U.S. Department of the Interior
BUREAU OF LAND MANAGEMENT

Sundry Print Report

07/14/2021

Well Name: RED HILLS 32-5 FED COM

Well Location: T25S / R33E / SEC 32 / NWNE /

County or Parish/State:

Well Number: 171H

Type of Well: CONVENTIONAL GAS WELL

Allottee or Tribe Name:

Lease Number: NMNM0106040A

Unit or CA Name:

Unit or CA Number:

US Well Number: 3002549125

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: 09:34

Date proposed operation will begin: 08/31/2021

Procedure Description: Cimarex Requests BHL Changes as follows: 100’ FSL & 2515’ FWL, 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 171H 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 171H 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 171H 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_20210708093350.pdf

Multibowl__Red_Hills_32_5_171H_20210708093342.pdf

Directional_Red_Hills_32_5_171H_20210708093328.pdf

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Operator: CIMAREX ENERGY COMPANY

Drilling_Plan__Red_Hills_32_5_Fed_171H_20210708093320.pdf

C102_171H_20210708093312.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 09:34 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	[2] Pool Code	[3] Pool Name
30-025-49125	98158	WC-025 G09 S253236A; UPR Wolfcamp

[4] Property Code	[5] Property Name	[6] Well Number
326032	RED HILLS 32-5 FED COM	171H

[7] OGRID No.	[8] Operator Name	[9] Elevation
162683	CIMAREX ENERGY CO. of Colorado	3409.6'

[10] Surface Location

UL or lot no.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County
B	32	25S	33E		390	NORTH	2285	EAST	LEA

[11] Bottom Hole Location If Different From Surface

UL or lot no.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County
N	5	26S	33E		100	SOUTH	2515	WEST	LEA

[12] Dedicated Acres	[13] Joint or Infill	[14] Consolidation Code	[15] Order No.
640			

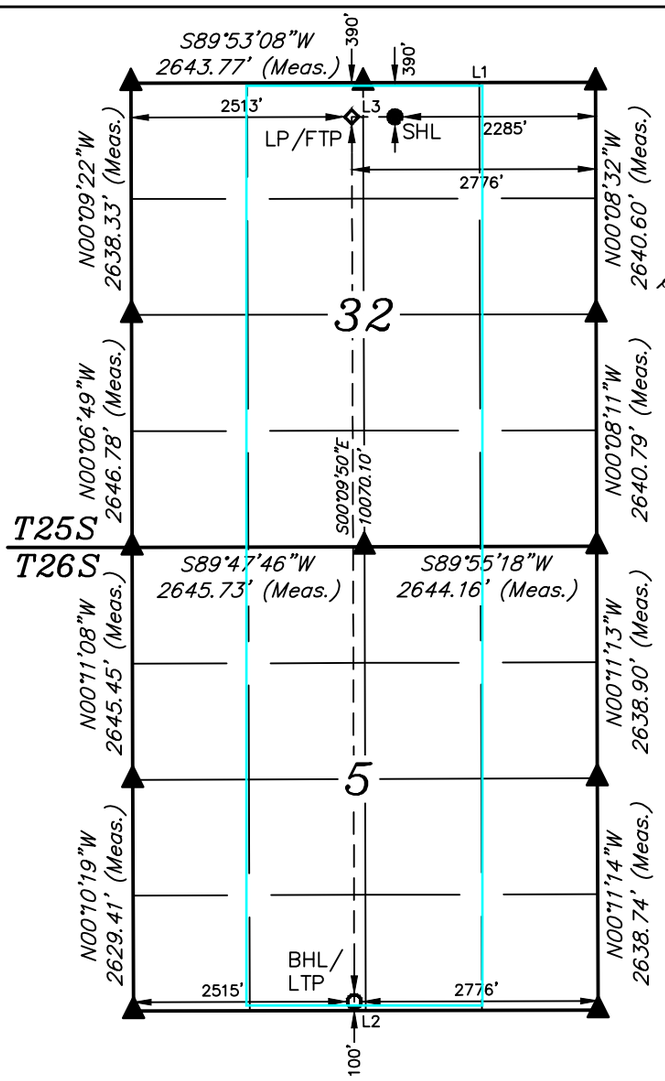
No allowable will be assigned to this completion until all interests have been consolidated or a non-standard unit has been approved by the division.

[16]

NAD 83 (SURFACE HOLE LOCATION)
LATITUDE = 32°05'35.67" (32.093243°)
LONGITUDE = 103°35'35.36" (103.593155°)
NAD 27 (SURFACE HOLE LOCATION)
LATITUDE = 32°05'35.23" (32.093118°)
LONGITUDE = 103°35'33.66" (103.592685°)
STATE PLANE NAD 83 (N.M. EAST)
N: 398445.25' E: 770554.10'
STATE PLANE NAD 27 (N.M. EAST)
N: 398387.62' E: 729367.65'

NAD 83 (LP/FTP)
LATITUDE = 32°05'35.68" (32.093244°)
LONGITUDE = 103°35'41.07" (103.594741°)
NAD 27 (LP/FTP)
LATITUDE = 32°05'35.23" (32.093120°)
LONGITUDE = 103°35'39.37" (103.594270°)
STATE PLANE NAD 83 (N.M. EAST)
N: 398442.39' E: 770063.19'
STATE PLANE NAD 27 (N.M. EAST)
N: 398384.76' E: 728876.75'

NAD 83 (BHL/LTP)
LATITUDE = 32°03'56.05" (32.065568°)
LONGITUDE = 103°35'41.04" (103.594735°)
NAD 27 (BHL/LTP)
LATITUDE = 32°03'55.60" (32.065443°)
LONGITUDE = 103°35'39.36" (103.594265°)
STATE PLANE NAD 83 (N.M. EAST)
N: 388374.27' E: 770133.98'
STATE PLANE NAD 27 (N.M. EAST)
N: 388316.89' E: 728947.06'



LINE TABLE		
LINE	DIRECTION	LENGTH
L1	S89°54'44"W	2645.70'
L2	S89°53'20"W	5290.67'
L3	S89°54'19"W	491.00'

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

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

2000' 1000' 0' 2000'

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:

PAUL BUCHELE NEW MEXICO 23782 PROFESSIONAL SURVEYOR 06-08-21

Certificate Number:

