488.02*	*N 32.093865*	*W 103.593364*
	6100.00	12.50	75.41	6026.90	-169.24	173.91	667.90	0.00	398674.87	770502.37	N 32.093875	W 103.593317
	6200.00	12.50	75.41	6124.53	-174.55	179.36	688.85	0.00	398680.32	770523.32	N 32.093890	W 103.593250
	6300.00	12.50	75.41	6222.16	-179.85	184.81	709.79	0.00	398685.78	770544.26	N 32.093904	W 103.593182
	6400.00	12.50	75.41	6319.79	-185.16	190.27	730.74	0.00	398691.23	770565.21	N 32.093919	W 103.593114
	6500.00	12.50	75.41	6417.42	-190.47	195.72	751.69	0.00	398696.68	770586.15	N 32.093933	W 103.593046
	6600.00	12.50	75.41	6515.05	-195.78	201.17	772.63	0.00	398702.14	770607.10	N 32.093948	W 103.592979
	6700.00	12.50	75.41	6612.68	-201.08	206.63	793.58	0.00	398707.59	770628.04	N 32.093963	W 103.592911
	6800.00	12.50	75.41	6710.31	-206.39	212.08	814.52	0.00	398713.05	770648.99	N 32.093977	W 103.592843
	6900.00	12.50	75.41	6807.94	-211.70	217.54	835.47	0.00	398718.50	770669.93	N 32.093992	W 103.592775

