

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

1. Type of Well ☐ Oil Well ☒ Gas Well ☐ Other		5. Lease Serial No. NMNM138848
2. Name of Operator CIMAREX ENERGY COMPANY		6. If Indian, Allottee or Tribe Name
Contact: AMITHY E CRAWFORD E-Mail: acrawford@cimarex.com		7. If Unit or CA/Agreement, Name and/or No.
3a. Address 600 N MARIENFELD STREET STE 600 MIDLAND, TX 79701	3b. Phone No. (include area code) Ph: 432-620-1909	8. Well Name and No. TAR HEEL 19-18-7 FEDERAL COM 19H
4. Location of Well (Footage, Sec., T., R., M., or Survey Description) Sec 19 T26S R30E SESW 760FSL 1416FWL 32.022644 N Lat, 103.924644 W Lon		9. API Well No. 30-015-46570-00-X1
		10. Field and Pool or Exploratory Area PURPLE SAGE-WOLFCAMP (GAS)
		11. County or Parish, State EDDY COUNTY, NM

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 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 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 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 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 19H

Change the BHL to: 2561' FSL & 2310' FWL Section 7 26S 30E

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

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

14. I hereby certify that the foregoing is true and correct.	
Electronic Submission #538516 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 (21PP0728SE)	
Name (Printed/Typed) AMITHY E CRAWFORD	Title REGULATORY ANALYST
Signature (Electronic Submission)	Date 11/24/2020

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.

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

[X] AMENDED REPORT

WELL LOCATION AND ACREAGE DEDICATION PLAT

¹ API Number 30-015-46570	² Pool Code 98220	³ Pool Name Puprle Sage , Wolfcamp (Gas)
⁴ Property Code 326774 329995	⁵ Property Name Tar Heel 19-18-7 Federal Com	⁶ Well Number 19H
⁷ OCRID No. 215099	⁸ Operator Name CIMAREX ENERGY CO.	⁹ Elevation 3021.4'

¹⁰Surface Location

UL or lot no. N	Section 19	Township 26S	Range 30E	Lot Idn	Feet from the 760	North/South line SOUTH	Feet from the 1416	East/West line WEST	County EDDY
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¹¹ Bottom Hole Location If Different From Surface

UL or lot no. K	Section 7	Township 26S	Range 30E	Lot Idn	Feet from the 2561	North/South line SOUTH	Feet from the 2310	East/West line WEST	County EDDY
¹² Dedicated Acres 801.73		¹³ Joint or Infill		¹⁴ Consolidation Code		¹⁵ Order No. NSP will be required for LTP			

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.

NAD 83 (SURFACE HOLE LOCATION)
 LATITUDE = 32°01'21.52" (32.022645°)
 LONGITUDE = 103°55'28.73" (103.924646°)

NAD 27 (SURFACE HOLE LOCATION)
 LATITUDE = 32°01'21.07" (32.022520°)
 LONGITUDE = 103°55'27.00" (103.924166°)

STATE PLANE NAD 83 (N.M. EAST)
 N: 372216.56' E: 667995.05'

STATE PLANE NAD 27 (N.M. EAST)
 N: 372159.17' E: 626809.01'

NAD 83 (LP/FTP)
 LATITUDE = 32°01'21.56" (32.022656°)
 LONGITUDE = 103°55'18.34" (103.921762°)

NAD 27 (LP/FTP)
 LATITUDE = 32°01'21.11" (32.022531°)
 LONGITUDE = 103°55'16.62" (103.921283°)

STATE PLANE NAD 83 (N.M. EAST)
 N: 372224.09' E: 668888.80'

STATE PLANE NAD 27 (N.M. EAST)
 N: 372166.70' E: 627702.75'

NAD 83 (BHL/LTP)
 LATITUDE = 32°03'24.56" (32.056823°)
 LONGITUDE = 103°55'18.39" (103.921776°)

NAD 27 (BHL/LTP)
 LATITUDE = 32°03'24.11" (32.056699°)
 LONGITUDE = 103°55'16.66" (103.921295°)

STATE PLANE NAD 83 (N.M. EAST)
 N: 384653.19' E: 668837.20'

STATE PLANE NAD 27 (N.M. EAST)
 N: 384595.55' E: 627651.50'

NOTE:

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

LINE TABLE		
LINE	DIRECTION	LENGTH
L1	N89°45'19"E	893.99'

SCALE
 DRAWN BY: C.M.T. 01-16-19
 REV: 2 C.D.L. 10-30-20
 (LP/FTP & BHL/LTP CHANGE)

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

17 OPERATOR CERTIFICATION

I hereby certify that the information contained herein is true and complete to the best of my knowledge and belief, and that this organization either owns a working interest or unleased mineral interest in the land including the proposed bottom hole location or has a right to drill this well at this location pursuant to a contract with an owner of such a mineral or working interest, or to a voluntary pooling agreement or a compulsory pooling order heretofore entered by the division.

Amithy Crawford 11/18/20
 Signature Date

Amithy Crawford
 Printed Name

acrawford@cimarex.com
 E-mail Address

18 SURVEYOR CERTIFICATION

I hereby certify that the well location shown on this plat was plotted from field notes of actual surveys made by me or under my supervision, and that the same is true and correct to the best of my belief.

December 03, 2018
 Date of Survey

Signature and Seal of Professional Surveyor:

Certificate Number:

Revisions to Operator-Submitted EC Data for Sundry Notice #538516

	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:	PURPLE SAGE WOLFCAMP	PURPLE SAGE-WOLFCAMP (GAS)
Well/Facility:	TAR HEEL 19-18-7 FEDERAL COM 19H Sec 19 T26S R30E 760FSL 1416FWL	TAR HEEL 19-18-7 FEDERAL COM 19H Sec 19 T26S R30E SESW 760FSL 1416FWL 32.022644 N Lat, 103.924644 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 19H
SURFACE HOLE FOOTAGE:	760'/S & 1416'/W
BOTTOM HOLE FOOTAGE:	2561'/S & 2310'/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.

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



Cimarex Tar Heel 19-18 Federal Com #19H Rev2 RM 17Nov20 Proposal

Geodetic Report

(Def Plan)



Report Date:	November 17, 2020 - 02:39 PM	Survey / DLS Computation:	Minimum Curvature / Lubinski
Client:	Cimarex Energy	Vertical Section Azimuth:	359.762 ° (Grid North)
Field:	NM Eddy County (NAD 83)	Vertical Section Origin:	0.000 ft, 0.000 ft
Structure / Slot:	Cimarex Tar Heel 19-18 Federal Com #19H / New Slot	TVD Reference Datum:	RKB
Well:	Tar Heel 19-18 Federal Com #19H	TVD Reference Elevation:	3047.400 ft above MSL
Borehole:	Tar Heel 19-18 Federal Com #19H	Seabed / Ground Elevation:	3021.400 ft above MSL
UWI / API#:	Unknown / Unknown	Magnetic Declination:	6.583 °
Survey Name:	Cimarex Tar Heel 19-18 Federal Com #19H Rev2 RM 17Nov20	Total Gravity Field Strength:	998.4403mgn (9.80665 Based)
Survey Date:	January 24, 2019	Gravity Model:	GARM
Tort / AHD / DDI / ERD Ratio:	110.000 ° / 13445.937 ft / 6.503 / 1.254	Total Magnetic Field Strength:	47622.815 nT
Coordinate Reference System:	NAD83 New Mexico State Plane, Eastern Zone, US Feet	Magnetic Dip Angle:	59.598 °
Location Lat / Long:	N 32° 1' 21.52157", W 103° 55' 28.72529"	Declination Date:	November 17, 2020
Location Grid N/E Y/X:	N 372216.560 ftUS, E 667995.050 ftUS	Magnetic Declination Model:	HDGM 2020
CRS Grid Convergence Angle:	0.2167 °	North Reference:	Grid North
Grid Scale Factor:	0.99992746	Grid Convergence Used:	0.2167 °
Version / Patch:	2.10.821.3	Total Corr Mag North->Grid North:	6.3668 °
		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 [760' FSL, 1416' FWL]	0.00	0.00	4.81	0.00	0.00	0.00	0.00	N/A	372216.56	667995.05	N 32 1 21.52	W 103 55 28.73
	100.00	0.00	96.86	100.00	0.00	0.00	0.00	0.00	372216.56	667995.05	N 32 1 21.52	W 103 55 28.73
	200.00	0.00	96.86	200.00	0.00	0.00	0.00	0.00	372216.56	667995.05	N 32 1 21.52	W 103 55 28.73
	300.00	0.00	96.86	300.00	0.00	0.00	0.00	0.00	372216.56	667995.05	N 32 1 21.52	W 103 55 28.73
	400.00	0.00	96.86	400.00	0.00	0.00	0.00	0.00	372216.56	667995.05	N 32 1 21.52	W 103 55 28.73
	500.00	0.00	96.86	500.00	0.00	0.00	0.00	0.00	372216.56	667995.05	N 32 1 21.52	W 103 55 28.73
	600.00	0.00	96.86	600.00	0.00	0.00	0.00	0.00	372216.56	667995.05	N 32 1 21.52	W 103 55 28.73
	700.00	0.00	96.86	700.00	0.00	0.00	0.00	0.00	372216.56	667995.05	N 32 1 21.52	W 103 55 28.73
	800.00	0.00	96.86	800.00	0.00	0.00	0.00	0.00	372216.56	667995.05	N 32 1 21.52	W 103 55 28.73
	900.00	0.00	96.86	900.00	0.00	0.00	0.00	0.00	372216.56	667995.05	N 32 1 21.52	W 103 55 28.73
	1000.00	0.00	96.86	1000.00	0.00	0.00	0.00	0.00	372216.56	667995.05	N 32 1 21.52	W 103 55 28.73
Rustler	1050.00	0.00	96.86	1050.00	0.00	0.00	0.00	0.00	372216.56	667995.05	N 32 1 21.52	W 103 55 28.73
	1100.00	0.00	96.86	1100.00	0.00	0.00	0.00	0.00	372216.56	667995.05	N 32 1 21.52	W 103 55 28.73
	1200.00	0.00	96.86	1200.00	0.00	0.00	0.00	0.00	372216.56	667995.05	N 32 1 21.52	W 103 55 28.73
	1300.00	0.00	96.86	1300.00	0.00	0.00	0.00	0.00	372216.56	667995.05	N 32 1 21.52	W 103 55 28.73
	1400.00	0.00	96.86	1400.00	0.00	0.00	0.00	0.00	372216.56	667995.05	N 32 1 21.52	W 103 55 28.73
	1500.00	0.00	96.86	1500.00	0.00	0.00	0.00	0.00	372216.56	667995.05	N 32 1 21.52	W 103 55 28.73
	1600.00	0.00	96.86	1600.00	0.00	0.00	0.00	0.00	372216.56	667995.05	N 32 1 21.52	W 103 55 28.73
	1700.00	0.00	96.86	1700.00	0.00	0.00	0.00	0.00	372216.56	667995.05	N 32 1 21.52	W 103 55 28.73
	1800.00	0.00	96.86	1800.00	0.00	0.00	0.00	0.00	372216.56	667995.05	N 32 1 21.52	W 103 55 28.73
	1900.00	0.00	96.86	1900.00	0.00	0.00	0.00	0.00	372216.56	667995.05	N 32 1 21.52	W 103 55 28.73
Salado (Top Salt)	1918.00	0.00	96.86	1918.00	0.00	0.00	0.00	0.00	372216.56	667995.05	N 32 1 21.52	W 103 55 28.73
Nudge 2°/100' DLS	2000.00	0.00	96.86	2000.00	0.00	0.00	0.00	0.00	372216.56	667995.05	N 32 1 21.52	W 103 55 28.73
	2100.00	2.00	96.86	2099.98	-0.22	-0.21	1.73	2.00	372216.35	667996.78	N 32 1 21.52	W 103 55 28.71
	2200.00	4.00	96.86	2199.84	-0.86	-0.83	6.93	2.00	372215.73	668001.98	N 32 1 21.51	W 103 55 28.64
	2300.00	6.00	96.86	2299.45	-1.94	-1.87	15.58	2.00	372214.69	668010.63	N 32 1 21.50	W 103 55 28.54
	2400.00	8.00	96.86	2398.70	-3.44	-3.33	27.68	2.00	372213.23	668022.73	N 32 1 21.49	W 103 55 28.40
Castille (Base Salt)	2454.91	9.10	96.86	2453.00	-4.45	-4.30	35.78	2.00	372212.26	668030.83	N 32 1 21.48	W 103 55 28.31
Hold Nudge	2500.00	10.00	96.86	2497.46	-5.38	-5.20	43.21	2.00	372211.36	668038.26	N 32 1 21.47	W 103 55 28.22
	2600.00	10.00	96.86	2595.95	-7.52	-7.27	60.45	0.00	372209.29	668055.50	N 32 1 21.45	W 103 55 28.02
	2700.00	10.00	96.86	2694.43	-9.66	-9.34	77.69	0.00	372207.22	668072.74	N 32 1 21.43	W 103 55 27.82
	2800.00	10.00	96.86	2792.91	-11.81	-11.41	94.93	0.00	372205.15	668089.98	N 32 1 21.41	W 103 55 27.62
	2900.00	10.00	96.86	2891.39	-13.95	-13.49	112.17	0.00	372203.07	668107.22	N 32 1 21.38	W 103 55 27.42
	3000.00	10.00	96.86	2989.87	-16.10	-15.56	129.41	0.00	372201.00	668124.45	N 32 1 21.36	W 103 55 27.22
	3100.00	10.00	96.86	3088.35	-18.24	-17.63	146.65	0.00	372198.93	668141.69	N 32 1 21.34	W 103 55 27.02
	3200.00	10.00	96.86	3186.83	-20.39	-19.71	163.90	0.00	372196.85	668158.93	N 32 1 21.32	W 103 55 26.82
Bell Canyon (Top Delaware)	3282.42	10.00	96.86	3268.00	-22.15	-21.42	178.11	0.00	372195.15	668173.14	N 32 1 21.30	W 103 55 26.66
	3300.00	10.00	96.86	3285.31	-22.53	-21.78	181.14	0.00	372194.78	668176.17	N 32 1 21.30	W 103 55 26.62
	3400.00	10.00	96.86	3383.79	-24.68	-23.85	198.38	0.00	372192.71	668193.41	N 32 1 21.28	W 103 55 26.42
	3500.00	10.00	96.86	3482.27	-26.82	-25.93	215.62	0.00	372190.64	668210.65	N 32 1 21.26	W 103 55 26.22
	3600.00	10.00	96.86	3580.75	-28.97	-28.00	232.86	0.00	372188.56	668227.89	N 32 1 21.24	W 103 55 26.02
	3700.00	10.00	96.86	3679.23	-31.11	-30.07	250.10	0.00	372186.49	668245.13	N 32 1 21.21	W 103 55 25.82
	3800.00	10.00	96.86	3777.72	-33.25	-32.14	267.34	0.00	372184.42	668262.37	N 32 1 21.19	W 103 55 25.62
	3900.00	10.00	96.86	3876.20	-35.40	-34.22	284.58	0.00	372182.34	668279.61	N 32 1 21.17	W 103 55 25.42
	4000.00	10.00	96.86	3974.68	-37.54	-36.29	301.82	0.00	372180.27	668296.85	N 32 1 21.15	W 103 55 25.22
	4100.00	10.00	96.86	4073.16	-39.69	-38.36	319.06	0.00	372178.20	668314.09	N 32 1 21.13	W 103 55 25.02
	4200.00	10.00	96.86	4171.64	-41.83	-40.44	336.30	0.00	372176.13	668331.33	N 32 1 21.11	W 103 55 24.82
Cherry Canyon	4213.57	10.00	96.86	4185.00	-42.12	-40.72	338.64	0.00	372175.85	668333.67	N 32 1 21.11	W 103 55 24.79
	4300.00	10.00	96.86	4270.12	-43.98	-42.51	353.54	0.00	372174.05	668348.57	N 32 1 21.09	W 103 55 24.62
	4400.00	10.00	96.86	4368.60	-46.12	-44.58	370.78	0.00	372171.98	668365.80	N 32 1 21.07	W 103 55 24.42
	4500.00	10.00	96.86	4467.08	-48.27	-46.66	388.02	0.00	372169.91	668383.04	N 32 1 21.05	W 103 55 24.22
	4600.00	10.00	96.86	4565.56	-50.41	-48.73	405.26	0.00	372167.84	668400.28	N 32 1 21.02	W 103 55 24.02
	4700.00	10.00	96.86	4664.04	-52.56	-50.80	422.50	0.00	372165.76	668417.52	N 32 1 21.00	W 103 55 23.82
	4800.00	10.00	96.86	4762.52	-54.70	-52.87	439.74	0.00	372163.69	668434.76	N 32 1 20.98	W 103 55 23.62
	4900.00	10.00	96.86	4861.00	-56.85	-54.95	456.99	0.00	372161.62	668452.00	N 32 1 20.96	W 103 55 23.42
	5000.00	10.00	96.86	4959.49	-58.99	-57.02	474.23	0.00	372159.54	668469.24	N 32 1 20.94	W 103 55 23.22
	5100.00	10.00	96.86	5057.97	-61.13	-59.09	491.47	0.00	372157.47	668486.48	N 32 1 20.92	W 103 55 23.02
	5200.00	10.00	96.86	5156.45	-63.28	-61.17	508.71	0.00	372155.40	668503.72	N 32 1 20.90	W 103 55 22.82
	5300.00	10.00	96.86	5254.93	-65.42	-63.24	525.95	0.00	372153.33	668520.96	N 32 1 20.88	W 103 55 22.62
	5400.00	10.00	96.86	5353.41	-67.57	-65.31	543.19	0.00	372151.25	668538.20	N 32 1 20.85	W 103 55 22.42
	5500.00	10.00	96.86	5451.89	-69.71	-67.39	560.43	0.00	372149.18	668555.44	N 32 1 20.83	W 103 55 22.22
Brushy Canyon	5522.45	10.00	96.86	5474.00	-70.19	-67.85	564.30	0.00	372148.71	668559.31	N 32 1 20.83	W 103 55 22.17
	5600.00	10.00	96.86	5550.37	-71.86	-69.46	577.67	0.00	372147.11	668572.68	N 32 1 20.81	W 103 55 22.02
	5700.00	10.00	96.86	5648.85	-74.00	-71.53	594.91	0.00	372145.03	668589.92	N 32 1 20.79	W 103 55 21.82
	5800.00	10.00	96.86	5747.33	-76.15	-73.60	612.15	0.00	372142.96	668607.15	N 32 1 20.77	W 103 55 21.62
	5900.00	10.00	96.86	5845.81	-78.29	-75.68	629.39	0.00	372140.89	668624.39	N 32 1 20.75	W 103 55 21.42
	6000.00	10.00	96.86	5944.29	-80.44	-77.75	646.63	0.00	372138.82	668641.63	N 32 1 20.73	W 103 55 21.22
	6100.00	10.00	96.86	6042.77	-82.58	-79.82	663.87	0.00	372136.74	668658.87	N 32 1 20.71	W 103 55 21.02
	6200.00	10.00	96.86	6141.25	-84.73	-81.90	681.11	0.00	372134.67	668676.11	N 32 1 20.69	W 103 55 20.82
	6300.00	10.00	96.86	6239.74	-86.87	-83.97	698.35	0.00	372132.60	668693.35	N 32 1 20.66	W 103 55 20.62
	6400.00	10.00	96.86	6338.22	-89.01	-86.04	715.59	0.00	372130.52	668710.59	N 32 1 20.64	W 103 55 20.42
	6500.00	10.00	96.86	6436.70	-91.16	-88.12	732.83	0.00	372128.45	668727.83	N 32 1 20.62	W 103 55 20.22
	6600.00	10.00	96.86	6535.18	-93.30	-90.19	750.08	0.00	372126.38	668745.07	N 32 1 20.60	W 103 55 20.02

