

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.
NMNM02889

6. If Indian, Allottee or Tribe Name

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

8. Well Name and No.
DOS EQUIS 12-13 FEDERAL COM 6H9. API Well No.
30-025-46481-00-X110. Field and Pool or Exploratory Area
TRISTE DRAW-BONE SPRING

11. County or Parish, State

LEA COUNTY, NM

SUBMIT IN TRIPLICATE - Other instructions on page 2

1. Type of Well

☒ Oil Well ☐ Gas Well ☐ Other

2. Name of Operator

CIMAREX ENERGY COMPANY

Contact: AMITHY E CRAWFORD

E-Mail: acrawford@cimarex.com

3a. Address

600 N. MARIENFELD STREET STE 600
MIDLAND, TX 79701

3b. Phone No. (include area code)

Ph: 432-620-1909

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

Sec 12 T24S R32E NWNE 360FNL 1410FEL
32.238468 N Lat, 103.624344 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 Energy Co respectfully requests to change the BHL and Formation to Wolfcamp thereby changing the drilling plan.

No Additional Surface Disturbance

Proposed Formation-
Wolfcamp

Proposed BHL-
100' FSL & 780' FEL Section 13 24S 32E

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

Electronic Submission #496917 verified by the BLM Well Information System**For CIMAREX ENERGY COMPANY, sent to the Hobbs****Committed to AFMSS for processing by PRISCILLA PEREZ on 01/08/2020 (20PP0785SE)**

Name (Printed/Typed) AMITHY E CRAWFORD

Title REGULATORY ANALYST

Signature (Electronic Submission)

Date 12/23/2019

THIS SPACE FOR FEDERAL OR STATE OFFICE USE

Approved By JEROMY PORTER

Title PETROLEUM ENGINEER

Date 01/30/2020

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 #496917 that would not fit on the form

32. Additional remarks, continued

Please see attached- Wellsite Layout, Updated C102, Updated Directional Surveys, Updated Drilling Plan, BOPS, & Casing Specs.

Revisions to Operator-Submitted EC Data for Sundry Notice #496917

	Operator Submitted	BLM Revised (AFMSS)
Sundry Type:	APDCH NOI	APDCH NOI
Lease:	NMNM02889	NMNM02889
Agreement:		
Operator:	CIMAREX ENERGY CO. 600 N. MARIENFELD, SUITE 600 MIDLAND, TX 79701 Ph: 432-620-1909	CIMAREX ENERGY COMPANY 600 N. MARIENFELD STREET STE 600 MIDLAND, TX 79701 Ph: 432.620.1938
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	TRISTE DRAW-BONE SPRING
Well/Facility:	DOS EQUIS 12-13 FEDERAL COM 6H Sec 12 T24S R32E 360FNL 1410FEL	DOS EQUIS 12-13 FEDERAL COM 6H Sec 12 T24S R32E NWNE 360FNL 1410FEL 32.238468 N Lat, 103.624344 W Lon

PECOS DISTRICT DRILLING CONDITIONS OF APPROVAL

OPERATOR'S NAME:	CIMAREX ENERGY COMPANY
LEASE NO.:	NMNM02889
WELL NAME & NO.:	DOS EQUIS 12-13 FED COM 6H
SURFACE HOLE FOOTAGE:	360'/N & 1410'/E
BOTTOM HOLE FOOTAGE:	100'/S & 780'/E
LOCATION:	Section 12, T.24 S., R.32 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

All previous COAs still apply, except for the following:

A. CASING

1. The **10-3/4** inch surface casing shall be set at approximately **1235** 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:

Operator has proposed a DV tool, the depth may be adjusted as long as the cement is changed proportionally. The DV tool may be cancelled if cement circulates to surface on the first stage.

- a. First stage to DV tool: Cement to circulate. If cement does not circulate off the DV tool, contact the appropriate BLM office before proceeding with second stage cement job.
- b. Second stage above DV tool:
 - 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.

B. 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.

C. 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.

JJP01302020

District I
1625 N. French Dr., Hobbs, NM 88240
Phone: (505) 393-6161 Fax: (505) 393-0720
District II
811 S. First St., Artesia, NM 88210
Phone: (505) 748-1283 Fax: (505) 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 30-025-46481	² Pool Code 98309	³ Pool Name WC-025 G-08 S243213C; Wolfcamp
⁴ Property Code 326056	⁵ Property Name DOS EQUIS 12-13 FEDERAL.COM	⁶ Well Number 6H
⁷ GRID No. 215099	⁸ Operator Name CIMAREX ENERGY CO.	⁹ Elevation 3600.4'

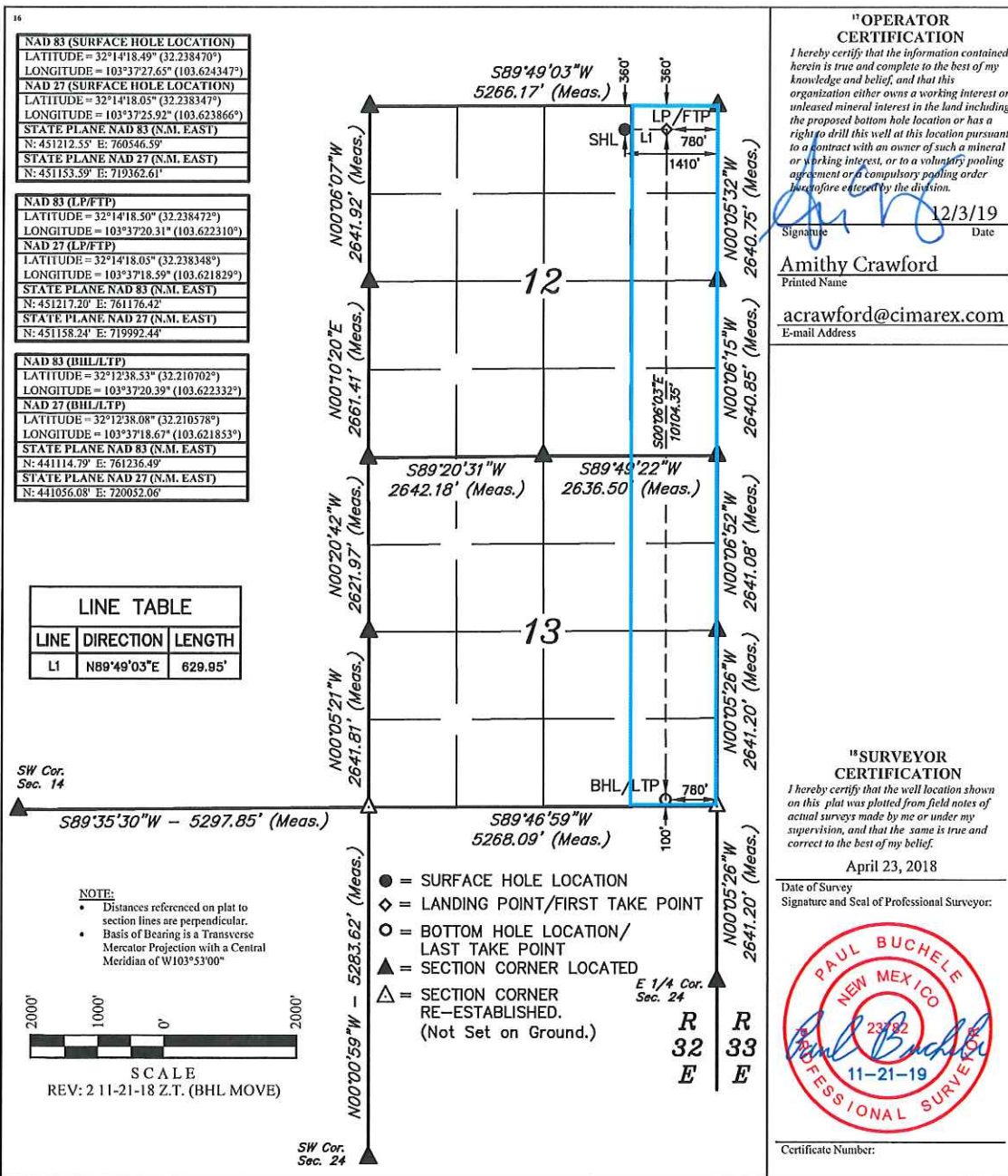
"Surface Location

UL or lot no.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County
B	12	24S	32E		360	NORTH	1410	EAST	LEA

"Bottom Hole Location If Different From Surface

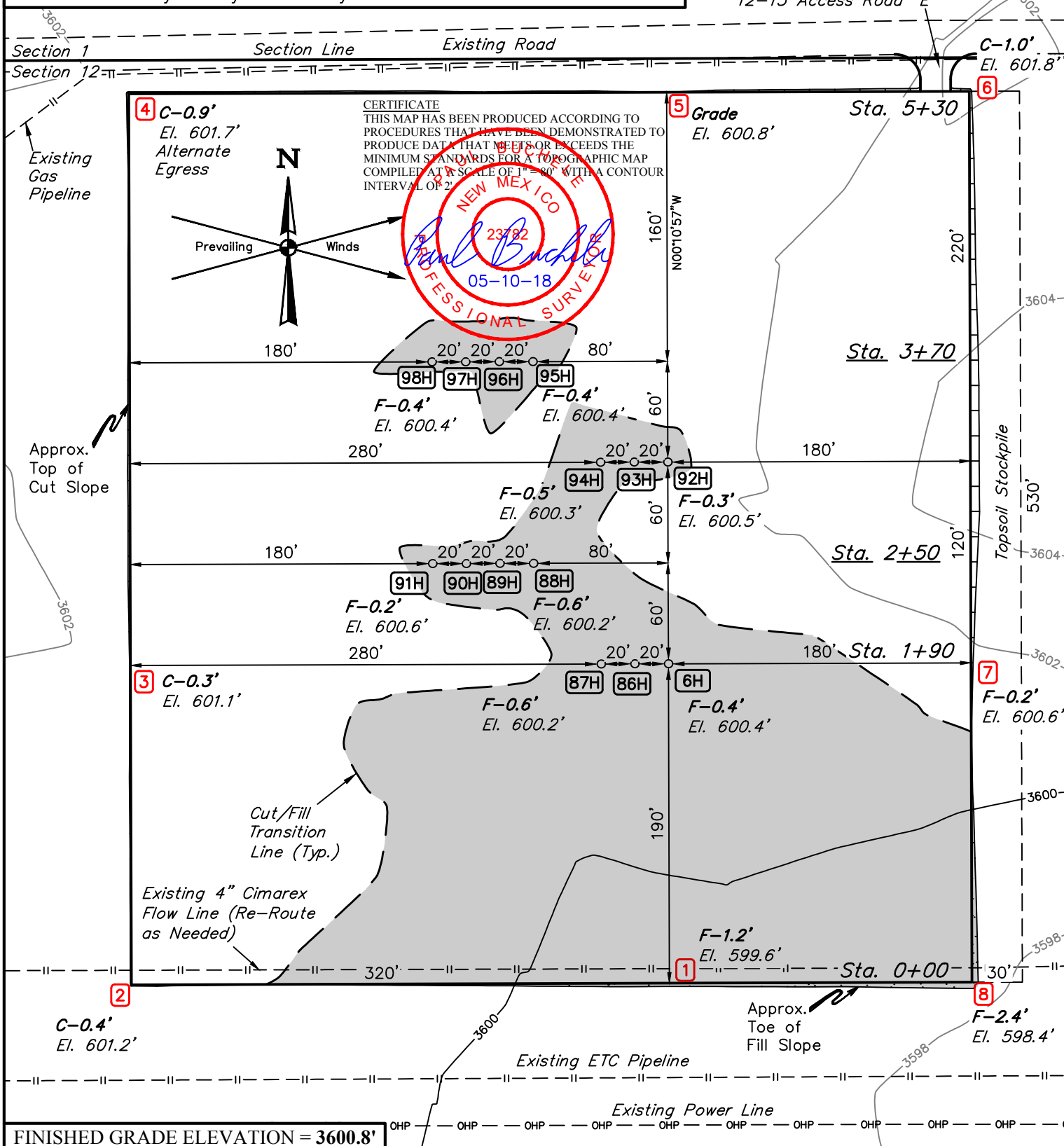
UL or lot no.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County
P	13	24S	32E		100	SOUTH	780	EAST	LEA
¹² Dedicated Acres 320	¹³ Joint or Infill	¹⁴ Consolidation Code	¹⁵ Order No.						

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.



NOTE: Earthwork Calculations Require a Fill @ 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.

Proposed Dos Equis
12-13 Access Road "E"



NOTES:

- Contours shown at 2' intervals.
- Cut/Fill slopes 1 1/2:1 (Typ. except where noted)
- Underground utilities shown on this sheet are for visualization purposes only, actual locations to be determined prior to construction.
- Basis of Bearings is a Transverse Mercator Projection with a Central Meridian of W103°53'00"

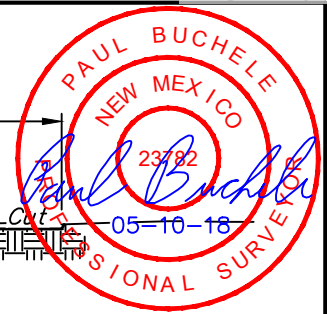
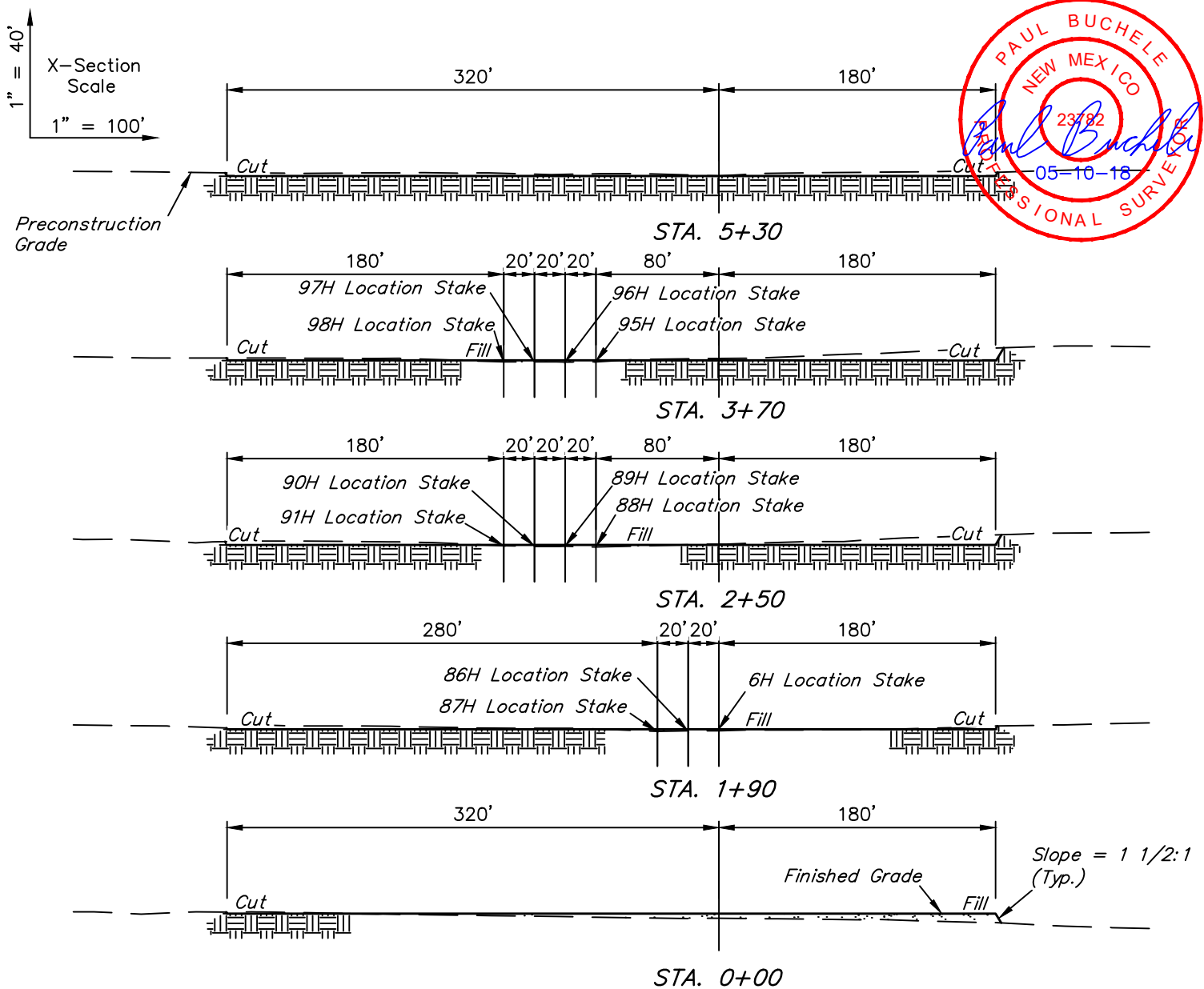
CIMAREX ENERGY CO.

DOS EQUIS 12-13 FEDERAL COM W2E2 PAD #6
NW 1/4 NE 1/4, SECTION 12, T24S, R32E, N.M.P.M.
LEA COUNTY, NEW MEXICO

SURVEYED BY	C.S.	04-23-18	SCALE
DRAWN BY	S.S.	05-02-18	1" = 80'
LOCATION LAYOUT			EXHIBIT J



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



APPROXIMATE EARTHWORK QUANTITIES	
(4") TOPSOIL STRIPPING	3,310 Cu. Yds.
REMAINING LOCATION	3,180 Cu. Yds.
TOTAL CUT	6,490 Cu. Yds.
FILL	3,180 Cu. Yds.
EXCESS MATERIAL	3,310 Cu. Yds.
TOPSOIL & PIT BACKFILL	3,310 Cu. Yds.
EXCESS UNBALANCE (After Interim Rehabilitation)	0 Cu. Yds.

APPROXIMATE SURFACE DISTURBANCE AREAS		
	DISTANCE	ACRES
WELL SITE DISTURBANCE	NA	±6.488

NOTES:

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

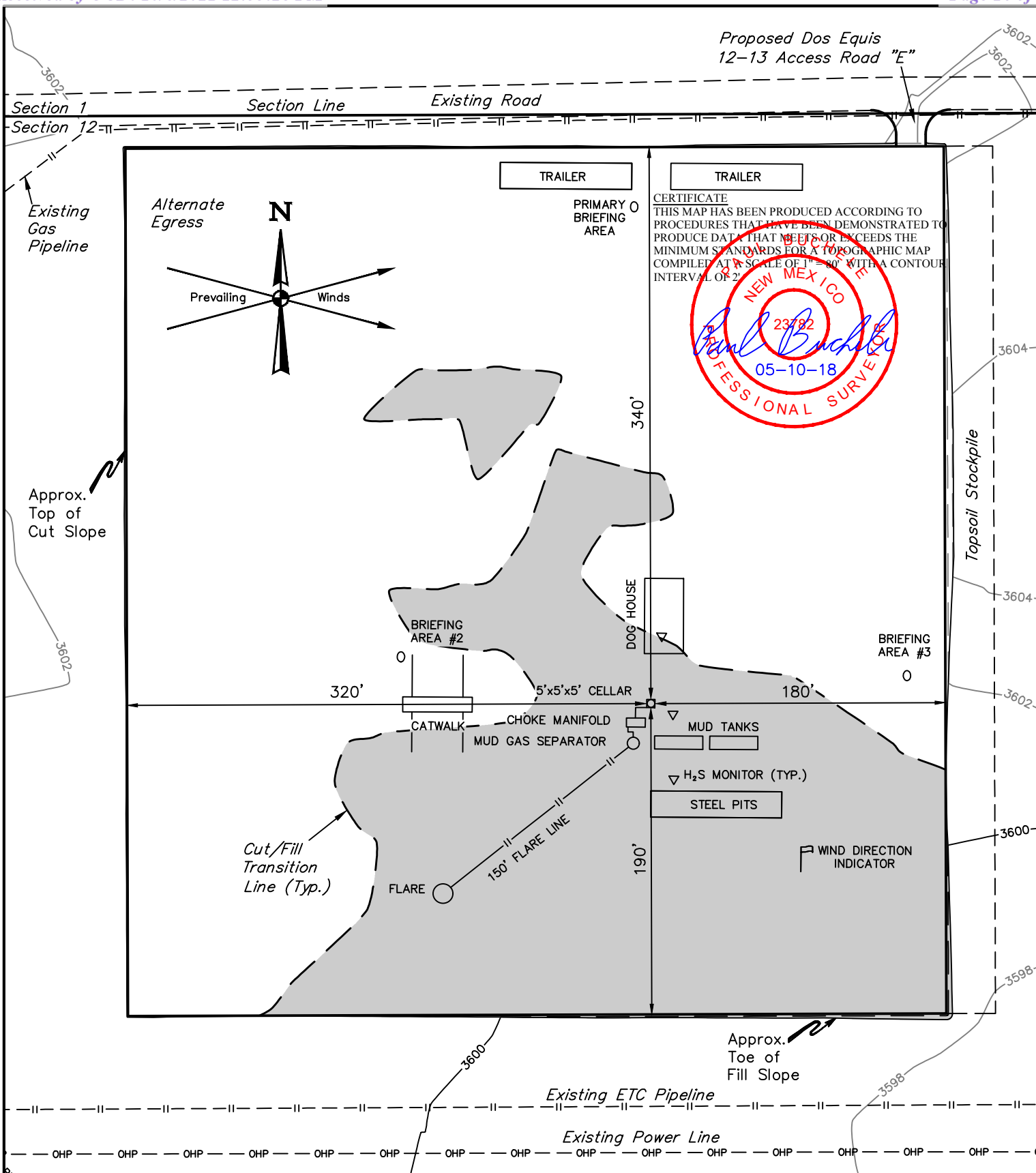
CIMAREX ENERGY CO.