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 °)
Drop 2°/100ft	6911.06	12.50	75.41	6818.73	-212.28	218.14	837.78	0.00	398719.10	770672.25	N 32.093993	W 103.592768
	7000.00	10.72	75.41	6905.86	-216.67	222.65	855.11	2.00	398723.61	770689.57	N 32.094006	W 103.592712
	7100.00	8.72	75.41	7004.41	-220.81	226.90	871.45	2.00	398727.87	770705.91	N 32.094017	W 103.592659
	7200.00	6.72	75.41	7103.50	-224.11	230.29	884.45	2.00	398731.25	770718.91	N 32.094026	W 103.592617
	7300.00	4.72	75.41	7203.00	-226.55	232.80	894.09	2.00	398733.76	770728.55	N 32.094033	W 103.592588
	7400.00	2.72	75.41	7302.78	-228.14	234.44	900.37	2.00	398735.40	770734.83	N 32.094037	W 103.592565
	7500.00	0.72	75.41	7402.73	-228.88	235.19	903.28	2.00	398736.16	770737.74	N 32.094039	W 103.592556
Hold	7536.06	0.00	75.41	7438.79	-228.94	235.25	903.50	2.00	398736.21	770737.96	N 32.094039	W 103.592555
Brushy Canyon	*7577.27*	*0.00*	*75.41*	*7480.00*	*-228.94*	*235.25*	*903.50*	*0.00*	*398736.21*	*770737.96*	*N 32.094039*	*W 103.592555*
	7600.00	0.00	75.41	7502.73	-228.94	235.25	903.50	0.00	398736.21	770737.96	N 32.094039	W 103.592555
	7700.00	0.00	75.41	7602.73	-228.94	235.25	903.50	0.00	398736.21	770737.96	N 32.094039	W 103.592555
	7800.00	0.00	75.41	7702.73	-228.94	235.25	903.50	0.00	398736.21	770737.96	N 32.094039	W 103.592555
	7900.00	0.00	75.41	7802.73	-228.94	235.25	903.50	0.00	398736.21	770737.96	N 32.094039	W 103.592555
	8000.00	0.00	75.41	7902.73	-228.94	235.25	903.50	0.00	398736.21	770737.96	N 32.094039	W 103.592555
	8100.00	0.00	75.41	8002.73	-228.94	235.25	903.50	0.00	398736.21	770737.96	N 32.094039	W 103.592555
	8200.00	0.00	75.41	8102.73	-228.94	235.25	903.50	0.00	398736.21	770737.96	N 32.094039	W 103.592555
	8300.00	0.00	75.41	8202.73	-228.94	235.25	903.50	0.00	398736.21	770737.96	N 32.094039	W 103.592555
	8400.00	0.00	75.41	8302.73	-228.94	235.25	903.50	0.00	398736.21	770737.96	N 32.094039	W 103.592555
	8500.00	0.00	75.41	8402.73	-228.94	235.25	903.50	0.00	398736.21	770737.96	N 32.094039	W 103.592555
	8600.00	0.00	75.41	8502.73	-228.94	235.25	903.50	0.00	398736.21	770737.96	N 32.094039	W 103.592555
	8700.00	0.00	75.41	8602.73	-228.94	235.25	903.50	0.00	398736.21	770737.96	N 32.094039	W 103.592555
	8800.00	0.00	75.41	8702.73	-228.94	235.25	903.50	0.00	398736.21	770737.96	N 32.094039	W 103.592555
	8900.00	0.00	75.41	8802.73	-228.94	235.25	903.50	0.00	398736.21	770737.96	N 32.094039	W 103.592555
	9000.00	0.00	75.41	8902.73	-228.94	235.25	903.50	0.00	398736.21	770737.96	N 32.094039	W 103.592555
	9100.00	0.00	75.41	9002.73	-228.94	235.25	903.50	0.00	398736.21	770737.96	N 32.094039	W 103.592555
BS/BS Lime	*9142.27*	*0.00*	*75.41*	*9045.00*	*-228.94*	*235.25*	*903.50*	*0.00*	*398736.21*	*770737.96*	*N 32.094039*	*W 103.592555*
Leonard	*9182.27*	*0.00*	*75.41*	*9085.00*	*-228.94*	*235.25*	*903.50*	*0.00*	*398736.21*	*770737.96*	*N 32.094039*	*W 103.592555*
	9200.00	0.00	75.41	9102.73	-228.94	235.25	903.50	0.00	398736.21	770737.96	N 32.094039	W 103.592555
	9300.00	0.00	75.41	9202.73	-228.94	235.25	903.50	0.00	398736.21	770737.96	N 32.094039	W 103.592555
	9400.00	0.00	75.41	9302.73	-228.94	235.25	903.50	0.00	398736.21	770737.96	N 32.094039	W 103.592555
Avalon	*9402.27*	*0.00*	*75.41*	*9305.00*	*-228.94*	*235.25*	*903.50*	*0.00*	*398736.21*	*770737.96*	*N 32.094039*	*W 103.592555*
	9500.00	0.00	75.41	9402.73	-228.94	235.25	903.50	0.00	398736.21	770737.96	N 32.094039	W 103.592555
	9600.00	0.00	75.41	9502.73	-228.94	235.25	903.50	0.00	398736.21	770737.96	N 32.094039	W 103.592555
	9700.00	0.00	75.41	9602.73	-228.94	235.25	903.50	0.00	398736.21	770737.96	N 32.094039	W 103.592555
	9800.00	0.00	75.41	9702.73	-228.94	235.25	903.50	0.00	398736.21	770737.96	N 32.094039	W 103.592555
KOP, Build 10°/100ft	9869.76	0.00	75.41	9772.49	-228.94	235.25	903.50	0.00	398736.21	770737.96	N 32.094039	W 103.592555
	9900.00	1.02	171.60	9802.73	-228.85	235.16	903.51	10.00	398736.12	770737.97	N 32.094039	W 103.592555
	10000.00	11.02	171.60	9902.05	-218.47	224.79	905.04	10.00	398725.75	770739.50	N 32.094011	W 103.592551
	10100.00	21.02	171.60	9998.05	-191.17	197.52	909.07	10.00	398698.48	770743.53	N 32.093935	W 103.592538
1st BS Sand	*10145.69*	*25.59*	*171.60*	*10040.00*	*-173.27*	*179.63*	*911.71*	*10.00*	*398680.60*	*770746.17*	*N 32.093886*	*W 103.592530*
	10200.00	31.02	171.60	10087.79	-147.77	154.17	915.47	10.00	398655.13	770749.93	N 32.093818	W 103.592518
	10300.00	41.02	171.60	10166.67	-89.61	96.06	924.06	10.00	398597.03	770758.52	N 32.093656	W 103.592492
	10400.00	51.02	171.60	10237.91	-18.43	24.98	934.56	10.00	398525.93	770769.02	N 32.093461	W 103.592460
	10500.00	61.02	171.60	10293.73	63.58	-56.96	946.66	10.00	398444.00	770781.12	N 32.093235	W 103.592422
	10600.00	71.02	171.60	10334.31	153.95	-147.25	959.99	10.00	398353.72	770794.45	N 32.092987	W 103.592381
Build & Turn 5°/100ft	10639.76	75.00	171.60	10345.92	191.59	-184.86	965.54	10.00	398316.12	770800.00	N 32.092883	W 103.592364
	10700.00	77.66	173.05	10360.16	249.65	-242.88	973.35	5.00	398258.11	770807.81	N 32.092724	W 103.592340
	10800.00	82.09	175.41	10377.74	347.63	-340.78	983.23	5.00	398160.20	770817.69	N 32.092454	W 103.592311
	10900.00	86.53	177.71	10387.65	446.97	-440.08	989.19	5.00	398060.91	770823.65	N 32.092181	W 103.592294
2nd BS Shale target	*10974.29*	*89.84*	*179.41*	*10390.00*	*521.19*	*-514.29*	*991.05*	*5.00*	*397986.70*	*770825.51*	*N 32.091977*	*W 103.592289*
2nd BS Shale target	*10981.53*	*90.16*	*179.57*	*10390.00*	*528.44*	*-521.53*	*991.12*	*5.00*	*397979.45*	*770825.58*	*N 32.091957*	*W 103.592289*
