

Form 3160-5
(June 2015)UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENTFORM APPROVED
OMB NO. 1004-0137
Expires: January 31, 2018**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.5. Lease Serial No.
NMNM138848

6. If Indian, Allottee or Tribe Name

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

8. Well Name and No.
TAR HEEL 19-18-7 FEDERAL COM 1H9. API Well No.
30-015-46560-00-X110. Field and Pool or Exploratory Area
BONE SPRINGS11. County or Parish, State
EDDY COUNTY, NM**SUBMIT IN TRIPLICATE - Other instructions on page 2**1. Type of Well
☐ Oil Well ☒ Gas Well ☐ Other2. Name of Operator
CIMAREX ENERGY COMPANY
Contact: AMITHY E CRAWFORD
E-Mail: acrawford@cimarex.com3a. Address
600 N MARIENFELD STREET STE 600
MIDLAND, TX 797013b. Phone No. (include area code)
Ph: 432-620-19094. Location of Well (Footage, Sec., T., R., M., or Survey Description)
Sec 19 T26S R30E SWSW 540FSL 369FWL
32.022026 N Lat, 103.928024 W Lon

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
☐ Subsequent Report	☐ Alter Casing	☐ Hydraulic Fracturing	☐ Reclamation	☐ Well Integrity
☐ Final Abandonment Notice	☐ Casing Repair	☐ New Construction	☐ Recomplete	☒ Other
	☐ Change Plans	☐ Plug and Abandon	☐ Temporarily Abandon	Change to Original A
	☐ Convert to Injection	☐ Plug Back	☐ Water Disposal	PD

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 recompleat 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 performed 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 recompleat 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 determined that the site is ready for final inspection.

Cimarex Respectfully requests the following changes:

Change the well name to: Tar Heel 19-18-7 Federal Com 1H

Change the BHL to: 2565' FSL & 330' FWL Section 7 26S 30E

Change the Formation to: Bone Spring

Changes to casing and cement program as attached in Drilling plan.

Please see attached: C102, Directional plan, Drilling Plan, Casing Specs, BOPS & choke Diagrams &

14. I hereby certify that the foregoing is true and correct.

Electronic Submission #538348 verified by the BLM Well Information System
For CIMAREX ENERGY COMPANY, sent to the Carlsbad
Committed to AFMSS for processing by PRISCILLA PEREZ on 11/29/2020 (21PP0709SE)

Name (Printed/Typed) AMITHY E CRAWFORD

Title REGULATORY ANALYST

Signature (Electronic Submission)

Date 11/23/2020

THIS SPACE FOR FEDERAL OR STATE OFFICE USE

Approved By ZOTA STEVENS

Title PETROLEUM ENGINEER

Date 12/22/2020

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 Carlsbad

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)

**** BLM REVISED ** BLM REVISED ** BLM REVISED ** BLM REVISED ** BLM REVISED ****

Additional data for EC transaction #538348 that would not fit on the form

32. Additional remarks, continued

Multibowl wellhead.

Revisions to Operator-Submitted EC Data for Sundry Notice #538348

	Operator Submitted	BLM Revised (AFMSS)
Sundry Type:	APDCH NOI	APDCH NOI
Lease:	NMNM138848	NMNM138848
Agreement:		
Operator:	CIMAREX ENERGY CO. 600 N. MARIENFELD SUITE 600 MIDLAND, TX 79701 Ph: 432-620-1909	CIMAREX ENERGY COMPANY 600 N MARIENFELD STREET STE 600 MIDLAND, TX 79701 Ph: 432.620.1936 Fx: 918.749.8059
Admin Contact:	AMITHY E CRAWFORD REGULATORY ANALYST E-Mail: acrawford@cimarex.com Ph: 432-620-1909	AMITHY E CRAWFORD REGULATORY ANALYST E-Mail: acrawford@cimarex.com Ph: 432-620-1909
Tech Contact:	AMITHY E CRAWFORD REGULATORY ANALYST E-Mail: acrawford@cimarex.com Ph: 432-620-1909	AMITHY E CRAWFORD REGULATORY ANALYST E-Mail: acrawford@cimarex.com Ph: 432-620-1909
Location:		
State:	NM	NM
County:	EDDY	EDDY
Field/Pool:	WC-015 G-03 S262925D; BS	BONE SPRINGS
Well/Facility:	TAR HEEL 19-18-7 FEDERAL COM 1H Sec 19 T26S R30E 540FSL 369FWL	TAR HEEL 19-18-7 FEDERAL COM 1H Sec 19 T26S R30E SWSW 540FSL 369FWL 32.022026 N Lat, 103.928024 W Lon

PECOS DISTRICT DRILLING CONDITIONS OF APPROVAL

OPERATOR'S NAME:	Cimarex Energy
LEASE NO.:	NMNM138848
LOCATION:	Section 19,T.26 S.,R.30 E., NMPM
COUNTY:	Eddy County, New Mexico

WELL NAME & NO.:	Tar Heel 19-18-7 Fed Com 1H
SURFACE HOLE FOOTAGE:	540'/S & 369'/W
BOTTOM HOLE FOOTAGE:	2565'/S & 330'/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 **500_** 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.

Intermediate casing must be kept 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.

Operator is approved for offline cementing for the 7 inch casing.

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.

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 integrity 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 integrity 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

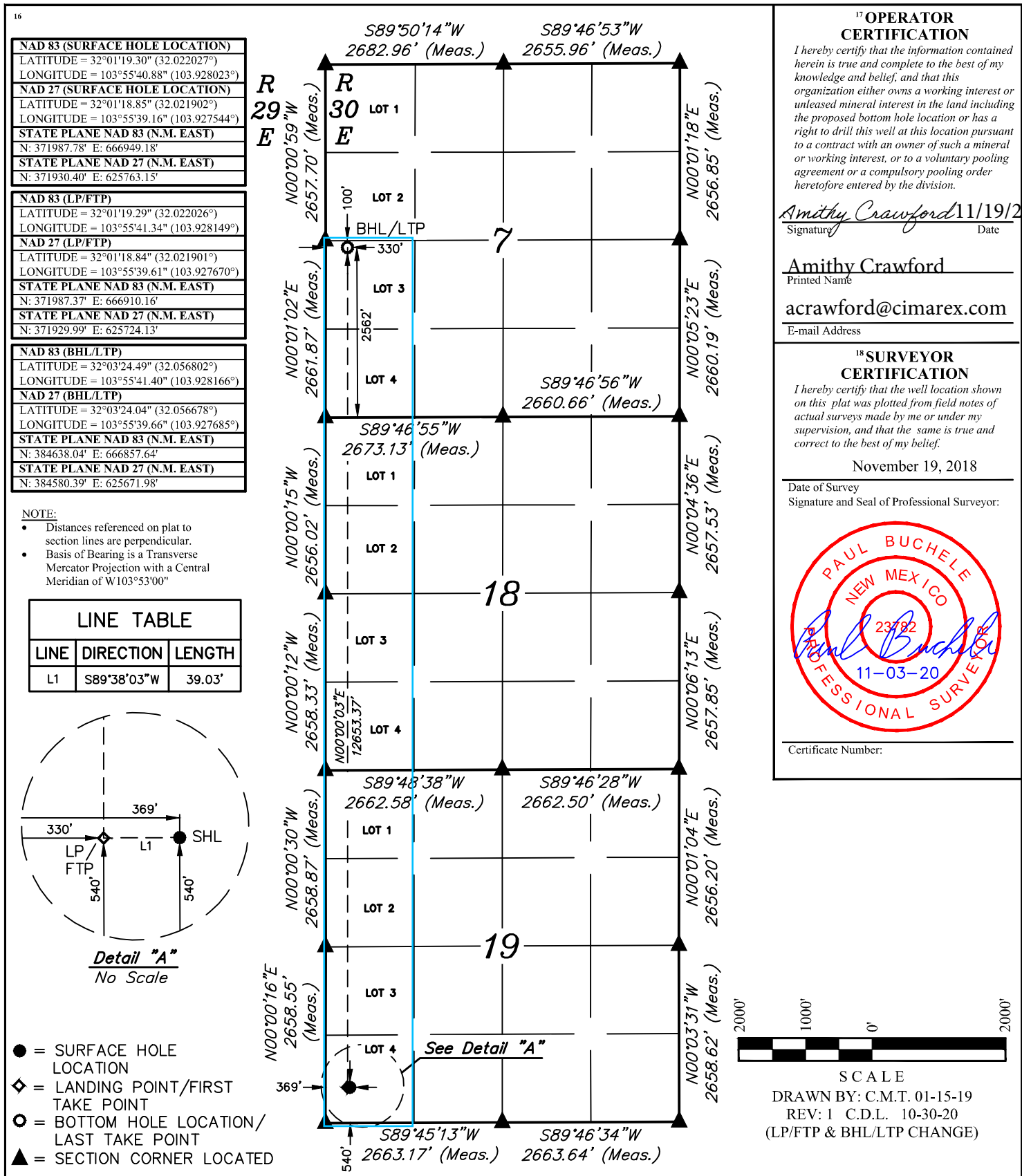
All waste (i.e. drilling fluids, trash, salts, chemicals, sewage, gray water, etc.) created as a result of drilling operations and completion operations shall be safely contained and disposed of properly at a waste disposal facility. No waste material or fluid shall be disposed of on the well location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

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

ZS 122220

AMENDED REPORT

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.





Cimarex Tar Heel 19-18 Federal Com #1H Rev1 RM 17Nov20 Proposal Geodetic Report (Def Plan)



Report Date: November 17, 2020 - 01:27 PM
Client: Cimarex Energy
Field: NM Eddy County (NAD 83)
Structure / Slot: Cimarex Tar Heel 19-18 Federal Com #1H / New Slot
Well: Tar Heel 19-18 Federal Com #1H
Borehole: Tar Heel 19-18 Federal Com #1H
UWI / API#: Unknown / Unknown
Survey Name: Cimarex Tar Heel 19-18 Federal Com #1H Rev1 RM 17Nov20
Survey Date: January 24, 2019
Tort / AHD / DDI / ERD Ratio: 90.575 ° / 12653.861 ft / 6.420 / 1.319
Coordinate Reference System: NAD83 New Mexico State Plane, Eastern Zone, US Feet
Location Lat / Long: N 32° 1' 19.29652", W 103° 55' 40.88399"
Location Grid N/E Y/X: N 371987.780 ftUS, E 666949.180 ftUS
CRS Grid Convergence Angle: 0.2149 °
Grid Scale Factor: 0.99992716
Version / Patch: 2.10.821.3