DOS EQUIS 12-13 FEDERAL COM W2E2 PAD #6
NW 1/4 NE 1/4, SECTION 12, T24S, R32E, N.M.P.M.
LEA COUNTY, NEW MEXICO

SURVEYED BY	C.S.	04-23-18	SCALE
DRAWN BY	S.S.	05-02-18	AS SHOWN
TYPICAL CROSS SECTIONS		EXHIBIT J	



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

**NOTES:**

- Contours shown at 2' intervals.

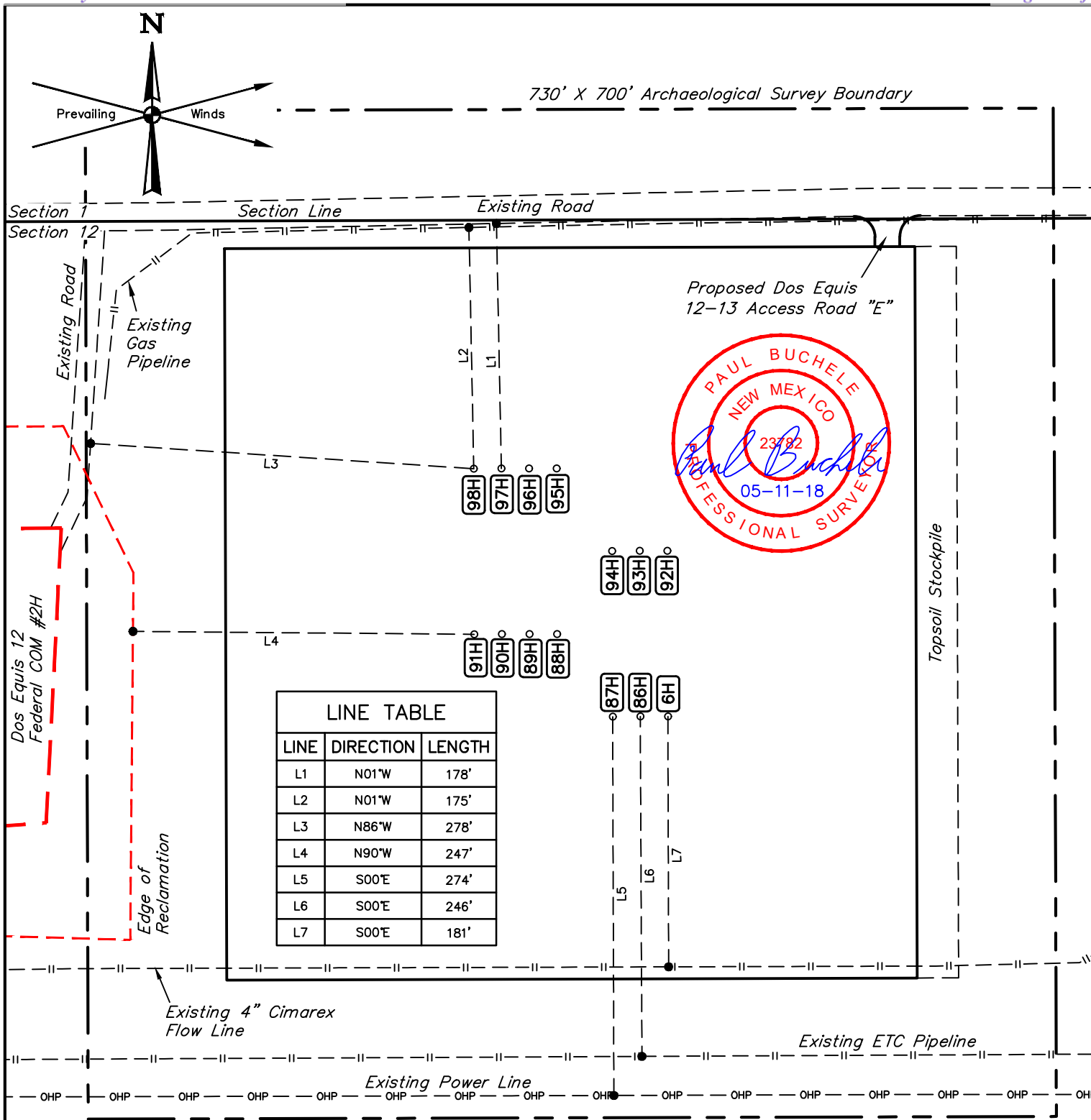
CIMAREX ENERGY CO.

DOS EQUIS 12-13 FEDERAL COM 6H
360' FNL 1410' FEL
NW 1/4 NE 1/4, SECTION 12, T24S, R32E, N.M.P.M.
LEA COUNTY, NEW MEXICO

SURVEYED BY	C.S.	04-23-18	SCALE
DRAWN BY	S.S.	05-02-18	1" = 80'
TYPICAL RIG LAYOUT			EXHIBIT K



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



NOTES:

CIMAREX ENERGY CO.

DOS EQUIS 12-13 FEDERAL COM W2E2 PAD #6
NW 1/4 NE 1/4, SECTION 12, T24S, R32E, N.M.P.M.
LEA COUNTY, NEW MEXICO



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

SURVEYED BY	C.S.	04-23-18	SCALE
DRAWN BY	S.S.	05-02-18	1" = 100'
ARCHAEOLOGICAL SURVEY BOUNDARY			EXHIBIT L



Cimarex Dos Equis 12-13 Federal Com #6H - Rev2 RM 03Dec19 Proposal

Geodetic Report

(Def Plan)



Report Date: December 04, 2019 - 03:12 PM
Client: Cimarex Energy
Field: NM Lea County (NAD 83)
Structure / Slot: Cimarex Dos Equis 12-13 Federal Com #6H / New Slot
Well: Dos Equis 12-13 Federal Com #6H
Borehole: Dos Equis 12-13 Federal Com #6H
UWI / API#: Unknown / Unknown
Survey Name: Cimarex Dos Equis 12-13 Federal Com #6H - Rev2 RM 03Dec19
Survey Date: January 02, 2019
Tort / AHD / DDI / ERD Ratio: 118.491 ° / 10621.384 ft / 6.347 / 0.823
Coordinate Reference System: NAD83 New Mexico State Plane, Eastern Zone, US Feet
Location Lat / Long: N 32° 14' 18.49298", W 103° 37' 27.64812"
Location Grid N/E Y/X: N 451212.550 ftUS, E 760546.590 ftUS
CRS Grid Convergence Angle: 0.3782 °
Grid Scale Factor: 0.99996413
Version / Patch: 2.10.787.0

Survey / DLS Computation: Minimum Curvature / Lubinski
Vertical Section Azimuth: 179.660 ° (Grid North)
Vertical Section Origin: 0.000 ft, 0.000 ft
TVD Reference Datum: RKB
TVD Reference Elevation: 3626.400 ft above MSL
Seabed / Ground Elevation: 3600.400 ft above MSL
Magnetic Declination: 6.635 °
Total Gravity Field Strength: 998.4390mgn (9.80665 Based)
Gravity Model: GARM
Total Magnetic Field Strength: 47864.712 nT
Magnetic Dip Angle: 59.887 °
Declination Date: December 03, 2019
Magnetic Declination Model: HDGM 2019
North Reference: Grid North
Grid Convergence Used: 0.3782 °
Total Corr Mag North->Grid North: 6.2564 °
Local Coord Referenced To: Well Head

Comments	MD (ft)	Incl (°)	Azim Grid (°)	TVD (ft)	VSEC (ft)	NS (ft)	EW (ft)	DLS (°/100ft)	Northing (ftUS)	Easting (ftUS)	Latitude (N/S ° ' ")	Longitude (E/W ° ' ")
SHL [360° FNL, 1410° FEL]	0.00	0.00	173.56	0.00	0.00	0.00	0.00	N/A	451212.55	760546.59	N 32 14 18.49	W 103 37 27.65
	100.00	0.00	89.58	100.00	0.00	0.00	0.00	0.00	451212.55	760546.59	N 32 14 18.49	W 103 37 27.65
	200.00	0.00	89.58	200.00	0.00	0.00	0.00	0.00	451212.55	760546.59	N 32 14 18.49	W 103 37 27.65
	300.00	0.00	89.58	300.00	0.00	0.00	0.00	0.00	451212.55	760546.59	N 32 14 18.49	W 103 37 27.65
	400.00	0.00	89.58	400.00	0.00	0.00	0.00	0.00	451212.55	760546.59	N 32 14 18.49	W 103 37 27.65
	500.00	0.00	89.58	500.00	0.00	0.00	0.00	0.00	451212.55	760546.59	N 32 14 18.49	W 103 37 27.65
	600.00	0.00	89.58	600.00	0.00	0.00	0.00	0.00	451212.55	760546.59	N 32 14 18.49	W 103 37 27.65
	700.00	0.00	89.58	700.00	0.00	0.00	0.00	0.00	451212.55	760546.59	N 32 14 18.49	W 103 37 27.65
	800.00	0.00	89.58	800.00	0.00	0.00	0.00	0.00	451212.55	760546.59	N 32 14 18.49	W 103 37 27.65
	900.00	0.00	89.58	900.00	0.00	0.00	0.00	0.00	451212.55	760546.59	N 32 14 18.49	W 103 37 27.65
	1000.00	0.00	89.58	1000.00	0.00	0.00	0.00	0.00	451212.55	760546.59	N 32 14 18.49	W 103 37 27.65
	1100.00	0.00	89.58	1100.00	0.00	0.00	0.00	0.00	451212.55	760546.59	N 32 14 18.49	W 103 37 27.65
Rustler	1185.00	0.00	89.58	1185.00	0.00	0.00	0.00	0.00	451212.55	760546.59	N 32 14 18.49	W 103 37 27.65
	1200.00	0.00	89.58	1200.00	0.00	0.00	0.00	0.00	451212.55	760546.59	N 32 14 18.49	W 103 37 27.65
	1300.00	0.00	89.58	1300.00	0.00	0.00	0.00	0.00	451212.55	760546.59	N 32 14 18.49	W 103 37 27.65
	1400.00	0.00	89.58	1400.00	0.00	0.00	0.00	0.00	451212.55	760546.59	N 32 14 18.49	W 103 37 27.65
Salado (Top Salt) Nudge 2"/100' DLS	1500.00	0.00	89.58	1500.00	0.00	0.00	0.00	0.00	451212.55	760546.59	N 32 14 18.49	W 103 37 27.65
	1600.00	2.00	89.58	1599.98	0.00	0.01	1.75	2.00	451212.56	760548.34	N 32 14 18.49	W 103 37 27.63
	1700.00	4.00	89.58	1699.84	-0.01	0.05	6.98	2.00	451212.60	760553.57	N 32 14 18.49	W 103 37 27.57
	1800.00	6.00	89.58	1799.45	-0.02	0.12	15.69	2.00	451212.67	760562.28	N 32 14 18.49	W 103 37 27.47
Hold Nudge	1882.78	7.66	89.58	1881.64	-0.04	0.19	25.53	2.00	451212.74	760572.12	N 32 14 18.49	W 103 37 27.35
	1900.00	7.66	89.58	1898.71	-0.04	0.21	27.83	0.00	451212.76	760574.42	N 32 14 18.49	W 103 37 27.32
	2000.00	7.66	89.58	1997.82	-0.06	0.30	41.15	0.00	451212.85	760587.74	N 32 14 18.49	W 103 37 27.17
	2100.00	7.66	89.58	2096.93	-0.08	0.40	54.47	0.00	451212.95	760601.06	N 32 14 18.49	W 103 37 27.01
	2200.00	7.66	89.58	2196.03	-0.10	0.50	67.79	0.00	451213.05	760614.38	N 32 14 18.49	W 103 37 26.86
	2300.00	7.66	89.58	2295.14	-0.12	0.60	81.11	0.00	451213.15	760627.70	N 32 14 18.49	W 103 37 26.70
	2400.00	7.66	89.58	2394.25	-0.14	0.70	94.43	0.00	451213.25	760641.02	N 32 14 18.49	W 103 37 26.55
	2500.00	7.66	89.58	2493.36	-0.16	0.80	107.76	0.00	451213.35	760654.34	N 32 14 18.49	W 103 37 26.39
	2600.00	7.66	89.58	2592.47	-0.18	0.89	121.08	0.00	451213.44	760667.66	N 32 14 18.49	W 103 37 26.24
	2700.00	7.66	89.58	2691.58	-0.19	0.99	134.40	0.00	451213.54	760680.98	N 32 14 18.49	W 103 37 26.08
	2800.00	7.66	89.58	2790.69	-0.21	1.09	147.72	0.00	451213.64	760694.30	N 32 14 18.49	W 103 37 25.93
	2900.00	7.66	89.58	2889.80	-0.23	1.19	161.04	0.00	451213.74	760707.62	N 32 14 18.49	W 103 37 25.77
	3000.00	7.66	89.58	2988.90	-0.25	1.29	174.36	0.00	451213.84	760720.95	N 32 14 18.49	W 103 37 25.62
	3100.00	7.66	89.58	3088.01	-0.27	1.39	187.68	0.00	451213.94	760734.27	N 32 14 18.49	W 103 37 25.46
	3200.00	7.66	89.58	3187.12	-0.29	1.48	201.00	0.00	451214.03	760747.59	N 32 14 18.49	W 103 37 25.31
	3300.00	7.66	89.58	3286.23	-0.31	1.58	214.33	0.00	451214.13	760760.91	N 32 14 18.49	W 103 37 25.15
	3400.00	7.66	89.58	3385.34	-0.33	1.68	227.65	0.00	451214.23	760774.23	N 32 14 18.49	W 103 37 25.00
	3500.00	7.66	89.58	3484.45	-0.35	1.78	240.97	0.00	451214.33	760787.55	N 32 14 18.49	W 103 37 24.84
	3600.00	7.66	89.58	3583.56	-0.37	1.88	254.29	0.00	451214.43	760800.87	N 32 14 18.49	W 103 37 24.69
	3700.00	7.66	89.58	3682.67	-0.39	1.98	267.61	0.00	451214.53	760814.19	N 32 14 18.50	W 103 37 24.53
	3800.00	7.66	89.58	3781.77	-0.41	2.07	280.93	0.00	451214.62	760827.51	N 32 14 18.50	W 103 37 24.38
	3900.00	7.66	89.58	3880.88	-0.43	2.17	294.25	0.00	451214.72	760840.83	N 32 14 18.50	W 103 37 24.22
	4000.00	7.66	89.58	3979.99	-0.45	2.27	307.57	0.00	451214.82	760854.15	N 32 14 18.50	W 103 37 24.07
	4100.00	7.66	89.58	4079.10	-0.46	2.37	320.90	0.00	451214.92	760867.47	N 32 14 18.50	W 103 37 23.91
	4200.00	7.66	89.58	4178.21	-0.48	2.47	334.22	0.00	451215.02	760880.79	N 32 14 18.50	W 103 37 23.76
	4300.00	7.66	89.58	4277.32	-0.50	2.57	347.54	0.00	451215.12	760894.12	N 32 14 18.50	W 103 37 23.60
	4400.00	7.66	89.58	4376.43	-0.52	2.66	360.86	0.00	451215.21	760907.44	N 32 14 18.50	W 103 37 23.45
	4500.00	7.66	89.58	4475.53	-0.54	2.76	374.18	0.00	451215.31	760920.76	N 32 14 18.50	W 103 37 23.29
Base of Salt	4600.00	7.66	89.58	4574.64	-0.56	2.86	387.50	0.00	451215.41	760934.08	N 32 14 18.50	W 103 37 23.14
	4676.03	7.66	89.58	4650.00	-0.58	2.94	397.63	0.00	451215.49	760944.21	N 32 14 18.50	W 103 37 23.02
	4700.00	7.66	89.58	4673.75	-0.58	2.96	400.82	0.00	451215.51	760947.40	N 32 14 18.50	W 103 37 22.98
	4800.00	7.66	89.58	4772.86	-0.60	3.06	414.15	0.00	451215.61	760960.72	N 32 14 18.50	W 103 37 22.83
	4900.00	7.66	89.58	4871.97	-0.62	3.16	427.47	0.00	451215.71	760974.04	N 32 14 18.50	W 103 37 22.67
Delaware Sands	4948.46	7.66	89.58	4920.00	-0.63	3.20	433.92	0.00	451215.75	760980.50	N 32 14 18.50	W 103 37 22.60
	5000.00	7.66	89.58	4971.08	-0.64	3.25	440.79	0.00	451215.80	760987.36	N 32 14 18.50	W 103 37 22.52
Drop to Vertical 2"/100' DLS	5029.18	7.66	89.58	5000.00	-0.64	3.28	444.68	0.00	451215.83	760991.25	N 32 14 18.50	W 103 37 22.47
	5100.00	6.24	89.58	5070.30	-0.66	3.35	453.24	2.00	451215.90	760999.81	N 32 14 18.50	W 103 37 22.37
	5200.00	4.24	89.58	5169.87	-0.67	3.41	462.37	2.00	451215.96	761008.94	N 32 14 18.50	W 103 37 22.26
	5300.00	2.24	89.58	5269.71	-0.68	3.46	468.02	2.00	451216.01	761014.59	N 32 14 18.50	W 103 37 22.20
	5400.00	0.24	89.58	5369.68	-0.68	3.47	470.18	2.00	451216.02	761016.76	N 32 14 18.50	W 103 37 22.17
Hold Vertical	5411.96	0.00	89.58	5381.64	-0.68	3.47	470.21	2.00	451216.02	761016.78	N 32 14 18.50	W 103 37 22.17
	5500.00	0.00	89.58	5469.68	-0.68	3.47	470.21	0.00	451216.02	761016.78	N 32 14 18.50	W 103 37 22.17
	5600.00	0.00	89.58	5569.68	-0.68	3.47	470.21	0.00	451216.02	761016.78	N 32 14 18.50	W 103 37 22.17
	5700.00	0.00	89.58	5669.68	-0.68	3.47	470.21	0.00	451216.02	761016.78	N 32 14 18.50	W 103 37 22.17
	5800.00	0.00	89.58	5769.68	-0.68	3.47	470.21	0.00	451216.02	761016.78	N 32 14 18.50	W 103 37 22.17
	5900.00	0.00	89.58	5869.68	-0.68	3.47	470.21	0.00	451216.02	761016.78	N 32 14 18.50	W 103 37 22.17
	6000.00	0.00	89.58	5969.68	-0.68	3.47	470.21	0.00	451216.02	761016.78	N 32 14 18.50	W 103 37 22.17
	6100.00	0.00	89.58	6069.68	-0.68	3.47	470.21	0.00	451216.02	761016.78	N 32 14 18.50	W 103 37 22.17
	6200.00	0.00	89.58	6169.68	-0.68	3.47	470.21	0.00	451216.02	761016.78	N 32 14 18.50	W 103 37 22.17
	6300.00	0.00	89.58	6269.68	-0.68	3.47	470.21	0.00	451216.02	761016.78	N 32 14 18.50	W 103 37 22.17
	6400.00	0.00	89.58	6369.68	-0.68	3.47	470.21	0.00	451216.02	761016.78	N 32 14 18.50	W 103 37 22.17
	6500.00	0.00	89.58	6469.68	-0.68	3.47	470.21	0.00	451216.02	761016.78	N 32 14 18.50	W 103 37 22.17