Schlumberger

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

CIMAREX

Report Date:	June 14, 2021 - 11:57 AM	**Survey / DLS Computation:**	Minimum Curvature / Lubinski
Client:	Cimarex Energy	**Vertical Section Azimuth:**	179.597 ° (Grid North)
Field:	NM Lea County (NAD 83)	**Vertical Section Origin:**	0.000 ft, 0.000 ft
Structure / Slot:	Cimarex Red Hills 32-5 Fed Com #171H / New Slot	**TVD Reference Datum:**	RKB
Well:	Red Hills 32-5 Fed Com #171H	**TVD Reference Elevation:**	3432.600 ft above MSL
Borehole:	Red Hills 32-5 Fed Com #171H	**Seabed / Ground Elevation:**	3409.600 ft above MSL
UWI / API#:	Unknown / Unknown	**Magnetic Declination:**	6.407 °
Survey Name:	Cimarex Red Hills 32-5 Fed Com #171H Rev1 RM 14Jun21	**Total Gravity Field Strength:**	998.4291mgn (9.80665 Based)
Survey Date:	September 04, 2019	**Gravity Model:**	GARM
Tort / AHD / DDI / ERD Ratio:	106.000 ° / 10559.633 ft / 6.301 / 0.844	**Total Magnetic Field Strength:**	47554.368 nT
Coordinate Reference System:	NAD83 New Mexico State Plane, Eastern Zone, US Feet	**Magnetic Dip Angle:**	59.691 °
Location Lat / Long:	N 32° 5' 35.67470", W 103° 35' 35.35967"	**Declination Date:**	June 14, 2021
Location Grid N/E Y/X:	N 398445.250 ftUS, E 770554.100 ftUS	**Magnetic Declination Model:**	HDGM 2021
CRS Grid Convergence Angle:	0.3933 °	**North Reference:**	Grid North
Grid Scale Factor:	0.99996927	**Grid Convergence Used:**	0.3933 °
Version / Patch:	2.10.825.0	**Total Corr Mag North->Grid North:**	6.0137 °
		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, 2285' FEL]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	N/A	398445.25	770554.10	N 32 5 35.67	W 103 35 35.36
	100.00	0.00	269.67	100.00	0.00	0.00	0.00	0.00	398445.25	770554.10	N 32 5 35.67	W 103 35 35.36
	200.00	0.00	269.67	200.00	0.00	0.00	0.00	0.00	398445.25	770554.10	N 32 5 35.67	W 103 35 35.36
	300.00	0.00	269.67	300.00	0.00	0.00	0.00	0.00	398445.25	770554.10	N 32 5 35.67	W 103 35 35.36
	400.00	0.00	269.67	400.00	0.00	0.00	0.00	0.00	398445.25	770554.10	N 32 5 35.67	W 103 35 35.36
	500.00	0.00	269.67	500.00	0.00	0.00	0.00	0.00	398445.25	770554.10	N 32 5 35.67	W 103 35 35.36
	600.00	0.00	269.67	600.00	0.00	0.00	0.00	0.00	398445.25	770554.10	N 32 5 35.67	W 103 35 35.36
	700.00	0.00	269.67	700.00	0.00	0.00	0.00	0.00	398445.25	770554.10	N 32 5 35.67	W 103 35 35.36
	800.00	0.00	269.67	800.00	0.00	0.00	0.00	0.00	398445.25	770554.10	N 32 5 35.67	W 103 35 35.36
	900.00	0.00	269.67	900.00	0.00	0.00	0.00	0.00	398445.25	770554.10	N 32 5 35.67	W 103 35 35.36
Rustler	*934.00*	*0.00*	*269.67*	*934.00*	*0.00*	*0.00*	*0.00*	*0.00*	*398445.25*	*770554.10*	*N 32 5 35.67*	*W 103 35 35.36*
	1000.00	0.00	269.67	1000.00	0.00	0.00	0.00	0.00	398445.25	770554.10	N 32 5 35.67	W 103 35 35.36
	1100.00	0.00	269.67	1100.00	0.00	0.00	0.00	0.00	398445.25	770554.10	N 32 5 35.67	W 103 35 35.36
	1200.00	0.00	269.67	1200.00	0.00	0.00	0.00	0.00	398445.25	770554.10	N 32 5 35.67	W 103 35 35.36
	1300.00	0.00	269.67	1300.00	0.00	0.00	0.00	0.00	398445.25	770554.10	N 32 5 35.67	W 103 35 35.36
Top of Salt	*1349.00*	*0.00*	*269.67*	*1349.00*	*0.00*	*0.00*	*0.00*	*0.00*	*398445.25*	*770554.10*	*N 32 5 35.67*	*W 103 35 35.36*
	1400.00	0.00	269.67	1400.00	0.00	0.00	0.00	0.00	398445.25	770554.10	N 32 5 35.67	W 103 35 35.36
	1500.00	0.00	269.67	1500.00	0.00	0.00	0.00	0.00	398445.25	770554.10	N 32 5 35.67	W 103 35 35.36
	1600.00	0.00	269.67	1600.00	0.00	0.00	0.00	0.00	398445.25	770554.10	N 32 5 35.67	W 103 35 35.36
	1700.00	0.00	269.67	1700.00	0.00	0.00	0.00	0.00	398445.25	770554.10	N 32 5 35.67	W 103 35 35.36
	1800.00	0.00	269.67	1800.00	0.00	0.00	0.00	0.00	398445.25	770554.10	N 32 5 35.67	W 103 35 35.36
	1900.00	0.00	269.67	1900.00	0.00	0.00	0.00	0.00	398445.25	770554.10	N 32 5 35.67	W 103 35 35.36
	2000.00	0.00	269.67	2000.00	0.00	0.00	0.00	0.00	398445.25	770554.10	N 32 5 35.67	W 103 35 35.36
	2100.00	0.00	269.67	2100.00	0.00	0.00	0.00	0.00	398445.25	770554.10	N 32 5 35.67	W 103 35 35.36
	2200.00	0.00	269.67	2200.00	0.00	0.00	0.00	0.00	398445.25	770554.10	N 32 5 35.67	W 103 35 35.36
	2300.00	0.00	269.67	2300.00	0.00	0.00	0.00	0.00	398445.25	770554.10	N 32 5 35.67	W 103 35 35.36
	2400.00	0.00	269.67	2400.00	0.00	0.00	0.00	0.00	398445.25	770554.10	N 32 5 35.67	W 103 35 35.36
Nudge 2°/100' DLS	2500.00	0.00	269.67	2500.00	0.00	0.00	0.00	0.00	398445.25	770554.10	N 32 5 35.67	W 103 35 35.36
	2600.00	2.00	269.67	2599.98	0.00	-0.01	-1.75	2.00	398445.24	770552.35	N 32 5 35.67	W 103 35 35.38
	2700.00	4.00	269.67	2699.84	-0.01	-0.04	-6.98	2.00	398445.21	770547.12	N 32 5 35.67	W 103 35 35.44
	2800.00	6.00	269.67	2799.45	-0.02	-0.09	-15.69	2.00	398445.16	770538.41	N 32 5 35.67	W 103 35 35.54
Hold Nudge	2900.00	8.00	269.67	2898.70	-0.03	-0.16	-27.88	2.00	398445.09	770526.22	N 32 5 35.67	W 103 35 35.68
	3000.00	8.00	269.67	2997.73	-0.05	-0.24	-41.80	0.00	398445.01	770512.30	N 32 5 35.68	W 103 35 35.85
	3100.00	8.00	269.67	3096.76	-0.07	-0.32	-55.71	0.00	398444.93	770498.39	N 32 5 35.68	W 103 35 36.01
	3200.00	8.00	269.67	3195.78	-0.08	-0.41	-69.63	0.00	398444.84	770484.47	N 32 5 35.68	W 103 35 36.17
	3300.00	8.00	269.67	3294.81	-0.10	-0.49	-83.55	0.00	398444.76	770470.56	N 32 5 35.68	W 103 35 36.33
	3400.00	8.00	269.67	3393.84	-0.12	-0.57	-97.46	0.00	398444.68	770456.64	N 32 5 35.68	W 103 35 36.49
	3500.00	8.00	269.67	3492.86	-0.13	-0.65	-111.38	0.00	398444.60	770442.72	N 32 5 35.68	W 103 35 36.65
	3600.00	8.00	269.67	3591.89	-0.15	-0.73	-125.30	0.00	398444.52	770428.81	N 32 5 35.68	W 103 35 36.82
	3700.00	8.00	269.67	3690.92	-0.17	-0.81	-139.22	0.00	398444.44	770414.89	N 32 5 35.68	W 103 35 36.98
	3800.00	8.00	269.67	3789.94	-0.18	-0.89	-153.13	0.00	398444.36	770400.97	N 32 5 35.68	W 103 35 37.14
	3900.00	8.00	269.67	3888.97	-0.20	-0.97	-167.05	0.00	398444.28	770387.06	N 32 5 35.68	W 103 35 37.30
	4000.00	8.00	269.67	3988.00	-0.22	-1.05	-180.97	0.00	398444.20	770373.14	N 32 5 35.68	W 103 35 37.46
	4100.00	8.00	269.67	4087.02	-0.24	-1.14	-194.88	0.00	398444.11	770359.22	N 32 5 35.68	W 103 35 37.63
	4200.00	8.00	269.67	4186.05	-0.25	-1.22	-208.80	0.00	398444.03	770345.31	N 32 5 35.68	W 103 35 37.79
	4300.00	8.00	269.67	4285.08	-0.27	-1.30	-222.72	0.00	398443.95	770331.39	N 32 5 35.68	W 103 35 37.95
	4400.00	8.00	269.67	4384.10	-0.29	-1.38	-236.63	0.00	398443.87	770317.47	N 32 5 35.68	W 103 35 38.11
	4500.00	8.00	269.67	4483.13	-0.30	-1.46	-250.55	0.00	398443.79	770303.56	N 32 5 35.68	W 103 35 38.27
	4600.00	8.00	269.67	4582.16	-0.32	-1.54	-264.47	0.00	398443.71	770289.64	N 32 5 35.68	W 103 35 38.43
Base of Salt	*4669.52*	*8.00*	*269.67*	*4651.00*	*-0.33*	*-1.60*	*-274.14*	*0.00*	*398443.65*	*770279.97*	*N 32 5 35.68*	*W 103 35 38.55*
	4700.00	8.00	269.67	4681.18	-0.34	-1.62	-278.39	0.00	398443.63	770275.72	N 32 5 35.68	W 103 35 38.60
	4800.00	8.00	269.67	4780.21	-0.35	-1.70	-292.30	0.00	398443.55	770261.81	N 32 5 35.68	W 103 35 38.76
	4900.00	8.00	269.67	4879.24	-0.37	-1.78	-306.22	0.00	398443.47	770247.89	N 32 5 35.68	W 103 35 38.92
Lamar	*4912.89*	*8.00*	*269.67*	*4892.00*	*-0.37*	*-1.79*	*-308.01*	*0.00*	*398443.46*	*770246.10*	*N 32 5 35.68*	*W 103 35 38.94*
Bell Canyon	*4950.25*	*8.00*	*269.67*	*4929.00*	*-0.38*	*-1.82*	*-313.21*	*0.00*	*398443.43*	*770240.90*	*N 32 5 35.68*	*W 103 35 39.00*
	5000.00	8.00	269.67	4978.26	-0.39	-1.87	-320.14	0.00	398443.38	770233.97	N 32 5 35.68	W 103 35 39.08
	5100.00	8.00	269.67	5077.29	-0.40	-1.95	-334.05	0.00	398443.30	770220.06	N 32 5 35.68	W 103 35 39.24
	5200.00	8.00	269.67	5176.32	-0.42	-2.03	-347.97	0.00	398443.22	770206.14	N 32 5 35.68	W 103 35 39.40
	5300.00	8.00	269.67	5275.35	-0.44	-2.11	-361.89	0.00	398443.14	770192.22	N 32 5 35.68	W 103 35 39.57
	5400.00	8.00	269.67	5374.37	-0.45	-2.19	-375.80	0.00	398443.06	770178.31	N 32 5 35.68	W 103 35 39.73
	5500.00	8.00	269.67	5473.40	-0.47	-2.27	-389.72	0.00	398442.98	770164.39	N 32 5 35.68	W 103 35 39.89
	5600.00	8.00	269.67	5572.43	-0.49	-2.35	-403.64	0.00	398442.90	770150.47	N 32 5 35.68	W 103 35 40.05
	5700.00	8.00	269.67	5671.45	-0.50	-2.43	-417.56	0.00	398442.82	770136.56	N 32 5 35.68	W 103 35 40.21
	5800.00	8.00	269.67	5770.48	-0.52	-2.51	-431.47	0.00	398442.74	770122.64	N 32 5 35.68	W 103 35 40.38
	5900.00	8.00	269.67	5869.51	-0.54	-2.59	-445.39	0.00	398442.66	770108.72	N 32 5 35.68	W 103 35 40.54
	6000.00	8.00	269.67	5968.53	-0.55	-2.68	-459.31	0.00	398442.57	770094.81	N 32 5 35.68	W 103 35 40.70
Drop to Vertical 2°/100' DLS	6026.88	8.00	269.67	5995.15	-0.56	-2.70	-463.05	0.00	398442.55	770091.07	N 32 5 35.68	W 103 35 40.74
Cherry Canyon	*6032.79*	*7.88*	*269.67*	*6001.00*	*-0.56*	*-2.70*	*-463.86*	*2.00*	*398442.55*	*770090.25*	*N 32 5 35.68*	*W 103 35 40.75*
	6100.00	6.54	269.67	6067.68	-0.57	-2.75	-472.30	2.00	398442.50	770081.82	N 32 5 35.68	W 103 35 40.85
	6200.00	4.54	269.67	6167.21	-0.58	-2.81	-481.95	2.00	398442.44	770072.17	N 32 5 35.68	W 103 35 40.96
	6300.00	2.54	269.67	6267.01	-0.59	-2.84	-488.12	2.00	398442.41	770066.00	N 32 5 35.68	W 103 35 41.03
	6400.00	0.54	269.67	6366.97	-0.59	-2.86	-490.80	2.00	398442.39	770063.32	N 32 5 35.68	W 103 35 41.06
Hold Vertical	6426.87	0.00	269.67	6393.85	-0.59	-2.86	-490.93	2.00	398442.39	770063.19	N 32 5 35.68	W 103 35 41.07
	6500.00	0.00	269.67	6466.97	-0.59	-2.86	-490.93	0.00	398442.39	770063.19	N 32 5 35.68	W 103 35 41.07
	6600.00	0.00	269.67	6566.97	-0.59	-2.86	-490.93	0.00	398442.39	770063.19	N 32 5 35.68	W 103 35 41.07