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 ° ' ")
	6700.00	10.00	96.86	6633.66	-95.45	-92.26	767.32	0.00	372124.31	668762.31	N 32 1 20.58	W 103 55 19.82
	6800.00	10.00	96.86	6732.14	-97.59	-94.33	784.56	0.00	372122.23	668779.55	N 32 1 20.56	W 103 55 19.62
	6900.00	10.00	96.86	6830.62	-99.74	-96.41	801.80	0.00	372120.16	668796.79	N 32 1 20.54	W 103 55 19.42
	7000.00	10.00	96.86	6929.10	-101.88	-98.48	819.04	0.00	372118.09	668814.03	N 32 1 20.52	W 103 55 19.22
Top Bone	7098.39	10.00	96.86	7026.00	-103.99	-100.52	836.00	0.00	372116.05	668830.99	N 32 1 20.50	W 103 55 19.02
Spring	7100.00	10.00	96.86	7027.58	-104.03	-100.55	836.28	0.00	372116.01	668831.27	N 32 1 20.50	W 103 55 19.02
Drop to Vertical	7185.91	10.00	96.86	7112.18	-105.87	-102.33	851.09	0.00	372114.23	668846.08	N 32 1 20.48	W 103 55 18.84
2°/100' DLS	7200.00	9.72	96.86	7126.07	-106.17	-102.62	853.48	2.00	372113.95	668848.47	N 32 1 20.47	W 103 55 18.82
	7300.00	7.72	96.86	7224.91	-108.04	-104.43	868.53	2.00	372112.14	668863.52	N 32 1 20.46	W 103 55 18.64
	7400.00	5.72	96.86	7324.22	-109.48	-105.83	880.15	2.00	372110.74	668875.13	N 32 1 20.44	W 103 55 18.51
	7500.00	3.72	96.86	7423.87	-110.50	-106.81	888.31	2.00	372109.76	668883.30	N 32 1 20.43	W 103 55 18.41
	7600.00	1.72	96.86	7523.75	-111.08	-107.38	893.02	2.00	372109.19	668888.00	N 32 1 20.43	W 103 55 18.36
Hold Vertical	7685.90	0.00	96.86	7609.65	-111.24	-107.53	894.30	2.00	372109.04	668889.28	N 32 1 20.42	W 103 55 18.34
	7700.00	0.00	96.86	7623.74	-111.24	-107.53	894.30	0.00	372109.04	668889.28	N 32 1 20.42	W 103 55 18.34
	7800.00	0.00	96.86	7723.74	-111.24	-107.53	894.30	0.00	372109.04	668889.28	N 32 1 20.42	W 103 55 18.34
	7900.00	0.00	96.86	7823.74	-111.24	-107.53	894.30	0.00	372109.04	668889.28	N 32 1 20.42	W 103 55 18.34
	8000.00	0.00	96.86	7923.74	-111.24	-107.53	894.30	0.00	372109.04	668889.28	N 32 1 20.42	W 103 55 18.34
Top 1st BSPG	8008.26	0.00	96.86	7932.00	-111.24	-107.53	894.30	0.00	372109.04	668889.28	N 32 1 20.42	W 103 55 18.34
SS	8100.00	0.00	96.86	8023.74	-111.24	-107.53	894.30	0.00	372109.04	668889.28	N 32 1 20.42	W 103 55 18.34
	8200.00	0.00	96.86	8123.74	-111.24	-107.53	894.30	0.00	372109.04	668889.28	N 32 1 20.42	W 103 55 18.34
	8300.00	0.00	96.86	8223.74	-111.24	-107.53	894.30	0.00	372109.04	668889.28	N 32 1 20.42	W 103 55 18.34
	8400.00	0.00	96.86	8323.74	-111.24	-107.53	894.30	0.00	372109.04	668889.28	N 32 1 20.42	W 103 55 18.34
Top 2nd BSPG	8452.26	0.00	96.86	8376.00	-111.24	-107.53	894.30	0.00	372109.04	668889.28	N 32 1 20.42	W 103 55 18.34
Carb	8500.00	0.00	96.86	8423.74	-111.24	-107.53	894.30	0.00	372109.04	668889.28	N 32 1 20.42	W 103 55 18.34
	8600.00	0.00	96.86	8523.74	-111.24	-107.53	894.30	0.00	372109.04	668889.28	N 32 1 20.42	W 103 55 18.34
Top 2nd BSPG	8681.26	0.00	96.86	8605.00	-111.24	-107.53	894.30	0.00	372109.04	668889.28	N 32 1 20.42	W 103 55 18.34
SS	8700.00	0.00	96.86	8623.74	-111.24	-107.53	894.30	0.00	372109.04	668889.28	N 32 1 20.42	W 103 55 18.34
	8800.00	0.00	96.86	8723.74	-111.24	-107.53	894.30	0.00	372109.04	668889.28	N 32 1 20.42	W 103 55 18.34
	8900.00	0.00	96.86	8823.74	-111.24	-107.53	894.30	0.00	372109.04	668889.28	N 32 1 20.42	W 103 55 18.34
	9000.00	0.00	96.86	8923.74	-111.24	-107.53	894.30	0.00	372109.04	668889.28	N 32 1 20.42	W 103 55 18.34
	9100.00	0.00	96.86	9023.74	-111.24	-107.53	894.30	0.00	372109.04	668889.28	N 32 1 20.42	W 103 55 18.34
Top 3rd BSPG	9192.26	0.00	96.86	9116.00	-111.24	-107.53	894.30	0.00	372109.04	668889.28	N 32 1 20.42	W 103 55 18.34
Carb	9200.00	0.00	96.86	9123.74	-111.24	-107.53	894.30	0.00	372109.04	668889.28	N 32 1 20.42	W 103 55 18.34
	9300.00	0.00	96.86	9223.74	-111.24	-107.53	894.30	0.00	372109.04	668889.28	N 32 1 20.42	W 103 55 18.34
	9400.00	0.00	96.86	9323.74	-111.24	-107.53	894.30	0.00	372109.04	668889.28	N 32 1 20.42	W 103 55 18.34
Top Harkey SS	9467.26	0.00	96.86	9391.00	-111.24	-107.53	894.30	0.00	372109.04	668889.28	N 32 1 20.42	W 103 55 18.34
	9500.00	0.00	96.86	9423.74	-111.24	-107.53	894.30	0.00	372109.04	668889.28	N 32 1 20.42	W 103 55 18.34
	9600.00	0.00	96.86	9523.74	-111.24	-107.53	894.30	0.00	372109.04	668889.28	N 32 1 20.42	W 103 55 18.34
	9700.00	0.00	96.86	9623.74	-111.24	-107.53	894.30	0.00	372109.04	668889.28	N 32 1 20.42	W 103 55 18.34
	9800.00	0.00	96.86	9723.74	-111.24	-107.53	894.30	0.00	372109.04	668889.28	N 32 1 20.42	W 103 55 18.34
	9900.00	0.00	96.86	9823.74	-111.24	-107.53	894.30	0.00	372109.04	668889.28	N 32 1 20.42	W 103 55 18.34
Top 3rd BSPG	9932.26	0.00	96.86	9856.00	-111.24	-107.53	894.30	0.00	372109.04	668889.28	N 32 1 20.42	W 103 55 18.34
SS	10000.00	0.00	96.86	9923.74	-111.24	-107.53	894.30	0.00	372109.04	668889.28	N 32 1 20.42	W 103 55 18.34
	10100.00	0.00	96.86	10023.74	-111.24	-107.53	894.30	0.00	372109.04	668889.28	N 32 1 20.42	W 103 55 18.34
	10200.00	0.00	96.86	10123.74	-111.24	-107.53	894.30	0.00	372109.04	668889.28	N 32 1 20.42	W 103 55 18.34
Top Wolfcamp	10278.26	0.00	96.86	10202.00	-111.24	-107.53	894.30	0.00	372109.04	668889.28	N 32 1 20.42	W 103 55 18.34
KOP - Build	10289.25	0.00	96.86	10213.00	-111.24	-107.53	894.30	0.00	372109.04	668889.28	N 32 1 20.42	W 103 55 18.34
12°/100' DLS	10300.00	1.29	359.76	10223.74	-111.12	-107.41	894.30	12.00	372109.16	668889.28	N 32 1 20.43	W 103 55 18.34
	10400.00	13.29	359.76	10322.75	-98.46	-94.74	894.25	12.00	372121.82	668889.23	N 32 1 20.55	W 103 55 18.34
Wolfcamp A1	10419.88	15.68	359.76	10342.00	-93.49	-89.77	894.23	12.00	372126.79	668889.21	N 32 1 20.60	W 103 55 18.34
Shale	10500.00	25.29	359.76	10416.97	-65.48	-61.77	894.11	12.00	372154.79	668889.09	N 32 1 20.88	W 103 55 18.34
	10600.00	37.29	359.76	10502.26	-13.64	-9.93	893.89	12.00	372206.63	668888.88	N 32 1 21.39	W 103 55 18.34
	10700.00	49.29	359.76	10574.92	54.80	58.51	893.61	12.00	372275.07	668888.59	N 32 1 22.07	W 103 55 18.34
Wolfcamp 'A1'	10772.76	58.02	359.76	10618.00	113.35	117.06	893.37	12.00	372333.61	668888.35	N 32 1 22.65	W 103 55 18.34
Target	10800.00	61.29	359.76	10631.76	136.85	140.57	893.27	12.00	372357.11	668888.25	N 32 1 22.88	W 103 55 18.34
	10900.00	73.29	359.76	10670.30	228.93	232.64	892.89	12.00	372449.19	668887.87	N 32 1 23.79	W 103 55 18.34
Build 4°/100'	10914.25	75.00	359.76	10674.19	242.64	246.35	892.83	12.00	372462.90	668887.81	N 32 1 23.93	W 103 55 18.34
DLS	11000.00	78.43	359.76	10693.89	326.08	329.79	892.48	4.00	372546.33	668887.47	N 32 1 24.75	W 103 55 18.34
	11100.00	82.43	359.76	10710.52	424.67	428.38	892.07	4.00	372644.91	668887.06	N 32 1 25.73	W 103 55 18.34
	11200.00	86.43	359.76	10720.22	524.18	527.89	891.66	4.00	372744.41	668886.65	N 32 1 26.71	W 103 55 18.35
Landing Point	11289.25	90.00	359.76	10723.00	613.37	617.08	891.29	4.00	372833.60	668886.27	N 32 1 27.59	W 103 55 18.35
	11300.00	90.00	359.76	10723.00	624.12	627.83	891.25	0.00	372844.34	668886.23	N 32 1 27.70	W 103 55 18.35
	11400.00	90.00	359.76	10723.00	724.12	727.83	890.83	0.00	372944.33	668885.82	N 32 1 28.69	W 103 55 18.35
	11500.00	90.00	359.76	10723.00	824.12	827.83	890.42	0.00	373044.32	668885.40	N 32 1 29.68	W 103 55 18.35
	11600.00	90.00	359.76	10723.00	924.12	927.82	890.00	0.00	373144.32	668884.98	N 32 1 30.67	W 103 55 18.35
	11700.00	90.00	359.76	10723.00	1024.12	1027.82	889.59	0.00	373244.31	668884.57	N 32 1 31.66	W 103 55 18.35
	11800.00	90.00	359.76	10723.00	1124.12	1127.82	889.17	0.00	373344.30	668884.15	N 32 1 32.65	W 103 55 18.35
	11900.00	90.00	359.76	10723.00	1224.12	1227.82	888.76	0.00	373444.29	668883.74	N 32 1 33.64	W 103 55 18.35
	12000.00	90.00	359.76	10723.00	1324.12	1327.82	888.34	0.00	373544.28	668883.32	N 32 1 34.63	W 103 55 18.35
	12100.00	90.00	359.76	10723.00	1424.12	1427.82	887.93	0.00	373644.27	668882.91	N 32 1 35.62	W 103 55 18.35
	12200.00	90.00	359.76	10723.00	1524.12	1527.82	887.51	0.00	373744.27	668882.49	N 32 1 36.61	W 103 55 18.35
	12300.00	90.00	359.76	10723.00	1624.12	1627.82	887.09	0.00	373844.26	668882.08	N 32 1 37.60	W 103 55 18.35
	12400.00	90.00	359.76	10723.00	1724.12	1727.82	886.68	0.00	373944.25	668881.66	N 32 1 38.59	W 103 55 18.35
	12500.00	90.00	359.76	10723.00	1824.12	1827.82	886.26	0.00	374044.24	668881.25	N 32 1 39.58	W 103 55 18.35
	12600.00	90.00	359.76	10723.00	1924.12	1927.82	885.85	0.00	374144.23	668880.83	N 32 1 40.56	W 103 55 18.35
	12700.00	90.00	359.76	10723.00	2024.12	2027.82						

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 ° ' ")
	15000.00	90.00	359.76	10723.00	4324.12	4327.80	875.88	0.00	376544.03	668870.87	N 32 2 4.31	W 103 55 18.36
	15100.00	90.00	359.76	10723.00	4424.12	4427.79	875.47	0.00	376644.02	668870.45	N 32 2 5.30	W 103 55 18.36
	15200.00	90.00	359.76	10723.00	4524.12	4527.79	875.05	0.00	376744.02	668870.04	N 32 2 6.29	W 103 55 18.36
	15300.00	90.00	359.76	10723.00	4624.12	4627.79	874.64	0.00	376844.01	668869.62	N 32 2 7.28	W 103 55 18.36
	15400.00	90.00	359.76	10723.00	4724.12	4727.79	874.22	0.00	376944.00	668869.21	N 32 2 8.27	W 103 55 18.36
	15500.00	90.00	359.76	10723.00	4824.12	4827.79	873.81	0.00	377043.99	668868.79	N 32 2 9.26	W 103 55 18.36
	15600.00	90.00	359.76	10723.00	4924.12	4927.79	873.39	0.00	377143.98	668868.38	N 32 2 10.25	W 103 55 18.36
	15700.00	90.00	359.76	10723.00	5024.12	5027.79	872.98	0.00	377243.97	668867.96	N 32 2 11.24	W 103 55 18.36
	15800.00	90.00	359.76	10723.00	5124.12	5127.79	872.56	0.00	377343.97	668867.55	N 32 2 12.23	W 103 55 18.36
	15900.00	90.00	359.76	10723.00	5224.12	5227.79	872.15	0.00	377443.96	668867.13	N 32 2 13.22	W 103 55 18.36
	16000.00	90.00	359.76	10723.00	5324.12	5327.79	871.73	0.00	377543.95	668866.72	N 32 2 14.21	W 103 55 18.36
	16100.00	90.00	359.76	10723.00	5424.12	5427.79	871.32	0.00	377643.94	668866.30	N 32 2 15.20	W 103 55 18.36
	16200.00	90.00	359.76	10723.00	5524.12	5527.79	870.90	0.00	377743.93	668865.89	N 32 2 16.19	W 103 55 18.37
	16300.00	90.00	359.76	10723.00	5624.12	5627.78	870.49	0.00	377843.93	668865.47	N 32 2 17.18	W 103 55 18.37
	16400.00	90.00	359.76	10723.00	5724.12	5727.78	870.07	0.00	377943.92	668865.06	N 32 2 18.17	W 103 55 18.37
	16500.00	90.00	359.76	10723.00	5824.12	5827.78	869.66	0.00	378043.91	668864.64	N 32 2 19.16	W 103 55 18.37
	16600.00	90.00	359.76	10723.00	5924.12	5927.78	869.24	0.00	378143.90	668864.23	N 32 2 20.15	W 103 55 18.37
	16700.00	90.00	359.76	10723.00	6024.12	6027.78	868.83	0.00	378243.89	668863.81	N 32 2 21.14	W 103 55 18.37
	16800.00	90.00	359.76	10723.00	6124.12	6127.78	868.41	0.00	378343.88	668863.40	N 32 2 22.13	W 103 55 18.37
	16900.00	90.00	359.76	10723.00	6224.12	6227.78	868.00	0.00	378443.88	668862.98	N 32 2 23.12	W 103 55 18.37
	17000.00	90.00	359.76	10723.00	6324.12	6327.78	867.58	0.00	378543.87	668862.57	N 32 2 24.10	W 103 55 18.37
	17100.00	90.00	359.76	10723.00	6424.12	6427.78	867.17	0.00	378643.86	668862.15	N 32 2 25.09	W 103 55 18.37
	17200.00	90.00	359.76	10723.00	6524.12	6527.78	866.75	0.00	378743.85	668861.74	N 32 2 26.08	W 103 55 18.37
	17300.00	90.00	359.76	10723.00	6624.12	6627.78	866.33	0.00	378843.84	668861.32	N 32 2 27.07	W 103 55 18.37
	17400.00	90.00	359.76	10723.00	6724.12	6727.77	865.92	0.00	378943.83	668860.91	N 32 2 28.06	W 103 55 18.37
	17500.00	90.00	359.76	10723.00	6824.12	6827.77	865.50	0.00	379043.83	668860.49	N 32 2 29.05	W 103 55 18.37
	17600.00	90.00	359.76	10723.00	6924.12	6927.77	865.09	0.00	379143.82	668860.07	N 32 2 30.04	W 103 55 18.37
	17700.00	90.00	359.76	10723.00	7024.12	7027.77	864.67	0.00	379243.81	668859.66	N 32 2 31.03	W 103 55 18.37
	17800.00	90.00	359.76	10723.00	7124.12	7127.77	864.26	0.00	379343.80	668859.24	N 32 2 32.02	W 103 55 18.37
	17900.00	90.00	359.76	10723.00	7224.12	7227.77	863.84	0.00	379443.79	668858.83	N 32 2 33.01	W 103 55 18.37
	18000.00	90.00	359.76	10723.00	7324.12	7327.77	863.43	0.00	379543.78	668858.41	N 32 2 34.00	W 103 55 18.37
	18100.00	90.00	359.76	10723.00	7424.12	7427.77	863.01	0.00	379643.78	668858.00	N 32 2 34.99	W 103 55 18.37
	18200.00	90.00	359.76	10723.00	7524.12	7527.77	862.60	0.00	379743.77	668857.58	N 32 2 35.98	W 103 55 18.37
	18300.00	90.00	359.76	10723.00	7624.12	7627.77	862.18	0.00	379843.76	668857.17	N 32 2 36.97	W 103 55 18.37
	18400.00	90.00	359.76	10723.00	7724.12	7727.77	861.77	0.00	379943.75	668856.75	N 32 2 37.96	W 103 55 18.37
	18500.00	90.00	359.76	10723.00	7824.12	7827.77	861.35	0.00	380043.74	668856.34	N 32 2 38.95	W 103 55 18.37
	18600.00	90.00	359.76	10723.00	7924.12	7927.76	860.94	0.00	380143.73	668855.92	N 32 2 39.94	W 103 55 18.37
	18700.00	90.00	359.76	10723.00	8024.12	8027.76	860.52	0.00	380243.73	668855.51	N 32 2 40.93	W 103 55 18.38
	18800.00	90.00	359.76	10723.00	8124.12	8127.76	860.11	0.00	380343.72	668855.09	N 32 2 41.92	W 103 55 18.38
	18900.00	90.00	359.76	10723.00	8224.12	8227.76	859.69	0.00	380443.71	668854.68	N 32 2 42.91	W 103 55 18.38
	19000.00	90.00	359.76	10723.00	8324.12	8327.76	859.28	0.00	380543.70	668854.26	N 32 2 43.90	W 103 55 18.38
	19100.00	90.00	359.76	10723.00	8424.12	8427.76	858.86	0.00	380643.69	668853.85	N 32 2 44.89	W 103 55 18.38
	19200.00	90.00	359.76	10723.00	8524.12	8527.76	858.45	0.00	380743.68	668853.43	N 32 2 45.87	W 103 55 18.38
	19300.00	90.00	359.76	10723.00	8624.12	8627.76	858.03	0.00	380843.68	668853.02	N 32 2 46.86	W 103 55 18.38
	19400.00	90.00	359.76	10723.00	8724.12	8727.76	857.62	0.00	380943.67	668852.60	N 32 2 47.85	W 103 55 18.38
	19500.00	90.00	359.76	10723.00	8824.12	8827.76	857.20	0.00	381043.66	668852.19	N 32 2 48.84	W 103 55 18.38
	19600.00	90.00	359.76	10723.00	8924.12	8927.76	856.79	0.00	381143.65	668851.77	N 32 2 49.83	W 103 55 18.38
	19700.00	90.00	359.76	10723.00	9024.12	9027.76	856.37	0.00	381243.64	668851.36	N 32 2 50.82	W 103 55 18.38
	19800.00	90.00	359.76	10723.00	9124.12	9127.75	855.96	0.00	381343.63	668850.94	N 32 2 51.81	W 103 55 18.38
	19900.00	90.00	359.76	10723.00	9224.12	9227.75	855.54	0.00	381443.63	668850.53	N 32 2 52.80	W 103 55 18.38
	20000.00	90.00	359.76	10723.00	9324.12	9327.75	855.12	0.00	381543.62	668850.11	N 32 2 53.79	W 103 55 18.38
	20100.00	90.00	359.76	10723.00	9424.12	9427.75	854.71	0.00	381643.61	668849.70	N 32 2 54.78	W 103 55 18.38
	20200.00	90.00	359.76	10723.00	9524.12	9527.75	854.29	0.00	381743.60	668849.28	N 32 2 55.77	W 103 55 18.38
	20300.00	90.00	359.76	10723.00	9624.12	9627.75	853.88	0.00	381843.59	668848.87	N 32 2 56.76	W 103 55 18.38
	20400.00	90.00	359.76	10723.00	9724.12	9727.75	853.46	0.00	381943.58	668848.45	N 32 2 57.75	W 103 55 18.38
	20500.00	90.00	359.76	10723.00	9824.12	9827.75	853.05	0.00	382043.58	668848.04	N 32 2 58.74	W 103 55 18.38
	20600.00	90.00	359.76	10723.00	9924.12	9927.75	852.63	0.00	382143.57	668847.62	N 32 2 59.73	W 103 55 18.38
	20700.00	90.00	359.76	10723.00	10024.12	10027.75	852.22	0.00	382243.56	668847.20	N 32 3 0.72	W 103 55 18.38
	20800.00	90.00	359.76	10723.00	10124.12	10127.75	851.80	0.00	382343.55	668846.79	N 32 3 1.71	W 103 55 18.38
	20900.00	90.00	359.76	10723.00	10224.12	10227.74	851.39	0.00	382443.54	668846.37	N 32 3 2.70	W 103 55 18.38
	21000.00	90.00	359.76	10723.00	10324.12	10327.74	850.97	0.00	382543.53	668845.96	N 32 3 3.69	W 103 55 18.38
	21100.00	90.00	359.76	10723.00	10424.12	10427.74	850.56	0.00	382643.53	668845.54	N 32 3 4.68	W 103 55 18.38
	21200.00	90.00	359.76	10723.00	10524.12	10527.74	850.14	0.00	382743.52	668845.13	N 32 3 5.67	W 103 55 18.38
	21300.00	90.00	359.76	10723.00	10624.12	10627.74	849.73	0.00	382843.51	668844.71	N 32 3 6.66	W 103 55 18.39
	21400.00	90.00	359.76	10723.00	10724.12	10727.74	849.31	0.00	382943.50	668844.30	N 32 3 7.64	W 103 55 18.39
	21500.00	90.00	359.76	10723.00	10824.12	10827.74	848.90	0.00	383043.49	668843.88	N 32 3 8.63	W 103 55 18.39
	21600.00	90.00	359.76	10723.00	10924.12	10927.74	848.48	0.00	383143.48	668843.47	N 32 3 9.62	W 103 55 18.39
	21700.00	90.00	359.76	10723.00	11024.12	11027.74	848.07	0.00	383243.48	668843.05	N 32 3 10.61	W 103 55 18.39
	21800.00	90.00	359.76	10723.00	11124.12	11127.74	847.65	0.00	383343.47	668842.64	N 32 3 11.60	W 103 55 18.39
	21900.00	90.00	359.76	10723.00	11224.12	11227.74	847.24	0.00	383443.46	668842.22	N 32 3 12.59	W 103 55 18.39
	22000.00	90.00	359.76	10723.00	11324.12	11327.74	846.82	0.00	383543.45	668841.81	N 32 3 13.58	W 103 55 18.39
	22100.00	90.00	359.76	10723.00	11424.12	11427.73	846.41	0.00	383643.44	668841.39	N 32 3 14.57	W 103 55 18.39
	22200.00	90.00	359.76	10723.00	11524.12	11527.73	845.99	0.00	383743.43	668840.98	N 32 3 15.56	W 103 55 18.39
	22300.00	90.00	359.76	10723.00	11624.12	11627.73	845.58	0.00	383843.43	668840.56	N 32 3 16.55	W 103 55 18.39
	22400.00	90.00	359.									



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



Report Date: November 17, 2020 - 02:39 PM
Client: Cimarex Energy
Field: NM Eddy County (NAD 83)
Structure / Slot: Cimarex Tar Heel 19-18 Federal Com #19H / New Slot
Well: Tar Heel 19-18 Federal Com #19H
Borehole: Tar Heel 19-18 Federal Com #19H
UWI / API#: Unknown / Unknown
Survey Name: Cimarex Tar Heel 19-18 Federal Com #19H Rev2 RM 17Nov20
Survey Date: January 24, 2019
Tort / AHD / DDI / ERD Ratio: 110.000 ° / 13445.937 ft / 6.503 / 1.254
Coordinate Reference System: NAD83 New Mexico State Plane, Eastern Zone, US Feet
Location Lat / Long: N 32° 1' 21.52157", W 103° 55' 28.72529"
Location Grid N/E Y/X: N 372216.560 ftUS, E 667995.050 ftUS
CRS Grid Convergence Angle: 0.2167 °
Grid Scale Factor: 0.99992746
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: 3047.400 ft above MSL
Seabed / Ground Elevation: 3021.400 ft above MSL
Magnetic Declination: 6.583 °
Total Gravity Field Strength: 998.4403mgn (9.80665 Based)
Gravity Model: GARM
Total Magnetic Field Strength: 47622.815 nT
Magnetic Dip Angle: 59.598 °
Declination Date: November 17, 2020
Magnetic Declination Model: HDGM 2020
North Reference: Grid North
Grid Convergence Used: 0.2167 °
Total Corr Mag North->Grid North: 6.3668 °
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 [760' FSL, 1416' FWL]	0.00	0.00	4.81	0.00	0.00	0.00	0.00	N/A	372216.56	667995.05	N 32 1 21.52	W 103 55 28.73
Nudge 2"/100'	2000.00	0.00	96.86	2000.00	0.00	0.00	0.00	0.00	372216.56	667995.05	N 32 1 21.52	W 103 55 28.73
DLS	2500.00	10.00	96.86	2497.46	-5.38	-5.20	43.21	2.00	372211.36	668038.26	N 32 1 21.47	W 103 55 28.22
Hold Nudge	7185.91	10.00	96.86	7112.18	-105.87	-102.33	851.09	0.00	372114.23	668846.08	N 32 1 20.48	W 103 55 18.84
Drop to Vertical	7685.90	0.00	96.86	7609.65	-111.24	-107.53	894.30	2.00	372109.04	668889.28	N 32 1 20.42	W 103 55 18.34
2"/100' DLS	10289.25	0.00	96.86	10213.00	-111.24	-107.53	894.30	0.00	372109.04	668889.28	N 32 1 20.42	W 103 55 18.34
Hold Vertical	10914.25	75.00	359.76	10674.19	242.64	246.35	892.83	12.00	372462.90	668887.81	N 32 1 23.93	W 103 55 18.34
KOP - Build	11289.25	90.00	359.76	10723.00	613.37	617.08	891.29	4.00	372833.60	668886.27	N 32 1 27.59	W 103 55 18.35
12"/100' DLS												
Build 4"/100'												
DLS												
Landing Point												
Cimarex Tar												
Heel 19-18												
Federal Com												
#19H - PBHL	23109.83	90.00	359.76	10723.00	12433.95	12437.56	842.21	0.00	384653.19	668837.20	N 32 3 24.56	W 103 55 18.39
[2561' FSL, 2310' FWL]												

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 #19H / Cimarex Tar Heel 19-18 Federal Com #19H Rev2 RM 17Nov20
	1	26.000	23109.831	1/100.000	17.500	13.375		NAL_MWD_IFR1+MS	Tar Heel 19-18 Federal Com #19H / Cimarex Tar Heel 19-18 Federal



Cimarex Tar Heel 19-18 Federal Com #19H Rev2 RM 17Nov20 Anti-Collision Summary Report

Analysis Date-24hr Time: November 17, 2020 - 14:40

Client: Cimarex Energy

Field: NM Eddy County (NAD 83)

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

Slot: New Slot

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

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

Scan MD Range: 0.00ft ~ 23109.83ft

Analysis Method: 3D Least Distance

Reference Trajectory: Cimarex Tar Heel 19-18 Federal Com #19H Rev2 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: ISCWSA0 3-D 95.000% Confidence 2.7955 sigma, for subject well. For offset wells, error model version is specified with each well respectively.

Offset Trajectories Summary

Offset Selection Criteria

Wellhead distance scan: Not performed!