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 ° ' ")
	6600.00	0.00	89.58	6569.68	-0.68	3.47	470.21	0.00	451216.02	761016.78	N 32 14 18.50	W 103 37 22.17
	6700.00	0.00	89.58	6669.68	-0.68	3.47	470.21	0.00	451216.02	761016.78	N 32 14 18.50	W 103 37 22.17
	6800.00	0.00	89.58	6769.68	-0.68	3.47	470.21	0.00	451216.02	761016.78	N 32 14 18.50	W 103 37 22.17
	6900.00	0.00	89.58	6869.68	-0.68	3.47	470.21	0.00	451216.02	761016.78	N 32 14 18.50	W 103 37 22.17
	7000.00	0.00	89.58	6969.68	-0.68	3.47	470.21	0.00	451216.02	761016.78	N 32 14 18.50	W 103 37 22.17
	7100.00	0.00	89.58	7069.68	-0.68	3.47	470.21	0.00	451216.02	761016.78	N 32 14 18.50	W 103 37 22.17
	7200.00	0.00	89.58	7169.68	-0.68	3.47	470.21	0.00	451216.02	761016.78	N 32 14 18.50	W 103 37 22.17
	7300.00	0.00	89.58	7269.68	-0.68	3.47	470.21	0.00	451216.02	761016.78	N 32 14 18.50	W 103 37 22.17
	7400.00	0.00	89.58	7369.68	-0.68	3.47	470.21	0.00	451216.02	761016.78	N 32 14 18.50	W 103 37 22.17
	7500.00	0.00	89.58	7469.68	-0.68	3.47	470.21	0.00	451216.02	761016.78	N 32 14 18.50	W 103 37 22.17
	7600.00	0.00	89.58	7569.68	-0.68	3.47	470.21	0.00	451216.02	761016.78	N 32 14 18.50	W 103 37 22.17
	7700.00	0.00	89.58	7669.68	-0.68	3.47	470.21	0.00	451216.02	761016.78	N 32 14 18.50	W 103 37 22.17
	7800.00	0.00	89.58	7769.68	-0.68	3.47	470.21	0.00	451216.02	761016.78	N 32 14 18.50	W 103 37 22.17
	7900.00	0.00	89.58	7869.68	-0.68	3.47	470.21	0.00	451216.02	761016.78	N 32 14 18.50	W 103 37 22.17
	8000.00	0.00	89.58	7969.68	-0.68	3.47	470.21	0.00	451216.02	761016.78	N 32 14 18.50	W 103 37 22.17
	8100.00	0.00	89.58	8069.68	-0.68	3.47	470.21	0.00	451216.02	761016.78	N 32 14 18.50	W 103 37 22.17
	8200.00	0.00	89.58	8169.68	-0.68	3.47	470.21	0.00	451216.02	761016.78	N 32 14 18.50	W 103 37 22.17
	8300.00	0.00	89.58	8269.68	-0.68	3.47	470.21	0.00	451216.02	761016.78	N 32 14 18.50	W 103 37 22.17
	8400.00	0.00	89.58	8369.68	-0.68	3.47	470.21	0.00	451216.02	761016.78	N 32 14 18.50	W 103 37 22.17
	8500.00	0.00	89.58	8469.68	-0.68	3.47	470.21	0.00	451216.02	761016.78	N 32 14 18.50	W 103 37 22.17
	8600.00	0.00	89.58	8569.68	-0.68	3.47	470.21	0.00	451216.02	761016.78	N 32 14 18.50	W 103 37 22.17
	8700.00	0.00	89.58	8669.68	-0.68	3.47	470.21	0.00	451216.02	761016.78	N 32 14 18.50	W 103 37 22.17
	8800.00	0.00	89.58	8769.68	-0.68	3.47	470.21	0.00	451216.02	761016.78	N 32 14 18.50	W 103 37 22.17
Bone Spring	8845.32	0.00	89.58	8815.00	-0.68	3.47	470.21	0.00	451216.02	761016.78	N 32 14 18.50	W 103 37 22.17
	8900.00	0.00	89.58	8869.68	-0.68	3.47	470.21	0.00	451216.02	761016.78	N 32 14 18.50	W 103 37 22.17
	9000.00	0.00	89.58	8969.68	-0.68	3.47	470.21	0.00	451216.02	761016.78	N 32 14 18.50	W 103 37 22.17
	9100.00	0.00	89.58	9069.68	-0.68	3.47	470.21	0.00	451216.02	761016.78	N 32 14 18.50	W 103 37 22.17
	9200.00	0.00	89.58	9169.68	-0.68	3.47	470.21	0.00	451216.02	761016.78	N 32 14 18.50	W 103 37 22.17
	9300.00	0.00	89.58	9269.68	-0.68	3.47	470.21	0.00	451216.02	761016.78	N 32 14 18.50	W 103 37 22.17
	9400.00	0.00	89.58	9369.68	-0.68	3.47	470.21	0.00	451216.02	761016.78	N 32 14 18.50	W 103 37 22.17
	9500.00	0.00	89.58	9469.68	-0.68	3.47	470.21	0.00	451216.02	761016.78	N 32 14 18.50	W 103 37 22.17
	9600.00	0.00	89.58	9569.68	-0.68	3.47	470.21	0.00	451216.02	761016.78	N 32 14 18.50	W 103 37 22.17
	9700.00	0.00	89.58	9669.68	-0.68	3.47	470.21	0.00	451216.02	761016.78	N 32 14 18.50	W 103 37 22.17
	9800.00	0.00	89.58	9769.68	-0.68	3.47	470.21	0.00	451216.02	761016.78	N 32 14 18.50	W 103 37 22.17
	9900.00	0.00	89.58	9869.68	-0.68	3.47	470.21	0.00	451216.02	761016.78	N 32 14 18.50	W 103 37 22.17
1st Bone Spring Sand	9940.32	0.00	89.58	9910.00	-0.68	3.47	470.21	0.00	451216.02	761016.78	N 32 14 18.50	W 103 37 22.17
	10000.00	0.00	89.58	9969.68	-0.68	3.47	470.21	0.00	451216.02	761016.78	N 32 14 18.50	W 103 37 22.17
	10100.00	0.00	89.58	10069.68	-0.68	3.47	470.21	0.00	451216.02	761016.78	N 32 14 18.50	W 103 37 22.17
	10200.00	0.00	89.58	10169.68	-0.68	3.47	470.21	0.00	451216.02	761016.78	N 32 14 18.50	W 103 37 22.17
	10300.00	0.00	89.58	10269.68	-0.68	3.47	470.21	0.00	451216.02	761016.78	N 32 14 18.50	W 103 37 22.17
	10400.00	0.00	89.58	10369.68	-0.68	3.47	470.21	0.00	451216.02	761016.78	N 32 14 18.50	W 103 37 22.17
	10500.00	0.00	89.58	10469.68	-0.68	3.47	470.21	0.00	451216.02	761016.78	N 32 14 18.50	W 103 37 22.17
	10600.00	0.00	89.58	10569.68	-0.68	3.47	470.21	0.00	451216.02	761016.78	N 32 14 18.50	W 103 37 22.17
2nd Bone Spring Sand	10665.32	0.00	89.58	10635.00	-0.68	3.47	470.21	0.00	451216.02	761016.78	N 32 14 18.50	W 103 37 22.17
	10700.00	0.00	89.58	10669.68	-0.68	3.47	470.21	0.00	451216.02	761016.78	N 32 14 18.50	W 103 37 22.17
	10800.00	0.00	89.58	10769.68	-0.68	3.47	470.21	0.00	451216.02	761016.78	N 32 14 18.50	W 103 37 22.17
	10900.00	0.00	89.58	10869.68	-0.68	3.47	470.21	0.00	451216.02	761016.78	N 32 14 18.50	W 103 37 22.17
	11000.00	0.00	89.58	10969.68	-0.68	3.47	470.21	0.00	451216.02	761016.78	N 32 14 18.50	W 103 37 22.17
	11100.00	0.00	89.58	11069.68	-0.68	3.47	470.21	0.00	451216.02	761016.78	N 32 14 18.50	W 103 37 22.17
3rd Bone Spring Carb	11115.32	0.00	89.58	11085.00	-0.68	3.47	470.21	0.00	451216.02	761016.78	N 32 14 18.50	W 103 37 22.17
	11200.00	0.00	89.58	11169.68	-0.68	3.47	470.21	0.00	451216.02	761016.78	N 32 14 18.50	W 103 37 22.17
	11300.00	0.00	89.58	11269.68	-0.68	3.47	470.21	0.00	451216.02	761016.78	N 32 14 18.50	W 103 37 22.17
	11400.00	0.00	89.58	11369.68	-0.68	3.47	470.21	0.00	451216.02	761016.78	N 32 14 18.50	W 103 37 22.17
	11500.00	0.00	89.58	11469.68	-0.68	3.47	470.21	0.00	451216.02	761016.78	N 32 14 18.50	W 103 37 22.17
	11600.00	0.00	89.58	11569.68	-0.68	3.47	470.21	0.00	451216.02	761016.78	N 32 14 18.50	W 103 37 22.17
	11700.00	0.00	89.58	11669.68	-0.68	3.47	470.21	0.00	451216.02	761016.78	N 32 14 18.50	W 103 37 22.17
	11800.00	0.00	89.58	11769.68	-0.68	3.47	470.21	0.00	451216.02	761016.78	N 32 14 18.50	W 103 37 22.17
3rd Bone Spring Sand	11865.32	0.00	89.58	11835.00	-0.68	3.47	470.21	0.00	451216.02	761016.78	N 32 14 18.50	W 103 37 22.17
	11900.00	0.00	89.58	11869.68	-0.68	3.47	470.21	0.00	451216.02	761016.78	N 32 14 18.50	W 103 37 22.17
	12000.00	0.00	89.58	11969.68	-0.68	3.47	470.21	0.00	451216.02	761016.78	N 32 14 18.50	W 103 37 22.17
	12100.00	0.00	89.58	12069.68	-0.68	3.47	470.21	0.00	451216.02	761016.78	N 32 14 18.50	W 103 37 22.17
	12200.00	0.00	89.58	12169.68	-0.68	3.47	470.21	0.00	451216.02	761016.78	N 32 14 18.50	W 103 37 22.17
Wolfcamp	12275.32	0.00	89.58	12245.00	-0.68	3.47	470.21	0.00	451216.02	761016.78	N 32 14 18.50	W 103 37 22.17
	12300.00	0.00	89.58	12269.68	-0.68	3.47	470.21	0.00	451216.02	761016.78	N 32 14 18.50	W 103 37 22.17
KOP - Build 12"/100' DLS Wolfcamp XY Target	12350.02	0.00	89.58	12319.70	-0.68	3.47	470.21	0.00	451216.02	761016.78	N 32 14 18.50	W 103 37 22.17
	12395.39	5.44	134.01	12365.00	0.82	1.98	471.76	12.00	451214.53	761018.33	N 32 14 18.48	W 103 37 22.16
	12400.00	6.00	134.01	12369.59	1.15	1.66	472.09	12.00	451214.21	761018.66	N 32 14 18.48	W 103 37 22.15
	12500.00	18.00	134.01	12467.23	15.65	-12.76	487.01	12.00	451199.79	761033.58	N 32 14 18.33	W 103 37 21.98
Wolfcamp A1	12502.92	18.35	134.01	12470.00	16.29	-13.39	487.67	12.00	451199.16	761034.24	N 32 14 18.33	W 103 37 21.97
	12600.00	30.00	134.01	12558.42	44.03	-40.96	516.21	12.00	451171.59	761062.78	N 32 14 18.05	W 103 37 21.64
Build & Turn 12"/100' DLS	12641.69	35.00	134.01	12593.57	59.68	-56.52	532.31	12.00	451156.03	761078.88	N 32 14 17.90	W 103 37 21.46
	12700.00	38.95	143.64	12640.18	86.23	-82.93	555.23	12.00	451129.62	761101.80	N 32 14 17.64	W 103 37 21.19
	12800.00	47.14	156.54	12713.34	145.57	-142.08	588.58	12.00	451070.47	761135.15	N 32 14 17.05	W 103 37 20.81
	12900.00	56.44	166.24	12775.22	220.08	-216.44	613.18	12.00	450996.11	761159.75	N 32 14 16.31	W 103 37 20.53
	13000.00	66.33	173.98	12823.11	306.49	-302.77	627.95	12.00	450909.79	761174.51	N 32 14 15.46	W 103 37 20.36
Build 4"/100' DLS	13084.86	75.00	179.66	12851.19	386.35	-382.61	632.27	12.00	450829.96	761178.84	N 32 14 14.67	W 103 37 20.32
	13100.00	75.61	179.66	12855.03	401.00	-397.26	632.36	4.00	450815.31	761178.93	N 32 14 14.52	W 103 37 20.32
	13200.00	79.61	179									

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 ° ' ")
	15500.00	90.00	179.66	12900.00	2797.23	-2793.44	646.58	0.00	448419.22	761193.14	N 32 13 50.81	W 103 37 20.34
	15600.00	90.00	179.66	12900.00	2897.23	-2893.44	647.17	0.00	448319.22	761193.74	N 32 13 49.82	W 103 37 20.34
	15700.00	90.00	179.66	12900.00	2997.23	-2993.44	647.77	0.00	448219.23	761194.33	N 32 13 48.83	W 103 37 20.34
	15800.00	90.00	179.66	12900.00	3097.23	-3093.44	648.36	0.00	448119.23	761194.92	N 32 13 47.84	W 103 37 20.34
	15900.00	90.00	179.66	12900.00	3197.23	-3193.43	648.95	0.00	448019.24	761195.52	N 32 13 46.85	W 103 37 20.34
	16000.00	90.00	179.66	12900.00	3297.23	-3293.43	649.55	0.00	447919.24	761196.11	N 32 13 45.86	W 103 37 20.34
	16100.00	90.00	179.66	12900.00	3397.23	-3393.43	650.14	0.00	447819.25	761196.70	N 32 13 44.87	W 103 37 20.34
	16200.00	90.00	179.66	12900.00	3497.23	-3493.43	650.73	0.00	447719.25	761197.30	N 32 13 43.88	W 103 37 20.34
	16300.00	90.00	179.66	12900.00	3597.23	-3593.43	651.33	0.00	447619.26	761197.89	N 32 13 42.89	W 103 37 20.34
	16400.00	90.00	179.66	12900.00	3697.23	-3693.42	651.92	0.00	447519.26	761198.48	N 32 13 41.90	W 103 37 20.34
	16500.00	90.00	179.66	12900.00	3797.23	-3793.42	652.51	0.00	447419.27	761199.08	N 32 13 40.91	W 103 37 20.34
	16600.00	90.00	179.66	12900.00	3897.23	-3893.42	653.11	0.00	447319.28	761199.67	N 32 13 39.93	W 103 37 20.34
	16700.00	90.00	179.66	12900.00	3997.23	-3993.42	653.70	0.00	447219.28	761200.26	N 32 13 38.94	W 103 37 20.35
	16800.00	90.00	179.66	12900.00	4097.23	-4093.42	654.29	0.00	447119.29	761200.86	N 32 13 37.95	W 103 37 20.35
	16900.00	90.00	179.66	12900.00	4197.23	-4193.42	654.89	0.00	447019.29	761201.45	N 32 13 36.96	W 103 37 20.35
	17000.00	90.00	179.66	12900.00	4297.23	-4293.41	655.48	0.00	446919.30	761202.05	N 32 13 35.97	W 103 37 20.35
	17100.00	90.00	179.66	12900.00	4397.23	-4393.41	656.07	0.00	446819.30	761202.64	N 32 13 34.98	W 103 37 20.35
	17200.00	90.00	179.66	12900.00	4497.23	-4493.41	656.67	0.00	446719.31	761203.23	N 32 13 33.99	W 103 37 20.35
	17300.00	90.00	179.66	12900.00	4597.23	-4593.41	657.26	0.00	446619.31	761203.83	N 32 13 33.00	W 103 37 20.35
	17400.00	90.00	179.66	12900.00	4697.23	-4693.41	657.85	0.00	446519.32	761204.42	N 32 13 32.01	W 103 37 20.35
	17500.00	90.00	179.66	12900.00	4797.23	-4793.41	658.45	0.00	446419.33	761205.01	N 32 13 31.02	W 103 37 20.35
	17600.00	90.00	179.66	12900.00	4897.23	-4893.40	659.04	0.00	446319.33	761205.61	N 32 13 30.03	W 103 37 20.35
	17700.00	90.00	179.66	12900.00	4997.23	-4993.40	659.63	0.00	446219.34	761206.20	N 32 13 29.04	W 103 37 20.35
	17800.00	90.00	179.66	12900.00	5097.23	-5093.40	660.23	0.00	446119.34	761206.79	N 32 13 28.05	W 103 37 20.35
	17900.00	90.00	179.66	12900.00	5197.23	-5193.40	660.82	0.00	446019.35	761207.39	N 32 13 27.06	W 103 37 20.35
	18000.00	90.00	179.66	12900.00	5297.23	-5293.40	661.41	0.00	445919.35	761207.98	N 32 13 26.07	W 103 37 20.36
	18100.00	90.00	179.66	12900.00	5397.23	-5393.39	662.01	0.00	445819.36	761208.57	N 32 13 25.08	W 103 37 20.36
	18200.00	90.00	179.66	12900.00	5497.23	-5493.39	662.60	0.00	445719.36	761209.17	N 32 13 24.09	W 103 37 20.36
	18300.00	90.00	179.66	12900.00	5597.23	-5593.39	663.19	0.00	445619.37	761209.76	N 32 13 23.10	W 103 37 20.36
	18400.00	90.00	179.66	12900.00	5697.23	-5693.39	663.79	0.00	445519.38	761210.35	N 32 13 22.11	W 103 37 20.36
	18500.00	90.00	179.66	12900.00	5797.23	-5793.39	664.38	0.00	445419.38	761210.95	N 32 13 21.12	W 103 37 20.36
	18600.00	90.00	179.66	12900.00	5897.23	-5893.39	664.97	0.00	445319.39	761211.54	N 32 13 20.13	W 103 37 20.36
	18700.00	90.00	179.66	12900.00	5997.23	-5993.38	665.57	0.00	445219.39	761212.13	N 32 13 19.15	W 103 37 20.36
	18800.00	90.00	179.66	12900.00	6097.23	-6093.38	666.16	0.00	445119.40	761212.73	N 32 13 18.16	W 103 37 20.36
	18900.00	90.00	179.66	12900.00	6197.23	-6193.38	666.75	0.00	445019.40	761213.32	N 32 13 17.17	W 103 37 20.36
	19000.00	90.00	179.66	12900.00	6297.23	-6293.38	667.35	0.00	444919.41	761213.91	N 32 13 16.18	W 103 37 20.36
	19100.00	90.00	179.66	12900.00	6397.23	-6393.38	667.94	0.00	444819.41	761214.51	N 32 13 15.19	W 103 37 20.36
	19200.00	90.00	179.66	12900.00	6497.23	-6493.38	668.53	0.00	444719.42	761215.10	N 32 13 14.20	W 103 37 20.37
	19300.00	90.00	179.66	12900.00	6597.23	-6593.37	669.13	0.00	444619.43	761215.69	N 32 13 13.21	W 103 37 20.37
	19400.00	90.00	179.66	12900.00	6697.23	-6693.37	669.72	0.00	444519.43	761216.29	N 32 13 12.22	W 103 37 20.37
	19500.00	90.00	179.66	12900.00	6797.23	-6793.37	670.32	0.00	444419.44	761216.88	N 32 13 11.23	W 103 37 20.37
	19600.00	90.00	179.66	12900.00	6897.23	-6893.37	670.91	0.00	444319.44	761217.47	N 32 13 10.24	W 103 37 20.37
	19700.00	90.00	179.66	12900.00	6997.23	-6993.37	671.50	0.00	444219.45	761218.07	N 32 13 9.25	W 103 37 20.37
	19800.00	90.00	179.66	12900.00	7097.23	-7093.37	672.10	0.00	444119.45	761218.66	N 32 13 8.26	W 103 37 20.37
	19900.00	90.00	179.66	12900.00	7197.23	-7193.36	672.69	0.00	444019.46	761219.25	N 32 13 7.27	W 103 37 20.37
	20000.00	90.00	179.66	12900.00	7297.23	-7293.36	673.28	0.00	443919.46	761219.85	N 32 13 6.28	W 103 37 20.37
	20100.00	90.00	179.66	12900.00	7397.23	-7393.36	673.88	0.00	443819.47	761220.44	N 32 13 5.29	W 103 37 20.37
	20200.00	90.00	179.66	12900.00	7497.23	-7493.36	674.47	0.00	443719.48	761221.03	N 32 13 4.30	W 103 37 20.37
	20300.00	90.00	179.66	12900.00	7597.23	-7593.36	675.06	0.00	443619.48	761221.63	N 32 13 3.31	W 103 37 20.37
	20400.00	90.00	179.66	12900.00	7697.23	-7693.35	675.66	0.00	443519.49	761222.22	N 32 13 2.32	W 103 37 20.37
	20500.00	90.00	179.66	12900.00	7797.23	-7793.35	676.25	0.00	443419.49	761222.81	N 32 13 1.33	W 103 37 20.38
	20600.00	90.00	179.66	12900.00	7897.23	-7893.35	676.84	0.00	443319.50	761223.41	N 32 13 0.34	W 103 37 20.38
	20700.00	90.00	179.66	12900.00	7997.23	-7993.35	677.44	0.00	443219.50	761224.00	N 32 12 59.36	W 103 37 20.38
	20800.00	90.00	179.66	12900.00	8097.23	-8093.35	678.03	0.00	443119.51	761224.59	N 32 12 58.37	W 103 37 20.38
	20900.00	90.00	179.66	12900.00	8197.23	-8193.35	678.62	0.00	443019.51	761225.19	N 32 12 57.38	W 103 37 20.38
	21000.00	90.00	179.66	12900.00	8297.23	-8293.34	679.22	0.00	442919.52	761225.78	N 32 12 56.39	W 103 37 20.38
	21100.00	90.00	179.66	12900.00	8397.23	-8393.34	679.81	0.00	442819.53	761226.37	N 32 12 55.40	W 103 37 20.38
	21200.00	90.00	179.66	12900.00	8497.23	-8493.34	680.40	0.00	442719.53	761226.97	N 32 12 54.41	W 103 37 20.38
	21300.00	90.00	179.66	12900.00	8597.23	-8593.34	681.00	0.00	442619.54	761227.56	N 32 12 53.42	W 103 37 20.38
	21400.00	90.00	179.66	12900.00	8697.23	-8693.34	681.59	0.00	442519.54	761228.15	N 32 12 52.43	W 103 37 20.38
	21500.00	90.00	179.66	12900.00	8797.23	-8793.34	682.18	0.00	442419.55	761228.75	N 32 12 51.44	W 103 37 20.38
	21600.00	90.00	179.66	12900.00	8897.23	-8893.33	682.78	0.00	442319.55	761229.34	N 32 12 50.45	W 103 37 20.38
	21700.00	90.00	179.66	12900.00	8997.23	-8993.33	683.37	0.00	442219.56	761229.93	N 32 12 49.46	W 103 37 20.39
	21800.00	90.00	179.66	12900.00	9097.23	-9093.33	683.96	0.00	442119.56	761230.53	N 32 12 48.47	W 103 37 20.39
	21900.00	90.00	179.66	12900.00	9197.23	-9193.33	684.56	0.00	442019.57	761231.12	N 32 12 47.48	W 103 37 20.39
	22000.00	90.00	179.66	12900.00	9297.23	-9293.33	685.15	0.00	441919.58	761231.71	N 32 12 46.49	W 103 37 20.39
	22100.00	90.00	179.66	12900.00	9397.23	-9393.32	685.74	0.00	441819.58	761232.31	N 32 12 45.50	W 103 37 20.39
	22200.00	90.00	179.66	12900.00	9497.23	-9493.32	686.34	0.00	441719.59	761232.90	N 32 12 44.51	W 103 37 20.39
	22300.00	90.00	179.66	12900.00	9597.23	-9593.32	686.93	0.00	441619.59	761233.49	N 32 12 43.52	W 103 37 20.39
	22400.00	90.00	179.66	12900.00	9697.23	-9693.32	687.52	0.00	441519.60	761234.09	N 32 12 42.53	W 103 37 20.39
	22500.00	90.00	179.66	12900.00	9797.23	-9793.32	688.12	0.00	441419.60	761234.68	N 32 12 41.54	W 103 37 20.39
	22600.00	90.00	179.66	12900.00	9897.23	-9893.32	688.71	0.00	441319.61	761235.27	N 32 12 40.55	W 103 37 20.39
	22700.00	90.00	179.66	12900.00	9997.23	-9993.31	689.30	0.00	441219.61	761235.87	N 32 12 39.56	W 103 37 20.39
	22800.00	90.00	179.66	12900.00	10097.23	-10093.31	689.90	0.00	441119.62	761236.46	N 32 12 38.58	W 103 37



