

Form 3160-5
(June 2015)UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENTFORM APPROVED
OMB NO. 1004-0137
Expires: January 31, 2018**SUNDRY NOTICES AND REPORTS ON WELLS**
Do not use this form for proposals to drill or to re-enter an abandoned well. Use form 3160-3 (APD) for such proposals.5. Lease Serial No.
NMNM0106040A

6. If Indian, Allottee or Tribe Name

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

8. Well Name and No.
RED HILLS 32-5 FEDERAL COM 131H9. API Well No.
30-025-45503-00-X110. Field and Pool or Exploratory Area
WOLFCAMP11. County or Parish, State
LEA COUNTY, NM**SUBMIT IN TRIPLICATE - Other instructions on page 2**1. Type of Well
☐ Oil Well ☒ Gas Well ☐ Other2. Name of Operator Contact: AMITHY E CRAWFORD
CIMAREX ENERGY COMPANY OF CO Mail: acrawford@cimarex.com3a. Address
600 N MARIENFELD STREET STE 600
MIDLAND, TX 797013b. Phone No. (include area code)
Ph: 432-620-19094. Location of Well (Footage, Sec., T., R., M., or Survey Description)

Sec 32 T25S R33E NWNW 390FNL 470FWL
32.093414 N Lat, 103.601532 W Lon

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

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

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

Cimarex respectfully requests to change the SHL, BHL and formation thereby changing the drilling plan. No new surface disturbance.

Cimarex Respectfully requests to change the well name to:
Red Hills 32-5 Federal Com 131H

Proposed Formation-
Wolfcamp

Proposed SHL-
390' FNL & 470' FWL Section 32 25S 33E

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

Electronic Submission #498142 verified by the BLM Well Information System**For CIMAREX ENERGY COMPANY OF CO, sent to the Hobbs****Committed to AFMSS for processing by PRISCILLA PEREZ on 01/13/2020 (20PP0904SE)**

Name (Printed/Typed) AMITHY E CRAWFORD

Title REGULATORY ANALYST

Signature (Electronic Submission)

Date 01/07/2020

THIS SPACE FOR FEDERAL OR STATE OFFICE USE

Approved By CODY LAYTON

Title ASSISTANT FIELD MANAGER

Date 01/24/2020

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 Hobbs

Title 18 U.S.C. Section 1001 and Title 43 U.S.C. Section 1212, make it a crime for any person knowingly and willfully to make to any department or agency of the United States any false, fictitious or fraudulent statements or representations as to any matter within its jurisdiction.

(Instructions on page 2)

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

Additional data for EC transaction #498142 that would not fit on the form

32. Additional remarks, continued

Proposed BHL-
100' FSL 330' FWL Section 5 26S 33E

Cimarex Respectfully requests to update the dedicated acres of the C102 to 1280. A 1280 Com has been verbally approved by the BLM (Lewis Tromp, David Chase, James Glover) and State land Office (Niranjan Khalsa).

Please see attached wellsite layout, Updated C102, Updated Drilling Plan, Updated Directional plan and Updated BOPs.

Revisions to Operator-Submitted EC Data for Sundry Notice #498142

	Operator Submitted	BLM Revised (AFMSS)
Sundry Type:	APDCH NOI	APDCH NOI
Lease:	NMNM0106040A	NMNM0106040A
Agreement:		
Operator:	CIMAREX ENERGY CO OF COLORADO 600 N. MARIENFELD, SUITE 600 MIDLAND, TX 79701 Ph: 432-620-1909	CIMAREX ENERGY COMPANY OF CO 600 N MARIENFELD STREET STE 600 MIDLAND, TX 79701 Ph: 432.620.1938
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:	LEA	LEA
Field/Pool:	WOLFCAMP	WOLFCAMP
Well/Facility:	RED HILLS 32-5 FEDERAL COM 131H Sec 32 T25S R33E 390FNL 470FWL	RED HILLS 32-5 FEDERAL COM 131H Sec 32 T25S R33E NWNW 390FNL 470FWL 32.093414 N Lat, 103.601532 W Lon

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

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

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

☒ AMENDED REPORT

WELL LOCATION AND ACREAGE DEDICATION PLAT

¹ API Number 30-025-45503	² Pool Code 98158	³ Pool Name WC-025 G-09 S253236A; UPR WOLFCAMP
⁴ Property Code 326032	⁵ Property Name RED HILLS 32-5 Federal Com	⁶ Well Number 131H
⁷ OGRID No. 162683	⁸ Operator Name CIMAREX ENERGY CO. of Colorado	⁹ Elevation 3396.4'

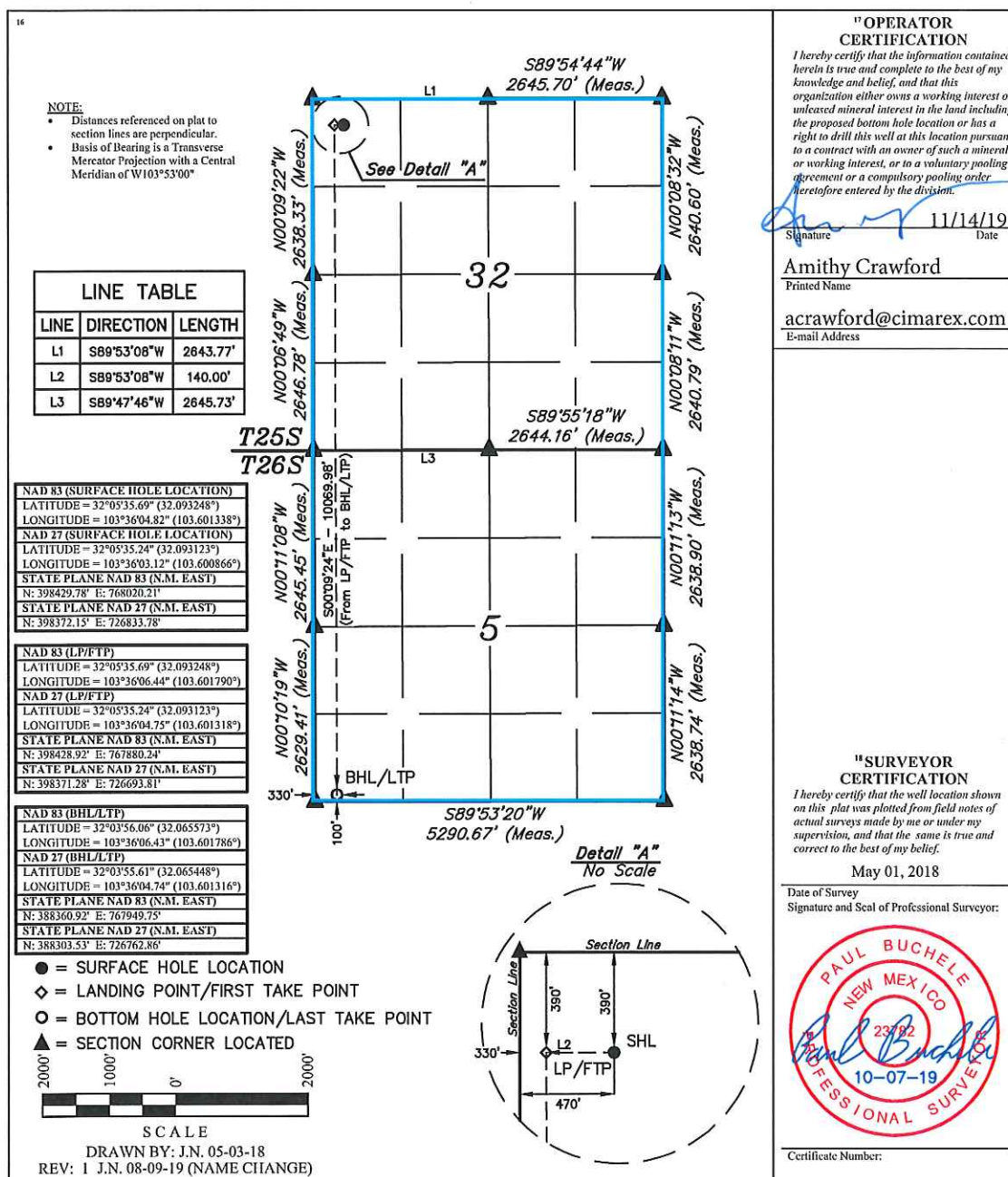
"Surface Location

UL or lot no.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County
D	32	25S	33E		390	NORTH	470	WEST	LEA

"Bottom Hole Location If Different From Surface

UL or lot no.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County
M	5	26S	33E		100	SOUTH	330	WEST	LEA
¹² Dedicated Acres 1280	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.



PECOS DISTRICT DRILLING CONDITIONS OF APPROVAL

OPERATOR'S NAME:	CIMAREX ENERGY COMPANY
LEASE NO.:	NMNM0106040A
WELL NAME & NO.:	RED HILLS 32-5 FEDERAL COM 131H
SURFACE HOLE FOOTAGE:	390'/N & 470'/W
BOTTOM HOLE FOOTAGE:	100'/S & 330'/W
LOCATION:	Section 32, T.25 S., R.33 E., NMPM
COUNTY:	Lea County, New Mexico

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 **10-3/4** inch surface casing shall be set at approximately **1050** feet (a minimum of **25 feet (Lea County)** into the Rustler Anhydrite and above the salt) and cemented to the surface.
 - a. If cement does not circulate to the surface, the appropriate BLM office shall be notified and a temperature survey utilizing an electronic type temperature survey with surface log readout will be used or a cement bond log shall be run to verify the top of the cement. Temperature survey will be run a minimum of six hours after pumping cement and ideally between 8-10 hours after completing the cement job.
 - b. Wait on cement (WOC) time for a primary cement job will be a minimum of **8**

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

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

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

2. The minimum required fill of cement behind the 7-5/8 inch intermediate casing is:
 - Cement to surface. If cement does not circulate, contact the appropriate BLM office.
Wait on cement (WOC) time for a primary cement job is to include the lead cement slurry due to cave/karst or potash.
3. The minimum required fill of cement behind the 5-1/2 X 5 inch production casing is:
 - Cement should tie-back at least **200 feet** into previous casing string. 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. 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.
3. 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 intermediate casing shoe shall be **10,000 (10M)** psi. **Variance is approved to use a 5000 (5M) Annular which shall be tested to 5000 (5M) psi.**
 - 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 Carlsbad Field Office, 620 E Greene St. Carlsbad, New Mexico 88220, at least 90 days before the anticipated date of first production from a well subject to a spacing order issued by the New Mexico Oil Conservation Division. The Communitization Agreement will include the signatures of all working interest owners in all Federal and Indian leases subject to the Communitization Agreement (i.e., operating rights owners and lessees of record), or certification that the operator has obtained the written signatures of all such owners and will make those signatures available to the BLM immediately upon request.

- If the operator does not comply with this condition of approval, the BLM may take enforcement actions that include, but are not limited to, those specified in 43 CFR 3163.1.

- In addition, the well sign shall include the surface and bottom hole lease numbers. When the Communitization Agreement number is known, it shall also be on the sign.

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.

JJP01242020

TUBULAR PROGRAM
1,045' 10-3/4" 45.5 # J55 BTC
11,894' 7-5/8" 29.7 # L80 BTC
725' 7-5/8" 29.7 # HCL80 UFJ
11,950' 5-1/2" 23# P110 LTC
10,388' 5" 18# P110 BTC
2-7/8" 6.5 # L80 EUE

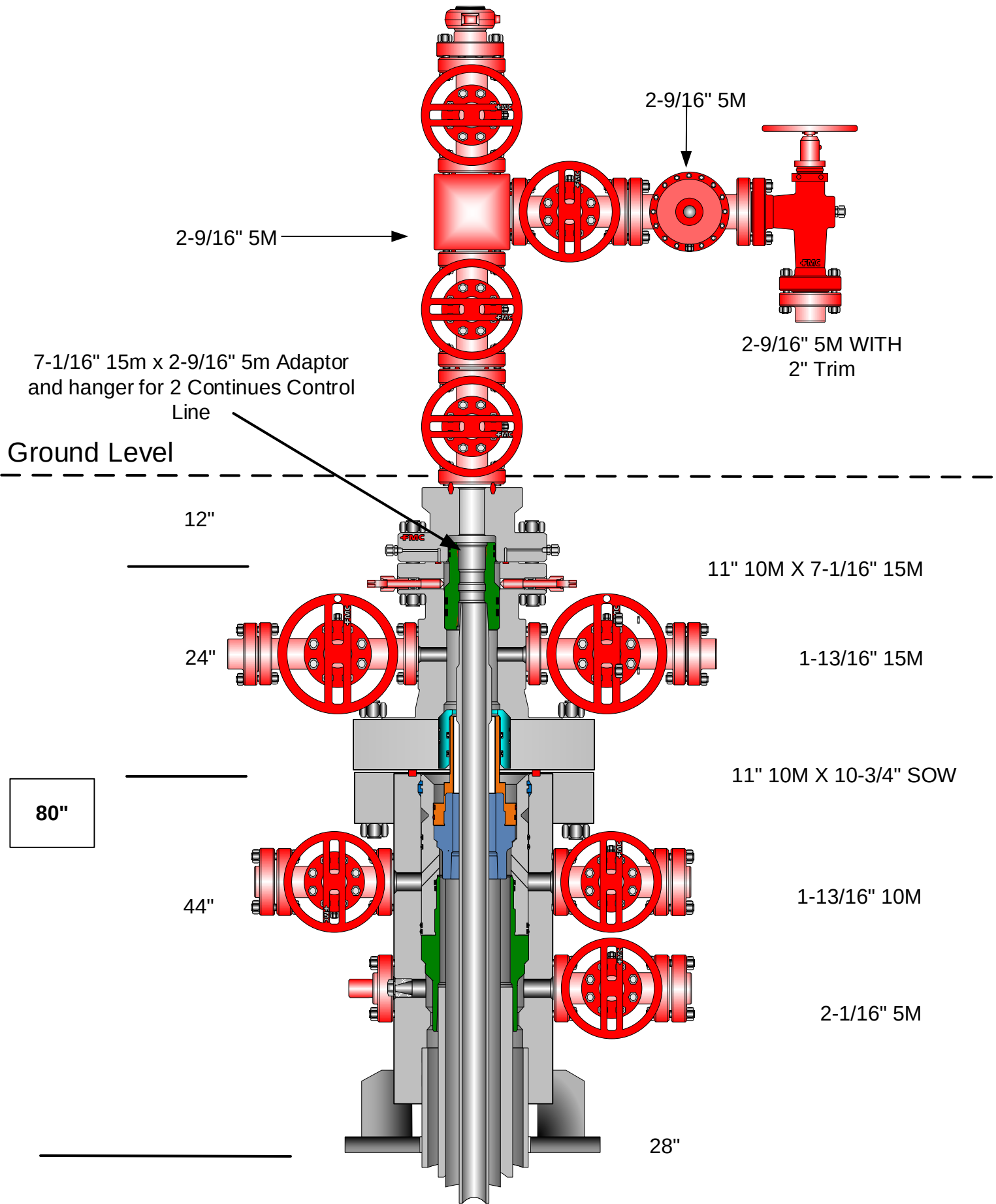


**RED HILLS
32-5 FED COM 131H**

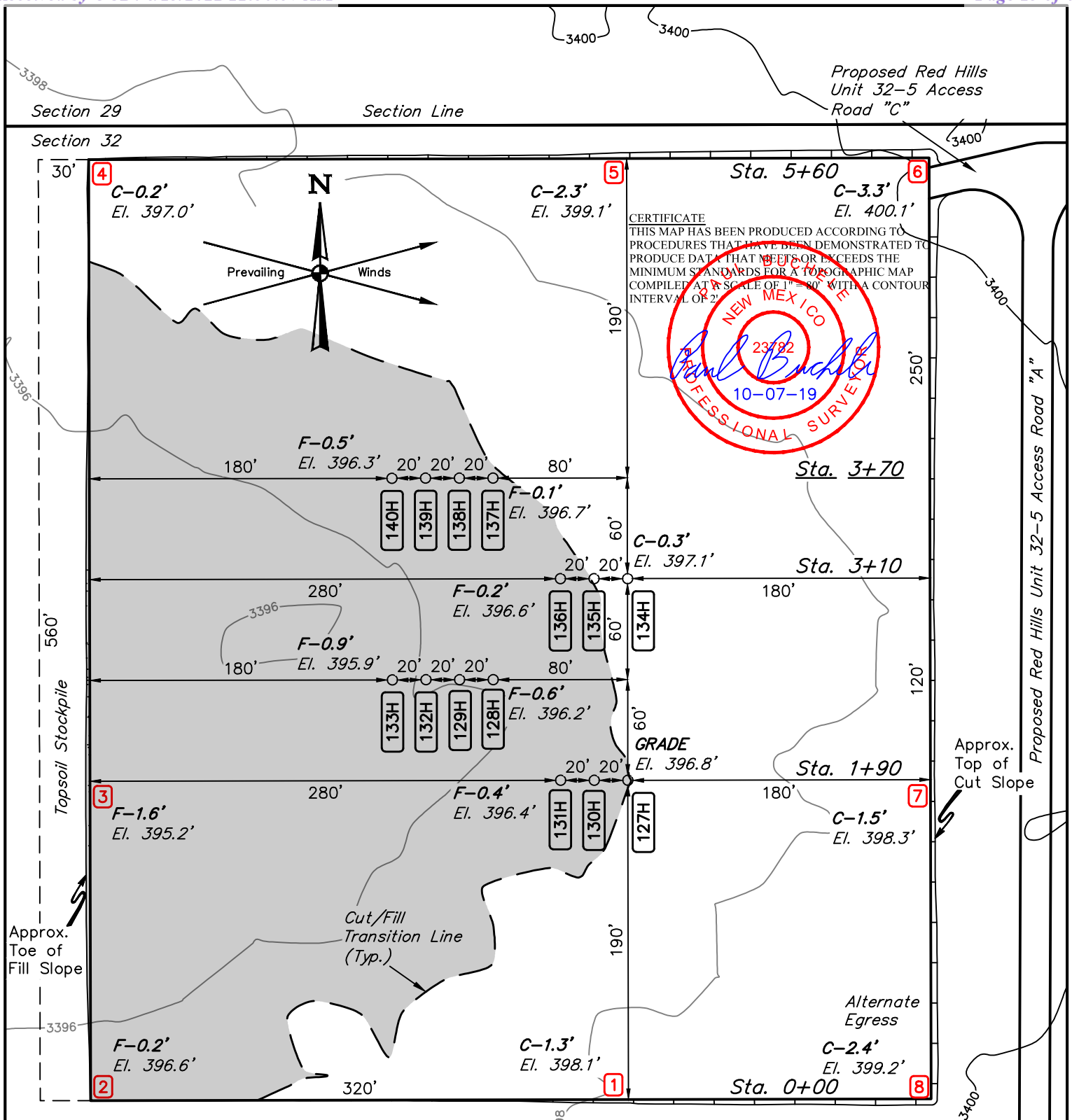
**CACTUS FOR SERVICE
WEARBUSHING
IN CASING HEAD &
CASING SPOOL**

LEA CO., NM

Multi-bowl Wellhead Diagram



PREPARED ON 1-21-20



REV: 2 10-07-19 L.C.W. (SHL & BHL CHANGES)

NOTE: Earthwork Calculations Require a Fill @ some of the Location Stakes For Balance. All Fill is to be Compacted to a Minimum of 95% of the Maximum Dry Density Obtained by AASHTO Method t-99.