Selection filters: Definitive Surveys - Definitive Plans - Definitive surveys exclude definitive plans

- All Non-Def Surveys when no Def-Survey is set in a borehole - All Non-Def Plans when no Def-Plan is set in a borehole

Offset Trajectory	Separation			Allow 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 #20H Rev2 RM 17Nov20 (Def Plan)

Warning Alert

19.99	16.25	18.71	3.74	N/A	MAS = 4.95 (m)	0.00	0.00	CtCt<=15m<15.00				Enter Alert	
19.99	16.25	18.70	3.74	6476.17	MAS = 4.95 (m)	26.00	26.00					WRP	
19.99	16.25	9.73	3.74	2.08	MAS = 4.95 (m)	1490.00	1490.00					MinPts	
20.01	16.25	9.65	3.76	2.06	MAS = 4.95 (m)	1510.00	1510.00					MINPT-O-EQU	
20.16	16.25	9.70	3.91	2.06	MAS = 4.95 (m)	1530.00	1530.00					MinPt-O-SF	
53.55	17.35	41.56	36.20	4.88	OSF1.50	1940.00	1940.00	OSF>5.00				Exit Alert	
85.27	26.56	67.13	58.71	4.98	OSF1.50	3680.00	3659.54	OSF<5.00				Enter Alert	
82.72	33.42	60.01	49.30	3.80	OSF1.50	4440.00	4407.99					MinPt-CtCt	
85.27	40.77	57.55	44.50	3.19	OSF1.50	5190.00	5146.60					MINPT-O-EQU	
88.96	45.18	58.41	43.78	3.00	OSF1.50	5630.00	5579.91					MinPt-O-ADP	
110.12	59.87	69.78	50.25	2.73	OSF1.50	7090.00	7017.73					MinPt-O-SF	
115.06	62.58	72.91	52.48	2.73	OSF1.50	9190.00	9113.74					MINPT-O-EQU	
115.14	62.67	72.93	52.47	2.73	OSF1.50	9200.00	9123.74					MinPts	
191.03	59.50	150.93	131.53	4.89	OSF1.50	9500.00	9423.74	OSF>5.00				Exit Alert	
1131.30	340.30	904.00	791.00	5.00	OSF1.50	21520.00	10723.00	OSF<5.00				Enter Alert	
1131.30	389.10	871.47	742.20	4.37	OSF1.50	23109.83	10723.00					MinPts	

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

Warning Alert

20.01	16.26	18.72	3.75	N/A	MAS = 4.96 (m)	0.00	0.00	CtCt<=15m<15.00				Enter Alert	
20.00	16.26	18.72	3.74	N/A	MAS = 4.96 (m)	26.00	26.00					WRP	
20.00	19.54	6.54	0.46	1.54	OSF1.50	2000.00	2000.00					MinPt-CtCt	
20.02	19.61	6.52	0.41	1.53	OSF1.50	2010.00	2010.00					MINPT-O-EQU	
20.07	19.68	6.52	0.39	1.53	OSF1.50	2020.00	2020.00					MinPts	
56.52	21.50	41.78	35.02	4.10	OSF1.50	2500.00	2497.47					MinPts	
69.20	21.67	54.33	47.54	5.00	OSF1.50	2640.00	2635.34	OSF>5.00				Exit Alert	
669.40	66.78	824.46	602.64	15.31	OSF1.50	10040.00	9963.74					MINPT-O-EQU	
669.44	66.82	824.47	602.63	15.29	OSF1.50	10050.00	9973.74					MinPt-O-ADP	
671.92	67.33	626.60	604.59	15.23	OSF1.50	10160.00	10083.74					MinPt-O-SF	
709.14	68.95	662.75	640.19	15.69	OSF1.50	11410.00	10723.00					MinPt-CtCt	
709.14	213.79	566.19	495.35	5.00	OSF1.50	16950.00	10723.00	OSF<5.00				Enter Alert	
709.14	407.28	437.21	301.88	2.62	OSF1.50	23109.83	10723.00					MinPts	

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

Warning Alert

1031.58	32.81	1030.30	998.77	N/A	MAS = 10.00 (m)	0.00	0.00					Surface	
1031.57	32.81	1030.29	998.76	N/A	MAS = 10.00 (m)	26.00	26.00					WRP	
1031.57	32.81	1018.13	998.76	84.74	MAS = 10.00 (m)	2000.00	2000.00					MinPts	
1030.44	32.81	1016.68	997.63	82.58	MAS = 10.00 (m)	2120.00	2119.96					MinPt-O-SF	
1024.00	32.81	1010.17	991.20	81.48	MAS = 10.00 (m)	2360.00	2359.05					MinPts	
1024.01	32.81	1010.16	991.20	81.42	MAS = 10.00 (m)	2370.00	2368.97					MINPT-O-EQU	
1027.10	32.81	1013.09	994.29	80.61	MAS = 10.00 (m)	2500.00	2497.47					MINPT-O-EQU	
1225.22	52.65	1189.70	1172.57	35.74	OSF1.50	6710.00	6643.51					MinPt-O-SF	
1319.84	396.90	1054.81	922.94	5.00	OSF1.50	22320.00	10723.00	OSF<5.00				Enter Alert	
1319.84	421.85	1038.17	897.98	4.70	OSF1.50	23100.00	10723.00					MinPt-CtCt	
1319.84	422.01	1038.08	897.84	4.70	OSF1.50	23109.83	10723.00					MinPts	

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

Warning Alert

4999.62	32.81	4990.62	4966.81	648.23	MAS = 10.00 (m)	0.00	0.00					Surface	
4999.62	32.81	4987.90	4966.81	479.01	MAS = 10.00 (m)	26.00	26.00					WRP	
4785.89	1437.02	3827.39	3348.87	5.00	OSF1.50	4620.00	4585.26	OSF<5.00				Enter Alert	
4569.10	2326.18	3017.73	2242.92	2.95	OSF1.50	7540.00	7463.80					MinPt-O-SF	
4569.03	2326.12	3017.69	2242.90	2.95	OSF1.50	7550.00	7473.79					MinPts	
4568.98	2325.96	3017.75	2243.02	2.95	OSF1.50	7570.00	7493.77					MinPt-CtCt	
4675.22	1643.92	3578.84	3031.30	4.27	OSF1.50	12160.00	10723.00					MinPt-O-SF	
4057.45	1350.03	3157.00	2707.42	4.51	OSF1.50	14480.00	10723.00					MinPt-CtCt	
4057.46	1350.06	3157.00	2707.41	4.51	OSF1.50	14490.00	10723.00					MINPT-O-EQU	
4057.49	1350.09	3157.00	2707.40	4.51	OSF1.50	14500.00	10723.00					MinPt-O-ADP	
4677.54	1649.59	3577.39	3027.95	4.28	OSF1.50	16810.00	10723.00					MinPt-O-SF	
6776.34	2034.43	5419.63	4741.91	5.00	OSF1.50	19910.00	10723.00	OSF>5.00				Exit Alert	
9533.67	2185.25	8076.41	7348.42	6.55	OSF1.50	23109.83	10723.00					TD	

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

Pass

1051.12	32.81	1049.83	1018.31	N/A	MAS = 10.00 (m)	0.00	0.00					Surface	
1051.11	32.81	1049.83	1018.30	N/A	MAS = 10.00 (m)	26.00	26.00					WRP	
1051.11	32.81	1037.67	1018.30	86.33	MAS = 10.00 (m)	2000.00	2000.00					MinPts	

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		
1051.13	32.81	1037.65	1018.32	86.14		MAS = 10.00 (m)	2010.00	2010.00				MINPT-O-EQU	
1053.57	32.81	1039.96	1020.76	85.39		MAS = 10.00 (m)	2100.00	2099.98				MinPt-O-SF	
1112.25	32.81	1099.43	1079.45	96.32		MAS = 10.00 (m)	2500.00	2497.47				MinPts	
1953.55	51.26	1918.95	1902.29	58.63		OSF1.50	7200.00	7126.07				MinPt-O-SF	
1979.73	70.76	1932.12	1908.97	42.72		OSF1.50	10460.00	10380.13				MinPt-CiCl	
1979.75	70.86	1932.08	1908.90	42.66		OSF1.50	10480.00	10398.71				MINPT-O-EQU	
1979.80	70.90	1932.10	1908.89	42.63		OSF1.50	10490.00	10407.88				MinPt-O-ADP	
1996.26	422.48	1714.18	1573.78	7.10		OSF1.50	23109.83	10723.00				MinPts	

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

Pass

1070.69	32.81	1069.40	1037.88	N/A		MAS = 10.00 (m)	0.00	0.00				Surface	
1070.68	32.81	1069.39	1037.87	N/A		MAS = 10.00 (m)	26.00	26.00				WRP	
1070.68	32.81	1057.24	1037.87	87.96		MAS = 10.00 (m)	2000.00	2000.00				MinPts	
1070.70	32.81	1057.21	1037.89	87.64		MAS = 10.00 (m)	2010.00	2010.00				MINPT-O-EQU	
1111.87	32.81	1096.61	1079.07	79.46		MAS = 10.00 (m)	2500.00	2497.47				MINPT-O-EQU	
1903.62	62.61	1961.45	1841.01	46.53		OSF1.50	7200.00	7126.07				MinPt-O-SF	
1944.05	74.21	1894.12	1869.80	39.94		OSF1.50	9210.00	9133.74				MINPT-O-EQU	
1944.09	74.30	1894.12	1869.79	39.91		OSF1.50	9220.00	9143.74				MinPt-O-ADP	
1954.77	75.58	1903.95	1879.19	39.44		OSF1.50	9540.00	9463.74				MinPt-O-SF	
1970.29	75.98	1919.20	1894.30	39.54		OSF1.50	9710.00	9633.74				MinPt-O-SF	
2277.13	410.64	2002.94	1866.49	8.34		OSF1.50	23109.83	10723.00				MinPts	

XTO Ross Draw 31 Federal
Wal Com #6H (Offset) API 30-
015-45121 Gas Off-22980ft (Def
Survey)

Pass

8753.09	32.81	8751.80	8720.28	N/A		MAS = 10.00 (m)	0.00	0.00				Surface	
8753.07	32.81	8751.78	8720.26	N/A		MAS = 10.00 (m)	10.00	10.00				MinPt-O-SF	
8753.06	32.81	8751.77	8720.25	N/A		MAS = 10.00 (m)	20.00	20.00				MinPts	
8753.06	32.81	8751.77	8720.25	N/A		MAS = 10.00 (m)	26.00	26.00				WRP	
8711.88	32.81	8701.78	8679.08	971.67		MAS = 10.00 (m)	2100.00	2099.98				MinPt-O-SF	
6664.44	234.48	6507.79	6429.96	42.81		OSF1.50	4560.00	4526.17				MinPt-O-SF	
2249.97	440.10	1955.64	1809.87	7.71		OSF1.50	11130.00	10714.16				MinPt-CiCl	
2250.95	446.33	1952.37	1804.61	7.61		OSF1.50	11310.00	10723.00				MINPT-O-EQU	
2251.58	447.07	1952.49	1804.51	7.60		OSF1.50	11340.00	10723.00				MinPt-O-ADP	
2255.31	450.51	1953.87	1804.81	7.55		OSF1.50	11450.00	10723.00				MinPt-O-ADP	
2266.00	472.56	1949.85	1793.42	7.23		OSF1.50	11850.00	10723.00				MINPT-O-EQU	
2279.15	521.17	1930.76	1757.98	6.59		OSF1.50	12710.00	10723.00				MinPt-CiCl	
2259.51	559.81	1885.35	1699.70	6.08		OSF1.50	13440.00	10723.00				MinPt-CiCl	
2259.88	560.88	1884.95	1699.00	6.07		OSF1.50	13490.00	10723.00				MINPT-O-EQU	
2260.21	561.29	1884.99	1698.92	6.07		OSF1.50	13510.00	10723.00				MinPt-O-ADP	
2254.22	616.07	1842.55	1638.15	5.51		OSF1.50	14490.00	10723.00				MinPt-CiCl	
2254.90	618.82	1841.33	1636.07	5.49		OSF1.50	14580.00	10723.00				MINPT-O-EQU	
2255.28	619.26	1841.41	1636.02	5.48		OSF1.50	14600.00	10723.00				MinPt-O-ADP	
2260.69	621.94	1844.91	1638.75	5.47		OSF1.50	14740.00	10723.00				MinPt-O-SF	
2292.06	639.80	1864.28	1652.26	5.40		OSF1.50	15170.00	10723.00				MinPt-O-SF	
8445.15	189.57	8318.45	8255.58	67.16		OSF1.50	23109.83	10723.00				TD	

JC Williams New Era Federal
#2 (Offset) API 30-015-25326
Plugged Inc Only Off-5717ft
(Def Survey)

Pass

4208.82	32.81	4207.40	4176.01	30413.14		MAS = 10.00 (m)	0.00	0.00				MinPts	
4208.84	32.81	4206.99	4176.03	7520.58		MAS = 10.00 (m)	26.00	26.00				WRP	
4202.87	51.33	4168.29	4151.55	125.45		OSF1.50	1340.00	1340.00				MinPt-CiCl	
3803.57	191.79	3675.26	3611.79	29.95		OSF1.50	6000.00	5944.29				MinPt-O-SF	
3800.88	191.43	3672.81	3609.45	29.99		OSF1.50	6130.00	6072.32				MinPts	
3800.86	191.39	3672.81	3609.46	29.99		OSF1.50	6140.00	6082.17				MinPt-CiCl	
5553.28	113.06	5477.57	5440.21	74.31		OSF1.50	13360.00	10723.00				MinPt-CiCl	
5553.54	113.78	5477.35	5439.76	73.84		OSF1.50	13410.00	10723.00				MINPT-O-EQU	
5553.91	114.22	5477.43	5439.68	73.56		OSF1.50	13440.00	10723.00				MinPt-O-ADP	
6669.58	182.53	6547.57	6487.05	55.10		OSF1.50	17050.00	10723.00				MinPt-O-SF	
11223.77	225.95	11072.81	10997.83	74.83		OSF1.50	23109.83	10723.00				TD	

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

Pass

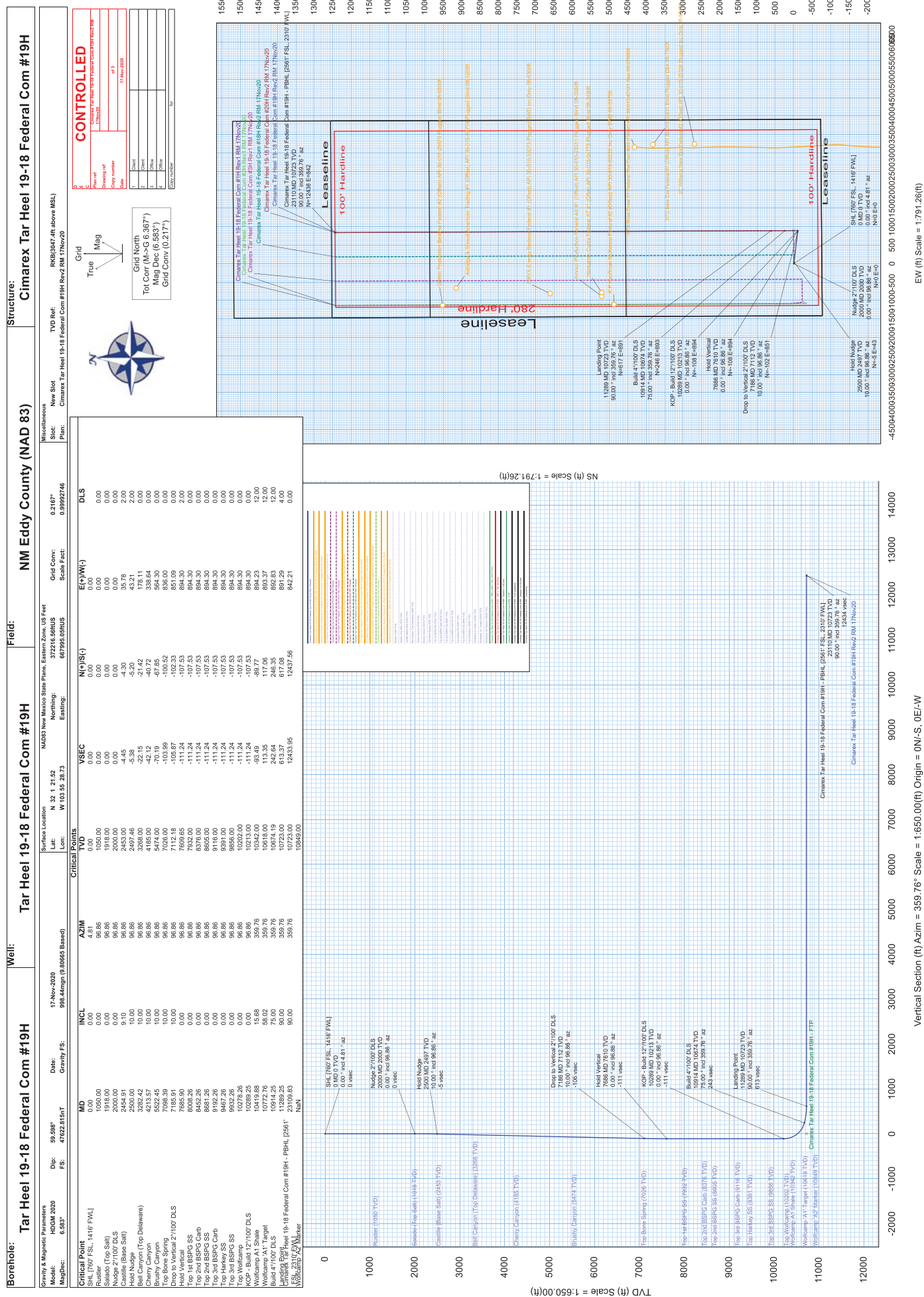
9591.25	32.81	9589.97	9558.44	N/A		MAS = 10.00 (m)	0.00	0.00				Surface	
9591.25	32.81	9588.44	9558.44	6269.69		MAS = 10.00 (m)	26.00	26.00				WRP	
9591.25	596.76	9192.98	8994.49	24.16		OSF1.50	2000.00	2000.00				MinPt-CiCl	
9795.32	2012.34	8453.33	7782.98	7.31		OSF1.50	6570.00	6505.63				MinPts	
5937.63	1420.54	4990.17	4517.09	6.27		OSF1.50	16530.00	10723.00				MinPt-O-SF	
4663.94	882.14	4075.42	3781.80	7.94		OSF1.50	20200.00	10723.00				MinPt-CiCl	
4664.01	882.31	4075.37	3781.69	7.94		OSF1.50	20230.00	10723.00				MINPT-O-EQU	
4664.91	883.32	4075.60	3781.59	7.93		OSF1.50	20300.00	10723.00				MinPt-O-ADP	
5494.76	1307.84	4622.43	4186.92	6.31		OSF1.50	23109.83	10723.00				MinPt-O-SF	

ORXX Energy Bedena Federal
#1 (Offset) API 30-015-25273
Plugged SWD Inc Only Off-
6300ft (Def Survey)

Pass

6649.85	32.81	6648.56	6617.04	N/A		MAS = 10.00 (m)	0.00	0.00				Surface	
6649.85	32.81	6648.12	6617.04	15038.88		MAS = 10.00 (m)	26.00	26.00				WRP	
6639.33	48.03	6606.95	6591.30	212.13		OSF1.50	920.00	920.00				MinPt-CiCl	
6646.28	85.71	6588.78	6560.57	117.79		OSF1.50	1440.00	1440.00				MINPT-O-EQU	
6652.05	92.29	6590.16	6559.78	109.39		OSF1.50	1640.00	1640.00				MinPt-O-ADP	
6640.75	120.08	6560.33	6520.66	83.70		OSF1.50	2240.00	2239.72				MinPt-CiCl	
6643.07	127.08	6557.98	6515.98	79.07		OSF1.50	2420.00	2418.50				MINPT-O-EQU	
6645.64	130.18	6558.48	6515.45	77.20		OSF1.50	2500.00	2497.47				MINPT-O-EQU	
6646.03	130.58	6558.61	6515.45	76.97		OSF1.50	2510.00	2507.31				MinPt-O-ADP	
6718.53	161.86	6610.30	6556.67	62.63		OSF1.50	3530.00	3511.82				MINPT-O-EQU	
6719.41	162.98	6610.43	6556.43	62.21		OSF1.50	3540.00	3521.67				MinPt-O-ADP	
6722.54	166.57	6611.16	6555.97	60.89		OSF1.50	3590.00	3570.91				MinPts	
6864.44	232.18	6709.32	6632.26	44.53		OSF1.50	6390.00	6328.37				MinPt-O-SF	
4737.25	166.95	4625.62	4570.30	42.81		OSF1.50	17290.00	10723.00				MinPt-CiCl	
4737.55	167.72	4625.41	4569.83	42.61		OSF1.50	17340.00	10723.00				MINPT-O-EQU	
4737.82	168.04	4625.47	4569.78	42.53		OSF1.50	17360.00	10723.00				MinPt-O-ADP	
5259.06	209.27	5119.22	5049.79	37.87		OSF1.50	19570.00	10723.00				MinPt-O-SF	
7507.16	246.09	7342.77	7261.07	45.94		OSF1.50	23109.83	10723.00				TD	

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			
K P Kauffman McKenna Federal #2 (Offset) API 30-015-20222 Inc Only SWD 0ft-3370ft (Def Survey)														
	5000.41	32.81	4998.32	4967.60	49061.58	MAS = 10.00 (m)	0.00	0.00				Surface	Pass	
	5000.40	32.81	4997.85	4967.59	8694.44	MAS = 10.00 (m)	26.00	26.00				WRP		
	4989.68	55.34	4952.12	4934.33	140.21	OSF1.50	980.00	980.00				MinPt-CtCt		
	4994.12	66.66	4949.03	4927.47	115.78	OSF1.50	1340.00	1340.00				MINPT-O-EOU		
	4991.39	123.49	4908.40	4867.90	61.59	OSF1.50	2170.00	2169.90				MinPt-CtCt		
	4993.03	128.98	4906.38	4864.05	58.95	OSF1.50	2310.00	2309.40				MINPT-O-EOU		
	4995.09	131.52	4906.75	4863.57	57.82	OSF1.50	2380.00	2378.89				MinPt-O-ADP		
	5000.56	135.62	4909.49	4864.94	56.11	OSF1.50	2500.00	2497.47				MinPts		
	5064.79	173.68	4948.34	4891.10	44.23	OSF1.50	3300.00	3285.31				MinPts		
	5069.56	175.52	4951.89	4894.04	43.80	OSF1.50	3380.00	3364.10				MinPt-O-SF		
	7620.87	117.42	7541.93	7503.45	99.00	OSF1.50	15560.00	10723.00				MinPt-CtCt		
	7621.44	119.03	7541.42	7502.41	97.64	OSF1.50	15650.00	10723.00				MINPT-O-EOU		
	7622.21	119.94	7541.59	7502.27	96.90	OSF1.50	15700.00	10723.00				MinPt-O-ADP		
	9056.22	201.10	8921.49	8855.12	68.21	OSF1.50	20450.00	10723.00				MinPt-O-SF		
	10729.24	224.70	10578.79	10504.55	72.25	OSF1.50	23109.83	10723.00				TD		
Hankamer Curtis Federal AT #1 (Offset) API 30-015-04775 Plugged Blind 0ft-3450ft (Def Survey)														
	5266.82	32.81	5265.26	5234.01	19330.87	MAS = 10.00 (m)	0.00	0.00				Surface		Pass
	5266.82	32.81	5262.54	5234.01	1757.35	MAS = 10.00 (m)	26.00	26.00				WRP		
	5266.82	601.31	4865.52	4665.51	13.16	OSF1.50	2000.00	2000.00				MinPt-CtCt		
	5326.62	1053.38	4623.93	4273.23	7.59	OSF1.50	3460.00	3442.88				MinPts		
	7470.79	261.23	7296.21	7209.56	43.10	OSF1.50	15890.00	10723.00				MinPt-CtCt		
	7471.06	261.89	7296.04	7209.17	43.00	OSF1.50	15950.00	10723.00				MINPT-O-EOU		
	7472.16	263.16	7296.28	7209.00	42.79	OSF1.50	16030.00	10723.00				MinPt-O-ADP		
	10178.49	759.31	9671.85	9419.18	20.14	OSF1.50	22800.00	10723.00				MinPt-O-SF		
	10391.41	774.52	9874.63	9616.89	20.16	OSF1.50	23109.83	10723.00				TD		
Amoco Production Federal AX #1 (Offset) API 30-015-23311 Plugged Blind 0ft-3550ft (Def Survey)														
	5282.17	32.81	5280.19	5249.36	7637.39	MAS = 10.00 (m)	0.00	0.00				Surface	Pass	
	5282.17	32.81	5277.47	5249.36	1546.22	MAS = 10.00 (m)	26.00	26.00				WRP		
	5282.17	616.62	4870.66	4665.55	12.87	OSF1.50	2000.00	2000.00				MinPt-CtCt		
	5351.25	1101.06	4616.78	4250.19	7.30	OSF1.50	3560.00	3541.36				MINPT-O-EOU		
	5351.82	1101.70	4616.92	4250.12	7.29	OSF1.50	3570.00	3551.21				MinPts		
	7391.41	286.63	7199.90	7104.78	38.85	OSF1.50	15890.00	10723.00				MinPt-CtCt		
	7391.68	287.24	7199.76	7104.44	38.77	OSF1.50	15950.00	10723.00				MINPT-O-EOU		
	7392.44	288.11	7199.93	7104.32	38.65	OSF1.50	16010.00	10723.00				MinPt-O-ADP		
	10045.53	792.74	9516.61	9252.79	19.04	OSF1.50	22690.00	10723.00				MinPt-O-SF		
	10334.46	814.23	9791.21	9520.23	19.07	OSF1.50	23109.83	10723.00				TD		
Aldridge & Stroud American Trading #1 (Offset) API 30-015-04774 Plugged Blind 0ft-1269ft (Def Survey)														
	9177.97	32.81	9176.68	9145.16	N/A	MAS = 10.00 (m)	0.00	0.00				Surface		Pass
	9177.95	32.81	9175.76	9145.14	10185.18	MAS = 10.00 (m)	26.00	26.00				WRP		
	9177.95	382.74	8922.37	8795.22	36.09	OSF1.50	1280.00	1280.00				MinPt-CtCt		
	9177.95	384.75	8921.02	8793.20	35.90	OSF1.50	1290.00	1290.00				MinPts		
	9177.96	384.75	8921.03	8793.21	35.90	OSF1.50	1300.00	1300.00				MinPt-O-SF		
	9265.84	381.61	9011.01	8884.23	36.54	OSF1.50	2500.00	2497.47				MinPt-O-SF		
	9558.06	211.17	9416.85	9346.89	68.30	OSF1.50	19830.00	10723.00				MinPt-CtCt		
	9558.91	213.72	9416.00	9345.18	67.49	OSF1.50	19960.00	10723.00				MINPT-O-EOU		
	9560.10	215.14	9416.24	9344.96	67.05	OSF1.50	20030.00	10723.00				MinPt-O-ADP		
	10104.32	289.27	9911.04	9815.05	52.62	OSF1.50	23109.83	10723.00				MinPt-O-SF		



1. Geological Formations

TVD of target 10,723

Pilot Hole TD N/A

MD at TD 23,110

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	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	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	9389	9389	7"	29.00	L-80	LT&C	1.60	1.86	1.90
8 3/4	9389	10914	10647	7"	29.00	L-80	BT&C	1.41	1.64	18.53
6	9289	23109	10723	4-1/2"	11.60	P-110	BT&C	1.13	1.60	22.06
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 19H

	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
	190	14.80	1.34	6.32	9.5	Tail: Class C + LCM
Production	446	10.30	3.64	22.18		Lead: Tuned Light + LCM
	109	14.20	1.30	5.86	14:30	Tail: 50:50 (Poz:H) + Salt + Bentonite + Fluid Loss + Dispersant + SMS
Completion System	901	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	10714	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'	Brine Water	9.70 - 10.20	30-32	N/C
3248' to 10914'	FW/Cut Brine	8.50 - 9.00	30-32	N/C
10914' to 23109'	Oil Based Mud	11.50 - 12.00	50-70	N/C

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

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

6. Logging and Testing Procedures

Logging, Coring and Testing	
	Will run GR/CNL 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
-------------------------	----------

7. Drilling Conditions

Condition	
BH Pressure at deepest TVD	6691 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 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.