Survey / DLS Computation: Minimum Curvature / Lubinski
Vertical Section Azimuth: 359.762 ° (Grid North)
Vertical Section Origin: 0.000 ft, 0.000 ft
TVD Reference Datum: RKB
TVD Reference Elevation: 3042.500 ft above MSL
Seabed / Ground Elevation: 3016.500 ft above MSL
Magnetic Declination: 6.587 °
Total Gravity Field Strength: 998.4408mgn (9.80665 Based)
Gravity Model: GARM
Total Magnetic Field Strength: 47623.494 nT
Magnetic Dip Angle: 59.598 °
Declination Date: November 17, 2020
Magnetic Declination Model: HDGM 2020
North Reference: Grid North
Grid Convergence Used: 0.2149 °
Total Corr Mag North->Grid North: 6.3722 °
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 [540' FSL, 369 FWL]	0.00	0.00	359.82	0.00	0.00	0.00	0.00	N/A	371987.78	666949.18	N 32 1 19.30	W 103 55 40.88
	100.00	0.00	350.03	100.00	0.00	0.00	0.00	0.00	371987.78	666949.18	N 32 1 19.30	W 103 55 40.88
	200.00	0.00	350.03	200.00	0.00	0.00	0.00	0.00	371987.78	666949.18	N 32 1 19.30	W 103 55 40.88
	300.00	0.00	350.03	300.00	0.00	0.00	0.00	0.00	371987.78	666949.18	N 32 1 19.30	W 103 55 40.88
	400.00	0.00	350.03	400.00	0.00	0.00	0.00	0.00	371987.78	666949.18	N 32 1 19.30	W 103 55 40.88
	500.00	0.00	350.03	500.00	0.00	0.00	0.00	0.00	371987.78	666949.18	N 32 1 19.30	W 103 55 40.88
	600.00	0.00	350.03	600.00	0.00	0.00	0.00	0.00	371987.78	666949.18	N 32 1 19.30	W 103 55 40.88
	700.00	0.00	350.03	700.00	0.00	0.00	0.00	0.00	371987.78	666949.18	N 32 1 19.30	W 103 55 40.88
	800.00	0.00	350.03	800.00	0.00	0.00	0.00	0.00	371987.78	666949.18	N 32 1 19.30	W 103 55 40.88
	900.00	0.00	350.03	900.00	0.00	0.00	0.00	0.00	371987.78	666949.18	N 32 1 19.30	W 103 55 40.88
	1000.00	0.00	350.03	1000.00	0.00	0.00	0.00	0.00	371987.78	666949.18	N 32 1 19.30	W 103 55 40.88
	1050.00	0.00	350.03	1050.00	0.00	0.00	0.00	0.00	371987.78	666949.18	N 32 1 19.30	W 103 55 40.88
	1100.00	0.00	350.03	1100.00	0.00	0.00	0.00	0.00	371987.78	666949.18	N 32 1 19.30	W 103 55 40.88
	1200.00	0.00	350.03	1200.00	0.00	0.00	0.00	0.00	371987.78	666949.18	N 32 1 19.30	W 103 55 40.88
	1300.00	0.00	350.03	1300.00	0.00	0.00	0.00	0.00	371987.78	666949.18	N 32 1 19.30	W 103 55 40.88
	1400.00	0.00	350.03	1400.00	0.00	0.00	0.00	0.00	371987.78	666949.18	N 32 1 19.30	W 103 55 40.88
	1500.00	0.00	350.03	1500.00	0.00	0.00	0.00	0.00	371987.78	666949.18	N 32 1 19.30	W 103 55 40.88
	1600.00	0.00	350.03	1600.00	0.00	0.00	0.00	0.00	371987.78	666949.18	N 32 1 19.30	W 103 55 40.88
	1700.00	0.00	350.03	1700.00	0.00	0.00	0.00	0.00	371987.78	666949.18	N 32 1 19.30	W 103 55 40.88
	1800.00	0.00	350.03	1800.00	0.00	0.00	0.00	0.00	371987.78	666949.18	N 32 1 19.30	W 103 55 40.88
	1900.00	0.00	350.03	1900.00	0.00	0.00	0.00	0.00	371987.78	666949.18	N 32 1 19.30	W 103 55 40.88
Salado (Top Salt)	1918.00	0.00	350.03	1918.00	0.00	0.00	0.00	0.00	371987.78	666949.18	N 32 1 19.30	W 103 55 40.88
	2000.00	0.00	350.03	2000.00	0.00	0.00	0.00	0.00	371987.78	666949.18	N 32 1 19.30	W 103 55 40.88
	2100.00	0.00	350.03	2100.00	0.00	0.00	0.00	0.00	371987.78	666949.18	N 32 1 19.30	W 103 55 40.88
	2200.00	0.00	350.03	2200.00	0.00	0.00	0.00	0.00	371987.78	666949.18	N 32 1 19.30	W 103 55 40.88
	2300.00	0.00	350.03	2300.00	0.00	0.00	0.00	0.00	371987.78	666949.18	N 32 1 19.30	W 103 55 40.88
	2400.00	0.00	350.03	2400.00	0.00	0.00	0.00	0.00	371987.78	666949.18	N 32 1 19.30	W 103 55 40.88
Castille (Base Salt)	2453.00	0.00	350.03	2453.00	0.00	0.00	0.00	0.00	371987.78	666949.18	N 32 1 19.30	W 103 55 40.88
	2500.00	0.00	350.03	2500.00	0.00	0.00	0.00	0.00	371987.78	666949.18	N 32 1 19.30	W 103 55 40.88
	2600.00	0.00	350.03	2600.00	0.00	0.00	0.00	0.00	371987.78	666949.18	N 32 1 19.30	W 103 55 40.88
	2700.00	0.00	350.03	2700.00	0.00	0.00	0.00	0.00	371987.78	666949.18	N 32 1 19.30	W 103 55 40.88
	2800.00	0.00	350.03	2800.00	0.00	0.00	0.00	0.00	371987.78	666949.18	N 32 1 19.30	W 103 55 40.88
	2900.00	0.00	350.03	2900.00	0.00	0.00	0.00	0.00	371987.78	666949.18	N 32 1 19.30	W 103 55 40.88
	3000.00	0.00	350.03	3000.00	0.00	0.00	0.00	0.00	371987.78	666949.18	N 32 1 19.30	W 103 55 40.88
	3100.00	0.00	350.03	3100.00	0.00	0.00	0.00	0.00	371987.78	666949.18	N 32 1 19.30	W 103 55 40.88
	3200.00	0.00	350.03	3200.00	0.00	0.00	0.00	0.00	371987.78	666949.18	N 32 1 19.30	W 103 55 40.88
Bell Canyon (Top Delaware)	3268.00	0.00	350.03	3268.00	0.00	0.00	0.00	0.00	371987.78	666949.18	N 32 1 19.30	W 103 55 40.88
	3300.00	0.00	350.03	3300.00	0.00	0.00	0.00	0.00	371987.78	666949.18	N 32 1 19.30	W 103 55 40.88
	3400.00	0.00	350.03	3400.00	0.00	0.00	0.00	0.00	371987.78	666949.18	N 32 1 19.30	W 103 55 40.88
	3500.00	0.00	350.03	3500.00	0.00	0.00	0.00	0.00	371987.78	666949.18	N 32 1 19.30	W 103 55 40.88
	3600.00	0.00	350.03	3600.00	0.00	0.00	0.00	0.00	371987.78	666949.18	N 32 1 19.30	W 103 55 40.88
	3700.00	0.00	350.03	3700.00	0.00	0.00	0.00	0.00	371987.78	666949.18	N 32 1 19.30	W 103 55 40.88
	3800.00	0.00	350.03	3800.00	0.00	0.00	0.00	0.00	371987.78	666949.18	N 32 1 19.30	W 103 55 40.88
	3900.00	0.00	350.03	3900.00	0.00	0.00	0.00	0.00	371987.78	666949.18	N 32 1 19.30	W 103 55 40.88
	4000.00	0.00	350.03	4000.00	0.00	0.00	0.00	0.00	371987.78	666949.18	N 32 1 19.30	W 103 55 40.88
	4100.00	0.00	350.03	4100.00	0.00	0.00	0.00	0.00	371987.78	666949.18	N 32 1 19.30	W 103 55 40.88
	4185.00	0.00	350.03	4185.00	0.00	0.00	0.00	0.00	371987.78	666949.18	N 32 1 19.30	W 103 55 40.88
Cherry Canyon	4200.00	0.00	350.03	4200.00	0.00	0.00	0.00	0.00	371987.78	666949.18	N 32 1 19.30	W 103 55 40.88
	4300.00	0.00	350.03	4300.00	0.00	0.00	0.00	0.00	371987.78	666949.18	N 32 1 19.30	W 103 55 40.88
	4400.00	0.00	350.03	4400.00	0.00	0.00	0.00	0.00	371987.78	666949.18	N 32 1 19.30	W 103 55 40.88
	4500.00	0.00	350.03	4500.00	0.00	0.00	0.00	0.00	371987.78	666949.18	N 32 1 19.30	W 103 55 40.88
	4600.00	0.00	350.03	4600.00	0.00	0.00	0.00	0.00	371987.78	666949.18	N 32 1 19.30	W 103 55 40.88
	4700.00	0.00	350.03	4700.00	0.00	0.00	0.00	0.00	371987.78	666949.18	N 32 1 19.30	W 103 55 40.88
	4800.00	0.00	350.03	4800.00	0.00	0.00	0.00	0.00	371987.78	666949.18	N 32 1 19.30	W 103 55 40.88
	4900.00	0.00	350.03	4900.00	0.00	0.00	0.00	0.00	371987.78	666949.18	N 32 1 19.30	W 103 55 40.88
	5000.00	0.00	350.03	5000.00	0.00	0.00	0.00	0.00	371987.78	666949.18	N 32 1 19.30	W 103 55 40.88
	5100.00	0.00	350.03	5100.00	0.00	0.00	0.00	0.00	371987.78	666949.18	N 32 1 19.30	W 103 55 40.88
	5200.00	0.00	350.03	5200.00	0.00	0.00	0.00	0.00	371987.78	666949.18	N 32 1 19.30	W 103 55 40.88
	5300.00	0.00	350.03	5300.00	0.00	0.00	0.00	0.00	371987.78	666949.18	N 32 1 19.30	W 103 55 40.88
	5400.00	0.00	350.03	5400.00	0.00	0.00	0.00	0.00	371987.78	666949.18	N 32 1 19.30	W 103 55 40.88
Brushy Canyon	5474.00	0.00	350.03	5474.00	0.00	0.00	0.00	0.00	371987.78	666949.18	N 32 1 19.30	W 103 55 40.88
	5500.00	0.00	350.03	5500.00	0.00	0.00	0.00	0.00	371987.78	666949.18	N 32 1 19.30	W 103 55 40.88
	5600.00	0.00	350.03	5600.00	0.00	0.00	0.00	0.00	371987.78	666949.18	N 32 1 19.30	W 103 55 40.88
	5700.00	0.00	350.03	5700.00	0.00	0.00	0.00	0.00	371987.78	666949.18	N 32 1 19.30	W 103 55 40.88
	5800.00	0.00	350.03	5800.00	0.00	0.00	0.00	0.00	371987.78	666949.18	N 32 1 19.30	W 103 55 40.88
	5900.00	0.00	350.03	5900.00	0.00	0.00	0.00	0.00	371987.78	666949.18	N 32 1 19.30	W 103 55 40.88
	6000.00	0.00	350.03	6000.00	0.00	0.00	0.00	0.00	371987.78	666949.18	N 32 1 19.30	W 103 55 40.88
	6100.00	0.00	350.03	6100.00	0.00	0.00	0.00	0.00	371987.78	666949.18	N 32 1 19.30	W 103 55 40.88
	6200.00	0.00	350.03	6200.00	0.00	0.00	0.00	0.00	371987.78	666949.18	N 32 1 19.30	W 103 55 40.88
	6300.00	0.00	350.03	6300.00	0.00	0.00	0.00	0.00	371987.78	666949.18	N 32 1 19.30	W 103 55 40.88
	6400.00	0.00	350.03	6400.00	0.00	0.00	0.00	0.00	371987.78	666949.18	N 32 1 19.30	W 103 55 40.88
	6500.00	0.00	350.03	6500.00	0.00	0.00	0.00	0.00	371987.78	666949.18	N 32 1 19.30	W 103 55 40.88
	6600.00	0.00	350.03	6600.00	0.00	0.00	0.00	0.00	371987.78	666949.18	N 32 1 19.30	W 103 55 40.