FINISHED GRADE ELEVATION = 3396.8'**NOTES:**

- Flare pit is to be located a min. of 100' from the wellhead.
- Contours shown at 2' intervals.
- Cut/Fill slopes 1 1/2:1 (Typ. except where noted)
- Basis of Bearings is a Transverse Mercator Projection with a Central Meridian of W103°53'00"

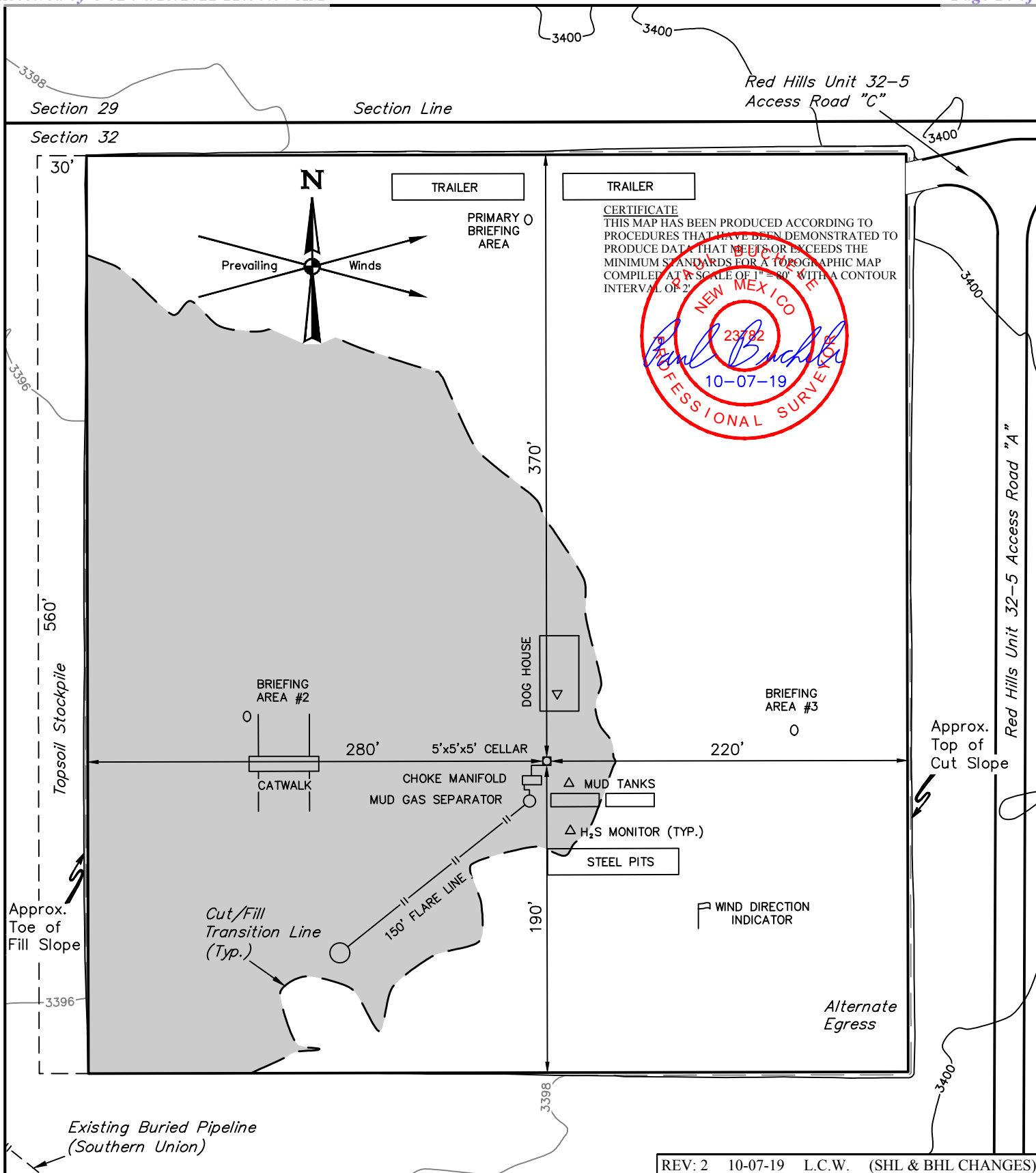
CIMAREX ENERGY CO.

RED HILLS 32-5 FED COM W2W2 PAD #1
NW 1/4 NW 1/4, SECTION 32, T25S, R33E, N.M.P.M.
LEA COUNTY, NEW MEXICO

SURVEYED BY	J.J., C.H.	05-01-18	SCALE
DRAWN BY	R.J.	05-09-18	1" = 80'
LOCATION LAYOUT			EXHIBIT J



UELS, LLC
Corporate Office * 85 South 200 East
Vernal, UT 84078 * (435) 789-1017

**NOTES:**

- Contours shown at 2' intervals.

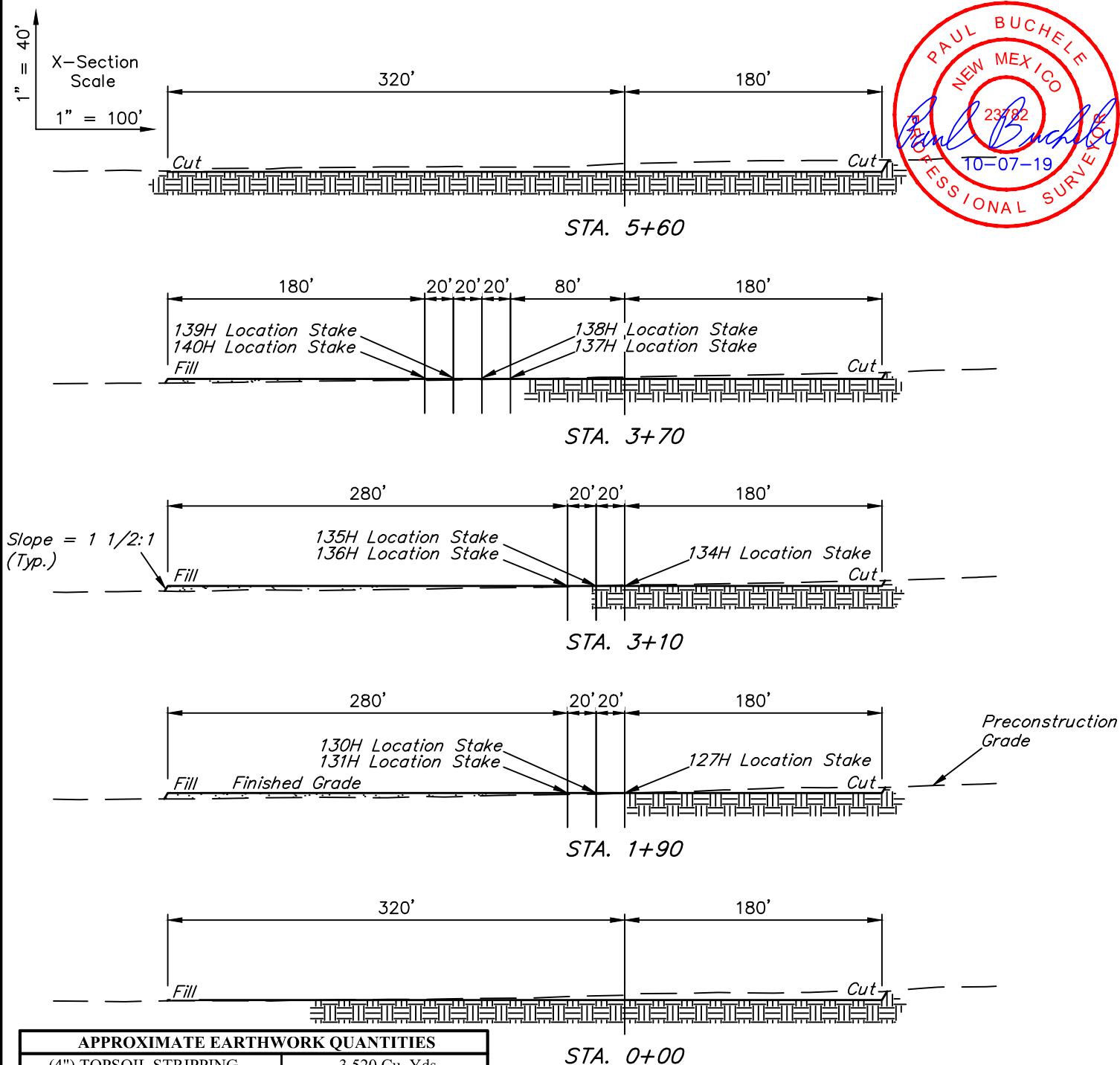
CIMAREX ENERGY CO.

RED HILLS 32-5 FED COM 131H
390' FNL 470' FWL
NW 1/4 NW 1/4, SECTION 32, T25S, R33E, N.M.P.M.
LEA COUNTY, NEW MEXICO

SURVEYED BY	J.J., C.H.	05-01-18	SCALE
DRAWN BY	J.N.	08-09-19	1" = 80'
TYPICAL RIG LAYOUT			EXHIBIT K



UELS, LLC
 Corporate Office * 85 South 200 East
 Vernal, UT 84078 * (435) 789-1017



APPROXIMATE EARTHWORK QUANTITIES	
(4") TOPSOIL STRIPPING	3,520 Cu. Yds.
REMAINING LOCATION	5,180 Cu. Yds.
TOTAL CUT	8,700 Cu. Yds.
FILL	5,180 Cu. Yds.
EXCESS MATERIAL	3,520 Cu. Yds.
TOPSOIL	3,520 Cu. Yds.
EXCESS UNBALANCE (After Interim Rehabilitation)	0 Cu. Yds.

APPROXIMATE SURFACE DISTURBANCE AREAS	
	ACRES
WELL SITE DISTURBANCE	±6.907

REV: 2 10-07-19 L.C.W. (SHL & BHL CHANGES)

NOTES:

- Fill quantity includes 5% for compaction.
- Cut/Fill slopes 1 1/2:1 (Typ. except where noted)

CIMAREX ENERGY CO.

RED HILLS 32-5 FED COM W2W2 PAD #1
NW 1/4 NW 1/4, SECTION 32, T25S, R33E, N.M.P.M.
LEA COUNTY, NEW MEXICO

SURVEYED BY	J.J., C.H.	05-01-18	SCALE
DRAWN BY	R.J.	05-09-18	AS SHOWN
TYPICAL CROSS SECTIONS		EXHIBIT J	



UELS, LLC
 Corporate Office * 85 South 200 East
 Vernal, UT 84078 * (435) 789-1017

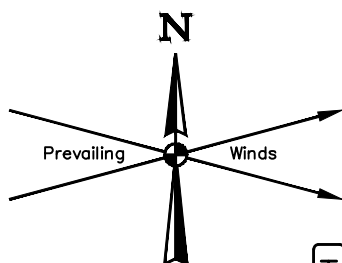
700' X 760' Archaeological Survey Boundary



Section 29

Section Line

Section 32

Proposed Red Hills
Unit 32-5 Access
Road "C"

Topsoil Stockpile

140H
139H
138H
137H

133H
132H
129H
128H

136H
135H
134H

131H
130H
127H

LINE TABLE

LINE	DIRECTION	LENGTH
L1	S39°W	371'

Proposed Red Hills Unit 32-5 Access Road "A"

Existing Buried Pipeline
(Southern Union)

REV: 2 10-07-19 L.C.W. (SHL & BHL CHANGES)

NOTES:

- Basis of Bearings is a Transverse Mercator Projection with a Central Meridian of W103°53'00"

CIMAREX ENERGY CO.

RED HILLS 32-5 FED COM W2W2 PAD #1
NW 1/4 NW 1/4, SECTION 32, T25S, R33E, N.M.P.M.
LEA COUNTY, NEW MEXICO



UELS, LLC
Corporate Office * 85 South 200 East
Vernal, UT 84078 * (435) 789-1017

SURVEYED BY	J.J., C.H.	05-01-18	SCALE
DRAWN BY	R.J.	05-09-18	1" = 100'
ARCHAEOLOGICAL SURVEY BOUNDARY			EXHIBIT L



Cimarex Red Hills 32-5 Fed Com #131H Rev1 RM 11Oct19 Proposal

Geodetic Report

(Def Plan)



Report Date: October 22, 2019 - 04:13 PM
Client: Cimarex
Field: NM Lea County (NAD 83)
Structure / Slot: Cimarex Red Hills 32-5 Fed Com #131H / Cimarex Red Hills 32-5 Fed Com #131H
Well: Cimarex Red Hills 32-5 Fed Com #131H
Borehole: Original Borehole
UWI / API#: Unknown / Unknown
Survey Name: Cimarex Red Hills 32-5 Fed Com #131H Rev1 RM 11Oct19
Survey Date: May 10, 2018
Tort / AHD / DDI / ERD Ratio: 98.012 ° / 10208.627 ft / 6.252 / 0.817
Coordinate Reference System: NAD83 New Mexico State Plane, Eastern Zone, US Feet
Location Lat / Long: N 32° 5' 35.69277", W 103° 36' 4.81526"
Location Grid N/E Y/X: N 398429.780 ftUS, E 768020.210 ftUS
CRS Grid Convergence Angle: 0.3889 °
Grid Scale Factor: 0.99996794
Version / Patch: 2.10.782.0

Survey / DLS Computation: Minimum Curvature / Lubinski
Vertical Section Azimuth: 179.604 ° (Grid North)
Vertical Section Origin: 0.000 ft, 0.000 ft
TVD Reference Datum: RKB
TVD Reference Elevation: 3422.400 ft above MSL
Seabed / Ground Elevation: 3396.400 ft above MSL
Magnetic Declination: 6.611 °
Total Gravity Field Strength: 998.4291mgn (9.80665 Based)
Gravity Model: GARM
Total Magnetic Field Strength: 47716.644 nT
Magnetic Dip Angle: 59.685 °
Declination Date: October 15, 2019
Magnetic Declination Model: HDGM 2019
North Reference: Grid North
Grid Convergence Used: 0.3889 °
Total Corr Mag North->Grid North: 6.2218 °
Local Coord Referenced To: Structure Reference Point