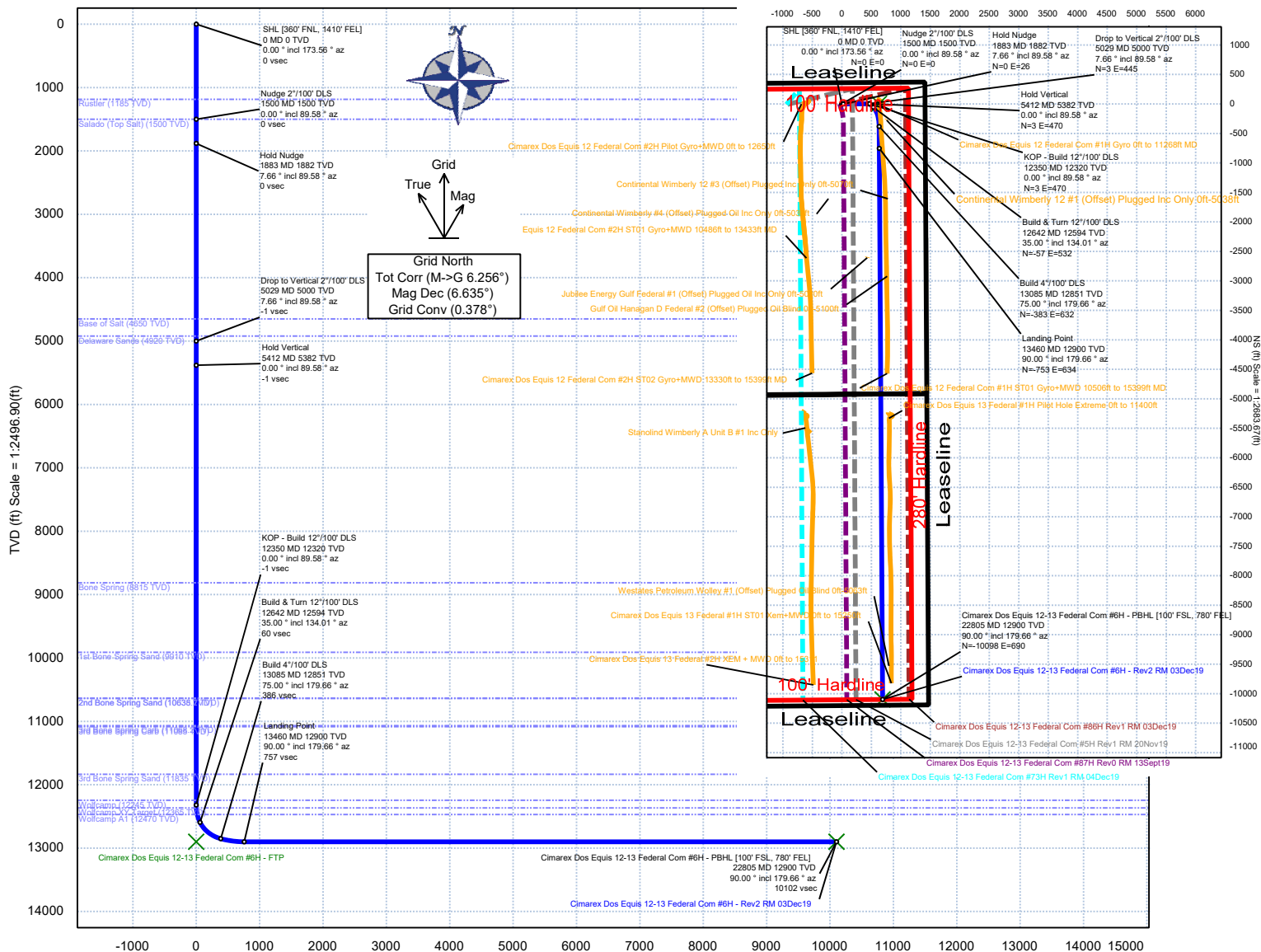
Cimarex Energy

Rev 2



Borehole: Dos Equis 12-13 Federal Com #6H			Well: Dos Equis 12-13 Federal Com #6H			Field: NM Lea County (NAD 83)			Structure: Cimarex Dos Equis 12-13 Federal Com #6H						
Gravity & Magnetic Parameters						Surface Location NAD83 New Mexico State Plane, Eastern Zone, US Feet				Miscellaneous					
Model: HDGM 2019		Dip: 59.887°		Date: 03-Dec-2019		Lat: N 32 14 18.49		Northing: 451212.55RUS		Grid Conv: 0.3782°		Slot: New Slot		TVD Ref: RKB(3626.4ft above MSL)	
MagDec: 6.635°		FS: 47864.712nT		Gravity FS: 998.439mgm (9.80665 Based)		Lon: W 103 37 27.65		Easting: 760546.59RUS		Scale Fact: 0.99996413		Plan: Cimarex Dos Equis 12-13 Federal Com #6H - Rev2 RM 03Dec19			

EW (ft) Scale = 1:2683.67(ft)



Vertical Section (ft) Azim = 179.67° Scale = 1:2496.90(ft) Origin = 0N/-S, 0E/-W

Critical Points									
Critical Point	MD	INCL	AZIM	TVD	VSEC	N(+)/S(-)	E(+)/W(-)	DLS	
SHL (360° FNL, 1410° FEL)	0.00	0.00	173.56	0.00	0.00	0.00	0.00	0.00	
Rustler	1185.00	0.00	89.58	1185.00	0.00	0.00	0.00	0.00	
Nudge 2°/100' DLS	1500.00	0.00	89.58	1500.00	0.00	0.00	0.00	0.00	
Salado (Top Salt)	1500.00	0.00	89.58	1500.00	0.00	0.00	0.00	0.00	
Hold Nudge	1882.78	7.66	89.58	1881.64	-0.04	0.19	25.53	2.00	
Base of Salt	4676.03	7.66	89.58	4650.00	-0.58	2.94	397.63	0.00	
Delaware Sands	4948.46	7.66	89.58	4920.00	-0.63	3.20	433.92	0.00	
Drop to Vertical 2°/100' DLS	5029.18	7.66	89.58	5000.00	-0.64	3.28	444.68	0.00	
Hold Vertical	5411.96	0.00	89.58	5381.64	-0.68	3.47	470.21	2.00	
Bone Spring	8845.32	0.00	89.58	8815.00	-0.68	3.47	470.21	0.00	
1st Bone Spring Sand	9940.32	0.00	89.58	9910.00	-0.68	3.47	470.21	0.00	
2nd Bone Spring Sand	10665.32	0.00	89.58	10635.00	-0.68	3.47	470.21	0.00	
3rd Bone Spring Carb	11115.32	0.00	89.58	11085.00	-0.68	3.47	470.21	0.00	
3rd Bone Spring Sand	11865.32	0.00	89.58	11835.00	-0.68	3.47	470.21	0.00	
Wolfcamp	12275.32	0.00	89.58	12245.00	-0.68	3.47	470.21	0.00	
KOP - Build 12°/100' DLS	12350.02	0.00	89.58	12319.70	-0.68	3.47	470.21	0.00	
Wolfcamp XY Target	12395.39	5.44	134.01	12365.00	0.82	1.98	471.76	12.00	
Wolfcamp A1	12502.92	18.35	134.01	12470.00	16.29	-13.39	487.67	12.00	
Build & Turn 12°/100' DLS	12641.69	35.00	134.01	12593.57	59.68	-56.52	532.31	12.00	
Build 4°/100' DLS	13084.86	75.00	179.66	12851.19	386.35	-382.61	632.27	12.00	
Landing Point	13459.86	90.00	179.66	12900.00	757.08	-753.33	634.47	4.00	
Cimarex Dos Equis 12-13 Federal Com #6H - PBHL [100° FSL, 780° FEL]	22804.83	90.00	179.66	12900.00	10102.06	-10098.14	689.93	0.00	



Cimarex Dos Equis 12-13 Federal Com #6H - Rev2 RM 03Dec19 Proposal Geodetic Report (Def Plan)



Report Date: December 04, 2019 - 03:12 PM
Client: Cimarex Energy
Field: NM Lea County (NAD 83)
Structure / Slot: Cimarex Dos Equis 12-13 Federal Com #6H / New Slot
Well: Dos Equis 12-13 Federal Com #6H
Borehole: Dos Equis 12-13 Federal Com #6H
UWI / API#: Unknown / Unknown
Survey Name: Cimarex Dos Equis 12-13 Federal Com #6H - Rev2 RM 03Dec19
Survey Date: January 02, 2019
Tort / AHD / DDI / ERD Ratio: 118.491 ° / 10621.384 ft / 6.347 / 0.823
Coordinate Reference System: NAD83 New Mexico State Plane, Eastern Zone, US Feet
Location Lat / Long: N 32° 14' 18.49298", W 103° 37' 27.64812"
Location Grid N/E Y/X: N 451212.550 ftUS, E 760546.590 ftUS
CRS Grid Convergence Angle: 0.3782 °
Grid Scale Factor: 0.99996413
Version / Patch: 2.10.787.0

Survey / DLS Computation: Minimum Curvature / Lubinski
Vertical Section Azimuth: 179.660 ° (Grid North)
Vertical Section Origin: 0.000 ft, 0.000 ft
TVD Reference Datum: RKB
TVD Reference Elevation: 3626.400 ft above MSL
Seabed / Ground Elevation: 3600.400 ft above MSL
Magnetic Declination: 6.635 °
Total Gravity Field Strength: 998.4390mgn (9.80665 Based)
Gravity Model: GARM
Total Magnetic Field Strength: 47864.712 nT
Magnetic Dip Angle: 59.887 °
Declination Date: December 03, 2019
Magnetic Declination Model: HDGM 2019
North Reference: Grid North
Grid Convergence Used: 0.3782 °
Total Corr Mag North->Grid North: 6.2564 °
Local Coord Referenced To: Well Head

Comments	MD (ft)	Incl (°)	Azim Grid (°)	TVD (ft)	VSEC (ft)	NS (ft)	EW (ft)	DLS (°/100ft)	Northing (ftUS)	Easting (ftUS)	Latitude (N/S ° ' ")	Longitude (E/W ° ' ")
SHL [360° FNL, 1410° FEL]	0.00	0.00	173.56	0.00	0.00	0.00	0.00	N/A	451212.55	760546.59	N 32 14 18.49	W 103 37 27.65
Nudge 2"/100'	1500.00	0.00	89.58	1500.00	0.00	0.00	0.00	0.00	451212.55	760546.59	N 32 14 18.49	W 103 37 27.65
Hold Nudge	1882.78	7.66	89.58	1881.64	-0.04	0.19	25.53	2.00	451212.74	760572.12	N 32 14 18.49	W 103 37 27.35
Drop to Vertical	5029.18	7.66	89.58	5000.00	-0.64	3.28	444.68	0.00	451215.83	760991.25	N 32 14 18.50	W 103 37 22.47
2"/100' DLS	5411.96	0.00	89.58	5381.64	-0.68	3.47	470.21	2.00	451216.02	761016.78	N 32 14 18.50	W 103 37 22.17
Hold Vertical	12350.02	0.00	89.58	12319.70	-0.68	3.47	470.21	0.00	451216.02	761016.78	N 32 14 18.50	W 103 37 22.17
KOP - Build	12641.69	35.00	134.01	12593.57	59.68	-56.52	532.31	12.00	451156.03	761078.88	N 32 14 17.90	W 103 37 21.46
12"/100' DLS	13084.86	75.00	179.66	12851.19	386.35	-382.61	632.27	12.00	450829.96	761178.84	N 32 14 14.67	W 103 37 20.32
Build & Turn	13459.86	90.00	179.66	12900.00	757.08	-753.33	634.47	4.00	450459.25	761181.04	N 32 14 11.00	W 103 37 20.32
12"/100' DLS												
Build 4"/100'												
DLS												
Landing Point												
Cimarex Dos												
Equis 12-13												
Federal Com	22804.83	90.00	179.66	12900.00	10102.06	-10098.14	689.93	0.00	441114.79	761236.49	N 32 12 38.53	W 103 37 20.39
#6H - PBHL												
[100' FSL, 780'												
FEL]												

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	Dos Equis 12-13 Federal Com #6H / Cimarex Dos Equis 12-13 Federal Com #6H - Rev2 RM
	1	26.000	22804.830	1/100.000	17.500	13.375		NAL_MWD_IFR1+MS	Dos Equis 12-13 Federal Com #6H / Cimarex Dos Equis 12-13



Cimarex Dos Equis 12-13 Federal Com #6H - Rev2 RM 03Dec19 Anti-Collision Summary Report

Analysis Date-24hr Time: December 04, 2019 - 15:12

Client: Cimarex Energy

Field: NM Lea County (NAD 83)

Structure: Cimarex Dos Equis 12-13 Federal Com #6H

Slot: New Slot

Well: Dos Equis 12-13 Federal Com #6H

Borehole: Dos Equis 12-13 Federal Com #6H

Scan MD Range: 0.00ft ~ 22804.83ft

Analysis Method: 3D Least Distance

Reference Trajectory: Cimarex Dos Equis 12-13 Federal Com #6H - Rev2 RM 03Dec19 (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: 2.10.787.0

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

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

Offset Trajectories Summary

Offset Selection Criteria

Wellhead distance scan: Not performed!

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

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

Offset Trajectory	Separation			Allow Dev. (ft)	Sep. Fact.	Controlling Rule	Reference Trajectory		Risk Level			Alert	Status
	Ct-Ct (ft)	MAS (ft)	EOU (ft)				MD (ft)	TVD (ft)	Alert	Minor	Major		

Results highlighted: Sep-Factor separation <= 1.50 ft

Cimarex Dos Equis 12-13 Federal Com #6H Rev1 RM 03Dec19 (Def Plan)													Warning Alert
19.99	16.25	18.70	3.74	N/A		MAS = 4.95 (m)	0.00	0.00	CtCt<=15m<15.00				Enter Alert
19.99	16.25	18.70	3.74	N/A		MAS = 4.95 (m)	26.00	26.00					WRP
19.99	16.25	9.67	3.74	2.07		MAS = 4.95 (m)	1500.00	1500.00					MinPts
20.05	16.25	9.36	3.80	1.99		MAS = 4.95 (m)	1620.00	1619.96					MINPT-O-EQU
20.13	16.25	9.38	3.88	1.99		MAS = 4.95 (m)	1670.00	1669.90					MinPt-O-SF
20.23	16.25	9.43	3.98	1.99		MAS = 4.95 (m)	1710.00	1709.81					MinPt-O-SF
21.23	16.52	9.84	4.76	1.97		OSF1.50	2030.00	2027.55					MinPt-CtCt
21.32	16.66	9.78	4.66	1.95		OSF1.50	2060.00	2057.28					MINPT-O-EQU
21.39	16.76	9.79	4.64	1.95		OSF1.50	2080.00	2077.10					MinPt-O-ADP
21.57	16.91	9.87	4.66	1.95		OSF1.50	2110.00	2106.84					MinPt-O-SF
138.55	42.56	109.75	95.99	4.99		OSF1.50	5180.00	5149.93	OSF>5.00				Exit Alert
663.12	86.23	605.21	576.90	11.63		OSF1.50	11880.00	11849.68					MinPts
609.73	86.06	551.93	523.67	10.77		OSF1.50	12310.00	12279.68					MinPts
610.49	86.31	552.52	524.18	10.73		OSF1.50	12340.00	12309.68					MinPt-O-SF
615.83	80.56	561.70	535.27	11.63		OSF1.50	12650.00	12600.35					MinPt-O-ADP
615.56	80.19	561.67	535.37	11.68		OSF1.50	12660.00	12608.46					MINPT-O-EQU
615.37	79.44	561.98	535.93	11.79		OSF1.50	12680.00	12624.47					MinPt-CtCt
702.89	211.83	561.24	491.06	5.00		OSF1.50	18690.00	12900.00	OSF<5.00				Enter Alert
702.88	337.86	477.21	365.02	3.13		OSF1.50	22800.00	12900.00					MinPt-CtCt
702.88	338.04	477.10	364.84	3.13		OSF1.50	22804.83	12900.00					MinPts