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 Bone Spring	6800.00	0.00	350.03	6800.00	0.00	0.00	0.00	0.00	371987.78	666949.18	N 32 1 19.30	W 103 55 40.88
	6900.00	0.00	350.03	6900.00	0.00	0.00	0.00	0.00	371987.78	666949.18	N 32 1 19.30	W 103 55 40.88
	7000.00	0.00	350.03	7000.00	0.00	0.00	0.00	0.00	371987.78	666949.18	N 32 1 19.30	W 103 55 40.88
	7026.00	0.00	350.03	7026.00	0.00	0.00	0.00	0.00	371987.78	666949.18	N 32 1 19.30	W 103 55 40.88
	7100.00	0.00	350.03	7100.00	0.00	0.00	0.00	0.00	371987.78	666949.18	N 32 1 19.30	W 103 55 40.88
	7200.00	0.00	350.03	7200.00	0.00	0.00	0.00	0.00	371987.78	666949.18	N 32 1 19.30	W 103 55 40.88
	7300.00	0.00	350.03	7300.00	0.00	0.00	0.00	0.00	371987.78	666949.18	N 32 1 19.30	W 103 55 40.88
	7400.00	0.00	350.03	7400.00	0.00	0.00	0.00	0.00	371987.78	666949.18	N 32 1 19.30	W 103 55 40.88
	7500.00	0.00	350.03	7500.00	0.00	0.00	0.00	0.00	371987.78	666949.18	N 32 1 19.30	W 103 55 40.88
	7600.00	0.00	350.03	7600.00	0.00	0.00	0.00	0.00	371987.78	666949.18	N 32 1 19.30	W 103 55 40.88
Top 1st BSPG SS	7700.00	0.00	350.03	7700.00	0.00	0.00	0.00	0.00	371987.78	666949.18	N 32 1 19.30	W 103 55 40.88
	7800.00	0.00	350.03	7800.00	0.00	0.00	0.00	0.00	371987.78	666949.18	N 32 1 19.30	W 103 55 40.88
	7900.00	0.00	350.03	7900.00	0.00	0.00	0.00	0.00	371987.78	666949.18	N 32 1 19.30	W 103 55 40.88
	7932.00	0.00	350.03	7932.00	0.00	0.00	0.00	0.00	371987.78	666949.18	N 32 1 19.30	W 103 55 40.88
	8000.00	0.00	350.03	8000.00	0.00	0.00	0.00	0.00	371987.78	666949.18	N 32 1 19.30	W 103 55 40.88
	8100.00	0.00	350.03	8100.00	0.00	0.00	0.00	0.00	371987.78	666949.18	N 32 1 19.30	W 103 55 40.88
	8200.00	0.00	350.03	8200.00	0.00	0.00	0.00	0.00	371987.78	666949.18	N 32 1 19.30	W 103 55 40.88
	8300.00	0.00	350.03	8300.00	0.00	0.00	0.00	0.00	371987.78	666949.18	N 32 1 19.30	W 103 55 40.88
	8376.00	0.00	350.03	8376.00	0.00	0.00	0.00	0.00	371987.78	666949.18	N 32 1 19.30	W 103 55 40.88
	8400.00	0.00	350.03	8400.00	0.00	0.00	0.00	0.00	371987.78	666949.18	N 32 1 19.30	W 103 55 40.88
Top 2nd BSPG Carb	8500.00	0.00	350.03	8500.00	0.00	0.00	0.00	0.00	371987.78	666949.18	N 32 1 19.30	W 103 55 40.88
	8600.00	0.00	350.03	8600.00	0.00	0.00	0.00	0.00	371987.78	666949.18	N 32 1 19.30	W 103 55 40.88
	8605.00	0.00	350.03	8605.00	0.00	0.00	0.00	0.00	371987.78	666949.18	N 32 1 19.30	W 103 55 40.88
	8700.00	0.00	350.03	8700.00	0.00	0.00	0.00	0.00	371987.78	666949.18	N 32 1 19.30	W 103 55 40.88
	8800.00	0.00	350.03	8800.00	0.00	0.00	0.00	0.00	371987.78	666949.18	N 32 1 19.30	W 103 55 40.88
	8900.00	0.00	350.03	8900.00	0.00	0.00	0.00	0.00	371987.78	666949.18	N 32 1 19.30	W 103 55 40.88
	9000.00	0.00	350.03	9000.00	0.00	0.00	0.00	0.00	371987.78	666949.18	N 32 1 19.30	W 103 55 40.88
	9100.00	0.00	350.03	9100.00	0.00	0.00	0.00	0.00	371987.78	666949.18	N 32 1 19.30	W 103 55 40.88
	9113.03	0.00	350.03	9113.03	0.00	0.00	0.00	0.00	371987.78	666949.18	N 32 1 19.30	W 103 55 40.88
	9116.00	0.36	350.03	9116.00	0.01	0.01	0.00	12.00	371987.79	666949.18	N 32 1 19.30	W 103 55 40.88
KOP - Build 12"/100' DLS Top 3rd BSPG Carb	9200.00	10.44	350.03	9199.52	7.78	7.78	-1.37	12.00	371995.56	666947.81	N 32 1 19.37	W 103 55 40.90
	9300.00	22.44	350.03	9295.26	35.62	35.60	-6.26	12.00	372023.37	666942.92	N 32 1 19.65	W 103 55 40.96
	9400.00	34.44	350.03	9383.03	82.47	82.41	-14.49	12.00	372070.18	666934.69	N 32 1 20.11	W 103 55 41.05
	9404.70	35.00	350.03	9386.90	85.11	85.04	-14.95	12.00	372072.82	666934.23	N 32 1 20.14	W 103 55 41.05
	9409.73	35.59	350.24	9391.00	87.97	87.91	-15.45	12.00	372075.68	666933.73	N 32 1 20.17	W 103 55 41.06
	9500.00	46.24	353.25	9459.12	146.44	146.35	-23.75	12.00	372134.12	666925.43	N 32 1 20.75	W 103 55 41.15
	9600.00	58.11	355.54	9520.34	224.95	224.82	-31.33	12.00	372212.59	666917.86	N 32 1 21.52	W 103 55 41.24
	9700.00	70.01	357.29	9564.01	314.56	314.41	-36.87	12.00	372302.17	666912.32	N 32 1 22.41	W 103 55 41.30
	9800.00	81.92	358.80	9588.22	411.35	411.19	-40.13	12.00	372398.94	666909.05	N 32 1 23.37	W 103 55 41.33
	9867.83	90.00	359.76	9593.00	478.95	478.79	-40.98	12.00	372466.53	666908.20	N 32 1 24.04	W 103 55 41.34
Landing Point	9900.00	90.00	359.76	9593.00	511.13	510.96	-41.11	0.00	372498.70	666908.07	N 32 1 24.35	W 103 55 41.34
	10000.00	90.00	359.76	9593.00	611.13	610.96	-41.53	0.00	372598.69	666907.65	N 32 1 25.34	W 103 55 41.34
	10100.00	90.00	359.76	9593.00	711.13	710.96	-41.95	0.00	372698.68	666907.24	N 32 1 26.33	W 103 55 41.34
	10200.00	90.00	359.76	9593.00	811.13	810.96	-42.36	0.00	372798.68	666906.82	N 32 1 27.32	W 103 55 41.34
	10300.00	90.00	359.76	9593.00	911.13	910.96	-42.78	0.00	372898.67	666906.41	N 32 1 28.31	W 103 55 41.34
	10400.00	90.00	359.76	9593.00	1011.13	1010.95	-43.19	0.00	372998.66	666905.99	N 32 1 29.30	W 103 55 41.34
	10500.00	90.00	359.76	9593.00	1111.13	1110.95	-43.61	0.00	373098.65	666905.58	N 32 1 30.29	W 103 55 41.34
	10600.00	90.00	359.76	9593.00	1211.13	1210.95	-44.02	0.00	373198.64	666905.16	N 32 1 31.28	W 103 55 41.34
	10700.00	90.00	359.76	9593.00	1311.13	1310.95	-44.44	0.00	373298.63	666904.75	N 32 1 32.27	W 103 55 41.34
	10800.00	90.00	359.76	9593.00	1411.13	1410.95	-44.85	0.00	373398.63	666904.33	N 32 1 33.26	W 103 55 41.34
	10900.00	90.00	359.76	9593.00	1511.13	1510.95	-45.27	0.00	373498.62	666903.91	N 32 1 34.25	W 103 55 41.34
	11000.00	90.00	359.76	9593.00	1611.13	1610.95	-45.68	0.00	373598.61	666903.50	N 32 1 35.24	W 103 55 41.34
	11100.00	90.00	359.76	9593.00	1711.13	1710.95	-46.10	0.00	373698.60	666903.08	N 32 1 36.23	W 103 55 41.34
	11200.00	90.00	359.76	9593.00	1811.13	1810.95	-46.51	0.00	373798.59	666902.67	N 32 1 37.22	W 103 55 41.35
	11300.00	90.00	359.76	9593.00	1911.13	1910.95	-46.93	0.00	373898.58	666902.25	N 32 1 38.21	W 103 55 41.35
	11400.00	90.00	359.76	9593.00	2011.13	2010.95	-47.35	0.00	373998.58	666901.84	N 32 1 39.20	W 103 55 41.35
	11500.00	90.00	359.76	9593.00	2111.13	2110.95	-47.76	0.00	374098.57	666901.42	N 32 1 40.19	W 103 55 41.35
	11600.00	90.00	359.76	9593.00	2211.13	2210.94	-48.18	0.00	374198.56	666901.01	N 32 1 41.18	W 103 55 41.35
	11700.00	90.00	359.76	9593.00	2311.13	2310.94	-48.59	0.00	374298.55	666900.59	N 32 1 42.17	W 103 55 41.35
	11800.00	90.00	359.76	9593.00	2411.13	2410.94	-49.01	0.00	374398.54	666900.18	N 32 1 43.16	W 103 55 41.35
	11900.00	90.00	359.76	9593.00	2511.13	2510.94	-49.42	0.00	374498.53	666899.76	N 32 1 44.15	W 103 55 41.35
	12000.00	90.00	359.76	9593.00	2611.13	2610.94	-49.84	0.00	374598.53	666899.35	N 32 1 45.13	W 103 55 41.35
	12100.00	90.00	359.76	9593.00	2711.13	2710.94	-50.25	0.00	374698.52	666898.93	N 32 1 46.12	W 103 55 41.35
	12200.00	90.00	359.76	9593.00	2811.13	2810.94	-50.67	0.00	374798.51	666898.51	N 32 1 47.11	W 103 55 41.35
	12300.00	90.00	359.76	9593.00	2911.13	2910.94	-51.08	0.00	374898.50	666898.10	N 32 1 48.10	W 103 55 41.35
	12400.00	90.00	359.76	9593.00	3011.13	3010.94	-51.50	0.00	374998.49	666897.68	N 32 1 49.09	W 103 55 41.35
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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 ° ' ")
	16100.00	90.00	359.76	9593.00	6711.13	6710.91	-66.87	0.00	378698.18	666882.32	N 32 2 25.71	W 103 55 41.37
	16200.00	90.00	359.76	9593.00	6811.13	6810.90	-67.29	0.00	378798.17	666881.90	N 32 2 26.70	W 103 55 41.37
	16300.00	90.00	359.76	9593.00	6911.13	6910.90	-67.70	0.00	378898.17	666881.48	N 32 2 27.69	W 103 55 41.37
	16400.00	90.00	359.76	9593.00	7011.13	7010.90	-68.12	0.00	378998.16	666881.07	N 32 2 28.67	W 103 55 41.37
	16500.00	90.00	359.76	9593.00	7111.13	7110.90	-68.53	0.00	379098.15	666880.65	N 32 2 29.66	W 103 55 41.37
	16600.00	90.00	359.76	9593.00	7211.13	7210.90	-68.95	0.00	379198.14	666880.24	N 32 2 30.65	W 103 55 41.37
	16700.00	90.00	359.76	9593.00	7311.13	7310.90	-69.36	0.00	379298.13	666879.82	N 32 2 31.64	W 103 55 41.37
	16800.00	90.00	359.76	9593.00	7411.13	7410.90	-69.78	0.00	379398.12	666879.41	N 32 2 32.63	W 103 55 41.37
	16900.00	90.00	359.76	9593.00	7511.13	7510.90	-70.19	0.00	379498.12	666878.99	N 32 2 33.62	W 103 55 41.37
	17000.00	90.00	359.76	9593.00	7611.13	7610.90	-70.61	0.00	379598.11	666878.58	N 32 2 34.61	W 103 55 41.37
	17100.00	90.00	359.76	9593.00	7711.13	7710.90	-71.02	0.00	379698.10	666878.16	N 32 2 35.60	W 103 55 41.37
	17200.00	90.00	359.76	9593.00	7811.13	7810.90	-71.44	0.00	379798.09	666877.75	N 32 2 36.59	W 103 55 41.37
	17300.00	90.00	359.76	9593.00	7911.13	7910.89	-71.85	0.00	379898.08	666877.33	N 32 2 37.58	W 103 55 41.37
	17400.00	90.00	359.76	9593.00	8011.13	8010.89	-72.27	0.00	379998.07	666876.92	N 32 2 38.57	W 103 55 41.37
	17500.00	90.00	359.76	9593.00	8111.13	8110.89	-72.69	0.00	380098.07	666876.50	N 32 2 39.56	W 103 55 41.37
	17600.00	90.00	359.76	9593.00	8211.13	8210.89	-73.10	0.00	380198.06	666876.08	N 32 2 40.55	W 103 55 41.38
	17700.00	90.00	359.76	9593.00	8311.13	8310.89	-73.52	0.00	380298.05	666875.67	N 32 2 41.54	W 103 55 41.38
	17800.00	90.00	359.76	9593.00	8411.13	8410.89	-73.93	0.00	380398.04	666875.25	N 32 2 42.53	W 103 55 41.38
	17900.00	90.00	359.76	9593.00	8511.13	8510.89	-74.35	0.00	380498.03	666874.84	N 32 2 43.52	W 103 55 41.38
	18000.00	90.00	359.76	9593.00	8611.13	8610.89	-74.76	0.00	380598.02	666874.42	N 32 2 44.51	W 103 55 41.38
	18100.00	90.00	359.76	9593.00	8711.13	8710.89	-75.18	0.00	380698.02	666874.01	N 32 2 45.50	W 103 55 41.38
	18200.00	90.00	359.76	9593.00	8811.13	8810.89	-75.59	0.00	380798.01	666873.59	N 32 2 46.49	W 103 55 41.38
	18300.00	90.00	359.76	9593.00	8911.13	8910.89	-76.01	0.00	380898.00	666873.18	N 32 2 47.48	W 103 55 41.38
	18400.00	90.00	359.76	9593.00	9011.13	9010.89	-76.42	0.00	380997.99	666872.76	N 32 2 48.47	W 103 55 41.38
	18500.00	90.00	359.76	9593.00	9111.13	9110.88	-76.84	0.00	381097.98	666872.35	N 32 2 49.45	W 103 55 41.38
	18600.00	90.00	359.76	9593.00	9211.13	9210.88	-77.26	0.00	381197.97	666871.93	N 32 2 50.44	W 103 55 41.38
	18700.00	90.00	359.76	9593.00	9311.13	9310.88	-77.67	0.00	381297.97	666871.52	N 32 2 51.43	W 103 55 41.38
	18800.00	90.00	359.76	9593.00	9411.13	9410.88	-78.09	0.00	381397.96	666871.10	N 32 2 52.42	W 103 55 41.38
	18900.00	90.00	359.76	9593.00	9511.13	9510.88	-78.50	0.00	381497.95	666870.68	N 32 2 53.41	W 103 55 41.38
	19000.00	90.00	359.76	9593.00	9611.13	9610.88	-78.92	0.00	381597.94	666870.27	N 32 2 54.40	W 103 55 41.38
	19100.00	90.00	359.76	9593.00	9711.13	9710.88	-79.33	0.00	381697.93	666869.85	N 32 2 55.39	W 103 55 41.38
	19200.00	90.00	359.76	9593.00	9811.13	9810.88	-79.75	0.00	381797.92	666869.44	N 32 2 56.38	W 103 55 41.38
	19300.00	90.00	359.76	9593.00	9911.13	9910.88	-80.16	0.00	381897.92	666869.02	N 32 2 57.37	W 103 55 41.38
	19400.00	90.00	359.76	9593.00	10011.13	10010.88	-80.58	0.00	381997.91	666868.61	N 32 2 58.36	W 103 55 41.38
	19500.00	90.00	359.76	9593.00	10111.13	10110.88	-80.99	0.00	382097.90	666868.19	N 32 2 59.35	W 103 55 41.38
	19600.00	90.00	359.76	9593.00	10211.13	10210.88	-81.41	0.00	382197.89	666867.78	N 32 3 0.34	W 103 55 41.38
	19700.00	90.00	359.76	9593.00	10311.13	10310.87	-81.82	0.00	382297.88	666867.36	N 32 3 1.33	W 103 55 41.39
	19800.00	90.00	359.76	9593.00	10411.13	10410.87	-82.24	0.00	382397.87	666866.95	N 32 3 2.32	W 103 55 41.39
	19900.00	90.00	359.76	9593.00	10511.13	10510.87	-82.66	0.00	382497.87	666866.53	N 32 3 3.31	W 103 55 41.39
	20000.00	90.00	359.76	9593.00	10611.13	10610.87	-83.07	0.00	382597.86	666866.12	N 32 3 4.30	W 103 55 41.39
	20100.00	90.00	359.76	9593.00	10711.13	10710.87	-83.49	0.00	382697.85	666865.70	N 32 3 5.29	W 103 55 41.39
	20200.00	90.00	359.76	9593.00	10811.13	10810.87	-83.90	0.00	382797.84	666865.28	N 32 3 6.28	W 103 55 41.39
	20300.00	90.00	359.76	9593.00	10911.13	10910.87	-84.32	0.00	382897.83	666864.87	N 32 3 7.27	W 103 55 41.39
	20400.00	90.00	359.76	9593.00	11011.13	11010.87	-84.73	0.00	382997.82	666864.45	N 32 3 8.26	W 103 55 41.39
	20500.00	90.00	359.76	9593.00	11111.13	11110.87	-85.15	0.00	383097.82	666864.04	N 32 3 9.25	W 103 55 41.39
	20600.00	90.00	359.76	9593.00	11211.13	11210.87	-85.56	0.00	383197.81	666863.62	N 32 3 10.24	W 103 55 41.39
	20700.00	90.00	359.76	9593.00	11311.13	11310.87	-85.98	0.00	383297.80	666863.21	N 32 3 11.22	W 103 55 41.39
	20800.00	90.00	359.76	9593.00	11411.13	11410.86	-86.39	0.00	383397.79	666862.79	N 32 3 12.21	W 103 55 41.39
	20900.00	90.00	359.76	9593.00	11511.13	11510.86	-86.81	0.00	383497.78	666862.38	N 32 3 13.20	W 103 55 41.39
	21000.00	90.00	359.76	9593.00	11611.13	11610.86	-87.23	0.00	383597.77	666861.96	N 32 3 14.19	W 103 55 41.39
	21100.00	90.00	359.76	9593.00	11711.13	11710.86	-87.64	0.00	383697.77	666861.55	N 32 3 15.18	W 103 55 41.39
	21200.00	90.00	359.76	9593.00	11811.13	11810.86	-88.06	0.00	383797.76	666861.13	N 32 3 16.17	W 103 55 41.39
	21300.00	90.00	359.76	9593.00	11911.13	11910.86	-88.47	0.00	383897.75	666860.72	N 32 3 17.16	W 103 55 41.39
	21400.00	90.00	359.76	9593.00	12011.13	12010.86	-88.89	0.00	383997.74	666860.30	N 32 3 18.15	W 103 55 41.39
	21500.00	90.00	359.76	9593.00	12111.13	12110.86	-89.30	0.00	384097.73	666859.88	N 32 3 19.14	W 103 55 41.39
	21600.00	90.00	359.76	9593.00	12211.13	12210.86	-89.72	0.00	384197.72	666859.47	N 32 3 20.13	W 103 55 41.39
	21700.00	90.00	359.76	9593.00	12311.13	12310.86	-90.13	0.00	384297.72	666859.05	N 32 3 21.12	W 103 55 41.39
	21800.00	90.00	359.76	9593.00	12411.13	12410.86	-90.55	0.00	384397.71	666858.64	N 32 3 22.11	W 103 55 41.39
	21900.00	90.00	359.76	9593.00	12511.13	12510.86	-90.96	0.00	384497.70	666858.22	N 32 3 23.10	W 103 55 41.40
	22000.00	90.00	359.76	9593.00	12611.13	12610.85	-91.38	0.00	384597.69	666857.81	N 32 3 24.09	W 103 55 41.40
Cimarex Tar Heel 19-18 Federal Com #1H - PBHL [2562' FSL, 330' FWL]	22040.35	90.00	359.76	9593.00	12651.48	12651.21	-91.55	0.00	384638.04	666857.64	N 32 3 24.49	W 103 55 41.40