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 [390' FNL, 470' FWL]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	N/A	398429.78	768020.21	N 32 5 35.69	W 103 36 4.82
	100.00	0.00	269.65	100.00	0.00	0.00	0.00	0.00	398429.78	768020.21	N 32 5 35.69	W 103 36 4.82
	200.00	0.00	269.65	200.00	0.00	0.00	0.00	0.00	398429.78	768020.21	N 32 5 35.69	W 103 36 4.82
	300.00	0.00	269.65	300.00	0.00	0.00	0.00	0.00	398429.78	768020.21	N 32 5 35.69	W 103 36 4.82
	400.00	0.00	269.65	400.00	0.00	0.00	0.00	0.00	398429.78	768020.21	N 32 5 35.69	W 103 36 4.82
	500.00	0.00	269.65	500.00	0.00	0.00	0.00	0.00	398429.78	768020.21	N 32 5 35.69	W 103 36 4.82
	600.00	0.00	269.65	600.00	0.00	0.00	0.00	0.00	398429.78	768020.21	N 32 5 35.69	W 103 36 4.82
	700.00	0.00	269.65	700.00	0.00	0.00	0.00	0.00	398429.78	768020.21	N 32 5 35.69	W 103 36 4.82
	800.00	0.00	269.65	800.00	0.00	0.00	0.00	0.00	398429.78	768020.21	N 32 5 35.69	W 103 36 4.82
	900.00	0.00	269.65	900.00	0.00	0.00	0.00	0.00	398429.78	768020.21	N 32 5 35.69	W 103 36 4.82
Rustler	934.00	0.00	269.65	934.00	0.00	0.00	0.00	0.00	398429.78	768020.21	N 32 5 35.69	W 103 36 4.82
	1000.00	0.00	269.65	1000.00	0.00	0.00	0.00	0.00	398429.78	768020.21	N 32 5 35.69	W 103 36 4.82
	1100.00	0.00	269.65	1100.00	0.00	0.00	0.00	0.00	398429.78	768020.21	N 32 5 35.69	W 103 36 4.82
	1200.00	0.00	269.65	1200.00	0.00	0.00	0.00	0.00	398429.78	768020.21	N 32 5 35.69	W 103 36 4.82
	1300.00	0.00	269.65	1300.00	0.00	0.00	0.00	0.00	398429.78	768020.21	N 32 5 35.69	W 103 36 4.82
Top of Salt	1349.00	0.00	269.65	1349.00	0.00	0.00	0.00	0.00	398429.78	768020.21	N 32 5 35.69	W 103 36 4.82
	1400.00	0.00	269.65	1400.00	0.00	0.00	0.00	0.00	398429.78	768020.21	N 32 5 35.69	W 103 36 4.82
	1500.00	0.00	269.65	1500.00	0.00	0.00	0.00	0.00	398429.78	768020.21	N 32 5 35.69	W 103 36 4.82
	1600.00	0.00	269.65	1600.00	0.00	0.00	0.00	0.00	398429.78	768020.21	N 32 5 35.69	W 103 36 4.82
	1700.00	0.00	269.65	1700.00	0.00	0.00	0.00	0.00	398429.78	768020.21	N 32 5 35.69	W 103 36 4.82
	1800.00	0.00	269.65	1800.00	0.00	0.00	0.00	0.00	398429.78	768020.21	N 32 5 35.69	W 103 36 4.82
	1900.00	0.00	269.65	1900.00	0.00	0.00	0.00	0.00	398429.78	768020.21	N 32 5 35.69	W 103 36 4.82
	2000.00	0.00	269.65	2000.00	0.00	0.00	0.00	0.00	398429.78	768020.21	N 32 5 35.69	W 103 36 4.82
	2100.00	0.00	269.65	2100.00	0.00	0.00	0.00	0.00	398429.78	768020.21	N 32 5 35.69	W 103 36 4.82
	2200.00	0.00	269.65	2200.00	0.00	0.00	0.00	0.00	398429.78	768020.21	N 32 5 35.69	W 103 36 4.82
	2300.00	0.00	269.65	2300.00	0.00	0.00	0.00	0.00	398429.78	768020.21	N 32 5 35.69	W 103 36 4.82
	2400.00	0.00	269.65	2400.00	0.00	0.00	0.00	0.00	398429.78	768020.21	N 32 5 35.69	W 103 36 4.82
Nudge 2"/100' DLS	2500.00	0.00	269.65	2500.00	0.00	0.00	0.00	0.00	398429.78	768020.21	N 32 5 35.69	W 103 36 4.82
	2600.00	2.00	269.65	2599.98	0.00	-0.01	-1.75	2.00	398429.77	768018.46	N 32 5 35.69	W 103 36 4.84
	2700.00	4.00	269.65	2699.94	-0.01	-0.04	-6.98	2.00	398429.74	768013.23	N 32 5 35.69	W 103 36 4.90
Hold Nudge	2700.30	4.01	269.65	2700.14	-0.01	-0.04	-7.00	2.00	398429.74	768013.21	N 32 5 35.69	W 103 36 4.90
	2800.00	4.01	269.65	2799.59	-0.01	-0.09	-13.96	0.00	398429.69	768006.25	N 32 5 35.69	W 103 36 4.98
	2900.00	4.01	269.65	2899.35	-0.02	-0.13	-20.95	0.00	398429.65	767999.26	N 32 5 35.69	W 103 36 5.06
	3000.00	4.01	269.65	2999.10	-0.02	-0.17	-27.94	0.00	398429.61	767992.27	N 32 5 35.69	W 103 36 5.14
	3100.00	4.01	269.65	3098.86	-0.03	-0.22	-34.92	0.00	398429.56	767985.29	N 32 5 35.69	W 103 36 5.22
	3200.00	4.01	269.65	3198.62	-0.03	-0.26	-41.91	0.00	398429.52	767978.30	N 32 5 35.69	W 103 36 5.30
	3300.00	4.01	269.65	3298.37	-0.04	-0.30	-48.89	0.00	398429.48	767971.32	N 32 5 35.69	W 103 36 5.38
	3400.00	4.01	269.65	3398.13	-0.04	-0.34	-55.88	0.00	398429.44	767964.33	N 32 5 35.69	W 103 36 5.46
	3500.00	4.01	269.65	3497.88	-0.05	-0.39	-62.87	0.00	398429.39	767957.35	N 32 5 35.69	W 103 36 5.55
	3600.00	4.01	269.65	3597.64	-0.05	-0.43	-69.85	0.00	398429.35	767950.36	N 32 5 35.69	W 103 36 5.63
	3700.00	4.01	269.65	3697.39	-0.06	-0.47	-76.84	0.00	398429.31	767943.37	N 32 5 35.69	W 103 36 5.71
	3800.00	4.01	269.65	3797.15	-0.06	-0.52	-83.82	0.00	398429.26	767936.39	N 32 5 35.69	W 103 36 5.79
	3900.00	4.01	269.65	3896.91	-0.07	-0.56	-90.81	0.00	398429.22	767929.40	N 32 5 35.69	W 103 36 5.87
	4000.00	4.01	269.65	3996.66	-0.07	-0.60	-97.80	0.00	398429.18	767922.42	N 32 5 35.69	W 103 36 5.95
	4100.00	4.01	269.65	4096.42	-0.08	-0.65	-104.78	0.00	398429.13	767915.43	N 32 5 35.69	W 103 36 6.03
	4200.00	4.01	269.65	4196.17	-0.08	-0.69	-111.77	0.00	398429.09	767908.45	N 32 5 35.69	W 103 36 6.11
	4300.00	4.01	269.65	4295.93	-0.09	-0.73	-118.75	0.00	398429.05	767901.46	N 32 5 35.69	W 103 36 6.20
	4400.00	4.01	269.65	4395.68	-0.09	-0.77	-125.74	0.00	398429.01	767894.47	N 32 5 35.69	W 103 36 6.28
	4500.00	4.01	269.65	4495.44	-0.10	-0.82	-132.73	0.00	398428.96	767887.49	N 32 5 35.69	W 103 36 6.36
Drop to Vertical 2"/100' DLS	4504.57	4.01	269.65	4500.00	-0.10	-0.82	-133.04	0.00	398428.96	767887.17	N 32 5 35.69	W 103 36 6.36
	4600.00	2.10	269.65	4595.29	-0.10	-0.85	-138.13	2.00	398428.93	767882.09	N 32 5 35.69	W 103 36 6.42
Base of Salt	4655.73	0.98	269.65	4651.00	-0.10	-0.86	-139.62	2.00	398428.92	767880.59	N 32 5 35.69	W 103 36 6.44
	4700.00	0.10	269.65	4695.27	-0.11	-0.86	-140.04	2.00	398428.92	767880.17	N 32 5 35.69	W 103 36 6.44
Hold Vertical	4704.87	0.00	269.65	4700.14	-0.11	-0.86	-140.04	2.00	398428.92	767880.17	N 32 5 35.69	W 103 36 6.44
	4800.00	0.00	269.65	4795.27	-0.11	-0.86	-140.04	0.00	398428.92	767880.17	N 32 5 35.69	W 103 36 6.44
Lamar	4896.73	0.00	269.65	4892.00	-0.11	-0.86	-140.04	0.00	398428.92	767880.17	N 32 5 35.69	W 103 36 6.44
	4900.00	0.00	269.65	4895.27	-0.11	-0.86	-140.04	0.00	398428.92	767880.17	N 32 5 35.69	W 103 36 6.44
Bell Canyon	4933.73	0.00	269.65	4929.00	-0.11	-0.86	-140.04	0.00	398428.92	767880.17	N 32 5 35.69	W 103 36 6.44
	5000.00	0.00	269.65	4995.27	-0.11	-0.86	-140.04	0.00	398428.92	767880.17	N 32 5 35.69	W 103 36 6.44
	5100.00	0.00	269.65	5095.27	-0.11	-0.86	-140.04	0.00	398428.92	767880.17	N 32 5 35.69	W 103 36 6.44
	5200.00	0.00	269.65	5195.27	-0.11	-0.86	-140.04	0.00	398428.92	767880.17	N 32 5 35.69	W 103 36 6.44
	5300.00	0.00	269.65	5295.27	-0.11	-0.86	-140.04	0.00	398428.92	767880.17	N 32 5 35.69	W 103 36 6.44
	5400.00	0.00	269.65	5395.27	-0.11	-0.86	-140.04	0.00	398428.92	767880.17	N 32 5 35.69	W 103 36 6.44
	5500.00	0.00	269.65	5495.27	-0.11	-0.86	-140.04	0.00	398428.92	767880.17	N 32 5 35.69	W 103 36 6.44
	5600.00	0.00	269.65	5595.27	-0.11	-0.86	-140.04	0.00	398428.92	767880.17	N 32 5 35.69	W 103 36 6.44
	5700.00	0.00	269.65	5695.27	-0.11	-0.86	-140.04	0.00	398428.92	767880.17	N 32 5 35.69	W 103 36 6.44
	5800.00	0.00	269.65	5795.27	-0.11	-0.86	-140.04	0.00	398428.92	767880.17	N 32 5 35.69	W 103 36 6.44
	5900.00	0.00	269.65	5895.27	-0.11	-0.86	-140.04	0.00	398428.92	767880.17	N 32 5 35.69	W 103 36 6.44
	6000.00	0.00	269.65	5995.27	-0.11	-0.86	-140.04	0.00	398428.92	767880.17	N 32 5 35.69	W 103 36 6.44
Cherry Canyon	6005.73	0.00	269.65	6001.00	-0.11	-0.86	-140.04	0.00	398428.92	767880.17	N 32 5 35.69	W 103 36 6.44
	6100.00	0.00	269.65	6095.27	-0.11	-0.86	-140.04	0.00	398428.92	767880.17	N 32 5 35.69	W 103 36 6.44
	6200.00	0.00	269.65	6195.27	-0.11	-0.86	-140.04	0.00	398428.92	767880.17	N 32 5 35.69	W 103 36 6.44
	6300.00	0.00	269.65	6295.27	-0.11	-0.86	-140.04	0.00	398428.92	767880.17	N 32 5 35.69	W 103 36 6.44
	6400.00	0.00	269.65	6395.27	-0.11	-0.86	-140.04	0.00	398428.92	767880.17	N 32 5 35.69	W 103 36 6.44

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 ° ' ")
	6500.00	0.00	269.65	6495.27	-0.11	-0.86	-140.04	0.00	398428.92	767880.17	N 32 5 35.69 W 103 36 6.44	
	6600.00	0.00	269.65	6595.27	-0.11	-0.86	-140.04	0.00	398428.92	767880.17	N 32 5 35.69 W 103 36 6.44	
	6700.00	0.00	269.65	6695.27	-0.11	-0.86	-140.04	0.00	398428.92	767880.17	N 32 5 35.69 W 103 36 6.44	
	6800.00	0.00	269.65	6795.27	-0.11	-0.86	-140.04	0.00	398428.92	767880.17	N 32 5 35.69 W 103 36 6.44	
	6900.00	0.00	269.65	6895.27	-0.11	-0.86	-140.04	0.00	398428.92	767880.17	N 32 5 35.69 W 103 36 6.44	
	7000.00	0.00	269.65	6995.27	-0.11	-0.86	-140.04	0.00	398428.92	767880.17	N 32 5 35.69 W 103 36 6.44	
	7100.00	0.00	269.65	7095.27	-0.11	-0.86	-140.04	0.00	398428.92	767880.17	N 32 5 35.69 W 103 36 6.44	
	7200.00	0.00	269.65	7195.27	-0.11	-0.86	-140.04	0.00	398428.92	767880.17	N 32 5 35.69 W 103 36 6.44	
	7300.00	0.00	269.65	7295.27	-0.11	-0.86	-140.04	0.00	398428.92	767880.17	N 32 5 35.69 W 103 36 6.44	
	7400.00	0.00	269.65	7395.27	-0.11	-0.86	-140.04	0.00	398428.92	767880.17	N 32 5 35.69 W 103 36 6.44	
	7500.00	0.00	269.65	7495.27	-0.11	-0.86	-140.04	0.00	398428.92	767880.17	N 32 5 35.69 W 103 36 6.44	
Brusy Canyon	7541.73	0.00	269.65	7537.00	-0.11	-0.86	-140.04	0.00	398428.92	767880.17	N 32 5 35.69 W 103 36 6.44	
	7600.00	0.00	269.65	7595.27	-0.11	-0.86	-140.04	0.00	398428.92	767880.17	N 32 5 35.69 W 103 36 6.44	
	7700.00	0.00	269.65	7695.27	-0.11	-0.86	-140.04	0.00	398428.92	767880.17	N 32 5 35.69 W 103 36 6.44	
	7800.00	0.00	269.65	7795.27	-0.11	-0.86	-140.04	0.00	398428.92	767880.17	N 32 5 35.69 W 103 36 6.44	
	7900.00	0.00	269.65	7895.27	-0.11	-0.86	-140.04	0.00	398428.92	767880.17	N 32 5 35.69 W 103 36 6.44	
	8000.00	0.00	269.65	7995.27	-0.11	-0.86	-140.04	0.00	398428.92	767880.17	N 32 5 35.69 W 103 36 6.44	
	8100.00	0.00	269.65	8095.27	-0.11	-0.86	-140.04	0.00	398428.92	767880.17	N 32 5 35.69 W 103 36 6.44	
	8200.00	0.00	269.65	8195.27	-0.11	-0.86	-140.04	0.00	398428.92	767880.17	N 32 5 35.69 W 103 36 6.44	
	8300.00	0.00	269.65	8295.27	-0.11	-0.86	-140.04	0.00	398428.92	767880.17	N 32 5 35.69 W 103 36 6.44	
	8400.00	0.00	269.65	8395.27	-0.11	-0.86	-140.04	0.00	398428.92	767880.17	N 32 5 35.69 W 103 36 6.44	
	8500.00	0.00	269.65	8495.27	-0.11	-0.86	-140.04	0.00	398428.92	767880.17	N 32 5 35.69 W 103 36 6.44	
	8600.00	0.00	269.65	8595.27	-0.11	-0.86	-140.04	0.00	398428.92	767880.17	N 32 5 35.69 W 103 36 6.44	
	8700.00	0.00	269.65	8695.27	-0.11	-0.86	-140.04	0.00	398428.92	767880.17	N 32 5 35.69 W 103 36 6.44	
	8800.00	0.00	269.65	8795.27	-0.11	-0.86	-140.04	0.00	398428.92	767880.17	N 32 5 35.69 W 103 36 6.44	
	8900.00	0.00	269.65	8895.27	-0.11	-0.86	-140.04	0.00	398428.92	767880.17	N 32 5 35.69 W 103 36 6.44	
	9000.00	0.00	269.65	8995.27	-0.11	-0.86	-140.04	0.00	398428.92	767880.17	N 32 5 35.69 W 103 36 6.44	
Bone Spring	9043.73	0.00	269.65	9039.00	-0.11	-0.86	-140.04	0.00	398428.92	767880.17	N 32 5 35.69 W 103 36 6.44	
Leonard Shale	9098.73	0.00	269.65	9094.00	-0.11	-0.86	-140.04	0.00	398428.92	767880.17	N 32 5 35.69 W 103 36 6.44	
	9100.00	0.00	269.65	9095.27	-0.11	-0.86	-140.04	0.00	398428.92	767880.17	N 32 5 35.69 W 103 36 6.44	
	9200.00	0.00	269.65	9195.27	-0.11	-0.86	-140.04	0.00	398428.92	767880.17	N 32 5 35.69 W 103 36 6.44	
	9300.00	0.00	269.65	9295.27	-0.11	-0.86	-140.04	0.00	398428.92	767880.17	N 32 5 35.69 W 103 36 6.44	
Avalon Shale	9360.73	0.00	269.65	9356.00	-0.11	-0.86	-140.04	0.00	398428.92	767880.17	N 32 5 35.69 W 103 36 6.44	
	9400.00	0.00	269.65	9395.27	-0.11	-0.86	-140.04	0.00	398428.92	767880.17	N 32 5 35.69 W 103 36 6.44	
	9500.00	0.00	269.65	9495.27	-0.11	-0.86	-140.04	0.00	398428.92	767880.17	N 32 5 35.69 W 103 36 6.44	
	9600.00	0.00	269.65	9595.27	-0.11	-0.86	-140.04	0.00	398428.92	767880.17	N 32 5 35.69 W 103 36 6.44	
	9700.00	0.00	269.65	9695.27	-0.11	-0.86	-140.04	0.00	398428.92	767880.17	N 32 5 35.69 W 103 36 6.44	
Lower Avalon	9735.73	0.00	269.65	9731.00	-0.11	-0.86	-140.04	0.00	398428.92	767880.17	N 32 5 35.69 W 103 36 6.44	
Shale	9800.00	0.00	269.65	9795.27	-0.11	-0.86	-140.04	0.00	398428.92	767880.17	N 32 5 35.69 W 103 36 6.44	
	9900.00	0.00	269.65	9895.27	-0.11	-0.86	-140.04	0.00	398428.92	767880.17	N 32 5 35.69 W 103 36 6.44	
	10000.00	0.00	269.65	9995.27	-0.11	-0.86	-140.04	0.00	398428.92	767880.17	N 32 5 35.69 W 103 36 6.44	
1st Bone Spring	10040.73	0.00	269.65	10036.00	-0.11	-0.86	-140.04	0.00	398428.92	767880.17	N 32 5 35.69 W 103 36 6.44	
Sand	10100.00	0.00	269.65	10095.27	-0.11	-0.86	-140.04	0.00	398428.92	767880.17	N 32 5 35.69 W 103 36 6.44	
	10200.00	0.00	269.65	10195.27	-0.11	-0.86	-140.04	0.00	398428.92	767880.17	N 32 5 35.69 W 103 36 6.44	
2nd Bone Spring	10227.73	0.00	269.65	10223.00	-0.11	-0.86	-140.04	0.00	398428.92	767880.17	N 32 5 35.69 W 103 36 6.44	
Carb	10300.00	0.00	269.65	10295.27	-0.11	-0.86	-140.04	0.00	398428.92	767880.17	N 32 5 35.69 W 103 36 6.44	
	10400.00	0.00	269.65	10395.27	-0.11	-0.86	-140.04	0.00	398428.92	767880.17	N 32 5 35.69 W 103 36 6.44	
	10500.00	0.00	269.65	10495.27	-0.11	-0.86	-140.04	0.00	398428.92	767880.17	N 32 5 35.69 W 103 36 6.44	
2nd Bone Spring	10568.73	0.00	269.65	10564.00	-0.11	-0.86	-140.04	0.00	398428.92	767880.17	N 32 5 35.69 W 103 36 6.44	
Sand	10600.00	0.00	269.65	10595.27	-0.11	-0.86	-140.04	0.00	398428.92	767880.17	N 32 5 35.69 W 103 36 6.44	
	10700.00	0.00	269.65	10695.27	-0.11	-0.86	-140.04	0.00	398428.92	767880.17	N 32 5 35.69 W 103 36 6.44	
	10800.00	0.00	269.65	10795.27	-0.11	-0.86	-140.04	0.00	398428.92	767880.17	N 32 5 35.69 W 103 36 6.44	
	10900.00	0.00	269.65	10895.27	-0.11	-0.86	-140.04	0.00	398428.92	767880.17	N 32 5 35.69 W 103 36 6.44	
	11000.00	0.00	269.65	10995.27	-0.11	-0.86	-140.04	0.00	398428.92	767880.17	N 32 5 35.69 W 103 36 6.44	
3rd Bone Spring	11021.73	0.00	269.65	11017.00	-0.11	-0.86	-140.04	0.00	398428.92	767880.17	N 32 5 35.69 W 103 36 6.44	
Carb	11100.00	0.00	269.65	11095.27	-0.11	-0.86	-140.04	0.00	398428.92	767880.17	N 32 5 35.69 W 103 36 6.44	
	11200.00	0.00	269.65	11195.27	-0.11	-0.86	-140.04	0.00	398428.92	767880.17	N 32 5 35.69 W 103 36 6.44	
	11300.00	0.00	269.65	11295.27	-0.11	-0.86	-140.04	0.00	398428.92	767880.17	N 32 5 35.69 W 103 36 6.44	
	11400.00	0.00	269.65	11395.27	-0.11	-0.86	-140.04	0.00	398428.92	767880.17	N 32 5 35.69 W 103 36 6.44	
	11500.00	0.00	269.65	11495.27	-0.11	-0.86	-140.04	0.00	398428.92	767880.17	N 32 5 35.69 W 103 36 6.44	
	11600.00	0.00	269.65	11595.27	-0.11	-0.86	-140.04	0.00	398428.92	767880.17	N 32 5 35.69 W 103 36 6.44	
3rd Bone Spring	11686.73	0.00	269.65	11682.00	-0.11	-0.86	-140.04	0.00	398428.92	767880.17	N 32 5 35.69 W 103 36 6.44	
Sand	11700.00	0.00	269.65	11695.27	-0.11	-0.86	-140.04	0.00	398428.92	767880.17	N 32 5 35.69 W 103 36 6.44	
	11800.00	0.00	269.65	11795.27	-0.11	-0.86	-140.04	0.00	398428.92	767880.17	N 32 5 35.69 W 103 36 6.44	
	11900.00	0.00	269.65	11895.27	-0.11	-0.86	-140.04	0.00	398428.92	767880.17	N 32 5 35.69 W 103 36 6.44	
KOP - Build	11994.73	0.00	269.65	11990.00	-0.11	-0.86	-140.04	0.00	398428.92	767880.17	N 32 5 35.69 W 103 36 6.44	
12°/100' DLS	12000.00	0.63	179.60	11995.27	-0.08	-0.89	-140.04	12.00	398428.89	767880.17	N 32 5 35.69 W 103 36 6.44	
	12100.00	12.63	179.60	12094.41	11.45	-12.42	-139.96	12.00	398417.36	767880.25	N 32 5 35.58 W 103 36 6.44	
Wolfcamp	12131.60	16.42	179.60	12125.00	19.38	-20.35	-139.91	12.00	398409.43	767880.31	N 32 5 35.50 W 103 36 6.44	
	12200.00	24.63	179.60	12189.00	43.34	-44.31	-139.74	12.00	398385.47	767880.47	N 32 5 35.26 W 103 36 6.44	
Wolfcamp Y	12275.67	33.71	179.60	12255.00	80.19	-81.15	-139.49	12.00	398348.63	767880.73	N 32 5 34.90 W 103 36 6.44	
Sand	12300.00	36.63	179.60	12274.89	94.20	-95.17	-139.39	12.00	398334.61	767880.82	N 32 5 34.76 W 103 36 6.44	
	12333.44	40.64	179.60	12301.00	115.08	-116.04	-139.25	12.00	398313.74	767880.97	N 32 5 34.55 W 103 36 6.44	
Wolfcamp A1	12400.00	48.63	179.60	12348.33	161.81	-162.77	-138.93	12.00	398267.01	767881.29	N 32 5 34.09 W 103 36 6.44	
	12500.00	60.63	179.60	12406.10	243.20	-244.17	-138.36	12.00	398185.62	767881.85	N 32 5 33.29 W 103 36 6.44	
	12600.00	72.63	179.60	12445.69	334.83	-335.79	-137.73	12.00	398094.00	767882.49	N 32 5 32.38 W 103 36 6.44	
Build 4°/100'	12619.73	75.00	179.60	12451.19	353.78	-354.74	-137.60	12.00	398075.05	767882.62	N 32 5 32.19 W 103 36 6.44	
DLS	12700.00	78.21	179.60	12469.78	431.86	-432.82	-137.06	4.00	397996.98	767883.16	N 32 5 31.42 W 103 36 6.44	
	12800.00	82.21										