Cimarex Dos Equis 12-13 Federal Com #8H Rev0 RM 13Sept19 (Non-Def Plan)													Warning Alert
39.99	32.25	38.71	7.74	N/A		MAS = 9.83 (m)	0.00	0.00	CtCt<=15m<15.00				Enter Alert
39.99	32.25	38.71	7.74	N/A		MAS = 9.83 (m)	26.00	26.00					WRP
39.99	32.25	29.68	7.74	4.29		MAS = 9.83 (m)	1500.00	1500.00					MinPts
40.01	32.25	29.65	7.76	4.27		MAS = 9.83 (m)	1510.00	1510.00					MINPT-O-EQU
40.62	32.25	30.02	8.37	4.29		MAS = 9.83 (m)	1560.00	1560.00					MinPt-O-SF
50.89	32.25	39.56	18.64	4.94		MAS = 9.83 (m)	1750.00	1749.68	OSF>5.00				Exit Alert
509.92	98.82	443.61	411.10	7.82		OSF1.50	11920.00	11889.68					MinPt-O-SF
485.51	98.38	419.53	387.18	7.48		OSF1.50	12220.00	12189.68					MinPts
817.90	246.38	653.22	571.52	5.00		OSF1.50	20860.00	12900.00	OSF<5.00				Enter Alert
824.92	305.82	620.61	519.10	4.06		OSF1.50	22804.83	12900.00					MinPts

Cimarex Dos Equis 12 Federal Com #1H ST01 Gyro-MWD 10506ft to 15399ft MD (Def Survey)													Warning Alert
608.29	32.81	606.31	575.48	N/A		MAS = 10.00 (m)	0.00	0.00					Surface
608.28	32.81	606.30	575.47	877591.95		MAS = 10.00 (m)	10.00	10.00					MinPts
608.29	32.81	606.30	575.49	39472.52		MAS = 10.00 (m)	26.00	26.00					WRP
608.37	32.81	606.27	575.56	4764.86		MAS = 10.00 (m)	60.00	60.00					MINPT-O-EQU
608.74	32.81	606.32	575.93	1372.23		MAS = 10.00 (m)	130.00	130.00					MINPT-O-EQU
613.69	32.81	607.50	580.88	145.30		MAS = 10.00 (m)	790.00	790.00					MINPT-O-EQU
611.99	32.81	602.48	579.18	80.99		MAS = 10.00 (m)	1600.00	1599.98					MinPt-O-SF
182.52	32.81	161.27	149.71	9.51		MAS = 10.00 (m)	5220.00	5189.82					MinPt-O-SF
181.20	32.81	160.22	148.39	9.57		MAS = 10.00 (m)	5290.00	5259.72					MINPT-O-EQU
181.18	32.81	160.24	148.39	9.58		MAS = 10.00 (m)	5300.00	5269.71					MinPts
166.46	52.31	130.47	114.15	5.00		OSF1.50	10050.00	10019.68	OSF<5.00				Enter Alert
151.38	53.46	114.93	97.92	4.38		OSF1.50	10480.00	10449.68					MinPt-CtCt
151.38	53.49	114.92	97.90	4.37		OSF1.50	10490.00	10459.68					MINPT-O-EQU
151.40	53.51	114.93	97.89	4.37		OSF1.50	10500.00	10469.68					MinPt-O-ADP
151.67	53.61	115.17	98.06	4.37		OSF1.50	10540.00	10509.68					MinPt-O-SF
174.83	53.92	138.22	120.91	4.99		OSF1.50	10800.00	10769.68	OSF>5.00				Exit Alert
1827.36	52.18	1791.91	1775.17	54.54		OSF1.50	14170.00	12900.00					MinPt-CtCt
1827.07	61.93	1785.13	1765.15	45.67		OSF1.50	14530.00	12900.00					MinPt-CtCt
1825.38	68.05	1779.36	1757.34	41.40		OSF1.50	14750.00	12900.00					MinPt-CtCt
1826.02	70.05	1778.66	1755.97	40.20		OSF1.50	14830.00	12900.00					MINPT-O-EQU
1826.77	75.98	1775.45	1750.79	36.99		OSF1.50	15030.00	12900.00					MinPt-CtCt
1827.48	82.32	1771.94	1745.16	34.08		OSF1.50	15250.00	12900.00					MinPt-CtCt
1825.74	97.79	1759.88	1727.94	28.55		OSF1.50	15780.00	12900.00					MinPt-CtCt
1826.56	100.41	1758.96	1726.15	27.81		OSF1.50	15880.00	12900.00					MINPT-O-EQU
1820.35	117.90	1741.09	1702.45	23.53		OSF1.50	16460.00	12900.00					MinPt-CtCt
1821.07	120.28	1740.25	1700.82	23.07		OSF1.50	16950.00	12900.00					MINPT-O-EQU
1814.92	142.07	1719.55	1672.85	19.41		OSF1.50	17280.00	12900.00					MinPt-CtCt
1815.05	142.42	1719.44	1672.63	19.37		OSF1.50	17300.00	12900.00					MINPT-O-EQU
1815.19	142.59	1719.47	1672.61	19.34		OSF1.50	17310.00	12900.00					MinPt-O-ADP
1830.91	145.43	1733.30	1685.49	19.12		OSF1.50	17520.00	12900.00					MinPt-O-SF
5816.70	107.29	5744.51	5709.41	82.82		OSF1.50	22804.83	12900.00					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 Dos Equis 12 Federal Com #1H Gyro Off to 1126ft MD (Def Survey)													
												Warning Alert	
608.29	32.81	606.31	575.48	N/A		MAS = 10.00 (m)	0.00	0.00				Surface	
608.28	32.81	606.30	575.47	877591.95		MAS = 10.00 (m)	10.00	10.00				MinPts	
608.29	32.81	606.30	575.49	39472.52		MAS = 10.00 (m)	26.00	26.00				WRP	
608.37	32.81	606.27	575.56	4764.86		MAS = 10.00 (m)	60.00	60.00				MINPT-O-EOU	
608.74	32.81	606.32	575.93	1372.23		MAS = 10.00 (m)	130.00	130.00				MINPT-O-EOU	
613.69	32.81	607.50	580.88	145.30		MAS = 10.00 (m)	790.00	790.00				MINPT-O-EOU	
611.99	32.81	602.48	579.18	80.93		MAS = 10.00 (m)	1600.00	1599.98				MinPt-O-SF	
182.52	32.81	161.27	149.71	9.51		MAS = 10.00 (m)	5220.00	5189.82				MinPt-O-SF	
181.20	32.81	160.22	148.39	9.57		MAS = 10.00 (m)	5290.00	5259.72				MINPT-O-EOU	
181.19	32.81	160.24	148.38	9.58		MAS = 10.00 (m)	5300.00	5269.71				MinPts	
166.45	52.31	130.47	114.15	5.00		OSF1.50	10050.00	10019.68	OSF<5.00			Enter Alert	
151.38	53.46	114.93	97.92	4.38		OSF1.50	10480.00	10449.68				MinPt-CtCt	
151.38	53.49	114.92	97.90	4.37		OSF1.50	10490.00	10459.68				MINPT-O-EOU	
151.40	53.51	114.93	97.89	4.37		OSF1.50	10500.00	10469.68				MinPt-O-ADP	
151.79	53.65	115.26	98.14	4.37		OSF1.50	10550.00	10519.68				MinPt-O-SF	
171.14	58.96	131.11	112.18	4.46		OSF1.50	11300.00	11269.68				MinPt-O-SF	
182.42	56.36	144.19	126.07	4.98		OSF1.50	11360.00	11329.68	OSF>5.00			Exit Alert	
2187.86	56.79	2149.34	2131.07	59.82		OSF1.50	14180.00	12900.00				MinPt-O-SF	
10211.71	78.78	10158.53	10132.93	199.39		OSF1.50	22804.83	12900.00				TD	
Cimarex Dos Equis 12-13 Federal Com #5H Rev1 RM 20Nov19 (Def Plan)													
												Warning Alert	
919.87	32.81	918.58	887.06	N/A		MAS = 10.00 (m)	0.00	0.00				Surface	
919.87	32.81	918.58	887.06	118124.51		MAS = 10.00 (m)	26.00	26.00				WRP	
385.61	85.56	327.97	300.05	6.87		OSF1.50	11900.00	11869.68				MinPt-O-SF	
290.29	85.70	232.40	204.58	5.18		OSF1.50	12290.00	12259.68				MinPt-O-SF	
290.17	85.60	232.35	204.57	5.18		OSF1.50	12300.00	12269.68				MinPts	
705.58	212.74	563.32	492.84	5.00		OSF1.50	19920.00	12900.00	OSF<5.00			Enter Alert	
705.58	301.64	504.05	403.94	3.52		OSF1.50	22804.83	12900.00				MinPts	
Continental Wimberly 12 #1 (Offset) Plugged Inc Only Off-5038ft (Def Survey)													
												Warning Alert	
808.48	32.81	807.19	775.67	N/A		MAS = 10.00 (m)	0.00	0.00				Surface	
807.02	32.81	805.55	774.21	4420.73		MAS = 10.00 (m)	26.00	26.00				MinPt-O-SF	
806.38	32.81	805.00	773.56	10007.95		MAS = 10.00 (m)	60.00	60.00				MinPts	
582.39	176.15	464.48	406.24	4.99		OSF1.50	3550.00	3534.00	OSF<5.00			Enter Alert	
410.75	257.08	238.84	153.67	2.40		OSF1.50	5140.00	5110.09				MinPts	
410.54	256.78	238.83	153.76	2.40		OSF1.50	5150.00	5120.05				MinPts	
583.71	177.32	465.07	406.39	4.96		OSF1.50	5550.00	5519.68	OSF>5.00			Exit Alert	
10942.16	227.37	10790.15	10714.79	72.53		OSF1.50	20650.00	12900.00				MinPt-O-SF	
12546.83	252.92	12377.79	12293.91	74.79		OSF1.50	22804.83	12900.00				TD	
Gulf Oil Hanagan D Federal #2 (Offset) Plugged Oil Blind Off-5100ft (Def Survey)													
												Warning Alert	
3022.59	32.81	3021.30	2989.78	N/A		MAS = 10.00 (m)	0.00	0.00				Surface	
3022.16	32.81	3020.82	2989.35	55400.37		MAS = 10.00 (m)	26.00	26.00				MinPt-O-SF	
2984.43	896.43	2386.37	2088.00	5.00		OSF1.50	2970.00	2959.17	OSF<5.00			Enter Alert	
2942.06	1588.99	1882.29	1353.07	2.78		OSF1.50	5200.00	5169.87				MinPt-O-SF	
2942.03	1588.97	1882.28	1353.06	2.78		OSF1.50	5210.00	5179.85				MinPts	
3943.90	1185.49	3153.15	2758.41	4.99		OSF1.50	7820.00	7789.68	OSF>5.00			Exit Alert	
7882.67	306.56	767.87	756.11	38.73		OSF1.50	14130.00	12900.00				MinPt-O-ADP	
7800.45	207.57	7661.64	7592.88	56.71		OSF1.50	14650.00	12900.00				MINPT-O-EOU	
7738.64	73.45	7689.24	7665.19	160.82		OSF1.50	15630.00	12900.00				MinPt-CtCt	
7801.71	223.11	7652.54	7578.60	52.75		OSF1.50	16620.00	12900.00				MINPT-O-EOU	
7882.68	320.51	7668.58	7562.17	37.03		OSF1.50	17130.00	12900.00				MinPt-O-ADP	
10552.96	1094.76	9822.69	9458.20	14.47		OSF1.50	22804.83	12900.00				MinPt-O-SF	
Cimarex Dos Equis 12 Federal Com #2H ST01 Gyro+MWD 10486ft to 13433ft MD (Def Survey)													
												Pass	
564.76	32.81	562.78	531.95	N/A		MAS = 10.00 (m)	0.00	0.00				Surface	
564.76	32.81	562.78	531.95	N/A		MAS = 10.00 (m)	10.00	10.00				MinPts	
564.76	32.81	562.77	531.95	47694.99		MAS = 10.00 (m)	26.00	26.00				WRP	
567.50	32.81	559.88	534.69	100.33		MAS = 10.00 (m)	920.00	920.00				MINPT-O-EOU	
573.87	32.81	563.31	541.06	66.68		MAS = 10.00 (m)	1600.00	1599.98				MinPt-O-SF	
660.40	32.81	648.87	627.59	68.98		MAS = 10.00 (m)	2350.00	2344.70				MinPt-O-SF	
803.93	32.81	789.15	771.12	62.64		MAS = 10.00 (m)	3400.00	3385.34				MinPt-O-SF	
1004.15	32.81	984.05	971.34	55.32		MAS = 10.00 (m)	5029.18	5000.00				MinPt-O-SF	
1047.36	33.72	1024.21	1013.63	49.40		OSF1.50	7150.00	7119.68				MinPt-O-ADP	
1040.84	39.05	1014.14	1001.79	42.04		OSF1.50	8220.00	8189.68				MinPt-CtCt	
1041.47	40.61	1013.74	1000.86	40.36		OSF1.50	8510.00	8479.68				MINPT-O-EOU	
1041.75	40.95	1013.79	1000.80	40.03		OSF1.50	8570.00	8539.68				MinPt-O-ADP	
1101.51	52.78	1065.66	1048.73	32.47		OSF1.50	10730.00	10699.68				MinPt-O-SF	
1199.47	56.72	1161.66	1143.75	33.43		OSF1.50	11210.00	11179.68				MinPt-O-SF	
2288.41	49.52	2254.74	2238.89	72.14		OSF1.50	13470.00	12900.00				MinPt-O-ADP	
2292.10	53.93	2255.43	2238.17	66.13		OSF1.50	13660.00	12900.00				MINPT-O-EOU	
2293.16	58.73	2253.35	2234.43	60.56		OSF1.50	13820.00	12900.00				MinPt-CtCt	
2241.09	102.32	2172.21	2138.77	33.47		OSF1.50	15160.00	12900.00				MinPt-CtCt	
2241.12	103.77	2171.28	2137.35	33.00		OSF1.50	15200.00	12900.00				MinPt-CtCt	
2242.25	151.25	2140.76	2091.01	22.51		OSF1.50	15340.00	12900.00				MinPts	
2243.09	151.34	2141.54	2091.75	22.51		OSF1.50	15380.00	12900.00				MinPt-O-SF	
7820.03	95.49	7755.71	7724.53	125.40		OSF1.50	22804.83	12900.00				TD	
Cimarex Dos Equis 12 Federal Com #2H ST02 Gyro+MWD 13330ft to 15399ft MD (Def Survey)													
												Pass	
564.76	32.81	562.78	531.95	N/A		MAS = 10.00 (m)	0.00	0.00				Surface	
564.76	32.81	562.78	531.95	N/A		MAS = 10.00 (m)	10.00	10.00				MinPts	
564.76	32.81	562.77	531.95	47694.99		MAS = 10.00 (m)	26.00	26.00				WRP	
567.50	32.81	559.88	534.69	100.33		MAS = 10.00 (m)	920.00	920.00				MINPT-O-EOU	
573.87	32.81	563.31	541.06	66.68		MAS = 10.00 (m)	1600.00	1599.98				MinPt-O-SF	
660.40	32.81	648.87	627.59	68.98		MAS = 10.00 (m)	2350.00	2344.70				MinPt-O-SF	
803.93	32.81	789.15	771.12	62.64		MAS = 10.00 (m)	3400.00	3385.34				MinPt-O-SF	
1004.15	32.81	984.05	971.34	55.32		MAS = 10.00 (m)	5029.18	5000.00				MinPt-O-SF	
1047.36	33.72	1024.21	1013.63	49.40		OSF1.50	7150.00	7119.68				MinPt-O-ADP	
1040.84	39.05	1014.14	1001.79	42.04		OSF1.50	8220.00	8189.68				MinPt-CtCt	
1041.47	40.61	1013.74	1000.86	40.36		OSF1.50	8510.00	8479.68				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		
1041.75		40.95	1013.79	1000.80	40.03	OSF1.50	8570.00	8539.68				MinPt-O-ADP	
1101.51		52.78	1065.66	1048.73	32.47	OSF1.50	10730.00	10699.68				MinPt-O-SF	
1199.47		55.72	1161.66	1143.75	33.42	OSF1.50	11210.00	11179.68				MinPt-O-SF	
2288.41		49.52	2254.74	2238.89	72.14	OSF1.50	13470.00	12900.00				MinPt-O-ADP	
2292.10		53.95	2255.49	2238.17	66.13	OSF1.50	13660.00	12900.00				MINPT-O-EOU	
2293.16		58.73	2253.35	2234.43	60.56	OSF1.50	13820.00	12900.00				MinPt-CtCt	
2195.12		141.60	2100.06	2053.52	23.56	OSF1.50	16270.00	12900.00				MinPt-CtCt	
2199.66		153.27	2096.82	2046.39	21.79	OSF1.50	16620.00	12900.00				MINPT-O-EOU	
2202.78		157.06	2097.42	2045.73	21.29	OSF1.50	16740.00	12900.00				MinPt-O-ADP	
2203.75		174.86	2086.52	2028.89	19.10	OSF1.50	17170.00	12900.00				MinPt-CtCt	
2203.87		207.67	2054.75	1996.20	16.06	OSF1.50	17280.00	12900.00				MinPts	
2205.44		208.03	2066.09	1997.41	16.04	OSF1.50	17350.00	12900.00				MinPt-O-SF	
5961.44		119.64	5881.02	5841.80	75.97	OSF1.50	22804.83	12900.00				TD	

Cimarex Dos Equis 12 Federal
Com #2H Pilot Gyro+MWD Off
to 12650ft (Def Survey)

Pass

564.76	32.81	562.78	531.95	N/A	MAS = 10.00 (m)	0.00	0.00					Surface	
564.76	32.81	562.78	531.95	N/A	MAS = 10.00 (m)	10.00	10.00					MinPts	
564.76	32.81	562.77	531.95	47694.99	MAS = 10.00 (m)	26.00	26.00					WRP	
567.50	32.81	559.88	534.69	100.33	MAS = 10.00 (m)	920.00	920.00					MINPT-O-EOU	
573.87	32.81	563.31	541.06	66.69	MAS = 10.00 (m)	1600.00	1599.98					MinPt-O-SF	
660.40	32.81	648.87	627.59	68.98	MAS = 10.00 (m)	2350.00	2344.70					MinPt-O-SF	
803.93	32.81	789.15	771.12	62.64	MAS = 10.00 (m)	3400.00	3385.34					MinPt-O-SF	
1004.15	32.81	984.05	971.34	55.32	MAS = 10.00 (m)	5029.18	5000.00					MinPt-O-SF	
1047.36	33.72	1024.21	1013.63	49.40	OSF1.50	7150.00	7119.68					MinPt-O-ADP	
1040.84	39.05	1014.14	1001.79	42.04	OSF1.50	8220.00	8189.68					MinPt-CtCt	
1041.47	40.61	1013.74	1000.86	40.36	OSF1.50	8510.00	8479.68					MINPT-O-EOU	
1041.75	40.95	1013.79	1000.80	40.03	OSF1.50	8570.00	8539.68					MinPt-O-ADP	
1141.67	62.73	1099.19	1078.94	28.14	OSF1.50	12350.02	12319.70					MinPt-O-SF	
10194.38	64.39	10150.79	10129.99	244.98	OSF1.50	22804.83	12900.00					TD	

Cimarex Dos Equis 12-13
Federal Com #73H Rev1 RM
04Dec19 (Def Plan)

Pass

939.87	32.81	938.58	907.06	N/A	MAS = 10.00 (m)	0.00	0.00					Surface	
939.87	32.81	938.58	907.06	117343.88	MAS = 10.00 (m)	26.00	26.00					WRP	
939.86	32.81	929.43	907.05	102.62	MAS = 10.00 (m)	1520.00	1520.00					MinPts	
940.03	32.81	929.24	907.22	98.82	MAS = 10.00 (m)	1590.00	1589.99					MINPT-O-EOU	
1197.69	42.81	1168.72	1154.88	43.22	OSF1.50	5029.18	5000.00					MinPt-O-SF	
1217.41	93.23	1154.82	1124.18	19.84	OSF1.50	11890.00	11859.68					MinPt-O-SF	
1190.04	92.14	1128.18	1097.90	19.63	OSF1.50	12300.00	12269.68					MinPts	
1190.07	92.15	1128.21	1097.92	19.62	OSF1.50	12310.00	12279.68					MinPt-O-SF	
1455.16	308.91	1248.79	1146.25	7.09	OSF1.50	22804.83	12900.00					MinPts	

Cimarex Dos Equis 13 Federal
#1H Pilot Hole Extreme Off to
11400ft (Def Survey)