Landing Point	10982.61	90.21	179.60	10390.00	529.51	-522.61	991.13	5.00	397978.38	770825.58	N 32.091955	W 103.592289
	11000.00	90.21	179.60	10389.93	546.91	-540.00	991.25	0.00	397960.99	770825.71	N 32.091907	W 103.592289
	11100.00	90.21	179.60	10389.57	646.91	-640.00	991.95	0.00	397860.99	770826.41	N 32.091632	W 103.592289
	11200.00	90.21	179.60	10389.20	746.91	-739.99	992.65	0.00	397761.00	770827.10	N 32.091357	W 103.592289
	11300.00	90.21	179.60	10388.84	846.91	-839.99	993.35	0.00	397661.01	770827.80	N 32.091082	W 103.592289
	11400.00	90.21	179.60	10388.47	946.91	-939.99	994.05	0.00	397561.01	770828.50	N 32.090807	W 103.592289
	11500.00	90.21	179.60	10388.11	1046.90	-1039.99	994.75	0.00	397461.02	770829.20	N 32.090532	W 103.592289
	11600.00	90.21	179.60	10387.74	1146.90	-1139.98	995.45	0.00	397361.03	770829.90	N 32.090258	W 103.592289
	11700.00	90.21	179.60	10387.38	1246.90	-1239.98	996.15	0.00	397261.03	770830.60	N 32.089983	W 103.592289
	11800.00	90.21	179.60	10387.01	1346.90	-1339.98	996.85	0.00	397161.04	770831.30	N 32.089708	W 103.592289
	11900.00	90.21	179.60	10386.65	1446.90	-1439.97	997.55	0.00	397061.04	770832.00	N 32.089433	W 103.592289
	12000.00	90.21	179.60	10386.29	1546.90	-1539.97	998.25	0.00	396961.05	770832.70	N 32.089158	W 103.592289
	12100.00	90.21	179.60	10385.92	1646.90	-1639.97	998.95	0.00	396861.06	770833.40	N 32.088883	W 103.592289
	12200.00	90.21	179.60	10385.56	1746.90	-1739.96	999.65	0.00	396761.06	770834.10	N 32.088608	W 103.592289
	12300.00	90.21	179.60	10385.19	1846.90	-1839.96	1000.35	0.00	396661.07	770834.80	N 32.088333	W 103.592289
	12400.00	90.21	179.60	10384.83	1946.90	-1939.96	1001.05	0.00	396561.08	770835.50	N 32.088059	W 103.592289
	12500.00	90.21	179.60	10384.46	2046.90	-2039.95	1001.75	0.00	396461.08	770836.20	N 32.087784	W 103.592289
	12600.00	90.21	179.60	10384.10	2146.90	-2139.95	1002.45	0.00	396361.09	770836.90	N 32.087509	W 103.592289
	12700.00	90.21	179.60	10383.73	2246.90	-2239.95	1003.15	0.00	396261.10	770837.60	N 32.087234	W 103.592289
	12800.00	90.21	179.60	10383.37	2346.90	-2339.95	1003.85	0.00	396161.10	770838.30	N 32.086959	W 103.592288
	12900.00	90.21	179.60	10383.00	2446.90	-2439.94	1004.55	0.00	396061.11	770839.00	N 32.086684	W 103.592288
	13000.00	90.21	179.60	10382.64	2546.89	-2539.94	1005.25	0.00	395961.12	770839.70	N 32.086409	W 103.592288
	13100.00	90.21	179.60	10382.27	2646.89	-2639.94	1005.95	0.00	395861.12	770840.40	N 32.086134	W 103.592288
	13200.00	90.21	179.60	10381.91	2746.89	-2739.93	1006.65	0.00	395761.13	770841.10	N 32.085860	W 103.592288
	13300.00	90.21	179.60	10381.54	2846.89	-2839.93	1007.35	0.00	395661.13	770841.80	N 32.085585	W 103.592288
	13400.00	90.21	179.60	10381.18	2946.89	-2939.93	1008.04	0.00	395561.14	770842.50	N 32.085310	W 103.592288
	13500.00	90.21	179.60	10380.81	3046.89	-3039.92	1008.74	0.00	395461.15	770843.20	N 32.085035	W 103.592288
	13600.00	90.21	179.60	10380.45	3146.89	-3139.92	1009.44	0.00	395361.15	770843.90	N 32.084760	W 103.592288
	13700.00	90.21	179.60	10380.08	3246.89	-3239.92	1010.14	0.00	395261.16	770844.60	N 32.084485	W 103.592288
	13800.00	90.21	179.60	10379.72	3346.89	-3339.91	1010.84	0.00	395161.17	770845.30	N 32.084210	W 103.592288
	13900.00	90.21	179.60	10379.35	3446.89	-3439.91	1011.54	0.00	395061.17	770846.00	N 32.083936	W 103.592288
	14000.00	90.21	179.60	10378.99	3546.89	-3539.91	1012.24	0.00	394961.18	770846.70	N 32.083661	W 103.592288
	14100.00	90.21	179.60	10378.63	3646.89	-3639.90	1012.94	0.00	394861.19	770847.40	N 32.083386	W 103.592288
	14200.00	90.21	179.60	10378.26	3746.89	-3739.90	1013.64	0.00	394761.19	770848.10	N 32.083111	W 103.592288
	14300.00	90.21	179.60	10377.90	3846.89	-3839.90	1014.34	0.00	394661.20	770848.80	N 32.082836	W 103.592288
	14400.00	90.21	179.60	10377.53	3946.89	-3939.90	1015.04	0.00	394561.21	770849.50	N 32.082561	W 103.592288
	14500.00	90.21	179.60	10377.17	4046.88	-4039.89	1015.74	0.00	394461.21	770850.20	N 32.082286	W 103.592288
	14600.00	90.21	179.60	10376.80	4146.88	-4139.89	1016.44	0.00	394361.22	770850.90	N 32.082011	W 103.592288
	14700.00	90.21	179.60	10376.44	4246.88	-4239.89	1017.14	0.00	394261.22	770851.60	N 32.081737	W 103.592288
	14800.00	90.21	179.60	10376.07	4346.88	-4339.88	1017.84	0.00	394161.23	770852.30	N 32.081462	W 103.592288
	14900.00	90.21	179.60	10375.71	4446.88	-4439.88	1018.54	0.00	394061.24	770853.00	N 32.081187	W 103.592288
Turn 2°/100R	14932.61	90.21	179.60	10375.59	4479.49	-4472.48	1018.77	0.00	394028.63	770853.23	N 32.081097	W 103.592288
Turn 2°/100R	14982.61	90.21	179.60	10375.41	4529.48	-4522.48	1019.56	2.00	393978.64	770854.01	N 32.080960	W 103.592288
	15000.00	90.21	179.95	10375.34	4546.86	-4539.87	1019.93	2.00	393961.25	770854.39	N 32.080912	W 103.592285
Turn 2°/100R	15082.60	90.21	180.60	10375.04	4629.46	-4622.47	1020.28	2.00	393878.66	770854.71	N 32.080685	W 103.592286
	15100.00	90.21	180.25	10374.98	4646.87	-4639.86	1020.13	2.00	393861.26	770854.58	N 32.080637	W 103.592287
Hold	15132.60	90.21	179.60	10374.86	4679.47	-4672.46	1020.17	2.00	393828.67	770854.63	N 32.080548	W 103.592288
	15200.00	90.21	179.60	10374.61	4746.87	-4739.86	1020.64	0.00	393761.27	770855.10	N 32.080362	W 103.592287
	15300.00	90.21	179.60	10374.25	4846.87	-4839.86	1021.34	0.00	393661.27	770855.80	N 32.080087	W 103.592287
	15400.00	90.21	179.60	10373.88	4946.87	-4939.85	1022.04	0.00	393561.28	770856.50	N 32.079813	W 103.592287
Section 32-5 Line, State exit to Fee enter Lease Cross	*15404.60*	*90.21*	*179.60*	*10373.87*	*4951.46*	*-4944.45*	*1022.07*	*0.00*	*393556.68*	*770856.53*	*N 32.079800*	*W 103.592287*