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 ° ' ")
	14900.00	90.00	179.60	12500.00	2629.78	-2630.69	-121.87	0.00	395799.18	767898.34	N 32 5 9.67	W 103 36 6.44
	15000.00	90.00	179.60	12500.00	2729.78	-2730.69	-121.18	0.00	395699.19	767899.04	N 32 5 8.68	W 103 36 6.44
	15100.00	90.00	179.60	12500.00	2829.78	-2830.68	-120.49	0.00	395599.19	767899.73	N 32 5 7.69	W 103 36 6.44
	15200.00	90.00	179.60	12500.00	2929.78	-2930.68	-119.80	0.00	395499.20	767900.42	N 32 5 6.70	W 103 36 6.44
	15300.00	90.00	179.60	12500.00	3029.78	-3030.68	-119.11	0.00	395399.21	767901.11	N 32 5 5.71	W 103 36 6.44
	15400.00	90.00	179.60	12500.00	3129.78	-3130.68	-118.41	0.00	395299.21	767901.80	N 32 5 4.72	W 103 36 6.44
	15500.00	90.00	179.60	12500.00	3229.78	-3230.67	-117.72	0.00	395199.22	767902.49	N 32 5 3.73	W 103 36 6.44
	15600.00	90.00	179.60	12500.00	3329.78	-3330.67	-117.03	0.00	395099.22	767903.18	N 32 5 2.74	W 103 36 6.44
	15700.00	90.00	179.60	12500.00	3429.78	-3430.67	-116.34	0.00	394999.23	767903.87	N 32 5 1.75	W 103 36 6.44
	15800.00	90.00	179.60	12500.00	3529.78	-3530.67	-115.65	0.00	394899.23	767904.56	N 32 5 0.76	W 103 36 6.44
	15900.00	90.00	179.60	12500.00	3629.78	-3630.66	-114.96	0.00	394799.24	767905.26	N 32 4 59.77	W 103 36 6.44
	16000.00	90.00	179.60	12500.00	3729.78	-3730.66	-114.27	0.00	394699.25	767905.95	N 32 4 58.79	W 103 36 6.44
	16100.00	90.00	179.60	12500.00	3829.78	-3830.66	-113.58	0.00	394599.25	767906.64	N 32 4 57.80	W 103 36 6.44
	16200.00	90.00	179.60	12500.00	3929.78	-3930.66	-112.89	0.00	394499.26	767907.33	N 32 4 56.81	W 103 36 6.44
	16300.00	90.00	179.60	12500.00	4029.78	-4030.65	-112.19	0.00	394399.26	767908.02	N 32 4 55.82	W 103 36 6.44
	16400.00	90.00	179.60	12500.00	4129.78	-4130.65	-111.50	0.00	394299.27	767908.71	N 32 4 54.83	W 103 36 6.44
	16500.00	90.00	179.60	12500.00	4229.78	-4230.65	-110.81	0.00	394199.27	767909.40	N 32 4 53.84	W 103 36 6.44
	16600.00	90.00	179.60	12500.00	4329.78	-4330.65	-110.12	0.00	394099.28	767910.09	N 32 4 52.85	W 103 36 6.44
	16700.00	90.00	179.60	12500.00	4429.78	-4430.64	-109.43	0.00	393999.29	767910.78	N 32 4 51.86	W 103 36 6.44
	16800.00	90.00	179.60	12500.00	4529.78	-4530.64	-108.74	0.00	393899.29	767911.47	N 32 4 50.87	W 103 36 6.44
	16900.00	90.00	179.60	12500.00	4629.78	-4630.64	-108.05	0.00	393799.30	767912.17	N 32 4 49.88	W 103 36 6.44
	17000.00	90.00	179.60	12500.00	4729.78	-4730.64	-107.36	0.00	393699.30	767912.86	N 32 4 48.89	W 103 36 6.44
	17100.00	90.00	179.60	12500.00	4829.78	-4830.63	-106.67	0.00	393599.31	767913.55	N 32 4 47.90	W 103 36 6.44
Private Leaseline Crossing	17164.00	90.00	179.60	12500.00	4893.78	-4894.63	-106.22	0.00	393535.31	767913.99	N 32 4 47.27	W 103 36 6.44
	17200.00	90.00	179.60	12500.00	4929.78	-4930.63	-105.97	0.00	393499.32	767914.24	N 32 4 46.91	W 103 36 6.44
	17300.00	90.00	179.60	12500.00	5029.78	-5030.63	-105.28	0.00	393399.32	767914.93	N 32 4 45.92	W 103 36 6.44
	17400.00	90.00	179.60	12500.00	5129.78	-5130.63	-104.59	0.00	393299.33	767915.62	N 32 4 44.93	W 103 36 6.44
	17500.00	90.00	179.60	12500.00	5229.78	-5230.63	-103.90	0.00	393199.33	767916.31	N 32 4 43.94	W 103 36 6.44
	17600.00	90.00	179.60	12500.00	5329.78	-5330.62	-103.21	0.00	393099.34	767917.00	N 32 4 42.95	W 103 36 6.44
	17700.00	90.00	179.60	12500.00	5429.78	-5430.62	-102.52	0.00	392999.34	767917.69	N 32 4 41.96	W 103 36 6.44
	17800.00	90.00	179.60	12500.00	5529.78	-5530.62	-101.83	0.00	392899.35	767918.39	N 32 4 40.97	W 103 36 6.43
	17900.00	90.00	179.60	12500.00	5629.78	-5630.62	-101.14	0.00	392799.36	767919.08	N 32 4 39.98	W 103 36 6.43
	18000.00	90.00	179.60	12500.00	5729.78	-5730.61	-100.45	0.00	392699.36	767919.77	N 32 4 38.99	W 103 36 6.43
	18100.00	90.00	179.60	12500.00	5829.78	-5830.61	-99.75	0.00	392599.37	767920.46	N 32 4 38.00	W 103 36 6.43
	18200.00	90.00	179.60	12500.00	5929.78	-5930.61	-99.06	0.00	392499.37	767921.15	N 32 4 37.02	W 103 36 6.43
	18300.00	90.00	179.60	12500.00	6029.78	-6030.61	-98.37	0.00	392399.38	767921.84	N 32 4 36.03	W 103 36 6.43
	18400.00	90.00	179.60	12500.00	6129.78	-6130.60	-97.68	0.00	392299.38	767922.53	N 32 4 35.04	W 103 36 6.43
Private - NMNM0106040 4 Crossing	18486.50	90.00	179.60	12500.00	6216.28	-6217.10	-97.08	0.00	392212.89	767923.13	N 32 4 34.18	W 103 36 6.43
	18500.00	90.00	179.60	12500.00	6229.78	-6230.60	-96.99	0.00	392199.39	767923.22	N 32 4 34.05	W 103 36 6.43
	18600.00	90.00	179.60	12500.00	6329.78	-6330.60	-96.30	0.00	392099.40	767923.91	N 32 4 33.06	W 103 36 6.43
	18700.00	90.00	179.60	12500.00	6429.78	-6430.60	-95.61	0.00	391999.40	767924.60	N 32 4 32.07	W 103 36 6.43
	18800.00	90.00	179.60	12500.00	6529.78	-6530.59	-94.92	0.00	391899.41	767925.30	N 32 4 31.08	W 103 36 6.43
	18900.00	90.00	179.60	12500.00	6629.78	-6630.59	-94.23	0.00	391799.41	767925.99	N 32 4 30.09	W 103 36 6.43
	19000.00	90.00	179.60	12500.00	6729.78	-6730.59	-93.54	0.00	391699.42	767926.68	N 32 4 29.10	W 103 36 6.43
	19100.00	90.00	179.60	12500.00	6829.78	-6830.59	-92.84	0.00	391599.43	767927.37	N 32 4 28.11	W 103 36 6.43
	19200.00	90.00	179.60	12500.00	6929.78	-6930.58	-92.15	0.00	391499.43	767928.06	N 32 4 27.12	W 103 36 6.43
	19300.00	90.00	179.60	12500.00	7029.78	-7030.58	-91.46	0.00	391399.44	767928.75	N 32 4 26.13	W 103 36 6.43
	19400.00	90.00	179.60	12500.00	7129.78	-7130.58	-90.77	0.00	391299.44	767929.44	N 32 4 25.14	W 103 36 6.43
	19500.00	90.00	179.60	12500.00	7229.78	-7230.58	-90.08	0.00	391199.45	767930.13	N 32 4 24.15	W 103 36 6.43
	19600.00	90.00	179.60	12500.00	7329.78	-7330.58	-89.39	0.00	391099.45	767930.82	N 32 4 23.16	W 103 36 6.43
	19700.00	90.00	179.60	12500.00	7429.78	-7430.57	-88.70	0.00	390999.46	767931.52	N 32 4 22.17	W 103 36 6.43
	19800.00	90.00	179.60	12500.00	7529.78	-7530.57	-88.01	0.00	390899.47	767932.21	N 32 4 21.18	W 103 36 6.43
NMNM0106040 4 - NMNM0160973 Crossing	19809.10	90.00	179.60	12500.00	7538.88	-7539.67	-87.94	0.00	390890.37	767932.27	N 32 4 21.09	W 103 36 6.43
	19900.00	90.00	179.60	12500.00	7629.78	-7630.57	-87.32	0.00	390799.47	767932.90	N 32 4 20.19	W 103 36 6.43
	20000.00	90.00	179.60	12500.00	7729.78	-7730.57	-86.62	0.00	390699.48	767933.59	N 32 4 19.20	W 103 36 6.43
	20100.00	90.00	179.60	12500.00	7829.78	-7830.56	-85.93	0.00	390599.48	767934.28	N 32 4 18.21	W 103 36 6.43
	20200.00	90.00	179.60	12500.00	7929.78	-7930.56	-85.24	0.00	390499.49	767934.97	N 32 4 17.22	W 103 36 6.43
	20300.00	90.00	179.60	12500.00	8029.78	-8030.56	-84.55	0.00	390399.49	767935.66	N 32 4 16.23	W 103 36 6.43
	20400.00	90.00	179.60	12500.00	8129.78	-8130.56	-83.86	0.00	390299.50	767936.35	N 32 4 15.25	W 103 36 6.43
	20500.00	90.00	179.60	12500.00	8229.78	-8230.55	-83.17	0.00	390199.51	767937.04	N 32 4 14.26	W 103 36 6.43
	20600.00	90.00	179.60	12500.00	8329.78	-8330.55	-82.48	0.00	390099.51	767937.73	N 32 4 13.27	W 103 36 6.43
	20700.00	90.00	179.60	12500.00	8429.78	-8430.55	-81.79	0.00	389999.52	767938.43	N 32 4 12.28	W 103 36 6.43
	20800.00	90.00	179.60	12500.00	8529.78	-8530.55	-81.10	0.00	389899.52	767939.12	N 32 4 11.29	W 103 36 6.43
	20900.00	90.00	179.60	12500.00	8629.78	-8630.54	-80.40	0.00	389799.53	767939.81	N 32 4 10.30	W 103 36 6.43
	21000.00	90.00	179.60	12500.00	8729.78	-8730.54	-79.71	0.00	389699.54	767940.50	N 32 4 9.31	W 103 36 6.43
	21100.00	90.00	179.60	12500.00	8829.78	-8830.54	-79.02	0.00	389599.54	767941.19	N 32 4 8.32	W 103 36 6.43
	21200.00	90.00	179.60	12500.00	8929.78	-8930.54	-78.33	0.00	389499.55	767941.88	N 32 4 7.33	W 103 36 6.43
	21300.00	90.00	179.60	12500.00	9029.78	-9030.53	-77.64	0.00	389399.55	767942.57	N 32 4 6.34	W 103 36 6.43
	21400.00	90.00	179.60	12500.00	9129.78	-9130.53	-76.95	0.00	389299.56	767943.26	N 32 4 5.35	W 103 36 6.43
	21500.00	90.00	179.60	12500.00	9229.78	-9230.53	-76.26	0.00	389199.56	767943.95	N 32 4 4.36	W 103 36 6.43
	21600.00	90.00	179.60	12500.00	9329.78	-9330.53	-75.57	0.00	389099.57	767944.65	N 32 4 3.37	W 103 36 6.43
	21700.00	90.00	179.60	12500.00	9429.78	-9430.53	-74.88	0.00	388999.58	767945.34	N 32 4 2.38	W 103 36 6.43
	21800.00	90.00	179.60	12500.00	9529.78	-9530.52	-74.19	0.00	388899.58	767946.03	N 32 4 1.39	W 103 36 6.43
	21900.00	90.00	179.60	12500.00	9629.78	-9630.52	-73.49	0.00	388799.59	767946.72	N 32 4 0.40	W 103 36 6.43
	22000.00	90.00	179.60	12500.00	9729.78	-9730.52	-72.80	0.00	388699.59	767947.41	N 3	



Cimarex Red Hills 32-5 Fed Com #131H Rev1 RM 11Oct19 Proposal Geodetic Report (Def Plan)



Report Date: October 22, 2019 - 04:13 PM
Client: Cimarex
Field: NM Lea County (NAD 83)
Structure / Slot: Cimarex Red Hills 32-5 Fed Com #131H / Cimarex Red Hills 32-5 Fed Com #131H
Well: Cimarex Red Hills 32-5 Fed Com #131H
Borehole: Original Borehole
UWI / API#: Unknown / Unknown
Survey Name: Cimarex Red Hills 32-5 Fed Com #131H Rev1 RM 11Oct19
Survey Date: May 10, 2018
Tort / AHD / DDI / ERD Ratio: 98.012 ° / 10208.627 ft / 6.252 / 0.817
Coordinate Reference System: NAD83 New Mexico State Plane, Eastern Zone, US Feet
Location Lat / Long: N 32° 5' 35.69277", W 103° 36' 4.81526"
Location Grid N/E Y/X: N 398429.780 ftUS, E 768020.210 ftUS
CRS Grid Convergence Angle: 0.3889 °
Grid Scale Factor: 0.99996794
Version / Patch: 2.10.782.0

Survey / DLS Computation: Minimum Curvature / Lubinski
Vertical Section Azimuth: 179.604 ° (Grid North)
Vertical Section Origin: 0.000 ft, 0.000 ft
TVD Reference Datum: RKB
TVD Reference Elevation: 3422.400 ft above MSL
Seabed / Ground Elevation: 3396.400 ft above MSL
Magnetic Declination: 6.611 °
Total Gravity Field Strength: 998.4291mgn (9.80665 Based)
Gravity Model: GARM
Total Magnetic Field Strength: 47716.644 nT
Magnetic Dip Angle: 59.685 °
Declination Date: October 15, 2019
Magnetic Declination Model: HDGM 2019
North Reference: Grid North
Grid Convergence Used: 0.3889 °
Total Corr Mag North->Grid North: 6.2218 °
Local Coord Referenced To: Structure Reference Point

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 [390' FNL, 470' FWL]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	N/A	398429.78	768020.21	N 32 5 35.69	W 103 36 4.82
Nudge 2"/100' DLS	2500.00	0.00	269.65	2500.00	0.00	0.00	0.00	0.00	398429.78	768020.21	N 32 5 35.69	W 103 36 4.82
Hold Nudge	2700.30	4.01	269.65	2700.14	-0.01	-0.04	-7.00	2.00	398429.74	768013.21	N 32 5 35.69	W 103 36 4.90
Drop to Vertical 2"/100' DLS	4504.57	4.01	269.65	4500.00	-0.10	-0.82	-133.04	0.00	398428.96	767887.17	N 32 5 35.69	W 103 36 6.36
Hold Vertical	4704.87	0.00	269.65	4700.14	-0.11	-0.86	-140.04	2.00	398428.92	767880.17	N 32 5 35.69	W 103 36 6.44
KOP - Build 12"/100' DLS	11994.73	0.00	269.65	11990.00	-0.11	-0.86	-140.04	0.00	398428.92	767880.17	N 32 5 35.69	W 103 36 6.44
Build 4"/100' DLS	12619.73	75.00	179.60	12451.19	353.78	-354.74	-137.60	12.00	398075.05	767882.62	N 32 5 32.19	W 103 36 6.44
Landing Point Cimarex Red Hills 32-5 Fed Com #131H - PBHL [100' FSL, 330' FWL]	12994.73	90.00	179.60	12500.00	724.51	-725.46	-135.04	4.00	397704.34	767885.18	N 32 5 28.52	W 103 36 6.44
	22338.69	90.00	179.60	12500.00	10068.48	-10069.20	-70.46	0.00	388360.92	767949.75	N 32 3 56.06	W 103 36 6.43