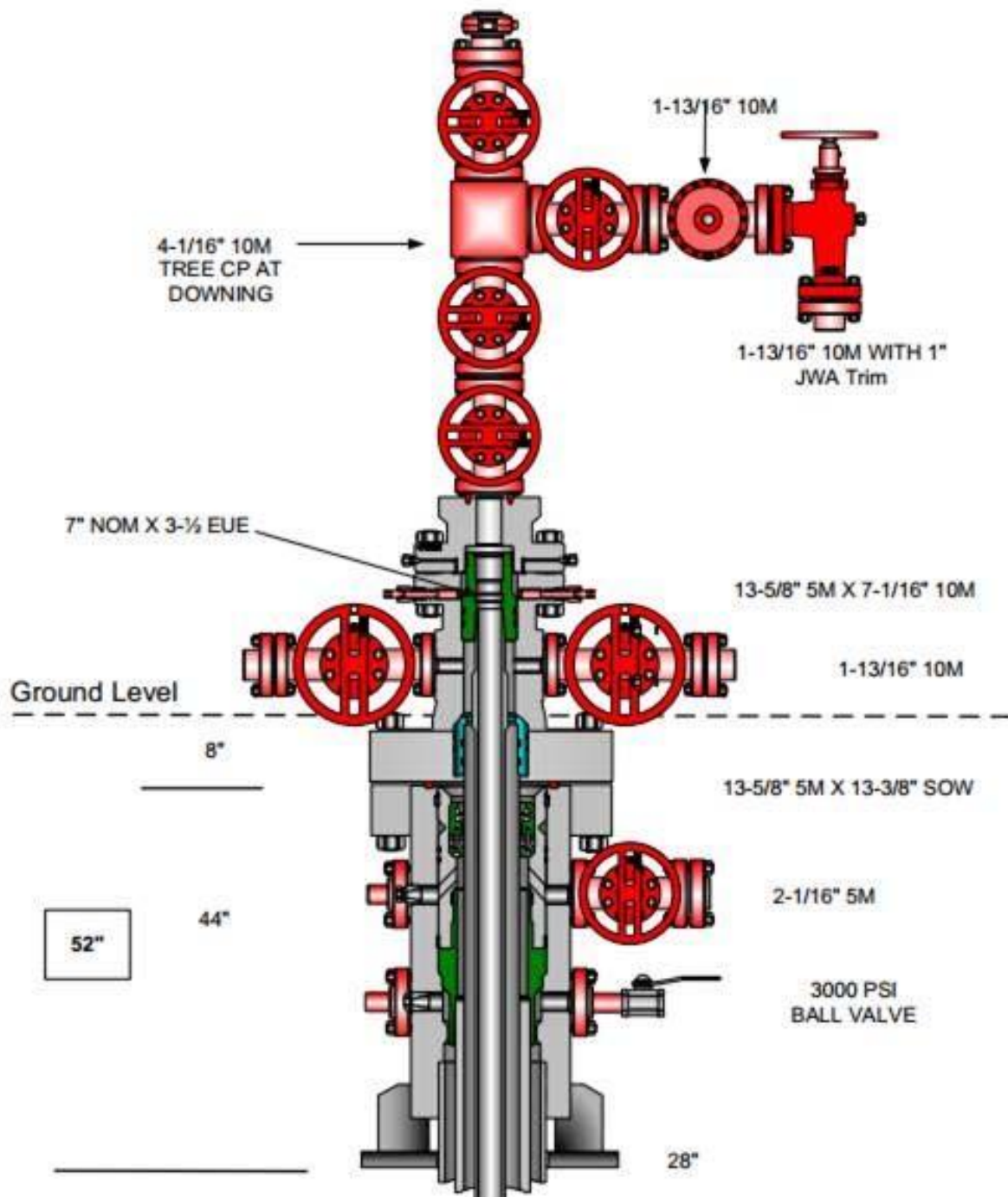
A solid steel body pack-off will be utilized after running and cementing the production casing. After installation the pack-off and lower flange will be pressure tested to 5000 psi.

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.

Multi-bowl Wellhead Diagram

Tar Heel 19-18-7 Federal Com 19H



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	9389	9389	7"	29.00	L-80	LT&C	1.60	1.86	1.90
8 3/4	9389	10914	10647	7"	29.00	L-80	BT&C	1.41	1.64	18.53
6	9289	23109	10723	4-1/2"	11.60	P-110	BT&C	1.13	1.60	22.06
BLM Minimum Safety Factor								1.125	1	1.6 Dry 1.8 Wet

[Print](#)



Tar Heel 19-18-7 Fed Com 19H

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

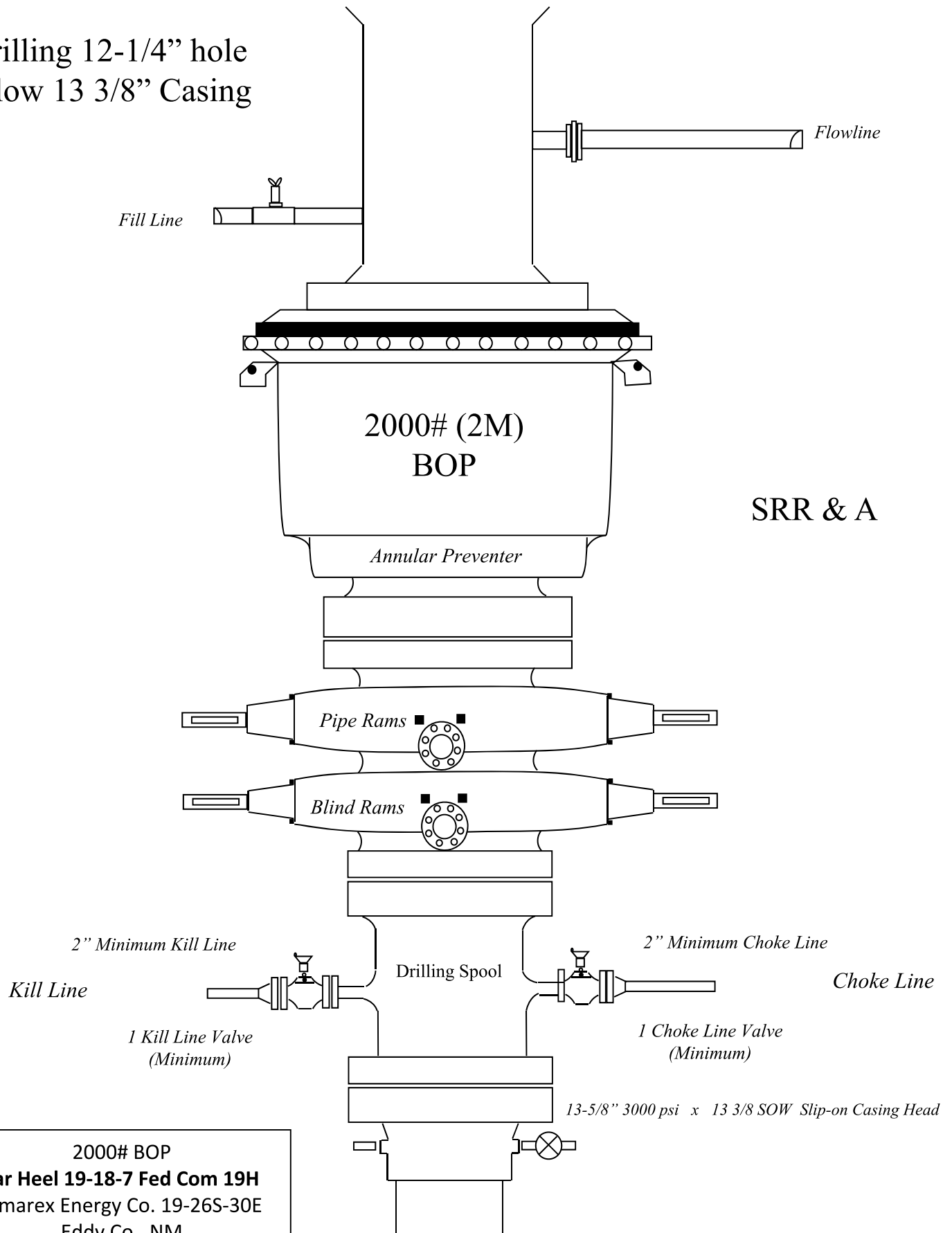
Connection Geometry

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

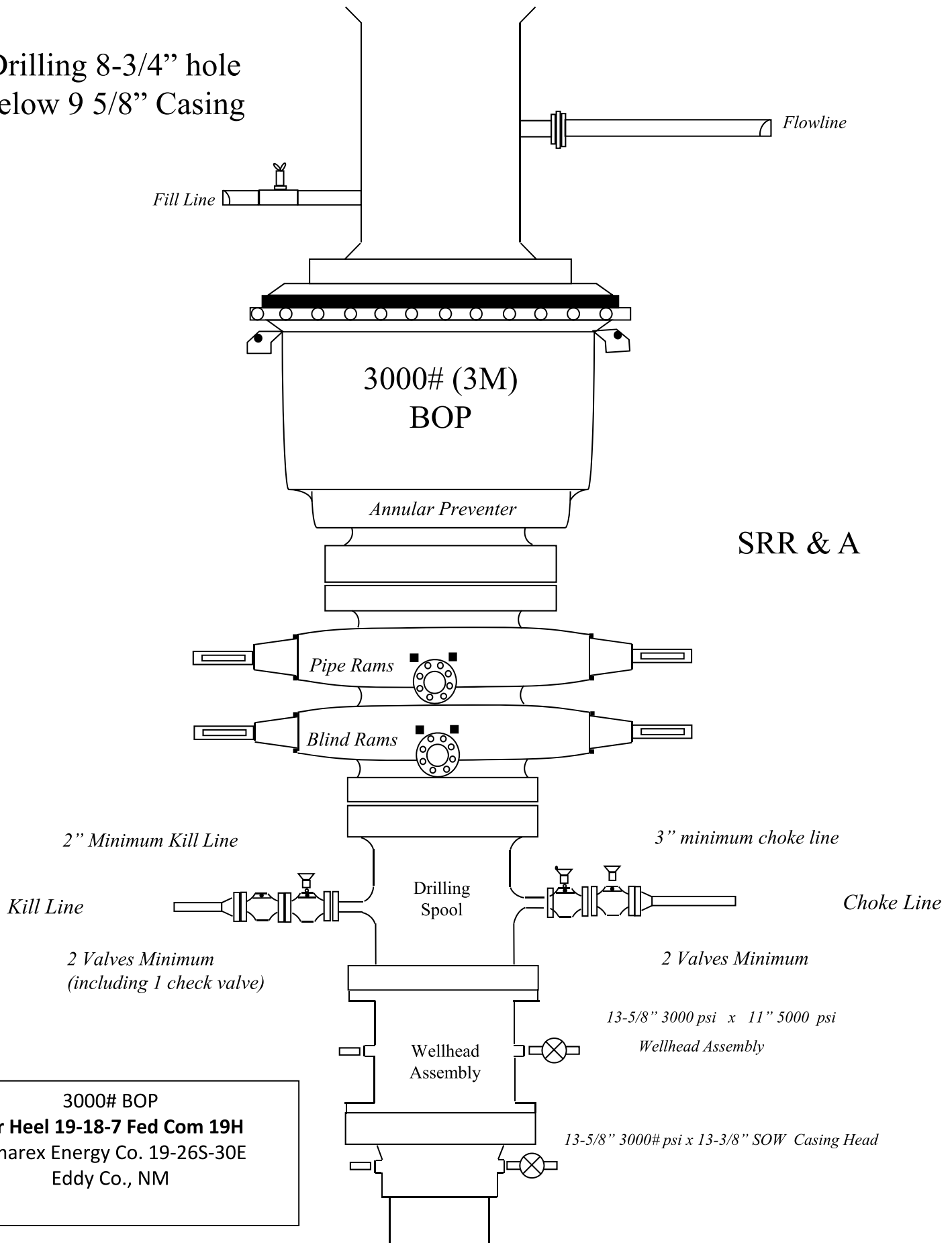
Connection Performance

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

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

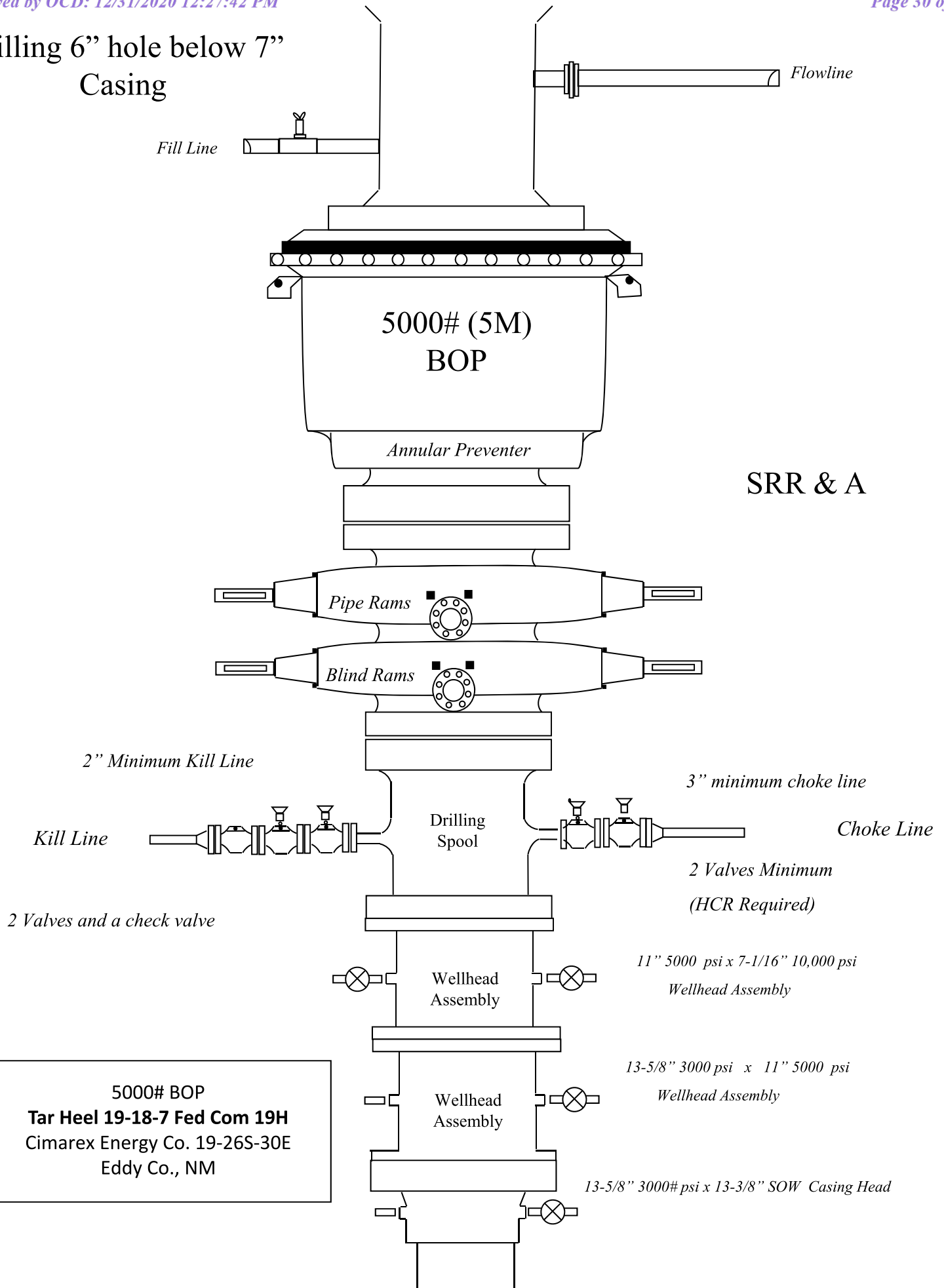


Drilling 8-3/4" hole
below 9 5/8" Casing

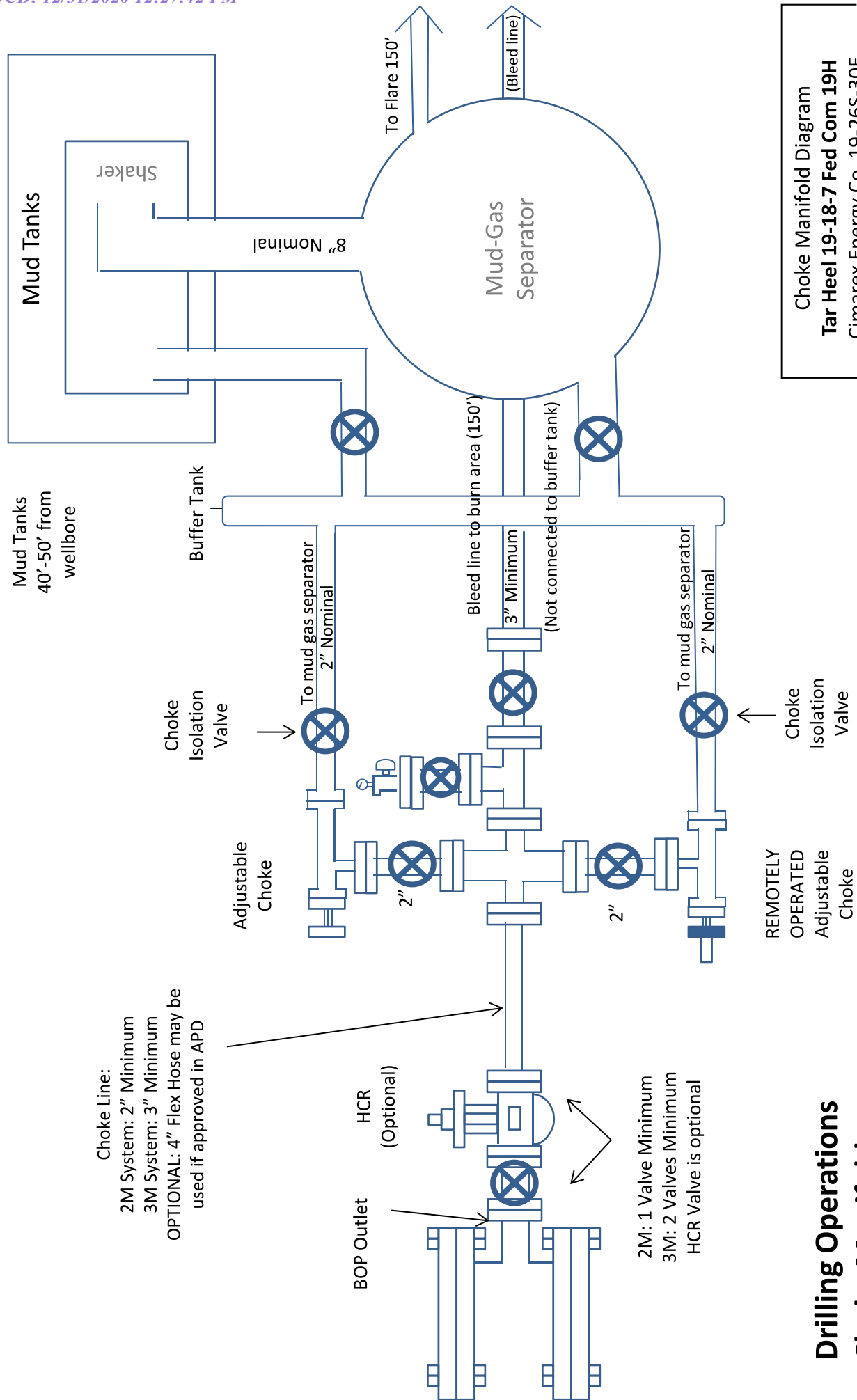


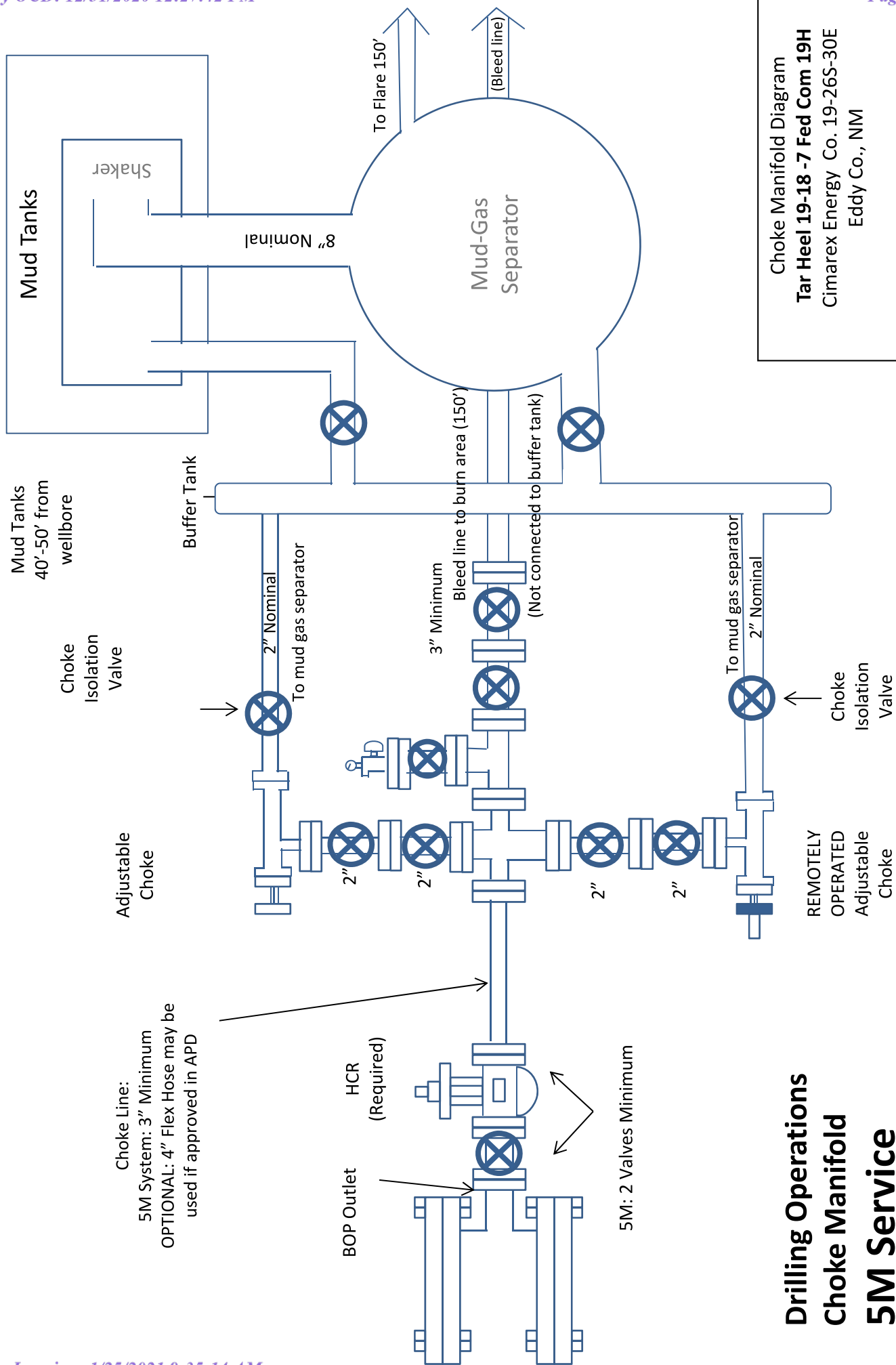
3000# BOP
Tar Heel 19-18-7 Fed Com 19H
Cimarex Energy Co. 19-26S-30E
Eddy Co., NM

Drilling 6" hole below 7"
Casing



5000# BOP
Tar Heel 19-18-7 Fed Com 19H
Cimarex Energy Co. 19-26S-30E
Eddy Co., NM





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

X AMENDED REPORT

WELL LOCATION AND ACREAGE DEDICATION PLAT

¹ API Number 30-015-46570		² Pool Code 98220	³ Pool Name Puprle Sage , Wolfcamp (Gas)	
⁴ Property Code 326774	⁵ Property Name Tar Heel 19-18-7 Federal Com			⁶ Well Number 19H
⁷ OCRID No. 215099	⁸ Operator Name CIMAREX ENERGY CO.			⁹ Elevation 3021.4'

¹⁰Surface Location

UL or lot no. N	Section 19	Township 26S	Range 30E	Lot Idn	Feet from the 760	North/South line SOUTH	Feet from the 1416	East/West line WEST	County EDDY
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¹¹ Bottom Hole Location If Different From Surface

UL or lot no. K	Section 7	Township 26S	Range 30E	Lot Idn	Feet from the 2561	North/South line SOUTH	Feet from the 2310	East/West line WEST	County EDDY
¹² Dedicated Acres 801.73		¹³ Joint or Infill		¹⁴ Consolidation Code		¹⁵ Order No.			

