

Well Name: RED HILLS 32-5 FED COM	Well Location: T25S / R33E / SEC 32 / NWNE /	County or Parish/State:
Well Number: 170H	Type of Well: CONVENTIONAL GAS WELL	Allottee or Tribe Name:
Lease Number: NMNM0106040A	Unit or CA Name:	Unit or CA Number:
US Well Number: 3002549124	Well Status: Approved Application for Permit to Drill	Operator: CIMAREX ENERGY COMPANY

Notice of Intent

Type of Submission: Notice of Intent	Type of Action Other
Date Sundry Submitted: 07/08/2021	Time Sundry Submitted: 09:44
Date proposed operation will begin: 08/31/2021	

Procedure Description: Cimarex Requests BHL Changes as follows: 100' FSL & 2235' FEL, Sec 5 26S 33E. Cimarex requests Drilling Plan changes as attached. Cimarex requests to perform offline cementing. 1.Land casing on solid body mandrel hanger. Engage packoff and lockring 2. Install BPV 3. Skid rig 4. Check for pressure and remove BPV 5. Circulate down casing, taking returns through casing valves 6. Pump lead and tail cement 7. Displace cement and bump the plug 8. Ensure floats are holding pressure 9. RD cement crew 10. Install BPV and TA cap. Cimarex respectfully requests permission to skid the rig to the next well on the pad to begin operations instead of waiting 8 hours for surface cement to harden on this 170H well. Surface cement will be pumped, we will ensure floats hold, do a green cement test and then Skid to the next well on pad. We will not perform any operations on this 170H well until at least 8 hours and when both tail and lead slurry reach 500psi. The hanging mandrel is made up on the last joint of 10 3/4" casing and then lowered down with and landing joint. It is then lowered down until the mandrel contacts the landing ring which is prewelded to the conductor pipe. At this point the 10 3/4" casing is entirely supported by the conductor pipe via the landing ring / mandrel and is independent from the rig. This allows us to walk the rig away from the 170H well and begin work on the next well while the cement is hardening. There is no way for the casing to be moved or knocked off center since it is hanging from the landing ring. Please see attached C102, Drilling Plan, Prelim Directional, OLC procedure, Multibowl Diagram.

Surface Disturbance

Is any additional surface disturbance proposed?: No

NOI Attachments

Procedure Description

- Offline_Cement_Procedure_20210708094253.pdf
- Multibowl__Red_Hills_32_5_170H_20210708094246.pdf
- Directional_Red_Hills_32_5_Fed_com_170H_20210708094239.pdf

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Drilling_Plan_Red_Hills_32_5_170H_20210708094230.pdf

C102_170H_20210708094224.pdf

Operator Certification

I certify that the foregoing is true and correct. 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. Electronic submission of Sundry Notices through this system satisfies regulations requiring a submission of Form 3160-5 or a Sundry Notice.

Operator Electronic Signature: AMITHY CRAWFORD	Signed on: JUL 08, 2021 09:42 AM
Name: CIMAREX ENERGY COMPANY	
Title: Regulatory Analyst	
Street Address: 600 N MARIENFELD STE 600	
City: MIDLAND	State: TX
Phone: (432) 620-1909	
Email address: acrawford@cimarex.com	

Field Representative

Representative Name:		
Street Address:		
City:	State:	Zip:
Phone:		
Email address:		

BLM Point of Contact

BLM POC Name: ZOTA M STEVENS	BLM POC Title: Petroleum Engineer
BLM POC Phone: 5752345998	BLM POC Email Address: ZSTEVENS@BLM.GOV
Disposition: Approved	Disposition Date: 07/09/2021
Signature: Zota Stevens	

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

District II
811 S. First St., Artesia, NM 88210
Phone: (575) 748-1283 Fax: (575) 748-9720

District III
1000 Rio Brazos Road, Aztec, NM 87410
Phone: (505) 334-6178 Fax: (505) 334-6170

District IV
1220 S. St. Francis Dr., Santa Fe, NM 87505
Phone: (505) 476-3460 Fax: (505) 476-3462

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

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

☒ AMENDED REPORT

WELL LOCATION AND ACREAGE DEDICATION PLAT

¹ API Number 30-025-49124	² Pool Code 98158	³ Pool Name WC-025 G09 S253236A; UPR Wolfcamp
⁴ Property Code 326032	⁵ Property Name RED HILLS 32-5 FED COM	⁶ Well Number 170H
⁷ OGRID No. 162683	⁸ Operator Name CIMAREX ENERGY CO. of Colorado	⁹ Elevation 3409.8'

¹⁰Surface Location

UL or lot no. B	Section 32	Township 25S	Range 33E	Lot Idn	Feet from the 390	North/South line NORTH	Feet from the 2265	East/West line EAST	County LEA
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¹¹ Bottom Hole Location If Different From Surface

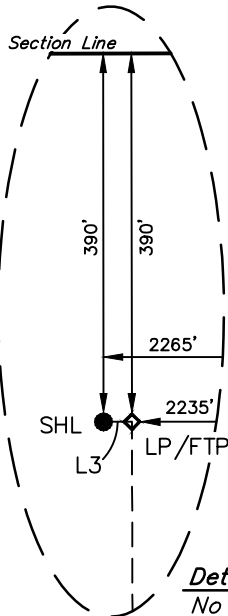
UL or lot no. O	Section 5	Township 26S	Range 33E	Lot Idn	Feet from the 100	North/South line SOUTH	Feet from the 2235	East/West line EAST	County LEA
¹² Dedicated Acres 640		¹³ Joint or Infill		¹⁴ Consolidation Code		¹⁵ Order No.			

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.

NAD 83 (SURFACE HOLE LOCATION)
LATITUDE = 32°05'35.67" (32.093243°)
LONGITUDE = 103°35'53.13" (103.592091°)
NAD 27 (SURFACE HOLE LOCATION)
LATITUDE = 32°05'35.23" (32.093118°)
LONGITUDE = 103°35'53.43" (103.592620°)
STATE PLANE NAD 83 (N.M. EAST)
N: 398445.36' E: 770574.10'
STATE PLANE NAD 27 (N.M. EAST)
N: 398387.73' E: 729387.64'

NAD 83 (LP/FTP)
LATITUDE = 32°05'35.67" (32.093243°)
LONGITUDE = 103°35'34.78" (103.592994°)
NAD 27 (LP/FTP)
LATITUDE = 32°05'35.22" (32.093118°)
LONGITUDE = 103°35'33.08" (103.592523°)
STATE PLANE NAD 83 (N.M. EAST)
N: 398445.53' E: 770604.09'
STATE PLANE NAD 27 (N.M. EAST)
N: 398387.90' E: 729417.64'

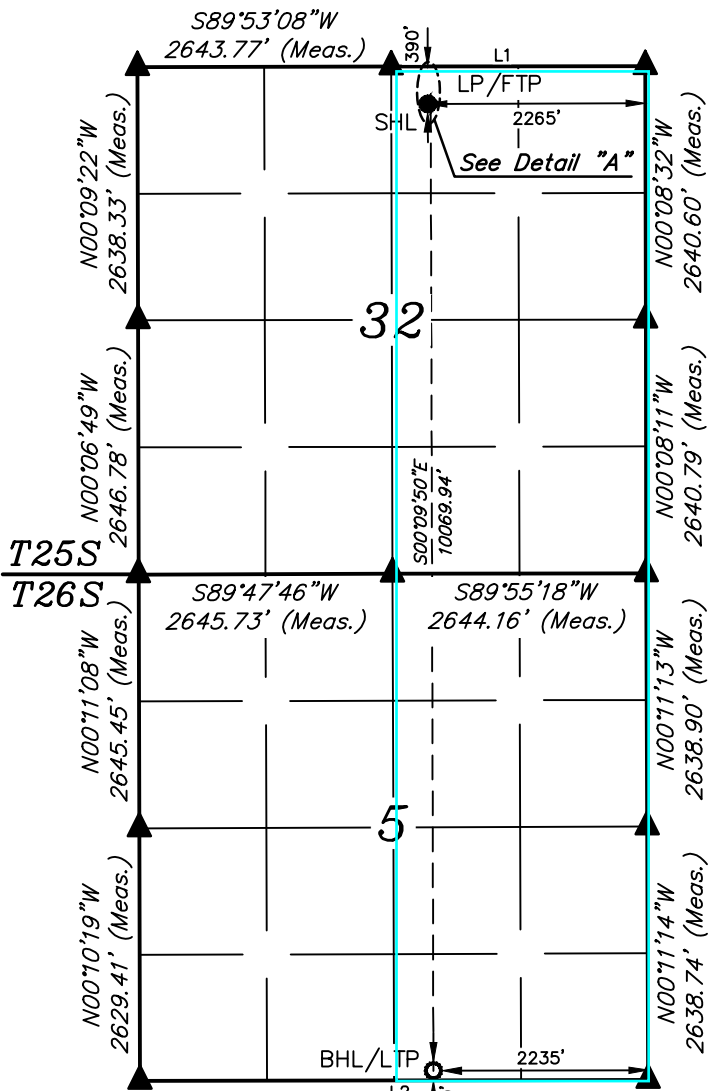
NAD 83 (BHL/LTP)
LATITUDE = 32°03'56.04" (32.065567°)
LONGITUDE = 103°35'34.76" (103.592989°)
NAD 27 (BHL/LTP)
LATITUDE = 32°03'55.59" (32.065442°)
LONGITUDE = 103°35'33.07" (103.592519°)
STATE PLANE NAD 83 (N.M. EAST)
N: 388377.57' E: 770674.88'
STATE PLANE NAD 27 (N.M. EAST)
N: 388320.20' E: 729487.95'



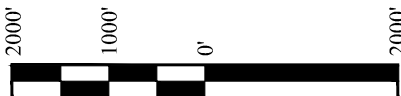
NOTE:

- Distances referenced on plat to section lines are perpendicular.
- Basis of Bearing is a Transverse Mercator Projection with a Central Meridian of $W103^{\circ}53'00''$

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



LINE TABLE		
LINE	DIRECTION	LENGTH
L1	S89°54'44"W	2645.70'
L2	S89°53'20"W	5290.67'
L3	N89°54'44"E	30.00'



SCALE
DRAWN BY: R.J. 05-03-18
REV: 2 R.J. 06-08-21
(WELL BORE CHANGES)

17 OPERATOR CERTIFICATION

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

Amithy Crawford 7/8/21
Signature Date

Amithy Crawford
Printed Name

acrawford@cimarex.com
E-mail Address

18 SURVEYOR CERTIFICATION

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

May 01, 2018

Date of Survey _____
Signature and Seal of Professional Surveyor: _____



Certificate Number:



Cimarex Red Hills 32-5 Fed Com #170H Rev1 RM 14June21 Proposal

Geodetic Report

(Def Plan)



Report Date: June 14, 2021 - 11:26 AM
Client: Cimarex Energy
Field: NM Lea County (NAD 83)
Structure / Slot: Cimarex Red Hills 32-5 Fed Com #170H / New Slot
Well: Red Hills 32-5 Fed Com #170H
Borehole: Red Hills 32-5 Fed Com #170H
UWI / API#: Unknown / Unknown
Survey Name: Cimarex Red Hills 32-5 Fed Com #170H Rev1 RM 14June21
Survey Date: September 04, 2019
Tort / AHD / DDI / ERD Ratio: 90.631 ° / 10070.426 ft / 6.216 / 0.820
Coordinate Reference System: NAD83 New Mexico State Plane, Eastern Zone, US Feet
Location Lat / Long: N 32° 5' 35.67443", W 103° 35' 35.12718"
Location Grid N/E Y/X: N 398445.360 ftUS, E 770574.100 ftUS
CRS Grid Convergence Angle: 0.3933 °
Grid Scale Factor: 0.99996928
Version / Patch: 2.10.825.0

Survey / DLS Computation: Minimum Curvature / Lubinski
Vertical Section Azimuth: 179.597 ° (Grid North)
Vertical Section Origin: 0.000 ft, 0.000 ft
TVD Reference Datum: RKB
TVD Reference Elevation: 3432.800 ft above MSL
Seabed / Ground Elevation: 3409.800 ft above MSL
Magnetic Declination: 6.407 °
Total Gravity Field Strength: 998.4291mgn (9.80665 Based)
Gravity Model: GARM
Total Magnetic Field Strength: 47554.344 nT
Magnetic Dip Angle: 59.691 °
Declination Date: June 14, 2021
Magnetic Declination Model: HDGM 2021
North Reference: Grid North
Grid Convergence Used: 0.3933 °
Total Corr Mag North->Grid North: 6.0136 °
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 [390' FNL, 2265' FEL	0.00	0.00	0.00	0.00	0.00	0.00	0.00	N/A	398445.36	770574.10	N 32 5 35.67	W 103 35 35.13
	100.00	0.00	170.40	100.00	0.00	0.00	0.00	0.00	398445.36	770574.10	N 32 5 35.67	W 103 35 35.13
	200.00	0.00	170.40	200.00	0.00	0.00	0.00	0.00	398445.36	770574.10	N 32 5 35.67	W 103 35 35.13
	300.00	0.00	170.40	300.00	0.00	0.00	0.00	0.00	398445.36	770574.10	N 32 5 35.67	W 103 35 35.13
	400.00	0.00	170.40	400.00	0.00	0.00	0.00	0.00	398445.36	770574.10	N 32 5 35.67	W 103 35 35.13
	500.00	0.00	170.40	500.00	0.00	0.00	0.00	0.00	398445.36	770574.10	N 32 5 35.67	W 103 35 35.13
	600.00	0.00	170.40	600.00	0.00	0.00	0.00	0.00	398445.36	770574.10	N 32 5 35.67	W 103 35 35.13
	700.00	0.00	170.40	700.00	0.00	0.00	0.00	0.00	398445.36	770574.10	N 32 5 35.67	W 103 35 35.13
	800.00	0.00	170.40	800.00	0.00	0.00	0.00	0.00	398445.36	770574.10	N 32 5 35.67	W 103 35 35.13
	900.00	0.00	170.40	900.00	0.00	0.00	0.00	0.00	398445.36	770574.10	N 32 5 35.67	W 103 35 35.13
Rustler	934.00	0.00	170.40	934.00	0.00	0.00	0.00	0.00	398445.36	770574.10	N 32 5 35.67	W 103 35 35.13
	1000.00	0.00	170.40	1000.00	0.00	0.00	0.00	0.00	398445.36	770574.10	N 32 5 35.67	W 103 35 35.13
	1100.00	0.00	170.40	1100.00	0.00	0.00	0.00	0.00	398445.36	770574.10	N 32 5 35.67	W 103 35 35.13
	1200.00	0.00	170.40	1200.00	0.00	0.00	0.00	0.00	398445.36	770574.10	N 32 5 35.67	W 103 35 35.13
	1300.00	0.00	170.40	1300.00	0.00	0.00	0.00	0.00	398445.36	770574.10	N 32 5 35.67	W 103 35 35.13
Top of Salt	1349.00	0.00	170.40	1349.00	0.00	0.00	0.00	0.00	398445.36	770574.10	N 32 5 35.67	W 103 35 35.13
	1400.00	0.00	170.40	1400.00	0.00	0.00	0.00	0.00	398445.36	770574.10	N 32 5 35.67	W 103 35 35.13
	1500.00	0.00	170.40	1500.00	0.00	0.00	0.00	0.00	398445.36	770574.10	N 32 5 35.67	W 103 35 35.13
	1600.00	0.00	170.40	1600.00	0.00	0.00	0.00	0.00	398445.36	770574.10	N 32 5 35.67	W 103 35 35.13
	1700.00	0.00	170.40	1700.00	0.00	0.00	0.00	0.00	398445.36	770574.10	N 32 5 35.67	W 103 35 35.13
	1800.00	0.00	170.40	1800.00	0.00	0.00	0.00	0.00	398445.36	770574.10	N 32 5 35.67	W 103 35 35.13
	1900.00	0.00	170.40	1900.00	0.00	0.00	0.00	0.00	398445.36	770574.10	N 32 5 35.67	W 103 35 35.13
	2000.00	0.00	170.40	2000.00	0.00	0.00	0.00	0.00	398445.36	770574.10	N 32 5 35.67	W 103 35 35.13
	2100.00	0.00	170.40	2100.00	0.00	0.00	0.00	0.00	398445.36	770574.10	N 32 5 35.67	W 103 35 35.13
	2200.00	0.00	170.40	2200.00	0.00	0.00	0.00	0.00	398445.36	770574.10	N 32 5 35.67	W 103 35 35.13
	2300.00	0.00	170.40	2300.00	0.00	0.00	0.00	0.00	398445.36	770574.10	N 32 5 35.67	W 103 35 35.13
	2400.00	0.00	170.40	2400.00	0.00	0.00	0.00	0.00	398445.36	770574.10	N 32 5 35.67	W 103 35 35.13
	2500.00	0.00	170.40	2500.00	0.00	0.00	0.00	0.00	398445.36	770574.10	N 32 5 35.67	W 103 35 35.13
	2600.00	0.00	170.40	2600.00	0.00	0.00	0.00	0.00	398445.36	770574.10	N 32 5 35.67	W 103 35 35.13
	2700.00	0.00	170.40	2700.00	0.00	0.00	0.00	0.00	398445.36	770574.10	N 32 5 35.67	W 103 35 35.13
	2800.00	0.00	170.40	2800.00	0.00	0.00	0.00	0.00	398445.36	770574.10	N 32 5 35.67	W 103 35 35.13
	2900.00	0.00	170.40	2900.00	0.00	0.00	0.00	0.00	398445.36	770574.10	N 32 5 35.67	W 103 35 35.13
	3000.00	0.00	170.40	3000.00	0.00	0.00	0.00	0.00	398445.36	770574.10	N 32 5 35.67	W 103 35 35.13
	3100.00	0.00	170.40	3100.00	0.00	0.00	0.00	0.00	398445.36	770574.10	N 32 5 35.67	W 103 35 35.13
	3200.00	0.00	170.40	3200.00	0.00	0.00	0.00	0.00	398445.36	770574.10	N 32 5 35.67	W 103 35 35.13
	3300.00	0.00	170.40	3300.00	0.00	0.00	0.00	0.00	398445.36	770574.10	N 32 5 35.67	W 103 35 35.13
	3400.00	0.00	170.40	3400.00	0.00	0.00	0.00	0.00	398445.36	770574.10	N 32 5 35.67	W 103 35 35.13
	3500.00	0.00	170.40	3500.00	0.00	0.00	0.00	0.00	398445.36	770574.10	N 32 5 35.67	W 103 35 35.13
	3600.00	0.00	170.40	3600.00	0.00	0.00	0.00	0.00	398445.36	770574.10	N 32 5 35.67	W 103 35 35.13
	3700.00	0.00	170.40	3700.00	0.00	0.00	0.00	0.00	398445.36	770574.10	N 32 5 35.67	W 103 35 35.13
	3800.00	0.00	170.40	3800.00	0.00	0.00	0.00	0.00	398445.36	770574.10	N 32 5 35.67	W 103 35 35.13
	3900.00	0.00	170.40	3900.00	0.00	0.00	0.00	0.00	398445.36	770574.10	N 32 5 35.67	W 103 35 35.13
	4000.00	0.00	170.40	4000.00	0.00	0.00	0.00	0.00	398445.36	770574.10	N 32 5 35.67	W 103 35 35.13
	4100.00	0.00	170.40	4100.00	0.00	0.00	0.00	0.00	398445.36	770574.10	N 32 5 35.67	W 103 35 35.13
	4200.00	0.00	170.40	4200.00	0.00	0.00	0.00	0.00	398445.36	770574.10	N 32 5 35.67	W 103 35 35.13
	4300.00	0.00	170.40	4300.00	0.00	0.00	0.00	0.00	398445.36	770574.10	N 32 5 35.67	W 103 35 35.13
	4400.00	0.00	170.40	4400.00	0.00	0.00	0.00	0.00	398445.36	770574.10	N 32 5 35.67	W 103 35 35.13
	4500.00	0.00	170.40	4500.00	0.00	0.00	0.00	0.00	398445.36	770574.10	N 32 5 35.67	W 103 35 35.13
	4600.00	0.00	170.40	4600.00	0.00	0.00	0.00	0.00	398445.36	770574.10	N 32 5 35.67	W 103 35 35.13
Base of Salt	4651.00	0.00	170.40	4651.00	0.00	0.00	0.00	0.00	398445.36	770574.10	N 32 5 35.67	W 103 35 35.13
	4700.00	0.00	170.40	4700.00	0.00	0.00	0.00	0.00	398445.36	770574.10	N 32 5 35.67	W 103 35 35.13
Lamar	4800.00	0.00	170.40	4800.00	0.00	0.00	0.00	0.00	398445.36	770574.10	N 32 5 35.67	W 103 35 35.13
	4892.00	0.00	170.40	4892.00	0.00	0.00	0.00	0.00	398445.36	770574.10	N 32 5 35.67	W 103 35 35.13
	4900.00	0.00	170.40	4900.00	0.00	0.00	0.00	0.00	398445.36	770574.10	N 32 5 35.67	W 103 35 35.13
Bell Canyon	4929.00	0.00	170.40	4929.00	0.00	0.00	0.00	0.00	398445.36	770574.10	N 32 5 35.67	W 103 35 35.13
	5000.00	0.00	170.40	5000.00	0.00	0.00	0.00	0.00	398445.36	770574.10	N 32 5 35.67	W 103 35 35.13
	5100.00	0.00	170.40	5100.00	0.00	0.00	0.00	0.00	398445.36	770574.10	N 32 5 35.67	W 103 35 35.13
	5200.00	0.00	170.40	5200.00	0.00	0.00	0.00	0.00	398445.36	770574.10	N 32 5 35.67	W 103 35 35.13
	5300.00	0.00	170.40	5300.00	0.00	0.00	0.00	0.00	398445.36	770574.10	N 32 5 35.67	W 103 35 35.13
	5400.00	0.00	170.40	5400.00	0.00	0.00	0.00	0.00	398445.36	770574.10	N 32 5 35.67	W 103 35 35.13
	5500.00	0.00	170.40	5500.00	0.00	0.00	0.00	0.00	398445.36	770574.10	N 32 5 35.67	W 103 35 35.13
	5600.00	0.00	170.40	5600.00	0.00	0.00	0.00	0.00	398445.36	770574.10	N 32 5 35.67	W 103 35 35.13
	5700.00	0.00	170.40	5700.00	0.00	0.00	0.00	0.00	398445.36	770574.10	N 32 5 35.67	W 103 35 35.13
	5800.00	0.00	170.40	5800.00	0.00	0.00	0.00	0.00	398445.36	770574.10	N 32 5 35.67	W 103 35 35.13
	5900.00	0.00	170.40	5900.00	0.00	0.00	0.00	0.00	398445.36	770574.10	N 32 5 35.67	W 103 35 35.13
	6000.00	0.00	170.40	6000.00	0.00	0.00	0.00	0.00	398445.36	770574.10	N 32 5 35.67	W 103 35 35.13
Cherry Canyon	6001.00	0.00	170.40	6001.00	0.00	0.00	0.00	0.00	398445.36	770574.10	N 32 5 35.67	W 103 35 35.13
	6100.00	0.00	170.40	6100.00	0.00	0.00	0.00	0.00	398445.36	770574.10	N 32 5 35.67	W 103 35 35.13
	6200.00	0.00	170.40	6200.00	0.00	0.00	0.00	0.00	398445.36	770574.10	N 32 5 35.67	W 103 35 35.13
	6300.00	0.00	170.40	6300.00	0.00	0.00	0.00	0.00	398445.36	770574.10	N 32 5 35.67	W 103 35 35.13
	6400.00	0.00	170.40	6400.00	0.00	0.00	0.00	0.00	398445.36	770574.10	N 32 5 35.67	W 103 35 35.13
	6500.00	0.00	170.40	6500.00	0.00	0.00	0.00	0.00	398445.36	770574.10	N 32 5 35.67	W 103 35 35.13
	6600.00	0.00	170.40	6600.00	0.00	0.00	0.00	0.00	398445.36	770574.10	N 32 5 35.67	W 103 35 35.13
	6700.00	0.00	170.40	6700.00	0.00	0.00	0.00	0.00	398445.36	770574.10	N 32 5 35.67	W 103 35 35.13
	6800.00	0.00	170.40	6800.00	0.00	0.00	0.00	0.00	398445.36	770574.10	N 32 5 35.67	W