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	Original Borehole / Cimarex Red Hills 32-5 Fed Com #131H Rev1 RM 11Oct19
	1	26.000	22338.693	1/100.000	17.500	13.375		NAL_MWD_IFR1+MS	Original Borehole / Cimarex Red Hills 32-5 Fed Com #131H Rev1



Cimarex Red Hills 32-5 Fed Com #131H Rev1 RM 11Oct19 Anti-Collision Summary Report

Analysis Date-24hr Time: November 18, 2019 - 14:46

Client: Cimarex

Field: NM Lea County (NAD 83)

Structure: Cimarex Red Hills 32-5 Fed Com #131H

Slot: Cimarex Red Hills 32-5 Fed Com #131H

Well: Cimarex Red Hills 32-5 Fed Com #131H

Borehole: Original Borehole

Scan MD Range: 0.00ft ~ 22338.69ft

Analysis Method: 3D Least Distance

Reference Trajectory: Cimarex Red Hills 32-5 Fed Com #131H Rev1 RM 11Oct19 (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: 2.10.782.0

Database \ Project: US1153APP452.dir.slb.com\drilling-NM Lea 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 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 Trajectories Summary

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 Red Hills Unit #4
(Offset) Gas Blind Off-17675ft
(Def Survey)

Fail Major

4548.07	32.81	4546.09	4515.26	N/A		MAS = 10.00 (m)	0.00	0.00					Surface
4547.96	32.81	4545.96	4515.15	384445.39		MAS = 10.00 (m)	20.00	20.00					MinPt-O-SF
4547.94	32.81	4545.95	4515.13	484485.79		MAS = 10.00 (m)	26.00	26.00					WRP
4547.93	761.30	4039.74	3786.63	8.98		OSF1.50	2500.00	2500.00					MinPt-CtCt
4580.10	1375.91	3662.17	3204.19	5.00		OSF1.50	4460.00	4455.54	OSF<5.00				Enter Alert
3902.15	3906.09	1296.93	-3.94	1.50		OSF1.50	12980.00	12499.92		OSF<1.50			Enter Minor
2606.12	3908.11	-1.11	-1301.99	1.00		OSF1.50	14380.00	12500.00			OSF<1.00		Enter Major
1201.76	3905.41	-1402.48	-2703.62	0.48		OSF1.50	16690.00	12500.00					MinPts
2601.72	3905.00	-2.27	-1303.28	1.00		OSF1.50	19000.00	12500.00			OSF>1.00		Exit Major
3897.44	3904.87	1293.53	-7.43	1.50		OSF1.50	20400.00	12500.00					Exit Minor
5772.70	3904.80	3168.84	1867.90	2.22		OSF1.50	22338.69	12500.00					TD

Cimarex Red Hills 32-5 Fed
Com #130H Rev2 RM 14Nov19
(Def Plan)

Fail Minor

20.00	16.26	18.71	3.74	N/A		MAS = 4.96 (m)	0.00	0.00	CtCt<=15m<15.00				Enter Alert
20.00	16.26	18.71	3.74	84230.70		MAS = 4.96 (m)	26.00	26.00					WRP
20.00	20.02	6.23	-0.02	1.50		OSF1.50	2050.00	2050.00		OSF<1.50			Enter Minor
20.00	24.26	3.40	-4.26	1.22		OSF1.50	2500.00	2500.00					MinPt-CtCt
20.02	24.39	3.37	-4.31	1.22		OSF1.50	2510.00	2510.00					MINPT-O-EQU
20.07	24.40	3.37	-4.33	1.22		OSF1.50	2520.00	2520.00					MinPts
25.04	25.32	7.74	-0.27	1.48		OSF1.50	2670.00	2669.90			OSF>1.50		Exit Minor
84.94	26.57	66.80	58.37	4.96		OSF1.50	3190.00	3188.64	OSF>5.00				Exit Alert
531.80	47.82	499.49	483.97	17.19		OSF1.50	6850.00	6845.27					MinPt-O-SF
542.94	86.71	484.71	456.24	9.51		OSF1.50	11800.00	11795.27					MINPT-O-EQU
542.95	86.71	484.71	456.24	9.51		OSF1.50	11810.00	11805.27					MinPt-O-ADP
543.18	86.78	484.90	456.40	9.51		OSF1.50	11870.00	11865.27					MinPt-O-SF
597.76	76.36	546.43	521.40	11.92		OSF1.50	13000.00	12500.00					MinPt-CtCt
597.76	180.47	477.02	417.29	4.99		OSF1.50	17910.00	12500.00	OSF<5.00				Enter Alert
597.76	315.61	386.94	282.16	2.83		OSF1.50	22338.69	12500.00					MinPts

Cimarex Red Hills 32-5 Fed
Com #127H Rev2 RM 14Nov19
(Def Plan)

Warning Alert

39.99	32.25	38.71	7.74	N/A		MAS = 9.83 (m)	0.00	0.00	CtCt<=15m<15.00				Enter Alert
39.99	32.25	38.70	7.74	43551.55		MAS = 9.83 (m)	26.00	26.00					WRP
39.99	32.25	23.39	7.74	2.53		MAS = 9.83 (m)	2500.00	2500.00					MinPts
40.01	32.25	23.36	7.76	2.52		MAS = 9.83 (m)	2510.00	2510.00					MINPT-O-EQU
40.15	32.25	23.40	7.90	2.51		MAS = 9.83 (m)	2530.00	2530.00					MinPt-O-SF
81.49	32.25	63.84	49.24	4.90		MAS = 9.83 (m)	2990.00	2989.13	OSF>5.00				Exit Alert
1085.86	87.15	1027.33	998.70	18.99		OSF1.50	11994.73	11990.00					MinPts
1085.86	81.96	1030.79	1003.90	20.17		OSF1.50	12994.73	12500.00					MinPt-CtCt
1085.86	316.26	874.59	769.60	5.19		OSF1.50	22338.69	12500.00					MinPts

Cimarex Red Hills 32-5 Fed
Com #129H Rev2 RM 15Nov19
(Def Plan)

Warning Alert

84.84	32.81	83.56	52.04	N/A		MAS = 10.00 (m)	0.00	0.00					Surface
84.84	32.81	83.56	52.03	N/A		MAS = 10.00 (m)	26.00	26.00					WRP
81.36	32.81	64.05	48.55	5.00		MAS = 10.00 (m)	2670.00	2669.90	OSF<5.00				Enter Alert
59.99	32.81	39.53	27.18	3.06		MAS = 10.00 (m)	3460.00	3457.98					MinPts
60.14	32.81	39.41	27.34	3.03		MAS = 10.00 (m)	3520.00	3517.83					MINPT-O-EQU
61.17	32.81	39.93	28.36	3.00		MAS = 10.00 (m)	3630.00	3627.57					MinPt-O-SF
88.61	83.76	32.34	4.85	1.59		OSF1.50	10000.00	9995.27					MinPts
206.61	63.16	164.07	143.45	4.98		OSF1.50	10300.00	10295.27	OSF>5.00				Exit Alert
2202.67	303.60	1999.84	1899.07	10.92		OSF1.50	22140.00	12500.00					MINPT-O-EQU
2202.83	303.81	1999.86	1899.02	10.92		OSF1.50	22150.00	12500.00					MinPt-O-ADP
2210.73	306.29	2006.11	1904.44	10.87		OSF1.50	22300.00	12500.00					MinPt-O-SF
2214.41	306.72	2009.50	1907.69	10.87		OSF1.50	22338.69	12500.00					TD

Cimarex Red Hills 32-5 Fed
Com #128H Rev2 RM 15Nov19
(Def Plan)

Warning Alert

72.11	32.81	70.82	39.30	N/A		MAS = 10.00 (m)	0.00	0.00					Surface
72.11	32.81	70.82	39.30	N/A		MAS = 10.00 (m)	26.00	26.00					WRP
72.11	32.81	56.64	39.30	4.99		MAS = 10.00 (m)	2320.00	2320.00	OSF<5.00				Enter Alert
60.03	32.81	42.92	27.19	3.72		MAS = 10.00 (m)	2870.00	2869.42					MinPts
60.03	32.81	42.94	27.22	3.72		MAS = 10.00 (m)	2880.00	2879.40					MinPt-O-SF
82.47	32.81	64.92	49.66	4.99		MAS = 10.00 (m)	3230.00	3228.54	OSF>5.00				Exit Alert
196.87	60.01	156.44	136.86	5.00		OSF1.50	7860.00	7855.27	OSF<5.00				Enter Alert
150.63	80.21	96.69	70.36	2.84		OSF1.50	10390.00	10385.27					MinPts
215.93	66.57	171.12	149.36	4.93		OSF1.50	10590.00	10585.27	OSF>5.00				Exit Alert
1903.23	303.98	1700.19	1599.31	9.43		OSF1.50	22140.00	12500.00					MINPT-O-EQU
1903.42	304.14	1700.24	1599.29	9.42		OSF1.50	22150.00	12500.00					MinPt-O-ADP
1908.97	305.93	1704.59	1603.04	9.33		OSF1.50	22260.00	12500.00					MinPt-O-SF
1916.81	306.64	1711.95	1610.17	9.41		OSF1.50	22338.69	12500.00					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		
Cimarex Red Hills 32-5 Fed Com #160H Rev1 RM 14Oct19 (Def Plan)													
												Warning Alert	
	1795.76	32.81	1794.47	1762.95	N/A	MAS = 10.00 (m)	0.00	0.00				Surface	
	1795.76	32.81	1794.44	1762.95	64612.31	MAS = 10.00 (m)	26.00	26.00				WRP	
	1613.68	32.81	1597.39	1580.87	108.04	MAS = 10.00 (m)	2700.00	2699.84				MinPt-O-SF	
	258.76	80.30	204.17	178.46	4.97	OSF1.50	8990.00	8985.27	OSF<5.00			Enter Alert	
	110.29	87.43	50.68	22.86	1.91	OSF1.50	10750.00	10745.27				MinPt-O-SF	
	109.99	87.13	50.58	22.86	1.91	OSF1.50	10760.00	10755.27				MinPts	
	186.34	60.01	145.54	126.33	4.79	OSF1.50	10950.00	10945.27	OSF>5.00			Exit Alert	
	1616.25	317.39	1404.23	1298.86	7.68	OSF1.50	22338.69	12500.00				MinPts	
Cimarex Red Hills 32-5 Fed Com #159H Rev1 RM 14Oct19 (Def Plan)													
												Warning Alert	
	1815.74	32.81	1814.45	1782.93	N/A	MAS = 10.00 (m)	0.00	0.00				Surface	
	1815.74	32.81	1814.42	1782.93	64813.22	MAS = 10.00 (m)	26.00	26.00				WRP	
	1815.74	32.81	1799.10	1782.93	118.17	MAS = 10.00 (m)	2500.00	2500.00				MinPts	
	1815.76	32.81	1799.07	1782.95	117.81	MAS = 10.00 (m)	2510.00	2510.00				MINPT-O-EQU	
	1830.93	32.81	1813.01	1798.12	109.99	MAS = 10.00 (m)	2830.00	2829.52				MinPt-O-SF	
	941.72	88.79	881.61	852.93	16.37	OSF1.50	12000.00	11995.27				MinPts	
	939.87	84.02	882.94	855.85	17.30	OSF1.50	12660.00	12461.07				MinPt-CtCt	
	939.96	284.18	749.59	655.78	5.00	OSF1.50	21250.00	12500.00	OSF<5.00			Enter Alert	
	939.96	318.18	726.93	621.79	4.46	OSF1.50	22338.69	12500.00				MinPts	
Cimarex Red Hills Unit #3H (Offset) Gas Inc Only Off- 17597ft (Def Survey)													
												Warning Alert	
	8359.45	32.81	8357.47	8326.64	N/A	MAS = 10.00 (m)	0.00	0.00				Surface	
	8359.38	32.81	8357.39	8326.57	N/A	MAS = 10.00 (m)	20.00	20.00				MinPt-O-SF	
	8359.36	32.81	8357.38	8326.56	N/A	MAS = 10.00 (m)	26.00	26.00				WRP	
	8359.35	32.81	8355.64	8326.54	4822.88	MAS = 10.00 (m)	170.00	170.00				MinPts	
	8357.96	35.51	8333.63	8322.45	373.80	OSF1.50	750.00	750.00				MinPt-CtCt	
	8360.04	45.86	8328.81	8314.19	285.77	OSF1.50	1040.00	1040.00				MINPT-O-EQU	
	8353.66	80.20	8299.53	8273.45	160.15	OSF1.50	1560.00	1560.00				MinPt-CtCt	
	8354.59	85.77	8296.75	8268.82	149.53	OSF1.50	1740.00	1740.00				MINPT-O-EQU	
	8355.57	86.95	8296.95	8268.63	147.47	OSF1.50	1810.00	1810.00				MinPt-O-ADP	
	8355.03	136.50	8263.37	8218.54	93.15	OSF1.50	2620.00	2619.96				MinPt-CtCt	
	8356.79	141.01	8262.12	8215.78	90.14	OSF1.50	2800.00	2799.59				MINPT-O-EQU	
	8358.31	143.25	8262.15	8215.06	88.72	OSF1.50	2880.00	2879.40				MINPT-O-EQU	
	8364.66	150.90	8263.40	8213.76	84.23	OSF1.50	3120.00	3118.81				MinPt-O-ADP	
	8371.70	190.84	8243.81	8180.86	66.47	OSF1.50	3630.00	3627.57				MinPt-CtCt	
	8374.54	199.41	8240.94	8175.13	63.61	OSF1.50	3940.00	3936.81				MINPT-O-EQU	
	8377.51	204.25	8240.68	8173.26	62.11	OSF1.50	4080.00	4076.47				MINPT-O-EQU	
	8386.04	214.46	8242.41	8171.58	59.19	OSF1.50	4370.00	4365.76				MinPt-O-ADP	
	8379.92	264.62	8202.85	8115.30	47.85	OSF1.50	5170.00	5165.27				MinPt-CtCt	
	8383.89	275.03	8199.87	8108.86	46.05	OSF1.50	5540.00	5535.27				MINPT-O-EQU	
	8376.54	356.74	8138.05	8019.80	35.41	OSF1.50	6930.00	6925.27				MinPt-CtCt	
	8380.85	370.82	8132.98	8010.03	34.08	OSF1.50	7380.00	7375.27				MINPT-O-EQU	
	8372.43	445.17	8074.98	7927.25	28.33	OSF1.50	8610.00	8605.27				MinPt-CtCt	
	8374.45	453.17	8071.68	7921.28	27.83	OSF1.50	8900.00	8895.27				MINPT-O-EQU	
	8376.65	455.82	8072.11	7920.83	27.68	OSF1.50	9020.00	9015.27				MinPt-O-ADP	
	8374.13	532.12	8018.72	7842.01	23.69	OSF1.50	10290.00	10285.27				MinPt-CtCt	
	8379.71	549.65	8012.61	7830.05	22.95	OSF1.50	10820.00	10815.27				MINPT-O-EQU	
	8367.11	611.49	7958.78	7755.62	20.59	OSF1.50	11800.00	11795.27				MinPt-CtCt	
	2188.27	663.16	1743.45	1525.11	4.99	OSF1.50	19310.00	12500.00	OSF<5.00			Enter Alert	
	1877.55	667.38	1431.98	1210.18	4.23	OSF1.50	20430.00	12500.00				MinPt-CtCt	
	1877.56	667.43	1431.94	1210.12	4.23	OSF1.50	20440.00	12500.00				MinPts	
	1877.73	667.55	1432.04	1210.18	4.23	OSF1.50	20460.00	12500.00				MinPt-O-SF	
	2215.24	666.92	1769.97	1548.32	4.99	OSF1.50	21610.00	12500.00	OSF>5.00			Exit Alert	
	2674.18	663.49	2231.19	2010.69	6.06	OSF1.50	22338.69	12500.00				TD	
Neil H Wells Continental State #1 (Offset) Plugged Blind Off- 5020ft (Def Survey)													
												Warning Alert	
	5093.93	32.81	5091.95	5061.12	N/A	MAS = 10.00 (m)	0.00	0.00				Surface	
	5093.84	32.81	5091.85	5061.03	554279.16	MAS = 10.00 (m)	20.00	20.00				MinPt-O-SF	
	5093.83	32.81	5091.84	5061.02	772069.13	MAS = 10.00 (m)	26.00	26.00				WRP	
	5093.82	761.93	4585.21	4331.89	10.05	OSF1.50	2500.00	2500.00				MinPt-CtCt	
	5209.57	1565.02	4165.56	3644.55	5.00	OSF1.50	5060.00	5055.27	OSF<5.00			Enter Alert	
	5209.57	1567.58	4163.86	3641.99	4.99	OSF1.50	5070.00	5065.27				MinPts	
	5214.73	1566.05	4170.04	3648.68	5.00	OSF1.50	5300.00	5295.27	OSF>5.00			Exit Alert	
	8603.26	791.83	8074.72	7811.44	16.33	OSF1.50	15170.00	12500.00				MinPt-CtCt	
	8603.27	791.84	8074.71	7811.42	16.33	OSF1.50	15180.00	12500.00				MINPT-O-EQU	
	8603.28	791.86	8074.71	7811.41	16.33	OSF1.50	15190.00	12500.00				MinPt-O-ADP	
	10521.59	1121.73	9773.11	9399.86	14.09	OSF1.50	21230.00	12500.00				MinPt-O-SF	
	11196.60	1185.41	10405.67	10011.19	14.19	OSF1.50	22338.69	12500.00				TD	
Cimarex Red Hills 32-5 Fed Com #158H Rev1 RM 14Oct19 (Def Plan)													
												Pass	
	1835.73	32.81	1834.44	1802.92	N/A	MAS = 10.00 (m)	0.00	0.00				Surface	
	1835.73	32.81	1834.41	1802.92	65011.32	MAS = 10.00 (m)	26.00	26.00				WRP	
	1835.73	32.81	1819.09	1802.92	119.47	MAS = 10.00 (m)	2500.00	2500.00				MinPts	
	1835.75	32.81	1819.06	1802.94	119.10	MAS = 10.00 (m)	2510.00	2510.00				MINPT-O-EQU	
	1850.90	32.81	1832.98	1818.09	111.24	MAS = 10.00 (m)	2830.00	2829.52				MinPt-O-SF	
	1241.83	86.25	1183.60	1155.58	22.12	OSF1.50	11960.00	11955.27				MinPt-CtCt	
	1241.84	86.27	1183.59	1155.57	22.11	OSF1.50	11970.00	11965.27				MinPts	
	1241.94	86.31	1183.67	1155.63	22.11	OSF1.50	11994.73	11990.00				MinPt-O-SF	
	1269.32	312.03	1060.63	957.29	6.13	OSF1.50	22338.69	12500.00				MinPts	
Cimarex Red Hills 32-5 Fed Com #157H Rev2 RM 14Nov19 (Def Plan)													
												Pass	
	1855.71	32.81	1854.42	1822.90	N/A	MAS = 10.00 (m)	0.00	0.00				Surface	
	1855.71	32.81	1854.39	1822.90	65205.98	MAS = 10.00 (m)	26.00	26.00				WRP	
	1855.71	32.81	1839.00	1822.90	120.77	MAS = 10.00 (m)	2500.00	2500.00				MinPts	
	1855.73	32.81	1839.04	1822.92	120.40	MAS = 10.00 (m)	2510.00	2510.00				MINPT-O-EQU	
	1576.78	70.89	1528.93	1505.88	34.17	OSF1.50	10040.00	10035.27				MinPt-CtCt	
	1576.78	70.91	1528.92	1505.87	34.17	OSF1.50	10050.00	10045.27				MinPts	
	1579.06	71.12	1531.06	1507.94	34.10	OSF1.50	10190.00	10185.27				MinPt-O-SF	
	2717.12	306.16	2512.58	2410.95	13.36	OSF1.50	22338.69	12500.00				MinPts	