Comments	MD (ft)	Incl (°)	Azim Grid (°)	TVD (ft)	VSEC (ft)	NS (ft)	EW (ft)	DLS (°/100ft)	Northing (ftUS)	Easting (ftUS)	Latitude (N/S ° ' ")	Longitude (E/W ° ' ")
	6700.00	0.00	269.67	6666.97	-0.59	-2.86	-490.93	0.00	398442.39	770063.19	N 32 5 35.68	W 103 35 41.07
	6800.00	0.00	269.67	6766.97	-0.59	-2.86	-490.93	0.00	398442.39	770063.19	N 32 5 35.68	W 103 35 41.07
	6900.00	0.00	269.67	6866.97	-0.59	-2.86	-490.93	0.00	398442.39	770063.19	N 32 5 35.68	W 103 35 41.07
	7000.00	0.00	269.67	6966.97	-0.59	-2.86	-490.93	0.00	398442.39	770063.19	N 32 5 35.68	W 103 35 41.07
	7100.00	0.00	269.67	7066.97	-0.59	-2.86	-490.93	0.00	398442.39	770063.19	N 32 5 35.68	W 103 35 41.07
	7200.00	0.00	269.67	7166.97	-0.59	-2.86	-490.93	0.00	398442.39	770063.19	N 32 5 35.68	W 103 35 41.07
	7300.00	0.00	269.67	7266.97	-0.59	-2.86	-490.93	0.00	398442.39	770063.19	N 32 5 35.68	W 103 35 41.07
	7400.00	0.00	269.67	7366.97	-0.59	-2.86	-490.93	0.00	398442.39	770063.19	N 32 5 35.68	W 103 35 41.07
	7500.00	0.00	269.67	7466.97	-0.59	-2.86	-490.93	0.00	398442.39	770063.19	N 32 5 35.68	W 103 35 41.07
Brusy Canyon	*7570.03*	*0.00*	*269.67*	*7537.00*	*-0.59*	*-2.86*	*-490.93*	*0.00*	*398442.39*	*770063.19*	*N 32 5 35.68*	*W 103 35 41.07*
	7600.00	0.00	269.67	7566.97	-0.59	-2.86	-490.93	0.00	398442.39	770063.19	N 32 5 35.68	W 103 35 41.07
	7700.00	0.00	269.67	7666.97	-0.59	-2.86	-490.93	0.00	398442.39	770063.19	N 32 5 35.68	W 103 35 41.07
	7800.00	0.00	269.67	7766.97	-0.59	-2.86	-490.93	0.00	398442.39	770063.19	N 32 5 35.68	W 103 35 41.07
	7900.00	0.00	269.67	7866.97	-0.59	-2.86	-490.93	0.00	398442.39	770063.19	N 32 5 35.68	W 103 35 41.07
	8000.00	0.00	269.67	7966.97	-0.59	-2.86	-490.93	0.00	398442.39	770063.19	N 32 5 35.68	W 103 35 41.07
	8100.00	0.00	269.67	8066.97	-0.59	-2.86	-490.93	0.00	398442.39	770063.19	N 32 5 35.68	W 103 35 41.07
	8200.00	0.00	269.67	8166.97	-0.59	-2.86	-490.93	0.00	398442.39	770063.19	N 32 5 35.68	W 103 35 41.07
	8300.00	0.00	269.67	8266.97	-0.59	-2.86	-490.93	0.00	398442.39	770063.19	N 32 5 35.68	W 103 35 41.07
	8400.00	0.00	269.67	8366.97	-0.59	-2.86	-490.93	0.00	398442.39	770063.19	N 32 5 35.68	W 103 35 41.07
	8500.00	0.00	269.67	8466.97	-0.59	-2.86	-490.93	0.00	398442.39	770063.19	N 32 5 35.68	W 103 35 41.07
	8600.00	0.00	269.67	8566.97	-0.59	-2.86	-490.93	0.00	398442.39	770063.19	N 32 5 35.68	W 103 35 41.07
	8700.00	0.00	269.67	8666.97	-0.59	-2.86	-490.93	0.00	398442.39	770063.19	N 32 5 35.68	W 103 35 41.07
	8800.00	0.00	269.67	8766.97	-0.59	-2.86	-490.93	0.00	398442.39	770063.19	N 32 5 35.68	W 103 35 41.07
	8900.00	0.00	269.67	8866.97	-0.59	-2.86	-490.93	0.00	398442.39	770063.19	N 32 5 35.68	W 103 35 41.07
	9000.00	0.00	269.67	8966.97	-0.59	-2.86	-490.93	0.00	398442.39	770063.19	N 32 5 35.68	W 103 35 41.07
Bone Spring	*9072.03*	*0.00*	*269.67*	*9039.00*	*-0.59*	*-2.86*	*-490.93*	*0.00*	*398442.39*	*770063.19*	*N 32 5 35.68*	*W 103 35 41.07*
	9100.00	0.00	269.67	9066.97	-0.59	-2.86	-490.93	0.00	398442.39	770063.19	N 32 5 35.68	W 103 35 41.07
Leonard Shale	*9127.03*	*0.00*	*269.67*	*9094.00*	*-0.59*	*-2.86*	*-490.93*	*0.00*	*398442.39*	*770063.19*	*N 32 5 35.68*	*W 103 35 41.07*
	9200.00	0.00	269.67	9166.97	-0.59	-2.86	-490.93	0.00	398442.39	770063.19	N 32 5 35.68	W 103 35 41.07
	9300.00	0.00	269.67	9266.97	-0.59	-2.86	-490.93	0.00	398442.39	770063.19	N 32 5 35.68	W 103 35 41.07
Avalon Shale	*9389.03*	*0.00*	*269.67*	*9356.00*	*-0.59*	*-2.86*	*-490.93*	*0.00*	*398442.39*	*770063.19*	*N 32 5 35.68*	*W 103 35 41.07*
	9400.00	0.00	269.67	9366.97	-0.59	-2.86	-490.93	0.00	398442.39	770063.19	N 32 5 35.68	W 103 35 41.07
	9500.00	0.00	269.67	9466.97	-0.59	-2.86	-490.93	0.00	398442.39	770063.19	N 32 5 35.68	W 103 35 41.07
	9600.00	0.00	269.67	9566.97	-0.59	-2.86	-490.93	0.00	398442.39	770063.19	N 32 5 35.68	W 103 35 41.07
	9700.00	0.00	269.67	9666.97	-0.59	-2.86	-490.93	0.00	398442.39	770063.19	N 32 5 35.68	W 103 35 41.07
Lower Avalon Shale	*9764.03*	*0.00*	*269.67*	*9731.00*	*-0.59*	*-2.86*	*-490.93*	*0.00*	*398442.39*	*770063.19*	*N 32 5 35.68*	*W 103 35 41.07*
	9800.00	0.00	269.67	9766.97	-0.59	-2.86	-490.93	0.00	398442.39	770063.19	N 32 5 35.68	W 103 35 41.07
	9900.00	0.00	269.67	9866.97	-0.59	-2.86	-490.93	0.00	398442.39	770063.19	N 32 5 35.68	W 103 35 41.07
	10000.00	0.00	269.67	9966.97	-0.59	-2.86	-490.93	0.00	398442.39	770063.19	N 32 5 35.68	W 103 35 41.07
1st Bone Spring Sand	*10069.03*	*0.00*	*269.67*	*10036.00*	*-0.59*	*-2.86*	*-490.93*	*0.00*	*398442.39*	*770063.19*	*N 32 5 35.68*	*W 103 35 41.07*
	10100.00	0.00	269.67	10066.97	-0.59	-2.86	-490.93	0.00	398442.39	770063.19	N 32 5 35.68	W 103 35 41.07
	10200.00	0.00	269.67	10166.97	-0.59	-2.86	-490.93	0.00	398442.39	770063.19	N 32 5 35.68	W 103 35 41.07
2nd Bone Spring Carb	*10256.03*	*0.00*	*269.67*	*10223.00*	*-0.59*	*-2.86*	*-490.93*	*0.00*	*398442.39*	*770063.19*	*N 32 5 35.68*	*W 103 35 41.07*
	10300.00	0.00	269.67	10266.97	-0.59	-2.86	-490.93	0.00	398442.39	770063.19	N 32 5 35.68	W 103 35 41.07
	10400.00	0.00	269.67	10366.97	-0.59	-2.86	-490.93	0.00	398442.39	770063.19	N 32 5 35.68	W 103 35 41.07
	10500.00	0.00	269.67	10466.97	-0.59	-2.86	-490.93	0.00	398442.39	770063.19	N 32 5 35.68	W 103 35 41.07
2nd Bone Spring Sand	*10597.03*	*0.00*	*269.67*	*10564.00*	*-0.59*	*-2.86*	*-490.93*	*0.00*	*398442.39*	*770063.19*	*N 32 5 35.68*	*W 103 35 41.07*
	10600.00	0.00	269.67	10566.97	-0.59	-2.86	-490.93	0.00	398442.39	770063.19	N 32 5 35.68	W 103 35 41.07
	10700.00	0.00	269.67	10666.97	-0.59	-2.86	-490.93	0.00	398442.39	770063.19	N 32 5 35.68	W 103 35 41.07
	10800.00	0.00	269.67	10766.97	-0.59	-2.86	-490.93	0.00	398442.39	770063.19	N 32 5 35.68	W 103 35 41.07