Survey Type: 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	26.000	1/100.000	17.500	13.375		NAL_MWD_IFR1+MS-Depth Only	Tar Heel 19-18 Federal Com #1H / Cimarex Tar Heel 19-18 Federal Com #1H Rev1 RM 17Nov20
	1	26.000	22040.353	1/100.000	17.500	13.375		NAL_MWD_IFR1+MS	Tar Heel 19-18 Federal Com #1H / Cimarex Tar Heel 19-18 Federal



Cimarex Tar Heel 19-18 Federal Com #1H Rev1 RM 17Nov20 Proposal Geodetic Report (Def Plan)



Report Date: November 17, 2020 - 01:27 PM
Client: Cimarex Energy
Field: NM Eddy County (NAD 83)
Structure / Slot: Cimarex Tar Heel 19-18 Federal Com #1H / New Slot
Well: Tar Heel 19-18 Federal Com #1H
Borehole: Tar Heel 19-18 Federal Com #1H
UWI / API#: Unknown / Unknown
Survey Name: Cimarex Tar Heel 19-18 Federal Com #1H Rev1 RM 17Nov20
Survey Date: January 24, 2019
Tort / AHD / DDI / ERD Ratio: 90.575 ° / 12653.861 ft / 6.420 / 1.319
Coordinate Reference System: NAD83 New Mexico State Plane, Eastern Zone, US Feet
Location Lat / Long: N 32° 1' 19.29652", W 103° 55' 40.88399"
Location Grid N/E Y/X: N 371987.780 ftUS, E 666949.180 ftUS
CRS Grid Convergence Angle: 0.2149 °
Grid Scale Factor: 0.99992716
Version / Patch: 2.10.821.3

Survey / DLS Computation: Minimum Curvature / Lubinski
Vertical Section Azimuth: 359.762 ° (Grid North)
Vertical Section Origin: 0.000 ft, 0.000 ft
TVD Reference Datum: RKB
TVD Reference Elevation: 3042.500 ft above MSL
Seabed / Ground Elevation: 3016.500 ft above MSL
Magnetic Declination: 6.587 °
Total Gravity Field Strength: 998.4408mgn (9.80665 Based)
Gravity Model: GARM
Total Magnetic Field Strength: 47623.494 nT
Magnetic Dip Angle: 59.598 °
Declination Date: November 17, 2020
Magnetic Declination Model: HDGM 2020
North Reference: Grid North
Grid Convergence Used: 0.2149 °
Total Corr Mag North->Grid North: 6.3722 °
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 [540' FSL, 369 FWL]	0.00	0.00	359.82	0.00	0.00	0.00	0.00	N/A	371987.78	666949.18	N 32 1 19.30	W 103 55 40.88
KOP - Build 12"/100' DLS	9113.03	0.00	350.03	9113.03	0.00	0.00	0.00	0.00	371987.78	666949.18	N 32 1 19.30	W 103 55 40.88
Build & Turn 12"/100' DLS	9404.70	35.00	350.03	9386.90	85.11	85.04	-14.95	12.00	372072.82	666934.23	N 32 1 20.14	W 103 55 41.05
Landing Point Cimarex Tar Heel 19-18 Federal Com #1H - PBHL [2562' FSL, 330' FWL]	9867.83	90.00	359.76	9593.00	478.95	478.79	-40.98	12.00	372466.53	666908.20	N 32 1 24.04	W 103 55 41.34
	22040.35	90.00	359.76	9593.00	12651.48	12651.21	-91.55	0.00	384638.04	666857.64	N 32 3 24.49	W 103 55 41.40

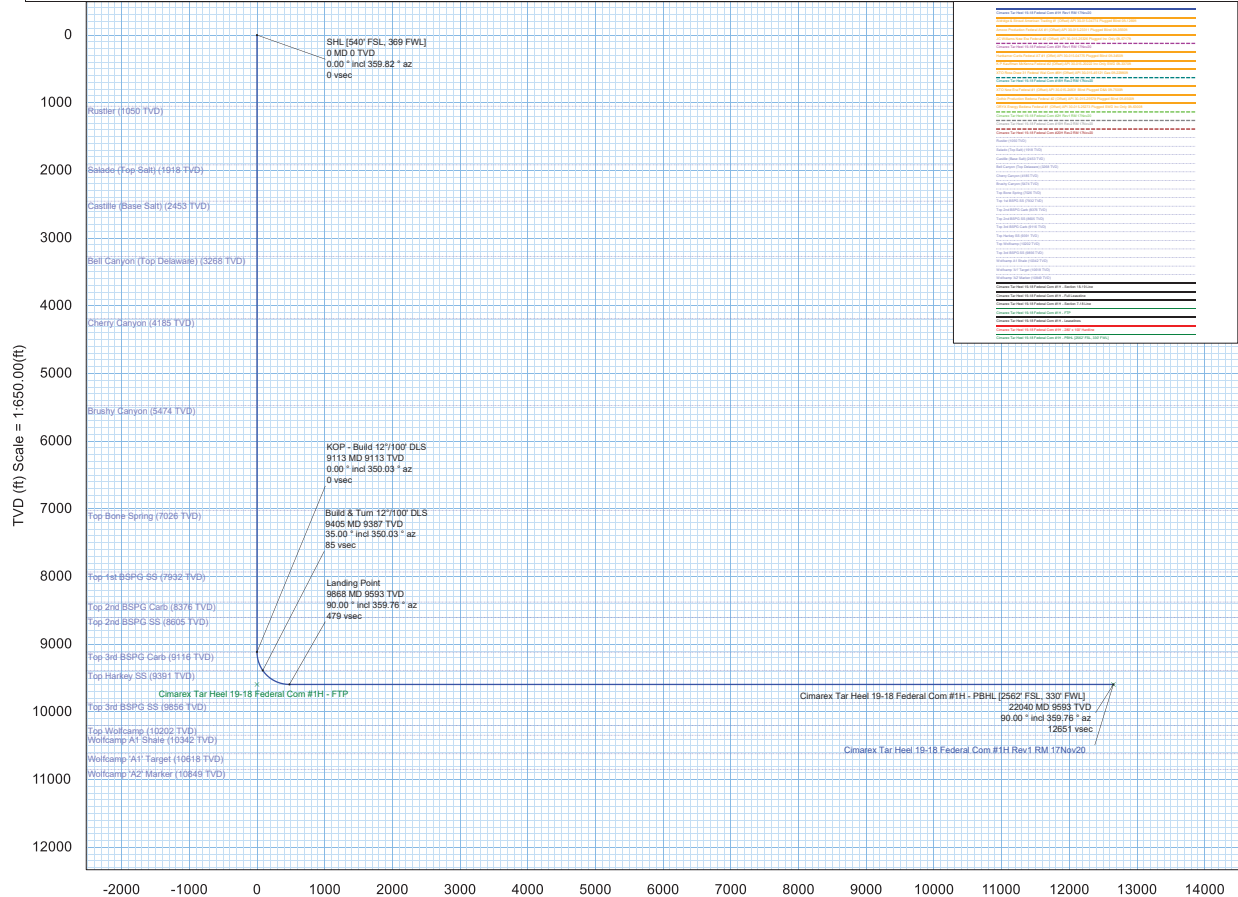
Survey Type: Def Plan

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

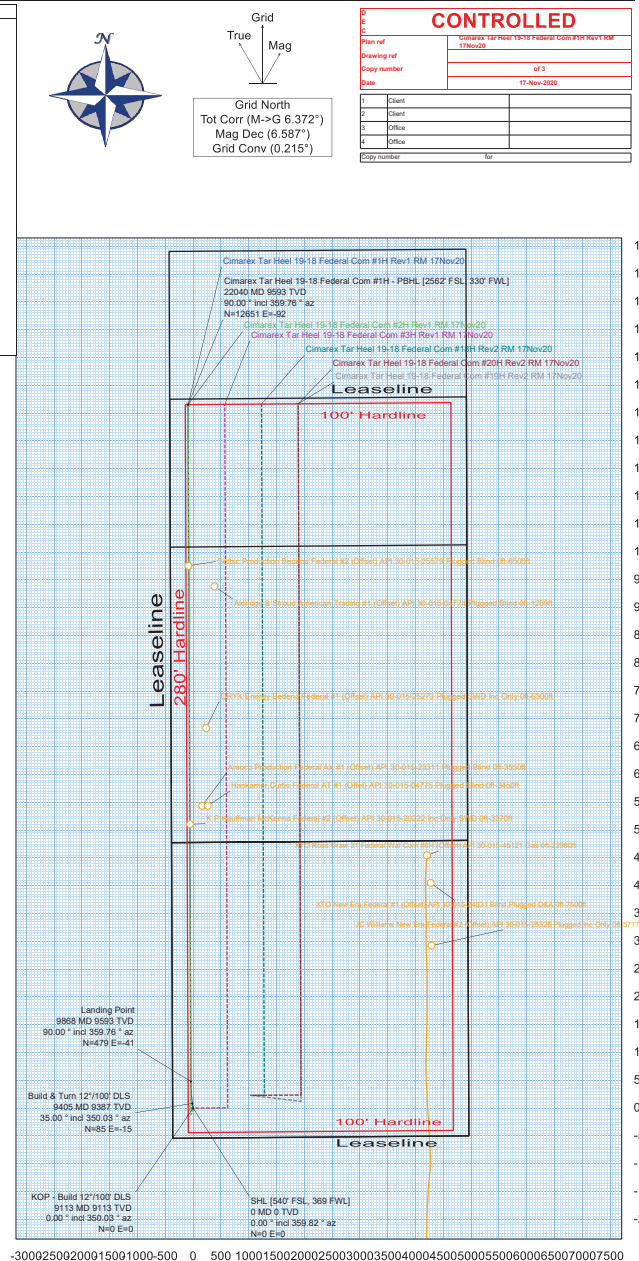
Description	Part	MD From (ft)	MD To (ft)	EOU Freq (ft)	Hole Size (in)	Casing Diameter (in)	Expected Max Inclination (deg)	Survey Tool Type	Borehole / Survey
	1	0.000	26.000	1/100.000	17.500	13.375		NAL_MWD_IFR1+MS-Depth Only	Tar Heel 19-18 Federal Com #1H / Cimarex Tar Heel 19-18 Federal Com #1H Rev1 RM 17Nov20
	1	26.000	22040.353	1/100.000	17.500	13.375		NAL_MWD_IFR1+MS	Tar Heel 19-18 Federal Com #1H / Cimarex Tar Heel 19-18 Federal

Borehole: Tar Heel 19-18 Federal Com #1H				Well: Tar Heel 19-18 Federal Com #1H				Field: NM Eddy County (NAD 83)				Structure: Cimarex Tar Heel 19-18 Federal Com #1H			
Gravity & Magnetic Parameters				Surface Location				NAD83 New Mexico State Plane, Eastern Zone, US Feet				Miscellaneous			
Model: HDGM 2020		Dip: 59.98°		Date: 17-Nov-2020		Lat: N 32 1 19.30		Northing: 371987.78RUS		Grid Conv: 0.2149°		Slot: New Slot		TVD Ref: RKB(3042.5ft above MSL)	
MagDec: 6.587°		FS: 47623.494mT		Gravity FS: 998.441mg (9.80665 Based)		Lon: W 103 55 40.88		Easting: 666949.18RUS		Scale Fact: 0.99992716		Plan: Cimarex Tar Heel 19-18 Federal Com #1H Rev1 RM 17Nov20			