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 ° ' ")
Brusy Canyon	7100.00	0.00	170.40	7100.00	0.00	0.00	0.00	0.00	398445.36	770574.10	N 32 5 35.67	W 103 35 35.13
	7200.00	0.00	170.40	7200.00	0.00	0.00	0.00	0.00	398445.36	770574.10	N 32 5 35.67	W 103 35 35.13
	7300.00	0.00	170.40	7300.00	0.00	0.00	0.00	0.00	398445.36	770574.10	N 32 5 35.67	W 103 35 35.13
	7400.00	0.00	170.40	7400.00	0.00	0.00	0.00	0.00	398445.36	770574.10	N 32 5 35.67	W 103 35 35.13
	7500.00	0.00	170.40	7500.00	0.00	0.00	0.00	0.00	398445.36	770574.10	N 32 5 35.67	W 103 35 35.13
	7537.00	0.00	170.40	7537.00	0.00	0.00	0.00	0.00	398445.36	770574.10	N 32 5 35.67	W 103 35 35.13
	7600.00	0.00	170.40	7600.00	0.00	0.00	0.00	0.00	398445.36	770574.10	N 32 5 35.67	W 103 35 35.13
	7700.00	0.00	170.40	7700.00	0.00	0.00	0.00	0.00	398445.36	770574.10	N 32 5 35.67	W 103 35 35.13
	7800.00	0.00	170.40	7800.00	0.00	0.00	0.00	0.00	398445.36	770574.10	N 32 5 35.67	W 103 35 35.13
	7900.00	0.00	170.40	7900.00	0.00	0.00	0.00	0.00	398445.36	770574.10	N 32 5 35.67	W 103 35 35.13
	8000.00	0.00	170.40	8000.00	0.00	0.00	0.00	0.00	398445.36	770574.10	N 32 5 35.67	W 103 35 35.13
	8100.00	0.00	170.40	8100.00	0.00	0.00	0.00	0.00	398445.36	770574.10	N 32 5 35.67	W 103 35 35.13
	8200.00	0.00	170.40	8200.00	0.00	0.00	0.00	0.00	398445.36	770574.10	N 32 5 35.67	W 103 35 35.13
	8300.00	0.00	170.40	8300.00	0.00	0.00	0.00	0.00	398445.36	770574.10	N 32 5 35.67	W 103 35 35.13
	8400.00	0.00	170.40	8400.00	0.00	0.00	0.00	0.00	398445.36	770574.10	N 32 5 35.67	W 103 35 35.13
	8500.00	0.00	170.40	8500.00	0.00	0.00	0.00	0.00	398445.36	770574.10	N 32 5 35.67	W 103 35 35.13
Bone Spring Leonard Shale	8600.00	0.00	170.40	8600.00	0.00	0.00	0.00	0.00	398445.36	770574.10	N 32 5 35.67	W 103 35 35.13
	8700.00	0.00	170.40	8700.00	0.00	0.00	0.00	0.00	398445.36	770574.10	N 32 5 35.67	W 103 35 35.13
	8800.00	0.00	170.40	8800.00	0.00	0.00	0.00	0.00	398445.36	770574.10	N 32 5 35.67	W 103 35 35.13
	8900.00	0.00	170.40	8900.00	0.00	0.00	0.00	0.00	398445.36	770574.10	N 32 5 35.67	W 103 35 35.13
	9000.00	0.00	170.40	9000.00	0.00	0.00	0.00	0.00	398445.36	770574.10	N 32 5 35.67	W 103 35 35.13
	9039.00	0.00	170.40	9039.00	0.00	0.00	0.00	0.00	398445.36	770574.10	N 32 5 35.67	W 103 35 35.13
	9094.00	0.00	170.40	9094.00	0.00	0.00	0.00	0.00	398445.36	770574.10	N 32 5 35.67	W 103 35 35.13
	9100.00	0.00	170.40	9100.00	0.00	0.00	0.00	0.00	398445.36	770574.10	N 32 5 35.67	W 103 35 35.13
	9200.00	0.00	170.40	9200.00	0.00	0.00	0.00	0.00	398445.36	770574.10	N 32 5 35.67	W 103 35 35.13
	9300.00	0.00	170.40	9300.00	0.00	0.00	0.00	0.00	398445.36	770574.10	N 32 5 35.67	W 103 35 35.13
	9356.00	0.00	170.40	9356.00	0.00	0.00	0.00	0.00	398445.36	770574.10	N 32 5 35.67	W 103 35 35.13
	9400.00	0.00	170.40	9400.00	0.00	0.00	0.00	0.00	398445.36	770574.10	N 32 5 35.67	W 103 35 35.13
	9500.00	0.00	170.40	9500.00	0.00	0.00	0.00	0.00	398445.36	770574.10	N 32 5 35.67	W 103 35 35.13
	9600.00	0.00	170.40	9600.00	0.00	0.00	0.00	0.00	398445.36	770574.10	N 32 5 35.67	W 103 35 35.13
	9700.00	0.00	170.40	9700.00	0.00	0.00	0.00	0.00	398445.36	770574.10	N 32 5 35.67	W 103 35 35.13
	9731.00	0.00	170.40	9731.00	0.00	0.00	0.00	0.00	398445.36	770574.10	N 32 5 35.67	W 103 35 35.13
Lower Avalon Shale	9800.00	0.00	170.40	9800.00	0.00	0.00	0.00	0.00	398445.36	770574.10	N 32 5 35.67	W 103 35 35.13
	9900.00	0.00	170.40	9900.00	0.00	0.00	0.00	0.00	398445.36	770574.10	N 32 5 35.67	W 103 35 35.13
	10000.00	0.00	170.40	10000.00	0.00	0.00	0.00	0.00	398445.36	770574.10	N 32 5 35.67	W 103 35 35.13
	10036.00	0.00	170.40	10036.00	0.00	0.00	0.00	0.00	398445.36	770574.10	N 32 5 35.67	W 103 35 35.13
1st Bone Spring Sand	10100.00	0.00	170.40	10100.00	0.00	0.00	0.00	0.00	398445.36	770574.10	N 32 5 35.67	W 103 35 35.13
	10200.00	0.00	170.40	10200.00	0.00	0.00	0.00	0.00	398445.36	770574.10	N 32 5 35.67	W 103 35 35.13
	10223.00	0.00	170.40	10223.00	0.00	0.00	0.00	0.00	398445.36	770574.10	N 32 5 35.67	W 103 35 35.13
	10300.00	0.00	170.40	10300.00	0.00	0.00	0.00	0.00	398445.36	770574.10	N 32 5 35.67	W 103 35 35.13
2nd Bone Spring Carb	10400.00	0.00	170.40	10400.00	0.00	0.00	0.00	0.00	398445.36	770574.10	N 32 5 35.67	W 103 35 35.13
	10500.00	0.00	170.40	10500.00	0.00	0.00	0.00	0.00	398445.36	770574.10	N 32 5 35.67	W 103 35 35.13
	10564.00	0.00	170.40	10564.00	0.00	0.00	0.00	0.00	398445.36	770574.10	N 32 5 35.67	W 103 35 35.13
	10600.00	0.00	170.40	10600.00	0.00	0.00	0.00	0.00	398445.36	770574.10	N 32 5 35.67	W 103 35 35.13
2nd Bone Spring Sand	10700.00	0.00	170.40	10700.00	0.00	0.00	0.00	0.00	398445.36	770574.10	N 32 5 35.67	W 103 35 35.13
	10800.00	0.00	170.40	10800.00	0.00	0.00	0.00	0.00	398445.36	770574.10	N 32 5 35.67	W 103 35 35.13
	10900.00	0.00	170.40	10900.00	0.00	0.00	0.00	0.00	398445.36	770574.10	N 32 5 35.67	W 103 35 35.13
	11000.00	0.00	170.40	11000.00	0.00	0.00	0.00	0.00	398445.36	770574.10	N 32 5 35.67	W 103 35 35.13
3rd Bone Spring Carb	11017.00	0.00	170.40	11017.00	0.00	0.00	0.00	0.00	398445.36	770574.10	N 32 5 35.67	W 103 35 35.13
	11100.00	0.00	170.40	11100.00	0.00	0.00	0.00	0.00	398445.36	770574.10	N 32 5 35.67	W 103 35 35.13
	11200.00	0.00	170.40	11200.00	0.00	0.00	0.00	0.00	398445.36	770574.10	N 32 5 35.67	W 103 35 35.13
	11300.00	0.00	170.40	11300.00	0.00	0.00	0.00	0.00	398445.36	770574.10	N 32 5 35.67	W 103 35 35.13
3rd Bone Spring Sand	11400.00	0.00	170.40	11400.00	0.00	0.00	0.00	0.00	398445.36	770574.10	N 32 5 35.67	W 103 35 35.13
	11500.00	0.00	170.40	11500.00	0.00	0.00	0.00	0.00	398445.36	770574.10	N 32 5 35.67	W 103 35 35.13
	11600.00	0.00	170.40	11600.00	0.00	0.00	0.00	0.00	398445.36	770574.10	N 32 5 35.67	W 103 35 35.13
	11682.00	0.00	170.40	11682.00	0.00	0.00	0.00	0.00	398445.36	770574.10	N 32 5 35.67	W 103 35 35.13
KOP - Build 12"/100' DLS	11700.00	0.00	170.40	11700.00	0.00	0.00	0.00	0.00	398445.36	770574.10	N 32 5 35.67	W 103 35 35.13
	11761.78	0.00	170.40	11761.78	0.00	0.00	0.00	0.00	398445.36	770574.10	N 32 5 35.67	W 103 35 35.13
	11800.00	4.59	170.40	11799.96	1.51	-1.51	0.25	12.00	398443.85	770574.35	N 32 5 35.66	W 103 35 35.12
	11900.00	16.59	170.40	11898.08	19.61	-19.59	3.31	12.00	398425.77	770577.41	N 32 5 35.48	W 103 35 35.09
Build & Turn 12"/100' DLS	12000.00	28.59	170.40	11990.24	57.46	-57.39	9.71	12.00	398387.97	770583.81	N 32 5 35.11	W 103 35 35.02
	12053.45	35.00	170.40	12035.64	85.24	-85.14	14.40	12.00	398360.22	770588.50	N 32 5 34.83	W 103 35 34.97
	12100.00	40.45	172.44	12072.45	113.42	-113.29	18.62	12.00	398332.07	770592.72	N 32 5 34.55	W 103 35 34.92
	12174.13	49.17	174.89	12125.00	165.34	-165.17	24.29	12.00	398280.19	770598.39	N 32 5 34.04	W 103 35 34.86
Wolfcamp	12200.00	52.23	175.60	12141.38	185.30	-185.12	25.94	12.00	398260.25	770600.04	N 32 5 33.84	W 103 35 34.84
	12300.00	64.07	177.88	12194.06	269.98	-269.77	30.66	12.00	398175.60	770604.76	N 32 5 33.00	W 103 35 34.79
	12392.04	75.00	179.60	12226.19	356.07	-355.85	32.51	12.00	398089			

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 ° ' ")
	15400.00	90.00	179.60	12275.00	3359.76	-3359.46	53.62	0.00	395086.01	770627.72	N 32 5 2.43	W 103 35 34.77
	15500.00	90.00	179.60	12275.00	3459.76	-3459.46	54.33	0.00	394986.01	770628.42	N 32 5 1.44	W 103 35 34.77
	15600.00	90.00	179.60	12275.00	3559.76	-3559.46	55.03	0.00	394886.02	770629.13	N 32 5 0.45	W 103 35 34.77
	15700.00	90.00	179.60	12275.00	3659.76	-3659.46	55.73	0.00	394786.02	770629.83	N 32 4 59.46	W 103 35 34.77
	15800.00	90.00	179.60	12275.00	3759.76	-3759.45	56.44	0.00	394686.03	770630.53	N 32 4 58.47	W 103 35 34.77
	15900.00	90.00	179.60	12275.00	3859.76	-3859.45	57.14	0.00	394586.03	770631.24	N 32 4 57.48	W 103 35 34.77
	16000.00	90.00	179.60	12275.00	3959.76	-3959.45	57.84	0.00	394486.04	770631.94	N 32 4 56.49	W 103 35 34.77
	16100.00	90.00	179.60	12275.00	4059.76	-4059.45	58.54	0.00	394386.05	770632.64	N 32 4 55.50	W 103 35 34.77
	16200.00	90.00	179.60	12275.00	4159.76	-4159.44	59.25	0.00	394286.05	770633.35	N 32 4 54.51	W 103 35 34.77
	16300.00	90.00	179.60	12275.00	4259.76	-4259.44	59.95	0.00	394186.06	770634.05	N 32 4 53.52	W 103 35 34.77
	16400.00	90.00	179.60	12275.00	4359.76	-4359.44	60.65	0.00	394086.06	770634.75	N 32 4 52.53	W 103 35 34.77
	16500.00	90.00	179.60	12275.00	4459.76	-4459.44	61.36	0.00	393986.07	770635.45	N 32 4 51.54	W 103 35 34.77
	16600.00	90.00	179.60	12275.00	4559.76	-4559.43	62.06	0.00	393886.07	770636.16	N 32 4 50.55	W 103 35 34.77
	16700.00	90.00	179.60	12275.00	4659.76	-4659.43	62.76	0.00	393786.08	770636.86	N 32 4 49.56	W 103 35 34.77
	16800.00	90.00	179.60	12275.00	4759.76	-4759.43	63.46	0.00	393686.09	770637.56	N 32 4 48.57	W 103 35 34.77
	16900.00	90.00	179.60	12275.00	4859.76	-4859.43	64.17	0.00	393586.09	770638.27	N 32 4 47.59	W 103 35 34.77
Private Leaseline Crossing	16930.63	90.00	179.60	12275.00	4890.39	-4890.06	64.38	0.00	393555.46	770638.48	N 32 4 47.28	W 103 35 34.77
	17000.00	90.00	179.60	12275.00	4959.76	-4959.42	64.87	0.00	393486.10	770638.97	N 32 4 46.60	W 103 35 34.77
	17100.00	90.00	179.60	12275.00	5059.76	-5059.42	65.57	0.00	393386.10	770639.67	N 32 4 45.61	W 103 35 34.77
	17200.00	90.00	179.60	12275.00	5159.76	-5159.42	66.28	0.00	393286.11	770640.37	N 32 4 44.62	W 103 35 34.77
	17300.00	90.00	179.60	12275.00	5259.76	-5259.42	66.98	0.00	393186.11	770641.08	N 32 4 43.63	W 103 35 34.77
	17400.00	90.00	179.60	12275.00	5359.76	-5359.41	67.68	0.00	393086.12	770641.78	N 32 4 42.64	W 103 35 34.77
	17500.00	90.00	179.60	12275.00	5459.76	-5459.41	68.39	0.00	392986.13	770642.48	N 32 4 41.65	W 103 35 34.77
	17600.00	90.00	179.60	12275.00	5559.76	-5559.41	69.09	0.00	392886.13	770643.19	N 32 4 40.66	W 103 35 34.77
	17700.00	90.00	179.60	12275.00	5659.76	-5659.41	69.79	0.00	392786.14	770643.89	N 32 4 39.67	W 103 35 34.77
	17800.00	90.00	179.60	12275.00	5759.76	-5759.41	70.49	0.00	392686.14	770644.59	N 32 4 38.68	W 103 35 34.77
	17900.00	90.00	179.60	12275.00	5859.76	-5859.40	71.20	0.00	392586.15	770645.30	N 32 4 37.69	W 103 35 34.77
	18000.00	90.00	179.60	12275.00	5959.76	-5959.40	71.90	0.00	392486.15	770646.00	N 32 4 36.70	W 103 35 34.77
	18100.00	90.00	179.60	12275.00	6059.76	-6059.40	72.60	0.00	392386.16	770646.70	N 32 4 35.71	W 103 35 34.77
	18200.00	90.00	179.60	12275.00	6159.76	-6159.40	73.31	0.00	392286.17	770647.40	N 32 4 34.72	W 103 35 34.77
Private - NMNM0106040 4 Crossing	18252.50	90.00	179.60	12275.00	6212.26	-6211.89	73.68	0.00	392233.67	770647.77	N 32 4 34.20	W 103 35 34.77
	18300.00	90.00	179.60	12275.00	6259.76	-6259.39	74.01	0.00	392186.17	770648.11	N 32 4 33.73	W 103 35 34.77
	18400.00	90.00	179.60	12275.00	6359.76	-6359.39	74.71	0.00	392086.18	770648.81	N 32 4 32.74	W 103 35 34.77
	18500.00	90.00	179.60	12275.00	6459.76	-6459.39	75.42	0.00	391986.18	770649.51	N 32 4 31.75	W 103 35 34.77
	18600.00	90.00	179.60	12275.00	6559.76	-6559.39	76.12	0.00	391886.19	770650.22	N 32 4 30.76	W 103 35 34.77
	18700.00	90.00	179.60	12275.00	6659.76	-6659.38	76.82	0.00	391786.20	770650.92	N 32 4 29.77	W 103 35 34.77
	18800.00	90.00	179.60	12275.00	6759.76	-6759.38	77.52	0.00	391686.20	770651.62	N 32 4 28.78	W 103 35 34.77
	18900.00	90.00	179.60	12275.00	6859.76	-6859.38	78.23	0.00	391586.21	770652.32	N 32 4 27.79	W 103 35 34.77
	19000.00	90.00	179.60	12275.00	6959.76	-6959.38	78.93	0.00	391486.21	770653.03	N 32 4 26.81	W 103 35 34.76
	19100.00	90.00	179.60	12275.00	7059.76	-7059.37	79.63	0.00	391386.22	770653.73	N 32 4 25.82	W 103 35 34.76
	19200.00	90.00	179.60	12275.00	7159.76	-7159.37	80.34	0.00	391286.22	770654.43	N 32 4 24.83	W 103 35 34.76
	19300.00	90.00	179.60	12275.00	7259.76	-7259.37	81.04	0.00	391186.23	770655.14	N 32 4 23.84	W 103 35 34.76
	19400.00	90.00	179.60	12275.00	7359.76	-7359.37	81.74	0.00	391086.24	770655.84	N 32 4 22.85	W 103 35 34.76
	19500.00	90.00	179.60	12275.00	7459.76	-7459.36	82.44	0.00	390986.24	770656.54	N 32 4 21.86	W 103 35 34.76
NMNM0106040 4 - NMNM0160973 Crossing	19574.38	90.00	179.60	12275.00	7534.14	-7533.74	82.97	0.00	390911.87	770657.06	N 32 4 21.12	W 103 35 34.76
	19600.00	90.00	179.60	12275.00	7559.76	-7559.36	83.15	0.00	390886.25	770657.24	N 32 4 20.87	W 103 35 34.76
	19700.00	90.00	179.60	12275.00	7659.76	-7659.36	83.85	0.00	390786.25	770657.95	N 32 4 19.88	W 103 35 34.76
	19800.00	90.00	179.60	12275.00	7759.76	-7759.36	84.55	0.00	390686.26	770658.65	N 32 4 18.89	W 103 35 34.76
	19900.00	90.00	179.60	12275.00	7859.76	-7859.35	85.26	0.00	390586.26	770659.35	N 32 4 17.90	W 103 35 34.76
	20000.00	90.00	179.60	12275.00	7959.76	-7959.35	85.96	0.00	390486.27	770660.06	N 32 4 16.91	W 103 35 34.76
	20100.00	90.00	179.60	12275.00	8059.76	-8059.35	86.66	0.00	390386.28	770660.76	N 32 4 15.92	W 103 35 34.76
	20200.00	90.00	179.60	12275.00	8159.76	-8159.35	87.37	0.00	390286.28	770661.46	N 32 4 14.93	W 103 35 34.76
	20300.00	90.00	179.60	12275.00	8259.76	-8259.34	88.07	0.00	390186.29	770662.17	N 32 4 13.94	W 103 35 34.76
	20400.00	90.00	179.60	12275.00	8359.76	-8359.34	88.77	0.00	390086.29	770662.87	N 32 4 12.95	W 103 35 34.76
	20500.00	90.00	179.60	12275.00	8459.76	-8459.34	89.47	0.00	389986.30	770663.57	N 32 4 11.96	W 103 35 34.76
	20600.00	90.00	179.60	12275.00	8559.76	-8559.34	90.18	0.00	389886.30	770664.27	N 32 4 10.97	W 103 35 34.76
	20700.00	90.00	179.60	12275.00	8659.76	-8659.33	90.88	0.00	389786.31	770664.98	N 32 4 9.98	W 103 35 34.76
	20800.00	90.00	179.60	12275.00	8759.76	-8759.33	91.58	0.00	389686.32	770665.68	N 32 4 8.99	W 103 35 34.76
	20900.00	90.00	179.60	12275.00	8859.76	-8859.33	92.29	0.00	389586.32	770666.38	N 32 4 8.00	W 103 35 34.76
	21000.00	90.00	179.60	12275.00	8959.76	-8959.33	92.99	0.00	389486.33	770667.09	N 32 4 7.01	W 103 35 34.76
	21100.00	90.00	179.60	12275.00	9059.76	-9059.32	93.69	0.00	389386.33	770667.79	N 32 4 6.02	W 103 35 34.76
	21200.00	90.00	179.60	12275.00	9159.76	-9159.32	94.39	0.00	389286.34	770668.49	N 32 4 5.04	W 103 35 34.76
	21300.00	90.00	179.60	12275.00	9259.76	-9259.32	95.10	0.00	389186.34	770669.19	N 32 4 4.05	W 103 35 34.76
	21400.00	90.00	179.60	12275.00	9359.76	-9359.32	95.80	0.00	389086.35	770669.90	N 32 4 3.06	W 103 35 34.76
	21500.00	90.00	179.60	12275.00	9459.76	-9459.31	96.50	0.00	388986.36	770670.60	N 32 4 2.07	W 103 35 34.76
	21600.00	90.00	179.60	12275.00	9559.76	-9559.31	97.21	0.00	388886.36	770671.30	N 32 4 1.08	W 103 35 34.76
	21700.00	90.00	179.60	12275.00	9659.76	-9659.31	97.91	0.00	388786.37	770672.01	N 32 4 0.09	W 103 35 34.76
	21800.00	90.00	179.60	12275.00	9759.76	-9759.31	98.61	0.00	388686.37	770672.71	N 32 3 59.10	W 103 35 34.76
	21900.00	90.00	179.60	12275.00	9859.76	-9859.30	99.32	0.00	388586.38	770673.41	N 32 3 58.11	W 103 35 34.76
	22000.00	90.00	179.60	12275.00	9959.76	-9959.30	100.02	0.00	388486.38	770674.12	N 32 3 57.12	W 103 35 34.76
	22100.00	90.00	179.60	12275.00	10059.76	-10059.30	100.72	0.00	388386.39	770674.82	N 32 3 56.13	W 103 35 34.76
Cimarex Red Hills 32-5 Fed Com #170H - PBHL [100° FSL, 2235° FEL]	22108.82	90.00	179.60	12275.00	10068.58	-10068.12	100.78	0.00	388377.57	770674.88	N 32 3 56.04	W 103 35 34.76