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		
Cimarex Red Hills 32-5 Fed Com #156H Rev3 RM 14Nov19 (Def Plan)													
												Pass	
	1894.74	32.81	1893.45	1861.93	N/A	MAS = 10.00 (m)	0.00	0.00				Surface	
	1894.74	32.81	1893.42	1861.93	64075.49	MAS = 10.00 (m)	26.00	26.00				WRP	
	1883.64	32.81	1866.40	1850.83	117.98	MAS = 10.00 (m)	2700.00	2699.84				MinPt-O-SF	
	1581.56	78.85	1528.43	1502.71	30.72	OSF1.50	10450.00	10445.27				MinPt-O-SF	
	1576.79	78.86	1523.65	1497.93	30.62	OSF1.50	10740.00	10735.27				MinPts	
	1577.67	78.94	1524.48	1498.73	30.60	OSF1.50	10810.00	10805.27				MinPt-O-SF	
	2255.88	306.04	2051.42	1949.84	11.10	OSF1.50	22338.69	12500.00				MinPts	
Cimarex Red Hills 32-5 Fed Com #155H Rev3 RM 14Nov19 (Def Plan)													
												Pass	
	1914.73	32.81	1913.45	1881.92	N/A	MAS = 10.00 (m)	0.00	0.00				Surface	
	1914.73	32.81	1913.42	1881.92	64268.78	MAS = 10.00 (m)	26.00	26.00				WRP	
	1914.73	32.81	1898.09	1881.92	124.60	MAS = 10.00 (m)	2500.00	2500.00				MinPts	
	1914.75	32.81	1898.06	1881.94	124.22	MAS = 10.00 (m)	2510.00	2510.00				MINPT-O-EQU	
	1978.91	32.81	1958.11	1946.10	101.31	MAS = 10.00 (m)	3540.00	3537.79				MinPt-O-SF	
	1751.42	86.31	1693.35	1665.11	30.98	OSF1.50	11520.00	11515.27				MinPts	
	1660.74	88.15	1601.38	1572.59	28.81	OSF1.50	12020.00	12015.25				MinPt-O-SF	
	1648.44	85.82	1590.62	1562.61	29.40	OSF1.50	12350.00	12313.38				MinPt-O-ADP	
	1648.28	85.64	1590.59	1562.64	29.46	OSF1.50	12370.00	12327.81				MINPT-O-EQU	
	1648.11	85.18	1590.72	1562.93	29.62	OSF1.50	12420.00	12361.23				MinPt-CtCt	
	1649.93	82.07	1594.62	1567.86	30.79	OSF1.50	13010.00	12500.00				MinPts	
	1649.92	82.05	1594.63	1567.88	30.80	OSF1.50	13030.00	12500.00				MinPt-CtCt	
	1649.94	310.85	1442.11	1339.09	8.00	OSF1.50	22338.69	12500.00				MinPts	
Cimarex Red Hills 32-5 Fed Com #171H Rev0 RM 04Sept19 (Non-Def Plan)													
												Pass	
	2534.02	32.81	2532.04	2501.22	N/A	MAS = 10.00 (m)	0.00	0.00				Surface	
	2534.02	32.81	2532.02	2501.22	86334.86	MAS = 10.00 (m)	26.00	26.00				WRP	
	2534.02	32.81	2516.69	2501.22	164.89	MAS = 10.00 (m)	2500.00	2500.00				MinPts	
	2534.04	32.81	2516.66	2501.23	164.38	MAS = 10.00 (m)	2510.00	2510.00				MINPT-O-EQU	
	2674.07	98.52	2607.73	2575.55	41.52	OSF1.50	11280.00	11275.27				MinPts	
	2532.25	101.07	2464.14	2431.18	38.38	OSF1.50	12030.00	12025.23				MinPt-O-SF	
	2514.81	98.75	2448.22	2416.06	39.06	OSF1.50	12510.00	12410.92				MinPt-O-ADP	
	2514.72	98.65	2448.20	2416.07	39.10	OSF1.50	12530.00	12419.98				MINPT-O-EQU	
	2514.68	98.51	2448.26	2416.18	39.16	OSF1.50	12560.00	12432.17				MinPt-CtCt	
	2514.72	96.51	2449.63	2418.21	39.98	OSF1.50	13000.00	12500.00				MINPT-O-EQU	
	2514.69	96.45	2449.64	2418.25	40.01	OSF1.50	13030.00	12500.00				MinPt-CtCt	
	2517.57	311.44	2309.19	2206.12	12.20	OSF1.50	22338.69	12500.00				MinPts	
Cimarex Red Hills 32-5 Fed Com #170H Rev0 RM 04Sept19 (Non-Def Plan)													
												Pass	
	2554.02	32.81	2552.74	2521.22	N/A	MAS = 10.00 (m)	0.00	0.00				Surface	
	2554.02	32.81	2552.71	2521.22	85741.34	MAS = 10.00 (m)	26.00	26.00				WRP	
	2554.02	32.81	2537.38	2521.22	166.23	MAS = 10.00 (m)	2500.00	2500.00				MinPts	
	2554.04	32.81	2537.35	2521.23	165.72	MAS = 10.00 (m)	2510.00	2510.00				MINPT-O-EQU	
	2583.97	32.81	2565.98	2551.16	154.60	MAS = 10.00 (m)	2980.00	2979.15				MinPt-O-SF	
	2837.12	32.81	2815.87	2804.31	142.01	MAS = 10.00 (m)	4600.00	4595.29				MinPt-O-SF	
	2928.94	36.70	2904.05	2892.24	124.01	OSF1.50	5560.00	5555.27				MinPt-O-SF	
	2929.19	90.45	2868.46	2838.74	49.26	OSF1.50	11810.00	11805.27				MINPT-O-EQU	
	2929.20	90.46	2868.46	2838.74	49.25	OSF1.50	11830.00	11825.27				MinPt-O-ADP	
	2929.69	90.56	2868.89	2839.13	49.20	OSF1.50	11994.73	11990.00				MinPt-O-SF	
	2938.16	84.40	2881.46	2853.76	53.00	OSF1.50	12994.73	12500.00				MinPt-CtCt	
	2940.75	312.36	2732.09	2628.40	14.17	OSF1.50	22338.69	12500.00				MinPts	
Cimarex Red Hills 32-5 Fed Com #169H Rev0 RM 04Sept19 (Non-Def Plan)													
												Pass	
	2574.02	32.81	2572.73	2541.21	N/A	MAS = 10.00 (m)	0.00	0.00				Surface	
	2574.02	32.81	2572.70	2541.21	85772.70	MAS = 10.00 (m)	26.00	26.00				WRP	
	2574.02	32.81	2558.13	2541.21	176.18	MAS = 10.00 (m)	2380.00	2380.00				MinPts	
	2574.07	32.81	2558.04	2541.26	174.57	MAS = 10.00 (m)	2410.00	2410.00				MINPT-O-EQU	
	2579.95	32.81	2563.35	2547.14	168.38	MAS = 10.00 (m)	2600.00	2599.98				MinPt-O-SF	
	2590.04	32.81	2573.42	2557.23	168.83	MAS = 10.00 (m)	2700.30	2700.14				MinPt-O-SF	
	2947.52	32.81	2926.72	2914.71	150.97	MAS = 10.00 (m)	4600.00	4595.29				MinPt-O-SF	
	3353.32	55.78	3315.71	3297.54	92.27	OSF1.50	7780.00	7775.27				MinPt-O-SF	
	3354.16	85.66	3296.62	3268.50	59.61	OSF1.50	11880.00	11875.27				MINPT-O-EQU	
	3354.21	85.72	3296.63	3268.49	59.57	OSF1.50	11910.00	11905.27				MinPt-O-ADP	
	3354.57	85.91	3296.87	3268.66	59.44	OSF1.50	11994.73	11990.00				MinPt-O-SF	
	3361.97	80.96	3307.57	3281.01	63.27	OSF1.50	12994.73	12500.00				MinPt-CtCt	
	3364.37	315.73	3153.46	3048.65	16.04	OSF1.50	22338.69	12500.00				MinPts	
Cimarex Red Hills Unit #1 (Offset) Gas Inc Only Off- 21321ft (Def Survey)													
												Pass	
	5207.99	32.81	5206.01	5175.18	N/A	MAS = 10.00 (m)	0.00	0.00				Surface	
	5207.99	32.81	5206.01	5175.18	N/A	MAS = 10.00 (m)	10.00	10.00				MinPts	
	5207.99	32.81	5206.01	5175.18	N/A	MAS = 10.00 (m)	26.00	26.00				WRP	
	5207.78	32.81	5193.62	5174.95	428.31	MAS = 10.00 (m)	410.00	410.00				MinPts	
	5206.88	33.38	5183.97	5173.50	248.60	OSF1.50	660.00	660.00				MinPt-CtCt	
	5207.15	34.18	5183.70	5172.97	242.49	OSF1.50	720.00	720.00				MINPT-O-EQU	
	5207.13	40.65	5179.38	5166.49	201.92	OSF1.50	800.00	800.00				MinPt-CtCt	
	5207.27	41.01	5179.26	5166.25	200.03	OSF1.50	840.00	840.00				MINPT-O-EQU	
	5207.43	41.20	5179.30	5166.23	199.11	OSF1.50	860.00	860.00				MinPt-O-ADP	
	5208.04	55.16	5170.61	5152.88	146.85	OSF1.50	1080.00	1080.00				MinPt-CtCt	
	5208.53	69.41	5161.60	5139.12	115.82	OSF1.50	1350.00	1350.00				MinPt-CtCt	
	5208.42	90.81	5147.22	5117.61	87.92	OSF1.50	1760.00	1760.00				MinPt-CtCt	
	5208.22	114.75	5131.07	5093.48	69.25	OSF1.50	2220.00	2220.00				MinPt-CtCt	
	5209.88	137.22	5117.72	5072.64	57.76	OSF1.50	2580.00	2579.99				MinPt-CtCt	
	5211.00	140.74	5116.51	5070.26	56.31	OSF1.50	2680.00	2679.88				MINPT-O-EQU	
	5215.29	145.66	5117.53	5069.63	54.43	OSF1.50	2820.00	2819.54				MinPt-O-ADP	
	5216.38	146.73	5117.90	5069.65	54.04	OSF1.50	2850.00	2849.47				MinPt-O-ADP	
	5224.42	162.19	5115.64	5062.24	48.90	OSF1.50	3060.00	3058.96				MINPT-O-EQU	
	5224.62	162.39	5115.70	5062.23	48.84	OSF1.50	3070.00	3068.93				MinPt-O-ADP	
	5232.96	173.98	5116.33	5059.00	45.62	OSF1.50	3310.00	3308.35				MinPts	
	5246.13	192.57	5117.09	5053.56	41.27	OSF1.50	3630.00	3627.57				MinPts	
	5253.72	205.91	5115.79	5047.81	38.63	OSF1.50	3870.00	3866.98				MinPts	
	5263.25	219.50	5116.25	5043.75	36.28	OSF1.50	4150.00	4146.29				MINPT-O-EQU	
	5263.42	219.68	5116.30										

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		
5274.32		274.54	5090.63	4999.78	29.02	OSF1.50	5310.00	5305.27				MinPt-CtCt	
5274.78		330.22	5053.97	4944.56	24.10	OSF1.50	6380.00	6375.27				MinPt-CtCt	
5273.60		371.43	5025.32	4902.17	21.40	OSF1.50	7170.00	7165.27				MinPt-CtCt	
5275.72		452.30	4973.53	4823.42	17.57	OSF1.50	8720.00	8715.27				MinPt-CtCt	
5278.00		509.68	4937.56	4768.33	15.59	OSF1.50	9820.00	9815.27				MinPt-CtCt	
5279.24		583.74	4889.42	4695.50	13.61	OSF1.50	11240.00	11235.27				MinPt-CtCt	
2678.71		651.58	2243.66	2027.13	6.18	OSF1.50	16820.00	12500.00				MinPts	
2678.81		651.62	2243.73	2027.18	6.18	OSF1.50	16840.00	12500.00				MinPt-O-SF	
6136.34		645.91	5705.07	5490.43	14.29	OSF1.50	22338.69	12500.00				TD	

Cimarex Red Hills Unit #2H
(Offset) Gas Inc Only Off-
15005ft (Def Survey)

												Pass	
6684.73		32.81	6682.75	6651.92	N/A	MAS = 10.00 (m)	0.00	0.00				Surface	
6684.63		32.81	6682.63	6651.82	500468.30	MAS = 10.00 (m)	20.00	20.00				MinPt-O-SF	
6684.60		32.81	6682.61	6651.80	503063.24	MAS = 10.00 (m)	26.00	26.00				WRP	
6684.58		32.81	6682.51	6651.77	77746.84	MAS = 10.00 (m)	50.00	50.00				MinPts	
6685.08		32.81	6667.59	6652.27	430.94	MAS = 10.00 (m)	560.00	560.00				MinPts	
6684.55		36.53	6659.54	6648.02	290.12	OSF1.50	780.00	780.00				MinPt-CtCt	
6681.47		62.42	6639.19	6619.04	165.76	OSF1.50	1260.00	1260.00				MinPt-CtCt	
6679.84		108.69	6606.72	6571.15	93.87	OSF1.50	2140.00	2140.00				MinPt-CtCt	
6681.11		112.64	6605.35	6568.46	90.53	OSF1.50	2310.00	2310.00				MINPT-O-EOU	
6684.28		118.07	6604.90	6566.20	86.34	OSF1.50	2470.00	2470.00				MINPT-O-EOU	
6685.72		139.84	6591.83	6545.87	72.72	OSF1.50	2620.00	2619.96				MinPt-CtCt	
6686.29		141.78	6591.14	6544.56	71.75	OSF1.50	2690.00	2689.86				MINPT-O-EOU	
6689.05		145.07	6591.68	6543.98	70.10	OSF1.50	2810.00	2809.57				MinPt-O-ADP	
6704.30		167.56	6591.93	6536.74	60.72	OSF1.50	3180.00	3178.66				MinPts	
6714.26		179.74	6593.78	6534.52	56.64	OSF1.50	3460.00	3457.98				MinPts	
6731.16		204.29	6594.31	6526.88	49.89	OSF1.50	3840.00	3837.05				MinPts	
6742.80		220.64	6595.05	6522.16	46.24	OSF1.50	4190.00	4186.20				MINPT-O-EOU	
6744.38		222.49	6595.40	6521.89	45.86	OSF1.50	4270.00	4266.00				MinPt-O-ADP	
6757.56		245.01	6593.55	6512.53	41.69	OSF1.50	4770.00	4765.27				MinPt-CtCt	
6757.67		245.37	6593.43	6512.30	41.63	OSF1.50	4810.00	4805.27				MINPT-O-EOU	
6757.11		254.72	6586.64	6502.39	40.09	OSF1.50	4960.00	4955.27				MinPt-CtCt	
6754.92		265.66	6577.16	6489.26	38.42	OSF1.50	5170.00	5165.27				MinPt-CtCt	
6755.03		265.97	6577.06	6489.07	38.37	OSF1.50	5210.00	5205.27				MINPT-O-EOU	
6755.17		266.12	6577.10	6489.05	38.35	OSF1.50	5230.00	5225.27				MinPt-O-ADP	
6753.17		281.50	6564.84	6471.66	36.23	OSF1.50	5470.00	5465.27				MinPt-CtCt	
6753.58		355.82	6515.69	6397.75	28.62	OSF1.50	6910.00	6905.27				MinPt-CtCt	
6754.27		428.36	6468.03	6325.91	23.75	OSF1.50	8300.00	8295.27				MinPt-CtCt	
6760.60		443.45	6464.30	6317.14	22.96	OSF1.50	8740.00	8735.27				MINPT-O-EOU	
6759.31		471.26	6444.48	6288.05	21.60	OSF1.50	9110.00	9105.27				MinPt-CtCt	
6759.67		472.38	6444.08	6287.29	21.55	OSF1.50	9190.00	9185.27				MINPT-O-EOU	
6760.12		472.93	6444.17	6287.18	21.53	OSF1.50	9230.00	9225.27				MinPt-O-ADP	
6763.84		476.66	6445.41	6287.18	21.37	OSF1.50	9400.00	9395.27				MinPt-O-ADP	
6761.69		511.78	6419.84	6249.91	19.89	OSF1.50	9910.00	9905.27				MinPt-CtCt	
6755.07		616.27	6343.57	6138.80	16.49	OSF1.50	11920.00	11915.27				MinPt-CtCt	
3329.31		658.02	2889.97	2671.29	7.61	OSF1.50	18160.00	12500.00				MinPts	
3329.34		658.06	2889.97	2671.28	7.61	OSF1.50	18170.00	12500.00				MinPt-O-SF	
3329.94		658.27	2890.44	2671.67	7.61	OSF1.50	18220.00	12500.00				MinPt-O-SF	
5346.50		662.16	4904.40	4684.34	12.14	OSF1.50	22338.69	12500.00				TD	

Cimarex Red Hills 32-5 Fed
Com #199H Rev0 RM
04Sept19 (Non-Def Plan)

												Pass	
4409.43		32.81	4407.45	4376.62	N/A	MAS = 10.00 (m)	0.00	0.00				Surface	
4409.43		32.81	4407.45	4376.62	N/A	MAS = 10.00 (m)	26.00	26.00				WRP	
4374.69		32.81	4356.81	4341.88	275.11	MAS = 10.00 (m)	2700.00	2699.84				MinPt-O-SF	
3779.95		86.81	3721.09	3693.14	67.57	OSF1.50	11780.00	11775.27				MinPt-CtCt	
3780.09		87.21	3720.92	3692.82	67.21	OSF1.50	11870.00	11865.27				MinPts	
3780.94		87.57	3721.58	3693.38	66.99	OSF1.50	11994.73	11990.00				MinPt-O-SF	
3784.85		81.94	3729.28	3702.94	71.80	OSF1.50	13070.00	12500.00				MinPts	
3787.00		314.70	3576.23	3472.30	18.21	OSF1.50	22338.69	12500.00				MinPts	

Cimarex Red Hills 32-5 Fed
Com #198H Rev0 RM
04Sept19 (Non-Def Plan)