Comments	MD (ft)	Incl (°)	Azim Grid (°)	TVD (ft)	VSEC (ft)	NS (ft)	EW (ft)	DLS (°/100ft)	Northing (ft US)	Easting (ft US)	Latitude (N/S °)	Longitude (E/W °)
	15500.00	90.21	179.60	10373.52	5046.87	-5039.85	1022.74	0.00	393461.29	770857.20	N 32.079536	W 103.592287
	15600.00	90.21	179.60	10373.18	5146.87	-5139.85	1023.44	0.00	393361.29	770857.90	N 32.079263	W 103.592287
	15700.00	90.21	179.60	10372.79	5246.87	-5239.84	1024.14	0.00	393261.30	770858.60	N 32.078988	W 103.592287
	15800.00	90.21	179.60	10372.43	5346.87	-5339.84	1024.84	0.00	393161.31	770859.30	N 32.078713	W 103.592287
	15900.00	90.21	179.60	10372.08	5446.87	-5439.84	1025.54	0.00	393061.31	770860.00	N 32.078438	W 103.592287
	16000.00	90.21	179.60	10371.70	5546.86	-5539.84	1026.24	0.00	392961.32	770860.70	N 32.078163	W 103.592287
	16100.00	90.21	179.60	10371.33	5646.86	-5639.83	1026.94	0.00	392861.32	770861.39	N 32.077888	W 103.592287
	16200.00	90.21	179.60	10370.97	5746.86	-5739.83	1027.64	0.00	392761.33	770862.09	N 32.077614	W 103.592287
	16300.00	90.21	179.60	10370.60	5846.86	-5839.83	1028.34	0.00	392661.34	770862.79	N 32.077339	W 103.592287
	16400.00	90.21	179.60	10370.24	5946.86	-5939.82	1029.04	0.00	392561.34	770863.49	N 32.077064	W 103.592287
	16500.00	90.21	179.60	10369.88	6046.86	-6039.82	1029.74	0.00	392461.35	770864.19	N 32.076789	W 103.592287
	16600.00	90.21	179.60	10369.51	6146.86	-6139.82	1030.44	0.00	392361.36	770864.89	N 32.076514	W 103.592287
	16700.00	90.21	179.60	10369.15	6246.86	-6239.81	1031.14	0.00	392261.36	770865.59	N 32.076239	W 103.592287
Fee exit to NMNM0106040 4 enter lease Cross	*16726.24*	*90.21*	*179.60*	*10369.05*	*6273.10*	*-6266.05*	*1031.32*	*0.00*	*392235.13*	*770865.78*	*N 32.076167*	*W 103.592287*
	16800.00	90.21	179.60	10368.78	6346.86	-6339.81	1031.84	0.00	392161.37	770866.29	N 32.075964	W 103.592287
	16900.00	90.21	179.60	10368.42	6446.86	-6439.81	1032.54	0.00	392061.38	770866.99	N 32.075689	W 103.592287
	17000.00	90.21	179.60	10368.05	6546.86	-6539.80	1033.24	0.00	391961.38	770867.69	N 32.075415	W 103.592287
	17100.00	90.21	179.60	10367.69	6646.86	-6639.80	1033.93	0.00	391861.39	770868.39	N 32.075140	W 103.592287
	17200.00	90.21	179.60	10367.33	6746.86	-6739.80	1034.63	0.00	391761.40	770869.09	N 32.074865	W 103.592287
	17300.00	90.21	179.60	10366.96	6846.86	-6839.79	1035.33	0.00	391661.40	770869.79	N 32.074590	W 103.592287
	17400.00	90.21	179.60	10366.60	6946.86	-6939.79	1036.03	0.00	391561.41	770870.49	N 32.074315	W 103.592287
	17500.00	90.21	179.60	10366.23	7046.85	-7039.78	1036.73	0.00	391461.41	770871.19	N 32.074040	W 103.592287
	17600.00	90.21	179.60	10365.87	7146.85	-7139.78	1037.43	0.00	391361.42	770871.89	N 32.073765	W 103.592286
	17700.00	90.21	179.60	10365.50	7246.85	-7239.78	1038.13	0.00	391261.43	770872.59	N 32.073491	W 103.592286
	17800.00	90.21	179.60	10365.14	7346.85	-7339.78	1038.83	0.00	391161.43	770873.29	N 32.073216	W 103.592286
	17900.00	90.21	179.60	10364.77	7446.85	-7439.78	1039.53	0.00	391061.44	770873.99	N 32.072941	W 103.592286
	18000.00	90.21	179.60	10364.41	7546.85	-7539.77	1040.23	0.00	390961.45	770874.69	N 32.072666	W 103.592286
NMNM0106040 4 exit to NMNM0160973 enter lease Cross	*18047.88*	*90.21*	*179.60*	*10364.24*	*7594.73*	*-7587.65*	*1040.57*	*0.00*	*390913.57*	*770875.02*	*N 32.072534*	*W 103.592286*
	18100.00	90.21	179.60	10364.05	7646.85	-7639.77	1040.93	0.00	390861.45	770875.39	N 32.072391	W 103.592286
	18200.00	90.21	179.60	10363.68	7746.85	-7739.77	1041.63	0.00	390761.46	770876.09	N 32.072116	W 103.592286
	18300.00	90.21	179.60	10363.32	7846.85	-7839.76	1042.33	0.00	390661.47	770876.79	N 32.071841	W 103.592286
	18400.00	90.21	179.60	10362.95	7946.85	-7939.76	1043.03	0.00	390561.47	770877.49	N 32.071566	W 103.592286
	18500.00	90.21	179.60	10362.59	8046.85	-8039.76	1043.73	0.00	390461.48	770878.18	N 32.071292	W 103.592286
	18600.00	90.21	179.60	10362.22	8146.85	-8139.75	1044.43	0.00	390361.49	770878.88	N 32.071017	W 103.592286
	18700.00	90.21	179.60	10361.86	8246.85	-8239.75	1045.13	0.00	390261.49	770879.58	N 32.070742	W 103.592286
	18800.00	90.21	179.60	10361.50	8346.85	-8339.75	1045.83	0.00	390161.50	770880.28	N 32.070467	W 103.592286
	18900.00	90.21	179.60	10361.13	8446.85	-8439.75	1046.53	0.00	390061.50	770880.98	N 32.070192	W 103.592286
	19000.00	90.21	179.60	10360.77	8546.84	-8539.74	1047.23	0.00	389961.51	770881.68	N 32.069917	W 103.592286
	19100.00	90.21	179.60	10360.40	8646.84	-8639.74	1047.93	0.00	389861.52	770882.38	N 32.069642	W 103.592286
	19200.00	90.21	179.60	10360.04	8746.84	-8739.74	1048.63	0.00	389761.52	770883.08	N 32.069367	W 103.592286
	19300.00	90.21	179.60	10359.67	8846.84	-8839.73	1049.33	0.00	389661.53	770883.78	N 32.069093	W 103.592286
	19400.00	90.21	179.60	10359.31	8946.84	-8939.73	1050.03	0.00	389561.54	770884.48	N 32.068818	W 103.592286
	19500.00	90.21	179.60	10358.95	9046.84	-9039.73	1050.73	0.00	389461.54	770885.18	N 32.068543	W 103.592286
	19600.00	90.21	179.60	10358.58	9146.84	-9139.72	1051.42	0.00	389361.55	770885.88	N 32.068268	W 103.592286
	19700.00	90.21	179.60	10358.22	9246.84	-9239.72	1052.12	0.00	389261.56	770886.58	N 32.067993	W 103.592286
	19800.00	90.21	179.60	10357.85	9346.84	-9339.72	1052.82	0.00	389161.56	770887.28	N 32.067718	W 103.592286
	19900.00	90.21	179.60	10357.49	9446.84	-9439.71	1053.52	0.00	389061.57	770887.98	N 32.067443	W 103.592286
	20000.00	90.21	179.60	10357.12	9546.84	-9539.71	1054.22	0.00	388961.58	770888.68	N 32.067169	W 103.592285
	20100.00	90.21	179.60	10356.76	9646.84	-9639.71	1054.92	0.00	388861.58	770889.38	N 32.066894	W 103.592285
	20200.00	90.21	179.60	10356.39	9746.84	-9739.70	1055.62	0.00	388761.59	770890.08	N 32.066619	W 103.592285
	20300.00	90.21	179.60	10356.03	9846.84	-9839.70	1056.32	0.00	388661.59	770890.78	N 32.066344	W 103.592285
	20400.00	90.21	179.60	10355.67	9946.84	-9939.70	1057.02	0.00	388561.60	770891.48	N 32.066069	W 103.592285
	20500.00	90.21	179.60	10355.30	10046.83	-10039.70	1057.72	0.00	388461.61	770892.18	N 32.065794	W 103.592285
Cimarex Red Hills 32-5 Fed Com 159H - PBHL (100' FSL, 2017' FEL)	20582.70	90.21	179.60	10355.00	10129.54	-10122.40	1058.30	0.00	388378.91	770892.76	N 32.065567	W 103.592285