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	23.000	1/100.000	17.500	13.375		NAL_MWD_IFR1+MS-Depth Only	Red Hills 32-5 Fed Com #170H / Cimarex Red



Cimarex Red Hills 32-5 Fed Com #170H Rev1 RM 14June21 Anti-Collision Summary Report

Analysis Date-24hr Time: June 14, 2021 - 11:27

Client: Cimarex Energy

Field: NM Lea County (NAD 83)

Structure: Cimarex Red Hills 32-5 Fed Com #170H

Slot: New Slot

Well: Red Hills 32-5 Fed Com #170H

Borehole: Red Hills 32-5 Fed Com #170H

Scan MD Range: 0.00ft ~ 22108.82ft

Analysis Method: 3D Least Distance

Reference Trajectory: Cimarex Red Hills 32-5 Fed Com #170H Rev1 RM 14June21 (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: 2.10.825.0

Database \ Project: us1455vsm3172\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 Red Hills Unit #1
(Offset) Gas Inc Only Off-
21321ft API 30-025-21036 (Def
Survey)

Fail Major

4546.63	32.81	4544.66	4513.83	N/A	MAS = 10.00 (m)	0.00	0.00					Surface
4546.61	32.81	4544.62	4513.80	N/A	MAS = 10.00 (m)	10.00	10.00					MinPt-O-SF
4546.60	32.81	4544.62	4513.79	N/A	MAS = 10.00 (m)	20.00	20.00					MinPts
4546.60	32.81	4544.62	4513.79	N/A	MAS = 10.00 (m)	23.00	23.00					WRP
4546.39	32.81	4530.79	4513.58	333.64	MAS = 10.00 (m)	460.00	460.00					MinPts
4546.57	32.81	4530.50	4513.77	322.53	MAS = 10.00 (m)	510.00	510.00					MINPT-O-EQU
4545.53	34.47	4521.91	4511.08	209.75	OSF1.50	690.00	690.00					MinPt-CtCt
4545.53	41.29	4517.38	4504.28	173.37	OSF1.50	820.00	820.00					MinPt-CtCt
4546.58	44.25	4516.42	4502.33	161.26	OSF1.50	950.00	950.00					MINPT-O-EQU
4546.31	56.39	4508.06	4489.92	125.29	OSF1.50	1110.00	1110.00					MinPt-CtCt
4547.07	58.77	4507.26	4488.35	120.15	OSF1.50	1220.00	1220.00					MINPT-O-EQU
4546.53	70.90	4498.65	4475.68	98.91	OSF1.50	1390.00	1390.00					MinPt-CtCt
4546.38	92.27	4484.19	4454.09	75.49	OSF1.50	1800.00	1800.00					MinPt-CtCt
4545.98	120.02	4465.30	4425.95	57.74	OSF1.50	2330.00	2330.00					MinPt-CtCt
4544.84	146.62	4446.43	4398.22	47.11	OSF1.50	2840.00	2840.00					MinPt-CtCt
4545.20	167.02	4433.19	4378.18	41.29	OSF1.50	3230.00	3230.00					MinPt-CtCt
4545.56	168.15	4432.80	4377.41	41.02	OSF1.50	3300.00	3300.00					MINPT-O-EQU
4545.39	176.82	4426.85	4368.57	38.98	OSF1.50	3420.00	3420.00					MinPt-CtCt
4547.69	183.63	4424.61	4364.06	37.54	OSF1.50	3640.00	3640.00					MINPT-O-EQU
4546.68	196.68	4414.90	4350.00	35.01	OSF1.50	3800.00	3800.00					MinPt-CtCt
4546.77	196.97	4414.83	4349.84	34.97	OSF1.50	3830.00	3830.00					MINPT-O-EQU
4546.84	197.01	4414.84	4349.83	34.96	OSF1.50	3840.00	3840.00					MinPt-O-ADP
4545.84	209.25	4405.68	4336.59	32.88	OSF1.50	4040.00	4040.00					MinPt-CtCt
4546.39	210.99	4405.12	4335.48	32.63	OSF1.50	4130.00	4130.00					MINPT-O-EQU
4545.50	224.76	4394.99	4320.72	30.59	OSF1.50	4340.00	4340.00					MinPt-CtCt
4545.89	225.96	4394.53	4319.93	30.43	OSF1.50	4410.00	4410.00					MINPT-O-EQU
4546.45	226.62	4394.71	4319.83	30.34	OSF1.50	4450.00	4450.00					MinPt-O-ADP
4543.65	244.64	4379.90	4299.01	28.07	OSF1.50	4720.00	4720.00					MinPt-CtCt
4542.75	278.61	4356.35	4264.14	24.62	OSF1.50	5370.00	5370.00					MinPt-CtCt
4542.93	337.55	4317.23	4205.38	20.30	OSF1.50	6500.00	6500.00					MinPt-CtCt
4541.36	388.80	4281.49	4152.56	17.60	OSF1.50	7480.00	7480.00					MinPt-CtCt
4541.46	460.35	4233.90	4081.11	14.86	OSF1.50	8850.00	8850.00					MinPt-CtCt
4542.53	527.25	4190.37	4015.28	12.97	OSF1.50	10130.00	10130.00					MinPt-CtCt
4543.83	590.75	4149.34	3953.09	11.57	OSF1.50	11350.00	11350.00					MinPt-CtCt
2129.33	645.57	1696.83	1483.77	4.98	OSF1.50	14460.00	12275.00		OSF<5.00			Enter Alert
640.93	645.44	207.70	-4.51	1.49	OSF1.50	15950.00	12275.00			OSF<1.50		Enter Minor
431.79	645.59	-1.65	-213.81	1.00	OSF1.50	16160.00	12275.00				OSF<1.00	Enter Major
47.67	643.95	-382.77	-596.28	0.10	OSF1.50	16580.00	12275.00					MinPts
46.76	642.65	-382.33	-595.89	0.10	OSF1.50	16590.00	12275.00					MinPt-CtCt
423.25	637.84	-2.63	-214.58	0.99	OSF1.50	17010.00	12275.00				OSF>1.00	Exit Major
632.38	637.69	206.59	-5.32	1.49	OSF1.50	17220.00	12275.00					Exit Minor
2111.07	637.10	1685.68	1473.97	4.98	OSF1.50	18700.00	12275.00		OSF>5.00			Exit Alert
5519.48	636.51	5094.48	4882.97	13.04	OSF1.50	22108.82	12275.00					TD

Cimarex Red Hills 32-5 Fed
Com #169H Rev1 RM
14June21 (Def Plan)

Fail Minor

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	84185.29	MAS = 4.95 (m)	23.00	23.00					WRP
19.99	20.03	6.21	-0.04	1.50	OSF1.50	2050.00	2050.00		OSF<1.50			Enter Minor
19.99	24.18	3.44	-4.19	1.23	OSF1.50	2490.00	2490.00					MinPt-CtCt
20.01	24.34	3.35	-4.34	1.22	OSF1.50	2510.00	2510.00					MINPT-O-EQU
20.06	24.41	3.39	-4.35	1.22	OSF1.50	2520.00	2520.00					MinPts
25.00	25.30	7.71	-0.30	1.48	OSF1.50	2670.00	2670.00			OSF>1.50		Exit Minor
90.74	28.22	71.50	62.53	4.98	OSF1.50	3210.00	3210.00		OSF>5.00			Exit Alert
567.93	96.80	502.97	471.13	8.93	OSF1.50	12020.00	12007.60					MinPt-O-SF
567.07	96.50	502.31	470.57	8.91	OSF1.50	12070.00	12049.04					MinPts
567.04	96.40	502.35	470.64	8.92	OSF1.50	12080.00	12056.97					MinPt-CtCt
595.38	83.53	539.27	511.86	10.84	OSF1.50	12767.04	12275.00					MinPt-CtCt
595.39	179.65	475.19	415.73	5.00	OSF1.50	17850.00	12275.00		OSF<5.00			Enter Alert
595.39	307.77	389.78	287.61	2.91	OSF1.50	22108.82	12275.00					MinPts

Cimarex Red Hills 32-5 Fed
Com #171H Rev1 RM 14Jun21
(Def Plan)

Fail Minor

20.00	16.26	18.72	3.74	N/A	MAS = 4.96 (m)	0.00	0.00	CtCt<=15m<15.00				Enter Alert
20.00	16.26	18.71	3.74	N/A	MAS = 4.96 (m)	23.00	23.00					WRP
20.00	20.03	6.22	-0.03	1.50	OSF1.50	2050.00	2050.00		OSF<1.50			Enter Minor
20.00	24.27	3.39	-4.27	1.22	OSF1.50	2500.00	2500.00					MinPt-CtCt
20.02	24.34	3.38	-4.33	1.22	OSF1.50	2510.00	2510.00					MINPT-O-EQU
20.07	24.41	3.36	-4.34	1.22	OSF1.50	2520.00	2520.00					MinPts

Offset Trajectory	Separation			Allow Dev. (ft)	Sep. Fact.	Controlling Rule	Reference Trajectory		Risk Level			Alert	Status
	Ct-Ct (ft)	MAS (ft)	EOU (ft)				MD (ft)	TVD (ft)	Alert	Minor	Major		
24.99	25.29	7.70	-0.30	1.48		OSF1.50	2670.00	2670.00				Exit Minor	
90.08	28.12	70.91	61.96	4.96		OSF1.50	3200.00	3200.00	OSF>5.00			Exit Alert	
510.95	97.86	445.26	413.06	7.91		OSF1.50	11770.00	11770.00				MinPts	
511.18	97.99	445.43	413.19	7.91		OSF1.50	11800.00	11799.96				MinPt-O-SF	
590.66	84.21	534.09	506.45	10.66		OSF1.50	12767.04	12275.00	OSF<5.00			MinPt-CtCt	
591.30	178.46	471.90	412.84	5.00		OSF1.50	17780.00	12275.00				Enter Alert	
591.86	308.68	385.64	283.18	2.83		OSF1.50	22108.82	12275.00				MinPts	

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

												Fail Minor	
5904.40	32.81	5902.42	5871.59	N/A		MAS = 10.00 (m)	0.00	0.00				Surface	
5904.23	32.81	5902.23	5871.42	232896.86		MAS = 10.00 (m)	23.00	23.00				MinPt-O-SF	
5904.14	32.81	5902.05	5871.33	53283.61		MAS = 10.00 (m)	60.00	60.00				MinPts	
5904.14	32.81	5885.35	5871.34	351.00		MAS = 10.00 (m)	610.00	610.00				MinPts	
5903.63	36.97	5878.32	5866.65	252.96		OSF1.50	800.00	800.00				MinPt-CtCt	
5899.35	68.69	5852.90	5830.66	132.61		OSF1.50	1380.00	1380.00				MinPt-CtCt	
5897.15	111.61	5822.09	5785.55	80.66		OSF1.50	2200.00	2200.00				MinPt-CtCt	
5899.12	117.62	5820.04	5781.50	76.49		OSF1.50	2420.00	2420.00				MINPT-O-EOU	
5901.60	120.58	5820.55	5781.01	74.61		OSF1.50	2530.00	2530.00				MinPt-O-ADP	
5898.09	151.83	5796.21	5746.26	59.02		OSF1.50	2970.00	2970.00				MinPt-CtCt	
5898.67	154.87	5794.76	5743.79	57.85		OSF1.50	3090.00	3090.00				MINPT-O-EOU	
5899.36	155.73	5794.88	5743.63	57.53		OSF1.50	3140.00	3140.00				MinPt-O-ADP	
5899.64	170.29	5785.45	5729.35	52.56		OSF1.50	3330.00	3330.00				MinPt-CtCt	
5899.88	171.04	5785.10	5728.84	52.33		OSF1.50	3390.00	3390.00				MINPT-O-EOU	
5900.31	171.56	5785.28	5728.75	52.17		OSF1.50	3430.00	3430.00				MinPt-O-ADP	
5900.05	182.69	5777.60	5717.36	48.96		OSF1.50	3560.00	3560.00				MinPt-CtCt	
5902.52	189.48	5775.53	5713.03	47.20		OSF1.50	3800.00	3800.00				MINPT-O-EOU	
5901.99	207.55	5762.97	5694.44	43.05		OSF1.50	4040.00	4040.00				MinPt-CtCt	
5902.26	208.28	5762.74	5693.98	42.90		OSF1.50	4100.00	4100.00				MINPT-O-EOU	
5902.70	208.81	5762.83	5693.88	42.79		OSF1.50	4140.00	4140.00				MinPt-O-ADP	
5901.65	229.79	5747.84	5671.90	38.85		OSF1.50	4460.00	4460.00				MinPt-CtCt	
5902.19	232.48	5746.54	5669.71	38.40		OSF1.50	4570.00	4570.00				MINPT-O-EOU	
5902.70	233.10	5746.64	5669.60	38.30		OSF1.50	4610.00	4610.00				MinPt-O-ADP	
5903.12	247.43	5737.51	5655.69	36.06		OSF1.50	4800.00	4800.00				MinPt-CtCt	
5903.25	247.90	5737.33	5655.35	35.99		OSF1.50	4840.00	4840.00				MINPT-O-EOU	
5902.45	256.23	5730.96	5646.21	34.81		OSF1.50	4970.00	4970.00				MinPt-CtCt	
5900.28	267.69	5721.16	5632.60	33.30		OSF1.50	5190.00	5190.00				MinPt-CtCt	
5900.41	268.08	5721.03	5632.33	33.25		OSF1.50	5230.00	5230.00				MINPT-O-EOU	
5900.65	268.37	5721.08	5632.28	33.21		OSF1.50	5260.00	5260.00				MinPt-O-ADP	
5898.28	285.17	5707.51	5613.11	31.23		OSF1.50	5520.00	5520.00				MinPt-CtCt	
5898.79	362.99	5656.13	5535.80	24.50		OSF1.50	7020.00	7020.00				MinPt-CtCt	
5905.71	384.71	5648.58	5521.00	23.14		OSF1.50	7570.00	7570.00				MINPT-O-EOU	
5898.12	436.11	5606.72	5462.01	20.37		OSF1.50	8410.00	8410.00				MinPt-CtCt	
5900.57	444.76	5603.41	5455.81	19.98		OSF1.50	8680.00	8680.00				MINPT-O-EOU	
5903.74	448.58	5604.03	5455.18	19.82		OSF1.50	8810.00	8810.00				MinPt-O-ADP	
5902.10	474.67	5585.00	5427.43	18.72		OSF1.50	9150.00	9150.00				MinPt-CtCt	
5902.70	476.48	5584.41	5426.25	18.65		OSF1.50	9250.00	9250.00				MINPT-O-EOU	
5903.26	477.13	5584.52	5426.13	18.63		OSF1.50	9290.00	9290.00				MinPt-O-ADP	
5907.75	517.27	5562.24	5390.47	17.19		OSF1.50	9990.00	9990.00				MinPt-CtCt	
2108.16	640.25	1678.50	1467.91	4.99		OSF1.50	15900.00	12275.00	OSF<5.00			Enter Alert	
644.26	645.75	211.95	-1.49	1.50		OSF1.50	17700.00	12275.00		OSF<1.50		Enter Minor	
605.79	644.62	175.29	-38.83	1.41		OSF1.50	17910.00	12275.00				MinPts	
605.72	644.50	175.34	-38.79	1.41		OSF1.50	17920.00	12275.00				MinPt-CtCt	
641.23	644.38	210.99	-3.14	1.49		OSF1.50	18130.00	12275.00		OSF>1.50		Exit Minor	
2118.60	638.59	1692.22	1480.01	4.99		OSF1.50	19950.00	12275.00	OSF>5.00			Exit Alert	
4232.27	639.46	3805.30	3592.80	9.95		OSF1.50	22108.82	12275.00				TD	

Cimarex Red Hills Unit #3H
(Offset) Gas Gyro & Inc Off-
17597ft (Def Survey)

												Warning Alert	
8214.86	32.81	8213.57	8182.05	N/A		MAS = 10.00 (m)	0.00	0.00				Surface	
8214.75	32.81	8213.45	8181.94	554569.72		MAS = 10.00 (m)	23.00	23.00				WRP	
8118.45	47.41	8086.41	8071.04	264.06		OSF1.50	5990.00	5990.00				MinPt-CtCt	
8118.63	49.67	8085.09	8068.96	251.74		OSF1.50	6440.00	6440.00				MinPt-CtCt	
8120.06	54.08	8083.57	8065.97	230.63		OSF1.50	7150.00	7150.00				MINPT-O-EOU	
8121.92	56.29	8083.97	8065.63	221.44		OSF1.50	7490.00	7490.00				MinPt-O-ADP	
8214.19	80.64	8160.00	8133.54	155.24		OSF1.50	11761.78	11761.78				MinPt-O-SF	
8213.60	80.64	8159.41	8132.96	155.23		OSF1.50	11800.00	11799.96				MinPt-O-SF	
8129.87	79.21	8076.64	8050.66	156.48		OSF1.50	12070.00	12049.04				MinPt-O-SF	
613.30	186.07	488.52	427.24	4.99		OSF1.50	20200.00	12275.00	OSF<5.00			Enter Alert	
611.23	186.69	486.35	424.54	4.93		OSF1.50	20250.00	12275.00				MinPt-CtCt	
611.31	186.88	486.29	424.43	4.93		OSF1.50	20260.00	12275.00				MinPts	
611.55	187.03	486.43	424.52	4.93		OSF1.50	20270.00	12275.00				MinPt-O-SF	
619.30	186.76	494.36	432.54	5.00		OSF1.50	20350.00	12275.00	OSF>5.00			Exit Alert	
1956.19	103.14	1887.01	1853.06	28.79		OSF1.50	22108.82	12275.00				TD	

Cimarex Red Hills 32-5 Fed
Com #158H Rev2 RM 14Jan20
(Def Plan)

												Warning Alert	
721.79	32.81	720.50	688.98	N/A		MAS = 10.00 (m)	0.00	0.00				Surface	
721.79	32.81	720.50	688.98	N/A		MAS = 10.00 (m)	23.00	23.00				WRP	
718.38	32.81	696.40	685.57	34.66		MAS = 10.00 (m)	3360.00	3360.00				MinPts	
719.89	36.91	694.85	682.98	30.26		OSF1.50	3850.00	3850.00				MINPT-O-EOU	
721.84	39.27	695.24	682.58	28.46		OSF1.50	4100.00	4100.00				MinPt-O-ADP	
727.85	43.55	698.39	684.30	25.79		OSF1.50	4600.00	4600.00				MinPt-O-SF	
728.74	109.21	655.50	619.53	10.11		OSF1.50	11761.78	11761.78				MINPT-O-EOU	
728.77	109.24	655.51	619.53	10.11		OSF1.50	11770.00	11770.00				MinPt-O-ADP	
728.91	109.29	655.62	619.62	10.11		OSF1.50	11780.00	11780.00				MinPt-O-SF	
753.80	102.88	684.78	650.91	11.11		OSF1.50	12230.00	12159.01				MinPt-O-SF	
749.96	101.30	682.00	648.66	11.23		OSF1.50	12640.00	12269.37				MinPt-O-ADP	
749.88	101.24	681.99	648.66	11.24		OSF1.50	12670.00	12271.71				MINPT-O-EOU	
749.78	100.93	682.06	648.85	11.27		OSF1.50	12760.00	12274.98				MinPt-CtCt	
750.54	226.13	599.36	524.41	5.00		OSF1.50	19220.00	12275.00	OSF<5.00			Enter Alert	
750.88	312.96	541.82	437.93	3.61		OSF1.50	22108.82	12275.00				MinPts	