	10900.00	0.00	269.67	10866.97	-0.59	-2.86	-490.93	0.00	398442.39	770063.19	N 32 5 35.68	W 103 35 41.07
	11000.00	0.00	269.67	10966.97	-0.59	-2.86	-490.93	0.00	398442.39	770063.19	N 32 5 35.68	W 103 35 41.07
3rd Bone Spring Carb	*11050.03*	*0.00*	*269.67*	*11017.00*	*-0.59*	*-2.86*	*-490.93*	*0.00*	*398442.39*	*770063.19*	*N 32 5 35.68*	*W 103 35 41.07*
	11100.00	0.00	269.67	11066.97	-0.59	-2.86	-490.93	0.00	398442.39	770063.19	N 32 5 35.68	W 103 35 41.07
	11200.00	0.00	269.67	11166.97	-0.59	-2.86	-490.93	0.00	398442.39	770063.19	N 32 5 35.68	W 103 35 41.07
	11300.00	0.00	269.67	11266.97	-0.59	-2.86	-490.93	0.00	398442.39	770063.19	N 32 5 35.68	W 103 35 41.07
	11400.00	0.00	269.67	11366.97	-0.59	-2.86	-490.93	0.00	398442.39	770063.19	N 32 5 35.68	W 103 35 41.07
	11500.00	0.00	269.67	11466.97	-0.59	-2.86	-490.93	0.00	398442.39	770063.19	N 32 5 35.68	W 103 35 41.07
	11600.00	0.00	269.67	11566.97	-0.59	-2.86	-490.93	0.00	398442.39	770063.19	N 32 5 35.68	W 103 35 41.07
	11700.00	0.00	269.67	11666.97	-0.59	-2.86	-490.93	0.00	398442.39	770063.19	N 32 5 35.68	W 103 35 41.07
3rd Bone Spring Sand	*11715.03*	*0.00*	*269.67*	*11682.00*	*-0.59*	*-2.86*	*-490.93*	*0.00*	*398442.39*	*770063.19*	*N 32 5 35.68*	*W 103 35 41.07*
	11800.00	0.00	269.67	11766.97	-0.59	-2.86	-490.93	0.00	398442.39	770063.19	N 32 5 35.68	W 103 35 41.07
	11900.00	0.00	269.67	11866.97	-0.59	-2.86	-490.93	0.00	398442.39	770063.19	N 32 5 35.68	W 103 35 41.07
	12000.00	0.00	269.67	11966.97	-0.59	-2.86	-490.93	0.00	398442.39	770063.19	N 32 5 35.68	W 103 35 41.07
KOP - Build 12°/100' DLS	12038.02	0.00	269.67	12005.00	-0.59	-2.86	-490.93	0.00	398442.39	770063.19	N 32 5 35.68	W 103 35 41.07
	12100.00	7.44	179.60	12066.80	3.42	-6.88	-490.90	12.00	398438.37	770063.22	N 32 5 35.64	W 103 35 41.07
Wolfcamp	*12159.33*	*14.56*	*179.60*	*12125.00*	*14.73*	*-18.19*	*-490.82*	*12.00*	*398427.06*	*770063.30*	*N 32 5 35.53*	*W 103 35 41.07*
	12200.00	19.44	179.60	12163.88	26.62	-30.07	-490.73	12.00	398415.18	770063.38	N 32 5 35.41	W 103 35 41.07
	12300.00	31.44	179.60	12254.02	69.49	-72.94	-490.43	12.00	398372.31	770063.68	N 32 5 34.99	W 103 35 41.07
Wolfcamp Y Sand	*12301.14*	*31.57*	*179.60*	*12255.00*	*70.09*	*-73.54*	*-490.43*	*12.00*	*398371.71*	*770063.69*	*N 32 5 34.98*	*W 103 35 41.07*
Wolfcamp Y SS Target	*12337.23*	*35.90*	*179.60*	*12285.00*	*90.13*	*-93.58*	*-490.29*	*12.00*	*398351.67*	*770063.83*	*N 32 5 34.78*	*W 103 35 41.07*
Wolfcamp A1	*12357.29*	*38.31*	*179.60*	*12301.00*	*102.23*	*-105.68*	*-490.20*	*12.00*	*398339.57*	*770063.91*	*N 32 5 34.66*	*W 103 35 41.07*
	12400.00	43.44	179.60	12333.28	130.17	-133.62	-490.01	12.00	398311.63	770064.11	N 32 5 34.39	W 103 35 41.07
	12500.00	55.44	179.60	12398.19	206.00	-209.45	-489.47	12.00	398235.81	770064.64	N 32 5 33.64	W 103 35 41.07
	12600.00	67.44	179.60	12445.92	293.67	-297.12	-488.86	12.00	398148.14	770065.26	N 32 5 32.77	W 103 35 41.07
Build 4°/100' DLS	12663.02	75.00	179.60	12466.19	353.29	-356.74	-488.44	12.00	398088.52	770065.68	N 32 5 32.18	W 103 35 41.07
	12700.00	76.48	179.60	12475.30	389.13	-392.57	-488.19	4.00	398052.69	770065.93	N 32 5 31.82	W 103 35 41.07
	12800.00	80.48	179.60	12495.27	487.10	-490.54	-487.50	4.00	397954.73	770066.62	N 32 5 30.85	W 103 35 41.07
	12900.00	84.48	179.60	12508.36	586.22	-589.65	-486.80	4.00	397855.62	770067.32	N 32 5 29.87	W 103 35 41.07
	13000.00	88.48	179.60	12514.50	686.01	-689.44	-486.10	4.00	397755.83	770068.02	N 32 5 28.89	W 103 35 41.06
Landing Point	13038.02	90.00	179.60	12515.00	724.03	-727.46	-485.83	4.00	397717.81	770068.28	N 32 5 28.51	W 103 35 41.06
	13100.00	90.00	179.60	12515.00	786.00	-789.44	-485.40	0.00	397655.84	770068.72	N 32 5 27.90	W 103 35 41.06
	13200.00	90.00	179.60	12515.00	886.00	-889.43	-484.69	0.00	397555.85	770069.42	N 32 5 26.91	W 103 35 41.06
	13300.00	90.00	179.60	12515.00	986.00	-989.43	-483.99	0.00	397455.85	770070.13	N 32 5 25.92	W 103 35 41.06
	13400.00	90.00	179.60	12515.00	1086.00	-1089.43	-483.29	0.00	397355.86	770070.83	N 32 5 24.93	W 103 35 41.06
	13500.00	90.00	179.60	12515.00	1186.00	-1189.43	-482.58	0.00	397255.86	770071.53	N 32 5 23.94	W 103 35 41.06
	13600.00	90.00	179.60	12515.00	1286.00	-1289.42	-481.88	0.00	397155.87	770072.24	N 32 5 22.95	W 103 35 41.06
	13700.00	90.00	179.60	12515.00	1386.00	-1389.42	-481.18	0.00	397055.87	770072.94	N 32 5 21.96	W 103 35 41.06
	13800.00	90.00	179.60	12515.00	1486.00	-1489.42	-480.47	0.00	396955.88	770073.64	N 32 5 20.97	W 103 35 41.06
	13900.00	90.00	179.60	12515.00	1586.00	-1589.42	-479.77	0.00	396855.89	770074.34	N 32 5 19.98	W 103 35 41.06
	14000.00	90.00	179.60	12515.00	1686.00	-1689.41	-479.07	0.00	396755.89	770075.05	N 32 5 18.99	W 103 35 41.06
	14100.00	90.00	179.60	12515.00	1786.00	-1789.41	-478.37	0.00	396655.90	770075.75	N 32 5 18.00	W 103 35 41.06
	14200.00	90.00	179.60	12515.00	1886.00	-1889.41	-477.66	0.00	396555.90	770076.45	N 32 5 17.01	W 103 35 41.06
	14300.00	90.00	179.60	12515.00	1986.00	-1989.41	-476.96	0.00	396455.91	770077.16	N 32 5 16.02	W 103 35 41.06
	14400.00	90.00	179.60	12515.00	2086.00	-2089.40	-476.26	0.00	396355.91	770077.86	N 32 5 15.03	W 103 35 41.06
	14500.00	90.00	179.60	12515.00	2186.00	-2189.40	-475.55	0.00	396255.92	770078.56	N 32 5 14.04	W 103 35 41.06
	14600.00	90.00	179.60	12515.00	2286.00	-2289.40	-474.85	0.00	396155.93	770079.27	N 32 5 13.05	W 103 35 41.06
	14700.00	90.00	179.60	12515.00	2386.00	-2389.40	-474.15	0.00	396055.93	770079.97	N 32 5 12.06	W 103 35 41.06
	14800.00	90.00	179.60	12515.00	2486.00	-2489.39	-473.44	0.00	395955.94	770080.67	N 32 5 11.07	W 103 35 41.06