Survey Type: Def Plan

Survey Error Model: ISCWSA Rev 3 *** 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	22.000	1/100.000	17.500	13.375		A001Mb_MWD-Depth Only	Red Hills 32-5 Fed Com 159H / Cimarex Red Hills 32-5 Fed Com
	1	22.000	20582.702	1/100.000	17.500	13.375		A001Mb_MWD	Red Hills 32-5 Fed Com 159H / Cimarex Red Hills 32-5 Fed Com

Schlumberger

Cimarex Energy

Rev4

CIMAREX

30-025-50209

Borehole:	Well:	Field:	Structure:
Red Hills 32-5 Fed Com 159H	Red Hills 32-5 Fed Com 159H	NM Lea County (NAD 83)	Cimarex Red Hills 32-5 Fed Com 159H

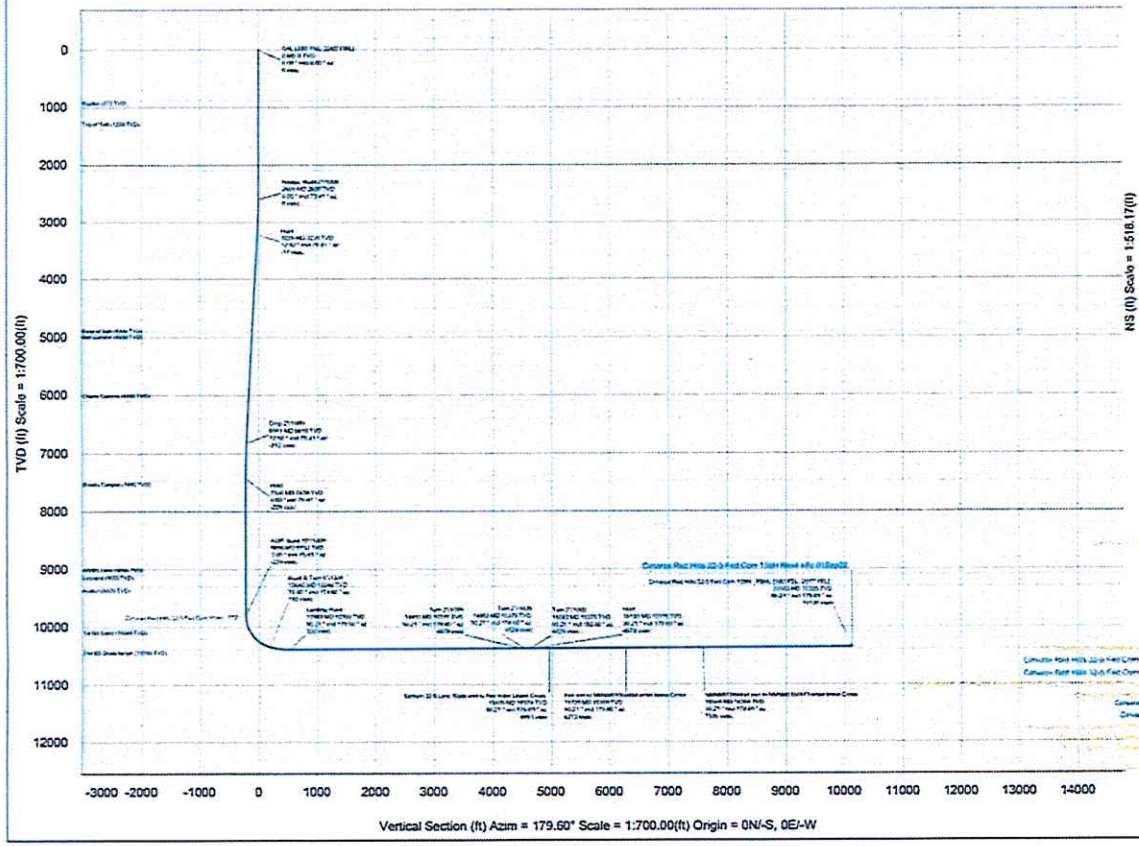
Gravity & Magnetic Parameters					Surface Location	NAD83 New Mexico State Plane, Eastern Zone, US Feet			Miscellaneous		
Model:	HDGM 2022	Dip:	59.83°	Date:	01-Sep-2022	Lat:	N 32 5 36.27	Northing:	398500.97 ftUS	Grid Conv:	0.392°	Slot:	159H	TVD Ref:	RKB = 22ft (3431ft above MSL)
MagDec:	6.305°	FS:	47434.573nT	Gravity FS:	998.429mgn (9.80665 Based)	Lon:	W 103 35 43.72	Easting:	769634.49 ftUS	Scale Fact:	0.9996529	Plan:	Cimarex Red Hills 32-5 Fed Com 159H Rev4 sPc 01Sep22		

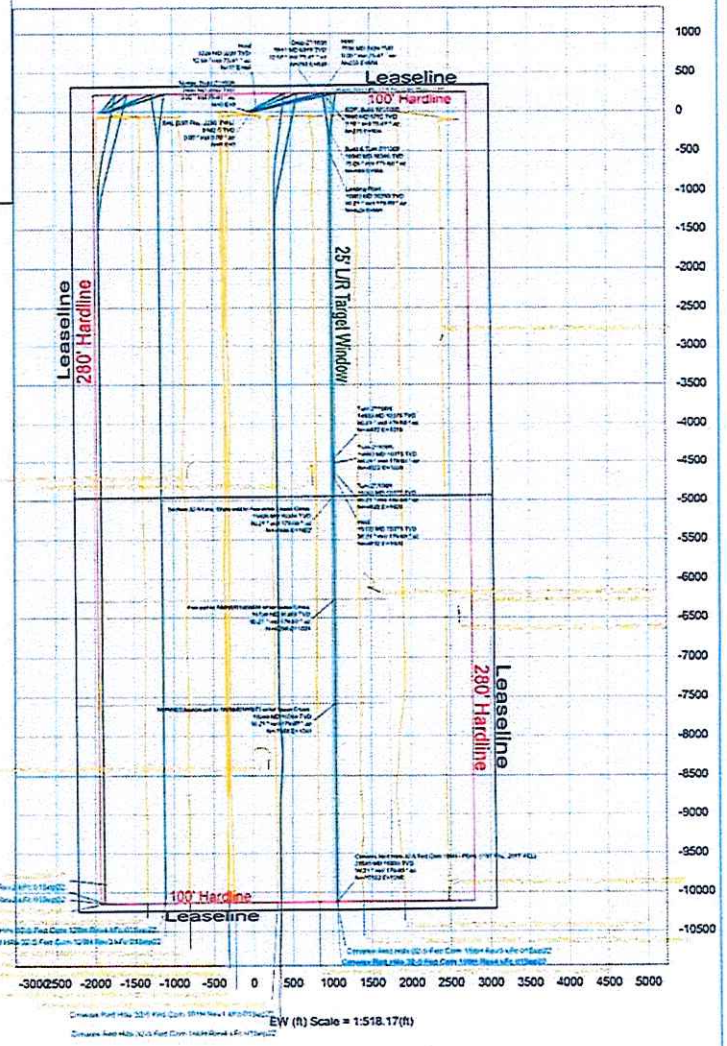
Critical Points

Critical Point	MD	INCL	AZIM	TVD	VSEC	N(+)/S(-)	E(+)/W(-)	DLS
SHL [200' FNL, 2265' FWL]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
Rustler	575.00	0.00	75.41	575.00	0.00	0.00	0.00	0.00
Top of Salt	1235.00	0.00	75.41	1235.00	0.00	0.00	0.00	0.00
Nudge, Build 2°/100ft	2600.00	0.00	75.41	2600.00	0.00	0.00	0.00	0.00
Hold	3525.00	12.50	75.41	3522.66	-16.65	17.11	65.72	2.00
Base of Salt	4945.73	12.50	75.41	4900.00	-107.98	110.96	426.13	0.00
Bell Canyon	4976.46	12.50	75.41	4930.00	-109.61	112.63	432.57	0.00
Cherry Canyon	6031.47	12.50	75.41	5960.00	-165.60	170.17	653.55	0.00
Drop 2°/100ft	6911.06	12.50	75.41	6818.73	-212.28	218.14	837.78	0.00
Hold	7236.06	0.00	75.41	7143.79	-228.94	235.25	903.50	2.00
Brushy Canyon	7277.27	0.00	75.41	7185.00	-228.94	235.25	903.50	0.00
BS/SD Lime	8142.27	0.00	75.41	8049.00	-228.94	235.25	903.50	0.00
Leonard	9182.27	0.00	75.41	9085.00	-228.94	235.25	903.50	0.00
Avalon	9402.27	0.00	75.41	9305.00	-228.94	235.25	903.50	0.00
KOP, Build 10°/100ft	9589.76	0.00	75.41	9792.49	-228.94	235.25	903.50	0.00
1st BS Sand	10145.69	55.59	171.60	10040.00	-173.27	179.63	911.71	10.00
Build & Turn 5°/100ft	10639.76	75.00	171.60	10345.92	191.59	-134.86	965.54	10.00
2nd BS Shale target	10974.29	89.54	179.41	10390.00	521.19	-514.29	991.05	5.00
2nd BS Shale target	10981.53	90.16	179.57	10390.00	528.44	-521.53	991.12	5.00
Landing Point	10982.61	90.21	179.60	10390.00	529.51	-522.61	991.13	5.00
Turn 2°/100ft	14932.61	90.21	179.60	10375.59	4479.49	-4472.46	1018.77	0.00
Turn 2°/100ft	14982.61	90.21	178.60	10375.41	4529.48	-4522.46	1019.58	2.00
Turn 2°/100ft	15082.60	90.21	180.60	10375.04	4629.48	-4622.47	1020.28	2.00
Hold	15132.60	90.21	179.60	10374.86	4679.47	-4672.46	1020.17	2.00
Direction 32-5 Line, State mul to Fee enter Lease Cross	15494.60	90.21	179.60	10373.87	4951.46	-4944.45	1022.07	0.00
Cross	16726.24	90.21	179.60	10369.05	6273.10	-6206.85	1031.32	0.00
Cimarex Red Hills 32-5 Fed Com 159H - PBHL [100'	18047.88	90.21	179.60	10364.24	7594.73	-7567.85	1040.57	0.00
	20582.70	90.21	179.60	10325.00	10129.54	-10122.40	1058.38	0.00