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

												Warning Alert	
6651.03	32.81	6649.05	6618.22	N/A		MAS = 10.00 (m)	0.00	0.00				Surface	
6650.82	32.81	6648.81	6618.01	197180.59		MAS = 10.00 (m)	23.00	23.00				MinPt-O-SF	
6650.64	32.81	6648.48	6617.83	37810.79		MAS = 10.00 (m)	80.00	80.00				MinPts	
6653.73	88.37	6594.18	6565.38	115.49		OSF1.50	1770.00	1770.00				MinPt-CtCt	
6652.69	174.18	6535.91	6478.51	57.93		OSF1.50	3420.00	3420.00				MinPt-CtCt	

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		
	6629.77	269.35	6449.53	6360.42	37.19	OSF1.50	5180.00	5180.00				MinPt-CtCt	
	6630.91	272.75	6448.41	6358.16	36.73	OSF1.50	5340.00	5340.00				MINPT-O-EOU	
	6636.63	283.23	6447.14	6353.40	35.39	OSF1.50	5620.00	5620.00				MINPT-O-EOU	
	6638.35	350.45	6404.05	6287.90	28.57	OSF1.50	6780.00	6780.00				MinPt-CtCt	
	6642.07	435.41	6351.13	6206.66	22.98	OSF1.50	8420.00	8420.00				MinPt-CtCt	
	6640.61	517.82	6294.72	6122.78	19.30	OSF1.50	10000.00	10000.00				MinPt-CtCt	
	6631.36	602.11	6229.27	6029.24	16.57	OSF1.50	11600.00	11600.00				MinPt-CtCt	
	2133.52	646.15	1700.47	1487.37	4.99	OSF1.50	17300.00	12275.00	OSF<5.00			Enter Alert	
	1810.33	648.51	1377.29	1161.82	4.20	OSF1.50	18420.00	12275.00				MINPT-O-EOU	
	1810.31	648.50	1377.29	1161.81	4.20	OSF1.50	18430.00	12275.00				MinPts	
	1810.43	648.54	1377.41	1161.90	4.20	OSF1.50	18450.00	12275.00				MinPt-O-SF	
	2161.36	649.83	1727.48	1511.53	5.00	OSF1.50	19610.00	12275.00	OSF>5.00			Exit Alert	
	4100.68	645.62	3669.61	3455.06	9.55	OSF1.50	22108.82	12275.00				TD	

Neil H Wells Continental State
#1 (Offset) Plugged Blind Off-
5020ft (Def Survey)

	3328.45	32.81	3326.47	3295.64	N/A	MAS = 10.00 (m)	0.00	0.00				Warning Alert	
	3328.22	32.81	3326.22	3295.44	117239.39	MAS = 10.00 (m)	23.00	23.00				Surface	
	3328.16	1000.72	2660.35	2327.44	5.00	OSF1.50	3270.00	3270.00	OSF<5.00			MinPt-O-SF	
	3328.16	1566.58	2283.11	1761.57	3.19	OSF1.50	5070.00	5070.00				Enter Alert	
	3328.16	1567.76	2282.32	1760.39	3.19	OSF1.50	5080.00	5080.00				MinPt-CtCt	
	4166.25	1253.19	3330.13	2913.06	4.99	OSF1.50	7580.00	7580.00	OSF>5.00			MinPts	
	7377.12	348.04	7144.43	7029.08	31.97	OSF1.50	14940.00	12275.00				Exit Alert	
	7377.28	348.40	7144.35	7028.88	31.93	OSF1.50	14990.00	12275.00				MinPt-CtCt	
	7384.01	355.68	7146.23	7028.33	31.31	OSF1.50	15260.00	12275.00				MINPT-O-EOU	
	10155.14	1119.40	9408.21	9035.74	13.63	OSF1.50	21920.00	12275.00				MinPt-O-ADP	
	10285.82	1133.43	9529.53	9152.38	13.63	OSF1.50	22108.82	12275.00				MinPt-O-SF	
												TD	

Final Surveys - Cimarex Red
Hills 32-5 Fed Com #155H
MWD Off-22115ft (Surcon
Corrected) (Def Survey)

	639.20	32.81	638.01	606.48	N/A	MAS = 10.00 (m)	0.00	0.00				Pass	
	639.30	32.81	638.01	606.49	213458.54	MAS = 10.00 (m)	23.00	23.00				MinPts	
	639.53	32.81	637.81	606.72	1472.73	MAS = 10.00 (m)	140.00	140.00				WRP	
	639.72	32.81	637.85	606.91	929.59	MAS = 10.00 (m)	190.00	190.00				MINPT-O-EOU	
	639.95	32.81	631.32	604.14	142.65	MAS = 10.00 (m)	1040.00	1040.00				MINPT-O-EOU	
	636.65	32.81	630.59	603.84	126.67	MAS = 10.00 (m)	1160.00	1160.00				MinPts	
	636.94	32.81	630.41	604.13	116.05	MAS = 10.00 (m)	1260.00	1260.00				MINPT-O-EOU	
	611.16	32.81	597.24	578.37	47.38	MAS = 10.00 (m)	2930.00	2930.00				MinPts	
	611.55	32.81	596.75	578.75	44.44	MAS = 10.00 (m)	3130.00	3130.00				MINPT-O-EOU	
	1062.24	68.74	1016.06	993.49	23.51	OSF1.50	10020.00	10020.00				MinPt-CtCt	
	1061.11	70.80	1013.56	990.31	22.80	OSF1.50	10340.00	10340.00				MinPt-CtCt	
	1054.75	75.71	1003.93	979.04	21.17	OSF1.50	11100.00	11100.00				MinPt-CtCt	
	1054.78	75.84	1003.87	978.94	21.13	OSF1.50	11120.00	11120.00				MINPT-O-EOU	
	1054.82	75.90	1003.87	978.93	21.12	OSF1.50	11130.00	11130.00				MinPt-O-ADP	
	1071.30	79.49	1017.95	991.80	20.46	OSF1.50	11710.00	11710.00				MinPt-O-SF	
	1052.04	79.10	998.96	972.94	20.20	OSF1.50	11890.00	11888.46				MinPt-O-SF	
	1051.08	78.94	998.10	972.14	20.22	OSF1.50	11930.00	11926.54				MinPts	
	1051.07	78.90	998.12	972.17	20.23	OSF1.50	11940.00	11935.89				MinPt-CtCt	
	1089.71	78.12	1037.30	1011.59	21.17	OSF1.50	13280.00	12275.00				MinPt-CtCt	
	1089.74	78.16	1037.30	1011.57	21.16	OSF1.50	13290.00	12275.00				MinPts	
	1105.88	85.58	1048.50	1020.30	19.59	OSF1.50	13980.00	12275.00				MinPt-CtCt	
	1106.03	86.08	1048.32	1019.95	19.48	OSF1.50	14020.00	12275.00				MINPT-O-EOU	
	1106.25	86.34	1048.35	1019.91	19.42	OSF1.50	14040.00	12275.00				MinPt-O-ADP	
	1108.31	89.40	1048.38	1018.91	18.79	OSF1.50	14240.00	12275.00				MINPT-O-EOU	
	1111.02	94.17	1047.92	1016.86	17.87	OSF1.50	14520.00	12275.00				MINPT-O-EOU	
	1079.61	120.07	999.23	959.54	13.59	OSF1.50	15740.00	12275.00				MinPt-CtCt	
	1079.51	122.94	997.22	956.57	13.27	OSF1.50	15860.00	12275.00				MinPt-CtCt	
	1079.88	127.03	994.86	952.85	12.84	OSF1.50	16030.00	12275.00				MinPt-CtCt	
	1080.61	129.57	993.90	951.04	12.59	OSF1.50	16140.00	12275.00				MINPT-O-EOU	
	1081.35	130.47	994.04	950.88	12.52	OSF1.50	16180.00	12275.00				MinPt-O-ADP	
	1091.98	139.14	998.89	952.83	11.84	OSF1.50	16520.00	12275.00				MINPT-O-EOU	
	1092.34	139.58	998.95	952.75	11.81	OSF1.50	16540.00	12275.00				MinPt-O-ADP	
	1103.04	156.72	998.23	946.32	10.61	OSF1.50	17190.00	12275.00				MinPt-CtCt	
	1105.43	174.85	988.54	930.58	9.53	OSF1.50	17860.00	12275.00				MinPt-CtCt	
	1107.61	195.95	976.65	911.66	8.51	OSF1.50	18620.00	12275.00				MinPt-CtCt	
	1107.42	203.31	971.56	904.12	8.20	OSF1.50	18880.00	12275.00				MinPt-CtCt	
	1107.60	211.86	966.03	895.74	7.87	OSF1.50	19180.00	12275.00				MinPt-CtCt	
	1106.47	218.12	960.73	888.35	7.64	OSF1.50	19400.00	12275.00				MinPt-CtCt	
	1108.04	229.57	954.66	878.46	7.26	OSF1.50	19800.00	12275.00				MinPt-CtCt	
	1087.33	283.08	898.28	804.25	5.78	OSF1.50	21630.00	12275.00				MinPt-CtCt	
	1087.75	284.36	897.85	803.39	5.75	OSF1.50	21680.00	12275.00				MINPT-O-EOU	
	1062.94	297.23	864.48	765.74	5.38	OSF1.50	22108.82	12275.00				MinPts	

Final Surveys - Cimarex Red
Hills 32-5 Fed Com #156H
MWD Off-20955ft (Surcon
Corrected) (Def Survey)

	659.28	32.81	658.00	626.47	N/A	MAS = 10.00 (m)	0.00	0.00				Pass	
	659.28	32.81	657.99	626.47	481755.15	MAS = 10.00 (m)	23.00	23.00				Surface	
	658.61	32.81	655.59	625.81	378.80	MAS = 10.00 (m)	440.00	440.00				WRP	
	659.42	32.81	655.05	626.61	213.44	MAS = 10.00 (m)	720.00	720.00				MinPts	
	656.47	32.81	647.18	623.67	80.24	MAS = 10.00 (m)	1840.00	1840.00				MINPT-O-EOU	
	656.55	32.81	647.04	623.74	78.28	MAS = 10.00 (m)	1890.00	1890.00				MinPts	
	1101.89	51.88	1066.96	1050.01	32.47	OSF1.50	7590.00	7590.00				MINPT-O-EOU	
	1101.94	52.01	1066.93	1049.93	32.39	OSF1.50	7610.00	7610.00				MinPt-CtCt	
	1102.00	52.08	1066.94	1049.92	32.35	OSF1.50	7620.00	7620.00				MINPT-O-EOU	
	1120.14	61.82	1078.59	1058.33	27.61	OSF1.50	9070.00	9070.00				MinPt-O-ADP	
	1121.19	65.17	1077.41	1056.02	26.19	OSF1.50	9570.00	9570.00				MinPt-CtCt	
	1121.32	65.58	1077.28	1055.77	26.04	OSF1.50	9630.00	9630.00				MINPT-O-EOU	
	1121.42	65.68	1077.30	1055.75	25.99	OSF1.50	9650.00	9650.00				MinPt-O-ADP	
	1136.28	72.03	1087.92	1064.25	23.98	OSF1.50	10620.00	10620.00				MinPt-CtCt	
	1136.35	72.17	1087.89	1064.18	23.94	OSF1.50	10640.00	10640.00				MinPts	
	1136.68	72.53	1087.99	1064.15	23.82	OSF1.50	10690.00	10690.00				MinPt-CtCt	
	1136.73	72.66	1087.94	1064.06	23.78	OSF1.50	10710.00	10710.00				MinPts	
	1133.27	73.84	1083.71	1059.43	23.32	OSF1.50	10870.00	10870.00				MinPts	
	1133.33	73.90	1083.72	1059.42	23.30	OSF1.50	10880.00	10880.00				MinPt-O-ADP	
	1136.26	74.32	1086.38	1061.94	23.23	OSF1.50	10960.00	10960.00				MinPt-O-SF	
	1699.96	56.71	1661.82	1643.26	45.76	OSF1.50	12370.00	12220.00				MinPt-O-SF	
	1725.36	57.30	1686.82	1688.06	45.96	OSF1.50	12950.00	12275.00				MinPt-CtCt	

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		
	1725.66	57.91	1686.72	1667.75	45.48	OSF1.50	13030.00	12275.00				MINPT-O-EQU	
	1726.32	58.73	1686.83	1667.60	44.85	OSF1.50	13120.00	12275.00				MinPt-O-ADP	
	1726.29	69.04	1679.93	1657.25	38.05	OSF1.50	13850.00	12275.00				MinPt-CtCt	
	1726.70	70.21	1679.55	1656.48	37.41	OSF1.50	13920.00	12275.00				MINPT-O-EQU	
	1727.96	79.05	1674.92	1648.91	33.20	OSF1.50	14360.00	12275.00				MinPt-CtCt	
	1732.81	105.00	1662.46	1627.80	24.98	OSF1.50	15450.00	12275.00				MinPt-CtCt	
	1726.31	123.72	1643.50	1602.60	21.09	OSF1.50	16160.00	12275.00				MinPt-CtCt	
	1727.55	127.33	1642.33	1600.23	20.50	OSF1.50	16300.00	12275.00				MINPT-O-EQU	
	1744.81	158.32	1638.92	1586.48	16.63	OSF1.50	17410.00	12275.00				MINPT-O-EQU	
	1747.66	161.59	1639.59	1596.07	16.32	OSF1.50	17530.00	12275.00				MinPt-O-ADP	
	1753.75	168.15	1641.31	1595.60	15.73	OSF1.50	17760.00	12275.00				MinPt-O-ADP	
	1759.68	194.80	1629.47	1564.88	13.61	OSF1.50	18670.00	12275.00				MinPt-CtCt	
	1759.68	200.61	1625.60	1559.07	13.22	OSF1.50	18870.00	12275.00				MinPt-CtCt	
	1761.10	215.46	1617.12	1545.64	12.31	OSF1.50	19380.00	12275.00				MinPt-CtCt	
	1760.03	222.47	1611.38	1537.56	11.91	OSF1.50	19620.00	12275.00				MinPt-CtCt	
	1758.26	234.45	1601.62	1523.80	11.29	OSF1.50	20030.00	12275.00				MinPt-CtCt	
	1757.01	244.75	1593.50	1512.25	10.81	OSF1.50	20380.00	12275.00				MinPt-CtCt	
	1754.47	257.13	1582.71	1497.34	10.27	OSF1.50	20800.00	12275.00				MinPt-CtCt	
	1755.46	265.12	1578.37	1490.34	9.96	OSF1.50	21070.00	12275.00				MinPt-CtCt	
	1744.04	280.54	1556.68	1463.50	9.35	OSF1.50	21590.00	12275.00				MinPt-CtCt	
	1744.71	282.64	1555.94	1462.07	9.29	OSF1.50	21670.00	12275.00				MINPT-O-EQU	
	1745.34	283.41	1556.06	1461.93	9.27	OSF1.50	21700.00	12275.00				MinPt-O-ADP	
	1762.99	295.92	1565.37	1467.07	8.96	OSF1.50	22108.82	12275.00				MinPts	

Final Surveys - Cimarex Red Hills 32-5 Fed Com #157H MWD Off-20220ft (Surcon Corrected) (Def Survey)

Pass

679.28	32.81	678.00	646.48	N/A	MAS = 10.00 (m)	0.00	0.00					Surface	
679.26	32.81	677.97	646.45	69358.23	MAS = 10.00 (m)	23.00	23.00					WRP	
677.08	32.81	674.53	644.27	537.58	MAS = 10.00 (m)	330.00	330.00					MinPts	
677.13	32.81	674.46	644.32	491.01	MAS = 10.00 (m)	360.00	360.00					MINPT-O-EQU	
1119.05	64.80	1075.51	1054.25	26.29	OSF1.50	9530.00	9530.00					MinPt-CtCt	
1119.11	64.96	1075.45	1054.12	26.22	OSF1.50	9560.00	9560.00					MINPT-O-EQU	
1119.22	65.12	1075.47	1054.10	26.17	OSF1.50	9580.00	9580.00					MinPt-O-ADP	
1123.84	68.17	1078.05	1055.67	25.08	OSF1.50	10040.00	10040.00					MinPt-CtCt	
1123.84	68.21	1078.01	1055.60	25.06	OSF1.50	10050.00	10050.00					MINPT-O-EQU	
1123.89	68.30	1078.01	1055.59	25.03	OSF1.50	10060.00	10060.00					MinPt-O-ADP	
1134.83	69.83	1087.94	1065.01	24.72	OSF1.50	10300.00	10300.00					MinPt-O-SF	
2206.13	46.03	2175.10	2160.10	73.49	OSF1.50	12510.00	1252.00					MinPt-O-SF	
2213.95	46.17	2182.83	2167.78	73.52	OSF1.50	12580.00	12262.81					MinPt-O-SF	
2223.86	47.24	2192.03	2176.63	72.15	OSF1.50	12840.00	12275.00					MINPT-O-EQU	
2224.05	47.45	2192.08	2176.60	71.82	OSF1.50	12870.00	12275.00					MinPt-O-ADP	
2225.62	52.95	2189.98	2172.67	64.26	OSF1.50	13340.00	12275.00					MinPt-CtCt	
2225.97	53.96	2189.66	2172.02	63.06	OSF1.50	13410.00	12275.00					MINPT-O-EQU	
2226.48	54.56	2189.77	2171.92	62.35	OSF1.50	13450.00	12275.00					MinPt-O-ADP	
2216.50	69.02	2170.15	2147.49	48.87	OSF1.50	14160.00	12275.00					MinPt-CtCt	
2216.78	69.75	2169.93	2147.02	48.36	OSF1.50	14200.00	12275.00					MINPT-O-EQU	
2217.09	70.13	2169.96	2146.96	48.10	OSF1.50	14220.00	12275.00					MinPt-O-ADP	
2239.33	80.36	2185.41	2158.97	42.32	OSF1.50	14640.00	12275.00					MINPT-O-EQU	
2239.82	80.99	2185.49	2158.83	41.99	OSF1.50	14670.00	12275.00					MinPt-O-ADP	
2238.45	102.57	2169.73	2135.88	33.05	OSF1.50	15480.00	12275.00					MinPt-CtCt	
2239.84	110.97	2165.52	2128.87	30.54	OSF1.50	15790.00	12275.00					MinPt-CtCt	
2240.25	113.19	2164.45	2127.06	29.94	OSF1.50	15880.00	12275.00					MINPT-O-EQU	
2240.79	113.87	2164.54	2126.92	29.77	OSF1.50	15910.00	12275.00					MinPt-O-ADP	
2252.95	122.99	2170.61	2129.96	27.69	OSF1.50	16220.00	12275.00					MinPt-CtCt	
2253.57	124.92	2169.95	2128.65	27.27	OSF1.50	16300.00	12275.00					MINPT-O-EQU	
2254.39	125.88	2170.13	2128.51	27.07	OSF1.50	16340.00	12275.00					MinPt-O-ADP	
2257.41	131.45	2169.43	2125.95	25.95	OSF1.50	16520.00	12275.00					MinPt-CtCt	
2258.03	133.46	2168.76	2124.64	25.57	OSF1.50	16600.00	12275.00					MINPT-O-EQU	
2259.10	134.63	2169.01	2124.47	25.35	OSF1.50	16650.00	12275.00					MinPt-O-ADP	
2262.79	143.40	2166.86	2119.40	23.83	OSF1.50	16940.00	12275.00					MinPt-CtCt	
2265.15	149.10	2165.41	2116.05	22.93	OSF1.50	17150.00	12275.00					MINPT-O-EQU	
2266.34	157.85	2160.77	2108.50	21.67	OSF1.50	17440.00	12275.00					MinPt-CtCt	
2266.84	159.28	2160.32	2107.57	21.48	OSF1.50	17500.00	12275.00					MINPT-O-EQU	
2267.44	159.98	2160.44	2107.48	21.39	OSF1.50	17530.00	12275.00					MinPt-O-ADP	
2275.07	165.31	2164.52	2109.76	20.76	OSF1.50	17710.00	12275.00					MINPT-O-EQU	
2276.69	167.19	2164.89	2109.49	20.54	OSF1.50	17780.00	12275.00					MinPt-O-ADP	
2281.08	171.54	2166.39	2109.54	20.06	OSF1.50	17930.00	12275.00					MinPt-O-ADP	
2250.23	220.21	2103.09	2030.03	15.39	OSF1.50	19570.00	12275.00					MinPt-CtCt	
2250.98	222.54	2102.31	2028.48	15.24	OSF1.50	19660.00	12275.00					MINPT-O-EQU	
2247.87	239.71	2087.72	2008.16	14.12	OSF1.50	20230.00	12275.00					MinPt-CtCt	
2252.93	257.77	2080.74	1995.16	13.16	OSF1.50	20840.00	12275.00					MinPt-CtCt	
2255.35	266.29	2077.48	1989.06	12.75	OSF1.50	21140.00	12275.00					MINPT-O-EQU	
2255.20	295.58	2057.91	1959.74	11.48	OSF1.50	22108.82	12275.00					MinPts	

Cimarex Red Hills 32-5 Fed Com #159H Rev3 RM 14Jan19 (Def Plan)

Pass

741.72	32.81	740.44	708.91	N/A	MAS = 10.00 (m)	0.00	0.00					Surface	
741.72	32.81	740.44	708.91	N/A	MAS = 10.00 (m)	23.00	23.00					WRP	
741.72	32.81	726.43	708.91	52.86	MAS = 10.00 (m)	2290.00	2290.00					MinPts	
742.33	32.81	725.74	709.52	48.41	MAS = 10.00 (m)	2500.00	2500.00					MINPT-O-EQU	
763.90	38.88	737.55	725.01	30.43	OSF1.50	4110.00	4110.00					MinPt-O-SF	
763.41	96.98	698.33	666.43	11.95	OSF1.50	10470.00	10470.00					MinPt-O-SF	
739.36	96.93	674.31	642.43	11.58	OSF1.50	10800.00	10800.00					MinPt-CtCt	
739.36	96.95	674.29	642.41	11.57	OSF1.50	10810.00	10810.00					MinPts	
739.45	96.97	674.37	642.48	11.57	OSF1.50	10820.00	10820.00					MinPt-O-SF	
1578.10	311.84	1369.78	1266.27	7.62	OSF1.50	22108.82	12275.00					MinPts	

Cimarex Red Hills 32-5 Fed Com #160H Rev3 RM 14Jan20 (Def Plan)