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°01'21.52" (32.022645°)		
LONGITUDE = 103°55'28.73" (103.924646°)		
NAD 27 (SURFACE HOLE LOCATION)		
LATITUDE = 32°01'21.07" (32.022520°)		
LONGITUDE = 103°55'27.00" (103.924166°)		
STATE PLANE NAD 83 (N.M. EAST)		
N: 372216.56' E: 667995.05'		
STATE PLANE NAD 27 (N.M. EAST)		
N: 372159.17' E: 626809.01'		

NAD 83 (LP/FTP)		
LATITUDE = 32°01'21.56" (32.022656°)		
LONGITUDE = 103°55'18.34" (103.921762°)		
NAD 27 (LP/FTP)		
LATITUDE = 32°01'21.11" (32.022531°)		
LONGITUDE = 103°55'16.62" (103.921283°)		
STATE PLANE NAD 83 (N.M. EAST)		
N: 372224.09' E: 668888.80'		
STATE PLANE NAD 27 (N.M. EAST)		
N: 372166.70' E: 627702.75'		

NAD 83 (BHL/LTP)		
LATITUDE = 32°03'24.56" (32.056823°)		
LONGITUDE = 103°55'18.39" (103.921776°)		
NAD 27 (BHL/LTP)		
LATITUDE = 32°03'24.11" (32.056699°)		
LONGITUDE = 103°55'16.66" (103.921295°)		
STATE PLANE NAD 83 (N.M. EAST)		
N: 384653.19' E: 668837.20'		
STATE PLANE NAD 27 (N.M. EAST)		
N: 384595.55' E: 627651.50'		

NOTE:

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

LINE TABLE

LINE	DIRECTION	LENGTH
L1	N89°45'19"E	893.99'

SCALE

DRAWN BY: C.M.T. 01-16-19

REV: 2 C.D.L. 10-30-20

(LP/FTP & BHL/LTP CHANGE)

- = SURFACE HOLE LOCATION
- ◆ = LANDING POINT/FIRST TAKE POINT
- = BOTTOM HOLE LOCATION/ LAST TAKE POINT
- ▲ = SECTION CORNER LOCATED



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



Report Date:	November 17, 2020 - 02:39 PM	Survey / DLS Computation:	Minimum Curvature / Lubinski
Client:	Cimarex Energy	Vertical Section Azimuth:	359.762 ° (Grid North)
Field:	NM Eddy County (NAD 83)	Vertical Section Origin:	0.000 ft, 0.000 ft
Structure / Slot:	Cimarex Tar Heel 19-18 Federal Com #19H / New Slot	TVD Reference Datum:	RKB
Well:	Tar Heel 19-18 Federal Com #19H	TVD Reference Elevation:	3047.400 ft above MSL
Borehole:	Tar Heel 19-18 Federal Com #19H	Seabed / Ground Elevation:	3021.400 ft above MSL
UWI / API#:	Unknown / Unknown	Magnetic Declination:	6.583 °
Survey Name:	Cimarex Tar Heel 19-18 Federal Com #19H Rev2 RM 17Nov20	Total Gravity Field Strength:	998.4403mgn (9.80665 Based)
Survey Date:	January 24, 2019	Gravity Model:	GARM
Tort / AHD / DDI / ERD Ratio:	110.000 ° / 13445.937 ft / 6.503 / 1.254	Total Magnetic Field Strength:	47622.815 nT
Coordinate Reference System:	NAD83 New Mexico State Plane, Eastern Zone, US Feet	Magnetic Dip Angle:	59.598 °
Location Lat / Long:	N 32° 1' 21.52157", W 103° 55' 28.72529"	Declination Date:	November 17, 2020
Location Grid N/E Y/X:	N 372216.560 ftUS, E 667995.050 ftUS	Magnetic Declination Model:	HDGM 2020
CRS Grid Convergence Angle:	0.2167 °	North Reference:	Grid North
Grid Scale Factor:	0.99992746	Grid Convergence Used:	0.2167 °
Version / Patch:	2.10.821.3	Total Corr Mag North->Grid North:	6.3668 °
		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 [760' FSL, 1416' FWL]	0.00	0.00	4.81	0.00	0.00	0.00	0.00	N/A	372216.56	667995.05	N 32 1 21.52	W 103 55 28.73
Rustler	100.00	0.00	96.86	100.00	0.00	0.00	0.00	0.00	372216.56	667995.05	N 32 1 21.52	W 103 55 28.73
	200.00	0.00	96.86	200.00	0.00	0.00	0.00	0.00	372216.56	667995.05	N 32 1 21.52	W 103 55 28.73
	300.00	0.00	96.86	300.00	0.00	0.00	0.00	0.00	372216.56	667995.05	N 32 1 21.52	W 103 55 28.73
	400.00	0.00	96.86	400.00	0.00	0.00	0.00	0.00	372216.56	667995.05	N 32 1 21.52	W 103 55 28.73
	500.00	0.00	96.86	500.00	0.00	0.00	0.00	0.00	372216.56	667995.05	N 32 1 21.52	W 103 55 28.73
	600.00	0.00	96.86	600.00	0.00	0.00	0.00	0.00	372216.56	667995.05	N 32 1 21.52	W 103 55 28.73
	700.00	0.00	96.86	700.00	0.00	0.00	0.00	0.00	372216.56	667995.05	N 32 1 21.52	W 103 55 28.73
	800.00	0.00	96.86	800.00	0.00	0.00	0.00	0.00	372216.56	667995.05	N 32 1 21.52	W 103 55 28.73
	900.00	0.00	96.86	900.00	0.00	0.00	0.00	0.00	372216.56	667995.05	N 32 1 21.52	W 103 55 28.73
	1000.00	0.00	96.86	1000.00	0.00	0.00	0.00	0.00	372216.56	667995.05	N 32 1 21.52	W 103 55 28.73
	1050.00	0.00	96.86	1050.00	0.00	0.00	0.00	0.00	372216.56	667995.05	N 32 1 21.52	W 103 55 28.73
	1100.00	0.00	96.86	1100.00	0.00	0.00	0.00	0.00	372216.56	667995.05	N 32 1 21.52	W 103 55 28.73
	1200.00	0.00	96.86	1200.00	0.00	0.00	0.00	0.00	372216.56	667995.05	N 32 1 21.52	W 103 55 28.73
	1300.00	0.00	96.86	1300.00	0.00	0.00	0.00	0.00	372216.56	667995.05	N 32 1 21.52	W 103 55 28.73
	1400.00	0.00	96.86	1400.00	0.00	0.00	0.00	0.00	372216.56	667995.05	N 32 1 21.52	W 103 55 28.73
	1500.00	0.00	96.86	1500.00	0.00	0.00	0.00	0.00	372216.56	667995.05	N 32 1 21.52	W 103 55 28.73
	1600.00	0.00	96.86	1600.00	0.00	0.00	0.00	0.00	372216.56	667995.05	N 32 1 21.52	W 103 55 28.73
	1700.00	0.00	96.86	1700.00	0.00	0.00	0.00	0.00	372216.56	667995.05	N 32 1 21.52	W 103 55 28.73
Salado (Top Salt)	1800.00	0.00	96.86	1800.00	0.00	0.00	0.00	0.00	372216.56	667995.05	N 32 1 21.52	W 103 55 28.73
	1900.00	0.00	96.86	1900.00	0.00	0.00	0.00	0.00	372216.56	667995.05	N 32 1 21.52	W 103 55 28.73
Nudge 2°/100' DLS	1918.00	0.00	96.86	1918.00	0.00	0.00	0.00	0.00	372216.56	667995.05	N 32 1 21.52	W 103 55 28.73
Castille (Base Salt)	2000.00	0.00	96.86	2000.00	0.00	0.00	0.00	0.00	372216.56	667995.05	N 32 1 21.52	W 103 55 28.73
	2100.00	2.00	96.86	2099.98	-0.22	-0.21	1.73	2.00	372216.35	667996.78	N 32 1 21.52	W 103 55 28.71
	2200.00	4.00	96.86	2199.84	-0.86	-0.83	6.93	2.00	372215.73	668001.98	N 32 1 21.51	W 103 55 28.64
	2300.00	6.00	96.86	2299.45	-1.94	-1.87	15.58	2.00	372214.69	668010.63	N 32 1 21.50	W 103 55 28.54
	2400.00	8.00	96.86	2398.70	-3.44	-3.33	27.68	2.00	372213.23	668022.73	N 32 1 21.49	W 103 55 28.40
	2454.91	9.10	96.86	2453.00	-4.45	-4.30	35.78	2.00	372212.26	668030.83	N 32 1 21.48	W 103 55 28.31
	2500.00	10.00	96.86	2497.46	-5.38	-5.20	43.21	2.00	372211.36	668038.26	N 32 1 21.47	W 103 55 28.22
	2600.00	10.00	96.86	2595.95	-7.52	-7.27	60.45	0.00	372209.29	668055.50	N 32 1 21.45	W 103 55 28.02
Hold Nudge	2700.00	10.00	96.86	2694.43	-9.66	-9.34	77.69	0.00	372207.22	668072.74	N 32 1 21.43	W 103 55 27.82
	2800.00	10.00	96.86	2792.91	-11.81	-11.41	94.93	0.00	372205.15	668089.98	N 32 1 21.41	W 103 55 27.62
	2900.00	10.00	96.86	2891.39	-13.95	-13.49	112.17	0.00	372203.07	668107.22	N 32 1 21.38	W 103 55 27.42
	3000.00	10.00	96.86	2989.87	-16.10	-15.56	129.41	0.00	372201.00	668124.45	N 32 1 21.36	W 103 55 27.22
	3100.00	10.00	96.86	3088.35	-18.24	-17.63	146.65	0.00	372198.93	668141.69	N 32 1 21.34	W 103 55 27.02
	3200.00	10.00	96.86	3186.83	-20.39	-19.71	163.90	0.00	372196.85	668158.93	N 32 1 21.32	W 103 55 26.82
	3282.42	10.00	96.86	3268.00	-22.15	-21.42	178.11	0.00	372195.15	668173.14	N 32 1 21.30	W 103 55 26.66
	3300.00	10.00	96.86	3285.31	-22.53	-21.78	181.14	0.00	372194.78	668176.17	N 32 1 21.30	W 103 55 26.62
Bell Canyon (Top Delaware)	3400.00	10.00	96.86	3383.79	-24.68	-23.85	198.38	0.00	372192.71	668193.41	N 32 1 21.28	W 103 55 26.42
	3500.00	10.00	96.86	3482.27	-26.82	-25.93	215.62	0.00	372190.64	668210.65	N 32 1 21.26	W 103 55 26.22
	3600.00	10.00	96.86	3580.75	-28.97	-28.00	232.86	0.00	372188.56	668227.89	N 32 1 21.24	W 103 55 26.02
	3700.00	10.00	96.86	3679.23	-31.11	-30.07	250.10	0.00	372186.49	668245.13	N 32 1 21.21	W 103 55 25.82
	3800.00	10.00	96.86	3777.72	-33.25	-32.14	267.34	0.00	372184.42	668262.37	N 32 1 21.19	W 103 55 25.62
	3900.00	10.00	96.86	3876.20	-35.40	-34.22	284.58	0.00	372182.34	668279.61	N 32 1 21.17	W 103 55 25.42
	4000.00	10.00	96.86	3974.68	-37.54	-36.29	301.82	0.00	372180.27	668296.85	N 32 1 21.15	W 103 55 25.22
	4100.00	10.00	96.86	4073.16	-39.69	-38.36	319.06	0.00	372178.20	668314.09	N 32 1 21.13	W 103 55 25.02
	4200.00	10.00	96.86	4171.64	-41.83	-40.44	336.30	0.00	372176.13	668331.33	N 32 1 21.11	W 103 55 24.82
	4213.57	10.00	96.86	4185.00	-42.12	-40.72	338.64	0.00	372175.85	668333.67	N 32 1 21.11	W 103 55 24.79
	4300.00	10.00	96.86	4270.12	-43.98	-42.51	353.54	0.00	372174.05	668348.57	N 32 1 21.09	W 103 55 24.62
	4400.00	10.00	96.86	4368.60	-46.12	-44.58	370.78	0.00	372171.98	668365.80	N 32 1 21.07	W 103 55 24.42
	4500.00	10.00	96.86	4467.08	-48.27	-46.66	388.02	0.00	372169.91	668383.04	N 32 1 21.05	W 103 55 24.22
	4600.00	10.00	96.86	4565.56	-50.41	-48.73	405.26	0.00	372167.84	668400.28	N 32 1 21.02	W 103 55 24.02
	4700.00	10.00	96.86	4664.04	-52.56	-50.80	422.50	0.00	372165.76	668417.52	N 32 1 21.00	W 103 55 23.82
	4800.00	10.00	96.86	4762.52	-54.70	-52.87	439.74	0.00	372163.69	668434.76	N 32 1 20.98	W 103 55 23.62
	4900.00	10.00	96.86	4861.00	-56.85	-54.95	456.99	0.00	372161.62	668452.00	N 32 1 20.96	W 103 55 23.42
	Cherry Canyon	5000.00	10.00	96.86	4959.49	-58.99	-57.02	474.23	0.00	372159.54	668469.24	N 32 1 20.94
5100.00		10.00	96.86	5057.97	-61.13	-59.09	491.47	0.00	372157.47	668486.48	N 32 1 20.92	W 103 55 23.02
5200.00		10.00	96.86	5156.45	-63.28	-61.17	508.71	0.00	372155.40	668503.72	N 32 1 20.90	W 103 55 22.82
5300.00		10.00	96.86	5254.93	-65.42	-63.24	525.95	0.00	372153.33	668520.96	N 32 1 20.88	W 103 55 22.62
5400.00		10.00	96.86	5353.41	-67.57	-65.31	543.19	0.00	372151.25	668538.20	N 32 1 20.85	W 103 55 22.42
5500.00		10.00	96.86	5451.89	-69.71	-67.39	560.43	0.00	372149.18	668555.44	N 32 1 20.83	W 103 55 22.22
5522.45		10.00	96.86	5474.00	-70.19	-67.85	564.30	0.00	372148.71	668559.31	N 32 1 20.83	W 103 55 22.17
5600.00		10.00	96.86	5550.37	-71.86	-69.46	577.67	0.00	372147.11	668572.68	N 32 1 20.81	W 103 55 22.02
5700.00		10.00	96.86	5648.85	-74.00	-71.53	594.91	0.00	372145.03	668589.92	N 32 1 20.79	W 103 55 21.82
5800.00		10.00	96.86	5747.33	-76.15	-73.60	612.15	0.00	372142.96	668607.15	N 32 1 20.77	W 103 55 21.62
5900.00		10.00	96.86	5845.81	-78.29	-75.68	629.39	0.00	372140.89	668624.39	N 32 1 20.75	W 103 55 21.42
6000.00		10.00	96.86	5944.29	-80.44	-77.75	646.63	0.00	372138.82	668641.63	N 32 1 20.73	W 103 55 21.22
6100.00		10.00	96.86	6042.77	-82.58	-79.82	663.87	0.00	372136.74	668658.87	N 32 1 20.71	W 103 55 21.02
6200.00		10.00	96.86	6141.25	-84.73	-81.90	681.11	0.00	372134.67	668676.11	N 32 1 20.69	W 103 55 20.82
6300.00		10.00	96.86	6239.74	-86.87	-83.97	698.35	0.00	372132.60	668693.35	N 32 1 20.66	W 103 55 20.62
6400.00		10.00	96.86	6338.22	-89.01	-86.04	715.59	0.00	372130.52	668710.59	N 32 1 20.64	W 103 55 20.42
6500.00		10.00	96.86	6436.70	-91.16	-88.12	732.83	0.00	372128.45	668727.83	N 32 1 20.62	W 103 55 20.22
6600.00		10.00	96.86	6535.18	-93.30	-90.19	750.08	0.00	372126.38	668745.07	N 32 1 20.60	W 103 55 20.02

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 ° ' ")
	6700.00	10.00	96.86	6633.66	-95.45	-92.26	767.32	0.00	372124.31	668762.31	N 32 1 20.58	W 103 55 19.82
	6800.00	10.00	96.86	6732.14	-97.59	-94.33	784.56	0.00	372122.23	668779.55	N 32 1 20.56	W 103 55 19.62
	6900.00	10.00	96.86	6830.62	-99.74	-96.41	801.80	0.00	372120.16	668796.79	N 32 1 20.54	W 103 55 19.42
	7000.00	10.00	96.86	6929.10	-101.88	-98.48	819.04	0.00	372118.09	668814.03	N 32 1 20.52	W 103 55 19.22
Top Bone Spring	7098.39	10.00	96.86	7026.00	-103.99	-100.52	836.00	0.00	372116.05	668830.99	N 32 1 20.50	W 103 55 19.02
	7100.00	10.00	96.86	7027.58	-104.03	-100.55	836.28	0.00	372116.01	668831.27	N 32 1 20.50	W 103 55 19.02
Drop to Vertical 2°/100' DLS	7185.91	10.00	96.86	7112.18	-105.87	-102.33	851.09	0.00	372114.23	668846.08	N 32 1 20.48	W 103 55 18.84
	7200.00	9.72	96.86	7126.07	-106.17	-102.62	853.48	2.00	372113.95	668848.47	N 32 1 20.47	W 103 55 18.82
	7300.00	7.72	96.86	7224.91	-108.04	-104.43	868.53	2.00	372112.14	668863.52	N 32 1 20.46	W 103 55 18.64
	7400.00	5.72	96.86	7324.22	-109.48	-105.83	880.15	2.00	372110.74	668875.13	N 32 1 20.44	W 103 55 18.51
	7500.00	3.72	96.86	7423.87	-110.50	-106.81	888.31	2.00	372109.76	668883.30	N 32 1 20.43	W 103 55 18.41
	7600.00	1.72	96.86	7523.75	-111.08	-107.38	893.02	2.00	372109.19	668888.00	N 32 1 20.43	W 103 55 18.36
Hold Vertical	7685.90	0.00	96.86	7609.65	-111.24	-107.53	894.30	2.00	372109.04	668889.28	N 32 1 20.42	W 103 55 18.34
	7700.00	0.00	96.86	7623.74	-111.24	-107.53	894.30	0.00	372109.04	668889.28	N 32 1 20.42	W 103 55 18.34
	7800.00	0.00	96.86	7723.74	-111.24	-107.53	894.30	0.00	372109.04	668889.28	N 32 1 20.42	W 103 55 18.34
	7900.00	0.00	96.86	7823.74	-111.24	-107.53	894.30	0.00	372109.04	668889.28	N 32 1 20.42	W 103 55 18.34
	8000.00	0.00	96.86	7923.74	-111.24	-107.53	894.30	0.00	372109.04	668889.28	N 32 1 20.42	W 103 55 18.34
Top 1st BSPG SS	8008.26	0.00	96.86	7932.00	-111.24	-107.53	894.30	0.00	372109.04	668889.28	N 32 1 20.42	W 103 55 18.34
	8100.00	0.00	96.86	8023.74	-111.24	-107.53	894.30	0.00	372109.04	668889.28	N 32 1 20.42	W 103 55 18.34
	8200.00	0.00	96.86	8123.74	-111.24	-107.53	894.30	0.00	372109.04	668889.28	N 32 1 20.42	W 103 55 18.34
	8300.00	0.00	96.86	8223.74	-111.24	-107.53	894.30	0.00	372109.04	668889.28	N 32 1 20.42	W 103 55 18.34
	8400.00	0.00	96.86	8323.74	-111.24	-107.53	894.30	0.00	372109.04	668889.28	N 32 1 20.42	W 103 55 18.34
Top 2nd BSPG Carb	8452.26	0.00	96.86	8376.00	-111.24	-107.53	894.30	0.00	372109.04	668889.28	N 32 1 20.42	W 103 55 18.34
	8500.00	0.00	96.86	8423.74	-111.24	-107.53	894.30	0.00	372109.04	668889.28	N 32 1 20.42	W 103 55 18.34
	8600.00	0.00	96.86	8523.74	-111.24	-107.53	894.30	0.00	372109.04	668889.28	N 32 1 20.42	W 103 55 18.34
Top 2nd BSPG SS	8681.26	0.00	96.86	8605.00	-111.24	-107.53	894.30	0.00	372109.04	668889.28	N 32 1 20.42	W 103 55 18.34
	8700.00	0.00	96.86	8623.74	-111.24	-107.53	894.30	0.00	372109.04	668889.28	N 32 1 20.42	W 103 55 18.34
	8800.00	0.00	96.86	8723.74	-111.24	-107.53	894.30	0.00	372109.04	668889.28	N 32 1 20.42	W 103 55 18.34
	8900.00	0.00	96.86	8823.74	-111.24	-107.53	894.30	0.00	372109.04	668889.28	N 32 1 20.42	W 103 55 18.34
	9000.00	0.00	96.86	8923.74	-111.24	-107.53	894.30	0.00	372109.04	668889.28	N 32 1 20.42	W 103 55 18.34
	9100.00	0.00	96.86	9023.74	-111.24	-107.53	894.30	0.00	372109.04	668889.28	N 32 1 20.42	W 103 55 18.34
Top 3rd BSPG Carb	9192.26	0.00	96.86	9116.00	-111.24	-107.53	894.30	0.00	372109.04	668889.28	N 32 1 20.42	W 103 55 18.34
	9200.00	0.00	96.86	9123.74	-111.24	-107.53	894.30	0.00	372109.04	668889.28	N 32 1 20.42	W 103 55 18.34
	9300.00	0.00	96.86	9223.74	-111.24	-107.53	894.30	0.00	372109.04	668889.28	N 32 1 20.42	W 103 55 18.34
	9400.00	0.00	96.86	9323.74	-111.24	-107.53	894.30	0.00	372109.04	668889.28	N 32 1 20.42	W 103 55 18.34
Top Harkey SS	9467.26	0.00	96.86	9391.00	-111.24	-107.53	894.30	0.00	372109.04	668889.28	N 32 1 20.42	W 103 55 18.34
	9500.00	0.00	96.86	9423.74	-111.24	-107.53	894.30	0.00	372109.04	668889.28	N 32 1 20.42	W 103 55 18.34
	9600.00	0.00	96.86	9523.74	-111.24	-107.53	894.30	0.00	372109.04	668889.28	N 32 1 20.42	W 103 55 18.34
	9700.00	0.00	96.86	9623.74	-111.24	-107.53	894.30	0.00	372109.04	668889.28	N 32 1 20.42	W 103 55 18.34
	9800.00	0.00	96.86	9723.74	-111.24	-107.53	894.30	0.00	372109.04	668889.28	N 32 1 20.42	W 103 55 18.34
	9900.00	0.00	96.86	9823.74	-111.24	-107.53	894.30	0.00	372109.04	668889.28	N 32 1 20.42	W 103 55 18.34
Top 3rd BSPG SS	9932.26	0.00	96.86	9856.00	-111.24	-107.53	894.30	0.00	372109.04	668889.28	N 32 1 20.42	W 103 55 18.34
	10000.00	0.00	96.86	9923.74	-111.24	-107.53	894.30	0.00	372109.04	668889.28	N 32 1 20.42	W 103 55 18.34
	10100.00	0.00	96.86	10023.74	-111.24	-107.53	894.30	0.00	372109.04	668889.28	N 32 1 20.42	W 103 55 18.34
	10200.00	0.00	96.86	10123.74	-111.24	-107.53	894.30	0.00	372109.04	668889.28	N 32 1 20.42	W 103 55 18.34
Top Wolfcamp KOP - Build 12°/100' DLS	10278.26	0.00	96.86	10202.00	-111.24	-107.53	894.30	0.00	372109.04	668889.28	N 32 1 20.42	W 103 55 18.34
	10289.25	0.00	96.86	10213.00	-111.24	-107.53	894.30	0.00	372109.04	668889.28	N 32 1 20.42	W 103 55 18.34
	10300.00	1.29	359.76	10223.74	-111.12	-107.41	894.30	12.00	372109.16	668889.28	N 32 1 20.43	W 103 55 18.34
	10400.00	13.29	359.76	10322.75	-98.46	-94.74	894.25	12.00	372121.82	668889.23	N 32 1 20.55	W 103 55 18.34
Wolfcamp A1 Shale	10419.88	15.68	359.76	10342.00	-93.49	-89.77	894.23	12.00	372126.79	668889.21	N 32 1 20.60	W 103 55 18.34
	10500.00	25.29	359.76	10416.97	-65.48	-61.77	894.11	12.00	372154.79	668889.09	N 32 1 20.88	W 103 55 18.34
	10600.00	37.29	359.76	10502.26	-13.64	-9.93	893.89	12.00	372206.63	668888.88	N 32 1 21.39	W 103 55 18.34
	10700.00	49.29	359.76	10574.92	54.80	58.51	893.61	12.00	372275.07	668888.59	N 32 1 22.07	W 103 55 18.34
Wolfcamp 'A1' Target	10772.76	58.02	359.76	10618.00	113.35	117.06	893.37	12.00	372333.61	668888.35	N 32 1 22.65	W 103 55 18.34
	10800.00	61.29	359.76	10631.76	136.85	140.57	893.27	12.00	372357.11	668888.25	N 32 1 22.88	W 103 55 18.34
	10900.00	73.29	359.76	10670.30	228.93	232.64	892.89	12.00	372449.19	668887.87	N 32 1 23.79	W 103 55 18.34
Build 4°/100' DLS	10914.25	75.00	359.76	10674.19	242.64	246.35	892.83	12.00	372462.90	668887.81	N 32 1 23.93	W 103 55 18.34
	11000.00	78.43	359.76	10693.89	326.08	329.79	892.48	4.00	372546.33	668887.47	N 32 1 24.75	W 103 55 18.34
	11100.00	82.43	359.76	10710.52	424.67	428.38	892.07	4.00	372644.91	668887.06	N 32 1 25.73	W 103 55 18.34
	11200.00	86.43	359.76	10720.22	524.18	527.89	891.66	4.00	372744.41	668886.65	N 32 1 26.71	W 103 55 18.35
Landing Point	11289.25	90.00	359.76	10723.00	613.37	617.08	891.29	4.00	372833.60	668886.27	N 32 1 27.59	W 103 55 18.35
	11300.00	90.00	359.76	10723.00	624.12	627.83	891.25	0.00	372844.34	668886.23	N 32 1 27.70	W 103 55 18.35
	11400.00	90.00	359.76	10723.00	724.12	727.83	890.83	0.00	372944.33	668885.82	N 32 1 28.69	W 103 55 18.35
	11500.00	90.00	359.76	10723.00	824.12	827.83	890.42	0.00	373044.32	668885.40	N 32 1 29.68	W 103 55 18.35
	11600.00	90.00	359.76	10723.00	924.12	927.82	890.00	0.00	373144.32	668884.98	N 32 1 30.67	W 103 55 18.35
	11700.00	90.00	359.76	10723.00	1024.12	1027.82	889.59	0.00	373244.31	668884.57	N 32 1 31.66	W 103 55 18.35
	11800.00	90.00	359.76	10723.00	1124.12	1127.82	889.17	0.00	373344.30	668884.15	N 32 1 32.65	W 103 55 18.35
	11900.00	90.00	359.76	10723.00	1224.12	1227.82	888.76	0.00	373444.29	668883.74	N 32 1 33.64	W 103 55 18.35
	12000.00	90.00	359.76	10723.00	1324.12	1327.82	888.34	0.00	373544.28	668883.32	N 32 1 34.63	W 103 55 18.35
	12100.00	90.00	359.76	10723.00	1424.12	1427.82	887.93	0.00	373644.27	668882.91	N 32 1 35.62	W 103 55 18.35
	12200.00	90.00	359.76	10723.00	1524.12	1527.82	887.51	0.00	373744.27	668882.49	N 32 1 36.61	W 103 55 18.35
	12300.00	90.00	359.76	10723.00	1624.12	1627.82	887.09	0.00	373844.26	668882.08	N 32 1 37.60	W 103 55 18.35
	12400.00	90.00	359.76	10723.00	1724.12	1727.82	886.68	0.00	373944.25	668881.66	N 32 1 38.59	W 103 55 18.35
	12500.00	90.00	359.76	10723.00	1824.12	1827.82	886.26	0.00	374044.24	668881.25	N 32 1 39.58	W 103 55 18.35
	12600.00	90.00	359.76	10723.00	1924.12	1927.82	885.85	0.00	374144.23	668880.83	N 32 1 40.56	W 103 55 18.35
	12700.00	90.00	359.76	10723.00	2024.12	2027.82	885.43</					