												Pass	
4429.43		32.81	4427.45	4396.62	N/A	MAS = 10.00 (m)	0.00	0.00				Surface	
4429.42		32.81	4427.45	4396.62	N/A	MAS = 10.00 (m)	26.00	26.00				WRP	
4429.42		32.81	4412.15	4396.62	289.49	MAS = 10.00 (m)	2500.00	2500.00				MinPts	
4429.44		32.81	4412.12	4396.63	288.60	MAS = 10.00 (m)	2510.00	2510.00				MINPT-O-EOU	
4204.80		88.96	4144.73	4115.84	72.73	OSF1.50	11780.00	11775.27				MinPt-CtCt	
4204.81		89.06	4144.67	4115.74	72.64	OSF1.50	11810.00	11805.27				MINPT-O-EOU	
4204.82		89.08	4144.67	4115.74	72.63	OSF1.50	11820.00	11815.27				MinPt-O-ADP	
4205.69		89.31	4145.39	4116.38	72.45	OSF1.50	11994.73	11990.00				MinPt-O-SF	
4209.26		82.98	4153.18	4126.27	78.17	OSF1.50	13040.00	12500.00				MinPt-O-ADP	
4209.25		82.97	4153.18	4126.28	78.18	OSF1.50	13050.00	12500.00				MINPT-O-EOU	
4209.24		82.95	4153.19	4126.29	78.20	OSF1.50	13070.00	12500.00				MinPt-CtCt	
4211.25		311.69	4002.71	3899.56	20.40	OSF1.50	22338.69	12500.00				MinPts	

Cimarex Red Hills 32-5 Fed
Com #197H Rev0 RM
04Sept19 (Non-Def Plan)

												Pass	
4449.42		32.81	4447.44	4416.61	N/A	MAS = 10.00 (m)	0.00	0.00				Surface	
4449.41		32.81	4447.43	4416.60	N/A	MAS = 10.00 (m)	26.00	26.00				WRP	
4449.41		32.81	4432.14	4416.60	290.72	MAS = 10.00 (m)	2500.00	2500.00				MinPts	
4449.43		32.81	4432.11	4416.62	289.82	MAS = 10.00 (m)	2510.00	2510.00				MINPT-O-EOU	
4589.47		103.15	4520.04	4486.32	68.01	OSF1.50	11800.00	11795.27				MINPT-O-EOU	
4589.51		103.19	4520.06	4486.32	67.99	OSF1.50	11810.00	11805.27				MinPt-O-ADP	
4592.93		103.73	4523.11	4489.20	67.68	OSF1.50	11994.73	11990.00				MinPt-O-SF	
4633.82		96.58	4568.77	4537.24	73.44	OSF1.50	13020.00	12500.00				MINPT-O-EOU	
4633.78		96.45	4568.82	4537.33	73.55	OSF1.50	13080.00	12500.00				MinPt-CtCt	
4635.70		310.64	4427.94	4325.06	22.52	OSF1.50	22338.69	12500.00				MinPts	

Cimarex Red Hills SWD #1
(Offset) Inc Only Off-19000ft
(Def Survey)

												Pass	
7755.89		32.81	7753.91	7723.08	N/A	MAS = 10.00 (m)	0.00	0.00				Surface	
7755.72		32.81	7753.72	7722.91	367959.17	MAS = 10.00 (m)	26.00	26.00				MinPt-O-SF	
7755.64		32.81	7753.58	7722.83	102627.66	MAS = 10.00 (m)	60.00	60.00				MinPts	
7759.08		85.27	7701.57	7673.81	139.70	OSF1.50	1700.00	1700.00				MinPt-CtCt	
7774.47		156.68	7669.38	7617.79	75.36	OSF1.50	2920.00	2919.30				MINPT-O-EOU	
7779.20		162.31	7670.34	7616.88	72.76	OSF1.50	3110.00	3108.84				MinPt-O-ADP	
7815.81		264.63	7638.79	7551.24	44.63	OSF1.50	5110.00	5105.27				MinPt-CtCt	
7816.72		267.19	7637.93	7549.53	44.20	OSF1.50	5250.00	5245.27				MINPT-O-EOU	

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		
7817.75		268.45	7638.12	7549.30	44.00	OSF1.50	5320.00	5315.27				MinPt-O-ADP	
7825.85		344.71	7595.38	7481.14	34.24	OSF1.50	6690.00	6685.27				MinPt-CtCt	
7829.14		430.45	7541.51	7398.68	27.40	OSF1.50	8350.00	8345.27				MinPt-CtCt	
7827.65		511.96	7485.69	7315.69	23.02	OSF1.50	9910.00	9905.27				MinPt-CtCt	
7817.99		596.51	7419.65	7221.48	19.72	OSF1.50	11520.00	11515.27				MinPt-CtCt	
7819.16		600.06	7418.47	7219.11	19.61	OSF1.50	11690.00	11685.27				MINPT-O-EOU	
7820.49		601.65	7418.73	7218.84	19.56	OSF1.50	11770.00	11765.27				MinPt-O-ADP	
4529.40		661.93	4087.45	3867.47	10.29	OSF1.50	18660.00	12500.00				MinPt-CtCt	
4529.41		661.97	4087.44	3867.44	10.29	OSF1.50	18670.00	12500.00				MINPT-O-EOU	
4529.44		662.01	4087.44	3867.43	10.29	OSF1.50	18680.00	12500.00				MinPt-O-ADP	
4530.96		662.39	4088.70	3868.57	10.29	OSF1.50	18780.00	12500.00				MinPt-O-SF	
5834.20		668.35	5387.97	5165.85	13.13	OSF1.50	22338.69	12500.00				TD	
Rector Oil Maechtel Permit #1 (Offset) Plugged Oil Blind Off- 5006ft (Def Survey)													Pass
9823.54		32.81	9822.26	9790.74	N/A	MAS = 10.00 (m)	0.00	0.00				Surface	
9823.24		32.81	9821.91	9790.43	207549.25	MAS = 10.00 (m)	26.00	26.00				MinPt-O-SF	
9822.16		1226.84	9003.84	8595.32	12.02	OSF1.50	4080.00	4076.47				MinPt-CtCt	
9822.22		1559.35	8782.23	8262.87	9.43	OSF1.50	5140.00	5135.27				MinPts	
10400.11		1102.45	9664.71	9297.66	14.17	OSF1.50	14750.00	12500.00				MinPt-O-SF	
7436.26		285.98	7245.18	7150.29	39.17	OSF1.50	21070.00	12500.00				MinPt-O-ADP	
7365.66		214.23	7222.41	7151.43	51.88	OSF1.50	22090.00	12500.00				MinPt-CtCt	
7369.78		226.04	7218.66	7143.74	49.18	OSF1.50	22338.69	12500.00				MinPts	

Schlumberger

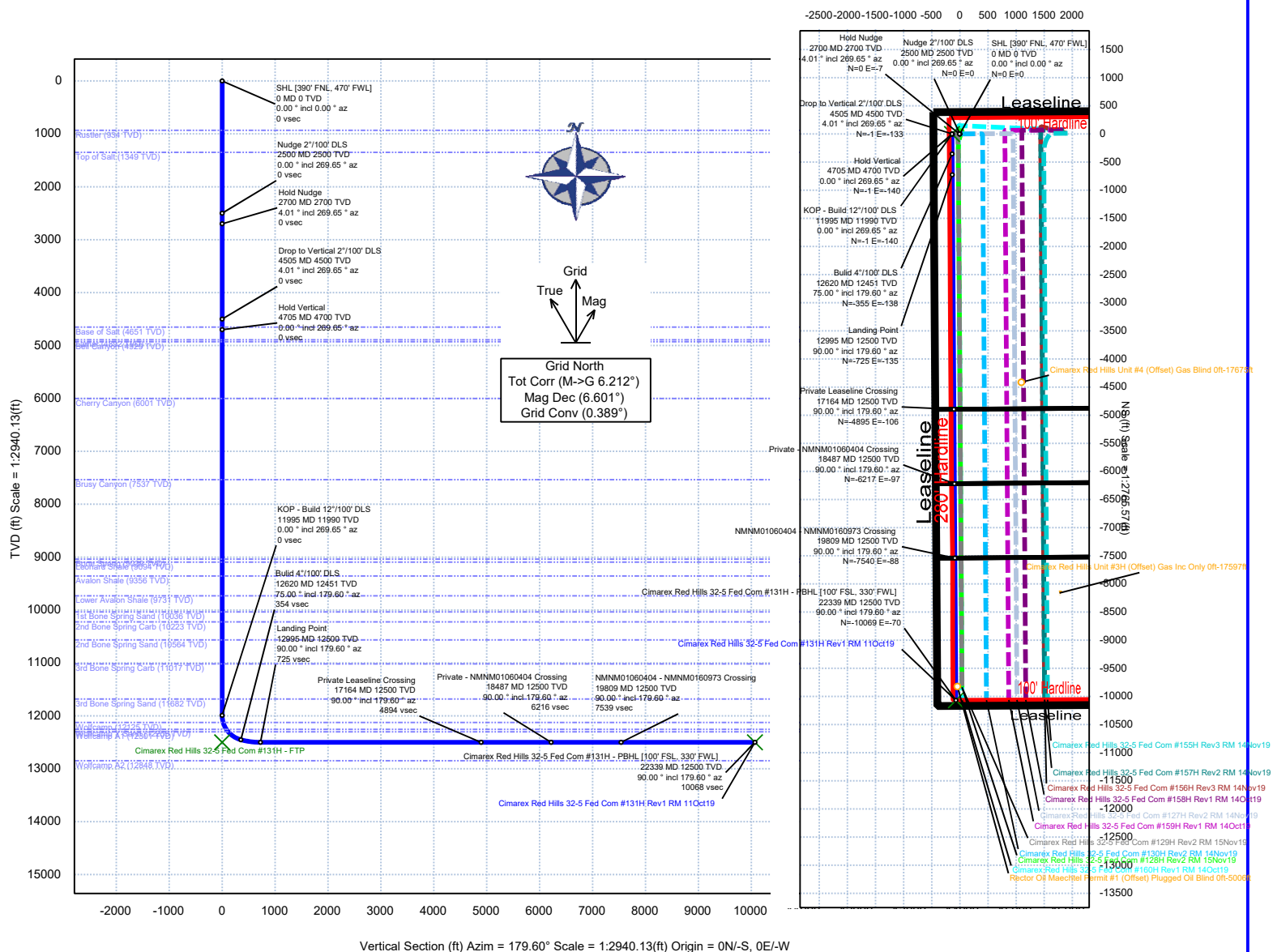
Cimarex

Rev 1

CIMAREX

Borehole: Original Borehole				Well: Cimarex Red Hills 32-5 Fed Com #131H				Field: NM Lea County (NAD 83)				Structure: Cimarex Red Hills 32-5 Fed Com #131H																			
Gravity & Magnetic Parameters								Surface Location NAD83 New Mexico State Plane, Eastern Zone, US Feet								Miscellaneous															
Model:		HDMG 2019		Dip:		59.681°		Date:		18-Nov-2019		Lat:		N 32 5 35.69		Northing:		398429.781US		Grid Conv:		0.3889°		Slot:		Hills 32-5 Fed		TVD Ref:		RKB(3422.4ft above MSL)	
MagDec:		6.601°		FS:		47706.555nT		Gravity FS:		998.429mgn (9.80665 Based)		Lon:		W 103 36 4.82		Easting:		768020.211US		Scale Fact:		0.99996794		Plan:		Cimarex Red Hills 32-5 Fed Com #131H Rev1 RM 11Oct19					

EW (ft) Scale = 1:2765.57(ft)



Critical Point	MD	INCL	AZIM	TVD	VSEC	N(+)/S(-)	E(+)/W(-)	DLS
SHL (300' FNL, 470' FWL)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rustler	934.00	0.00	269.65	934.00	0.00	0.00	0.00	0.00
Top of Salt	1349.00	0.00	269.65	1349.00	0.00	0.00	0.00	0.00
Nudge 2'/100' DLS	2500.00	0.00	269.65	2500.00	0.00	0.00	0.00	0.00
Hold Nudge	2700.30	4.01	269.65	2700.14	-0.01	-0.04	-7.00	2.00
Drop to Vertical 2'/100' DLS	4504.57	4.01	269.65	4500.00	-0.10	-0.82	-133.04	0.00
Base of Salt	4655.73	0.00	269.65	4651.00	-0.10	-0.86	-138.62	2.00
Hold Vertical	4704.87	0.00	269.65	4700.14	-0.11	-0.86	-140.04	2.00
Lamar	4896.73	0.00	269.65	4892.00	-0.11	-0.86	-140.04	0.00
Bell Canyon	4933.73	0.00	269.65	4929.00	-0.11	-0.86	-140.04	0.00
Cherry Canyon	6005.73	0.00	269.65	6001.00	-0.11	-0.86	-140.04	0.00
Brusy Canyon	7541.73	0.00	269.65	7537.00	-0.11	-0.86	-140.04	0.00
Bone Spring	9043.73	0.00	269.65	9039.00	-0.11	-0.86	-140.04	0.00
Leonard Shale	9098.73	0.00	269.65	9094.00	-0.11	-0.86	-140.04	0.00
Avallon Shale	9360.73	0.00	269.65	9356.00	-0.11	-0.86	-140.04	0.00
Lower Avallon Shale	9735.73	0.00	269.65	9731.00	-0.11	-0.86	-140.04	0.00
1st Bone Spring Sand	10040.73	0.00	269.65	10036.00	-0.11	-0.86	-140.04	0.00
2nd Bone Spring Carb	10227.73	0.00	269.65	10223.00	-0.11	-0.86	-140.04	0.00
2nd Bone Spring Sand	10568.73	0.00	269.65	10564.00	-0.11	-0.86	-140.04	0.00
3rd Bone Spring Carb	11021.73	0.00	269.65	11017.00	-0.11	-0.86	-140.04	0.00
3rd Bone Spring Sand	11686.73	0.00	269.65	11682.00	-0.11	-0.86	-140.04	0.00
KOP - Build 12'/100' DLS	11994.73	0.00	269.65	11990.00	-0.11	-0.86	-140.04	0.00
Wolfcamp	12131.60	16.42	179.60	12125.00	19.38	-29.35	-139.91	12.00
Wolfcamp Y Sand	12275.67	33.71	179.60	12255.00	80.19	-51.15	-139.49	12.00
Wolfcamp A1	12333.44	40.64	179.60	12301.00	115.08	-116.04	-139.25	12.00
Build 4'/100' DLS	12619.73	75.00	179.60	12451.19	353.78	-354.74	-137.60	12.00
Landing Point	12994.73	90.00	179.60	12500.00	724.51	-725.46	-135.04	4.00
Private Lease Crossing	17164.00	90.00	179.60	12500.00	4893.78	-4894.63	-106.22	0.00
Private - NMNM01060404 Crossing	18486.50	90.00	179.60	12500.00	6216.28	-6217.10	-97.08	0.00
NMNM01060404 - NMNM0160973 Crossing	19809.10	90.00	179.60	12500.00	7538.88	-7539.67	-87.94	0.00
Cimarex Red Hills 32-5 Fed Com #131H - PBHL [100' FSL, 330' FWL]	22336.69	90.00	179.60	12500.00	10068.48	-10069.20	-70.46	0.00
Wolfcamp A2	N/A	N/A	N/A	12848.00				

1. Geological Formations

TVD of target 12,500

Pilot Hole TD N/A

MD at TD 22,339

Deepest expected fresh water

Formation	Depth (TVD) from KB	Water/Mineral Bearing/Target Zone	Hazards
Rustler	1000	N/A	
Top of Salt	1340	N/A	
Base of Salt	4630	N/A	
Delaware Sands	4895	N/A	
Bone Spring	9025	Hydrocarbons	
1st Bone Spring Sand	10010	Hydrocarbons	
2nd Bone Spring Sand	10565	Hydrocarbons	
3rd Bone Spring Sand	11689	Hydrocarbons	
3rd Bone Spring Target	12040	Hydrocarbons	
Wolfcamp	12145	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
14 3/4	0	1050	1050	10-3/4"	45.50	J-55	BT&C	4.35	7.45	14.97
9 7/8	0	12619	12451	7-5/8"	29.70	L-80	BT&C	2.46	1.18	1.80
6 3/4	0	11884	11884	5-1/2"	20.00	L-80	LT&C	1.14	1.19	1.85
6 3/4	11575	22338	12500	5"	18.00	P-110	BT&C	1.66	1.68	52.31
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

Request Variance for 5-1/2" x 7-5/8" annular clearance. The portion that does not meet clearance will not be cemented

Cimarex Energy Co., Red Hills 32-5 Federal Com 131H

	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.	Y
Does the above casing design meet or exceed BLM's minimum standards? If not provide justification (loading assumptions, casing design criteria).	Y
Will the intermediate pipe be kept at a minimum 1/3 fluid filled to avoid approaching the collapse pressure rating of the casing?	Y
Is well located within Capitan Reef?	N
If yes, does production casing cement tie back a minimum of 50' above the Reef?	N
Is well within the designated 4 string boundary.	N
Is well located in SOPA but not in R-111-P?	N
If yes, are the first 2 strings cemented to surface and 3rd string cement tied back 500' into previous casing?	N
Is well located in R-111-P and SOPA?	N
If yes, are the first three strings cemented to surface?	N
Is 2nd string set 100' to 600' below the base of salt?	N
Is well located in high Cave/Karst?	N
If yes, are there two strings cemented to surface?	N
(For 2 string wells) If yes, is there a contingency casing if lost circulation occurs?	N
Is well located in critical Cave/Karst?	N
If yes, are there three strings cemented to surface?	N
Is AC Report included?	N

3. Cementing Program

Casing	# Sk	Wt. lb/gal	Yld ft ³ /sack	H ₂ O gal/sk	500# Comp. Strength (hours)	Slurry Description
Surface	408	13.50	1.72	9.15	15.5	Lead: Class C + Bentonite
	109	14.80	1.34	6.32	9.5	Tail: Class C + LCM
Intermediate Stage 1	604	10.30	3.64	22.18		Lead: Tuned Light + LCM
	200	14.80	1.34	6.32	9.5	Tail: Class C + LCM
Intermediate Stage 2	768	12.90	1.88	9.65	12	Lead: 35:65 (Poz:C) + Salt + Bentonite
Production	831	14.20	1.30	5.86	14:30	Tail: 50:50 (Poz:H) + Salt + Bentonite + Fluid Loss + Dispersant + SMS

DV tool with possible annular casing packer as needed is proposed at a depth of +/- 4,800'.

Casing String	TOC	% Excess
Surface	0	45
Intermediate Stage 1	4800	47
Intermediate Stage 2	0	39
Production	12419	25

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
9 7/8	13 5/8	5M	Annular	X	50% of working pressure
			Blind Ram		5M
			Pipe Ram	X	
			Double Ram	X	
			Other		
6 3/4	13 5/8	10M	Annular	X	50% of working pressure
			Blind Ram		10M
			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.