Pass

761.65	32.81	760.36	728.84	N/A	MAS = 10.00 (m)	0.00	0.00					Surface	
761.65	32.81	760.36	728.84	N/A	MAS = 10.00 (m)	23.00	23.00					WRP	
759.25	93.57	696.44	665.68	12.32	OSF1.50	10050.00	10050.00					MinPts	
759.30	93.58	696.48	665.72	12.32	OSF1.50	10070.00	10070.00					MinPt-O-SF	
2129.29	309.70	1922.39	1819.58	10.35	OSF1.50	22108.82	12275.00					MinPts	

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

Pass

1856.43	32.81	1854.45	1823.62	N/A	MAS = 10.00 (m)	0.00	0.00					Surface	
1856.36	32.81	1854.38	1823.56	238912.03	MAS = 10.00 (m)	10.00	10.00					MinPt-O-SF	

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		
1855.35	32.81	1854.37	1823.54	N/A		MAS = 10.00 (m)	23.00	23.00				WRP	
1087.52	97.90	1021.23	989.63	17.19		OSF1.50	11800.00	11799.96				MinPt-O-SF	
1071.87	95.94	1006.86	975.93	17.28		OSF1.50	12060.00	12040.99				MinPt-O-SF	
1055.06	93.73	991.52	961.34	17.43		OSF1.50	12370.00	12220.00				MinPt-O-ADP	
1055.01	93.67	991.50	961.34	17.44		OSF1.50	12380.00	12222.93				MINPT-O-EOU	
1054.98	93.60	991.52	961.38	17.45		OSF1.50	12392.04	12226.19				MinPt-CtCt	
1054.88	316.09	843.09	738.79	5.04		OSF1.50	22108.82	12275.00				MinPts	

Cimarex Red Hills 32-5 State
Com #198H Rev2 RM 11Nov20
(Def Plan)

1876.41	32.81	1875.12	1843.60	N/A		MAS = 10.00 (m)	0.00	0.00				Surface	
1876.35	32.81	1875.05	1843.54	251054.40		MAS = 10.00 (m)	10.00	10.00				MinPt-O-SF	
1876.33	32.81	1875.05	1843.53	N/A		MAS = 10.00 (m)	23.00	23.00				WRP	
1117.23	99.56	1050.11	1017.67	17.19		OSF1.50	11800.00	11799.96				MinPt-O-SF	
1086.04	94.62	1022.19	991.43	17.62		OSF1.50	12370.00	12220.00				MinPt-O-ADP	
1085.99	94.58	1022.18	991.45	17.63		OSF1.50	12380.00	12222.93				MINPT-O-EOU	
1085.97	94.46	1022.22	991.51	17.64		OSF1.50	12392.04	12226.19				MinPt-CtCt	
1086.51	312.89	877.14	773.62	5.24		OSF1.50	22108.82	12275.00				MinPts	

Cimarex Red Hills Unit #4
(Offset) Gas Gyro to 12499
Blind to 17675ft (Def Survey)

4665.51	32.81	4663.53	4632.71	N/A		MAS = 10.00 (m)	0.00	0.00				Surface	
4665.34	32.81	4663.34	4632.54	210193.09		MAS = 10.00 (m)	23.00	23.00				MinPt-O-SF	
4665.19	32.81	4662.08	4632.38	4121.98		MAS = 10.00 (m)	310.00	310.00				MinPts	
4657.70	32.81	4635.40	4624.89	229.22		MAS = 10.00 (m)	4480.00	4480.00				MinPts	
4657.90	33.05	4635.21	4624.85	224.79		OSF1.50	4590.00	4590.00				MINPT-O-EOU	
4658.32	33.56	4635.29	4624.77	221.20		OSF1.50	4690.00	4690.00				MinPt-O-ADP	
4709.80	71.72	4661.32	4638.08	101.26		OSF1.50	10320.00	10320.00				MinPt-CtCt	
4711.02	75.06	4660.32	4635.96	96.65		OSF1.50	10800.00	10800.00				MINPT-O-EOU	
4712.27	76.54	4660.58	4635.73	94.76		OSF1.50	10990.00	10990.00				MinPt-O-ADP	
4716.28	81.52	4661.27	4634.76	88.90		OSF1.50	11680.00	11680.00				MinPt-CtCt	
4716.38	81.85	4661.15	4634.53	88.53		OSF1.50	11730.00	11730.00				MINPT-O-EOU	
4716.54	82.05	4661.19	4634.40	88.32		OSF1.50	11760.00	11760.00				MinPt-O-SF	
4715.50	82.07	4660.12	4633.42	88.27		OSF1.50	11800.00	11799.96				MinPt-O-ADP	
1592.99	114.36	1516.09	1478.63	21.24		OSF1.50	16490.00	12275.00				MinPt-CtCt	
1593.09	114.65	1516.00	1478.44	21.18		OSF1.50	16510.00	12275.00				MinPts	
1607.80	117.01	1529.14	1490.80	20.94		OSF1.50	16710.00	12275.00				MinPt-O-SF	
5837.58	96.37	5772.67	5741.21	92.74		OSF1.50	22108.82	12275.00				TD	

Final Surveys - Cimarex Red
Hills 32-5 Fed Com #127H
MWD Off-22412ft (Surcon
Corrected) (Def Survey)

2514.06	32.81	2512.78	2481.25	N/A		MAS = 10.00 (m)	0.00	0.00				Surface	
2514.03	32.81	2512.74	2481.22	N/A		MAS = 10.00 (m)	10.00	10.00				MinPts	
2514.03	32.81	2512.74	2481.22	N/A		MAS = 10.00 (m)	20.00	20.00				MinPts	
2514.03	32.81	2512.74	2481.22	N/A		MAS = 10.00 (m)	23.00	23.00				WRP	
2514.11	32.81	2512.70	2481.30	20550.93		MAS = 10.00 (m)	70.00	70.00				MINPT-O-EOU	
2514.27	32.81	2512.72	2481.46	9757.69		MAS = 10.00 (m)	110.00	110.00				MINPT-O-EOU	
2510.76	32.81	2505.38	2477.95	593.48		MAS = 10.00 (m)	1010.00	1010.00				MINPT-O-EOU	
2509.26	32.81	2502.05	2476.45	406.79		MAS = 10.00 (m)	1440.00	1440.00				MinPts	
1631.67	70.79	1583.68	1560.88	35.74		OSF1.50	9900.00	9900.00				MinPt-CtCt	
1626.79	72.96	1577.34	1553.83	34.54		OSF1.50	10240.00	10240.00				MinPt-CtCt	
1626.83	73.10	1577.29	1553.74	34.48		OSF1.50	10260.00	10260.00				MINPT-O-EOU	
1626.88	73.16	1577.30	1553.72	34.45		OSF1.50	10270.00	10270.00				MinPt-O-ADP	
1662.19	81.64	1606.98	1580.54	31.39		OSF1.50	11630.00	11630.00				MinPt-CtCt	
1662.30	81.96	1606.88	1580.32	31.26		OSF1.50	11680.00	11680.00				MINPT-O-EOU	
1662.42	82.12	1606.90	1580.30	31.21		OSF1.50	11700.00	11700.00				MinPt-O-ADP	
1662.98	82.53	1607.18	1580.44	31.03		OSF1.50	11761.78	11761.78				MinPt-O-SF	
1664.54	78.28	1611.64	1586.26	32.75		OSF1.50	12780.00	12275.00				MinPt-CtCt	
1664.54	78.28	1611.64	1586.26	32.75		OSF1.50	12790.00	12275.00				MinPts	
1648.10	84.53	1591.12	1563.67	29.98		OSF1.50	13710.00	12275.00				MinPt-CtCt	
1648.25	84.69	1591.08	1563.56	29.92		OSF1.50	13730.00	12275.00				MINPT-O-EOU	
1649.28	85.81	1591.35	1563.47	29.54		OSF1.50	13830.00	12275.00				MinPt-O-ADP	
1662.96	106.73	1591.09	1556.23	23.82		OSF1.50	15020.00	12275.00				MinPt-CtCt	
1663.18	107.50	1590.79	1555.68	23.65		OSF1.50	15070.00	12275.00				MINPT-O-EOU	
1662.50	113.56	1586.07	1548.93	22.35		OSF1.50	15340.00	12275.00				MinPt-CtCt	
1661.73	118.71	1581.87	1543.02	21.36		OSF1.50	15570.00	12275.00				MinPt-CtCt	
1662.31	120.48	1581.30	1541.88	21.05		OSF1.50	15660.00	12275.00				MINPT-O-EOU	
1662.79	120.97	1581.42	1541.81	20.96		OSF1.50	15690.00	12275.00				MinPt-O-ADP	
1696.56	138.69	1603.35	1557.86	18.61		OSF1.50	16420.00	12275.00				MINPT-O-EOU	
1649.86	168.27	1536.95	1481.59	14.88		OSF1.50	17530.00	12275.00				MinPt-CtCt	
1654.11	182.31	1531.84	1471.80	13.76		OSF1.50	18060.00	12275.00				MINPT-O-EOU	
1655.27	183.69	1532.08	1471.58	13.66		OSF1.50	18120.00	12275.00				MinPt-O-ADP	
1645.92	224.89	1495.27	1421.03	11.07		OSF1.50	19560.00	12275.00				MinPt-CtCt	
1646.44	226.38	1494.79	1420.06	11.00		OSF1.50	19630.00	12275.00				MINPT-O-EOU	
1648.39	229.44	1494.70	1418.95	10.87		OSF1.50	19740.00	12275.00				MINPT-O-EOU	
1648.80	229.89	1494.81	1418.91	10.85		OSF1.50	19760.00	12275.00				MinPt-O-ADP	
1655.19	234.98	1497.81	1420.21	10.65		OSF1.50	19950.00	12275.00				MinPt-O-ADP	
1656.64	242.64	1494.16	1414.00	10.32		OSF1.50	20180.00	12275.00				MinPt-CtCt	
1657.07	246.58	1491.98	1410.52	10.16		OSF1.50	20330.00	12275.00				MINPT-O-EOU	
1657.56	247.17	1492.05	1410.39	10.14		OSF1.50	20360.00	12275.00				MinPt-O-ADP	
1650.86	267.07	1472.08	1383.79	9.34		OSF1.50	21020.00	12275.00				MinPt-CtCt	
1650.20	271.68	1468.34	1378.51	9.17		OSF1.50	21180.00	12275.00				MinPt-CtCt	
1651.01	273.77	1467.77	1377.24	9.11		OSF1.50	21270.00	12275.00				MINPT-O-EOU	
1652.45	275.50	1468.06	1376.96	9.06		OSF1.50	21340.00	12275.00				MinPt-O-ADP	
1658.50	282.78	1469.25	1375.72	8.85		OSF1.50	21580.00	12275.00				MINPT-O-EOU	
1653.36	299.07	1453.25	1354.29	8.34		OSF1.50	22108.82	12275.00				MinPts	

Cimarex Red Hills 32-5 State
Com #197H Rev2 RM 11Nov20
(Def Plan)

1896.37	32.81	1895.09	1863.56	N/A		MAS = 10.00 (m)	0.00	0.00				Surface	
1896.32	32.81	1895.02	1863.51	319410.94		MAS = 10.00 (m)	10.00	10.00				MinPt-O-SF	
1896.31	32.81	1895.02	1863.50	N/A		MAS = 10.00 (m)	23.00	23.00				WRP	
1662.51	99.73	1595.50	1562.78	25.39		OSF1.50	11800.00	11799.96				MinPt-O-SF	
1650.08	99.36	1583.30	1550.71	25.39		OSF1.50	12020.00	12007.60				MinPt-O-SF	
1637.53	97.34	1572.09	1540.18	25.63		OSF1.50	12240.00	12164.55				MinPt-O-ADP	
1637.44	97.24	1572.07	1540.20	25.66		OSF1.50	12250.00	12169.91				MINPT-O-EOU	
1637.40	97.14	1572.10	1540.26	25.69		OSF1.50	12260.00	12175.10				MinPt-CtCt	
1645.64	311.85	1437.22	1333.79	7.95		OSF1.50	22108.82	12275.00				MinPts	

Offset Trajectory	Separation			Allow Dev. (ft)	Sep. Fact.	Controlling Rule	Reference Trajectory		Risk Level			Alert	Status
	Ct-Ct (ft)	MAS (ft)	EOU (ft)				MD (ft)	TVD (ft)	Alert	Minor	Major		
Final Surveys - Cimarex Red Hills 32-5 Fed Com #130H MWD Off-22088ft (Surcon Corrected) (Def Survey)													
	2534.05	32.81	2532.77	2501.25	N/A	MAS = 10.00 (m)	0.00	0.00					Pass
	2534.02	32.81	2532.73	2501.21	985335.53	MAS = 10.00 (m)	10.00	10.00				Surface	
	2534.02	32.81	2532.73	2501.21	945878.28	MAS = 10.00 (m)	23.00	23.00				MinPt-O-SF	
	2533.61	32.81	2531.92	2500.80	6412.39	MAS = 10.00 (m)	130.00	130.00				WRP	
	2533.41	32.81	2531.65	2500.60	4355.08	MAS = 10.00 (m)	180.00	180.00				MinPts	
	2533.47	32.81	2531.59	2500.66	3607.01	MAS = 10.00 (m)	210.00	210.00				MINPT-O-EQU	
	2535.20	32.81	2529.62	2502.39	575.46	MAS = 10.00 (m)	1010.00	1010.00				MinPts	
	2530.67	32.81	2522.59	2497.86	359.67	MAS = 10.00 (m)	1610.00	1610.00				MINPT-O-EQU	
	2530.77	32.81	2522.48	2497.96	349.14	MAS = 10.00 (m)	1660.00	1660.00				MinPts	
	2531.65	32.81	2519.86	2498.84	235.53	MAS = 10.00 (m)	2440.00	2440.00				MINPT-O-EQU	
	2531.77	32.81	2519.76	2498.96	230.77	MAS = 10.00 (m)	2490.00	2490.00				MinPts	
	2138.87	61.48	2097.37	2077.39	53.50	OSFL 50	8930.00	8930.00				MinPt-CtCt	
	2139.42	62.76	2097.06	2076.66	52.39	OSFL 50	9120.00	9120.00				MINPT-O-EQU	
	2139.83	63.24	2097.15	2076.59	51.99	OSFL 50	9190.00	9190.00				MinPt-O-ADP	
	2142.35	65.84	2097.94	2076.51	49.94	OSFL 50	9590.00	9590.00				MINPT-O-EQU	
	2142.51	66.03	2097.97	2076.48	49.80	OSFL 50	9620.00	9620.00				MinPt-O-ADP	
	2142.87	75.81	2091.81	2067.06	43.25	OSFL 50	11090.00	11090.00				MinPt-CtCt	
	2142.92	75.95	2091.77	2066.97	43.17	OSFL 50	11110.00	11110.00				MINPT-O-EQU	
	2143.03	76.09	2091.79	2066.94	43.09	OSFL 50	11130.00	11130.00				MinPt-O-ADP	
	2159.74	80.25	2105.75	2079.49	41.11	OSFL 50	11761.78	11761.78				MinPt-O-SF	
	2181.53	78.28	2128.87	2103.25	42.55	OSFL 50	12110.00	12080.00				MinPt-O-SF	
	2185.45	76.87	2133.74	2108.59	43.42	OSFL 50	12400.00	12228.23				MinPt-CtCt	
	2175.65	85.46	2118.22	2090.19	38.78	OSFL 50	13920.00	12275.00				MinPt-CtCt	
	2175.93	89.44	2115.85	2086.49	37.04	OSFL 50	14190.00	12275.00				MinPt-CtCt	
	2175.95	93.52	2113.15	2082.43	35.40	OSFL 50	14440.00	12275.00				MinPt-CtCt	
	2176.93	105.07	2106.43	2071.86	31.47	OSFL 50	15040.00	12275.00				MinPt-CtCt	
	2176.85	116.33	2098.84	2060.52	28.38	OSFL 50	15550.00	12275.00				MinPt-CtCt	
	2176.79	119.57	2096.62	2057.22	27.61	OSFL 50	15690.00	12275.00				MinPt-CtCt	
	2179.25	126.03	2094.77	2053.22	26.20	OSFL 50	15960.00	12275.00				MinPt-CtCt	
	2179.77	127.58	2094.27	2052.19	25.89	OSFL 50	16040.00	12275.00				MINPT-O-EQU	
	2180.41	128.35	2094.35	2052.05	25.74	OSFL 50	16080.00	12275.00				MinPt-O-ADP	
	2183.29	136.92	2091.56	2046.37	24.14	OSFL 50	16420.00	12275.00				MINPT-O-EQU	
	2189.07	148.18	2089.83	2040.89	22.35	OSFL 50	16860.00	12275.00				MINPT-O-EQU	
	2189.71	148.96	2089.96	2040.75	22.24	OSFL 50	16900.00	12275.00				MinPt-O-ADP	
	2172.87	184.00	2049.75	1988.87	17.84	OSFL 50	18170.00	12275.00				MinPt-CtCt	
	2173.33	185.48	2049.22	1987.85	17.70	OSFL 50	18240.00	12275.00				MINPT-O-EQU	
	2176.11	193.46	2046.68	1982.65	16.98	OSFL 50	18530.00	12275.00				MINPT-O-EQU	
	2177.63	202.42	2042.23	1975.21	16.24	OSFL 50	18830.00	12275.00				MinPt-CtCt	
	2178.98	206.64	2040.76	1972.33	15.91	OSFL 50	19000.00	12275.00				MINPT-O-EQU	
	2185.22	219.93	2038.15	1965.29	14.99	OSFL 50	19470.00	12275.00				MINPT-O-EQU	
	2192.13	237.86	2033.11	1954.27	13.89	OSFL 50	20090.00	12275.00				MINPT-O-EQU	
	2192.87	238.73	2033.26	1954.13	13.85	OSFL 50	20130.00	12275.00				MinPt-O-ADP	
	2171.84	271.21	1990.58	1900.63	12.07	OSFL 50	21220.00	12275.00				MinPt-CtCt	
	2172.39	272.74	1990.11	1899.65	12.00	OSFL 50	21290.00	12275.00				MINPT-O-EQU	
	2175.90	279.14	1989.36	1896.77	11.74	OSFL 50	21510.00	12275.00				MINPT-O-EQU	
	2177.09	280.58	1989.59	1896.51	11.69	OSFL 50	21570.00	12275.00				MinPt-O-ADP	
	2179.95	287.62	1987.75	1892.33	11.42	OSFL 50	21780.00	12275.00				MinPt-CtCt	
	2181.40	293.43	1985.33	1887.97	11.20	OSFL 50	22000.00	12275.00				MINPT-O-EQU	
	2182.62	294.91	1985.57	1887.72	11.15	OSFL 50	22060.00	12275.00				MinPt-O-ADP	
	2183.05	297.10	1984.53	1885.95	11.07	OSFL 50	22108.82	12275.00				MinPts	
Final Surveys - Cimarex Red Hills 32-5 Fed Com #131H MWD Off-22334 (Surcon Corrected) (Def Survey)													
	2554.06	32.81	2552.88	2521.25	N/A	MAS = 10.00 (m)	0.00	0.00					Pass
	2554.02	32.81	2552.84	2521.21	971557.28	MAS = 10.00 (m)	10.00	10.00				Surface	
	2554.02	32.81	2552.84	2521.21	865585.83	MAS = 10.00 (m)	23.00	23.00				MinPt-O-SF	
	2553.26	32.81	2551.36	2520.45	3518.21	MAS = 10.00 (m)	210.00	210.00				WRP	
	2553.37	32.81	2551.29	2520.56	2840.04	MAS = 10.00 (m)	250.00	250.00				MinPts	
	2554.29	32.81	2550.50	2521.48	977.74	MAS = 10.00 (m)	640.00	640.00				MINPT-O-EQU	
	2681.45	32.81	2663.03	2648.64	154.33	MAS = 10.00 (m)	3840.00	3840.00				MinPt-O-SF	
	2674.89	33.03	2652.43	2641.76	125.38	OSFL 50	4810.00	4810.00				MinPt-CtCt	
	2674.87	33.24	2652.38	2641.63	124.57	OSFL 50	4840.00	4840.00				MINPT-O-EQU	
	2674.99	33.38	2652.36	2641.61	124.04	OSFL 50	4860.00	4860.00				MinPt-O-ADP	
	2689.95	48.73	2657.12	2641.22	84.58	OSFL 50	7180.00	7180.00				MinPt-CtCt	
	2687.38	55.30	2650.16	2632.08	74.27	OSFL 50	8170.00	8170.00				MinPt-CtCt	
	2684.34	60.82	2643.44	2623.52	67.34	OSFL 50	9010.00	9010.00				MinPt-CtCt	
	2683.20	63.40	2640.59	2619.81	64.53	OSFL 50	9400.00	9400.00				MinPt-CtCt	
	2683.33	63.80	2640.44	2619.53	64.11	OSFL 50	9460.00	9460.00				MINPT-O-EQU	
	2683.49	64.00	2640.47	2619.49	63.91	OSFL 50	9490.00	9490.00				MinPt-O-ADP	
	2674.75	72.65	2625.97	2602.10	56.01	OSFL 50	10790.00	10790.00				MinPt-CtCt	
	2674.63	73.65	2625.18	2600.98	55.24	OSFL 50	10940.00	10940.00				MinPt-CtCt	
	2674.74	74.04	2625.03	2600.69	54.94	OSFL 50	11000.00	11000.00				MINPT-O-EQU	
	2675.70	75.10	2625.29	2600.59	54.18	OSFL 50	11160.00	11160.00				MinPt-O-ADP	
	2682.54	79.16	2629.42	2603.38	51.48	OSFL 50	11761.78	11761.78				MinPt-O-SF	
	2745.47	75.56	2694.74	2669.90	55.24	OSFL 50	12360.00	12216.88				MinPt-O-SF	
	2732.61	77.42	2680.67	2655.19	53.61	OSFL 50	13290.00	12275.00				MinPt-CtCt	
	2732.70	79.77	2679.20	2652.93	52.01	OSFL 50	13540.00	12275.00				MinPt-CtCt	
	2732.83	80.16	2679.06	2652.67	51.75	OSFL 50	13590.00	12275.00				MINPT-O-EQU	
	2733.05	80.41	2679.12	2652.64	51.59	OSFL 50	13620.00	12275.00				MinPt-O-ADP	
	2730.10	94.36	2666.87	2635.75	43.84	OSFL 50	14540.00	12275.00				MinPt-CtCt	
	2728.05	101.44	2660.09	2626.60	40.72	OSFL 50	14900.00	12275.00				MinPt-CtCt	
	2726.75	108.80	2653.89	2617.95	37.92	OSFL 50	15250.00	12275.00				MinPt-CtCt	
	2728.10	112.37	2652.8										