Critical Point	Critical Points							
	MD	INCL	AZIM	TVD	VSEC	N(+)S(-)	E(+)W(-)	DLS
SHL [540' FSL, 369 FWL]	0.00	0.00	359.82	0.00	0.00	0.00	0.00	
Rustler	1050.00	0.00	350.03	1050.00	0.00	0.00	0.00	0.00
Salado (Top Salt)	1918.00		350.03	1918.00	0.00	0.00	0.00	0.00
Castille (Base Salt)	2453.00	0.00	350.03	2453.00	0.00	0.00	0.00	0.00
Bell Canyon (Top Delaware)	3268.00	0.00	350.03	3268.00	0.00	0.00	0.00	0.00
Cherry Canyon	4185.00	0.00	350.03	4185.00	0.00	0.00	0.00	0.00
Brushy Canyon	5474.00	0.00	350.03	5474.00	0.00	0.00	0.00	0.00
Top Bone Spring	7026.00	0.00	350.03	7026.00	0.00	0.00	0.00	0.00
Top 1st BSPG SS	7932.00	0.00	350.03	7932.00	0.00	0.00	0.00	0.00
Top 2nd BSPG Carb	8376.00	0.00	350.03	8376.00	0.00	0.00	0.00	0.00
Top 2nd BSPG SS	8605.00	0.00	350.03	8605.00	0.00	0.00	0.00	0.00
KOP - Build 12"/100' DLS	9113.03	0.00	350.03	9113.03	0.00	0.00	0.00	0.00
Top 3rd BSPG Carb	9116.00	0.36	350.03	9116.00	0.01	0.01	0.00	12.00
Build & Turn 12"/100' DLS	9404.70	35.00	350.03	9386.90	85.11	85.04	-14.95	12.00
Top Hartkey SS	9409.73	35.59	350.24	9391.00	87.87	87.91	-15.45	12.00
Landing Point	9867.83	90.00	359.76	9593.00	478.95	478.79	-40.96	12.00
Cimarron Tar Heel 19-18 Federal Com #1H - PBHL [2562' FSL, 330' FWL]	22040.35	90.00	359.76	9593.00		12651.21	-91.55	0.00
Top Wolfcamp	NaN			10202.00				
Top 3rd BSPG SS	NaN			9856.00				
Wolfcamp A1 Shale	NaN			10342.00				
Wolfcamp 'A1' Target	NaN			10618.00				
Wolfcamp 'A2' Marker	NaN			10849.00				



Vertical Section (ft) Azim = 359.76° Scale = 1:650.00(ft) Origin = 0N/-S, 0E/-W



EW (ft) Scale = 1:791.26(ft)

1. Geological Formations

TVD of target 9,593

Pilot Hole TD N/A

MD at TD 22,040

Deepest expected fresh water

Formation	Depth (TVD) from KB	Water/Mineral Bearing/Target Zone	Hazards
Rustler	1050	N/A	
Salado	1918	N/A	
Castille	2453	N/A	
Bell Canyon	3268	N/A	
Cherry Canyon	4185	N/A	
Brushy Canyon	5474	Hydrocarbons	
Bone Spring	7026	Hydrocarbons	
Wolfcamp	10202	Not Penetrated	

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	1100	1100	13-3/8"	48.00	H-40/J-55 Hybrid	ST&C	1.47	3.44	6.10
12 1/4	0	3248	3248	9-5/8"	36.00	J-55	LT&C	1.17	2.04	3.87
8 3/4	0	8213	8213	7"	29.00	L-80	LT&C	1.83	2.12	2.12
8 3/4	8213	9750	9564	7"	29.00	L-80	BT&C	1.57	1.82	17.25
6	8100	22040	9593	4-1/2"	11.60	HCP-110	BT&C	1.42	1.72	21.19
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

Cimarex Energy Co., Tar Heel 19-18-7 Federal Com #1H

	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?	N
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?	Y
If yes, are there two strings cemented to surface?	Y
(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	# Sk	Wt. lb/gal	Yld ft ³ /sack	H ₂ O gal/sk	500# Comp. Strength (hours)	Slurry Description
Surface	534	13.50	1.72	9.15	15.5	Lead: Class C + Bentonite
	143	14.80	1.34	6.32	9.5	Tail: Class C + LCM
Intermediate	595	12.90	1.88	9.65	12	Lead: 35:65 (Poz:C) + Salt + Bentonite
	196	14.20	1.30	5.86	14:30	Tail: 50:50 (Poz:H) + Salt + Bentonite + Fluid Loss + Dispersant + SMS
Production	373	10.30	3.64	22.18		Lead: Tuned Light + LCM
	111	14.20	1.30	5.86	14:30	Tail: 50:50 (Poz:H) + Salt + Bentonite + Fluid Loss + Dispersant + SMS
Completion System	908	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	45
Intermediate	0	53
Production	3048	25
Completion System	9550	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	50% of working pressure
			Blind Ram		2M
			Pipe Ram		
			Double Ram	X	
			Other		
8 3/4	13 5/8	3M	Annular	X	50% of working pressure
			Blind Ram		3M
			Pipe Ram		
			Double Ram	X	
			Other		
6	13 5/8	5M	Annular	X	50% of working pressure
			Blind Ram		5M
			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 1100'	FW Spud Mud	8.30 - 8.80	30-32	N/C
1100' to 3248'	FW Spud Mud	9.70 - 10.20	30-32	N/C
3248' to 9750'	Brine Water	8.50 - 9.00	30-32	N/C
9750' to 22040'	Oil Based Mud	12.00 - 12.50	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
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6. Logging and Testing Procedures

Logging, Coring and Testing	
X	Will run GR/CNL from TD 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
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7. Drilling Conditions

Condition	
BH Pressure at deepest TVD	6235 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	H ₂ S is present
X	H ₂ S 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 50% 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 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.

Cimarex Energy Co., Tar Heel 19-18-7 Federal Com #1H



Cimarex Tar Heel 19-18 Federal Com #1H Rev1 RM 17Nov20 Anti-Collision Summary Report

Analysis Date-24hr Time: November 17, 2020 - 13:28

Client: Cimarex Energy

Field: NM Eddy County (NAD 83)

Structure: Cimarex Tar Heel 19-18 Federal Com #1H

Slot: New Slot

Well: Tar Heel 19-18 Federal Com #1H

Borehole: Tar Heel 19-18 Federal Com #1H

Scan MD Range: 0.00ft ~ 22040.35ft

Analysis Method: 3D Least Distance

Reference Trajectory: Cimarex Tar Heel 19-18 Federal Com #1H Rev1 RM 17Nov20 (Def Plan)

Depth Interval: Every 10.00 Measured Depth (ft)

Rule Set: NAL Procedure: D&M AntiCollision Standard S002

Min Pts: All local minima indicated.

Version / Patch: 2.10.821.3

Database \ Project: US1153APP452.dir.slb.com\drilling-NM Eddy County 2.10

Trajectory Error Model: ISCSA0 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 Dev. (ft)	Sep. Fact.	Controlling Rule	Reference Trajectory		Risk Level			Alert	Status
	Ct-Ct (ft)	MAS (ft)	EOU (ft)				MD (ft)	TVD (ft)	Alert	Minor	Major		

Results highlighted: Sep-Factor separation <= 1.50 ft

Cimarex Tar Heel 19-18 Federal Com #2H Rev1 RM 17Nov20 (Def Plan) Fail Minor

20.00	16.26	18.72	3.74	N/A	MAS = 4.96 (m)	0.00	0.00	CtCt<=15m<15.00				Enter Alert	
20.00	16.26	18.71	3.74	8423.57	MAS = 4.96 (m)	26.00	26.00					WRP	
19.72	19.84	6.06	-0.12	1.49	OSF1.50	2060.00	2060.00			OSF<1.50		Enter Minor	
17.93	20.16	4.06	-2.23	1.32	OSF1.50	2220.00	2220.00					MinPt-CtCt	
17.93	20.17	4.05	-2.24	1.32	OSF1.50	2230.00	2230.00					MinPts	
20.07	20.30	6.11	-0.23	1.48	OSF1.50	2320.00	2320.00			OSF>1.50		Exit Minor	
69.90	21.93	54.85	47.97	4.99	OSF1.50	2880.00	2880.00			OSF>5.00		Exit Alert	
126.41	38.84	100.09	87.57	5.00	OSF1.50	5060.00	5060.00			OSF<5.00		Enter Alert	
126.41	75.98	75.32	50.42	2.51	OSF1.50	9113.03	9113.03					MINPT-O-EOU	
126.46	76.06	75.32	50.40	2.51	OSF1.50	9120.00	9120.00					MinPts	
260.12	79.30	206.83	180.33	4.98	OSF1.50	9490.00	9452.13			OSF>5.00		Exit Alert	
869.00	261.89	693.98	607.11	4.99	OSF1.50	17860.00	9593.00			OSF<5.00		Enter Alert	
869.00	390.18	608.45	478.81	3.33	OSF1.50	22040.35	9593.00					MinPts	

Cimarex Tar Heel 19-18 Federal Com #3H Rev1 RM 17Nov20 (Def Plan) Warning Alert

39.99	32.25	38.71	7.74	N/A	MAS = 9.83 (m)	0.00	0.00	CtCt<=15m<15.00				Enter Alert	
39.99	32.25	38.71	7.74	58072.00	MAS = 9.83 (m)	26.00	26.00					WRP	
39.99	32.25	26.60	7.74	3.20	MAS = 9.83 (m)	1990.00	1990.00					MinPts	
40.01	32.25	26.51	7.76	3.17	MAS = 9.83 (m)	2010.00	2010.00					MINPT-O-EOU	
40.27	32.25	26.63	8.02	3.15	MAS = 9.83 (m)	2040.00	2040.00					MinPt-O-SF	
69.56	32.25	54.55	37.31	4.97	MAS = 9.83 (m)	2420.00	2420.00			OSF>5.00		Exit Alert	
620.95	74.47	570.87	546.48	12.70	OSF1.50	9130.00	9130.00					MINPT-O-EOU	
621.02	74.55	570.90	546.48	12.69	OSF1.50	9140.00	9139.99					MinPt-O-ADP	
624.99	75.45	574.26	549.54	12.61	OSF1.50	9260.00	9257.69					MinPt-O-SF	
1308.33	393.58	1045.52	914.75	5.00	OSF1.50	22010.00	9593.00			OSF<5.00		Enter Alert	
1308.33	394.58	1044.89	913.81	4.99	OSF1.50	22040.35	9593.00					MinPts	

Gothic Production Bedena Federal #2 (Offset) API 30-015-25579 Plugged Blind Off-6500ft (Def Survey) Warning Alert

9753.34	32.81	9752.06	9720.53	N/A	MAS = 10.00 (m)	0.00	0.00					Surface	
9753.34	32.81	9750.01	9720.53	4773.58	MAS = 10.00 (m)	26.00	26.00					WRP	
9753.34	2009.81	8413.04	7743.54	7.28	OSF1.50	6490.00	6490.00					MinPt-CtCt	
9753.34	2012.48	8411.26	7740.87	7.27	OSF1.50	6500.00	6500.00					MinPts	
5595.64	1681.25	4473.69	3914.39	5.00	OSF1.50	14480.00	9593.00			OSF<5.00		Enter Alert	
4360.49	1425.04	3409.49	2935.45	4.60	OSF1.50	16070.00	9593.00					MinPt-O-SF	
3691.15	1108.43	2951.73	2582.71	5.00	OSF1.50	17130.00	9593.00			OSF>5.00		Exit Alert	
3461.94	918.68	2849.06	2543.26	5.66	OSF1.50	17590.00	9593.00					MinPt-O-ADP	
3291.67	710.94	2817.29	2580.74	6.95	OSF1.50	18020.00	9593.00					MINPT-O-EOU	
3094.51	212.17	2952.63	2882.34	22.00	OSF1.50	19140.00	9593.00					MinPt-CtCt	
3293.65	722.65	2811.45	2571.00	6.85	OSF1.50	20270.00	9593.00					MINPT-O-EOU	
3464.54	929.76	2844.27	2534.78	5.60	OSF1.50	20700.00	9593.00					MinPt-O-ADP	
3672.61	1103.48	2936.52	2569.12	5.00	OSF1.50	21120.00	9593.00			OSF<5.00		Enter Alert	
4239.79	1388.93	3313.41	2850.86	4.58	OSF1.50	22040.35	9593.00					MinPt-O-SF	

XTO New Era Federal #1 (Offset) API 30-015-24831 Blind Plugged D&A Off-7500ft (Def Survey) Warning Alert

5885.37	32.81	5875.86	5852.56	715.47	MAS = 10.00 (m)	0.00	0.00					Surface	
5885.37	32.81	5873.13	5852.56	537.46	MAS = 10.00 (m)	26.00	26.00					WRP	
5885.37	1766.94	4706.97	4118.42	5.00	OSF1.50	5630.00	5630.00			OSF<5.00		Enter Alert	
5885.37	2323.37	4336.02	3561.99	3.80	OSF1.50	7400.00	7400.00					MinPt-CtCt	
5885.37	2326.08	4334.24	3559.32	3.80	OSF1.50	7410.00	7410.00					MinPts	
4847.12	2079.27	3460.52	2767.86	3.50	OSF1.50	13420.00	9593.00					MinPts	
4847.13	2079.28	3460.52	2767.86	3.50	OSF1.50	13430.00	9593.00					MinPt-O-ADP	
4847.17	2079.29	3460.54	2767.87	3.50	OSF1.50	13440.00	9593.00					MinPt-O-SF	
7421.44	2227.91	5935.74	5193.53	5.00	OSF1.50	19040.00	9593.00			OSF>5.00		Exit Alert	
9889.55	2273.13	8373.70	7616.42	6.53	OSF1.50	22040.35	9593.00					TD	