	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 1050'	FW Spud Mud	8.30 - 8.80	30-32	N/C
1050' to 12619'	Brine Diesel Emulsion	8.50 - 9.00	30-35	N/C
12619' to 22338'	OBM	12.00 - 12.50	50-70	N/C

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

The Brine Emulsion is completely saturated brine fluid that ties diesel into itself to lower the weight of the fluid. The drilling fluid is completely salt saturated.

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

Additional Logs Planned	Interval
-------------------------	----------

7. Drilling Conditions

Condition	
BH Pressure at deepest TVD	8125 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 10-3/4" surface casing, a 13 5/8" BOP/BOPE system with a minimum working pressure of 10000 psi will be installed on the wellhead system and will be pressure tested to 250 psi low followed by a 10000 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 10000 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.

Drilling 9 7/8" hole
below 10 3/4" 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

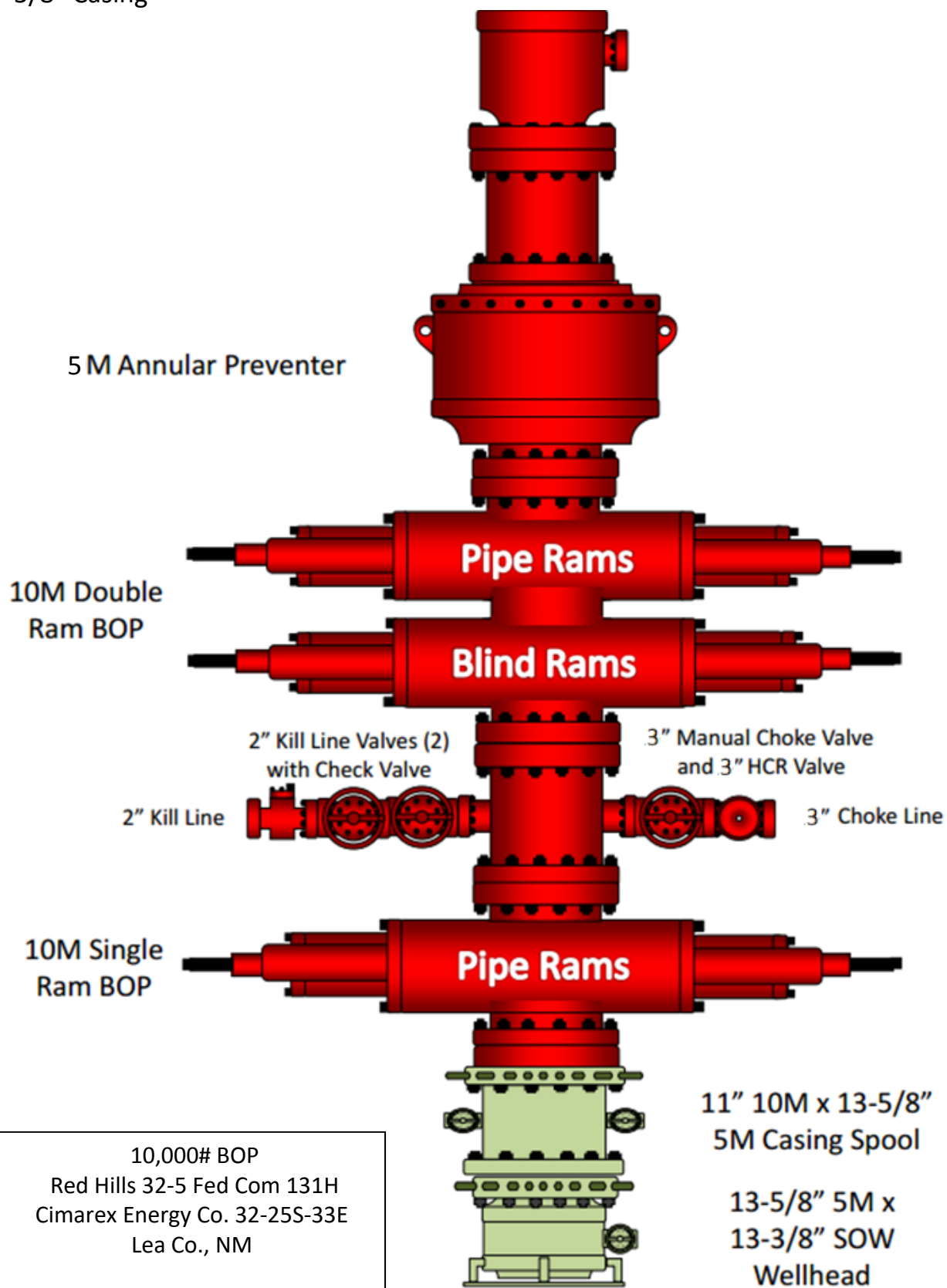
5000# BOP

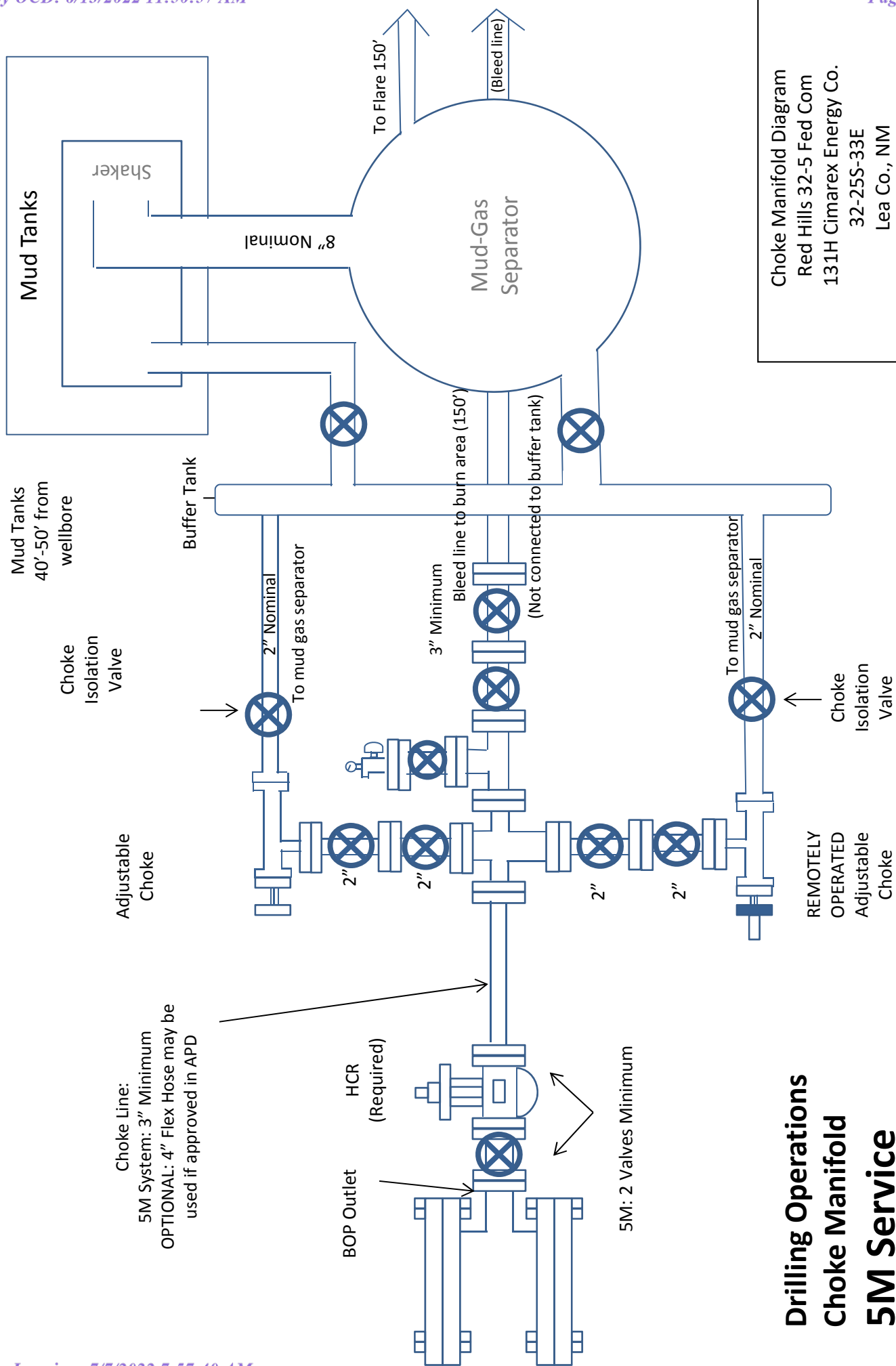
Red Hills 32-5 Fed Com 131H

Cimarex Energy Co. 32-25S-33E

Lea Co., NM

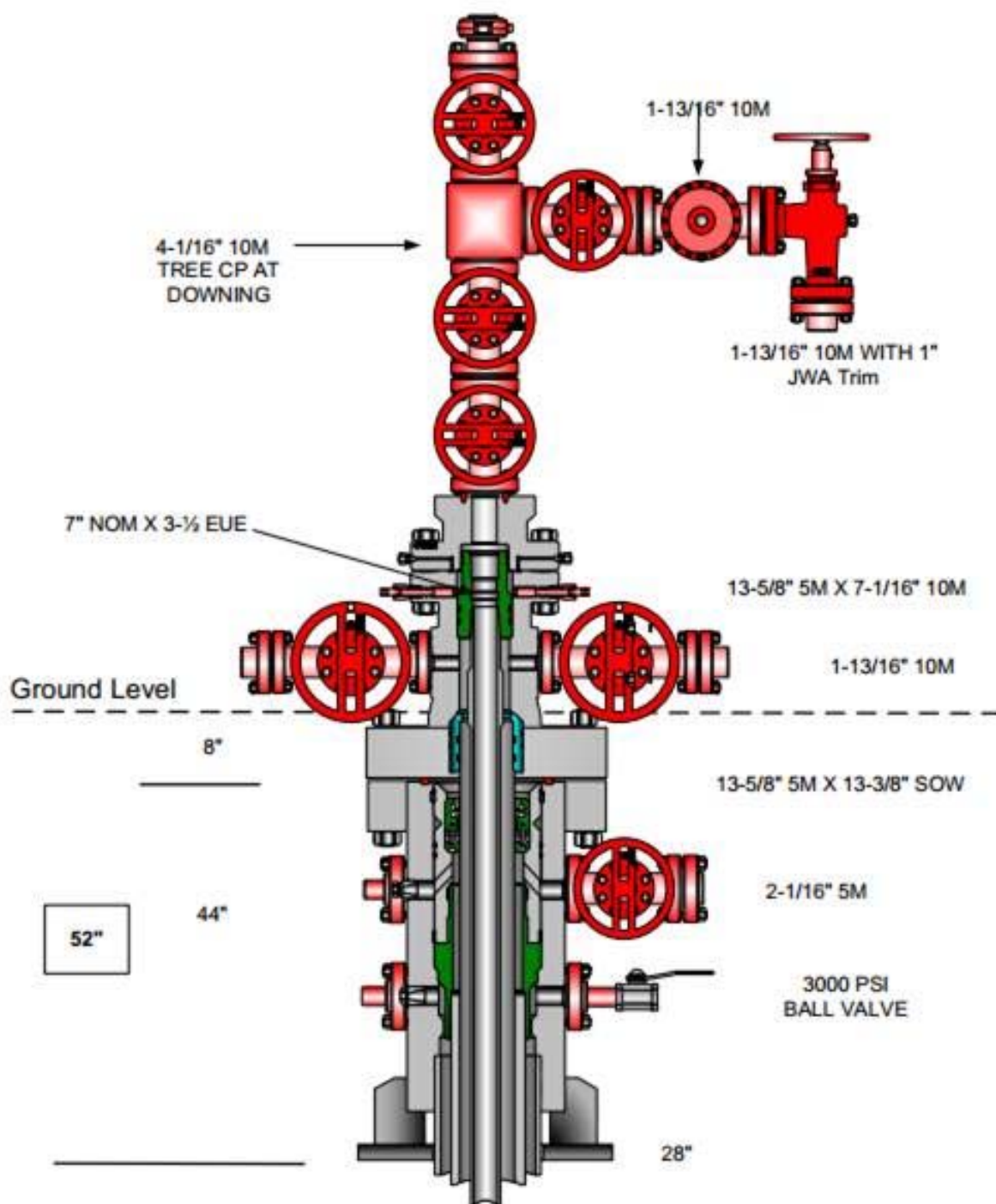
Drilling 6 3/4" hole. Below
7 5/8" Casing







Multi-bowl Wellhead Diagram



Multi-
bowl Wellhead Diagram Red
Hills 32-5 Fed Com 131H
Cimarex Energy Co.
32-25S-33E
Lea Co., NM



Cimarex 10M Well Control Plan

Version 1.0

BOPE Preventer Utilization

The table below displays all BHA components, drill pipe, casing, or open hole that could be present during a required shut in and the associated preventer component that would provide a barrier to flow. It is specific to the hole section that requires a 10M system. The mud system being utilized in the hole will always assumed to be the first barrier to flow. The below table, combined with the mud program, documents that two barriers to flow can be maintained at all times, independent of the rating of the annular preventer.

Drill String Element	OD	Preventer	RWP
4" Drillpipe	4"	Lower Ram 3 1/2" - 5 1/2" VBR* Upper Ram 3 1/2" - 5 1/2" VBR*	10M
4.5" Drillpipe	4.5"	Lower Ram 3 1/2" - 5 1/2" VBR* Upper Ram 3 1/2" - 5 1/2" VBR*	10M
4" HWDP Drillpipe	4"	Lower Ram 3 1/2" - 5 1/2" VBR* Upper Ram 3 1/2" - 5 1/2" VBR*	10M
4.5" HWDP Drillpipe	4.5"	Lower Ram 3 1/2" - 5 1/2" VBR* Upper Ram 3 1/2" - 5 1/2" VBR*	10M
Drill Collars (including non-magnetic)	4.75-5.25"	Lower Ram 3 1/2" - 5 1/2" VBR* Upper Ram 3 1/2" - 5 1/2" VBR*	10M
Production Casing	5.5"	Lower Ram 3 1/2" - 5 1/2" VBR* Upper Ram 3 1/2" - 5 1/2" VBR*	10M
Production Casing	5"	Lower Ram 3 1/2" - 5 1/2" VBR* Upper Ram 3 1/2" - 5 1/2" VBR*	10M
Production Casing	4.5"	Lower Ram 3 1/2" - 5 1/2" VBR* Upper Ram 3 1/2" - 5 1/2" VBR*	10M
ALL	0-13 5/8"	Annular	5M
Open Hole		Blind Rams	10M

*VBR – Variable Bore Ram

Well Control Procedures

Proper well control response is highly specific to current well conditions and must be adapted based on environment as needed. The procedures below are given in “common” operating conditions to cover the basic and most necessary operations required during the wellbore construction. These include drilling ahead, tripping pipe, tripping BHA, running casing, and pipe out of the hole/open hole. In some of the procedures below, there will be a switch of control from the lesser RWP annular to the appropriate 10M RWP ram. The pressure at which this is done is variable based on overall well conditions that must be evaluated situationally. The pressure that control is switched may be equal to or less than the RWP but at no time will the pressure on the annular preventer exceed the RWP of the annular. The annular will be tested to 5,000 psi. This will be the RWP of the annular preventer.

Shutting In While Drilling

1. Sound alarm to alert crew
2. Space out drill string
3. Shut down pumps
4. Shut in uppermost BOPE preventer (typically the annular preventer) and open HCR.
5. Verify well is shut-in and flow has stopped
6. Notify supervisory personnel
7. Record data (SIDP, SICP, Pit Gain, and Time)
8. Hold pre-job safety meeting and discuss kill procedure

9. If pressure is anticipated to climb to the RWP of the annular preventer during kill procedure, swap control of the well to the upper pipe ram

Shutting In While Tripping

1. Sound alarm and alert crew
2. Install open, full open safety valve and close valve
3. Shut in uppermost BOPE preventer (typically the annular preventer) and open HCR.
4. Verify well is shut-in and flow has stopped
5. Notify supervisory personnel
6. Record data (SIDP, SICP, Pit Gain, and Time)
7. Hold pre-job safety meeting and discuss kill procedure
8. If pressure is anticipated to climb to the RWP of the annular preventer during kill procedure, swap control of the well to the upper pipe ram

Shutting In While Running Casing

1. Sound alarm and alert crew
2. Install circulating swedge. Close high pressure, low torque valves.
3. Shut in uppermost BOPE preventer (typically the annular preventer) and open HCR.
4. Verify well is shut-in and flow has stopped
5. Notify supervisory personnel
6. Record data (SIDP, SICP, Pit Gain, and Time)
7. Hold Pre-job safety meeting and discuss kill procedure
8. If pressure is anticipated to climb to the RWP of the annular preventer during kill procedure, swap control of the well to the upper pipe ram

Shutting in while out of hole

1. Sound alarm
2. Shut-in well: close blind rams
3. Verify well is shut-in and monitor pressures
4. Notify supervisory personnel
5. Record data (SIDP, SICP, Pit Gain, and Time)
6. Hold Pre-job safety meeting and discuss kill procedure

Shutting in prior to pulling BHA through stack

1. Prior to pulling last joint of drill pipe thru the stack space out and check flow. If flowing see steps below.
2. Sound alarm and alert crew
3. Install open, full open safety valve and close valve
4. Shut in upper pipe ram and open HCR.

5. Verify well is shut-in and flow has stopped
6. Notify supervisory personnel
7. Record data (SIDP, SICP, Pit Gain, and Time)
8. Hold pre-job safety meeting and discuss kill procedure

Shutting in while BHA is in the stack and ram preventer and combo immediately available

1. Sound alarm and alert crew
2. Stab Crossover and install open, full open safety valve and close valve
3. Space out drill string with upset just beneath the compatible pipe ram.
4. Shut in upper compatible pipe ram and open HCR.
5. Verify well is shut-in and flow has stopped
6. Notify supervisory personnel
7. Record data (SIDP, SICP, Pit Gain, and Time)
8. Hold pre-job safety meeting and discuss kill procedure

Shutting in while BHA is in the stack and no ram preventer or combo immediately available

1. Sound alarm and alert crew
2. If possible pick up high enough, to pull string clear and follow "Open Hole" scenario
3. If not possible to pick up high enough:
 1. Stab Crossover, make up one joint/stand of drill pipe, and install open, full open safety valve and close valve
4. Space out drill string with upset just beneath the compatible pipe ram.
5. Shut in upper compatible pipe ram and open HCR.
6. Verify well is shut-in and flow has stopped
7. Notify supervisory personnel
8. Record data (SIDP, SICP, Pit Gain, and Time)
9. Hold pre-job safety meeting and discuss kill procedure

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CONDITIONS

Action 116287

CONDITIONS

Operator: CIMAREX ENERGY CO. 600 N. Marienfeld Street Midland, TX 79701	OGRID: 215099
	Action Number: 116287
	Action Type: [C-103] NOI Change of Plans (C-103A)

CONDITIONS

Created By	Condition	Condition Date
pkautz	None	7/7/2022