Pass

5293.59	32.81	5291.61	5260.78	N/A	MAS = 10.00 (m)	0.00	0.00					Surface	
5293.55	32.81	5291.57	5260.74	N/A	MAS = 10.00 (m)	10.00	10.00					MinPt-O-SF	
5293.53	32.81	5291.55	5260.72	N/A	MAS = 10.00 (m)	20.00	20.00					MINPT-O-EOU	
5293.53	32.81	5291.55	5260.72	N/A	MAS = 10.00 (m)	26.00	26.00					WRP	
5293.21	32.81	5290.71	5260.40	10179.40	MAS = 10.00 (m)	170.00	170.00					MinPts	
5294.30	32.81	5290.24	5261.49	2536.17	MAS = 10.00 (m)	520.00	520.00					MINPT-O-EOU	
5294.45	32.81	5289.79	5261.64	1976.65	MAS = 10.00 (m)	660.00	660.00					MinPts	
5295.88	32.81	5289.20	5263.07	1126.36	MAS = 10.00 (m)	1110.00	1110.00					MINPT-O-EOU	
5267.43	32.81	5248.60	5234.62	312.83	MAS = 10.00 (m)	4710.00	4683.66					MinPts	
5267.76	32.81	5248.18	5234.95	299.45	MAS = 10.00 (m)	4870.00	4842.24					MINPT-O-EOU	
5269.07	32.81	5248.75	5236.26	287.33	MAS = 10.00 (m)	5100.00	5070.30					MinPt-O-SF	
5273.22	32.81	5254.01	5240.41	306.00	MAS = 10.00 (m)	5460.00	5429.68					MinPt-O-SF	
5293.46	35.84	5268.91	5257.62	234.40	OSF1.50	7540.00	7509.68					MinPt-O-ADP	
5327.75	48.46	5294.78	5279.29	171.88	OSF1.50	9880.00	9849.68					MinPt-CtCt	
5327.84	48.76	5294.69	5279.10	170.82	OSF1.50	9930.00	9899.68					MINPT-O-EOU	
5327.99	48.92	5294.71	5279.07	170.19	OSF1.50	9960.00	9929.68					MinPt-O-ADP	
5343.74	57.07	5305.03	5286.67	145.45	OSF1.50	11370.00	11339.68					MinPt-CtCt	
5343.98	58.42	5304.38	5285.56	141.98	OSF1.50	11470.00	11439.68					MINPT-O-EOU	
5344.02	58.47	5304.39	5285.55	141.84	OSF1.50	11480.00	11449.68					MinPt-O-ADP	
5418.67	62.61	5376.28	5356.07	134.02	OSF1.50	12350.02	12319.70					MinPt-O-SF	
5408.79	61.79	5366.94	5347.00	135.59	OSF1.50	12641.69	12593.57					MinPt-O-SF	
1483.27	122.89	1400.69	1360.38	18.38	OSF1.50	18040.00	12900.00					MinPt-CtCt	
1483.62	123.76	1400.46	1359.87	18.25	OSF1.50	18070.00	12900.00					MINPT-O-EOU	
1483.87	124.04	1400.52	1359.84	18.21	OSF1.50	18080.00	12900.00					MinPt-O-ADP	
1511.77	129.56	1424.73	1382.21	17.75	OSF1.50	18330.00	12900.00					MinPt-O-SF	
4992.40	99.42	4925.46	4892.98	76.83	OSF1.50	22804.83	12900.00					TD	

Continental Wimberly #4
(Offset) Plugged Oil Inc Only Off-
5030ft (Def Survey)

Pass

1620.14	32.81	1618.85	1587.33	N/A	MAS = 10.00 (m)	0.00	0.00					Surface	
1619.87	32.81	1618.56	1587.06	65860.28	MAS = 10.00 (m)	20.00	20.00					MinPt-O-SF	
1619.84	32.81	1618.54	1587.03	106948.41	MAS = 10.00 (m)	26.00	26.00					WRP	
1619.57	32.81	1604.82	1586.76	120.16	MAS = 10.00 (m)	460.00	460.00					MinPts	
1619.80	71.76	1571.54	1548.05	34.45	OSF1.50	1430.00	1430.00					MinPt-CtCt	
1637.95	123.32	1555.31	1514.64	20.12	OSF1.50	2440.00	2433.90					MINPT-O-EOU	
1667.33	176.32	1549.35	1491.01	14.28	OSF1.50	3450.00	3434.89					MINPT-O-EOU	
1669.90	179.27	1549.96	1490.63	14.06	OSF1.50	3520.00	3504.27					MinPt-O-SF	
1674.50	184.52	1551.06	1489.98	13.70	OSF1.50	3620.00	3603.38					MINPT-O-EOU	
1687.62	207.56	1548.82	1480.07	12.26	OSF1.50	4040.00	4019.63					MINPT-O-EOU	
1695.15	217.40	1549.79	1477.73	11.76	OSF1.50	4240.00	4217.85					MinPt-O-ADP	
1741.01	254.18	1571.14	1486.85	10.32	OSF1.50	4940.00	4911.61					MINPT-O-EOU	
1743.34	256.76	1571.74	1486.58	10.23	OSF1.50	5000.00	4971.08					MinPt-O-ADP	
1747.36	260.49	1573.27	1486.87	10.10	OSF1.50	5090.00	5060.36					MinPt-O-SF	
7886.96	50.40	7852.93	7836.56	240.83	OSF1.50	14310.00	12900.00					MinPt-CtCt	
7887.50	51.94	7852.45	7835.57	233.56	OSF1.50	14400.00	12900.00					MINPT-O-EOU	
7888.43	53.07	7852.62	7835.36	228.44	OSF1.50	14460.00	12900.00					MinPt-O-ADP	
10741.68	234.76	10584.74	10506.92	69.00	OSF1.50	21600.00	12900.00					MinPt-O-SF	
11593.43	250.60	11425.94	11342.83	69.74	OSF1.50	22804.83	12900.00					TD	

Continental Wimberly 12 #3
(Offset) Plugged Inc Only Off-
5070ft (Def Survey)

Pass

1769.29	32.81	1768.01	1736.48	N/A	MAS = 10.00 (m)	0.00	0.00					Surface	
1768.65	32.81	1767.29	1735.85	22649.84	MAS = 10.00 (m)	26.00	26.00					MinPt-O-SF	

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		
1768.39		32.81	1767.01	1735.59	17840.05	MAS = 10.00 (m)	60.00	60.00				MinPts	
1767.53		66.20	1722.97	1701.34	40.82	OSF1.50	1420.00	1420.00				MinPt-CiCt	
1641.55		251.11	1473.70	1390.45	9.85	OSF1.50	5000.00	4971.08				MinPt-CiCt	
1642.83		262.48	1467.40	1380.35	9.43	OSF1.50	5170.00	5139.97				MinPt-O-SF	
1642.80		262.47	1467.37	1380.33	9.43	OSF1.50	5180.00	5149.93				MinPts	
1775.86		43.86	1746.19	1732.00	273.92	OSF1.50	14320.00	12900.00				MinPt-CiCt	
1776.70		46.15	1745.51	1730.56	259.98	OSF1.50	14430.00	12900.00				MINPT-O-EQU	
1778.05		47.77	1745.78	1730.28	250.96	OSF1.50	14500.00	12900.00				MinPt-O-ADP	
10614.15		235.97	10456.41	10378.18	67.83	OSF1.50	21540.00	12900.00				MinPt-O-SF	
11512.43		252.80	11343.47	11259.63	68.65	OSF1.50	22804.83	12900.00				TD	

Cimarex Dos Equis 12 Federal Com #3H Gyro+MWD Off to 15227ft MD (Def Survey)													
1869.49		32.81	1867.51	1836.68	N/A	MAS = 10.00 (m)	0.00	0.00				Surface	Pass
1869.40		32.81	1867.35	1836.60	26475.89	MAS = 10.00 (m)	26.00	26.00				WRP	
1865.97		32.81	1862.04	1833.16	959.81	MAS = 10.00 (m)	400.00	400.00				MinPts	
1866.62		32.81	1861.66	1833.81	624.24	MAS = 10.00 (m)	660.00	660.00				MINPT-O-EQU	
1875.35		32.81	1866.49	1842.54	272.29	MAS = 10.00 (m)	1500.00	1500.00				MinPts	
1875.35		32.81	1866.49	1842.55	271.66	MAS = 10.00 (m)	1510.00	1510.00				MINPT-O-EQU	
1877.00		32.81	1867.97	1844.19	266.24	MAS = 10.00 (m)	1600.00	1599.98				MinPt-O-SF	
2316.30		32.81	2296.03	2283.49	126.53	MAS = 10.00 (m)	5029.18	5000.00				MinPt-O-SF	
2402.56		47.52	2370.22	2355.04	79.06	OSF1.50	9760.00	9729.68				MinPt-CiCt	
2402.83		48.48	2369.85	2354.35	77.44	OSF1.50	9930.00	9899.68				MINPT-O-EQU	
2403.02		48.71	2369.88	2354.31	77.07	OSF1.50	9970.00	9939.68				MinPt-O-ADP	
2420.02		54.16	2383.25	2365.86	69.51	OSF1.50	10720.00	10689.68				MinPt-CiCt	
2420.08		54.32	2383.20	2365.75	69.29	OSF1.50	10740.00	10709.68				MINPT-O-EQU	
2420.15		54.41	2383.22	2365.74	69.19	OSF1.50	10750.00	10719.68				MinPt-O-ADP	
2534.36		61.20	2492.90	2473.16	64.14	OSF1.50	11600.00	11569.68				MinPt-O-SF	
3175.68		81.48	3120.71	3094.21	59.88	OSF1.50	14090.00	12900.00				MinPt-CiCt	
3175.33		91.54	3113.70	3083.84	53.15	OSF1.50	14360.00	12900.00				MinPt-CiCt	
3152.58		150.31	3051.71	3002.27	31.86	OSF1.50	15740.00	12900.00				MinPt-CiCt	
3144.37		193.29	3014.85	2951.08	24.64	OSF1.50	16680.00	12900.00				MinPt-CiCt	
3147.13		200.00	3013.13	2947.13	23.82	OSF1.50	16880.00	12900.00				MINPT-O-EQU	
3147.81		200.81	3013.28	2947.00	23.73	OSF1.50	16910.00	12900.00				MinPt-O-ADP	
3151.24		237.79	2992.06	2913.46	20.03	OSF1.50	17290.00	12900.00				MinPt-CiCt	
3151.27		237.84	2992.04	2913.42	20.03	OSF1.50	17300.00	12900.00				MinPts	
3154.05		238.38	2994.47	2915.67	20.00	OSF1.50	17420.00	12900.00				MinPt-O-SF	
6354.30		156.59	6249.25	6197.71	61.63	OSF1.50	22804.83	12900.00				TD	

Cimarex Dos Equis 13 Federal #1H ST01 Xem+MWD Off to 15250ft (Def Survey)													
5293.59		32.81	5291.61	5260.78	N/A	MAS = 10.00 (m)	0.00	0.00				Surface	Pass
5293.55		32.81	5291.57	5260.74	N/A	MAS = 10.00 (m)	10.00	10.00				MinPt-O-SF	
5293.53		32.81	5291.55	5260.72	N/A	MAS = 10.00 (m)	20.00	20.00				MINPT-O-EQU	
5293.53		32.81	5291.55	5260.72	N/A	MAS = 10.00 (m)	26.00	26.00				WRP	
5293.21		32.81	5290.71	5260.40	10179.40	MAS = 10.00 (m)	170.00	170.00				MinPts	
5294.30		32.81	5290.24	5261.49	2536.17	MAS = 10.00 (m)	520.00	520.00				MINPT-O-EQU	
5294.45		32.81	5289.79	5261.64	1976.65	MAS = 10.00 (m)	660.00	660.00				MinPts	
5295.88		32.81	5289.20	5263.07	1126.36	MAS = 10.00 (m)	1110.00	1110.00				MINPT-O-EQU	
5267.43		32.81	5248.00	5234.62	312.83	MAS = 10.00 (m)	4710.00	4683.66				MinPts	
5267.76		32.81	5248.18	5234.95	299.45	MAS = 10.00 (m)	4870.00	4842.24				MINPT-O-EQU	
5269.07		32.81	5248.75	5236.26	287.33	MAS = 10.00 (m)	5100.00	5070.30				MinPt-O-SF	
5273.22		32.81	5254.01	5240.41	306.00	MAS = 10.00 (m)	5460.00	5429.68				MinPt-O-SF	
5293.46		35.84	5268.91	5257.62	234.40	OSF1.50	7540.00	7509.68				MinPt-O-ADP	
5327.75		48.46	5294.78	5279.29	171.88	OSF1.50	9880.00	9849.68				MinPt-CiCt	
5327.84		48.75	5294.69	5279.10	170.82	OSF1.50	9930.00	9899.68				MINPT-O-EQU	
5327.99		48.92	5294.71	5279.07	170.19	OSF1.50	9960.00	9929.68				MinPt-O-ADP	
5609.28		59.86	5568.72	5549.42	145.33	OSF1.50	12310.00	12279.68				MinPt-O-SF	
1882.98		142.56	1787.29	1740.43	20.07	OSF1.50	18940.00	12900.00				MinPt-CiCt	
1886.44		168.70	1773.32	1717.74	16.96	OSF1.50	19990.00	12900.00				MinPt-CiCt	
1894.17		194.61	1763.77	1699.56	14.73	OSF1.50	20960.00	12900.00				MINPT-O-EQU	
1895.70		196.45	1764.07	1699.24	14.61	OSF1.50	21030.00	12900.00				MinPt-O-ADP	
1892.92		238.35	1733.36	1654.56	12.00	OSF1.50	22530.00	12900.00				MinPt-CiCt	
1893.12		239.05	1733.09	1654.07	11.97	OSF1.50	22560.00	12900.00				MINPT-O-EQU	
1893.29		239.27	1733.11	1654.02	11.96	OSF1.50	22570.00	12900.00				MinPt-O-ADP	
1902.18		241.84	1740.29	1660.34	11.88	OSF1.50	22720.00	12900.00				MinPt-O-SF	
1912.41		242.69	1749.96	1669.72	11.91	OSF1.50	22804.83	12900.00				TD	

Cimarex Dos Equis 12-13 Federal Com #3H Rev0 smk 20Dec18 (Def Plan)													
2238.27		32.81	2236.29	2205.46	N/A	MAS = 10.00 (m)	0.00	0.00				Surface	Pass
2238.27		32.81	2236.27	2205.46	129039.37	MAS = 10.00 (m)	26.00	26.00				WRP	
2229.07		32.81	2217.54	2196.26	233.26	MAS = 10.00 (m)	1750.00	1749.68				MinPts	
2354.99		41.20	2326.87	2313.79	89.98	OSF1.50	5620.00	5589.68				MinPt-O-SF	
2348.38		41.09	2320.33	2307.29	90.00	OSF1.50	5850.00	5819.68				MinPt-O-SF	
2348.10		60.76	2306.94	2287.34	59.87	OSF1.50	9200.00	9169.68				MinPt-O-SF	
2346.20		60.99	2304.88	2285.21	59.59	OSF1.50	9440.00	9409.68				MinPt-CiCt	
2346.21		61.01	2304.88	2285.20	59.57	OSF1.50	9450.00	9419.68				MinPts	
2360.77		61.98	2318.79	2298.79	58.57	OSF1.50	9780.00	9749.68				MinPt-O-SF	
4150.93		369.78	3903.75	3781.15	16.92	OSF1.50	22804.83	12900.00				MinPts	

Cimarex Dos Equis 12-13 Federal Com #47H Rev0 smk 20Dec18 (Def Plan)													
2258.24		32.81	2256.27	2225.44	N/A	MAS = 10.00 (m)	0.00	0.00				Surface	Pass
2258.24		32.81	2256.25	2225.44	133618.34	MAS = 10.00 (m)	26.00	26.00				WRP	
2241.54		32.81	2229.06	2208.73	213.88	MAS = 10.00 (m)	1860.00	1859.05				MinPts	
2241.54		32.81	2229.06	2208.74	213.27	MAS = 10.00 (m)	1870.00	1868.97				MINPT-O-EQU	
2343.25		39.20	2316.46	2304.05	94.38	OSF1.50	5100.00	5070.30				MinPt-O-SF	
2359.78		88.66	2300.02	2271.12	40.88	OSF1.50	11850.00	11819.68				MinPt-O-SF	
2346.30		87.90	2287.04	2258.39	40.93	OSF1.50	12240.00	12209.68				MinPts	
2348.60		88.12	2289.19	2260.48	40.88	OSF1.50	12350.00	12319.70				MinPt-O-SF	
2580.28		458.26	2274.11	2122.01	8.48	OSF1.50	22804.83	12900.00				MinPts	

Cimarex Dos Equis 13 Federal #2H XEM + MWD Off to 15311 (Def Survey)													
5233.23		32.81	5231.25	5200.42	N/A	MAS = 10.00 (m)	0.00	0.00				Surface	Pass
5233.22		32.81	5231.24	5200.42	N/A	MAS = 10.00 (m)	10.00	10.00				MinPts	
5233.22		32.81	5231.25	5200.42	N/A	MAS = 10.00 (m)	26.00	26.00				WRP	

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		
5235.91	32.81	5229.05	5203.10	1075.05		MAS = 10.00 (m)	880.00	880.00				MINPT-O-EQU	
5242.27	32.81	5231.63	5209.46	605.33		MAS = 10.00 (m)	1600.00	1599.98				MinPt-O-SF	
5319.01	32.81	5302.47	5286.20	365.21		MAS = 10.00 (m)	3610.00	3593.47				MinPt-O-SF	
5375.17	32.81	5353.55	5342.36	273.65		MAS = 10.00 (m)	5029.18	5000.00				MinPt-O-SF	
5385.97	32.81	5363.99	5353.17	269.13		MAS = 10.00 (m)	6340.00	6309.68				MINPT-O-EQU	
5386.86	34.05	5363.50	5352.81	251.87		OSF1.50	6810.00	6779.68				MINPT-O-EQU	
5387.89	35.36	5363.65	5352.52	242.00		OSF1.50	7080.00	7049.68				MinPt-O-ADP	
5420.08	49.40	5386.48	5370.67	171.38		OSF1.50	9720.00	9689.68				MinPt-O-ADP	
5420.47	50.27	5386.29	5370.19	168.30		OSF1.50	9910.00	9879.68				MinPt-CtCt	
5420.55	50.54	5386.20	5370.01	167.39		OSF1.50	9960.00	9929.68				MINPT-O-EQU	
5420.68	50.69	5386.22	5369.98	166.85		OSF1.50	9990.00	9959.68				MinPt-O-ADP	
5423.94	52.31	5388.41	5371.64	161.64		OSF1.50	10250.00	10219.68				MinPt-O-SF	
5420.98	53.52	5384.64	5367.46	157.70		OSF1.50	10540.00	10509.68				MinPt-CtCt	
5421.04	53.68	5384.59	5367.36	157.22		OSF1.50	10570.00	10539.68				MINPT-O-EQU	
5421.08	53.73	5384.60	5367.35	157.06		OSF1.50	10580.00	10549.68				MinPt-O-ADP	
5682.69	61.16	5641.25	5621.53	143.98		OSF1.50	12330.00	12299.68				MinPt-O-SF	
2256.02	148.18	2156.57	2107.83	23.13		OSF1.50	19350.00	12900.00				MinPt-CtCt	
2258.34	153.44	2155.38	2104.89	22.35		OSF1.50	19540.00	12900.00				MINPT-O-EQU	
2264.55	160.96	2156.59	2103.60	21.35		OSF1.50	19790.00	12900.00				MinPt-O-ADP	
2272.17	173.58	2155.79	2098.59	19.84		OSF1.50	20160.00	12900.00				MinPt-CtCt	
2273.28	236.95	2114.64	2036.31	14.50		OSF1.50	22000.00	12900.00				MinPt-CtCt	
2278.22	264.86	2100.98	2013.36	12.99		OSF1.50	22590.00	12900.00				MinPts	
2282.08	265.83	2104.20	2016.25	12.96		OSF1.50	22690.00	12900.00				MinPt-O-SF	
2291.89	266.38	2113.65	2025.51	12.99		OSF1.50	22804.83	12900.00				TD	

Cimarex Dos Equis 12-13
Federal Com #48H Rev0 RM
13Sept19 (Non-Def Plan)

Pass

2278.21	32.81	2276.93	2245.41	N/A		MAS = 10.00 (m)	0.00	0.00				Surface	
2278.21	32.81	2276.91	2245.41	162666.53		MAS = 10.00 (m)	26.00	26.00				WRP	
2278.21	32.81	2267.88	2245.41	251.59		MAS = 10.00 (m)	1500.00	1500.00				MinPts	
2278.23	32.81	2267.95	2245.42	250.27		MAS = 10.00 (m)	1510.00	1510.00				MINPT-O-EQU	
2748.02	97.95	2682.26	2650.03	42.60		OSF1.50	11810.00	11779.68				MINPT-O-EQU	
2748.05	98.03	2682.26	2650.02	42.59		OSF1.50	11820.00	11789.68				MinPt-O-ADP	
2751.51	98.40	2685.48	2653.11	42.48		OSF1.50	11960.00	11929.68				MinPt-O-SF	
3152.90	312.90	2943.87	2840.00	15.17		OSF1.50	22804.83	12900.00				MinPts	