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		
2724.74	249.03	2558.39	2475.71	16.47		OSF1.50	20490.00	12275.00				MINPT-O-EOU	
2726.44	251.05	2558.74	2475.38	16.35		OSF1.50	20570.00	12275.00				MinPt-O-ADP	
2729.75	258.73	2556.94	2471.03	15.88		OSF1.50	20800.00	12275.00				MinPt-CtCt	
2730.96	262.18	2555.83	2468.77	15.68		OSF1.50	20940.00	12275.00				MINPT-O-EOU	
2728.44	270.42	2547.84	2458.03	15.18		OSF1.50	21200.00	12275.00				MinPt-CtCt	
2713.87	297.13	2515.45	2416.74	13.74		OSF1.50	22108.82	12275.00				MinPts	

Cimarex Red Hills 32-5 Fed
Com #128H Rev3 RM 19Nov19
(Def Plan)

Pass

2594.73	32.81	2593.45	2561.92	N/A		MAS = 10.00 (m)	0.00	0.00				Surface	
2594.71	32.81	2593.42	2561.90	N/A		MAS = 10.00 (m)	10.00	10.00				MinPts	
2594.71	32.81	2593.42	2561.90	N/A		MAS = 10.00 (m)	23.00	23.00				WRP	
2591.88	37.87	2566.21	2554.02	106.23		OSF1.50	3950.00	3950.00				MinPt-CtCt	
2591.92	38.91	2565.56	2553.02	103.31		OSF1.50	4110.00	4110.00				MinPts	
2591.95	96.45	2527.22	2495.49	40.83		OSF1.50	10400.00	10400.00				MinPt-O-SF	
2584.15	96.21	2519.58	2487.94	40.82		OSF1.50	10790.00	10790.00				MinPt-CtCt	
2584.17	96.24	2519.58	2487.93	40.81		OSF1.50	10800.00	10800.00				MinPts	
2589.39	96.66	2524.52	2492.73	40.73		OSF1.50	10980.00	10980.00				MinPt-O-SF	
2950.02	305.58	2745.86	2644.42	14.53		OSF1.50	21910.00	12275.00				MINPT-O-EOU	
2950.31	305.93	2745.93	2644.38	14.52		OSF1.50	21930.00	12275.00				MinPt-O-ADP	
2958.96	308.43	2752.91	2650.53	14.44		OSF1.50	22108.82	12275.00				MinPt-O-SF	

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

Pass

2614.73	32.81	2613.44	2581.92	N/A		MAS = 10.00 (m)	0.00	0.00				Surface	
2614.71	32.81	2613.42	2581.90	N/A		MAS = 10.00 (m)	10.00	10.00				MinPts	
2614.71	32.81	2613.42	2581.90	N/A		MAS = 10.00 (m)	23.00	23.00				WRP	
2614.71	92.93	2552.32	2521.77	42.77		OSF1.50	9790.00	9790.00				MinPts	
2592.16	92.82	2529.84	2499.34	42.47		OSF1.50	10190.00	10190.00				MinPt-CtCt	
2592.16	92.86	2529.82	2499.30	42.45		OSF1.50	10200.00	10200.00				MINPT-O-EOU	
2592.20	92.89	2529.83	2499.30	42.44		OSF1.50	10210.00	10210.00				MinPt-O-ADP	
2598.48	93.39	2535.80	2505.10	42.39		OSF1.50	10390.00	10390.00				MinPt-O-SF	
3271.01	304.04	3067.88	2966.97	16.20		OSF1.50	21910.00	12275.00				MINPT-O-EOU	
3271.27	304.39	3067.92	2966.88	16.18		OSF1.50	21930.00	12275.00				MinPt-O-ADP	
3279.08	307.08	3073.93	2971.99	18.08		OSF1.50	22108.82	12275.00				MinPt-O-SF	

Rector Oil Maechtel Permit #1
(Offset) Plugged Oil Blind Off-
5006ft (Def Survey)

Pass

10176.17	32.81	10174.88	10143.36	N/A		MAS = 10.00 (m)	0.00	0.00				Surface	
10175.88	32.81	10174.54	10143.07	196947.47		MAS = 10.00 (m)	23.00	23.00				MinPt-O-SF	
10175.22	1558.05	9136.10	8617.18	9.80		OSF1.50	5140.00	5140.00				MinPt-CtCt	
10175.22	1559.55	9135.06	8615.67	9.78		OSF1.50	5150.00	5150.00				MinPts	
10050.43	1101.30	9315.80	8949.13	13.70		OSF1.50	15310.00	12275.00				MinPt-O-SF	
7622.97	591.78	7228.02	7031.19	19.36		OSF1.50	21860.00	12275.00				MinPt-CtCt	
7623.21	592.40	7227.85	7030.81	19.34		OSF1.50	21920.00	12275.00				MINPT-O-EOU	
7623.92	593.24	7228.00	7030.68	19.32		OSF1.50	21980.00	12275.00				MinPt-O-ADP	
7627.03	595.78	7229.42	7031.26	19.24		OSF1.50	22108.82	12275.00				MinPt-O-SF	

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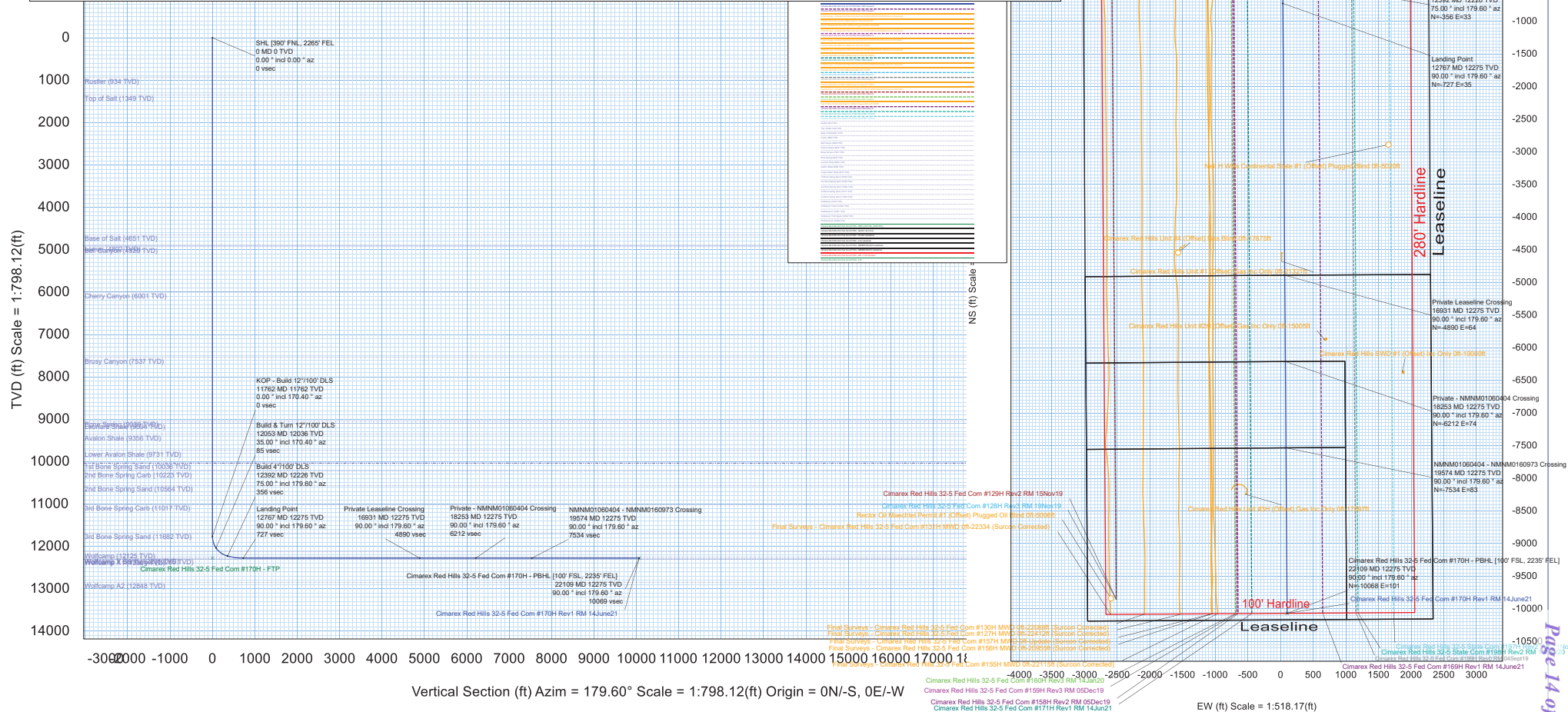
SHL 390' FNL 2265' FEL 0 MD 0' TVD 0.00' incl 0.00' az N=0 E=0'

KOP - Build 12'100' DLS 11762 MD 11762 TVD 0.00' incl 170.40' az N=0 E=0'

Build 47'100' DLS 12053 MD 12036 TVD 35.00' incl 170.40' az N=35 E=14'

100' Hardline

Leaseline





Cimarex Red Hills 32-5 Fed Com #170H Rev1 RM 14June21 Proposal

Geodetic Report

(Def Plan)



Report Date: June 14, 2021 - 11:26 AM
Client: Cimarex Energy
Field: NM Lea County (NAD 83)
Structure / Slot: Cimarex Red Hills 32-5 Fed Com #170H / New Slot
Well: Red Hills 32-5 Fed Com #170H
Borehole: Red Hills 32-5 Fed Com #170H
UWI / API#: Unknown / Unknown
Survey Name: Cimarex Red Hills 32-5 Fed Com #170H Rev1 RM 14June21
Survey Date: September 04, 2019
Tort / AHD / DDI / ERD Ratio: 90.631 ° / 10070.426 ft / 6.216 / 0.820
Coordinate Reference System: NAD83 New Mexico State Plane, Eastern Zone, US Feet
Location Lat / Long: N 32° 5' 35.67443", W 103° 35' 35.12718"
Location Grid N/E Y/X: N 398445.360 ftUS, E 770574.100 ftUS
CRS Grid Convergence Angle: 0.3933 °
Grid Scale Factor: 0.99996928
Version / Patch: 2.10.825.0

Survey / DLS Computation: Minimum Curvature / Lubinski
Vertical Section Azimuth: 179.597 ° (Grid North)
Vertical Section Origin: 0.000 ft, 0.000 ft
TVD Reference Datum: RKB
TVD Reference Elevation: 3432.800 ft above MSL
Seabed / Ground Elevation: 3409.800 ft above MSL
Magnetic Declination: 6.407 °
Total Gravity Field Strength: 998.4291mgn (9.80665 Based)
Gravity Model: GARM
Total Magnetic Field Strength: 47554.344 nT
Magnetic Dip Angle: 59.691 °
Declination Date: June 14, 2021
Magnetic Declination Model: HDGM 2021
North Reference: Grid North
Grid Convergence Used: 0.3933 °
Total Corr Mag North->Grid North: 6.0136 °
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 [390' FNL, 2265' FEL	0.00	0.00	0.00	0.00	0.00	0.00	0.00	N/A	398445.36	770574.10	N 32 5 35.67	W 103 35 35.13
KOP - Build 12"/100' DLS	11761.78	0.00	170.40	11761.78	0.00	0.00	0.00	0.00	398445.36	770574.10	N 32 5 35.67	W 103 35 35.13
Build & Turn 12"/100' DLS	12053.45	35.00	170.40	12035.64	85.24	-85.14	14.40	12.00	398360.22	770588.50	N 32 5 34.83	W 103 35 34.97
Build 4"/100' DLS	12392.04	75.00	179.60	12226.19	356.07	-355.85	32.51	12.00	398089.53	770606.61	N 32 5 32.15	W 103 35 34.78
Landing Point	12767.04	90.00	179.60	12275.00	726.80	-726.57	35.12	4.00	397718.82	770609.21	N 32 5 28.48	W 103 35 34.78
Cimarex Red Hills 32-5 Fed Com #170H - PBHL [100' FSL, 2235' FEL]	22108.82	90.00	179.60	12275.00	10068.58	-10068.12	100.78	0.00	388377.57	770674.88	N 32 3 56.04	W 103 35 34.76

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	23.000	1/100.000	17.500	13.375		NAL_MWD_IFR1+MS-Depth Only	Red Hills 32-5 Fed Com #170H / Cimarex Red Hills 32-5 Fed Com #170H Rev1 RM 14June21
	1	23.000	22108.821	1/100.000	17.500	13.375		NAL_MWD_IFR1+MS	Red Hills 32-5 Fed Com #170H / Cimarex Red Hills 32-5 Fed Com

1. Geological Formations

TVD of target 12,275

Pilot Hole TD N/A

MD at TD 22,108

Deepest expected fresh water

Formation	Depth (TVD) from KB	Water/Mineral Bearing/Target Zone	Hazards
Rustler	934	Useable Water	
Top Salt	1349	N/A	
Base Salt	4651	N/A	
Lamar	4892	N/A	
Bell Canyon	4929	N/A	
Cherry Canyon	6001	Hydrocarbons	
Brushy Canyon	7537	Hydrocarbons	
Bone Spring	9039	Hydrocarbons	
Upper Avalon shale	9356	Hydrocarbons	
1st Bone Spring	10036	Hydrocarbons	
2nd Bone Spring	10223	Hydrocarbons	
3rd Bone Spring	11017	Hydrocarbons	
Wolfcamp	12125	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	984	984	10-3/4"	40.50	J-55	BT&C	3.51	6.95	15.78
9 7/8	0	12392	12226	7-5/8"	29.70	L-80	BT&C	2.50	1.20	1.83
6 3/4	0	11761	11761	5-1/2"	20.00	L-80	LT&C	1.16	1.20	1.88
6 3/4	11761	22108	12275	5"	18.00	P-110	BT&C	1.69	1.71	62.69
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., Red Hills 32-5 Federal Com 170H

	Y or N
Is casing new? If used, attach certification as required in Onshore Order #1	Y
Does casing meet API specifications? If no, attach casing specification sheet.	Y
Is premium or uncommon casing planned? If yes attach casing specification sheet.	N
Does the above casing design meet or exceed BLM's minimum standards? If not provide justification (loading assumptions, casing design criteria).	Y
Will the intermediate pipe be kept at a minimum 1/3 fluid filled to avoid approaching the collapse pressure rating of the casing?	Y
Is well located within Capitan Reef?	N
If yes, does production casing cement tie back a minimum of 50' above the Reef?	N
Is well within the designated 4 string boundary.	N
Is well located in SOPA but not in R-111-P?	N
If yes, are the first 2 strings cemented to surface and 3rd string cement tied back 500' into previous casing?	N
Is well located in R-111-P and SOPA?	N
If yes, are the first three strings cemented to surface?	N
Is 2nd string set 100' to 600' below the base of salt?	N
Is well located in high Cave/Karst?	N
If yes, are there two strings cemented to surface?	N
(For 2 string wells) If yes, is there a contingency casing if lost circulation occurs?	N
Is well located in critical Cave/Karst?	N
If yes, are there three strings cemented to surface?	N
Is AC Report included?	N

3. Cementing Program

Casing	# Sk	Wt. lb/gal	Yld ft ³ /sack	H ₂ O gal/sk	500# Comp. Strength (hours)	Slurry Description
Surface	332	13.50	1.72	9.15	15.5	Lead: Class C + Bentonite
	156	14.80	1.34	6.32	9.5	Tail: Class C + LCM
Intermediate Stage 1	1115	12.90	1.88	9.65	12	Lead: 35:65 (Poz:C) + Salt + Bentonite
	200	14.80	1.34	6.32	9.5	Tail: Class C + LCM
Intermediate Stage 2	410	10.30	3.64	22.18		Lead: Tuned Light + LCM
Production	997	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 +/- 4,892'.

Casing String	TOC	% Excess
Surface	0	42
Intermediate Stage 1	4892	47
Intermediate Stage 2	0	40
Production	12192	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	11	5M	Annular	X	5M
			Blind Ram	X	
			Pipe Ram		
			Double Ram	X	
			Other		
6 3/4	13 5/8	10M	Annular	X	10M
			Blind Ram		
			Pipe Ram	X	
			Double Ram	X	
			Other		

BOP/BOPE will be tested by an independent service company to 250 psi low and the high pressure indicated above per Onshore Order 2 requirements. The System may be upgraded to a higher pressure but still tested to the working pressure listed in the table above. If the system is upgraded all the components installed will be functional and tested.

Pipe rams will be operationally checked each 24 hour period. Blind rams will be operationally checked on each trip out of the hole. These checks will be noted on the daily tour sheets. Other accessories to the BOP equipment will include a Kelly cock and floor safety valve (inside BOP) and choke lines and choke manifold. See attached schematics.

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

5. Mud Program

Depth	Type	Weight (ppg)	Viscosity	Water Loss
0' to 984'	FW Spud Mud	8.30 - 8.80	30-32	N/C
984' to 12392'	Brine Diesel Emulsion	8.50 - 9.00	30-35	N/C
12392' to 22108'	Oil Based Mud	12.00 - 12.50	50-70	N/C

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

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.
	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	7978 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 100% 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.

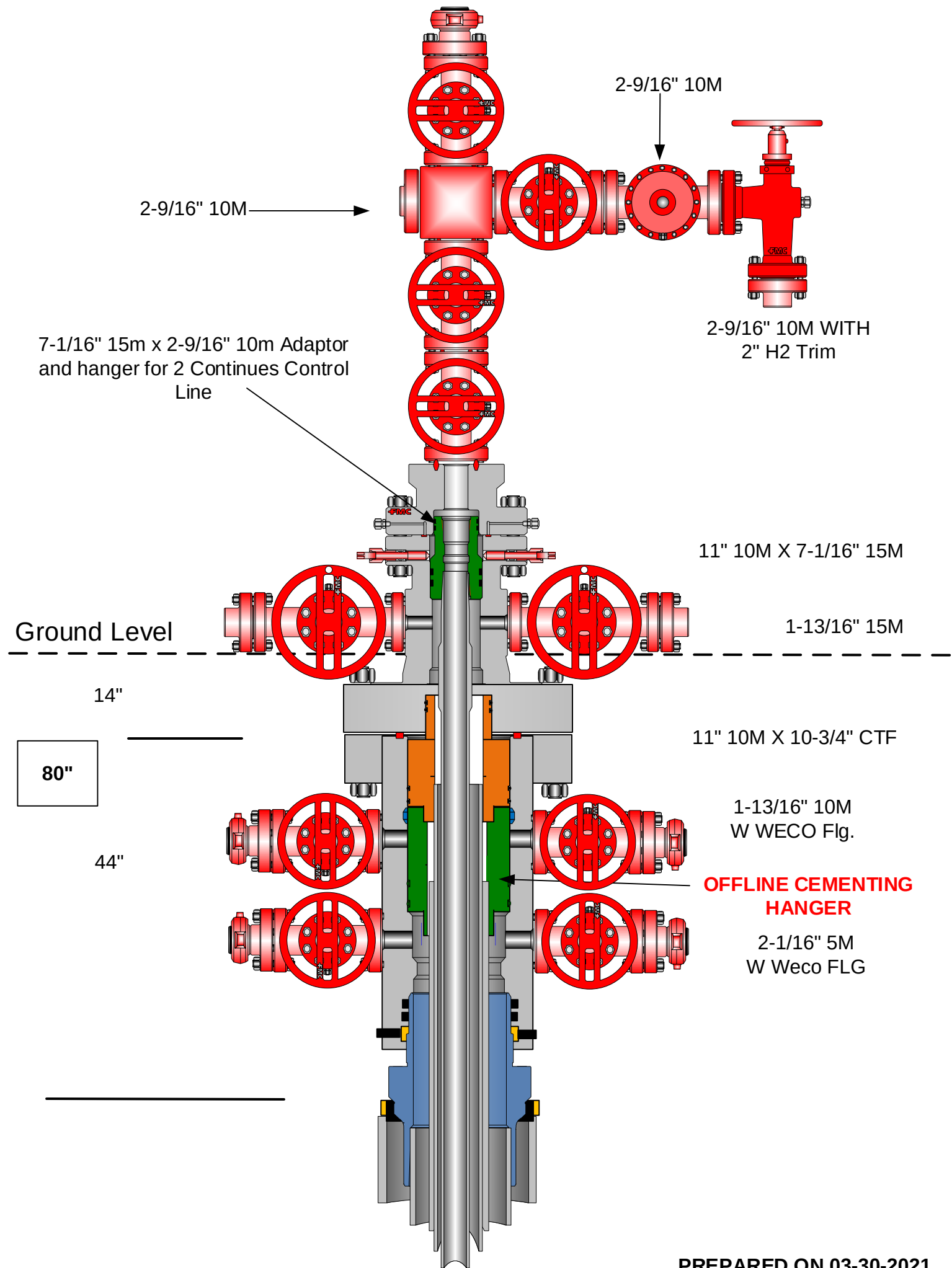
All casing strings will be tested as per Onshore Order No.2 to atleast 0.22 psi/ft or 1,500 whichever is greater and not to exceed 70% of casing burst.

If well conditions dictate conventional slips will be set and BOPE will be tested to appropriate pressures based on permitted pressure requirements.