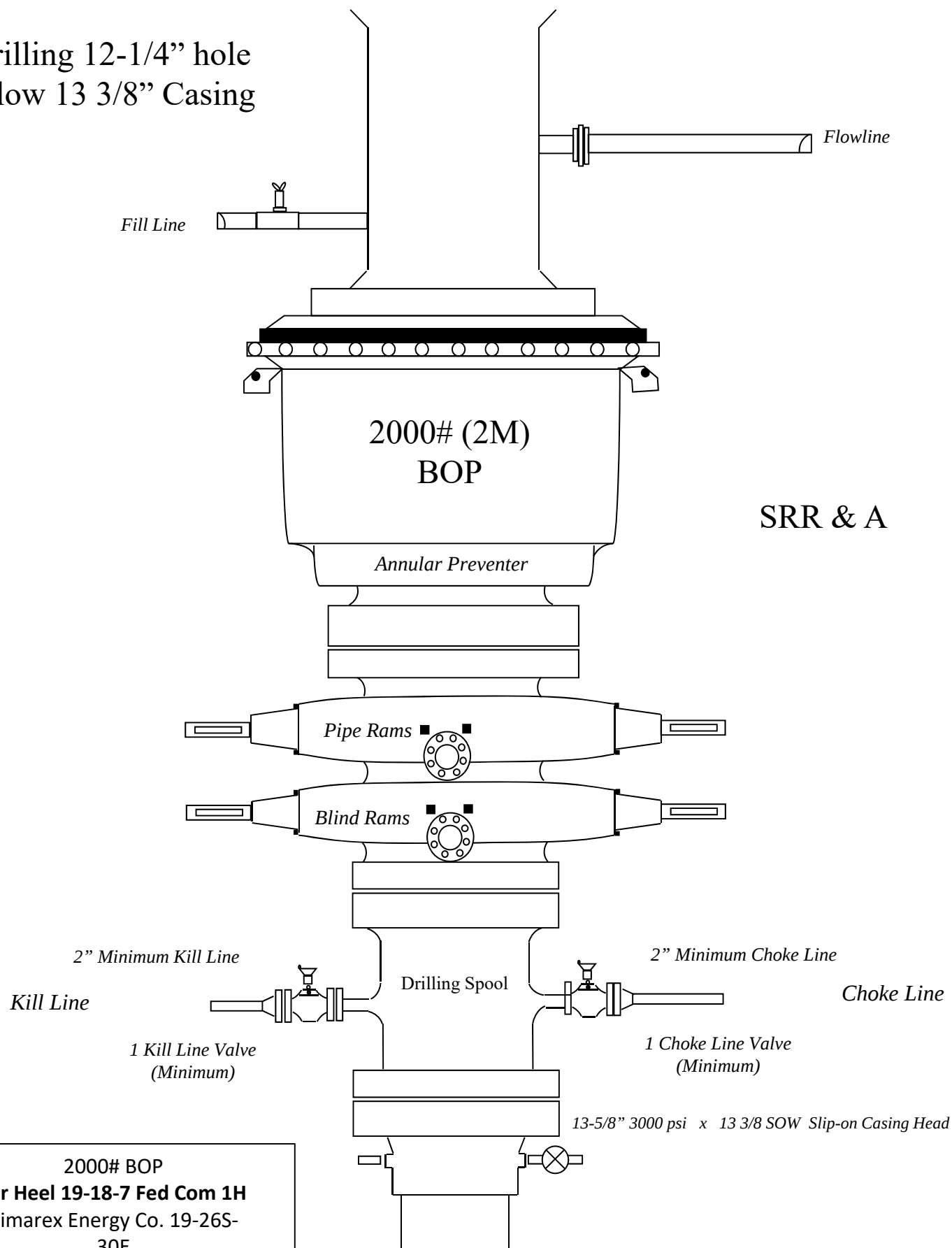
Cimarex Tar Heel 19-18 Federal Com #18H Rev2 RM 17Nov20 (Def Plan) Pass

1051.11	32.81	1049.83	1018.30	N/A	MAS = 10.00 (m)	0.00	0.00					Surface	
1051.11	32.81	1049.82	1018.30	105000.95	MAS = 10.00 (m)	26.00	26.00					WRP	
1051.11	32.81	1035.82	1018.30	74.94	MAS = 10.00 (m)	2290.00	2290.00					MinPts	
1051.14	32.81	1035.75	1018.33	74.42	MAS = 10.00 (m)	2310.00	2310.00					MINPT-O-EOU	
1298.09	44.57	1267.95	1253.52	44.94	OSF1.50	5360.00	5360.00					MinPt-O-SF	
1300.50	76.45	1249.10	1224.04	25.93	OSF1.50	9190.00	9189.67					MinPt-CtCt	
1300.70	77.21	1248.80	1223.49	25.67	OSF1.50	9280.00	9276.62					MINPT-O-EOU	

Offset Trajectory	Separation			Allow Dev. (ft)	Sep. Fact.	Controlling Rule	Reference Trajectory		Risk Level			Alert	Status
	Cl-Cl (ft)	MAS (ft)	EOU (ft)				MD (ft)	TVD (ft)	Alert	Minor	Major		
	1300.85	77.38	1248.84	1223.47	25.62	OSF1.50	9300.00	9295.26				MinPt-O-ADP	
	1321.57	80.46	1267.50	1241.11	25.01	OSF1.50	9720.00	9570.46				MinPt-O-SF	
	1578.31	413.46	1302.24	1164.85	5.74	OSF1.50	22040.35	9593.00				MinPts	
Cimarex Tar Heel 19-18 Federal Com #19H Rev2 RM 17Nov20 (Def Plan)													
	1070.68	32.81	1069.39	1037.87	N/A	MAS = 10.00 (m)	0.00	0.00				Surface	Pass
	1070.68	32.81	1069.39	1037.87	98226.80	MAS = 10.00 (m)	26.00	26.00				WRP	
	1070.68	32.81	1057.27	1037.87	88.20	MAS = 10.00 (m)	1990.00	1990.00				MinPts	
	1070.71	32.81	1057.20	1037.90	87.52	MAS = 10.00 (m)	2010.00	2010.00				MINPT-O-EQU	
	1930.13	64.05	1887.00	1866.08	46.18	OSF1.50	7440.00	7440.00				MinPt-O-SF	
	1944.07	74.29	1894.11	1869.77	39.92	OSF1.50	9130.00	9130.00				MINPT-O-EQU	
	1944.12	74.37	1894.11	1869.75	39.88	OSF1.50	9140.00	9139.99				MinPt-O-ADP	
	1996.70	78.40	1944.01	1918.31	38.82	OSF1.50	9770.00	9583.08				MinPt-O-SF	
	2277.12	410.61	2002.95	1866.51	8.34	OSF1.50	22040.35	9593.00				MinPts	
Cimarex Tar Heel 19-18 Federal Com #20H Rev2 RM 17Nov20 (Def Plan)													
	1090.25	32.81	1088.97	1057.44	N/A	MAS = 10.00 (m)	0.00	0.00				Surface	Pass
	1090.25	32.81	1088.95	1057.44	79051.63	MAS = 10.00 (m)	26.00	26.00				WRP	
	1090.25	32.81	1079.98	1057.44	121.17	MAS = 10.00 (m)	1490.00	1490.00				MinPts	
	1090.28	32.81	1079.92	1057.48	119.92	MAS = 10.00 (m)	1510.00	1510.00				MINPT-O-EQU	
	1943.31	65.17	1899.44	1878.15	45.63	OSF1.50	7320.00	7320.00				MinPt-O-SF	
	1954.16	75.87	1903.15	1878.29	39.28	OSF1.50	9130.00	9130.00				MINPT-O-EQU	
	1954.23	75.94	1903.17	1878.29	39.24	OSF1.50	9140.00	9139.99				MinPt-O-ADP	
	1979.73	83.30	1923.77	1896.43	36.18	OSF1.50	10100.00	9593.00				MinPt-CiCt	
	1979.76	425.83	1695.45	1553.94	6.99	OSF1.50	22040.35	9593.00				MinPts	
ORYX Energy Bedena Federal #1 (Offset) API 30-015-25273 Plugged SWD Inc Only Off-6300ft (Def Survey)													
	6836.26	32.81	6834.95	6803.48	267155.94	MAS = 10.00 (m)	0.00	0.00				MinPts	Pass
	6836.26	32.81	6834.48	6803.46	13633.47	MAS = 10.00 (m)	26.00	26.00				WRP	
	6824.03	62.17	6782.22	6761.86	167.56	OSF1.50	1040.00	1040.00				MinPt-CiCt	
	6827.73	85.77	6770.15	6741.96	120.93	OSF1.50	1410.00	1410.00				MINPT-O-EQU	
	6831.64	90.35	6771.05	6741.29	114.79	OSF1.50	1570.00	1570.00				MinPt-O-ADP	
	6817.44	136.28	6726.23	6681.17	75.64	OSF1.50	2610.00	2610.00				MinPt-CiCt	
	6820.29	146.30	6722.39	6673.99	70.44	OSF1.50	2910.00	2910.00				MINPT-O-EQU	
	6822.76	149.44	6722.77	6673.33	68.98	OSF1.50	3020.00	3020.00				MinPt-O-ADP	
	6844.04	163.28	6734.85	6680.75	63.24	OSF1.50	3530.00	3530.00				MINPT-O-EQU	
	6844.46	163.79	6734.93	6680.66	63.05	OSF1.50	3540.00	3540.00				MinPt-O-ADP	
	6837.68	176.82	6719.48	6660.86	58.32	OSF1.50	4370.00	4370.00				MinPt-CiCt	
	6839.72	233.30	6683.82	6606.36	44.14	OSF1.50	6290.00	6290.00				MinPts	
	6839.73	233.37	6683.82	6606.30	44.14	OSF1.50	6300.00	6300.00				MinPt-O-ADP	
	6840.81	233.47	6684.84	6607.34	44.13	OSF1.50	6410.00	6410.00				MinPt-O-SF	
	3318.82	150.17	3218.38	3168.65	33.36	OSF1.50	16220.00	9593.00				MinPt-CiCt	
	3319.02	150.79	3218.16	3168.23	33.22	OSF1.50	16260.00	9593.00				MINPT-O-EQU	
	3319.30	151.11	3218.23	3168.19	33.16	OSF1.50	16280.00	9593.00				MinPt-O-ADP	
	3754.95	191.83	3626.74	3563.12	29.50	OSF1.50	17980.00	9593.00				MinPt-O-SF	
	6697.00	238.36	6537.77	6458.64	42.31	OSF1.50	22040.35	9593.00				TD	
XTO Ross Draw 31 Federal Wal Com #6H (Offset) API 30-015-45121 Gas Off-22980ft (Def Survey)													
	9026.28	32.81	9025.00	8993.48	N/A	MAS = 10.00 (m)	0.00	0.00				Surface	Pass
	9026.27	32.81	9024.98	8993.46	N/A	MAS = 10.00 (m)	10.00	10.00				MinPt-O-SF	
	9026.27	32.81	9024.98	8993.46	N/A	MAS = 10.00 (m)	20.00	20.00				MinPts	
	9026.27	32.81	9024.98	8993.46	N/A	MAS = 10.00 (m)	26.00	26.00				WRP	
	8979.38	32.81	8967.25	8946.57	817.54	MAS = 10.00 (m)	2510.00	2510.00				MinPts	
	8979.51	32.81	8967.12	8946.70	798.68	MAS = 10.00 (m)	2570.00	2570.00				MINPT-O-EQU	
	4344.02	429.19	4057.56	3914.83	15.21	OSF1.50	10030.00	9593.00				MinPt-CiCt	
	4346.37	435.19	4055.84	3911.18	15.02	OSF1.50	10240.00	9593.00				MINPT-O-EQU	
	4346.56	435.47	4055.84	3911.09	15.01	OSF1.50	10250.00	9593.00				MinPt-O-ADP	
	4358.48	450.68	4057.63	3907.84	14.54	OSF1.50	10580.00	9593.00				MINPT-O-EQU	
	4366.97	465.40	4056.27	3901.56	14.11	OSF1.50	10890.00	9593.00				MINPT-O-EQU	
	4373.40	480.95	4052.38	3892.46	13.67	OSF1.50	11150.00	9593.00				MINPT-O-EQU	
	4360.58	547.80	3995.05	3812.78	11.96	OSF1.50	12360.00	9593.00				MinPt-CiCt	
	4361.05	549.12	3994.60	3811.92	11.93	OSF1.50	12440.00	9593.00				MINPT-O-EQU	
	4361.48	549.61	3994.69	3811.87	11.93	OSF1.50	12470.00	9593.00				MinPt-O-ADP	
	4360.51	584.93	3970.23	3775.58	11.20	OSF1.50	13070.00	9593.00				MinPt-CiCt	
	4358.40	601.40	3957.14	3757.00	10.89	OSF1.50	13390.00	9593.00				MinPt-CiCt	
	4359.43	605.25	3955.55	3754.18	10.82	OSF1.50	13530.00	9593.00				MINPT-O-EQU	
	4359.59	605.42	3955.59	3754.17	10.82	OSF1.50	13540.00	9593.00				MinPt-O-ADP	
	4402.93	627.63	3983.90	3775.31	10.55	OSF1.50	14280.00	9593.00				MinPt-O-SF	
	9232.82	321.98	9017.50	8910.84	43.27	OSF1.50	22040.35	9593.00				TD	
K P Kauffman McKenna Federal #2 (Offset) API 30-015-20222 Inc Only SWD Off-3370ft (Def Survey)													
	5104.27	32.81	5102.11	5071.46	27800.12	MAS = 10.00 (m)	0.00	0.00				Surface	Pass
	5104.27	32.81	5101.65	5071.46	7997.30	MAS = 10.00 (m)	26.00	26.00				WRP	
	5093.91	57.22	5065.10	5036.69	138.28	OSF1.50	1010.00	1010.00				MinPt-CiCt	
	5097.19	67.17	5051.75	5030.02	117.24	OSF1.50	1340.00	1340.00				MINPT-O-EQU	
	5101.16	71.93	5052.58	5029.23	109.34	OSF1.50	1500.00	1500.00				MinPt-O-ADP	
	5091.26	143.33	4995.05	4947.93	54.01	OSF1.50	2680.00	2680.00				MinPt-CiCt	
	5093.34	149.78	4992.82	4943.55	51.67	OSF1.50	2920.00	2920.00				MINPT-O-EQU	
	5095.75	152.68	4993.30	4943.07	50.70	OSF1.50	3030.00	3030.00				MinPt-O-ADP	
	5106.12	176.19	4988.01	4929.94	43.95	OSF1.50	3360.00	3360.00				MinPts	
	5106.63	176.23	4988.48	4930.40	43.94	OSF1.50	3430.00	3430.00				MinPt-O-SF	
	6234.83	112.31	6159.30	6122.52	84.74	OSF1.50	14490.00	9593.00				MinPt-CiCt	
	6235.28	113.77	6158.78	6121.51	83.64	OSF1.50	14570.00	9593.00				MINPT-O-EQU	
	6235.89	114.51	6158.89	6121.38	83.10	OSF1.50	14610.00	9593.00				MinPt-O-ADP	
	7372.81	184.47	7249.17	7188.34	60.59	OSF1.50	18430.00	9593.00				MinPt-O-SF	
	9788.13	214.40	9644.53	9573.73	69.10	OSF1.50	22040.35	9593.00				TD	
JC Williams New Era Federal #2 (Offset) API 30-015-25326 Plugged Inc Only Off-5717ft (Def Survey)													
	5181.85	32.81	5180.35	5149.04	25082.74	MAS = 10.00 (m)	0.00	0.00				MinPts	Pass