Comments	MD (ft)	Incl (°)	Azim Grid (°)	TVD (ft)	VSEC (ft)	NS (ft)	EW (ft)	DLS (°/100ft)	Northing (ftUS)	Easting (ftUS)	Latitude (N/S ° ' ")	Longitude (E/W ° ' ")
	14900.00	90.00	179.60	12515.00	2586.00	-2589.39	-472.74	0.00	395855.94	770081.38	N 32 5 10.08	W 103 35 41.06
	15000.00	90.00	179.60	12515.00	2686.00	-2689.39	-472.04	0.00	395755.95	770082.08	N 32 5 9.09	W 103 35 41.06
	15100.00	90.00	179.60	12515.00	2786.00	-2789.39	-471.33	0.00	395655.96	770082.78	N 32 5 8.11	W 103 35 41.06
	15200.00	90.00	179.60	12515.00	2886.00	-2889.38	-470.63	0.00	395555.96	770083.48	N 32 5 7.12	W 103 35 41.06
	15300.00	90.00	179.60	12515.00	2986.00	-2989.38	-469.93	0.00	395455.97	770084.19	N 32 5 6.13	W 103 35 41.06
	15400.00	90.00	179.60	12515.00	3086.00	-3089.38	-469.22	0.00	395355.97	770084.89	N 32 5 5.14	W 103 35 41.06
	15500.00	90.00	179.60	12515.00	3186.00	-3189.38	-468.52	0.00	395255.98	770085.59	N 32 5 4.15	W 103 35 41.06
	15600.00	90.00	179.60	12515.00	3286.00	-3289.37	-467.82	0.00	395155.98	770086.30	N 32 5 3.16	W 103 35 41.06
	15700.00	90.00	179.60	12515.00	3386.00	-3389.37	-467.12	0.00	395055.99	770087.00	N 32 5 2.17	W 103 35 41.06
	15800.00	90.00	179.60	12515.00	3486.00	-3489.37	-466.41	0.00	394956.00	770087.70	N 32 5 1.18	W 103 35 41.06
	15900.00	90.00	179.60	12515.00	3586.00	-3589.37	-465.71	0.00	394856.00	770088.41	N 32 5 0.19	W 103 35 41.06
	16000.00	90.00	179.60	12515.00	3686.00	-3689.36	-465.01	0.00	394756.01	770089.11	N 32 4 59.20	W 103 35 41.06
	16100.00	90.00	179.60	12515.00	3786.00	-3789.36	-464.30	0.00	394656.01	770089.81	N 32 4 58.21	W 103 35 41.06
	16200.00	90.00	179.60	12515.00	3886.00	-3889.36	-463.60	0.00	394556.02	770090.52	N 32 4 57.22	W 103 35 41.06
	16300.00	90.00	179.60	12515.00	3986.00	-3989.36	-462.90	0.00	394456.02	770091.22	N 32 4 56.23	W 103 35 41.06
	16400.00	90.00	179.60	12515.00	4086.00	-4089.35	-462.19	0.00	394356.03	770091.92	N 32 4 55.24	W 103 35 41.06
	16500.00	90.00	179.60	12515.00	4186.00	-4189.35	-461.49	0.00	394256.04	770092.62	N 32 4 54.25	W 103 35 41.06
	16600.00	90.00	179.60	12515.00	4286.00	-4289.35	-460.79	0.00	394156.04	770093.33	N 32 4 53.26	W 103 35 41.06
	16700.00	90.00	179.60	12515.00	4386.00	-4389.35	-460.08	0.00	394056.05	770094.03	N 32 4 52.27	W 103 35 41.06
	16800.00	90.00	179.60	12515.00	4486.00	-4489.34	-459.38	0.00	393956.05	770094.73	N 32 4 51.28	W 103 35 41.06
	16900.00	90.00	179.60	12515.00	4586.00	-4589.34	-458.68	0.00	393856.06	770095.44	N 32 4 50.29	W 103 35 41.06
	17000.00	90.00	179.60	12515.00	4686.00	-4689.34	-457.98	0.00	393756.06	770096.14	N 32 4 49.30	W 103 35 41.06
	17100.00	90.00	179.60	12515.00	4786.00	-4789.34	-457.27	0.00	393656.07	770096.84	N 32 4 48.31	W 103 35 41.06
	17200.00	90.00	179.60	12515.00	4886.00	-4889.33	-456.57	0.00	393556.08	770097.55	N 32 4 47.33	W 103 35 41.06
Private Leaseline Crossing	*17203.89*	*90.00*	*179.60*	*12515.00*	*4889.89*	*-4893.22*	*-456.54*	*0.00*	*393552.19*	*770097.57*	*N 32 4 47.29*	*W 103 35 41.06*
	17300.00	90.00	179.60	12515.00	4986.00	-4989.33	-455.87	0.00	393456.08	770098.25	N 32 4 46.34	W 103 35 41.06
	17400.00	90.00	179.60	12515.00	5086.00	-5089.33	-455.16	0.00	393356.09	770098.95	N 32 4 45.35	W 103 35 41.06
	17500.00	90.00	179.60	12515.00	5186.00	-5189.33	-454.46	0.00	393256.09	770099.66	N 32 4 44.36	W 103 35 41.06
	17600.00	90.00	179.60	12515.00	5286.00	-5289.32	-453.76	0.00	393156.10	770100.36	N 32 4 43.37	W 103 35 41.06
	17700.00	90.00	179.60	12515.00	5386.00	-5389.32	-453.05	0.00	393056.10	770101.06	N 32 4 42.38	W 103 35 41.05
	17800.00	90.00	179.60	12515.00	5486.00	-5489.32	-452.35	0.00	392956.11	770101.76	N 32 4 41.39	W 103 35 41.05
	17900.00	90.00	179.60	12515.00	5586.00	-5589.32	-451.65	0.00	392856.12	770102.47	N 32 4 40.40	W 103 35 41.05
	18000.00	90.00	179.60	12515.00	5686.00	-5689.31	-450.94	0.00	392756.12	770103.17	N 32 4 39.41	W 103 35 41.05
	18100.00	90.00	179.60	12515.00	5786.00	-5789.31	-450.24	0.00	392656.13	770103.87	N 32 4 38.42	W 103 35 41.05
	18200.00	90.00	179.60	12515.00	5886.00	-5889.31	-449.54	0.00	392556.13	770104.58	N 32 4 37.43	W 103 35 41.05
	18300.00	90.00	179.60	12515.00	5986.00	-5989.31	-448.83	0.00	392456.14	770105.28	N 32 4 36.44	W 103 35 41.05
	18400.00	90.00	179.60	12515.00	6086.00	-6089.30	-448.13	0.00	392356.14	770105.98	N 32 4 35.45	W 103 35 41.05
	18500.00	90.00	179.60	12515.00	6186.00	-6189.30	-447.43	0.00	392256.15	770106.69	N 32 4 34.46	W 103 35 41.05
Private - NMNM0106040 4 Crossing	*18526.25*	*90.00*	*179.60*	*12515.00*	*6212.25*	*-6215.55*	*-447.24*	*0.00*	*392229.90*	*770106.87*	*N 32 4 34.20*	*W 103 35 41.05*
	18600.00	90.00	179.60	12515.00	6286.00	-6289.30	-446.73	0.00	392156.16	770107.39	N 32 4 33.47	W 103 35 41.05
	18700.00	90.00	179.60	12515.00	6386.00	-6389.30	-446.02	0.00	392056.16	770108.09	N 32 4 32.48	W 103 35 41.05
	18800.00	90.00	179.60	12515.00	6486.00	-6489.29	-445.32	0.00	391956.17	770108.80	N 32 4 31.49	W 103 35 41.05
	18900.00	90.00	179.60	12515.00	6586.00	-6589.29	-444.62	0.00	391856.17	770109.50	N 32 4 30.50	W 103 35 41.05
	19000.00	90.00	179.60	12515.00	6686.00	-6689.29	-443.91	0.00	391756.18	770110.20	N 32 4 29.51	W 103 35 41.05
	19100.00	90.00	179.60	12515.00	6786.00	-6789.29	-443.21	0.00	391656.18	770110.90	N 32 4 28.52	W 103 35 41.05
	19200.00	90.00	179.60	12515.00	6886.00	-6889.28	-442.51	0.00	391556.19	770111.61	N 32 4 27.53	W 103 35 41.05
	19300.00	90.00	179.60	12515.00	6986.00	-6989.28	-441.80	0.00	391456.20	770112.31	N 32 4 26.54	W 103 35 41.05
	19400.00	90.00	179.60	12515.00	7086.00	-7089.28	-441.10	0.00	391356.20	770113.01	N 32 4 25.56	W 103 35 41.05
	19500.00	90.00	179.60	12515.00	7186.00	-7189.28	-440.40	0.00	391256.21	770113.72	N 32 4 24.57	W 103 35 41.05
	19600.00	90.00	179.60	12515.00	7286.00	-7289.28	-439.69	0.00	391156.21	770114.42	N 32 4 23.58	W 103 35 41.05
	19700.00	90.00	179.60	12515.00	7386.00	-7389.27	-438.99	0.00	391056.22	770115.12	N 32 4 22.59	W 103 35 41.05
	19800.00	90.00	179.60	12515.00	7486.00	-7489.27	-438.29	0.00	390956.23	770115.83	N 32 4 21.60	W 103 35 41.05
NMNM0106040 4 - NMNM0160973 Crossing	*19848.62*	*90.00*	*179.60*	*12515.00*	*7534.62*	*-7537.89*	*-437.95*	*0.00*	*390907.61*	*770116.17*	*N 32 4 21.12*	*W 103 35 41.05*
	19900.00	90.00	179.60	12515.00	7586.00	-7589.27	-437.59	0.00	390856.23	770116.53	N 32 4 20.61	W 103 35 41.05
	20000.00	90.00	179.60	12515.00	7686.00	-7689.27	-436.88	0.00	390756.24	770117.23	N 32 4 19.62	W 103 35 41.05
	20100.00	90.00	179.60	12515.00	7786.00	-7789.26	-436.18	0.00	390656.24	770117.94	N 32 4 18.63	W 103 35 41.05
	20200.00	90.00	179.60	12515.00	7886.00	-7889.26	-435.48	0.00	390556.25	770118.64	N 32 4 17.64	W 103 35 41.05
	20300.00	90.00	179.60	12515.00	7986.00	-7989.26	-434.77	0.00	390456.25	770119.34	N 32 4 16.65	W 103 35 41.05
	20400.00	90.00	179.60	12515.00	8086.00	-8089.26	-434.07	0.00	390356.26	770120.04	N 32 4 15.66	W 103 35 41.05
	20500.00	90.00	179.60	12515.00	8186.00	-8189.25	-433.37	0.00	390256.27	770120.75	N 32 4 14.67	W 103 35 41.05
	20600.00	90.00	179.60	12515.00	8286.00	-8289.25	-432.66	0.00	390156.27	770121.45	N 32 4 13.68	W 103 35 41.05
	20700.00	90.00	179.60	12515.00	8386.00	-8389.25	-431.96	0.00	390056.28	770122.15	N 32 4 12.69	W 103 35 41.05
	20800.00	90.00	179.60	12515.00	8486.00	-8489.25	-431.26	0.00	389956.28	770122.86	N 32 4 11.70	W 103 35 41.05
	20900.00	90.00	179.60	12515.00	8586.00	-8589.24	-430.55	0.00	389856.29	770123.56	N 32 4 10.71	W 103 35 41.05
	21000.00	90.00	179.60	12515.00	8686.00	-8689.24	-429.85	0.00	389756.29	770124.26	N 32 4 9.72	W 103 35 41.05
	21100.00	90.00	179.60	12515.00	8786.00	-8789.24	-429.15	0.00	389656.30	770124.97	N 32 4 8.73	W 103 35 41.05
	21200.00	90.00	179.60	12515.00	8886.00	-8889.24	-428.45	0.00	389556.31	770125.67	N 32 4 7.74	W 103 35 41.05
	21300.00	90.00	179.60	12515.00	8986.00	-8989.23	-427.74	0.00	389456.31	770126.37	N 32 4 6.75	W 103 35 41.05
	21400.00	90.00	179.60	12515.00	9086.00	-9089.23	-427.04	0.00	389356.32	770127.08	N 32 4 5.76	W 103 35 41.05
	21500.00	90.00	179.60	12515.00	9186.00	-9189.23	-426.34	0.00	389256.32	770127.78	N 32 4 4.77	W 103 35 41.05
	21600.00	90.00	179.60	12515.00	9286.00	-9289.23	-425.63	0.00	389156.33	770128.48	N 32 4 3.79	W 103 35 41.05
	21700.00	90.00	179.60	12515.00	9386.00	-9389.22	-424.93	0.00	389056.33	770129.18	N 32 4 2.80	W 103 35 41.05
	21800.00	90.00	179.60	12515.00	9486.00	-9489.22	-424.23	0.00	388956.34	770129.89	N 32 4 1.81	W 103 35 41.05
	21900.00	90.00	179.60	12515.00	9586.00	-9589.22	-423.52	0.00	388856.35	770130.59	N 32 4 0.82	W 103 35 41.05
	22000.00	90.00	179.60	12515.00	9686.00	-9689.22	-422.82	0.00	388756.35	770131.29	N 32 3 59.83	W 103 35 41.05
	22100.00	90.00	179.60	12515.00	9786.00	-9789.21	-422.12	0.00	388656.36	770132.00	N 32 3 58.84	W 103 35 41.05
	22200.00	90.00	179.60	12515.00	9886.00	-9889.21	-421.41	0.00	388556.36	770132.70	N 32 3 57.85	W 103 35 41.05
	22300.00	90.00	179.60	12515.00	9986.00	-9989.21	-420.71	0.00	388456.37	770133.40	N 32 3 56.86	W 103 35 41.04
Cimarex Red Hills 32-5 Fed Com #171H - PBHL [100' FSL, 2515' FEL]	22382.10	90.00	179.60	12515.00	10068.11	-10071.31	-420.13	0.00	388374.27	770133.98	N 32 3 56.05	W 103 35 41.04