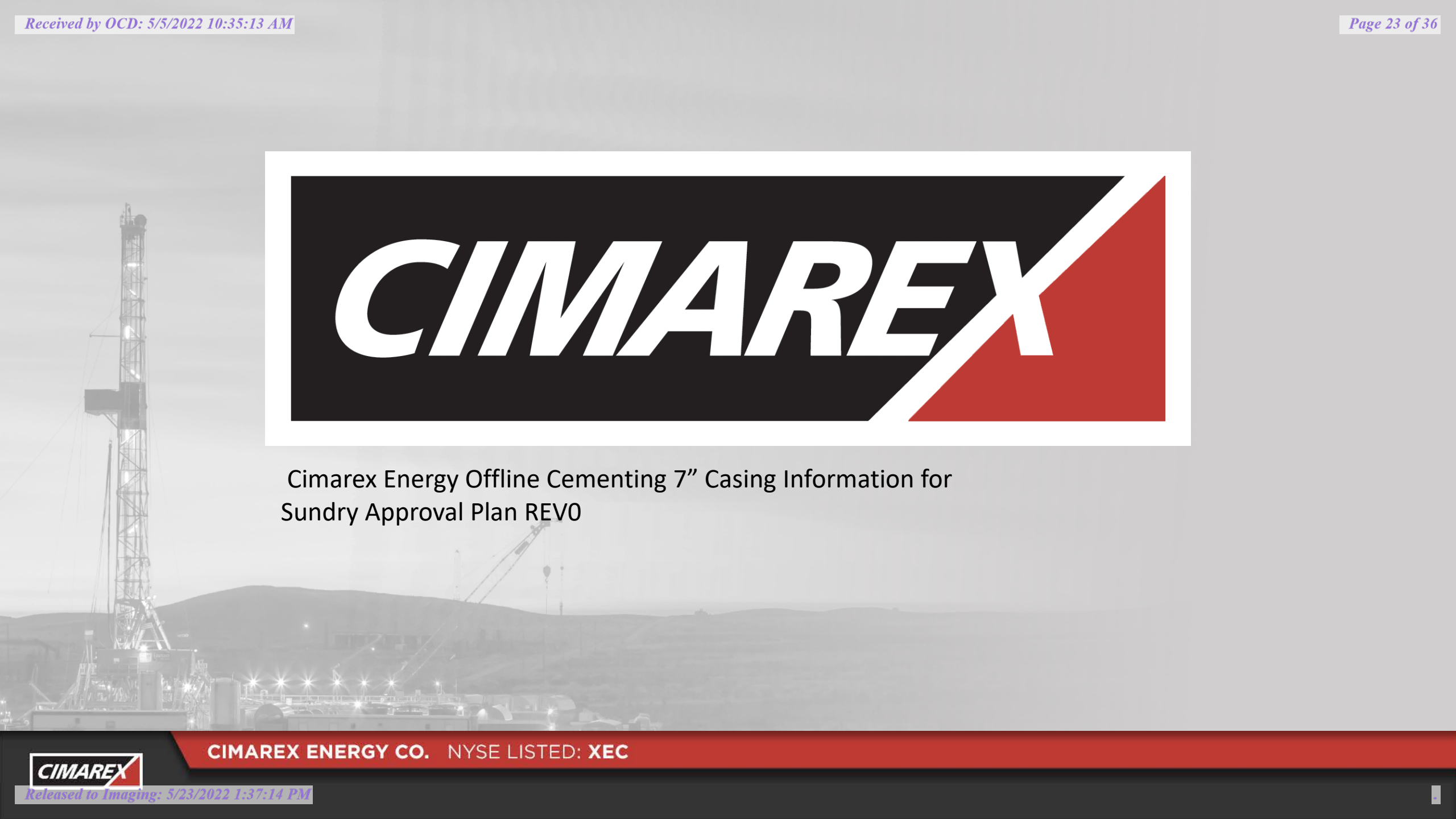
Size	Depth From	Depth To	Depth TVD	Size	Weight (lb/ft)	Grade	Conn.	SF Collapse	SF Burst	SF Tension
14 3/4	0	984	984	10-3/4"	40.50	J-55	BT&C	3.51	6.95	15.78
9 7/8	0	12392	12226	7-5/8"	29.70	L-80	BT&C	2.50	1.20	1.83
6 3/4	0	11761	11761	5-1/2"	20.00	L-80	LT&C	1.16	1.20	1.88
6 3/4	11761	22108	12275	5"	18.00	P-110	BT&C	1.69	1.71	62.69
BLM Minimum Safety Factor								1.125	1	1.6 Dry 1.8 Wet

CACTUS FOR SERVICE
WEARBUSHING
IN CASING HEAD &
CASING SPOOL

Red Hills 32-5 Fed Com 170H
LEA CO., NM



PREPARED ON 03-30-2021



CIMAREX

Cimarex Energy Offline Cementing 7" Casing Information for
Sundry Approval Plan REV0



CIMAREX ENERGY CO. NYSE LISTED: XEC

Cementing Operational Workflow

Conventional Cementing

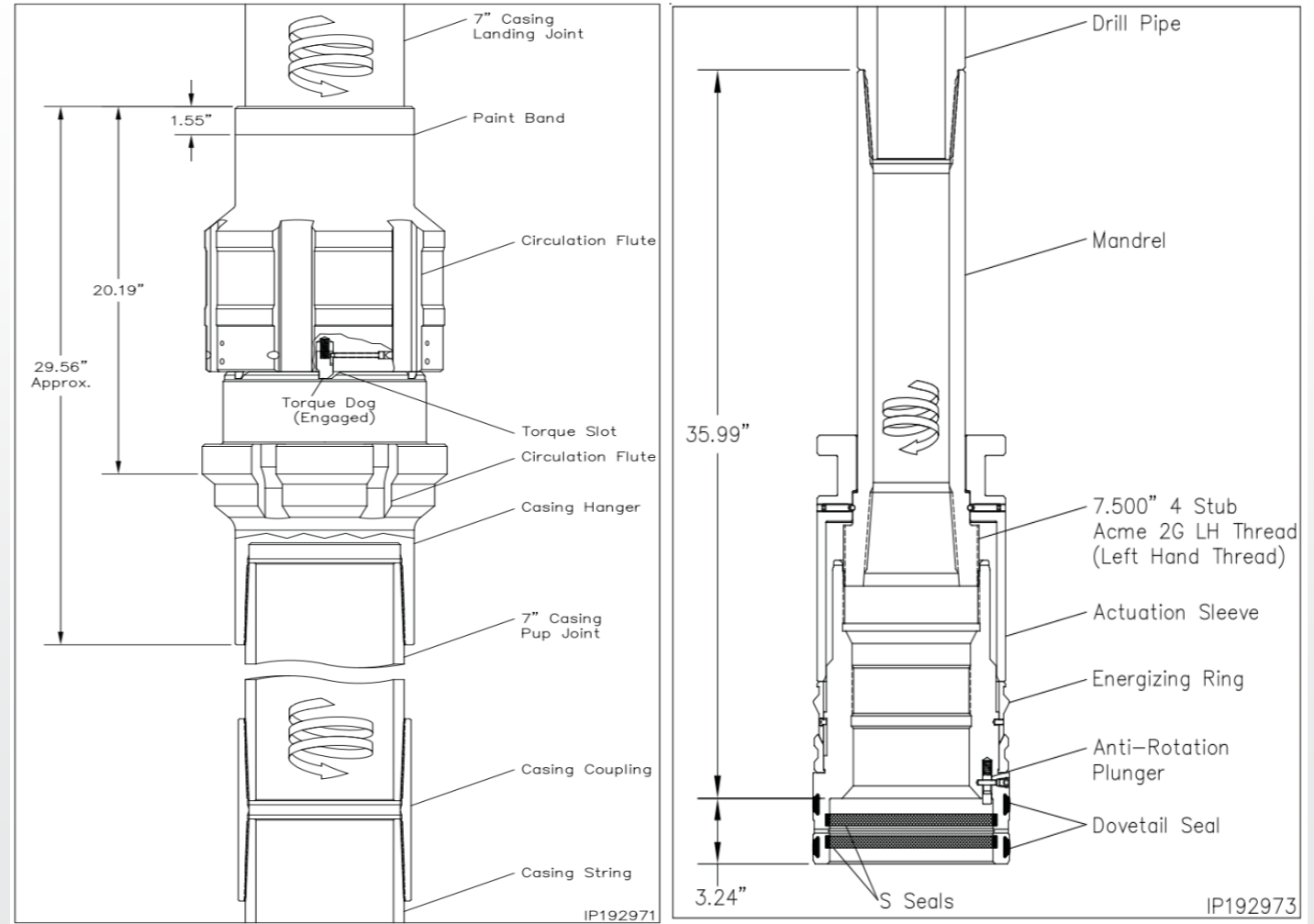
1. Land casing on fluted mandrel hanger
2. Circulate down casing, taking returns through BOP stack
3. Pump lead and tail cement
4. Displace cement and bump the plug
5. Ensure floats are holding pressure
6. RD cement crew
7. Install packoff to isolate pressure
8. Install BPV and skid rig

Offline Cementing

1. Land casing on **solid body** mandrel hanger
 - a) Engage packoff and lockring
2. Install BPV
3. Skid rig
4. Check for pressure and remove BPV
5. Circulate down casing, taking returns through casing valves
6. Pump lead and tail cement
7. Displace cement and bump the plug
8. Ensure floats are holding pressure
9. RD cement crew
10. Install BPV and TA cap

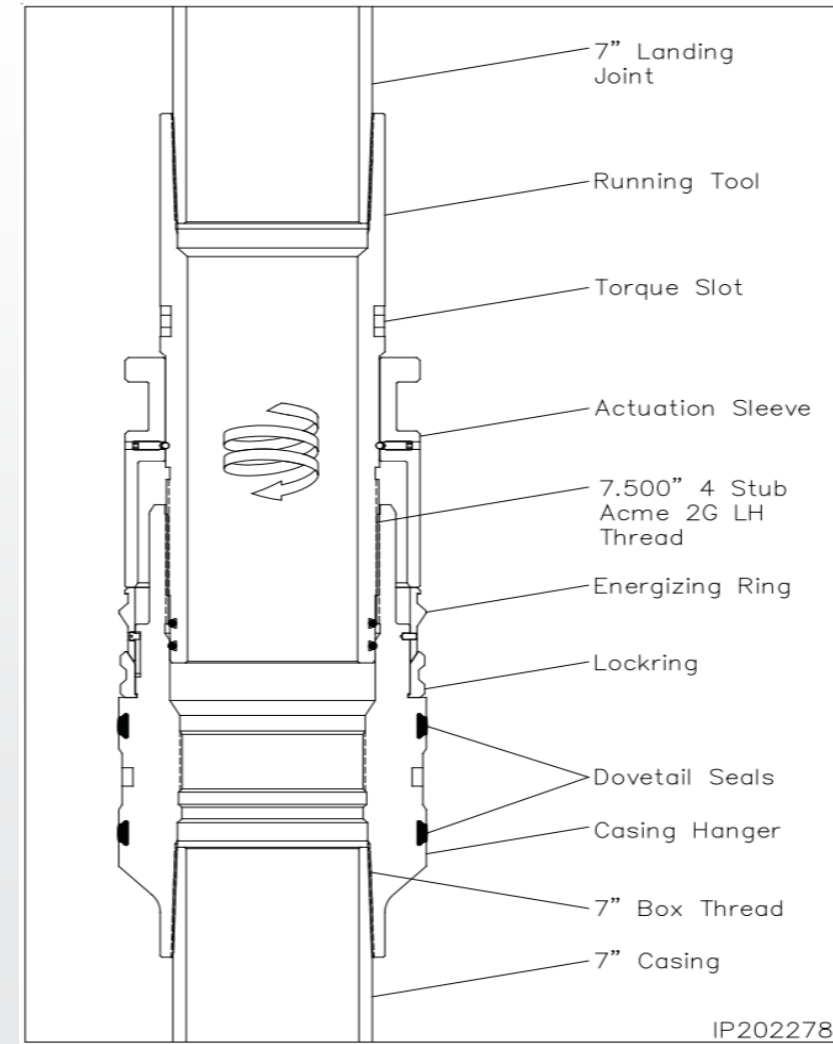
Conventional Cementing Equipment-Fluted Mandrel

- Fluted Hanger allows returns up past the hanger body
- Returns throughout cement job flow up through BOP stack and into flowline
- Packoff is installed **after** cement job to isolate pressure above and below hanger
- Lockring engaged during packoff installation

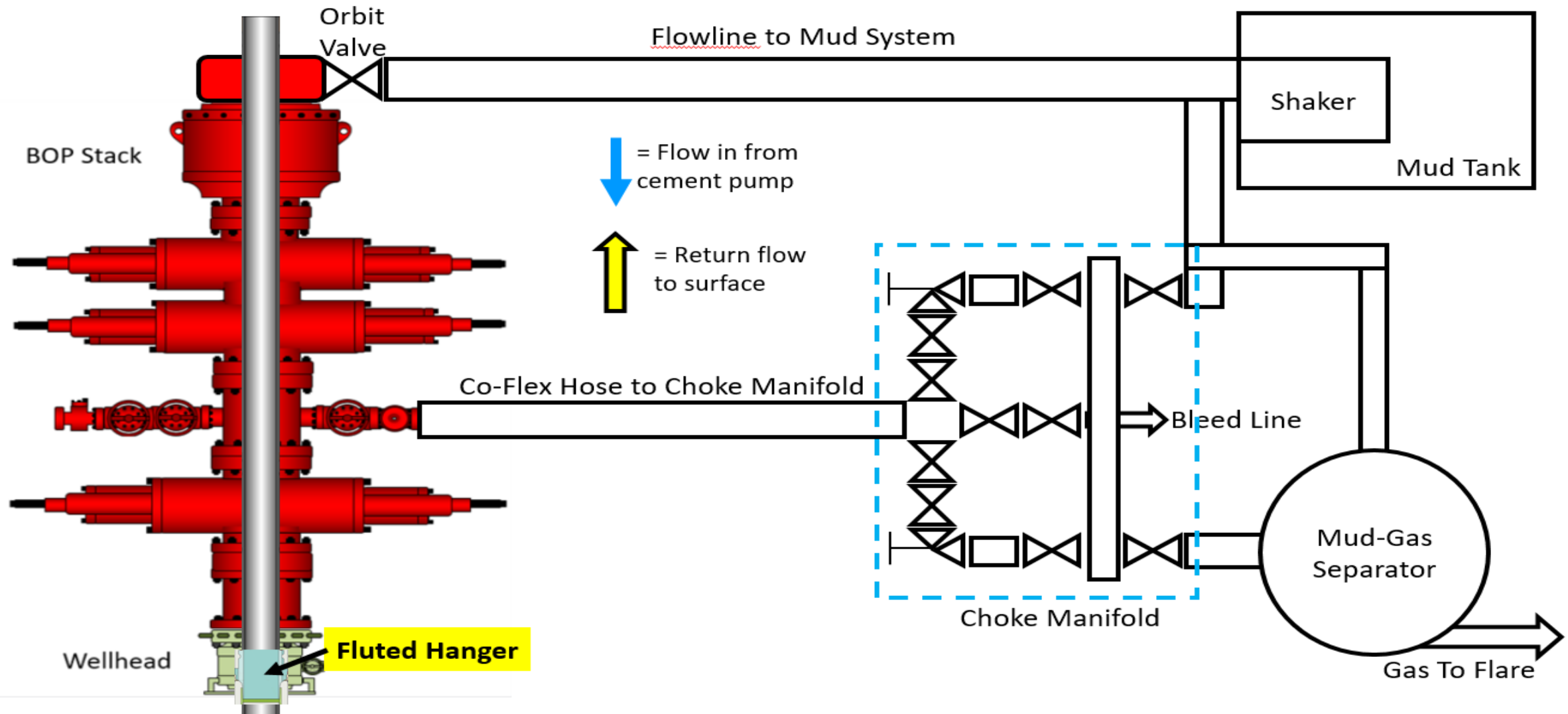


Offline Cementing Equipment-Solid Body Mandrel Hanger

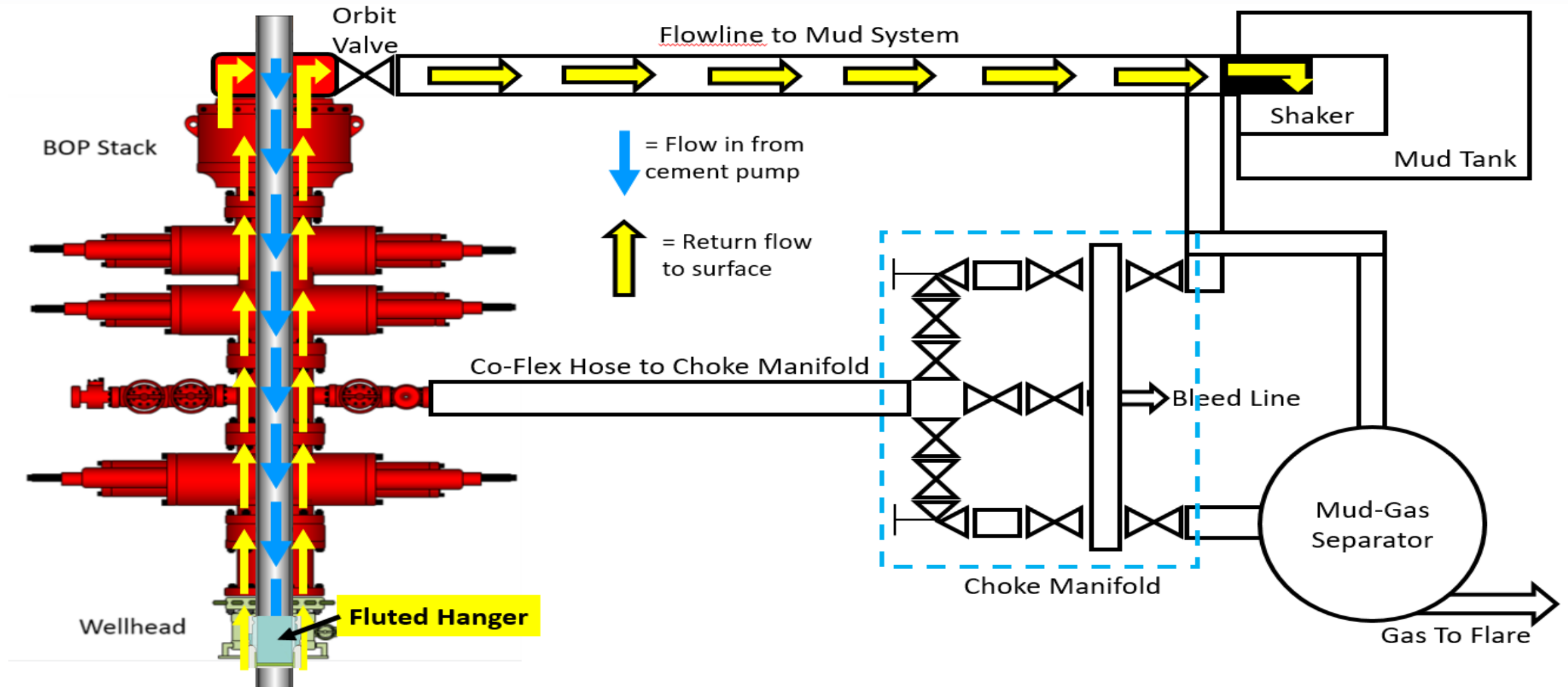
- Solid Body Mandrel Hanger allows for casing to be landed and pressure isolated in one step, **prior** to cementing
- Lockring is engaged to lock casing in place
- Casing is isolated and returns throughout cement job flow through the casing valves and through flowback iron independent of rig