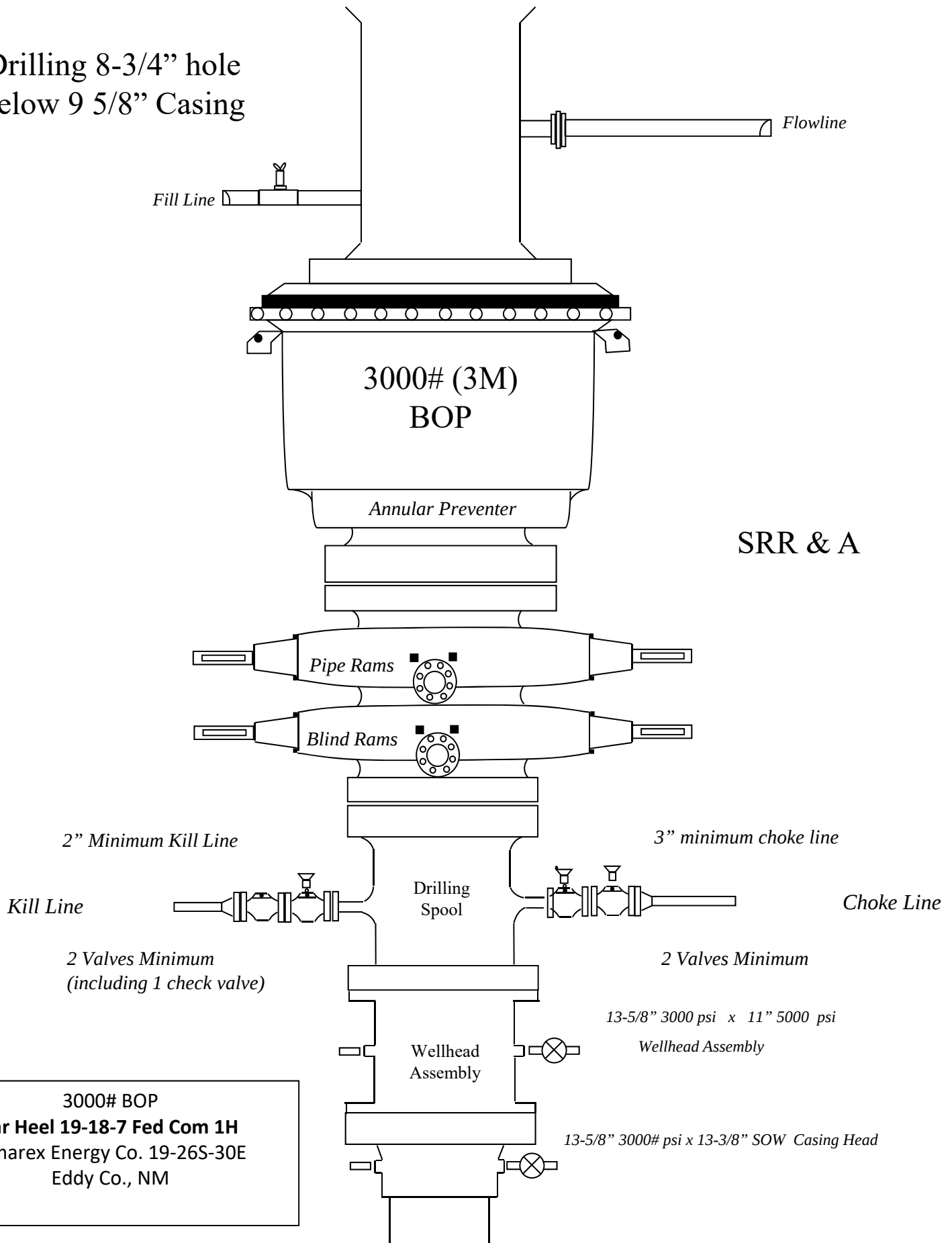
Offset Trajectory	Separation			Allow Dev. (ft)	Sep. Fact.	Controlling Rule	Reference Trajectory		Risk Level			Alert	Status
	Cl-Cl (ft)	MAS (ft)	EOU (ft)				MD (ft)	TVD (ft)	Alert	Minor	Major		
	5181.87	32.81	5179.96	5149.06	8401.37	MAS = 10.00 (m)	26.00	26.00				WRP	
	5176.40	52.23	5141.22	5124.17	151.81	OSF1.50	1360.00	1360.00				MinPt-CtCt	
	5176.13	133.26	5086.93	5042.87	58.73	OSF1.50	3110.00	3110.00				MinPt-CtCt	
	5176.80	136.22	5085.62	5040.58	57.45	OSF1.50	3230.00	3230.00				MINPT-O-EQU	
	5178.28	138.58	5085.57	5039.70	56.44	OSF1.50	3340.00	3340.00				MINPT-O-EQU	
	5179.22	139.92	5085.61	5039.30	55.91	OSF1.50	3400.00	3400.00				MinPt-O-ADP	
	5180.13	166.63	5068.71	5013.50	46.90	OSF1.50	4890.00	4890.00				MinPt-CtCt	
	5187.25	192.77	5058.41	4994.48	40.56	OSF1.50	5690.00	5690.00				MinPts	
	5187.26	192.78	5058.41	4994.47	40.56	OSF1.50	5700.00	5700.00				MinPt-O-ADP	
	5188.21	192.87	5059.31	4995.34	40.55	OSF1.50	5790.00	5790.00				MinPt-O-SF	
	5834.52	164.75	5724.36	5669.77	53.43	OSF1.50	12290.00	9593.00				MinPt-CtCt	
	5834.64	165.14	5724.24	5669.53	53.32	OSF1.50	12330.00	9593.00				MINPT-O-EQU	
	5834.80	165.28	5724.28	5669.51	53.26	OSF1.50	12350.00	9593.00				MinPt-O-ADP	
	6315.11	192.13	6186.70	6122.99	49.53	OSF1.50	14710.00	9593.00				MinPt-O-SF	
	11359.62	232.51	11204.29	11127.11	73.59	OSF1.50	22040.35	9593.00				TD	
Amoco Production Federal AX #1 (Offset) API 30-015-23311 Plugged Blind Off-3550ft (Def Survey)													Pass
	5438.77	32.81	5436.28	5405.96	4513.18	MAS = 10.00 (m)	0.00	0.00				Surface	
	5438.77	32.81	5433.55	5405.96	1384.04	MAS = 10.00 (m)	26.00	26.00				WRP	
	5438.77	1099.14	4705.58	4339.63	7.43	OSF1.50	3530.00	3530.00				MinPt-CtCt	
	5438.77	1101.81	4703.80	4336.95	7.41	OSF1.50	3540.00	3540.00				MinPts	
	6109.19	180.49	5988.43	5928.70	51.13	OSF1.50	14040.00	9593.00				MinPt-O-ADP	
	6058.60	125.36	5974.60	5933.24	73.23	OSF1.50	14820.00	9593.00				MinPt-CtCt	
	6073.52	153.45	5970.79	5920.07	59.86	OSF1.50	15250.00	9593.00				MINPT-O-EQU	
	6120.11	209.22	5980.20	5910.88	44.14	OSF1.50	15690.00	9593.00				MinPt-O-ADP	
	8474.54	789.04	7948.09	7685.50	16.13	OSF1.50	20750.00	9593.00				MinPt-O-SF	
	9422.03	860.74	8847.78	8561.29	16.44	OSF1.50	22040.35	9593.00				TD	
Hankamer Curtis Federal AT #1 (Offset) API 30-015-04775 Plugged Blind Off-3450ft (Def Survey)													Pass
	5442.99	32.81	5440.92	5410.18	6925.58	MAS = 10.00 (m)	0.00	0.00				Surface	
	5442.99	32.81	5438.20	5410.18	1550.50	MAS = 10.00 (m)	26.00	26.00				WRP	
	5442.99	1052.40	4740.96	4390.59	7.77	OSF1.50	3430.00	3430.00				MinPt-CtCt	
	5443.00	1053.50	4740.24	4389.50	7.76	OSF1.50	3440.00	3440.00				MinPts	
	6194.62	155.86	6090.29	6038.79	60.10	OSF1.50	14250.00	9593.00				MinPt-O-ADP	
	6167.92	130.84	6090.27	6037.08	71.40	OSF1.50	14820.00	9593.00				MinPt-CtCt	
	6176.51	147.05	6078.01	6029.41	63.53	OSF1.50	15150.00	9593.00				MINPT-O-EQU	
	6215.25	193.12	6086.07	6022.12	48.59	OSF1.50	15990.00	9593.00				MinPt-O-ADP	
	8608.68	755.28	8104.73	7853.40	17.12	OSF1.50	20830.00	9593.00				MinPt-O-SF	
	9492.73	819.37	8946.05	8673.36	17.40	OSF1.50	22040.35	9593.00				TD	
Aldridge & Stroud American Trading #1 (Offset) API 30-015-04774 Plugged Blind Off-1269ft (Def Survey)													Pass
	9390.59	32.81	9389.30	9357.78	N/A	MAS = 10.00 (m)	0.00	0.00				Surface	
	9390.58	32.81	9387.88	9357.77	6638.67	MAS = 10.00 (m)	26.00	26.00				WRP	
	9390.58	384.28	9133.97	9006.30	36.77	OSF1.50	1280.00	1280.00				MinPt-CtCt	
	9390.58	384.75	9133.65	9005.83	36.73	OSF1.50	1290.00	1290.00				MinPts	
	9390.60	384.75	9133.67	9005.85	36.73	OSF1.50	1300.00	1300.00				MinPt-O-SF	
	11251.57	266.54	11073.45	10985.04	63.62	OSF1.50	11200.00	9593.00				MinPt-O-SF	
	8324.27	205.09	8187.11	8119.18	61.26	OSF1.50	18770.00	9593.00				MinPt-CtCt	
	8324.99	207.23	8186.41	8117.76	60.63	OSF1.50	18880.00	9593.00				MINPT-O-EQU	
	8326.00	208.44	8186.61	8117.56	60.28	OSF1.50	18940.00	9593.00				MinPt-O-ADP	
	8943.65	287.00	8751.89	8656.65	46.93	OSF1.50	22040.35	9593.00				MinPt-O-SF	

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



2000# BOP
Tar Heel 19-18-7 Fed Com 1H
Cimarex Energy Co. 19-26S-
30E
Eddy Co., NM