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 ° ' ")
	15000.00	90.00	359.76	10723.00	4324.12	4327.80	875.88	0.00	376544.03	668870.87	N 32 2 4.31	W 103 55 18.36
	15100.00	90.00	359.76	10723.00	4424.12	4427.79	875.47	0.00	376644.02	668870.45	N 32 2 5.30	W 103 55 18.36
	15200.00	90.00	359.76	10723.00	4524.12	4527.79	875.05	0.00	376744.02	668870.04	N 32 2 6.29	W 103 55 18.36
	15300.00	90.00	359.76	10723.00	4624.12	4627.79	874.64	0.00	376844.01	668869.62	N 32 2 7.28	W 103 55 18.36
	15400.00	90.00	359.76	10723.00	4724.12	4727.79	874.22	0.00	376944.00	668869.21	N 32 2 8.27	W 103 55 18.36
	15500.00	90.00	359.76	10723.00	4824.12	4827.79	873.81	0.00	377043.99	668868.79	N 32 2 9.26	W 103 55 18.36
	15600.00	90.00	359.76	10723.00	4924.12	4927.79	873.39	0.00	377143.98	668868.38	N 32 2 10.25	W 103 55 18.36
	15700.00	90.00	359.76	10723.00	5024.12	5027.79	872.98	0.00	377243.97	668867.96	N 32 2 11.24	W 103 55 18.36
	15800.00	90.00	359.76	10723.00	5124.12	5127.79	872.56	0.00	377343.97	668867.55	N 32 2 12.23	W 103 55 18.36
	15900.00	90.00	359.76	10723.00	5224.12	5227.79	872.15	0.00	377443.96	668867.13	N 32 2 13.22	W 103 55 18.36
	16000.00	90.00	359.76	10723.00	5324.12	5327.79	871.73	0.00	377543.95	668866.72	N 32 2 14.21	W 103 55 18.36
	16100.00	90.00	359.76	10723.00	5424.12	5427.79	871.32	0.00	377643.94	668866.30	N 32 2 15.20	W 103 55 18.36
	16200.00	90.00	359.76	10723.00	5524.12	5527.79	870.90	0.00	377743.93	668865.89	N 32 2 16.19	W 103 55 18.37
	16300.00	90.00	359.76	10723.00	5624.12	5627.78	870.49	0.00	377843.93	668865.47	N 32 2 17.18	W 103 55 18.37
	16400.00	90.00	359.76	10723.00	5724.12	5727.78	870.07	0.00	377943.92	668865.06	N 32 2 18.17	W 103 55 18.37
	16500.00	90.00	359.76	10723.00	5824.12	5827.78	869.66	0.00	378043.91	668864.64	N 32 2 19.16	W 103 55 18.37
	16600.00	90.00	359.76	10723.00	5924.12	5927.78	869.24	0.00	378143.90	668864.23	N 32 2 20.15	W 103 55 18.37
	16700.00	90.00	359.76	10723.00	6024.12	6027.78	868.83	0.00	378243.89	668863.81	N 32 2 21.14	W 103 55 18.37
	16800.00	90.00	359.76	10723.00	6124.12	6127.78	868.41	0.00	378343.88	668863.40	N 32 2 22.13	W 103 55 18.37
	16900.00	90.00	359.76	10723.00	6224.12	6227.78	868.00	0.00	378443.88	668862.98	N 32 2 23.12	W 103 55 18.37
	17000.00	90.00	359.76	10723.00	6324.12	6327.78	867.58	0.00	378543.87	668862.57	N 32 2 24.10	W 103 55 18.37
	17100.00	90.00	359.76	10723.00	6424.12	6427.78	867.17	0.00	378643.86	668862.15	N 32 2 25.09	W 103 55 18.37
	17200.00	90.00	359.76	10723.00	6524.12	6527.78	866.75	0.00	378743.85	668861.74	N 32 2 26.08	W 103 55 18.37
	17300.00	90.00	359.76	10723.00	6624.12	6627.78	866.33	0.00	378843.84	668861.32	N 32 2 27.07	W 103 55 18.37
	17400.00	90.00	359.76	10723.00	6724.12	6727.77	865.92	0.00	378943.83	668860.91	N 32 2 28.06	W 103 55 18.37
	17500.00	90.00	359.76	10723.00	6824.12	6827.77	865.50	0.00	379043.83	668860.49	N 32 2 29.05	W 103 55 18.37
	17600.00	90.00	359.76	10723.00	6924.12	6927.77	865.09	0.00	379143.82	668860.07	N 32 2 30.04	W 103 55 18.37
	17700.00	90.00	359.76	10723.00	7024.12	7027.77	864.67	0.00	379243.81	668859.66	N 32 2 31.03	W 103 55 18.37
	17800.00	90.00	359.76	10723.00	7124.12	7127.77	864.26	0.00	379343.80	668859.24	N 32 2 32.02	W 103 55 18.37
	17900.00	90.00	359.76	10723.00	7224.12	7227.77	863.84	0.00	379443.79	668858.83	N 32 2 33.01	W 103 55 18.37
	18000.00	90.00	359.76	10723.00	7324.12	7327.77	863.43	0.00	379543.78	668858.41	N 32 2 34.00	W 103 55 18.37
	18100.00	90.00	359.76	10723.00	7424.12	7427.77	863.01	0.00	379643.78	668858.00	N 32 2 34.99	W 103 55 18.37
	18200.00	90.00	359.76	10723.00	7524.12	7527.77	862.60	0.00	379743.77	668857.58	N 32 2 35.98	W 103 55 18.37
	18300.00	90.00	359.76	10723.00	7624.12	7627.77	862.18	0.00	379843.76	668857.17	N 32 2 36.97	W 103 55 18.37
	18400.00	90.00	359.76	10723.00	7724.12	7727.77	861.77	0.00	379943.75	668856.75	N 32 2 37.96	W 103 55 18.37
	18500.00	90.00	359.76	10723.00	7824.12	7827.77	861.35	0.00	380043.74	668856.34	N 32 2 38.95	W 103 55 18.37
	18600.00	90.00	359.76	10723.00	7924.12	7927.76	860.94	0.00	380143.73	668855.92	N 32 2 39.94	W 103 55 18.37
	18700.00	90.00	359.76	10723.00	8024.12	8027.76	860.52	0.00	380243.73	668855.51	N 32 2 40.93	W 103 55 18.38
	18800.00	90.00	359.76	10723.00	8124.12	8127.76	860.11	0.00	380343.72	668855.09	N 32 2 41.92	W 103 55 18.38
	18900.00	90.00	359.76	10723.00	8224.12	8227.76	859.69	0.00	380443.71	668854.68	N 32 2 42.91	W 103 55 18.38
	19000.00	90.00	359.76	10723.00	8324.12	8327.76	859.28	0.00	380543.70	668854.26	N 32 2 43.90	W 103 55 18.38
	19100.00	90.00	359.76	10723.00	8424.12	8427.76	858.86	0.00	380643.69	668853.85	N 32 2 44.89	W 103 55 18.38
	19200.00	90.00	359.76	10723.00	8524.12	8527.76	858.45	0.00	380743.68	668853.43	N 32 2 45.87	W 103 55 18.38
	19300.00	90.00	359.76	10723.00	8624.12	8627.76	858.03	0.00	380843.68	668853.02	N 32 2 46.86	W 103 55 18.38
	19400.00	90.00	359.76	10723.00	8724.12	8727.76	857.62	0.00	380943.67	668852.60	N 32 2 47.85	W 103 55 18.38
	19500.00	90.00	359.76	10723.00	8824.12	8827.76	857.20	0.00	381043.66	668852.19	N 32 2 48.84	W 103 55 18.38
	19600.00	90.00	359.76	10723.00	8924.12	8927.76	856.79	0.00	381143.65	668851.77	N 32 2 49.83	W 103 55 18.38
	19700.00	90.00	359.76	10723.00	9024.12	9027.76	856.37	0.00	381243.64	668851.36	N 32 2 50.82	W 103 55 18.38
	19800.00	90.00	359.76	10723.00	9124.12	9127.75	855.96	0.00	381343.63	668850.94	N 32 2 51.81	W 103 55 18.38
	19900.00	90.00	359.76	10723.00	9224.12	9227.75	855.54	0.00	381443.63	668850.53	N 32 2 52.80	W 103 55 18.38
	20000.00	90.00	359.76	10723.00	9324.12	9327.75	855.12	0.00	381543.62	668850.11	N 32 2 53.79	W 103 55 18.38
	20100.00	90.00	359.76	10723.00	9424.12	9427.75	854.71	0.00	381643.61	668849.70	N 32 2 54.78	W 103 55 18.38
	20200.00	90.00	359.76	10723.00	9524.12	9527.75	854.29	0.00	381743.60	668849.28	N 32 2 55.77	W 103 55 18.38
	20300.00	90.00	359.76	10723.00	9624.12	9627.75	853.88	0.00	381843.59	668848.87	N 32 2 56.76	W 103 55 18.38
	20400.00	90.00	359.76	10723.00	9724.12	9727.75	853.46	0.00	381943.58	668848.45	N 32 2 57.75	W 103 55 18.38
	20500.00	90.00	359.76	10723.00	9824.12	9827.75	853.05	0.00	382043.58	668848.04	N 32 2 58.74	W 103 55 18.38
	20600.00	90.00	359.76	10723.00	9924.12	9927.75	852.63	0.00	382143.57	668847.62	N 32 2 59.73	W 103 55 18.38
	20700.00	90.00	359.76	10723.00	10024.12	10027.75	852.22	0.00	382243.56	668847.20	N 32 3 0.72	W 103 55 18.38
	20800.00	90.00	359.76	10723.00	10124.12	10127.75	851.80	0.00	382343.55	668846.79	N 32 3 1.71	W 103 55 18.38
	20900.00	90.00	359.76	10723.00	10224.12	10227.74	851.39	0.00	382443.54	668846.37	N 32 3 2.70	W 103 55 18.38
	21000.00	90.00	359.76	10723.00	10324.12	10327.74	850.97	0.00	382543.53	668845.96	N 32 3 3.69	W 103 55 18.38
	21100.00	90.00	359.76	10723.00	10424.12	10427.74	850.56	0.00	382643.53	668845.54	N 32 3 4.68	W 103 55 18.38
	21200.00	90.00	359.76	10723.00	10524.12	10527.74	850.14	0.00	382743.52	668845.13	N 32 3 5.67	W 103 55 18.38
	21300.00	90.00	359.76	10723.00	10624.12	10627.74	849.73	0.00	382843.51	668844.71	N 32 3 6.66	W 103 55 18.39
	21400.00	90.00	359.76	10723.00	10724.12	10727.74	849.31	0.00	382943.50	668844.30	N 32 3 7.64	W 103 55 18.39
	21500.00	90.00	359.76	10723.00	10824.12	10827.74	848.90	0.00	383043.49	668843.88	N 32 3 8.63	W 103 55 18.39
	21600.00	90.00	359.76	10723.00	10924.12	10927.74	848.48	0.00	383143.48	668843.47	N 32 3 9.62	W 103 55 18.39
	21700.00	90.00	359.76	10723.00	11024.12	11027.74	848.07	0.00	383243.48	668843.05	N 32 3 10.61	W 103 55 18.39
	21800.00	90.00	359.76	10723.00	11124.12	11127.74	847.65	0.00	383343.47	668842.64	N 32 3 11.60	W 103 55 18.39
	21900.00	90.00	359.76	10723.00	11224.12	11227.74	847.24	0.00	383443.46	668842.22	N 32 3 12.59	W 103 55 18.39
	22000.00	90.00	359.76	10723.00	11324.12	11327.74	846.82	0.00	383543.45	668841.81	N 32 3 13.58	W 103 55 18.39
	22100.00	90.00	359.76	10723.00	11424.12	11427.73	846.41	0.00	383643.44	668841.39	N 32 3 14.57	W 103 55 18.39
	22200.00	90.00	359.76	10723.00	11524.12	11527.73	845.99	0.00	383743.43	668840.98	N 32 3 15.56	W 103 55 18.39
	22300.00	90.00	359.76	10723.00	11624.12	11627.73	845.58	0.00	383843.43	668840.56	N 32 3 16.55	W 103 55 18.39
	22400.00	90.00	359.									



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



Report Date: November 17, 2020 - 02:39 PM
Client: Cimarex Energy
Field: NM Eddy County (NAD 83)
Structure / Slot: Cimarex Tar Heel 19-18 Federal Com #19H / New Slot
Well: Tar Heel 19-18 Federal Com #19H
Borehole: Tar Heel 19-18 Federal Com #19H
UWI / API#: Unknown / Unknown
Survey Name: Cimarex Tar Heel 19-18 Federal Com #19H Rev2 RM 17Nov20
Survey Date: January 24, 2019
Tort / AHD / DDI / ERD Ratio: 110.000 ° / 13445.937 ft / 6.503 / 1.254
Coordinate Reference System: NAD83 New Mexico State Plane, Eastern Zone, US Feet
Location Lat / Long: N 32° 1' 21.52157", W 103° 55' 28.72529"
Location Grid N/E Y/X: N 372216.560 ftUS, E 667995.050 ftUS
CRS Grid Convergence Angle: 0.2167 °
Grid Scale Factor: 0.99992746
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: 3047.400 ft above MSL
Seabed / Ground Elevation: 3021.400 ft above MSL
Magnetic Declination: 6.583 °
Total Gravity Field Strength: 998.4403mgn (9.80665 Based)
Gravity Model: GARM
Total Magnetic Field Strength: 47622.815 nT
Magnetic Dip Angle: 59.598 °
Declination Date: November 17, 2020
Magnetic Declination Model: HDGM 2020
North Reference: Grid North
Grid Convergence Used: 0.2167 °
Total Corr Mag North->Grid North: 6.3668 °
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 [760' FSL, 1416' FWL]	0.00	0.00	4.81	0.00	0.00	0.00	0.00	N/A	372216.56	667995.05	N 32 1 21.52	W 103 55 28.73
Nudge 2"/100'	2000.00	0.00	96.86	2000.00	0.00	0.00	0.00	0.00	372216.56	667995.05	N 32 1 21.52	W 103 55 28.73
DLS	2500.00	10.00	96.86	2497.46	-5.38	-5.20	43.21	2.00	372211.36	668038.26	N 32 1 21.47	W 103 55 28.22
Hold Nudae	7185.91	10.00	96.86	7112.18	-105.87	-102.33	851.09	0.00	372114.23	668846.08	N 32 1 20.48	W 103 55 18.84
Drop to Vertical	7685.90	0.00	96.86	7609.65	-111.24	-107.53	894.30	2.00	372109.04	668889.28	N 32 1 20.42	W 103 55 18.34
2"/100' DLS	10289.25	0.00	96.86	10213.00	-111.24	-107.53	894.30	0.00	372109.04	668889.28	N 32 1 20.42	W 103 55 18.34
Hold Vertical	10914.25	75.00	359.76	10674.19	242.64	246.35	892.83	12.00	372462.90	668887.81	N 32 1 23.93	W 103 55 18.34
KOP - Build	11289.25	90.00	359.76	10723.00	613.37	617.08	891.29	4.00	372833.60	668886.27	N 32 1 27.59	W 103 55 18.35
12"/100' DLS												
Build 4"/100'												
DLS												
Landing Point												
Cimarex Tar												
Heel 19-18												
Federal Com	23109.83	90.00	359.76	10723.00	12433.95	12437.56	842.21	0.00	384653.19	668837.20	N 32 3 24.56	W 103 55 18.39
#19H - PBHL												
[2561' FSL, 2310' FWL]												

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 #19H / Cimarex Tar Heel 19-18 Federal Com #19H Rev2 RM 17Nov20
	1	26.000	23109.831	1/100.000	17.500	13.375		NAL_MWD_IFR1+MS	Tar Heel 19-18 Federal Com #19H / Cimarex Tar Heel 19-18 Federal



Cimarex Tar Heel 19-18 Federal Com #19H Rev2 RM 17Nov20 Anti-Collision Summary Report

Analysis Date-24hr Time: November 17, 2020 - 14:40

Client: Cimarex Energy

Field: NM Eddy County (NAD 83)

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

Slot: New Slot

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

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

Scan MD Range: 0.00ft ~ 23109.83ft

Analysis Method: 3D Least Distance

Reference Trajectory: Cimarex Tar Heel 19-18 Federal Com #19H Rev2 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 #20H Rev2 RM 17Nov20 (Def Plan)

Warning Alert

19.99	16.25	18.71	3.74	N/A	MAS = 4.95 (m)	0.00	0.00	CtCt<=15m<15.00				Enter Alert	
19.99	16.25	18.70	3.74	6476.17	MAS = 4.95 (m)	26.00	26.00					WRP	
19.99	16.25	9.73	3.74	2.08	MAS = 4.95 (m)	1490.00	1490.00					MinPts	
20.01	16.25	9.65	3.76	2.06	MAS = 4.95 (m)	1510.00	1510.00					MINPT-O-EQU	
20.16	16.25	9.70	3.91	2.06	MAS = 4.95 (m)	1530.00	1530.00					MinPt-O-SF	
53.55	17.35	41.56	36.20	4.88	OSF1.50	1940.00	1940.00	OSF>5.00				Exit Alert	
85.27	26.56	67.13	58.71	4.98	OSF1.50	3680.00	3659.54	OSF<5.00				Enter Alert	
82.72	33.42	60.01	49.30	3.80	OSF1.50	4440.00	4407.99					MinPt-CtCt	
85.27	40.77	57.55	44.50	3.19	OSF1.50	5190.00	5146.60					MINPT-O-EQU	
88.96	45.18	58.41	43.78	3.00	OSF1.50	5630.00	5579.91					MinPt-O-ADP	
110.12	59.87	69.78	50.25	2.78	OSF1.50	7090.00	7017.73					MinPt-O-SF	
115.06	62.58	72.91	52.48	2.78	OSF1.50	9190.00	9113.74					MINPT-O-EQU	
115.14	62.67	72.93	52.47	2.78	OSF1.50	9200.00	9123.74					MinPts	
191.03	59.50	150.93	131.53	4.89	OSF1.50	9500.00	9423.74	OSF>5.00				Exit Alert	
1131.30	340.30	904.00	791.00	5.00	OSF1.50	21520.00	10723.00	OSF<5.00				Enter Alert	
1131.30	389.10	871.47	742.20	4.37	OSF1.50	23109.83	10723.00					MinPts	

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

Warning Alert

20.01	16.26	18.72	3.75	N/A	MAS = 4.96 (m)	0.00	0.00	CtCt<=15m<15.00				Enter Alert	
20.00	16.26	18.72	3.74	N/A	MAS = 4.96 (m)	26.00	26.00					WRP	
20.00	19.54	6.54	0.46	1.54	OSF1.50	2000.00	2000.00					MinPt-CtCt	
20.02	19.61	6.52	0.41	1.53	OSF1.50	2010.00	2010.00					MINPT-O-EQU	
20.07	19.68	6.52	0.39	1.53	OSF1.50	2020.00	2020.00					MinPts	
56.52	21.50	41.78	35.02	4.10	OSF1.50	2500.00	2497.47					MinPts	
69.20	21.67	54.33	47.54	5.00	OSF1.50	2640.00	2635.34	OSF>5.00				Exit Alert	
66.90	66.78	624.46	602.64	15.31	OSF1.50	10040.00	9963.74					MINPT-O-EQU	
66.94	66.82	624.47	602.63	15.29	OSF1.50	10050.00	9973.74					MinPt-O-ADP	
671.92	67.33	626.60	604.59	15.23	OSF1.50	10160.00	10083.74					MinPt-O-SF	
709.14	68.95	662.75	640.19	15.69	OSF1.50	11410.00	10723.00					MinPt-CtCt	
709.14	213.79	566.19	495.35	5.00	OSF1.50	16950.00	10723.00	OSF<5.00				Enter Alert	
709.14	407.28	437.21	301.88	2.62	OSF1.50	23109.83	10723.00					MinPts	

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

Warning Alert

1031.58	32.81	1030.30	998.77	N/A	MAS = 10.00 (m)	0.00	0.00					Surface	
1031.57	32.81	1030.29	998.76	N/A	MAS = 10.00 (m)	26.00	26.00					WRP	
1031.57	32.81	1018.13	998.76	84.74	MAS = 10.00 (m)	2000.00	2000.00					MinPts	
1030.44	32.81	1016.68	997.63	82.58	MAS = 10.00 (m)	2120.00	2119.96					MinPt-O-SF	
1024.00	32.81	1010.17	991.20	81.48	MAS = 10.00 (m)	2360.00	2359.05					MinPts	
1024.01	32.81	1010.16	991.20	81.42	MAS = 10.00 (m)	2370.00	2368.97					MINPT-O-EQU	
1027.10	32.81	1013.09	994.29	80.61	MAS = 10.00 (m)	2500.00	2497.47					MINPT-O-EQU	
1225.22	52.65	1189.70	1172.57	35.74	OSF1.50	6710.00	6643.51					MinPt-O-SF	
1319.84	396.90	1054.81	922.94	5.00	OSF1.50	22320.00	10723.00	OSF<5.00				Enter Alert	
1319.84	421.85	1038.17	897.98	4.70	OSF1.50	23100.00	10723.00					MinPt-CtCt	
1319.84	422.01	1038.08	897.84	4.70	OSF1.50	23109.83	10723.00					MinPts	