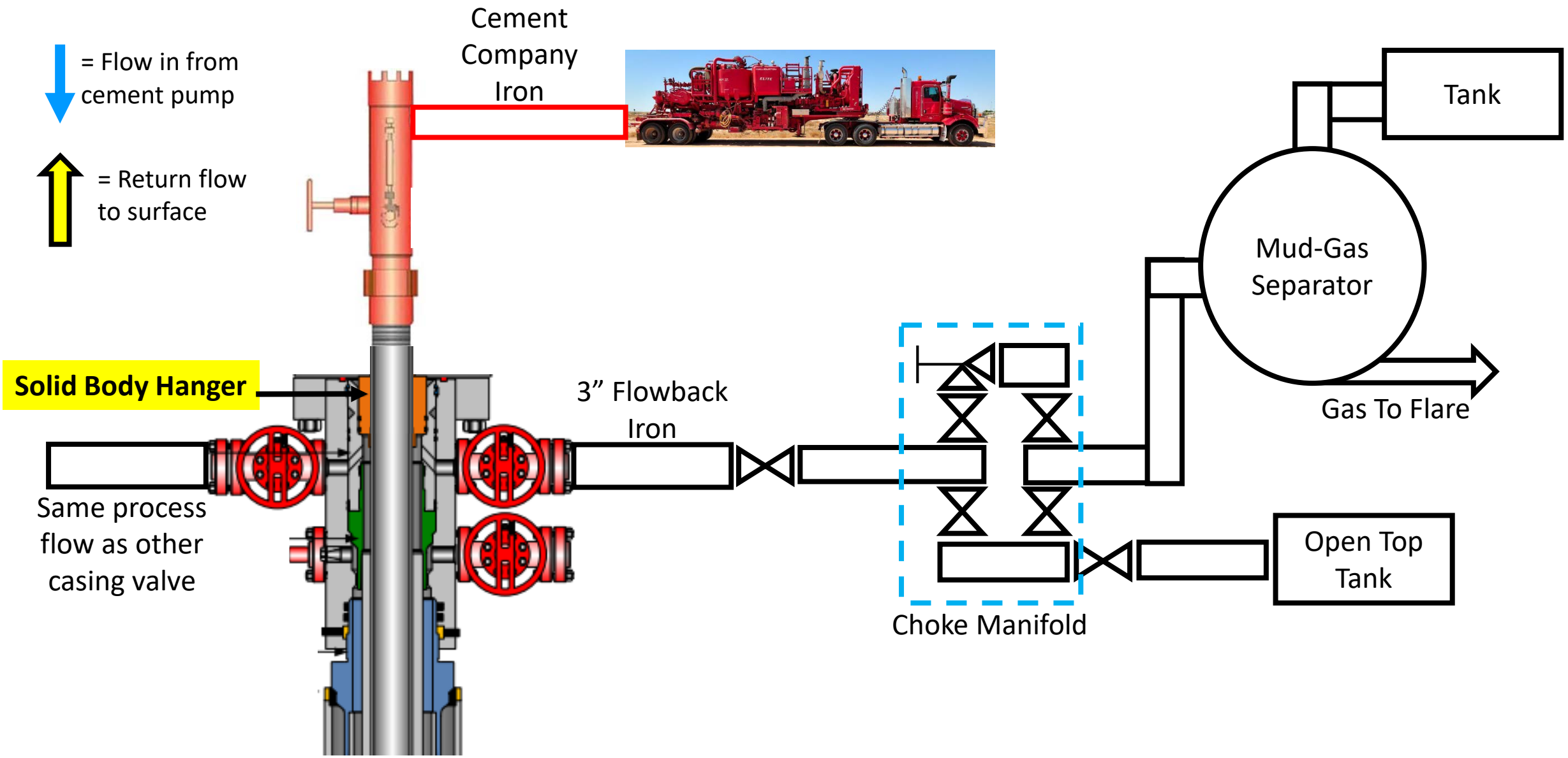
Conventional Cementing Flow Diagram



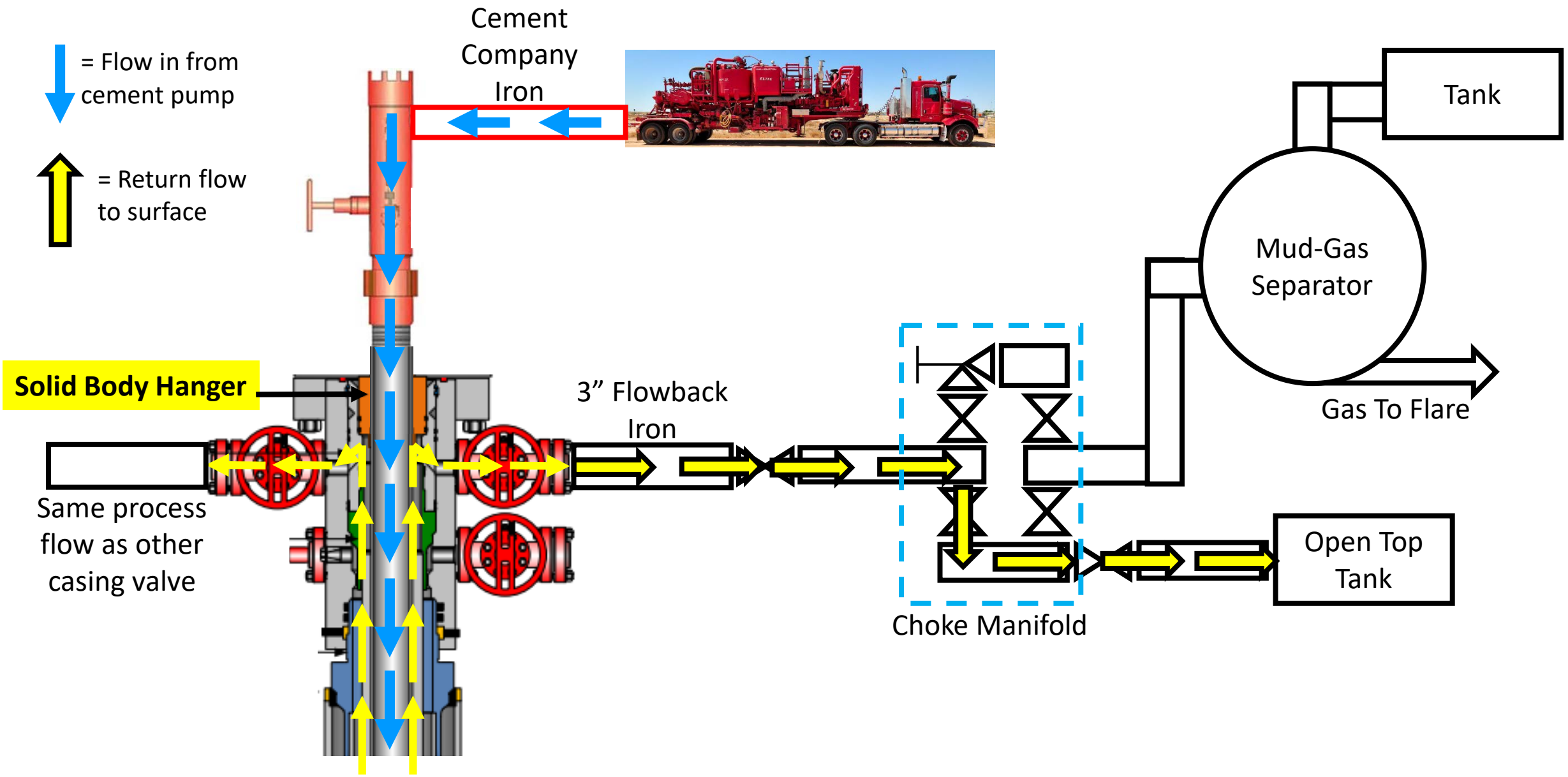
Conventional Cementing Flow Diagram



Offline Cementing -- Intermediate Casing

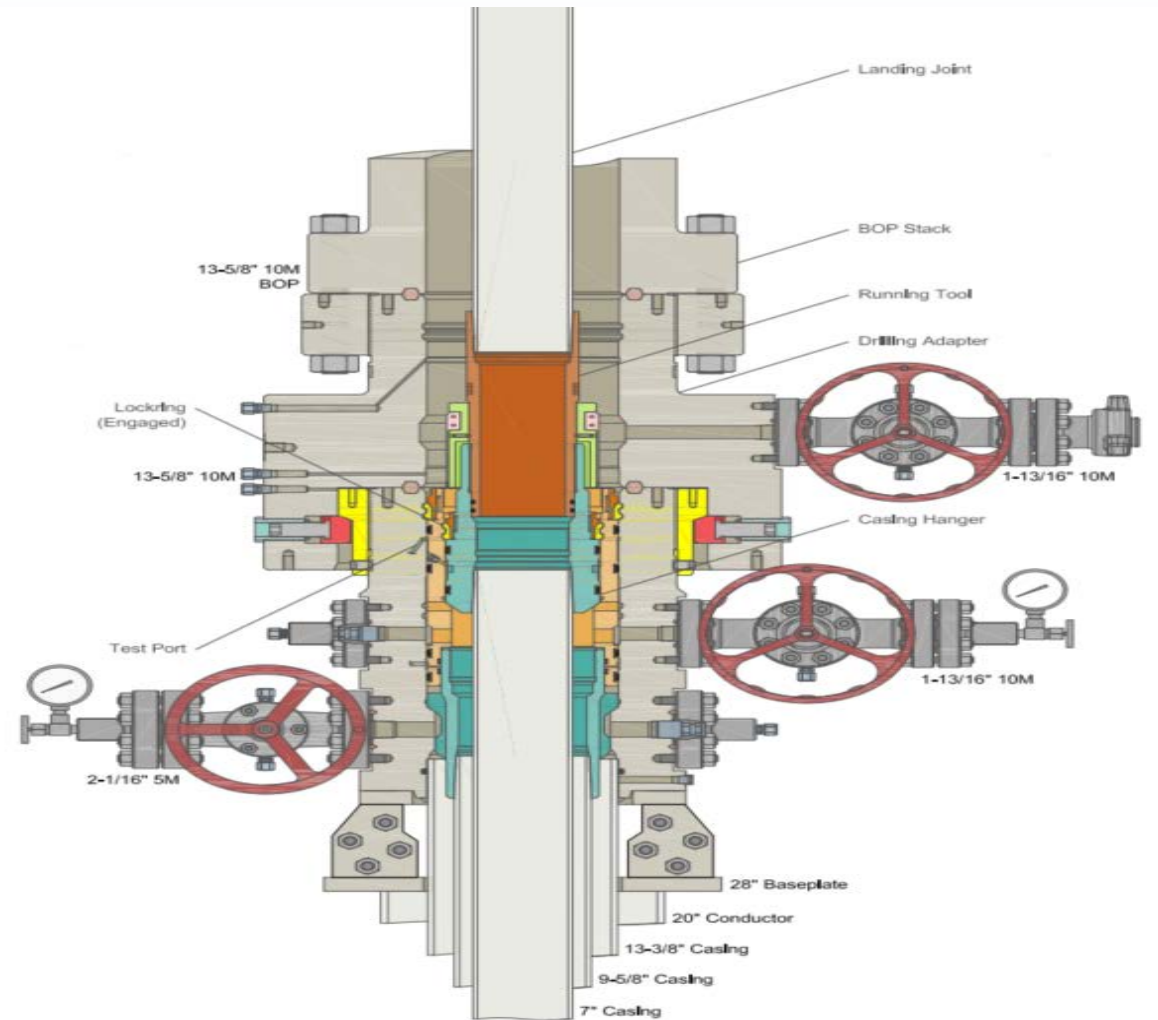


Offline Cementing -- Intermediate Casing



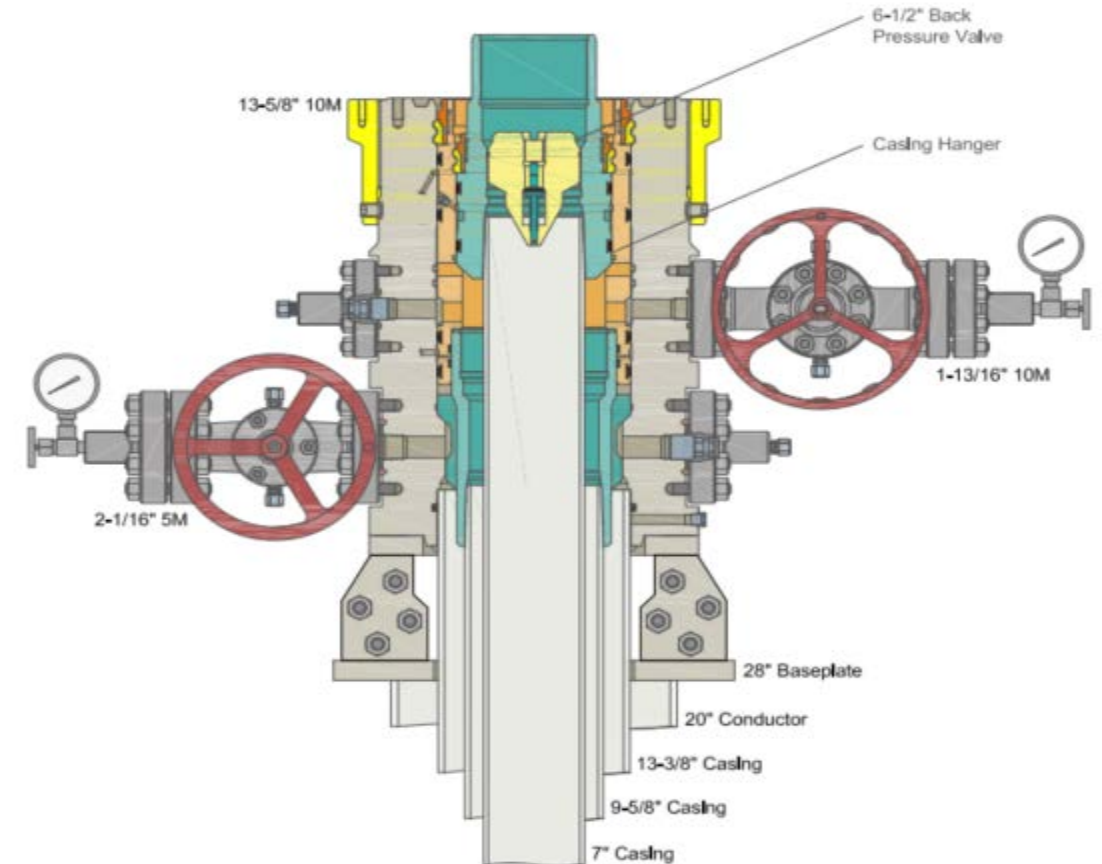
Offline Cementing Progression

- Run 7" casing
- Land 11" nominal x 7" hanger
- Test casing hanger
- Energize 11" nom x 7" hanger lock ring and pull test
- Re-test casing hanger
- Barriers & Procedures after landing casing before setting packoff
 - 10K BOP & 5K Annular-Internal and Annular barrier
 - Kill Weight Fluid in annulus and casing (ensure well is static before setting solid body packoff) Internal and Annular barrier
 - **If well is not static we WILL NOT set solid body packoff.**
 - 10K float collar-Internal Barrier
 - 10k float Shoe-Internal Barrier
 - **After circulating a 1.5 casing capacities to ensure full column of mud and no entrained gas pumps will be shut off and floats checked for flow**



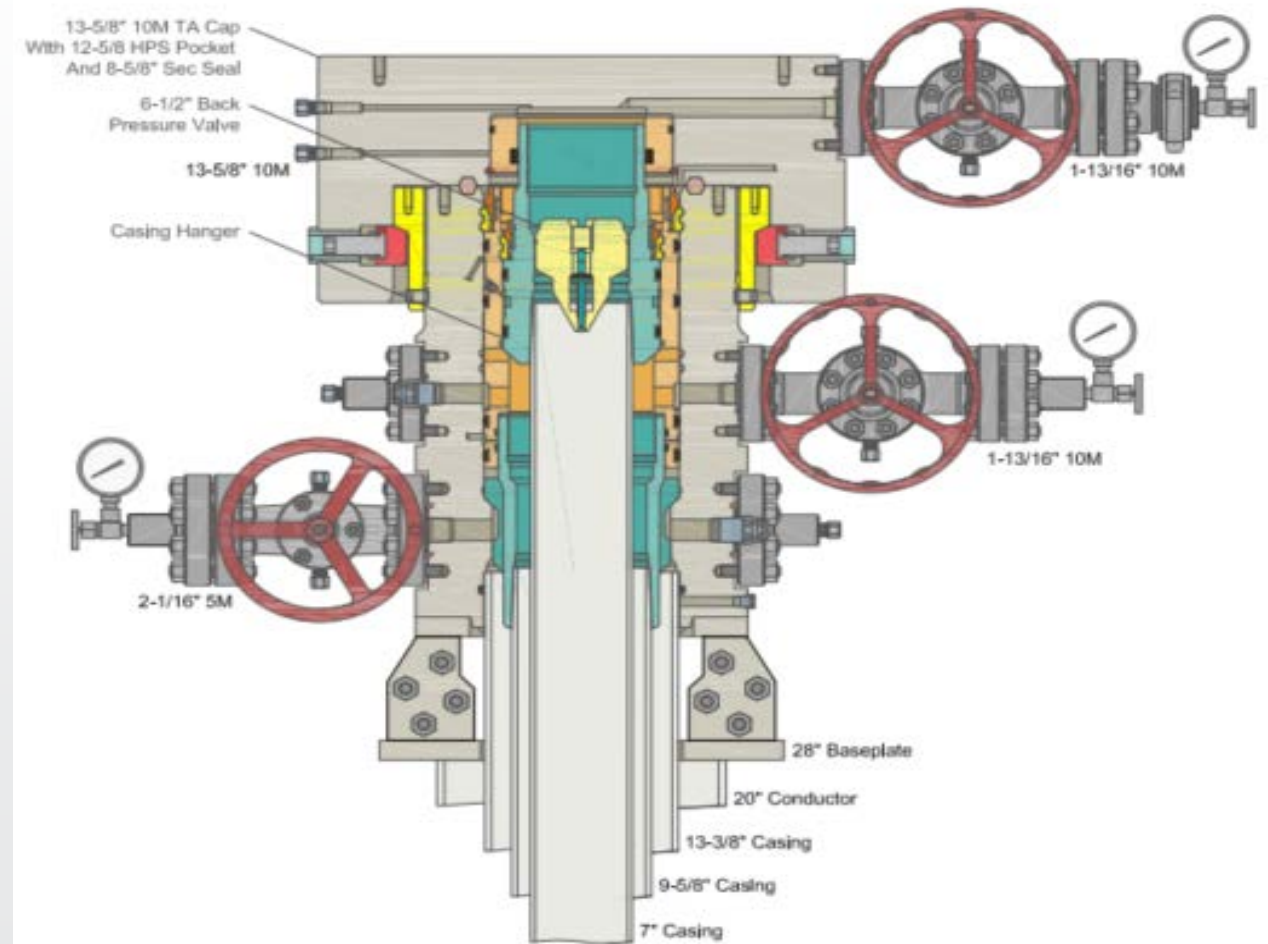
Offline Cementing Progression

- Pick up running tool with 6-1/2" nominal Back Pressure valve run into well and set
- Barriers and procedures **BEFORE** removing BOP's
 - Kill weight Fluid in annulus-Annular Barrier
 - Solid Body Packoff-Annular Barrier
 - 10K Float Equipment-Internal Barrier
 - 10K Back pressure valve installed with BOP still on well-Internal Barrier
 - BPV will be tested before it arrives on location by Cactus



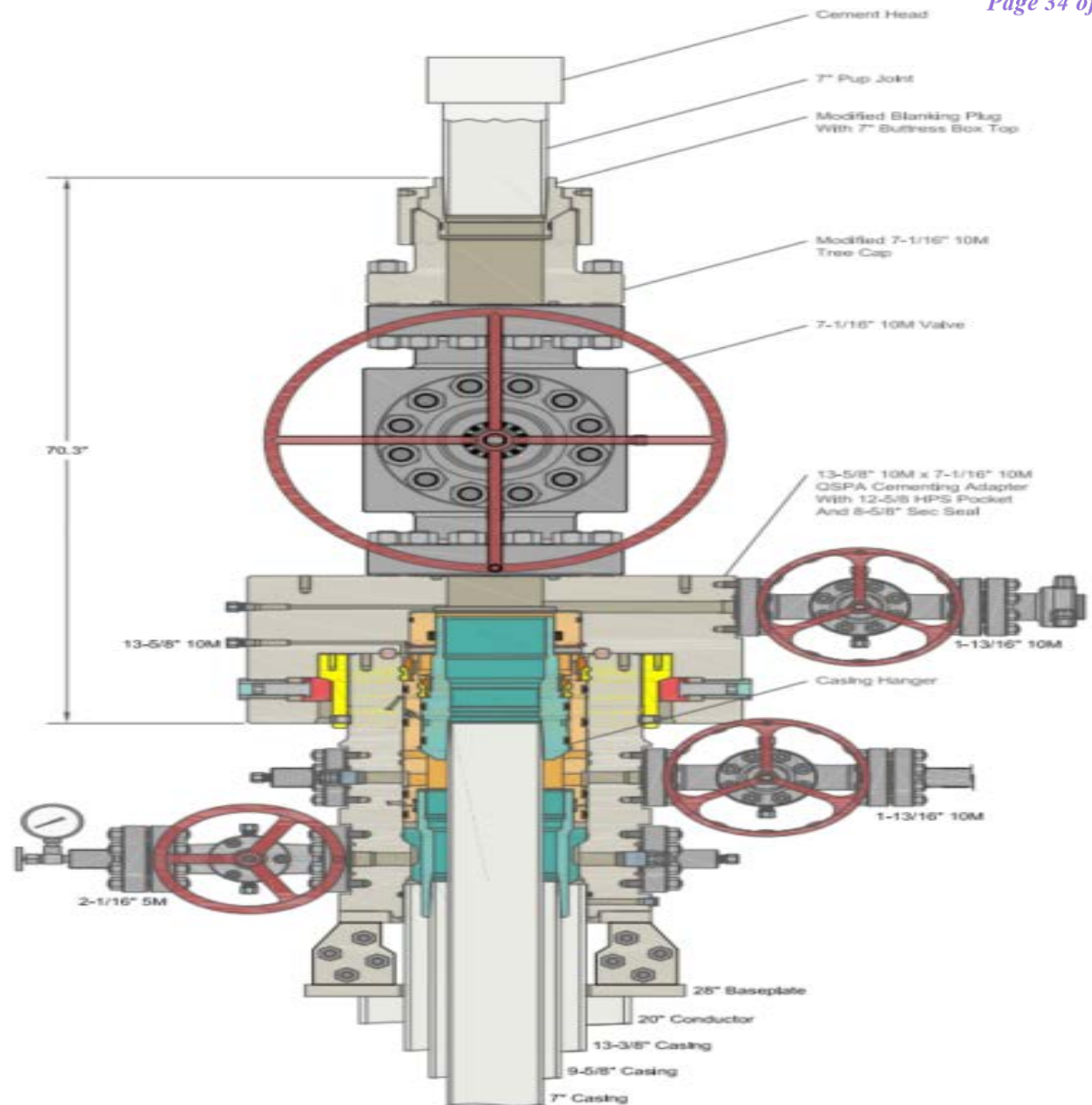
Offline Cementing Progression

- Nipple down BOP
- Nipple up TA Cap and test
- Skid Drilling Rig
- Barriers and procedures **AFTER** removing BOP's
 - Kill weight Fluid in annulus-Annular Barrier
 - Solid Body Packoff-Annular Barrier
 - 10K Float Equipment-Internal Barrier
 - 10K Back pressure valve-Internal Barrier
 - 10K rated TA cap with Valve-Internal Barrier



Offline Cementing Progression

- Check Pressure on TA Cap and remove
- Install adaptor with Gate valve for off line cementing and test
- Rig up flowback iron independent of rig
- Retrieve Back Pressure Valve
- Shut in well
- Rig up to cement and pump job
- NU 10K TA cap after cement job
- Barriers and procedures before rigging up cementing equipment
 - Address well and ensure no pressure on TA cap
 - Ability to pump into well through casing valves on backside to kill if needed
 - Kill weight Fluid in annulus-Annular barrier
 - Solid Body Packoff-Annular barrier
 - 10K Float Equipment-Internal Barrier
 - 10K Back pressure valve-Internal Barrier



Offline Cementing Risk and COA Compliance

- All testing and breaks tested in accordance with Onshore Order # 2 and COA's
- If no cement to surface, bradenhead squeeze still possible with offline cementing equipment
- Time from skid rig to offline cementing ops typically 24 hours
- **Conditions where we would not Offline Cement**
 - Well is flowing
- All wellhead equipment rated to 10K maintaining APD compliant
 - 10K flowback iron independent of rig circulating system
 - 10K Back Pressure Valve
 - 10K Gate Valve & TA combo for second barrier during operations
 - 10K 1-13/16 Valve coming off TA cap
 - 10K TA Cap

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1625 N. French Dr., Hobbs, NM 88240
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District III
1000 Rio Brazos Rd., Aztec, NM 87410
Phone:(505) 334-6178 Fax:(505) 334-6170
District IV
1220 S. St Francis Dr., Santa Fe, NM 87505
Phone:(505) 476-3470 Fax:(505) 476-3462

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

CONDITIONS

Action 104451

CONDITIONS

Operator: CIMAREX ENERGY CO. OF COLORADO 600 N. Marienfeld Street Midland, TX 79701	OGRID: 162683
	Action Number: 104451
	Action Type: [C-103] NOI Change of Plans (C-103A)

CONDITIONS

Created By	Condition	Condition Date
pkautz	None	5/23/2022