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



Drilling 6" hole below 7"
Casing

Fill Line

Flowline

5000# (5M)
BOP

Annular Preventer

SRR & A

Pipe Rams

Blind Rams

2" Minimum Kill Line

Kill Line

Drilling
Spool

3" minimum choke line

Choke Line

2 Valves Minimum
(HCR Required)

2 Valves and a check valve

Wellhead
Assembly

11" 5000 psi x 7-1/16" 10,000 psi
Wellhead Assembly

Wellhead
Assembly

13-5/8" 3000 psi x 11" 5000 psi
Wellhead Assembly

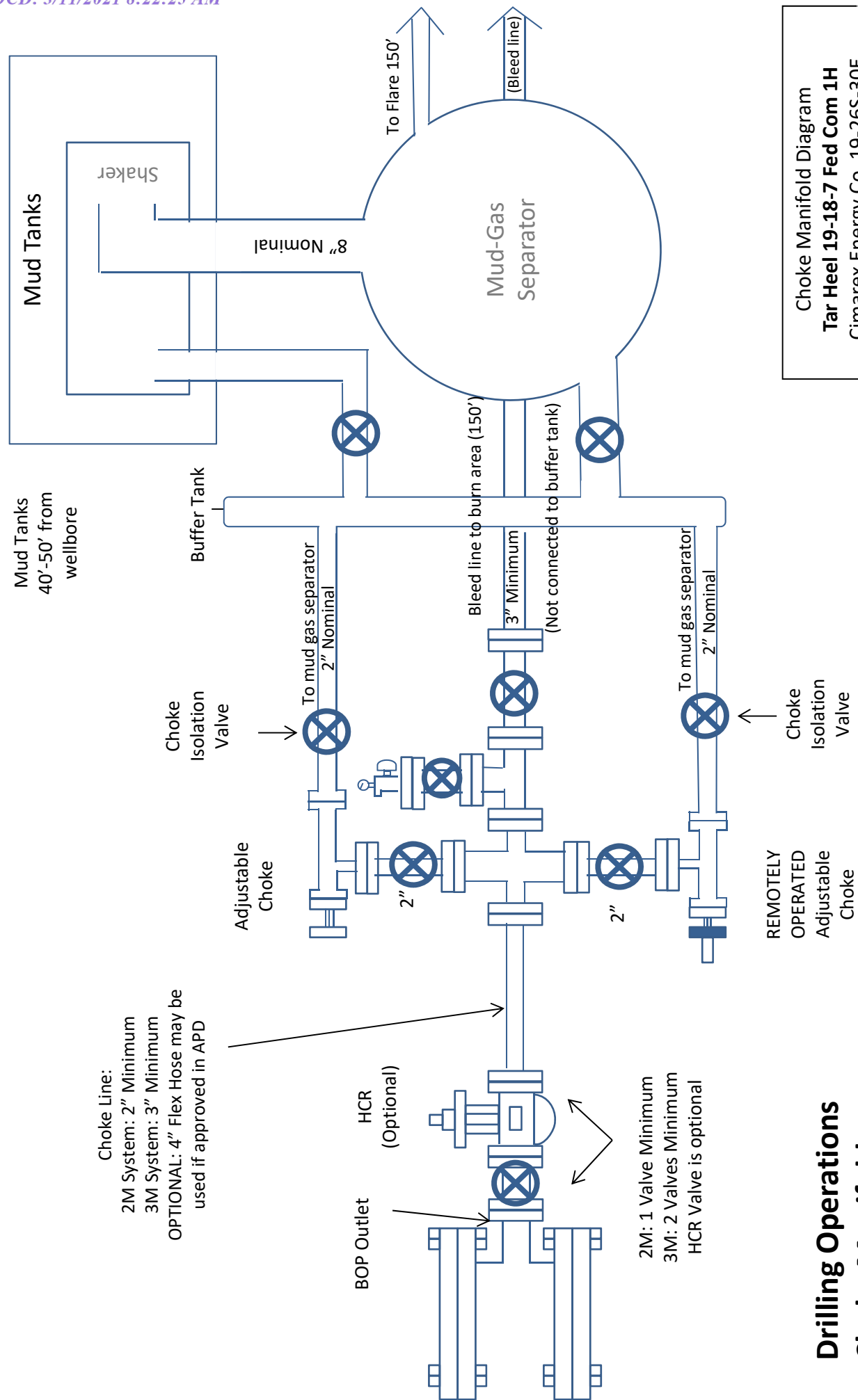
13-5/8" 3000# psi x 13-3/8" SOW Casing Head

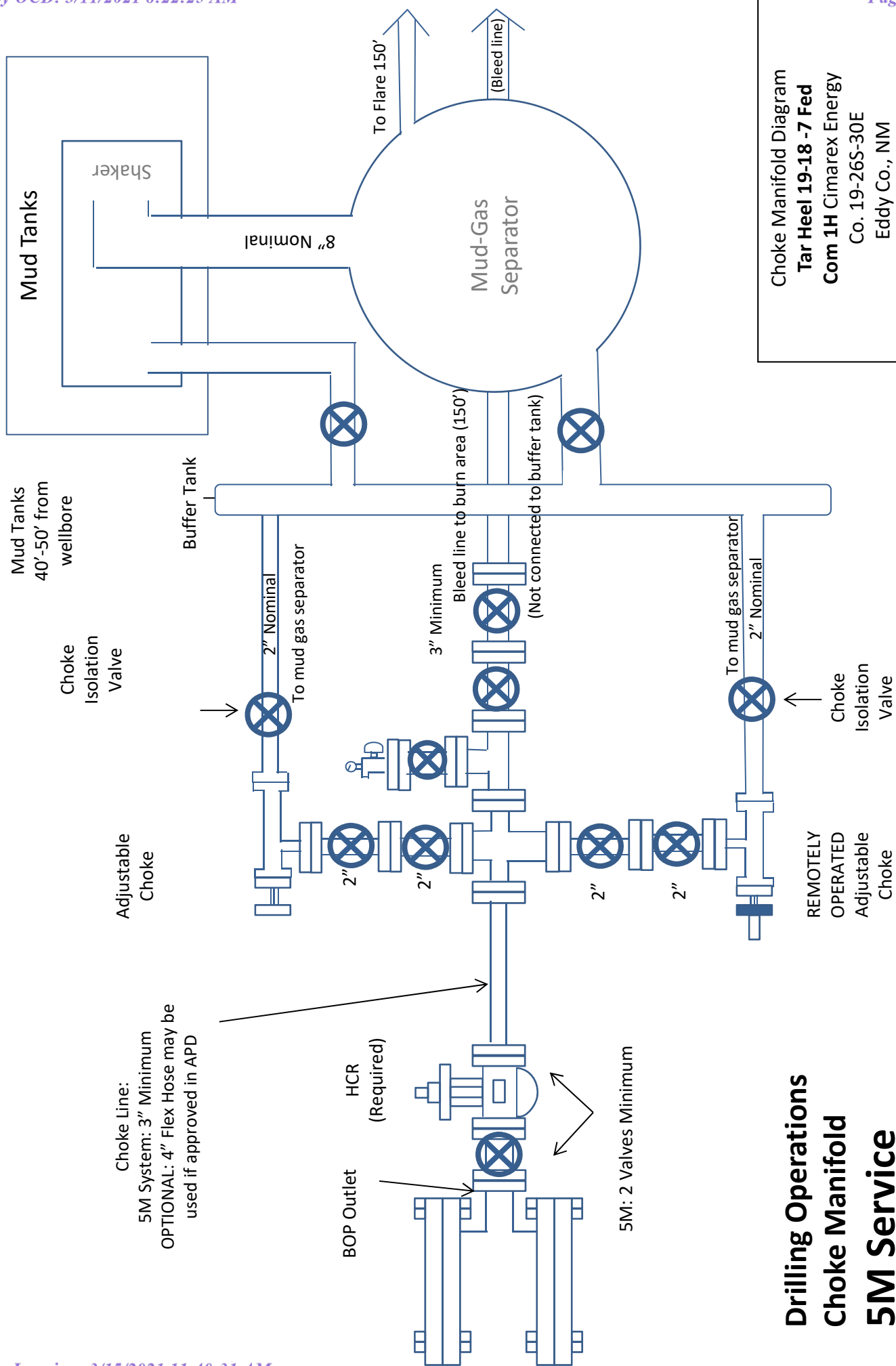
5000# BOP

Tar Heel 19-18-7 Fed Com 1H

Cimarex Energy Co. 19-26S-30E

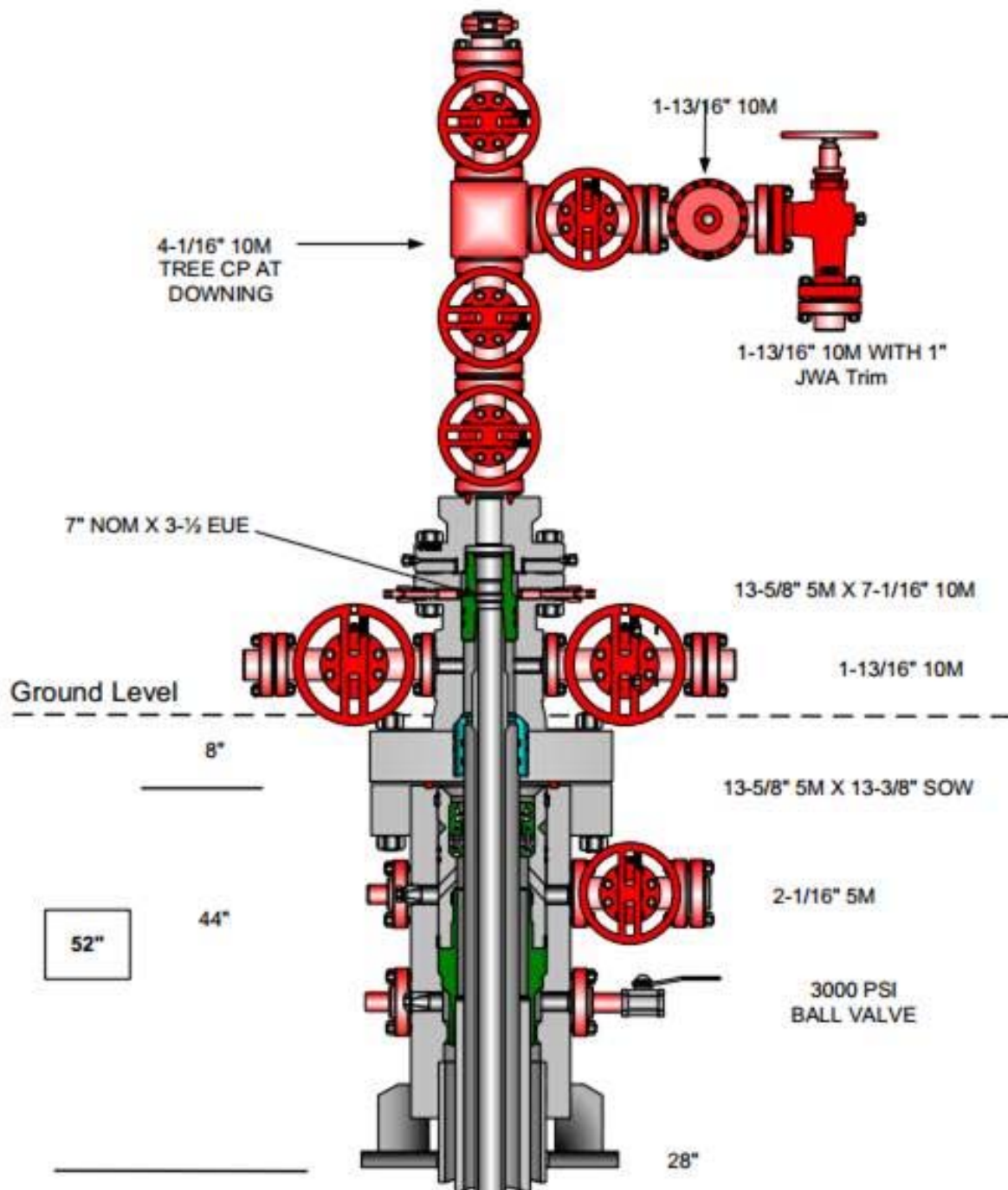
Eddy Co., NM





Multi-bowl Wellhead Diagram

Tar Heel 19-18-7 Federal Com 1H



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	1100	1100	13-3/8"	48.00	H-40/J-55 Hybrid	ST&C	1.47	3.44	6.10
12 1/4	0	3248	3248	9-5/8"	36.00	J-55	LT&C	1.17	2.04	3.87
8 3/4	0	8213	8213	7"	29.00	L-80	LT&C	1.83	2.12	2.12
8 3/4	8213	9750	9564	7"	29.00	L-80	BT&C	1.57	1.82	17.25
6	8100	22040	9593	4-1/2"	11.60	HCP-110	BT&C	1.42	1.72	21.19
BLM Minimum Safety Factor								1.125	1	1.6 Dry 1.8 Wet

[Print](#)

Tar Heel 19-18-7 Fed Com #1H

Surface Casing Spec Sheet

OCTG Performance Data

Casing Performance

Availability: ERW

Pipe Body Geometry

Outside Diameter:	13.375 in	Inside Diameter:	12.715 in
Wall Thickness:	0.330 in	Cross Section Area:	13.524 sq in
Nominal Weight:	48.00 lb/ft	Drift Diameter:	12.559 in
Plain End Weight:	46.02 lb/ft	Alternate Drift Diameter:	-

Pipe Body Performance

Grade:	H40	Collapse Strength (ERW):	740 psi
Pipe Body Yield Strength:	541000 lbf	Collapse Strength (SMLS):	-

SC Connection

Connection Geometry

	Optimum	Minimum	Maximum
Make Up Torque:	3220 lb·ft	2420 lb·ft	4030 lb·ft
Coupling Outside Diameter:	14.375 in		

Connection Performance

Grade:	H40	Minimum Internal Yield Pressure:	1730 psi
Joint Strength:	322000 lbf		

LC Connection

Connection Geometry

	Optimum	Minimum	Maximum
Make Up Torque:	-	-	-
Coupling Outside Diameter:	14.375 in		

Connection Performance

Grade:	H40	Minimum Internal Yield Pressure:	-
Joint Strength:	-		

BC Connection

Connection Geometry

	Optimum	Minimum	Maximum
Make Up Torque:	-	-	-
Coupling Outside Diameter:	14.375 in		

Connection Performance

Grade:	H40	Minimum Internal Yield Pressure:	-
Joint Strength:	-		

PE Connection

Connection Geometry

	Optimum	Minimum	Maximum
Make Up Torque:	-	-	-
Coupling Outside Diameter:	14.375 in		

Connection Performance

Grade:	H40	Minimum Internal Yield Pressure:	1730 psi
Joint Strength:	-		

District I

1625 N. French Dr., Hobbs, NM 88240
Phone:(575) 393-6161 Fax:(575) 393-0720

District II

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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

COMMENTS

Action 20494

COMMENTS

Operator:	OGRID:	Action Number:	Action Type:
CIMAREX ENERGY CO. 600 N. Marienfeld Street Suite 600 Midland, TX79701	215099	20494	C-103A

Created By	Comment	Comment Date
kpickford	KP GEO Review 3/12/2021	03/12/2021

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State of New Mexico
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1220 S. St Francis Dr.
Santa Fe, NM 87505

CONDITIONS

Action 20494

CONDITIONS OF APPROVAL

Operator: CIMAREX ENERGY CO. 600 N. Marienfeld Street Suite 600 Midland, TX79701		OGRID: 215099	Action Number: 20494	Action Type: C-103A
OCD Reviewer	Condition			
kpickford	Adhere to previous NMOCD Conditions of Approval			