Jubilee Energy Gulf Federal #1
(Offset) Plugged Oil Inc Only Off:
5020ft (Def Survey)

Pass

2631.20	32.81	2629.91	2598.39	N/A		MAS = 10.00 (m)	0.00	0.00				Surface	
2630.97	32.81	2629.66	2598.17	102653.88		MAS = 10.00 (m)	20.00	20.00				MinPt-O-SF	
2630.94	32.81	2629.63	2598.13	114584.37		MAS = 10.00 (m)	26.00	26.00				WRP	
2630.90	32.81	2629.58	2598.09	78870.60		MAS = 10.00 (m)	40.00	40.00				MinPts	
2618.31	127.21	2533.07	2491.10	31.18		OSF1.50	2550.00	2542.92				MinPt-CtCt	
2600.91	218.09	2455.09	2382.83	17.99		OSF1.50	4280.00	4257.50				MinPt-CtCt	
2611.38	261.75	2436.45	2349.62	15.03		OSF1.50	5090.00	5060.36				MinPts	
7844.63	62.42	7802.59	7782.21	192.45		OSF1.50	15310.00	12900.00				MinPt-CtCt	
7845.50	65.07	7801.63	7780.43	184.48		OSF1.50	15430.00	12900.00				MINPT-O-EQU	
7846.85	66.72	7801.94	7780.13	179.85		OSF1.50	15500.00	12900.00				MinPt-O-ADP	
10471.74	240.80	10310.78	10230.94	65.57		OSF1.50	22250.00	12900.00				MinPt-O-SF	
10847.24	248.75	10680.98	10598.49	65.74		OSF1.50	22804.83	12900.00				TD	

Final Surveys - Cimarex Dos
Equis 13 Federal Com #9H
MWD Off-15788ft (Surcon
Corrected) (Def Survey)

Pass

5754.80	32.81	5753.52	5721.99	N/A		MAS = 10.00 (m)	0.00	0.00				MinPts	
5754.81	32.81	5753.47	5722.00	121530.48		MAS = 10.00 (m)	26.00	26.00				WRP	
5755.45	32.81	5750.67	5722.84	1645.38		MAS = 10.00 (m)	790.00	790.00				MinPts	
5754.93	32.81	5748.58	5722.12	1132.28		MAS = 10.00 (m)	1150.00	1150.00				MINPT-O-EQU	
5752.12	32.81	5744.33	5719.31	863.96		MAS = 10.00 (m)	1530.00	1530.00				MinPts	
5752.12	32.81	5744.31	5719.32	861.03		MAS = 10.00 (m)	1540.00	1540.00				MINPT-O-EQU	
5968.43	32.81	5948.67	5935.62	318.49		MAS = 10.00 (m)	5100.00	5070.30				MinPt-O-SF	
5967.26	32.81	5947.51	5934.45	318.59		MAS = 10.00 (m)	5130.00	5100.14				MinPt-O-SF	
5680.06	49.97	5646.29	5630.08	175.21		OSF1.50	9830.00	9799.68				MinPt-CtCt	
5680.03	50.79	5645.72	5629.24	172.31		OSF1.50	9990.00	9959.68				MinPt-CtCt	
5680.27	51.56	5645.44	5628.71	169.65		OSF1.50	10120.00	10089.68				MINPT-O-EQU	
5680.64	52.01	5645.52	5628.64	168.17		OSF1.50	10190.00	10159.68				MinPt-O-ADP	
5942.87	61.55	5901.50	5881.32	147.29		OSF1.50	12350.02	12319.70				MinPt-O-SF	
3145.58	125.74	3061.39	3019.82	37.82		OSF1.50	18640.00	12900.00				MinPt-CtCt	
3121.75	162.54	3013.05	2959.21	28.98		OSF1.50	20160.00	12900.00				MinPt-CtCt	
3122.40	164.47	3012.41	2957.93	28.65		OSF1.50	20250.00	12900.00				MINPT-O-EQU	
3125.09	167.56	3013.04	2957.53	28.14		OSF1.50	20380.00	12900.00				MinPt-O-ADP	
3117.42	200.79	2983.22	2916.63	23.40		OSF1.50	21590.00	12900.00				MinPt-CtCt	
3118.83	204.03	2982.47	2914.80	23.04		OSF1.50	21730.00	12900.00				MINPT-O-EQU	
3125.23	211.85	2983.66	2913.38	22.23		OSF1.50	22020.00	12900.00				MinPt-O-ADP	
3141.65	225.31	2991.11	2916.34	21.00		OSF1.50	22490.00	12900.00				MINPT-O-EQU	
3146.18	234.36	2989.61	2911.83	20.22		OSF1.50	22804.83	12900.00				MinPts	

Cimarex Dos Equis 13 Federal
Com #9H Rev2 RM 12Mar19
(Non-Def Plan)

Pass

5754.80	32.81	5752.82	5721.99	N/A		MAS = 10.00 (m)	0.00	0.00				Surface	
5754.80	32.81	5752.78	5721.99	118771.97		MAS = 10.00 (m)	26.00	26.00				WRP	
5754.80	32.81	5743.72	5721.99	632.23		MAS = 10.00 (m)	1500.00	1500.00				MinPts	
5754.87	32.81	5743.65	5722.06	622.43		MAS = 10.00 (m)	1530.00	1530.00				MINPT-O-EQU	
5969.59	45.78	5938.41	5923.81	204.39		OSF1.50	5150.00	5120.05				MinPt-O-SF	
5677.31	73.07	5627.82	5604.24	120.32		OSF1.50	10560.00	10529.68				MinPt-CtCt	
5677.32	73.11	5627.80	5604.21	120.25		OSF1.50	10570.00	10539.68				MINPT-O-EQU	
5677.34	73.14	5627.80	5604.19	120.20		OSF1.50	10580.00	10549.68				MinPt-O-ADP	
5758.86	75.51	5707.86	5683.35	117.44		OSF1.50	11570.00	11539.68				MinPt-O-SF	
3140.65	123.98	3057.33	3016.67	38.59		OSF1.50	18350.00	12900.00				MinPt-CtCt	
3141.27	237.29	2982.41	2903.98	20.01		OSF1.50	22804.83	12900.00				MinPts	

Cimarex Dos Equis 12 Fed 4H
Gyro-MWD 10305ft to 15240ft
MD (Def Survey)

Pass

3188.96	32.81	3186.98	3156.15	N/A		MAS = 10.00 (m)	0.00	0.00				Surface	
3188.96	32.81	3186.96	3156.15	137964.56		MAS = 10.00 (m)	26.00	26.00				WRP	
3188.89	32.81	3186.06	3156.09	3723.69		MAS = 10.00 (m)	210.00	210.00				MinPts	
3191.03	32.81	3184.19	3158.22	655.91		MAS = 10.00 (m)	1030.00	1030.00				MINPT-O-EQU	

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		
3191.49	32.81	3184.19	3158.68	599.41		MAS = 10.00 (m)	1120.00	1120.00				MINPT-O-EQU	
3191.36	32.81	3182.79	3158.56	483.59		MAS = 10.00 (m)	1500.00	1500.00				MinPts	
3191.37	32.81	3182.78	3158.56	482.67		MAS = 10.00 (m)	1510.00	1510.00				MINPT-O-EQU	
3634.52	32.81	3614.52	3601.71	201.63		MAS = 10.00 (m)	5029.18	5000.00				MinPt-O-SF	
3643.31	32.81	3621.00	3610.50	179.06		MAS = 10.00 (m)	6910.00	6879.68				MinPts	
3643.72	33.71	3620.58	3610.01	172.14		OSF1.50	7180.00	7149.68				MINPT-O-EQU	
3644.50	34.62	3620.76	3609.88	167.41		OSF1.50	7370.00	7339.68				MinPt-O-ADP	
3651.55	39.71	3624.42	3611.84	145.07		OSF1.50	8360.00	8329.68				MinPt-CtCt	
3652.05	41.28	3623.86	3610.76	139.28		OSF1.50	8620.00	8589.68				MINPT-O-EQU	
3652.77	42.13	3624.02	3610.64	136.39		OSF1.50	8760.00	8729.68				MinPt-O-ADP	
3657.04	45.19	3626.26	3611.86	126.89		OSF1.50	9310.00	9279.68				MinPt-O-ADP	
3684.77	52.93	3648.82	3631.84	108.42		OSF1.50	10580.00	10549.68				MinPt-CtCt	
3684.81	53.08	3648.78	3631.76	108.18		OSF1.50	10600.00	10569.68				MINPT-O-EQU	
3684.86	53.10	3648.80	3631.78	108.06		OSF1.50	10610.00	10579.68				MinPt-O-ADP	
3685.02	53.38	3648.79	3631.66	107.52		OSF1.50	10640.00	10609.68				MINPT-O-EQU	
3685.07	53.43	3648.80	3631.65	107.39		OSF1.50	10650.00	10619.68				MinPt-O-ADP	
3696.50	56.21	3658.37	3640.29	102.19		OSF1.50	10970.00	10939.68				MinPt-O-ADP	
3729.72	59.42	3689.45	3670.30	97.34		OSF1.50	11330.00	11299.68				MinPt-O-ADP	
3823.07	62.11	3781.01	3760.96	95.32		OSF1.50	11840.00	11809.68				MinPt-O-SF	
4297.52	81.93	4242.25	4215.60	80.60		OSF1.50	14030.00	12900.00				MinPt-CtCt	
4298.18	83.62	4241.77	4214.56	78.93		OSF1.50	14130.00	12900.00				MINPT-O-EQU	
4299.15	84.80	4241.95	4214.34	77.82		OSF1.50	14190.00	12900.00				MinPt-O-ADP	
4303.74	101.45	4235.44	4202.29	64.87		OSF1.50	14570.00	12900.00				MINPT-O-EQU	
4303.88	101.64	4235.46	4202.24	64.75		OSF1.50	14580.00	12900.00				MinPt-O-ADP	
4264.18	207.81	4124.90	4056.29	31.06		OSF1.50	16780.00	12900.00				MinPt-CtCt	
4267.23	216.99	4121.95	4050.31	29.77		OSF1.50	17050.00	12900.00				MINPT-O-EQU	
4272.83	223.88	4122.91	4048.94	28.87		OSF1.50	17240.00	12900.00				MinPt-O-ADP	
4283.73	283.65	4093.97	4000.08	22.80		OSF1.50	17490.00	12900.00				MinPts	
4285.13	283.75	4095.31	4001.38	22.80		OSF1.50	17520.00	12900.00				MinPt-O-SF	
6969.46	212.83	6826.92	6756.64	49.57		OSF1.50	22804.83	12900.00				TD	

Cimarex Dos Equis 12 Federal
Com #4H Gyro Off to 11189ft
MD (Def Survey)

Pass

3188.96	32.81	3186.98	3156.15	N/A		MAS = 10.00 (m)	0.00	0.00				Surface	
3188.96	32.81	3186.96	3156.15	137964.56		MAS = 10.00 (m)	26.00	26.00				WRP	
3188.89	32.81	3186.06	3156.09	3723.69		MAS = 10.00 (m)	210.00	210.00				MinPts	
3191.03	32.81	3184.19	3158.22	655.91		MAS = 10.00 (m)	1030.00	1030.00				MINPT-O-EQU	
3191.49	32.81	3184.19	3158.68	599.41		MAS = 10.00 (m)	1120.00	1120.00				MINPT-O-EQU	
3191.36	32.81	3182.79	3158.56	483.59		MAS = 10.00 (m)	1500.00	1500.00				MinPts	
3191.37	32.81	3182.78	3158.56	482.67		MAS = 10.00 (m)	1510.00	1510.00				MINPT-O-EQU	
3634.52	32.81	3614.52	3601.71	201.63		MAS = 10.00 (m)	5029.18	5000.00				MinPt-O-SF	
3643.31	32.81	3621.00	3610.50	179.06		MAS = 10.00 (m)	6910.00	6879.68				MinPts	
3643.72	33.71	3620.58	3610.01	172.14		OSF1.50	7180.00	7149.68				MINPT-O-EQU	
3644.50	34.62	3620.76	3609.88	167.41		OSF1.50	7370.00	7339.68				MinPt-O-ADP	
3651.55	39.71	3624.42	3611.84	145.07		OSF1.50	8360.00	8329.68				MinPt-CtCt	
3652.05	41.28	3623.86	3610.76	139.28		OSF1.50	8620.00	8589.68				MINPT-O-EQU	
3652.77	42.13	3624.02	3610.64	136.39		OSF1.50	8760.00	8729.68				MinPt-O-ADP	
3657.04	45.19	3626.26	3611.86	126.89		OSF1.50	9310.00	9279.68				MinPt-O-ADP	
3779.42	60.19	3738.63	3719.23	97.33		OSF1.50	11940.00	11909.68				MinPt-O-SF	
4476.63	55.39	4439.04	4421.23	125.68		OSF1.50	14210.00	12900.00				MinPt-O-SF	
4534.67	56.08	4496.62	4478.59	125.67		OSF1.50	14380.00	12900.00				MinPt-O-SF	
5315.39	66.81	5270.19	5248.58	122.94		OSF1.50	15970.00	12900.00				MinPt-O-SF	
5351.88	67.25	5306.38	5284.63	122.94		OSF1.50	16030.00	12900.00				MinPt-O-SF	
10903.81	94.33	10840.26	10809.48	177.07		OSF1.50	22804.83	12900.00				TD	

Continental Wimberly #8
(Offset) Plugged Oil Inc Only Off:
5070ft (Def Survey)

Pass

3483.88	32.81	3482.59	3451.07	N/A		MAS = 10.00 (m)	0.00	0.00				Surface	
3483.75	32.81	3482.45	3450.94	276822.61		MAS = 10.00 (m)	20.00	20.00				MinPt-O-SF	
3483.73	32.81	3482.44	3450.92	407996.59		MAS = 10.00 (m)	26.00	26.00				WRP	
3483.00	32.81	3474.95	3450.19	514.33		MAS = 10.00 (m)	340.00	340.00				MinPts	
3480.63	68.65	3434.44	3411.98	77.48		OSF1.50	1410.00	1410.00				MinPt-CtCt	
3483.55	77.96	3431.15	3405.60	68.13		OSF1.50	1620.00	1619.96				MINPT-O-EQU	
3487.27	82.34	3431.95	3404.93	64.52		OSF1.50	1710.00	1709.81				MinPt-O-ADP	
3503.20	98.22	3437.30	3404.99	54.19		OSF1.50	1960.00	1958.17				MinPt-O-ADP	
3593.80	162.20	3485.24	3431.60	33.49		OSF1.50	3200.00	3187.12				MinPt-O-ADP	
3756.57	259.16	3583.36	3497.40	21.84		OSF1.50	5210.00	5179.85				MinPt-O-ADP	
3757.22	259.43	3583.83	3497.78	21.82		OSF1.50	5220.00	5189.82				MinPt-O-SF	
8188.98	101.99	8120.56	8086.99	121.96		OSF1.50	15650.00	12900.00				MinPt-CtCt	
8189.32	102.92	8120.27	8086.39	120.84		OSF1.50	15720.00	12900.00				MINPT-O-EQU	
8189.78	103.48	8120.35	8086.30	120.19		OSF1.50	15760.00	12900.00				MinPt-O-ADP	
10602.63	242.14	10440.78	10360.50	66.02		OSF1.50	22380.00	12900.00				MinPt-O-SF	
10877.43	248.03	10711.65	10629.40	66.12		OSF1.50	22804.83	12900.00				TD	

Cimarex Dos Equis 12-13
Federal Com #1H Rev1 smk
20Dec18 (Def Plan)

Pass

3485.77	32.81	3483.80	3452.97	N/A		MAS = 10.00 (m)	0.00	0.00				Surface	
3485.77	32.81	3483.78	3452.97	223997.98		MAS = 10.00 (m)	26.00	26.00				WRP	
3485.77	32.81	3474.74	3452.97	384.84		MAS = 10.00 (m)	1500.00	1500.00				MinPts	
3485.79	32.81	3474.71	3452.98	382.83		MAS = 10.00 (m)	1510.00	1510.00				MINPT-O-EQU	
3956.00	75.28	3905.16	3880.77	80.97		OSF1.50	9160.00	9129.68				MinPts	
3959.65	75.78	3908.47	3883.87	80.44		OSF1.50	9360.00	9329.68				MinPt-O-SF	
5312.35	408.12	5039.61	4904.23	19.61		OSF1.50	22804.83	12900.00				MinPts	

Cimarex Dos Equis 12-13
Federal Com #8H Rev0 smk
20Dec18 (Def Plan)

Pass

3505.78	32.81	3503.80	3472.97	N/A		MAS = 10.00 (m)	0.00	0.00				Surface	
3505.78	32.81	3503.78	3472.97	222110.95		MAS = 10.00 (m)	26.00	26.00				WRP	
3505.78	32.81	3494.74	3472.97	387.04		MAS = 10.00 (m)	1500.00	1500.00				MinPts	
3505.79	32.81	3494.71	3472.98	385.01		MAS = 10.00 (m)	1510.00	1510.00				MINPT-O-EQU	
4004.02	80.53	3949.68	3923.50	76.42		OSF1.50	9750.00	9719.68				MinPts	
4004.16	98.32	3937.95	3905.83	62.31		OSF1.50	11820.00	11789.68				MinPts	
3996.63	96.74	3931.48	3899.90	63.23		OSF1.50	12230.00	12199.68				MinPt-CtCt	
3996.64	96.76	3931.46	3899.88	63.22		OSF1.50	12240.00	12209.68				MinPts	
3998.08	96.96	3932.78	3901.12	63.11		OSF1.50	12350.00	12319.70				MinPt-O-SF	
4201.59	462.14	3892.84	3739.45	13.69		OSF1.50	22804.83	12900.00				MinPts	

Curtis Hankamer Gulf Hanapan
Federal #3 (Offset) Plugged Oil
Inc Only Off-5049ft (Def Survey)