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 #171H / Cimarex Red Hills 32-5 Fed Com #171H Rev1 RM 14Jun21
	1	23.000	22382.103	1/100.000	17.500	13.375		NAL_MWD_IFR1+MS	Red Hills 32-5 Fed Com #171H / Cimarex Red Hills 32-5 Fed Com

Schlumberger

CIMAREX

Cimarex Red Hills 32-5 Fed Com #171H Rev1 RM 14Jun21 Anti-Collision Summary Report

Analysis Date-24hr Time:	June 14, 2021 - 11:51	**Analysis Method:**	3D Least Distance
Client:	Cimarex Energy	**Reference Trajectory:**	Cimarex Red Hills 32-5 Fed Com #171H Rev1 RM 14Jun21 (Def Plan)
Field:	NM Lea County (NAD 83)	**Depth Interval:**	Every 10.00 Measured Depth (ft)
Structure:	Cimarex Red Hills 32-5 Fed Com #171H	**Rule Set:**	NAL Procedure: D&M AntiCollision Standard S002
Slot:	New Slot	**Min Pts:**	All local minima indicated.
Well:	Red Hills 32-5 Fed Com #171H	**Version / Patch:**	2.10.825.0
Borehole:	Red Hills 32-5 Fed Com #171H	**Database \ Project:**	us1455vsm3172\drilling -NM Lea County 2.10
Scan MD Range:	0.00ft ~ 22382.10ft		