CONTROLLED

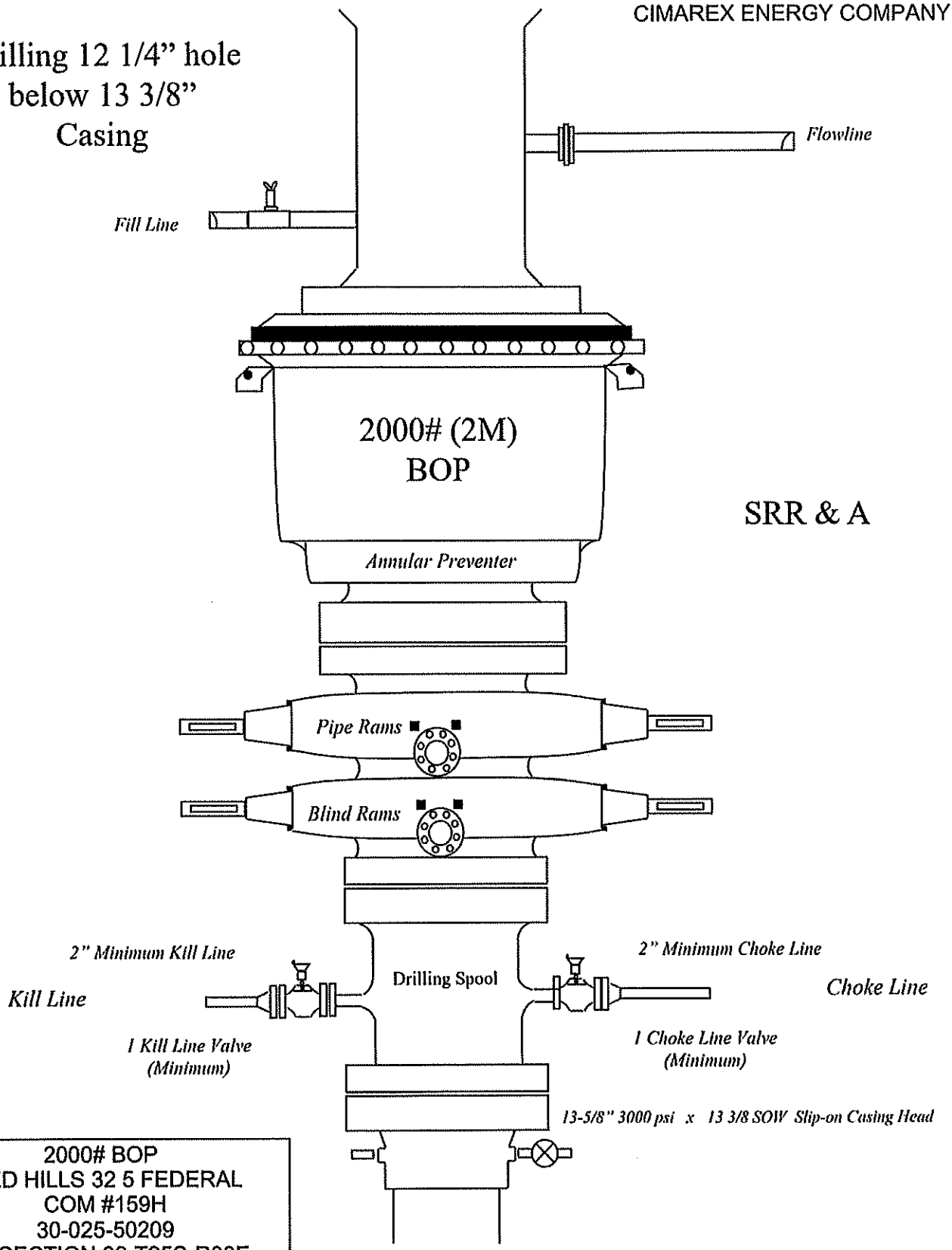
Grid North
Tot Corr (M->G 5.913°)
Mag Dec (6.305°)
Grid Conv (0.392°)