Pass

Offset Trajectory	Separation			Allow Dev. (ft)	Sep. Fact.	Controlling Rule	Reference Trajectory		Risk Level			Alert	Status
	Cl-Cl (ft)	MAS (ft)	EOU (ft)				MD (ft)	TVD (ft)	Alert	Minor	Major		
3579.78	32.81	3578.50	3546.98	N/A		MAS = 10.00 (m)	0.00	0.00				Surface	
3579.62	32.81	3578.31	3546.81	186192.89		MAS = 10.00 (m)	20.00	20.00				MinPt-O-SF	
3579.59	32.81	3578.29	3546.78	205948.47		MAS = 10.00 (m)	26.00	26.00				WRP	
3569.52	40.44	3542.13	3529.07	136.69		OSF1.50	690.00	690.00				MinPt-CtCt	
3573.23	78.83	3520.24	3494.40	69.10		OSF1.50	1520.00	1520.00				MinPt-CtCt	
3575.60	86.00	3517.84	3489.60	63.29		OSF1.50	1650.00	1649.93				MINPT-O-EQU	
3578.97	89.99	3518.54	3488.97	60.50		OSF1.50	1720.00	1719.78				MinPt-O-ADP	
3988.01	264.82	3811.04	3723.19	22.69		OSF1.50	5220.00	5189.82				MinPt-O-SF	
8691.01	121.87	8609.33	8569.13	108.09		OSF1.50	14320.00	12900.00				MinPt-CtCt	
8691.05	122.02	8609.27	8569.03	107.96		OSF1.50	14350.00	12900.00				MINPT-O-EQU	
8691.14	122.12	8609.29	8569.01	107.87		OSF1.50	14370.00	12900.00				MinPt-O-ADP	
11258.80	241.27	11097.53	11017.54	70.39		OSF1.50	21480.00	12900.00				MinPt-O-SF	
12144.15	257.45	11972.08	11886.69	71.10		OSF1.50	22804.83	12900.00				TD	
Continental Wimberly #7 (Offset) Plugged Oil Inc Only Off: 5100ft (Def Survey)													Pass
4650.88	32.81	4649.59	4618.07	N/A		MAS = 10.00 (m)	0.00	0.00				Surface	
4650.84	32.81	4649.43	4618.03	38840.76		MAS = 10.00 (m)	26.00	26.00				WRP	
4650.60	32.81	4643.83	4617.79	847.00		MAS = 10.00 (m)	290.00	290.00				MinPts	
4650.40	43.31	4621.10	4607.09	165.96		OSF1.50	940.00	940.00				MinPt-CtCt	
4649.97	77.01	4598.21	4572.97	92.09		OSF1.50	1550.00	1550.00				MinPt-CtCt	
4651.26	81.69	4596.37	4569.57	86.75		OSF1.50	1670.00	1669.90				MINPT-O-EQU	
4653.03	83.82	4596.72	4569.21	84.54		OSF1.50	1730.00	1729.75				MinPt-O-ADP	
4685.01	115.92	4607.31	4569.10	61.29		OSF1.50	2270.00	2265.41				MINPT-O-EQU	
4686.65	117.58	4607.83	4569.07	60.43		OSF1.50	2310.00	2305.05				MinPt-O-ADP	
4740.25	166.54	4628.79	4573.71	43.02		OSF1.50	3230.00	3216.85				MINPT-O-EQU	
4751.34	178.44	4631.95	4572.90	40.22		OSF1.50	3490.00	3474.54				MinPt-O-ADP	
4810.17	225.52	4659.40	4584.66	32.17		OSF1.50	4360.00	4336.78				MINPT-O-EQU	
4811.80	227.17	4659.92	4584.63	31.94		OSF1.50	4400.00	4376.43				MinPt-O-ADP	
4862.27	260.91	4687.90	4601.35	28.08		OSF1.50	5220.00	5189.82				MinPts	
8174.82	121.46	8093.42	8053.36	102.02		OSF1.50	16960.00	12900.00				MinPt-CtCt	
8175.39	123.12	8092.88	8052.27	100.64		OSF1.50	17060.00	12900.00				MINPT-O-EQU	
8176.13	123.97	8093.05	8052.16	99.95		OSF1.50	17110.00	12900.00				MinPt-O-ADP	
10047.14	245.39	9883.12	9801.75	61.73		OSF1.50	22804.83	12900.00				MinPt-O-SF	
Standind Wimberly A Unit B #1 Inc Only (Def Survey)													Pass
5607.91	32.81	5605.93	5575.10	N/A		MAS = 10.00 (m)	0.00	0.00				Surface	
5607.84	32.81	5605.85	5575.03	789667.50		MAS = 10.00 (m)	20.00	20.00				MinPt-O-SF	
5607.83	32.81	5605.84	5575.02	N/A		MAS = 10.00 (m)	26.00	26.00				WRP	
5595.06	128.77	5508.55	5466.29	66.17		OSF1.50	1980.00	1978.00				MinPt-CtCt	
5597.55	462.47	5288.57	5135.07	18.23		OSF1.50	4410.00	4386.34				MinPt-CtCt	
5599.92	553.98	5229.94	5045.94	15.21		OSF1.50	5000.00	4971.08				MinPts	
7924.74	157.98	7818.76	7766.76	76.18		OSF1.50	18190.00	12900.00				MinPt-CtCt	
7925.92	161.38	7817.70	7764.57	74.58		OSF1.50	18330.00	12900.00				MINPT-O-EQU	
7927.98	163.79	7818.13	7764.19	73.47		OSF1.50	18420.00	12900.00				MinPt-O-ADP	
9168.78	359.65	8928.35	8809.13	38.44		OSF1.50	22804.83	12900.00				MinPt-O-SF	
Westates Petroleum Wolly #1 (Offset) Plugged Oil Blind Off: 5063ft (Def Survey)													Pass
9562.25	32.81	9560.96	9529.44	N/A		MAS = 10.00 (m)	0.00	0.00				Surface	
9562.16	32.81	9560.86	9529.35	941040.09		MAS = 10.00 (m)	26.00	26.00				WRP	
9538.23	1577.34	8486.24	7960.89	9.08		OSF1.50	5150.00	5120.05				MinPt-O-SF	
9538.22	1577.34	8486.23	7960.88	9.08		OSF1.50	5160.00	5130.00				MinPts	
11000.14	1114.93	10256.43	9885.21	14.81		OSF1.50	14470.00	12900.00				MinPt-O-SF	
7855.10	275.70	7670.87	7579.40	42.93		OSF1.50	21230.00	12900.00				MinPt-O-ADP	
7790.39	211.67	7648.85	7578.72	55.53		OSF1.50	22240.00	12900.00				MinPt-CtCt	
7811.12	251.86	7642.79	7559.26	46.73		OSF1.50	22804.83	12900.00				MinPts	

1. Geological Formations

TVD of target 12,900

Pilot Hole TD N/A

MD at TD 22,805

Deepest expected fresh water

Formation	Depth (TVD) from KB	Water/Mineral Bearing/Target Zone	Hazards
Rustler	1185	N/A	
Salado (Top Salt)	1500	N/A	
Base of Salt	4650	N/A	
Delaware Sands	4920	N/A	
Bell Canyon	4947	N/A	
Bone Spring	8815	Hydrocarbons	
Bone Spring Target	9600	Hydrocarbons	
1st Bone Spring Sand	9910	Hydrocarbons	
2nd Bone Spring Sand	10635	Hydrocarbons	
3rd Bone Spring	11835	Hydrocarbons	
Wolfcamp	12245	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	1235	1235	10-3/4"	40.50	J-55	BT&C	2.80	5.54	12.58
9 7/8	0	13085	12851	7-5/8"	29.70	L-80	BT&C	2.33	1.12	1.74
6 3/4	0	11850	11850	5-1/2"	20.00	L-80	LT&C	1.15	1.19	1.79
6 3/4	9210	22804	12900	5"	18.00	P-110	BT&C	1.60	1.62	30.69
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., Dos Equis 12-13 Federal Com 6H

	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?	Y

3. Cementing Program

Casing	# Sk	Wt. lb/gal	Yld ft ³ /sack	H ₂ O gal/sk	500# Comp. Strength (hours)	Slurry Description
Surface	480	13.50	1.72	9.15	15.5	Lead: Class C + Bentonite
	128	14.80	1.34	6.32	9.5	Tail: Class C + LCM
Intermediate Stage 1	986	10.80	2.35	9.60	17:43	Lead: Tuned Light I Class H
	200	14.80	1.34	6.32	9.5	Tail: Class C + LCM
Intermediate Stage 2	782	12.90	1.88	9.65	12	Lead: 35:65 (Poz:C) + Salt + Bentonite
Production	840	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 +/- 4,900'.

Casing String	TOC	% Excess
Surface	0	45
Intermediate Stage 1	4900	48
Intermediate Stage 2	0	37
Production	12500	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		
			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.

X	Formation integrity test will be performed per Onshore Order #2. On Exploratory wells or on that portion of any well approved for a 5M BOPE system or greater, a pressure integrity test of each casing shoe shall be performed. Will be tested in accordance with Onshore Oil and Gas Order #2 III.B.1.i.
X	A variance is requested for the use of a flexible choke line from the BOP to Choke Manifold. See attached for specs and hydrostatic test chart.
N	Are anchors required by manufacturer?

5. Mud Program

Depth	Type	Weight (ppg)	Viscosity	Water Loss
0' to 1235'	FW Spud Mud	8.30 - 8.80	30-32	N/C
1235' to 13085'	Brine Diesel Emulsion	8.70 - 9.20	30-35	N/C
13085' to 22804'	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	
	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.
X	No logs are planned based on well control or offset log information.
	Drill stem test?
	Coring?

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

7. Drilling Conditions

Condition	
BH Pressure at deepest TVD	8385 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

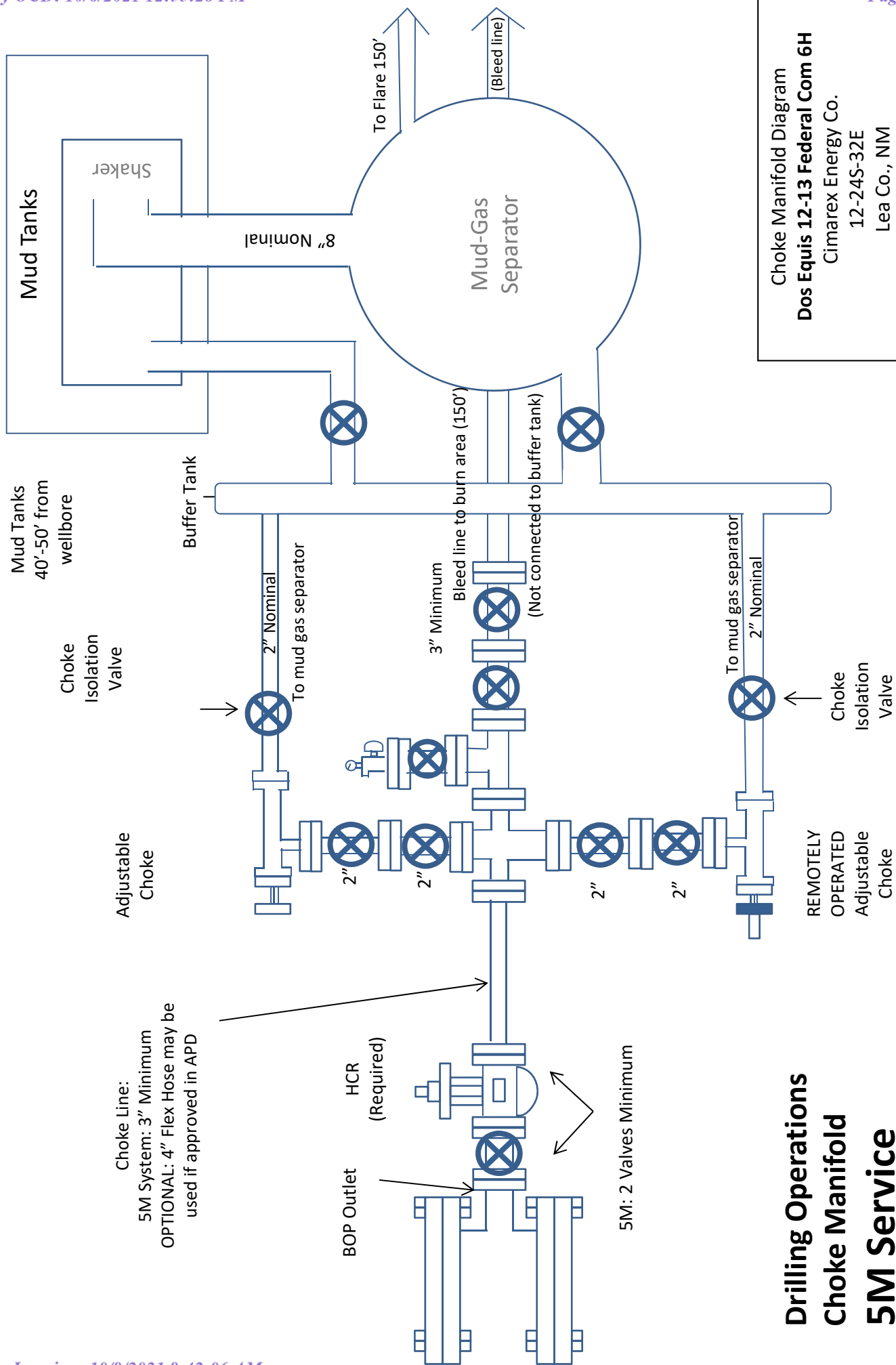
11" 5000 psi x 7-1/16" 10,000 psi
Wellhead Assembly

Wellhead
Assembly

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

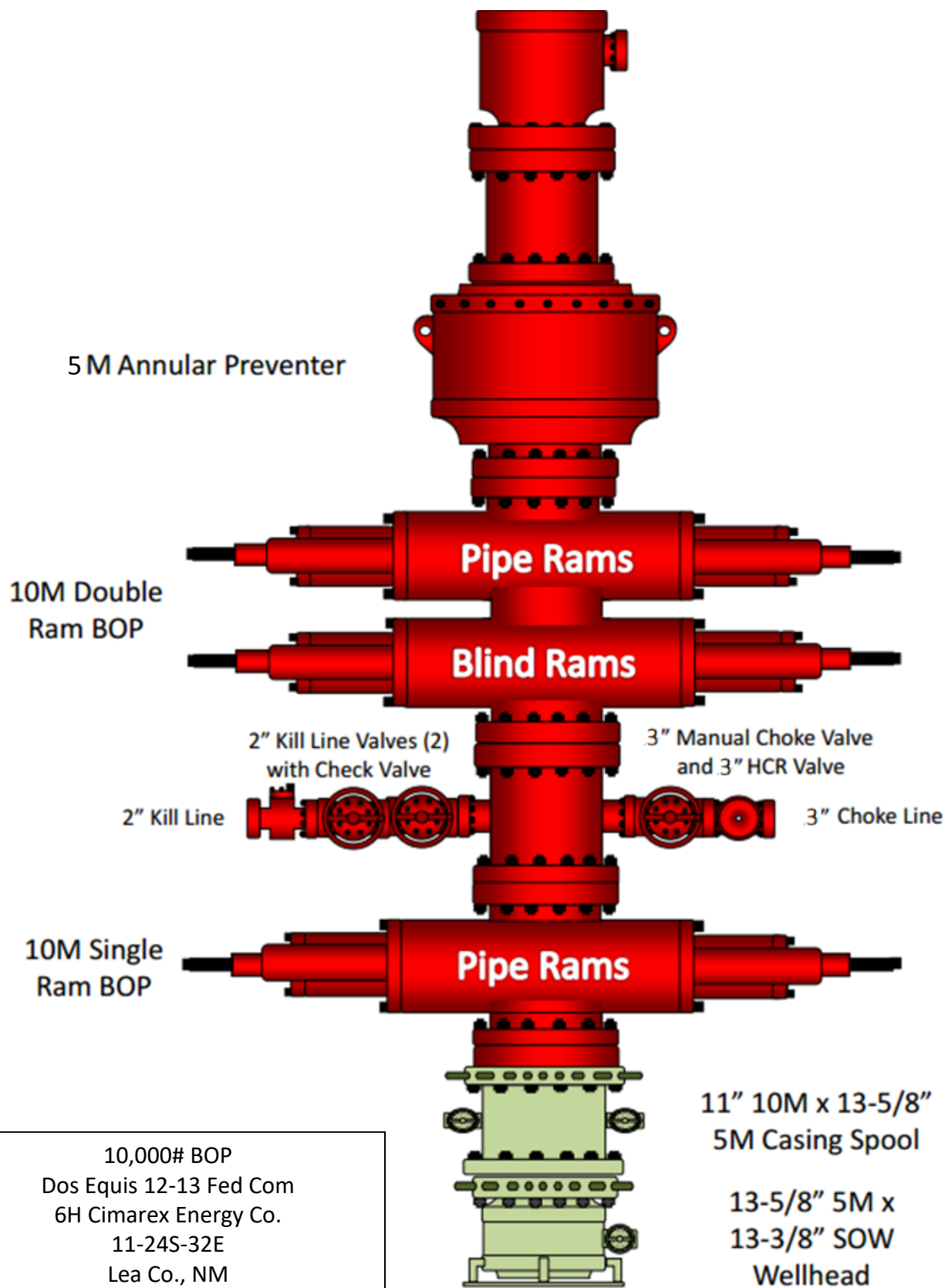
13-5/8" 3000# psi x 13-3/8" SOW Casing Head

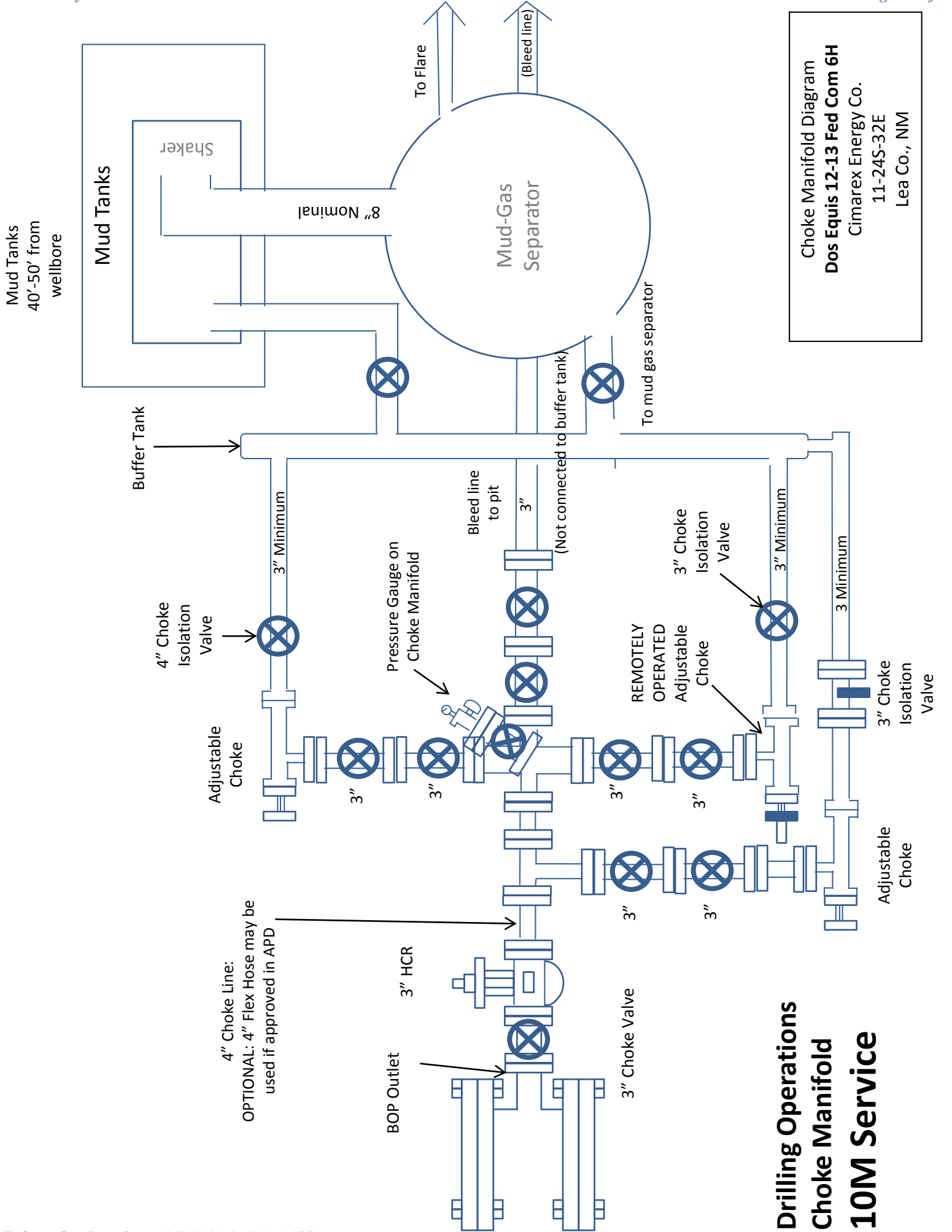
5000# BOP
Dos Equis 12-13 Federal Com 6H
Cimarex Energy Co.
12-24S-32E
Lea Co., NM



Choke Manifold Diagram
Dos Equis 12-13 Federal Com 6H
Cimarex Energy Co.
12-24S-32E
Lea Co., NM

Drilling 6 3/4" Hole
Below 7 5/8" Casing





**Drilling Operations
Choke Manifold
10M Service**



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

PERFORMANCE DATA

TMK UP ULTRA™ FJ Technical Data Sheet

7.625 in

29.70 lbs/ft

L80 HC

Tubular Parameters

Size	7.625	in	Minimum Yield	80,000	psi
Nominal Weight	29.70	lbs/ft	Minimum Tensile	95,000	psi
Grade	L80 HC		Yield Load	683,000	lbs
PE Weight	29.04	lbs/ft	Tensile Load	811,000	lbs
Wall Thickness	0.375	in	Min. Internal Yield Pressure	6,890	psi
Nominal ID	6.875	in	Collapse Pressure	5,510	psi
Drift Diameter	6.750	in			
Nom. Pipe Body Area	8.541	in ²			

Connection Parameters

Connection OD	7.625	in
Connection ID	6.881	in
Make-Up Loss	4.022	in
Critical Section Area	5.316	in ²
Tension Efficiency	62.2	%
Compression Efficiency	62.2	%
Yield Load In Tension	425,000	lbs
Min. Internal Yield Pressure	6,890	psi
Collapse Pressure	5,510	psi
Uniaxial Bending	30	°/ 100 ft

Make-Up Torques

Min. Make-Up Torque	13,200	ft-lbs
Opt. Make-Up Torque	14,700	ft-lbs
Max. Make-Up Torque	16,200	ft-lbs
Operating Torque	13,200	ft-lbs
Yield Torque	23,500	ft-lbs



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CONDITIONS

Action 54454

CONDITIONS

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