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	Sep.	Controlling	Reference Trajectory		Risk Level			Alert	Status
	Ct-Ct (ft)	MAS (ft)	EOU (ft)	Dev. (ft)	Fact.	Rule	MD (ft)	TVD (ft)	Alert	Minor	Major		
Results highlighted: Sep-Factor separation <= 1.50 ft													
Cimarex Red Hills Unit #3H (Offset) Gas Gyro & Inc 0ft-17597ft (Def Survey)													Fail Major
	8212.93	32.81	8211.64	8180.12	N/A	MAS = 10.00 (m)	0.00	0.00				Surface	
	8212.82	32.81	8211.52	8180.01	558476.73	MAS = 10.00 (m)	23.00	23.00				WRP	
	8092.22	39.31	8065.57	8052.91	319.32	OSF1.50	6026.88	5995.15				MinPt-O-SF	
	8092.17	39.28	8065.55	8052.89	319.57	OSF1.50	6060.00	6027.97				MinPt-O-ADP	
	8092.17	39.27	8065.55	8052.89	319.64	OSF1.50	6070.00	6037.90				MINPT-O-EOU	
	8092.15	39.25	8065.56	8052.91	319.86	OSF1.50	6100.00	6067.68				MinPt-CtCt	
	8092.63	37.64	8067.11	8055.00	334.03	OSF1.50	6530.00	6496.97				MINPT-O-EOU	
	8092.96	38.02	8067.18	8054.94	330.55	OSF1.50	6660.00	6626.97				MinPt-O-ADP	
	8094.42	39.57	8067.61	8054.84	317.07	OSF1.50	7070.00	7036.97				MinPt-O-ADP	
	8201.34	61.98	8159.59	8139.36	202.66	OSF1.50	12090.00	12056.87				MinPt-O-SF	
	240.24	82.46	180.49	157.78	4.97	OSF1.50	20300.00	12515.00	OSF<5.00			Enter Alert	
	115.22	126.65	26.71	-11.43	1.35	OSF1.50	20440.00	12515.00		OSF<1.50		Enter Minor	
	94.08	149.73	-9.19	-55.65	0.90	OSF1.50	20470.00	12515.00			OSF<1.00	Enter Major	
	74.00	186.48	-51.49	-112.49	0.58	OSF1.50	20520.00	12515.00				MinPt-O-SF	
	73.49	188.10	-52.45	-114.61	0.58	OSF1.50	20530.00	12515.00				MinPts	
	95.65	159.75	-11.28	-64.10	0.89	OSF1.50	20590.00	12515.00			OSF>1.00	Exit Major	
	125.08	133.17	35.87	-8.09	1.41	OSF1.50	20630.00	12515.00		OSF>1.50		Exit Minor	
	280.98	87.14	222.45	193.83	4.89	OSF1.50	20800.00	12515.00	OSF>5.00			Exit Alert	
	1854.58	64.46	1811.18	1790.12	44.01	OSF1.50	22382.10	12515.00				TD	
Cimarex Red Hills 32-5 Fed Com #170H Rev1 RM 14June21 (Def Plan)													Fail Minor
	20.00	16.26	18.71	3.74	N/A	MAS = 4.96 (m)	0.00	0.00	CtCt<=15m<15.00			Enter Alert	
	20.00	16.26	18.71	3.74	42115.02	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	3.36	-4.33	1.22	OSF1.50	2510.00	2510.00				MINPT-O-EOU	
	20.07	24.42	3.36	-4.34	1.22	OSF1.50	2520.00	2520.00				MinPts	
	25.04	25.33	7.73	-0.29	1.48	OSF1.50	2670.00	2669.90		OSF>1.50		Exit Minor	
	47.88	26.57	29.74	21.31	2.76	OSF1.50	2900.00	2898.70				MinPts	
	91.02	28.42	71.65	62.61	4.96	OSF1.50	3210.00	3205.68	OSF>5.00			Exit Alert	
	510.94	97.71	445.37	413.23	7.93	OSF1.50	11800.00	11766.97				MINPT-O-EOU	
	510.97	97.74	445.38	413.23	7.93	OSF1.50	11810.00	11776.97				MinPt-O-ADP	
	511.23	97.84	445.58	413.46	7.92	OSF1.50	11840.00	11806.97				MinPt-O-SF	
	591.87	178.60	472.37	413.27	5.00	OSF1.50	18060.00	12515.00	OSF<5.00			Enter Alert	
	591.86	308.69	385.64	283.17	2.88	OSF1.50	22382.10	12515.00				MinPts	
Cimarex Red Hills 32-5 Fed Com #158H Rev2 RM 14Jan20 (Def Plan)													Fail Minor
	701.86	32.81	700.57	669.05	N/A	MAS = 10.00 (m)	0.00	0.00				Surface	
	701.86	32.81	700.57	669.05	N/A	MAS = 10.00 (m)	23.00	23.00				WRP	
	303.93	92.22	241.95	211.71	5.00	OSF1.50	11420.00	11386.97	OSF<5.00			Enter Alert	
	303.91	95.74	239.58	208.16	4.81	OSF1.50	11820.00	11786.97				MinPt-O-SF	
	207.91	92.71	145.49	115.19	3.40	OSF1.50	12260.00	12219.06				MinPt-O-SF	
	207.87	92.69	145.47	115.18	3.40	OSF1.50	12270.00	12227.95				MinPts	
	251.11	77.41	199.04	173.70	4.93	OSF1.50	12540.00	12419.48	OSF>5.00			Exit Alert	
	301.41	91.38	240.06	210.03	5.00	OSF1.50	14480.00	12515.00	OSF<5.00			Enter Alert	
	302.02	302.28	100.07	-0.26	1.50	OSF1.50	21830.00	12515.00		OSF<1.50		Enter Minor	
	302.06	319.31	88.76	-17.25	1.42	OSF1.50	22382.10	12515.00				MinPts	
Cimarex Red Hills Unit #1 (Offset) Gas Inc Only 0ft-21321ft API 30-025-21036 (Def Survey)													Fail Minor
	4546.63	32.81	4544.65	4513.82	N/A	MAS = 10.00 (m)	0.00	0.00				Surface	
	4546.60	32.81	4544.62	4513.79	N/A	MAS = 10.00 (m)	10.00	10.00				MinPt-O-SF	
	4546.59	32.81	4544.62	4513.79	N/A	MAS = 10.00 (m)	20.00	20.00				MinPts	
	4546.59	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	333.72	MAS = 10.00 (m)	460.00	460.00				MinPts	
	4546.57	32.81	4530.50	4513.76	322.54	MAS = 10.00 (m)	510.00	510.00				MINPT-O-EOU	
	4545.54	34.47	4521.91	4511.08	209.78	OSF1.50	690.00	690.00				MinPt-CtCt	
	4545.56	41.29	4517.38	4504.27	173.39	OSF1.50	820.00	820.00				MinPt-CtCt	
	4546.58	44.25	4516.42	4502.33	161.25	OSF1.50	950.00	950.00				MINPT-O-EOU	
	4546.30	56.38	4508.06	4489.92	125.30	OSF1.50	1110.00	1110.00				MinPt-CtCt	
	4547.07	58.72	4507.26	4488.35	120.15	OSF1.50	1220.00	1220.00				MINPT-O-EOU	
	4546.58	70.90	4498.65	4475.68	98.91	OSF1.50	1390.00	1390.00				MinPt-CtCt	
	4546.36	92.27	4484.19	4454.09	75.49	OSF1.50	1800.00	1800.00				MinPt-CtCt	
	4545.98	120.02	4465.31	4425.96	57.74	OSF1.50	2330.00	2330.00				MinPt-CtCt	
	4544.93	146.02	4446.93	4398.91	47.31	OSF1.50	2830.00	2829.27				MinPt-CtCt	
	4545.94	165.87	4434.70	4380.07	41.59	OSF1.50	3210.00	3205.68				MinPt-CtCt	
	4546.24	167.27	4434.07	4378.98	41.24	OSF1.50	3280.00	3275.00				MINPT-O-EOU	
	4546.75	167.87	4434.18	4378.88	41.09	OSF1.50	3320.00	3314.61				MinPt-O-ADP	
	4546.69	175.69	4428.90	4370.99	39.24	OSF1.50	3400.00	3393.84				MinPt-CtCt	
	4548.87	181.52	4427.20	4367.35	37.99	OSF1.50	3600.00	3591.89				MINPT-O-EOU	