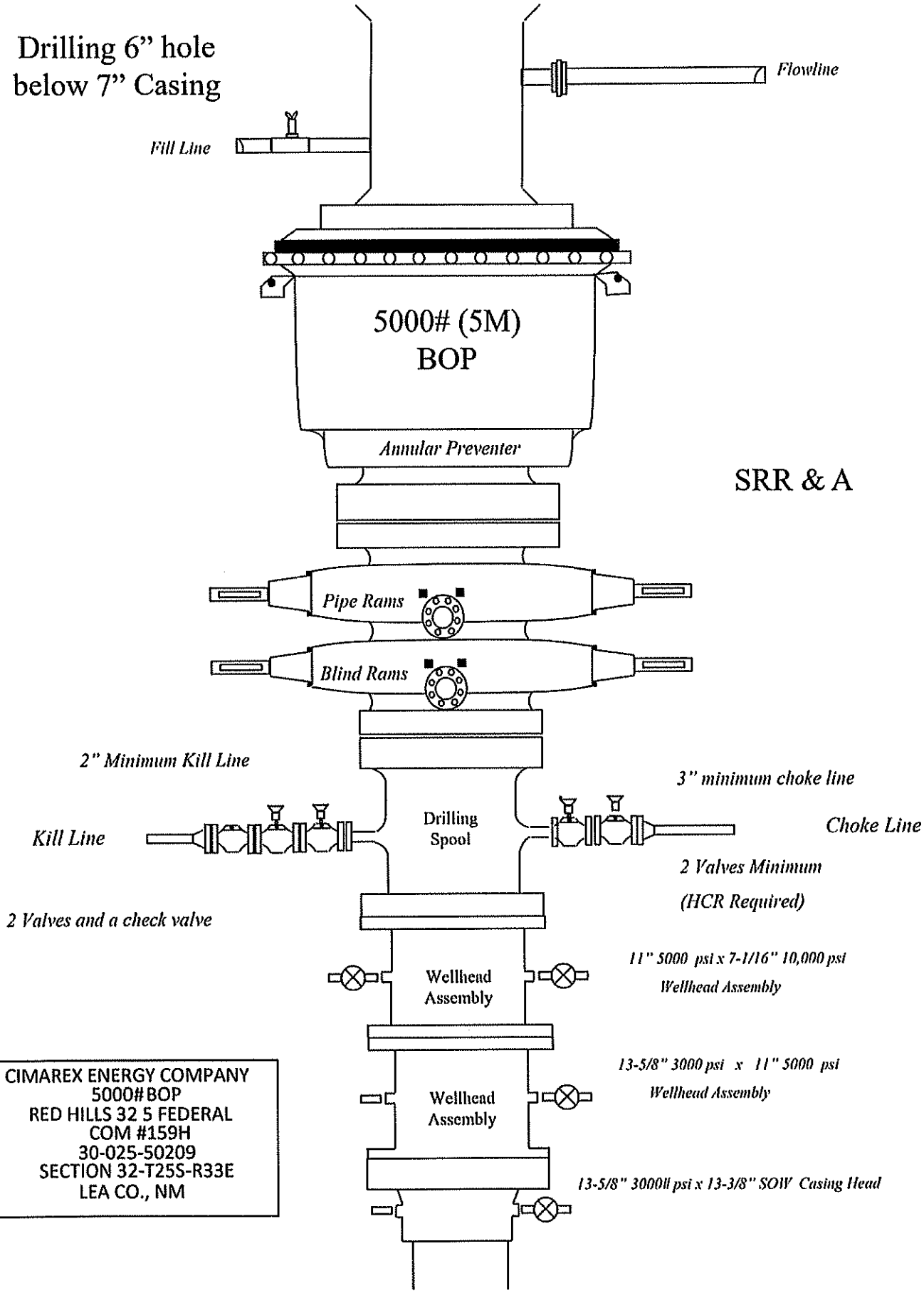
CIMAREX ENERGY COMPANY

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



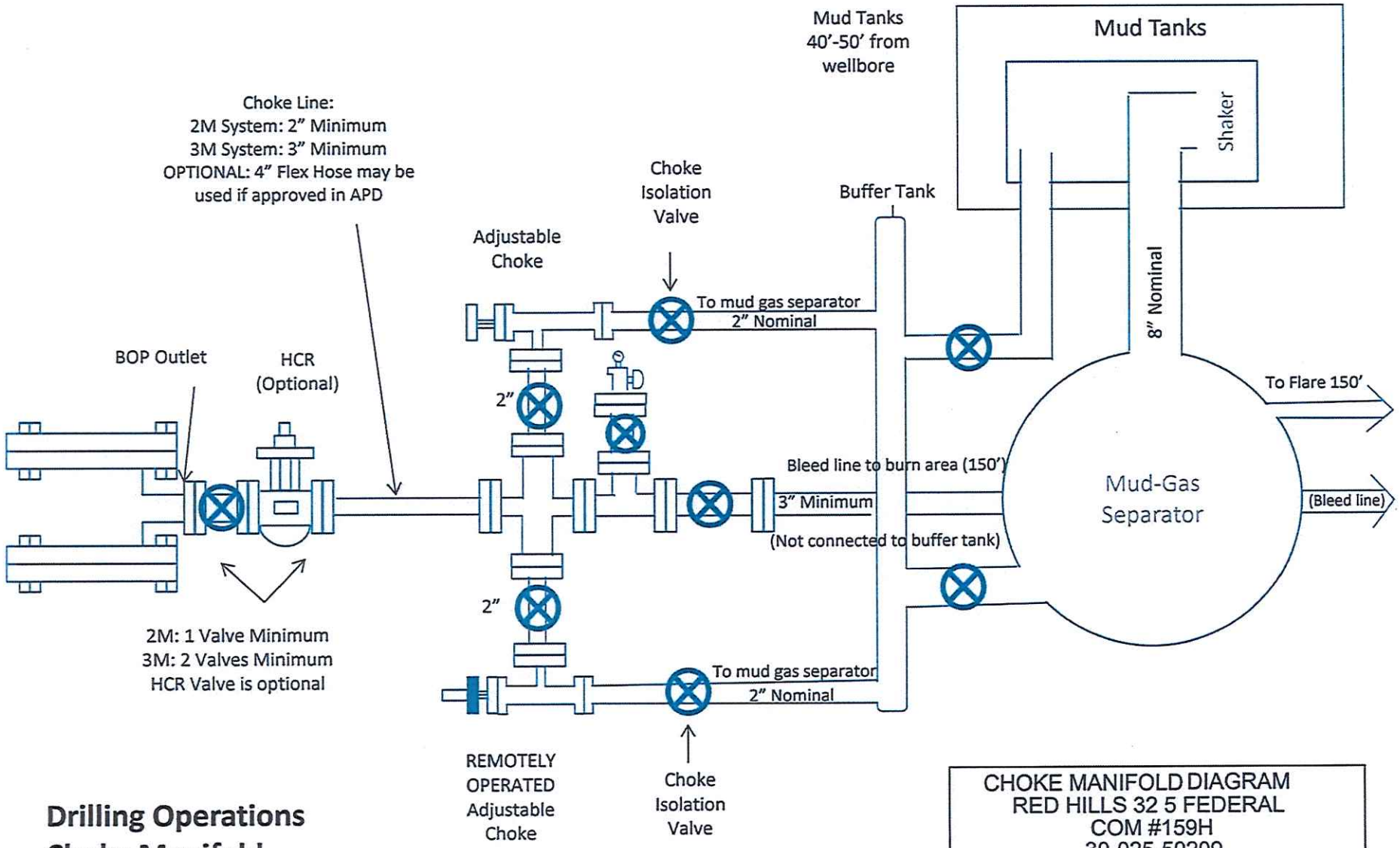
2000# BOP
RED HILLS 32 5 FEDERAL COM #159H
30-025-50209
SECTION 32-T25S-R33E
LEA CO., NM