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

Warning Alert

4999.62	32.81	4990.62	4966.81	648.23	MAS = 10.00 (m)	0.00	0.00					Surface	
4999.62	32.81	4987.90	4966.81	479.01	MAS = 10.00 (m)	26.00	26.00					WRP	
4785.89	1437.02	3827.39	3348.87	5.00	OSF1.50	4620.00	4585.26	OSF<5.00				Enter Alert	
4569.10	2326.18	3017.73	2242.92	2.95	OSF1.50	7540.00	7463.80					MinPt-O-SF	
4569.03	2326.12	3017.69	2242.90	2.95	OSF1.50	7550.00	7473.79					MinPts	
4568.98	2325.96	3017.75	2243.02	2.95	OSF1.50	7570.00	7493.77					MinPt-CtCt	
4675.22	1643.92	3578.84	3031.30	4.27	OSF1.50	12160.00	10723.00					MinPt-O-SF	
4057.45	1350.03	3157.00	2707.42	4.51	OSF1.50	14480.00	10723.00					MinPt-CtCt	
4057.46	1350.06	3157.00	2707.41	4.51	OSF1.50	14490.00	10723.00					MINPT-O-EQU	
4057.49	1350.09	3157.00	2707.40	4.51	OSF1.50	14500.00	10723.00					MinPt-O-ADP	
4677.54	1649.59	3577.39	3027.95	4.28	OSF1.50	16810.00	10723.00					MinPt-O-SF	
6776.34	2034.43	5419.63	4741.91	5.00	OSF1.50	19910.00	10723.00	OSF>5.00				Exit Alert	
9533.67	2185.25	8076.41	7348.42	6.55	OSF1.50	23109.83	10723.00					TD	

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

Pass

1051.12	32.81	1049.83	1018.31	N/A	MAS = 10.00 (m)	0.00	0.00					Surface	
1051.11	32.81	1049.83	1018.30	N/A	MAS = 10.00 (m)	26.00	26.00					WRP	
1051.11	32.81	1037.67	1018.30	86.33	MAS = 10.00 (m)	2000.00	2000.00					MinPts	

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		
1051.13	32.81	1037.65	1018.32	86.14		MAS = 10.00 (m)	2010.00	2010.00				MINPT-O-EQU	
1053.57	32.81	1039.96	1020.76	85.39		MAS = 10.00 (m)	2100.00	2099.98				MinPt-O-SF	
1112.25	32.81	1099.43	1079.45	96.32		MAS = 10.00 (m)	2500.00	2497.47				MinPts	
1953.55	51.26	1918.95	1902.29	58.60		OSF1.50	7200.00	7126.07				MinPt-O-SF	
1979.73	70.76	1932.12	1908.97	42.72		OSF1.50	10460.00	10380.13				MinPt-CtCt	
1979.75	70.85	1932.08	1908.90	42.66		OSF1.50	10480.00	10398.71				MINPT-O-EQU	
1979.80	70.90	1932.10	1908.89	42.63		OSF1.50	10490.00	10407.88				MinPt-O-ADP	
1996.26	422.48	1714.18	1573.78	7.10		OSF1.50	23109.83	10723.00				MinPts	

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

Pass

1070.69	32.81	1069.40	1037.88	N/A		MAS = 10.00 (m)	0.00	0.00				Surface	
1070.68	32.81	1069.39	1037.87	N/A		MAS = 10.00 (m)	26.00	26.00				WRP	
1070.68	32.81	1057.24	1037.87	87.96		MAS = 10.00 (m)	2000.00	2000.00				MinPts	
1070.70	32.81	1057.21	1037.89	87.64		MAS = 10.00 (m)	2010.00	2010.00				MINPT-O-EQU	
1111.87	32.81	1096.61	1079.07	79.46		MAS = 10.00 (m)	2500.00	2497.47				MINPT-O-EQU	
1903.62	62.61	1861.45	1841.01	46.53		OSF1.50	7200.00	7126.07				MinPt-O-SF	
1944.05	74.21	1894.12	1869.80	39.94		OSF1.50	9210.00	9133.74				MINPT-O-EQU	
1944.09	74.30	1894.12	1869.79	39.91		OSF1.50	9220.00	9143.74				MinPt-O-ADP	
1954.77	75.58	1903.95	1879.19	39.44		OSF1.50	9540.00	9463.74				MinPt-O-SF	
1970.29	75.98	1919.20	1894.30	39.54		OSF1.50	9710.00	9633.74				MinPt-O-SF	
2277.13	410.64	2002.94	1866.49	8.34		OSF1.50	23109.83	10723.00				MinPts	

XTO Ross Draw 31 Federal
Wal Com #6H (Offset) API 30-
015-45121 Gas Off-22980ft (Def
Survey)

Pass

8753.09	32.81	8751.80	8720.28	N/A		MAS = 10.00 (m)	0.00	0.00				Surface	
8753.07	32.81	8751.78	8720.26	N/A		MAS = 10.00 (m)	10.00	10.00				MinPt-O-SF	
8753.06	32.81	8751.77	8720.25	N/A		MAS = 10.00 (m)	20.00	20.00				MinPts	
8753.06	32.81	8751.77	8720.25	N/A		MAS = 10.00 (m)	26.00	26.00				WRP	
8711.88	32.81	8701.78	8679.08	971.67		MAS = 10.00 (m)	2100.00	2099.98				MinPt-O-SF	
6664.44	234.48	6507.79	6429.96	42.81		OSF1.50	4560.00	4526.17				MinPt-O-SF	
2249.97	440.10	1955.64	1809.87	7.71		OSF1.50	11130.00	10714.16				MinPt-CtCt	
2250.95	446.38	1952.37	1804.61	7.61		OSF1.50	11310.00	10723.00				MINPT-O-EQU	
2251.58	447.07	1952.49	1804.51	7.60		OSF1.50	11340.00	10723.00				MinPt-O-ADP	
2255.31	450.51	1953.87	1804.81	7.55		OSF1.50	11450.00	10723.00				MinPt-O-ADP	
2266.00	472.56	1949.88	1793.42	7.23		OSF1.50	11850.00	10723.00				MINPT-O-EQU	
2279.15	521.17	1930.76	1757.98	6.59		OSF1.50	12710.00	10723.00				MinPt-CtCt	
2259.51	559.81	1885.35	1699.70	6.08		OSF1.50	13440.00	10723.00				MinPt-CtCt	
2259.88	560.88	1884.96	1699.00	6.07		OSF1.50	13490.00	10723.00				MINPT-O-EQU	
2260.21	561.29	1884.99	1698.92	6.07		OSF1.50	13510.00	10723.00				MinPt-O-ADP	
2254.22	616.07	1842.55	1638.15	5.51		OSF1.50	14490.00	10723.00				MinPt-CtCt	
2254.90	618.82	1841.33	1636.07	5.49		OSF1.50	14580.00	10723.00				MINPT-O-EQU	
2255.28	619.26	1841.41	1636.02	5.48		OSF1.50	14600.00	10723.00				MinPt-O-ADP	
2260.69	621.94	1844.91	1638.75	5.47		OSF1.50	14740.00	10723.00				MinPt-O-SF	
2292.06	639.80	1864.28	1652.26	5.40		OSF1.50	15170.00	10723.00				MinPt-O-SF	
8445.15	189.57	8318.45	8255.58	67.16		OSF1.50	23109.83	10723.00				TD	

JC Williams New Era Federal
#2 (Offset) API 30-015-25326
Plugged Inc Only Off-5717ft
(Def Survey)

Pass

4208.82	32.81	4207.40	4176.01	30413.14		MAS = 10.00 (m)	0.00	0.00				MinPts	
4208.84	32.81	4206.99	4176.03	7520.58		MAS = 10.00 (m)	26.00	26.00				WRP	
4202.87	51.33	4168.29	4151.55	125.45		OSF1.50	1340.00	1340.00				MinPt-CtCt	
3903.57	191.79	3675.26	3611.79	29.95		OSF1.50	6000.00	5944.29				MinPt-O-SF	
3800.88	191.48	3672.81	3609.45	29.99		OSF1.50	6130.00	6072.32				MinPts	
3800.86	191.39	3672.81	3609.46	29.99		OSF1.50	6140.00	6082.17				MinPt-CtCt	
5553.28	113.06	5477.57	5440.21	74.31		OSF1.50	13360.00	10723.00				MinPt-CtCt	
5553.54	113.78	5477.35	5439.76	73.84		OSF1.50	13410.00	10723.00				MINPT-O-EQU	
5553.91	114.22	5477.43	5439.68	73.56		OSF1.50	13440.00	10723.00				MinPt-O-ADP	
6669.58	182.53	6547.57	6487.05	55.10		OSF1.50	17050.00	10723.00				MinPt-O-SF	
11223.77	225.95	11072.81	10997.83	74.83		OSF1.50	23109.83	10723.00				TD	

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

Pass

9591.25	32.81	9589.97	9558.44	N/A		MAS = 10.00 (m)	0.00	0.00				Surface	
9591.25	32.81	9588.44	9558.44	6269.69		MAS = 10.00 (m)	26.00	26.00				WRP	
9591.25	596.76	9192.98	8994.49	24.16		OSF1.50	2000.00	2000.00				MinPt-CtCt	
9795.32	2012.34	8453.33	7782.98	7.31		OSF1.50	6570.00	6505.63				MinPts	
5937.63	1420.54	4990.17	4517.09	6.27		OSF1.50	16530.00	10723.00				MinPt-O-SF	
4663.94	882.14	4075.42	3781.80	7.94		OSF1.50	20200.00	10723.00				MinPt-CtCt	
4664.01	882.31	4075.37	3781.69	7.94		OSF1.50	20230.00	10723.00				MINPT-O-EQU	
4664.91	883.32	4075.60	3781.59	7.93		OSF1.50	20300.00	10723.00				MinPt-O-ADP	
5494.76	1307.84	4622.43	4186.92	6.31		OSF1.50	23109.83	10723.00				MinPt-O-SF	

ORXX Energy Bedena Federal
#1 (Offset) API 30-015-25273
Plugged SWD Inc Only Off-
6300ft (Def Survey)

Pass

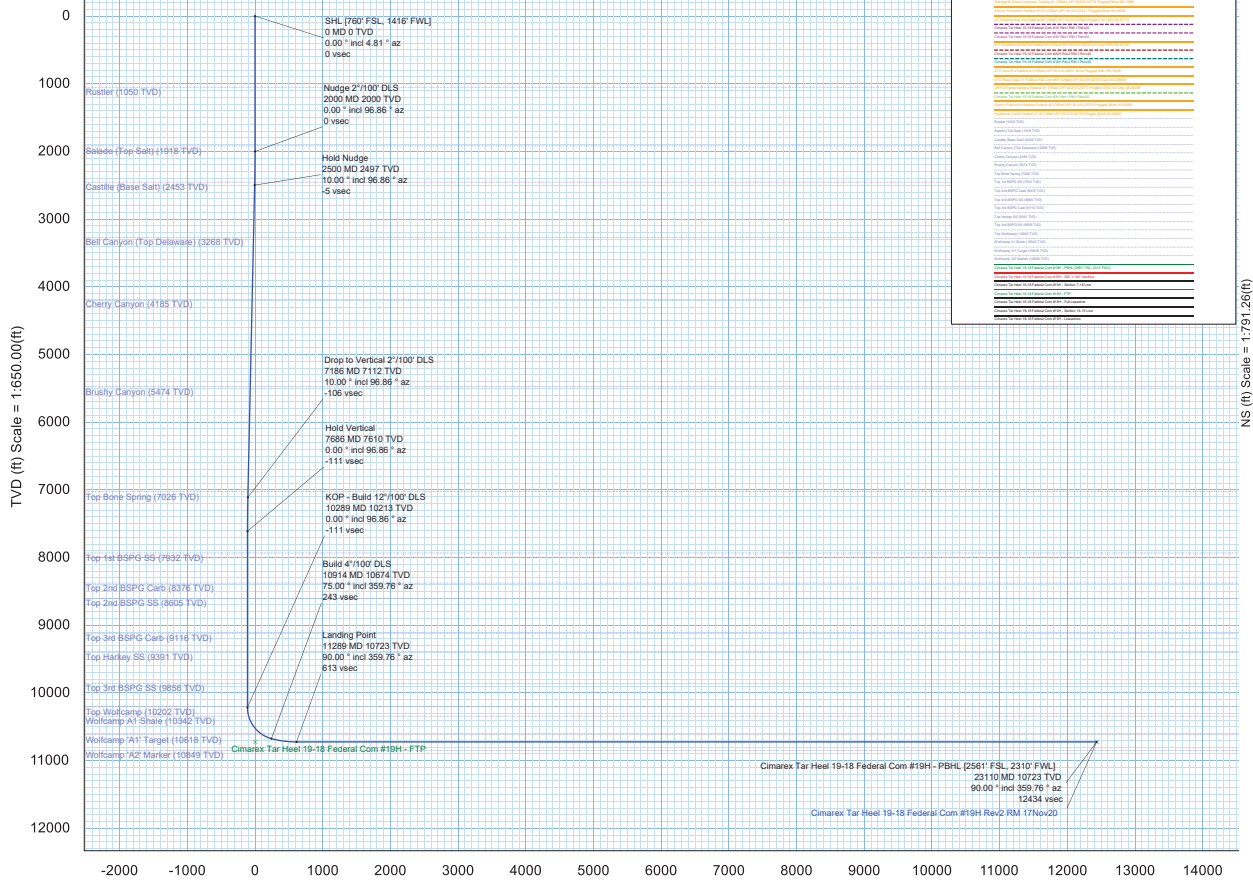
6649.85	32.81	6648.56	6617.04	N/A		MAS = 10.00 (m)	0.00	0.00				Surface	
6649.85	32.81	6648.12	6617.04	15038.88		MAS = 10.00 (m)	26.00	26.00				WRP	
6639.33	48.03	6606.95	6591.30	212.13		OSF1.50	920.00	920.00				MinPt-CtCt	
6646.28	85.71	6588.78	6560.57	117.79		OSF1.50	1440.00	1440.00				MINPT-O-EQU	
6652.05	92.29	6590.16	6559.78	109.39		OSF1.50	1640.00	1640.00				MinPt-O-ADP	
6640.75	120.08	6560.33	6520.66	83.70		OSF1.50	2240.00	2239.72				MinPt-CtCt	
6643.07	127.08	6557.98	6515.98	79.07		OSF1.50	2420.00	2418.50				MINPT-O-EQU	
6645.64	130.18	6558.48	6515.45	77.20		OSF1.50	2500.00	2497.47				MINPT-O-EQU	
6646.03	130.58	6558.61	6515.45	76.97		OSF1.50	2510.00	2507.31				MinPt-O-ADP	
6718.53	161.86	6610.30	6556.67	62.63		OSF1.50	3530.00	3511.82				MINPT-O-EQU	
6719.41	162.98	6610.43	6556.43	62.21		OSF1.50	3540.00	3521.67				MinPt-O-ADP	
6722.54	166.57	6611.16	6555.97	60.89		OSF1.50	3590.00	3570.91				MinPts	
6864.44	232.18	6709.32	6632.26	44.53		OSF1.50	6390.00	6328.37				MinPt-O-SF	
4737.25	166.95	4625.62	4570.30	42.81		OSF1.50	17290.00	10723.00				MinPt-CtCt	
4737.55	167.72	4625.41	4569.83	42.61		OSF1.50	17340.00	10723.00				MINPT-O-EQU	
4737.82	168.04	4625.47	4569.78	42.53		OSF1.50	17360.00	10723.00				MinPt-O-ADP	
5259.06	209.27	5119.22	5049.79	37.87		OSF1.50	19570.00	10723.00				MinPt-O-SF	
7507.16	246.09	7342.77	7261.07	45.94		OSF1.50	23109.83	10723.00				TD	

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		
K P Kauffman McKenna Federal #2 (Offset) API 30-015-20222 Inc Only SWD 0ft-3370ft (Def Survey)													
												Pass	
	5000.41	32.81	4998.32	4967.60	49061.58	MAS = 10.00 (m)	0.00	0.00				Surface	
	5000.40	32.81	4997.85	4967.59	8694.44	MAS = 10.00 (m)	26.00	26.00				WRP	
	4989.68	55.34	4952.12	4934.33	140.21	OSF1.50	980.00	980.00				MinPt-CtCt	
	4994.12	66.65	4949.03	4927.47	115.78	OSF1.50	1340.00	1340.00				MINPT-O-EOU	
	4991.39	123.49	4908.40	4867.90	61.59	OSF1.50	2170.00	2169.90				MinPt-CtCt	
	4993.03	128.98	4906.38	4864.05	58.95	OSF1.50	2310.00	2309.40				MINPT-O-EOU	
	4995.09	131.52	4906.75	4863.57	57.82	OSF1.50	2380.00	2378.89				MinPt-ADP	
	5000.56	135.62	4909.49	4864.94	56.11	OSF1.50	2500.00	2497.47				MinPts	
	5064.79	173.69	4948.34	4891.10	44.23	OSF1.50	3300.00	3285.31				MinPts	
	5069.56	175.52	4951.89	4894.04	43.80	OSF1.50	3380.00	3364.10				MinPt-O-SF	
	7620.87	117.42	7541.93	7503.45	99.00	OSF1.50	15560.00	10723.00				MinPt-CtCt	
	7621.44	119.03	7541.42	7502.41	97.64	OSF1.50	15650.00	10723.00				MINPT-O-EOU	
	7622.21	119.94	7541.59	7502.27	96.90	OSF1.50	15700.00	10723.00				MinPt-O-ADP	
	9056.22	201.10	8921.49	8855.12	68.21	OSF1.50	20450.00	10723.00				MinPt-O-SF	
	10729.24	224.70	10578.79	10504.55	72.25	OSF1.50	23109.83	10723.00				TD	
Hankamer Curtis Federal AT #1 (Offset) API 30-015-04775 Plugged Blind 0ft-3450ft (Def Survey)													
												Pass	
	5266.82	32.81	5265.26	5234.01	19330.87	MAS = 10.00 (m)	0.00	0.00				Surface	
	5266.82	32.81	5262.54	5234.01	1757.35	MAS = 10.00 (m)	26.00	26.00				WRP	
	5266.82	601.31	4865.52	4665.51	13.16	OSF1.50	2000.00	2000.00				MinPt-CtCt	
	5326.62	1053.38	4623.93	4273.23	7.59	OSF1.50	3460.00	3442.88				MinPts	
	7470.79	261.23	7296.21	7209.56	43.10	OSF1.50	15890.00	10723.00				MinPt-CtCt	
	7471.06	261.89	7296.04	7209.17	43.00	OSF1.50	15950.00	10723.00				MINPT-O-EOU	
	7472.16	263.16	7296.29	7209.00	42.79	OSF1.50	16030.00	10723.00				MinPt-O-ADP	
	10178.49	759.31	9671.85	9419.18	20.14	OSF1.50	22800.00	10723.00				MinPt-O-SF	
	10391.41	774.52	9874.63	9616.89	20.16	OSF1.50	23109.83	10723.00				TD	
Amoco Production Federal AX #1 (Offset) API 30-015-23311 Plugged Blind 0ft-3550ft (Def Survey)													
												Pass	
	5282.17	32.81	5280.19	5249.36	7637.39	MAS = 10.00 (m)	0.00	0.00				Surface	
	5282.17	32.81	5277.47	5249.36	1546.22	MAS = 10.00 (m)	26.00	26.00				WRP	
	5282.17	616.62	4870.66	4665.55	12.87	OSF1.50	2000.00	2000.00				MinPt-CtCt	
	5351.25	1101.06	4616.78	4250.19	7.30	OSF1.50	3560.00	3541.36				MINPT-O-EOU	
	5351.82	1101.70	4616.92	4250.12	7.29	OSF1.50	3570.00	3551.21				MinPts	
	7391.41	286.63	7199.90	7104.78	38.85	OSF1.50	15890.00	10723.00				MinPt-CtCt	
	7391.68	287.24	7199.76	7104.44	38.77	OSF1.50	15950.00	10723.00				MINPT-O-EOU	
	7392.44	288.11	7199.93	7104.32	38.65	OSF1.50	16010.00	10723.00				MinPt-O-ADP	
	10045.53	792.74	9516.61	9252.79	19.04	OSF1.50	22690.00	10723.00				MinPt-O-SF	
	10334.46	814.23	9791.21	9520.23	19.07	OSF1.50	23109.83	10723.00				TD	
Aldridge & Stroud American Trading #1 (Offset) API 30-015- 04774 Plugged Blind 0ft-1269ft (Def Survey)													
												Pass	
	9177.97	32.81	9176.68	9145.16	N/A	MAS = 10.00 (m)	0.00	0.00				Surface	
	9177.95	32.81	9175.76	9145.14	10185.18	MAS = 10.00 (m)	26.00	26.00				WRP	
	9177.95	382.74	8922.37	8795.22	36.09	OSF1.50	1280.00	1280.00				MinPt-CtCt	
	9177.95	384.75	8921.02	8793.20	35.90	OSF1.50	1290.00	1290.00				MinPts	
	9177.96	384.75	8921.03	8793.21	35.90	OSF1.50	1300.00	1300.00				MinPt-O-SF	
	9265.84	381.61	9011.01	8884.23	36.54	OSF1.50	2500.00	2497.47				MinPt-O-SF	
	9558.06	211.17	9416.85	9346.89	68.30	OSF1.50	19830.00	10723.00				MinPt-CtCt	
	9558.91	213.72	9416.00	9345.18	67.49	OSF1.50	19960.00	10723.00				MINPT-O-EOU	
	9560.10	215.14	9416.24	9344.96	67.05	OSF1.50	20030.00	10723.00				MinPt-O-ADP	
	10104.32	289.27	9911.04	9815.05	52.62	OSF1.50	23109.83	10723.00				MinPt-O-SF	

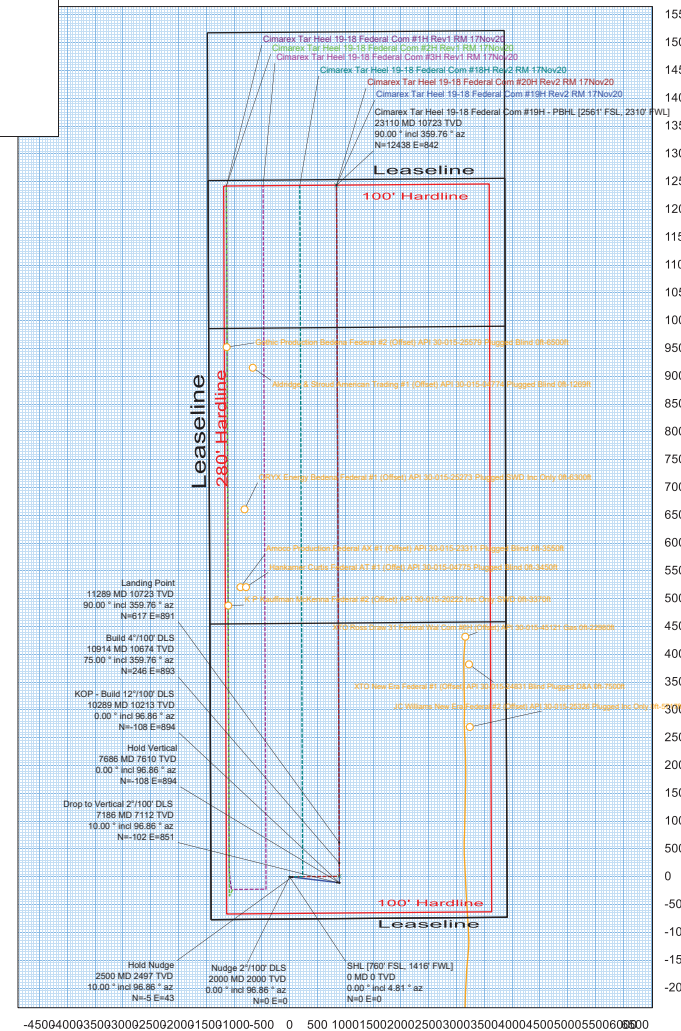
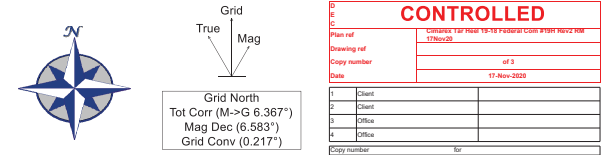
Borehole:	Tar Heel 19-18 Federal Com #19H	Well:	Tar Heel 19-18 Federal Com #19H	Field:	NM Eddy County (NAD 83)	Structure:	Cimarex Tar Heel 19-18 Federal Com #19H
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Gravity & Magnetic Parameters	Dip: 59.59°	Date: 17-Nov-2020	Surface Location	NAD83 New Mexico State Plane, Eastern Zone, US Feet	Grid Conv: 0.2167°	Miscellaneous
Model: HDGM 2020	FS: 47622.815mT	Gravity FS: 998.44mgn (9.80665 Based)	Lat: N 32 1 21.52	372216.56RUS	Scale Fact: 0.99992746	Slot: New Slot
MagDec: 6.593°			Long: W 103 55 28.73	North: 372216.56RUS		Plan: Cimarex Tar Heel 19-18 Federal Com #19H Rev2 RM 17Nov20
				East: 667995.05RUS		TVD Ref: RKB(3047' Alt above MSL)