Drilling 6" hole below 7" Casing



CIMAREX ENERGY COMPANY
5000# BOP
RED HILLS 32 5 FEDERAL
COM #159H
30-025-50209
SECTION 32-T25S-R33E
LEA CO., NM

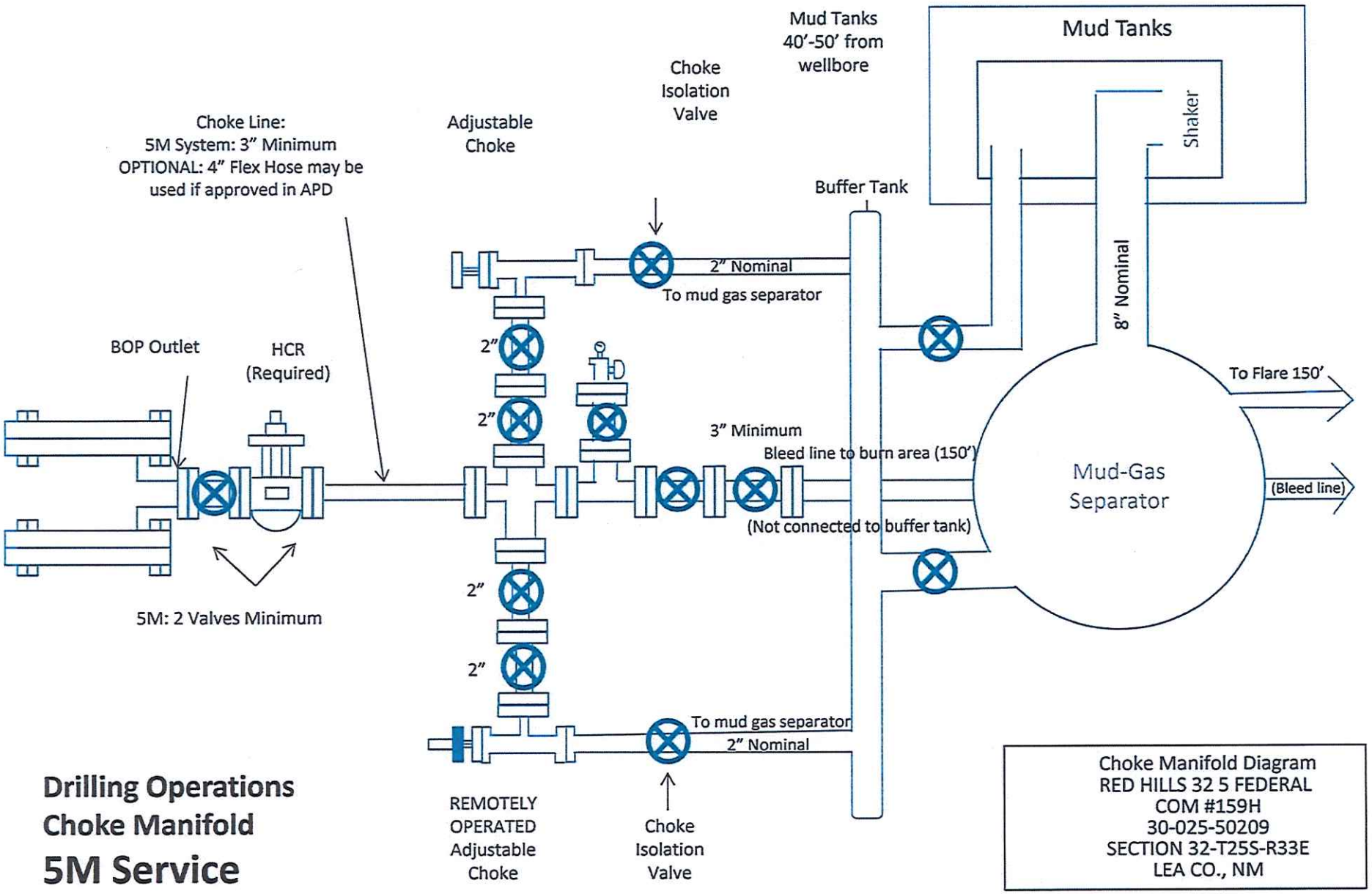
CIMAREX ENERGY COMPANY



Drilling Operations
Choke Manifold
2M/3M Service

CHOKE MANIFOLD DIAGRAM
RED HILLS 32 5 FEDERAL
COM #159H
30-025-50209
SECTION 32-T25S-R33E
LEA CO., NM

CIMAREX ENERGY COMPANY



Drilling Operations
Choke Manifold
5M Service

Choke Manifold Diagram
RED HILLS 32 5 FEDERAL
COM #159H
30-025-50209
SECTION 32-T25S-R33E
LEA CO., NM

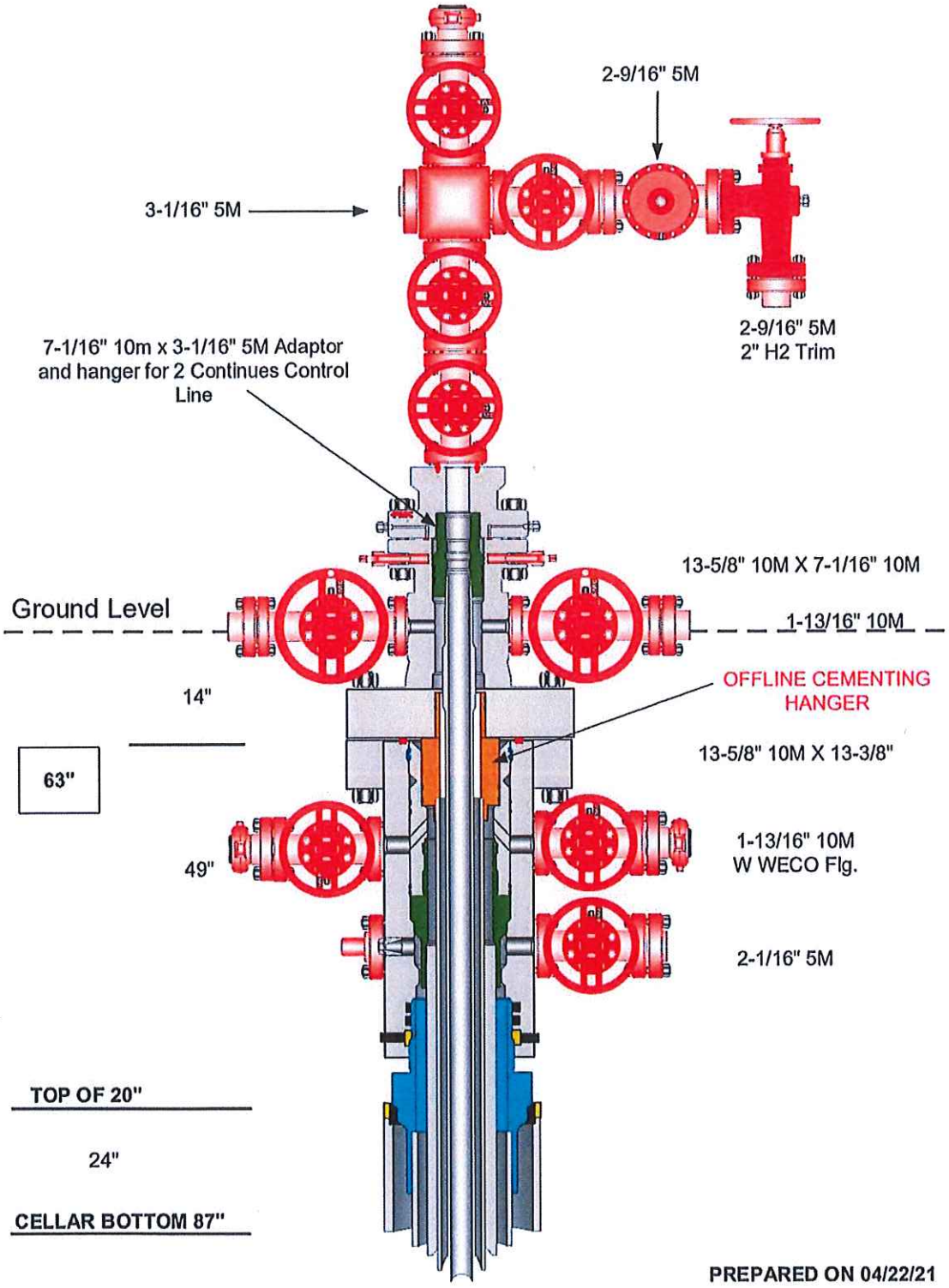
RED HILLS 32 5 FEDERAL COM #159H

CIMAREX

CACTUS FOR SERVICE
WEARBUSHING
IN CASING HEAD &
CASING SPOOL

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	925	925	13-3/8"	48.00	H-40	ST&C	1.85	4.32	7.25
12 1/4	0	4980	4980	9-5/8"	40.00	HCK-55	LT&C	1.43	1.48	2.02
8 3/4	0	9559	9389	7"	29.00	L-80	LT&C	1.52	1.76	1.96
8 3/4	9889	10639	10345	7"	29.00	P-110	BT&C	1.76	2.32	10.25
6	8839	20582	10355	4-1/2"	11.60	P-110	BT&C	1.56	2.21	21.58
						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



PREPARED ON 04/22/21

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 186697

CONDITIONS

Operator: CIMAREX ENERGY CO. 600 N. Marienfeld Street Midland, TX 79701	OGRID: 215099
	Action Number: 186697
	Action Type: [C-103] NOI Change of Plans (C-103A)

CONDITIONS

Created By	Condition	Condition Date
pkautz	None	2/15/2023