Critical Point	MD	INCL	AZIM	Critical Points	TVD	VSEC	N(+)/S(-)	E(+)/W(-)	DLS
SHL [760' FSL, 1416' FWL]	0.00	0.00	4.81	0.00	0.00	0.00	0.00	0.00	0.00
Rustler	1050.00	0.00	96.86	1050.00	0.00	0.00	0.00	0.00	0.00
Salado (Top Salt)	1918.00	0.00	96.86	1918.00	0.00	0.00	0.00	0.00	0.00
Nudge 2°/100' DLS	2000.00	0.00	96.86	2000.00	0.00	0.00	0.00	0.00	0.00
Castille (Base Salt)	2454.91	9.10	96.86	2453.00	-4.45	-4.30	35.78	2.00	2.00
Hold Nudge	2500.00	10.00	96.86	2497.46	-5.38	-5.20	43.21	2.00	2.00
Bell Canyon (Top Delaware)	3282.42	10.00	96.86	3268.00	-22.15	-21.42	178.11	0.00	0.00
Cherry Canyon	4213.57	10.00	96.86	4185.00	-42.12	-40.72	338.64	0.00	0.00
Brushy Canyon	5522.45	10.00	96.86	5474.00	-70.19	-67.85	564.30	0.00	0.00
Top Bone Spring	7098.39	10.00	96.86	7026.00	-103.99	-100.52	836.00	0.00	0.00
Drop to Vertical 2°/100' DLS	7185.91	10.00	96.86	7112.18	-105.87	-102.33	851.09	0.00	0.00
Hold Vertical	7685.90	0.00	96.86	7609.65	-111.24	-107.53	894.30	2.00	2.00
Top 1st BSPG SS	8008.26	0.00	96.86	7932.00	-111.24	-107.53	894.30	0.00	0.00
Top 2nd BSPG Carb	8452.26	0.00	96.86	8376.00	-111.24	-107.53	894.30	0.00	0.00
Top 2nd BSPG SS	8681.26	0.00	96.86	8605.00	-111.24	-107.53	894.30	0.00	0.00
Top 3rd BSPG Carb	9192.26	0.00	96.86	9116.00	-111.24	-107.53	894.30	0.00	0.00
Top Harkey SS	9467.26	0.00	96.86	9391.00	-111.24	-107.53	894.30	0.00	0.00
Top 3rd BSPG SS	9932.26	0.00	96.86	9856.00	-111.24	-107.53	894.30	0.00	0.00
Top Wolfcamp	10278.26	0.00	96.86	10202.00	-111.24	-107.53	894.30	0.00	0.00
KOP - Build 12°/100' DLS	10289.25	0.00	96.86	10213.00	-111.24	-107.53	894.30	0.00	0.00
Wolfcamp A1 Shale	10419.88	15.68	359.76	10342.00	-93.49	-89.77	894.23	12.00	12.00
Wolfcamp A1 Target	10772.76	58.02	359.76	10616.00	-113.35	-117.06	893.37	12.00	12.00
Build 4°/100' DLS	10914.25	75.00	359.76	10674.19	-242.64	-246.35	892.63	12.00	12.00
Landing Point	11289.25	90.00	359.76	10723.00	-613.37	-617.08	891.29	4.00	4.00
Cimarex Tar Heel 19-18 Federal Com #19H - PBHL [2561' FSL, 2310' FWL]	23109.83	90.00	359.76	10723.00	12433.95	12437.56	842.21	0.00	0.00
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 10,723

Pilot Hole TD N/A

MD at TD 23,110

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	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	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	9389	9389	7"	29.00	L-80	LT&C	1.60	1.86	1.90
8 3/4	9389	10914	10647	7"	29.00	L-80	BT&C	1.41	1.64	18.53
6	9289	23109	10723	4-1/2"	11.60	P-110	BT&C	1.13	1.60	22.06
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 19H

	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
	190	14.80	1.34	6.32	9.5	Tail: Class C + LCM
Production	446	10.30	3.64	22.18		Lead: Tuned Light + LCM
	109	14.20	1.30	5.86	14:30	Tail: 50:50 (Poz:H) + Salt + Bentonite + Fluid Loss + Dispersant + SMS
Completion System	901	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	10714	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'	Brine Water	9.70 - 10.20	30-32	N/C
3248' to 10914'	FW/Cut Brine	8.50 - 9.00	30-32	N/C
10914' to 23109'	Oil Based Mud	11.50 - 12.00	50-70	N/C

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

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

6. Logging and Testing Procedures

Logging, Coring and Testing	
	Will run GR/CNL 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
-------------------------	----------

7. Drilling Conditions

Condition	
BH Pressure at deepest TVD	6691 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.

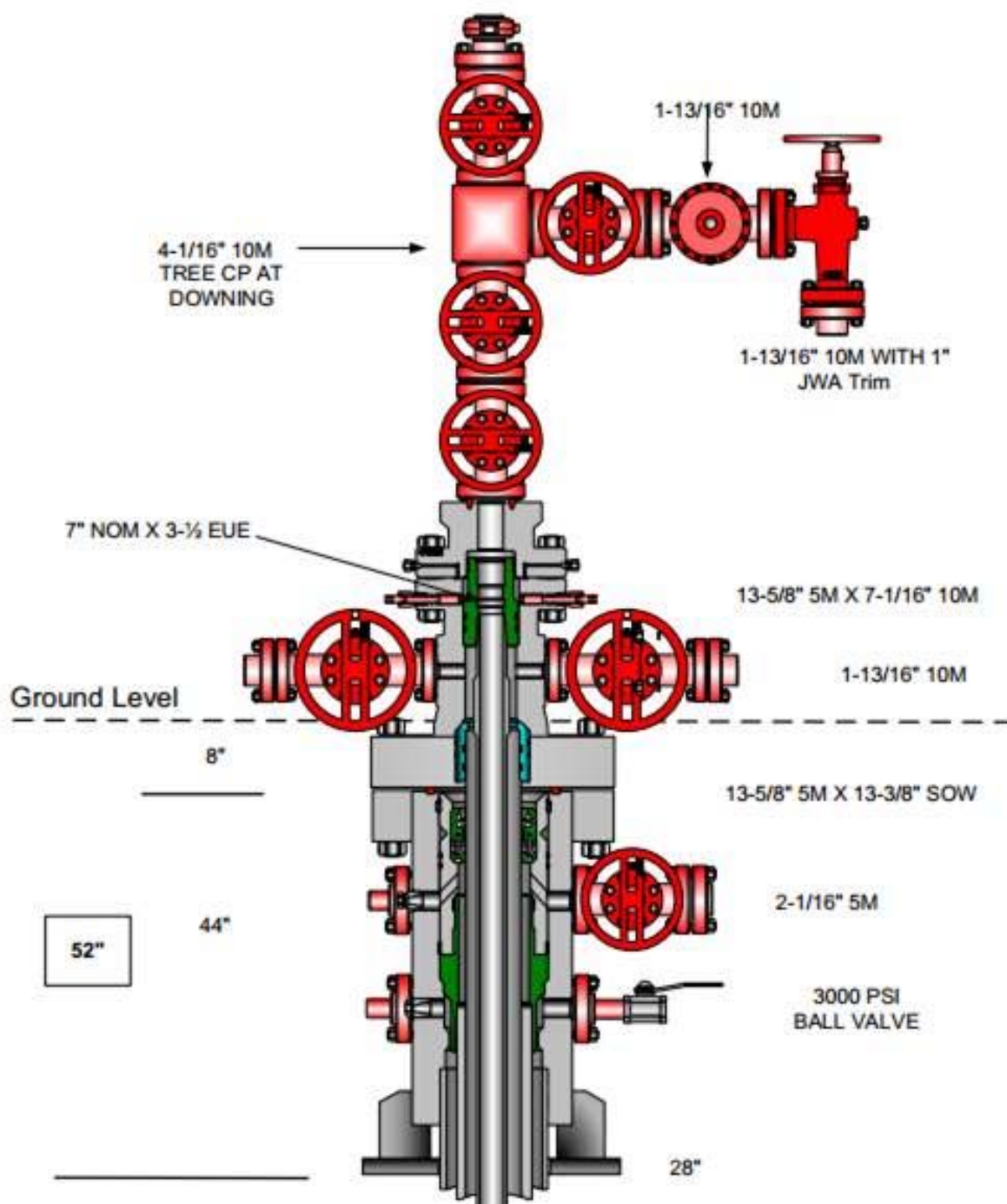
A solid steel body pack-off will be utilized after running and cementing the production casing. After installation the pack-off and lower flange will be pressure tested to 5000 psi.

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.

Multi-bowl Wellhead Diagram

Tar Heel 19-18-7 Federal Com 19H



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	9389	9389	7"	29.00	L-80	LT&C	1.60	1.86	1.90
8 3/4	9389	10914	10647	7"	29.00	L-80	BT&C	1.41	1.64	18.53
6	9289	23109	10723	4-1/2"	11.60	P-110	BT&C	1.13	1.60	22.06
BLM Minimum Safety Factor								1.125	1	1.6 Dry 1.8 Wet

[Print](#)



Tar Heel 19-18-7 Fed Com 19H

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

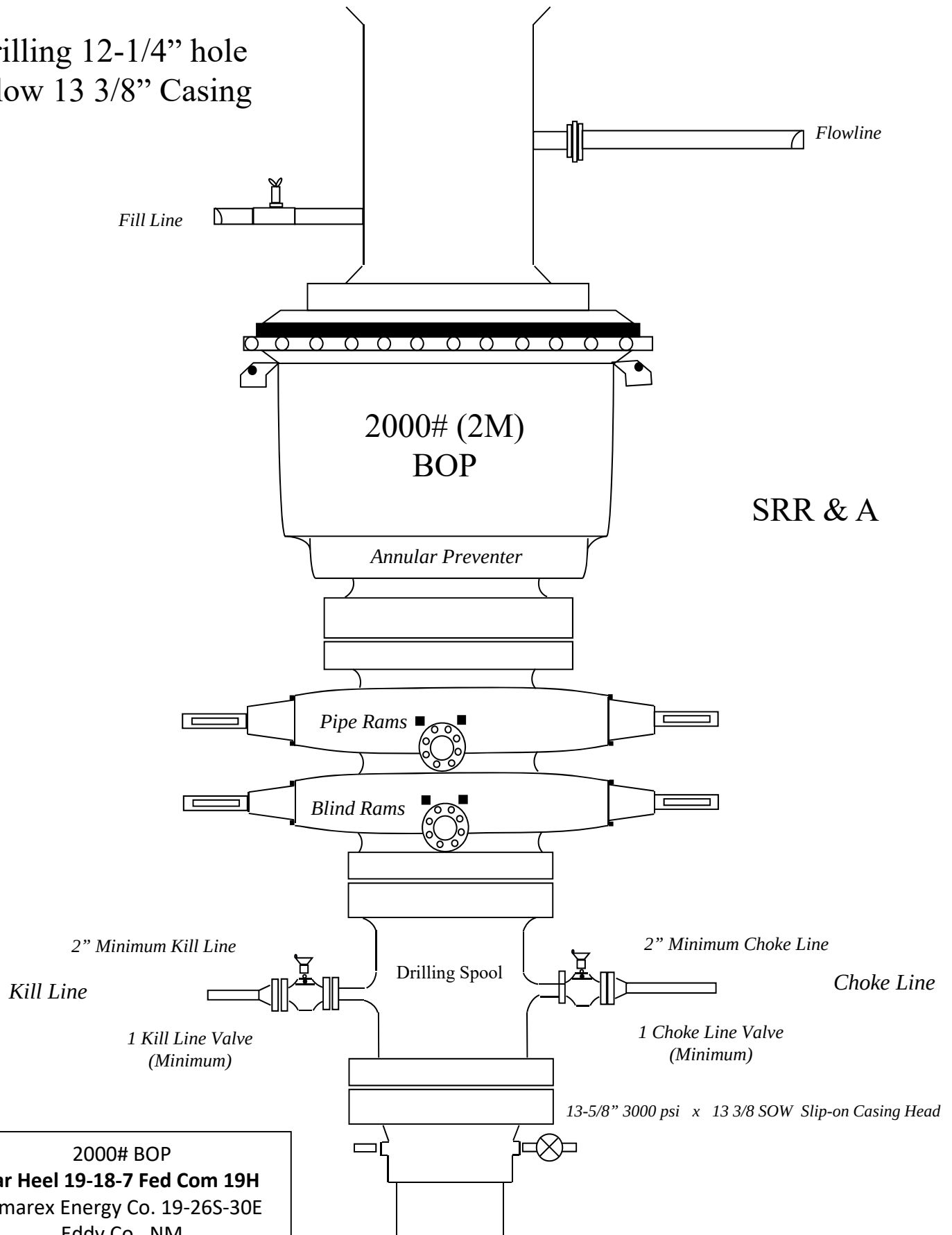
Connection Geometry

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

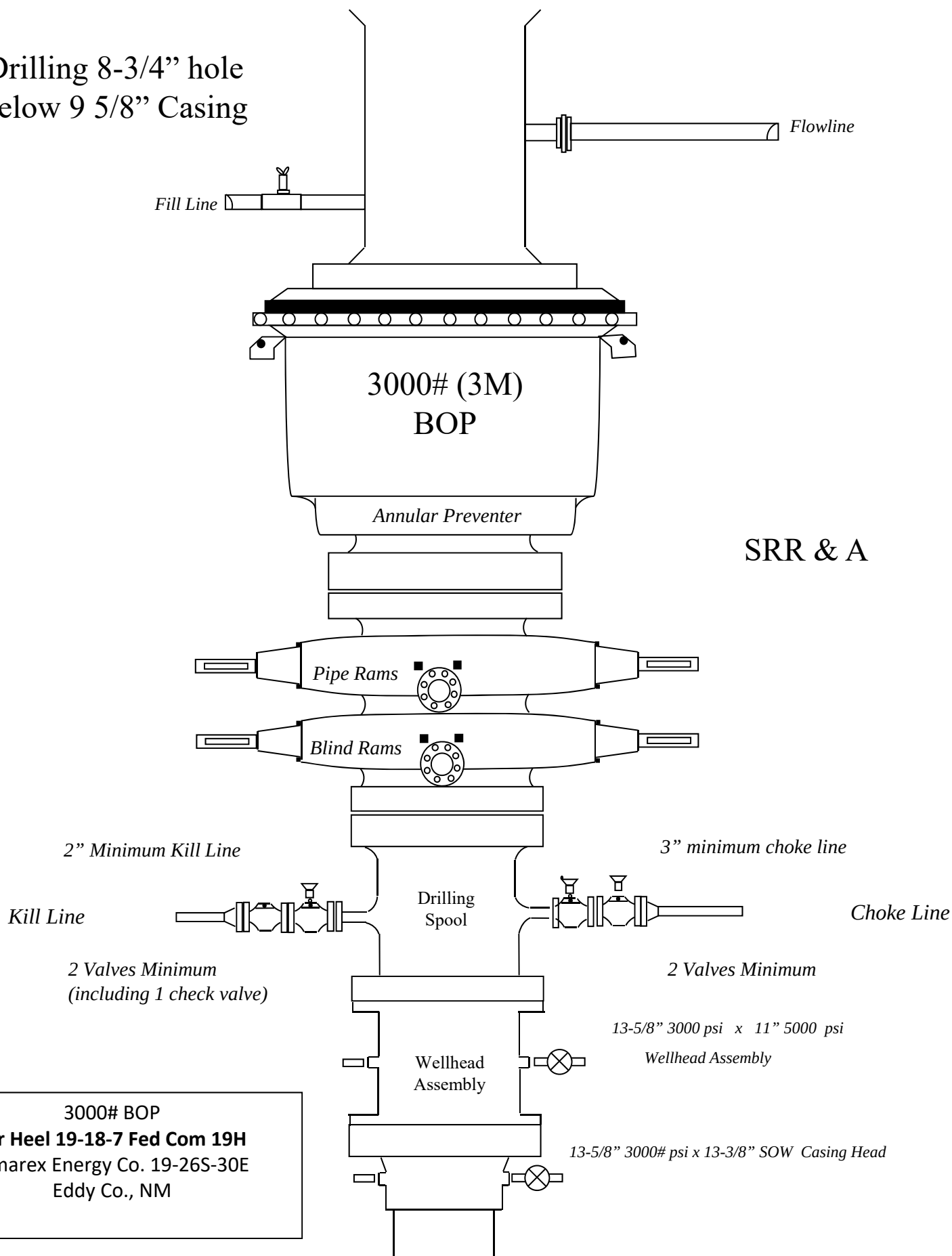
Connection Performance

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

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



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



3000# BOP
Tar Heel 19-18-7 Fed Com 19H
Cimarex Energy Co. 19-26S-30E
Eddy Co., NM

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

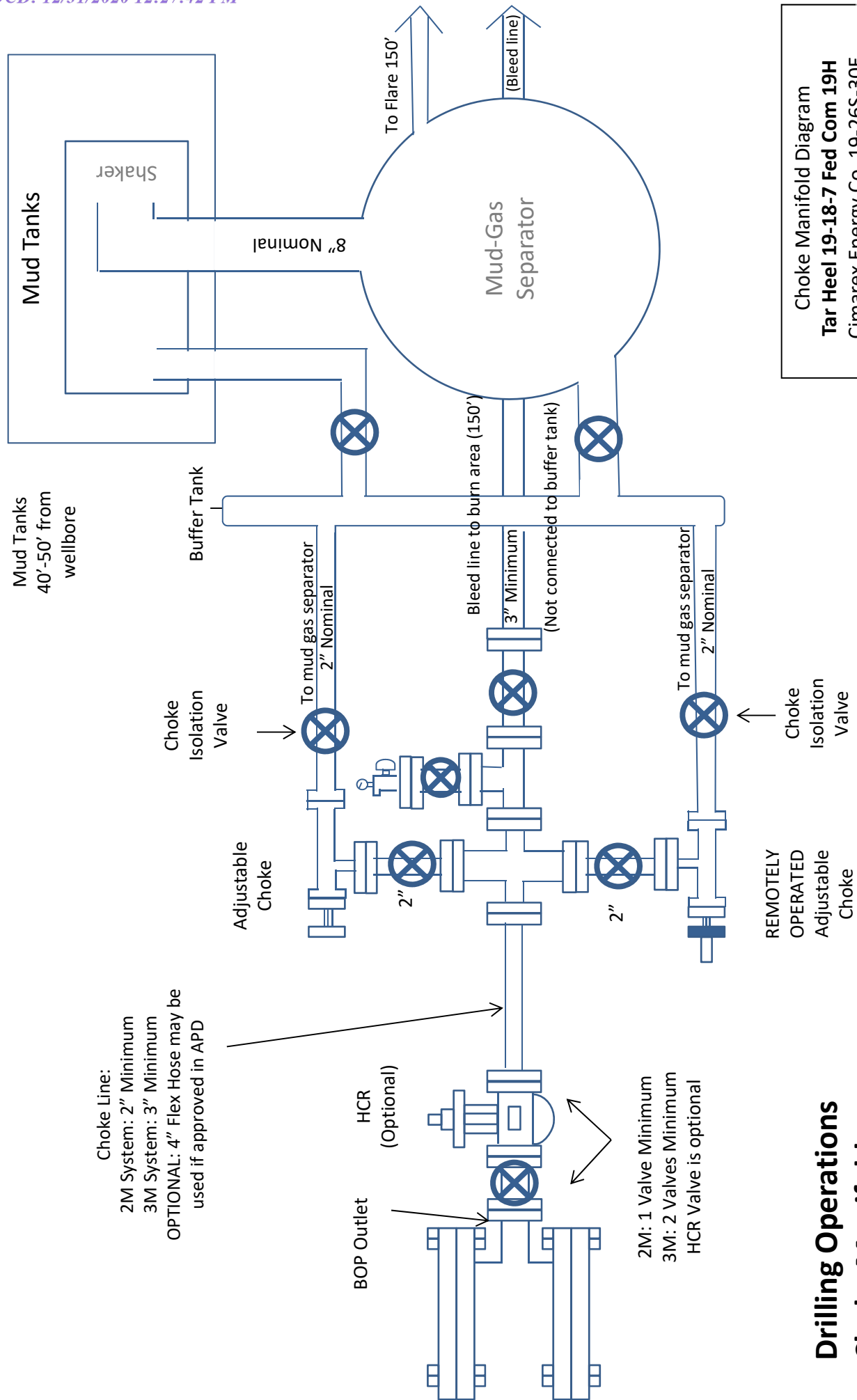
11" 5000 psi x 7-1/16" 10,000 psi
Wellhead Assembly

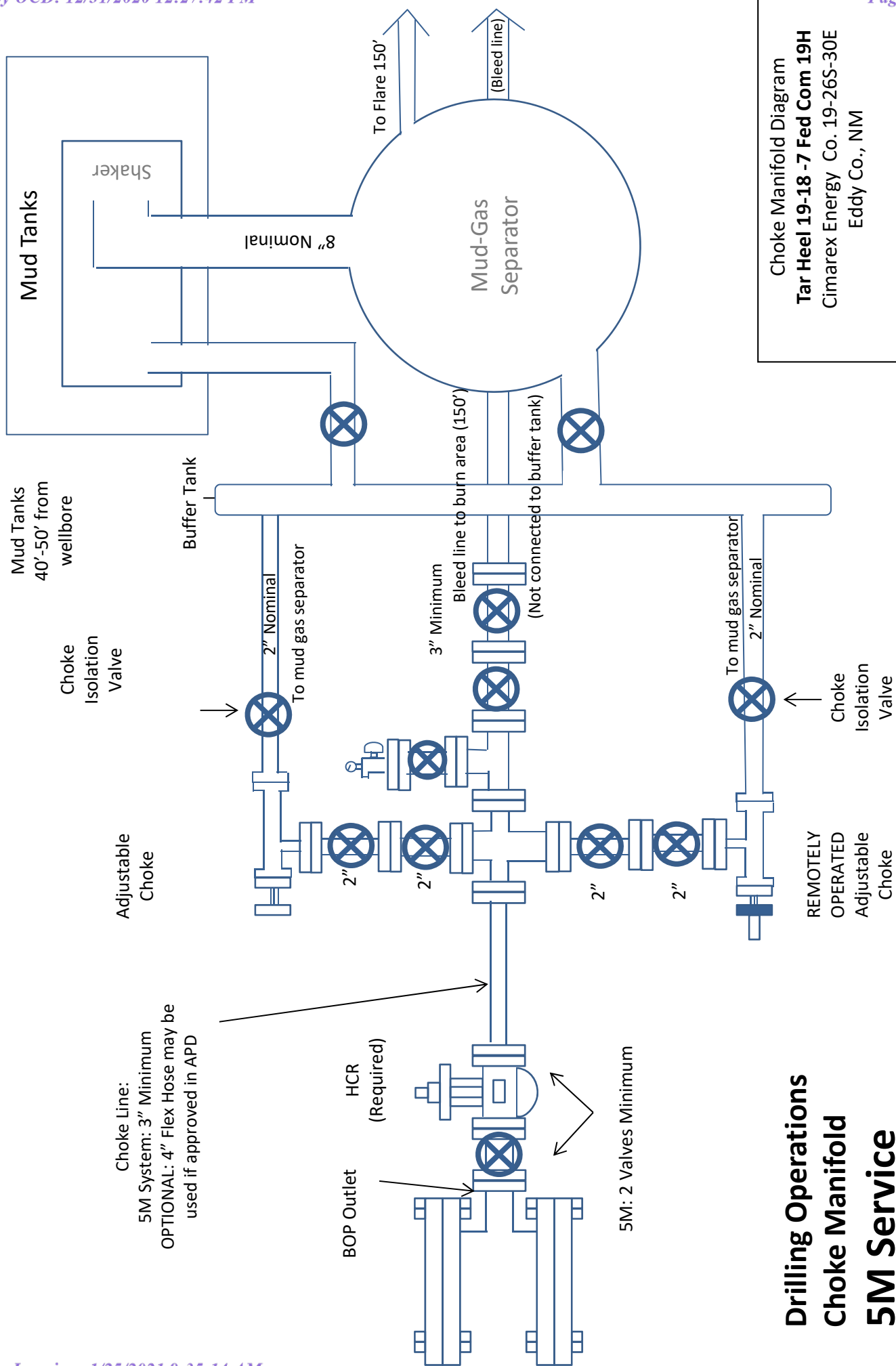
Wellhead
Assembly

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 19H
Cimarex Energy Co. 19-26S-30E
Eddy Co., NM





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

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

CONDITIONS

Action 13430

CONDITIONS OF APPROVAL

Operator: CIMAREX ENERGY CO. Suite 600 Midland, TX79701	600 N. Marienfeld Street	OGRID: 215099	Action Number: 13430	Action Type: C-103X
OCD Reviewer jagarcia	Condition None			