Offset Trajectory	Separation			Allow	Sep.	Controlling	Reference Trajectory		Risk Level			Alert	Status
	Ct-Ct (ft)	MAS (ft)	EOU (ft)	Dev. (ft)	Fact.	Rule	MD (ft)	TVD (ft)	Alert	Minor	Major		
	4549.55	195.12	4418.82	4354.44	35.32	OSF1.50	3770.00	3760.23				MinPt-CtCt	
	4549.73	196.06	4418.37	4353.68	35.15	OSF1.50	3820.00	3809.75				MinPts	
	4550.01	207.97	4410.71	4342.04	33.12	OSF1.50	4020.00	4007.80				MinPt-CtCt	
	4550.58	209.28	4410.41	4341.31	32.91	OSF1.50	4100.00	4087.02				MINPT-O-EOU	
	4551.22	210.02	4410.55	4341.21	32.80	OSF1.50	4140.00	4126.63				MinPt-O-ADP	
	4551.60	222.43	4402.65	4329.16	30.96	OSF1.50	4290.00	4275.17				MinPt-CtCt	
	4552.10	224.29	4401.91	4327.81	30.70	OSF1.50	4380.00	4364.30				MINPT-O-EOU	
	4552.52	224.79	4402.00	4327.72	30.63	OSF1.50	4410.00	4394.01				MinPt-O-ADP	
	4552.67	242.35	4390.45	4310.33	28.40	OSF1.50	4670.00	4651.48				MinPt-CtCt	
	4570.22	334.37	4346.65	4235.85	20.62	OSF1.50	6500.00	6466.97				MinPt-CtCt	
	4568.82	380.68	4314.37	4188.14	18.09	OSF1.50	7390.00	7356.97				MinPt-CtCt	
	4569.27	456.68	4264.16	4112.59	15.07	OSF1.50	8850.00	8816.97				MinPt-CtCt	
	4570.69	519.71	4223.55	4050.97	13.24	OSF1.50	10060.00	10026.97				MinPt-CtCt	
	4571.96	586.86	4180.06	3985.10	11.72	OSF1.50	11350.00	11316.97				MinPt-CtCt	
	2156.01	652.73	1718.77	1503.29	4.99	OSF1.50	14760.00	12515.00	OSF<5.00			Enter Alert	
	655.01	655.78	215.70	-0.78	1.50	OSF1.50	16430.00	12515.00		OSF<1.50		Enter Minor	
	495.59	653.38	59.34	-157.80	1.14	OSF1.50	16860.00	12515.00				MinPts	
	644.29	650.69	209.83	-6.40	1.49	OSF1.50	17270.00	12515.00		OSF>1.50		Exit Minor	
	2149.61	647.48	1717.29	1502.13	4.99	OSF1.50	18950.00	12515.00	OSF>5.00			Exit Alert	
	5545.30	639.41	5118.36	4905.88	13.04	OSF1.50	22382.10	12515.00				TD	
Cimarex Red Hills 32-5 Fed Com #169H Rev1 RM 14June21 (Def Plan)													Warning Alert
	39.99	32.25	38.71	7.74	N/A	MAS = 9.83 (m)	0.00	0.00	CtCt<=15m<15.00			Enter Alert	
	39.99	32.25	38.70	7.74	58068.47	MAS = 9.83 (m)	23.00	23.00				WRP	
	39.99	32.25	23.44	7.74	2.54	MAS = 9.83 (m)	2490.00	2490.00				MinPts	
	39.99	32.25	23.38	7.74	2.53	MAS = 9.83 (m)	2500.00	2500.00				MINPT-O-EOU	
	40.03	32.25	23.38	7.78	2.52	MAS = 9.83 (m)	2510.00	2510.00				MinPt-O-SF	
	77.49	32.25	60.53	45.24	4.86	MAS = 9.83 (m)	2830.00	2829.27	OSF>5.00			Exit Alert	
	94.89	32.25	77.89	62.64	5.96	MAS = 9.83 (m)	2900.00	2898.70				MinPts	
	1069.49	44.87	1039.15	1024.62	36.77	OSF1.50	6640.00	6606.97				MinPt-O-SF	
	1085.85	82.85	1030.19	1003.00	19.95	OSF1.50	12038.02	12005.00				MinPts	
	1085.85	314.74	875.59	771.10	5.19	OSF1.50	22382.10	12515.00				MinPts	
Cimarex Red Hills 32-5 Fed Com #159H Rev3 RM 14Jan19 (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	
	721.79	32.81	706.49	688.98	51.44	MAS = 10.00 (m)	2290.00	2290.00				MinPts	
	722.35	32.81	705.82	689.54	47.29	MAS = 10.00 (m)	2490.00	2490.00				MINPT-O-EOU	
	261.10	79.78	207.31	181.32	4.99	OSF1.50	10660.00	10626.97	OSF<5.00			Enter Alert	
	228.42	83.21	172.33	145.21	4.18	OSF1.50	10840.00	10806.97				MinPts	
	250.68	78.16	198.05	172.52	4.88	OSF1.50	10960.00	10926.97	OSF>5.00			Exit Alert	
	1633.62	315.12	1423.11	1318.50	7.80	OSF1.50	22382.10	12515.00				MinPts	
Cimarex Red Hills 32-5 Fed Com #160H Rev3 RM 14Jan20 (Def Plan)													Warning Alert
	741.71	32.81	740.42	708.90	N/A	MAS = 10.00 (m)	0.00	0.00				Surface	
	741.71	32.81	740.42	708.90	N/A	MAS = 10.00 (m)	23.00	23.00				WRP	
	255.47	78.03	202.84	177.45	4.99	OSF1.50	9500.00	9466.97	OSF<5.00			Enter Alert	
	248.33	80.91	193.76	167.42	4.68	OSF1.50	10080.00	10046.97				MinPts	
	248.33	80.90	193.77	167.43	4.68	OSF1.50	10090.00	10056.97				MinPt-CtCt	
	260.33	79.32	206.87	181.01	5.00	OSF1.50	10220.00	10186.97	OSF>5.00			Exit Alert	
	2231.30	312.47	2022.56	1918.83	10.75	OSF1.50	22382.10	12515.00				MinPts	
Final Surveys - Cimarex Red Hills 32-5 Fed Com #155H MWD 0ft-22115ft (Surcon Corrected) (Def Survey)													Warning Alert
	619.29	32.81	618.00	586.48	N/A	MAS = 10.00 (m)	0.00	0.00				MinPts	
	619.30	32.81	618.01	586.49	204431.97	MAS = 10.00 (m)	23.00	23.00				WRP	
	619.53	32.81	617.81	586.72	1425.45	MAS = 10.00 (m)	140.00	140.00				MINPT-O-EOU	
	619.72	32.81	617.85	586.91	899.95	MAS = 10.00 (m)	190.00	190.00				MINPT-O-EOU	
	616.96	32.81	611.32	584.15	138.16	MAS = 10.00 (m)	1040.00	1040.00				MINPT-O-EOU	
	616.66	32.81	610.60	583.85	122.69	MAS = 10.00 (m)	1160.00	1160.00				MinPts	
	616.90	32.81	610.42	584.09	113.37	MAS = 10.00 (m)	1250.00	1250.00				MINPT-O-EOU	
	490.69	32.81	477.35	457.88	40.12	MAS = 10.00 (m)	3640.00	3631.50				MinPts	
	413.13	32.81	391.42	380.32	20.12	MAS = 10.00 (m)	6100.00	6067.68				MinPt-O-SF	
	412.87	32.81	391.25	380.07	20.19	MAS = 10.00 (m)	6130.00	6097.50				MinPts	
	552.88	49.19	519.74	503.69	17.19	OSF1.50	10040.00	10006.97				MinPt-CtCt	
	552.05	50.91	517.76	501.14	16.57	OSF1.50	10360.00	10326.97				MinPt-CtCt	
	545.59	55.33	508.35	490.25	15.05	OSF1.50	11150.00	11116.97				MinPt-CtCt	
	545.63	55.44	508.32	490.19	15.02	OSF1.50	11170.00	11136.97				MinPts	
	560.98	58.67	521.52	502.31	14.58	OSF1.50	11760.00	11726.97				MinPt-O-SF	
	539.05	60.20	498.57	478.85	13.64	OSF1.50	12010.00	11976.97				MinPts	
	539.69	60.36	499.10	479.33	13.62	OSF1.50	12038.02	12005.00				MinPt-O-SF	
	578.54	56.03	540.85	522.50	15.74	OSF1.50	12890.00	12507.36				MinPt-CtCt	
	578.54	56.09	540.82	522.45	15.72	OSF1.50	12900.00	12508.36				MINPT-O-EOU	
	578.59	56.15	540.83	522.44	15.70	OSF1.50	12910.00	12509.28				MinPt-O-ADP	
	603.93	59.54	563.92	544.40	15.45	OSF1.50	13250.00	12515.00				MinPt-O-SF	
	592.89	62.60	550.83	530.29	14.41	OSF1.50	13560.00	12515.00				MinPt-CtCt	
	593.11	63.24	550.62	529.87	14.27	OSF1.50	13600.00	12515.00				MINPT-O-EOU	
	593.39	63.57	550.68	529.82	14.20	OSF1.50	13620.00	12515.00				MinPt-O-ADP	
	607.19	70.96	559.55	536.22	12.99	OSF1.50	14060.00	12515.00				MinPt-CtCt	
	606.98	74.68	556.87	532.31	12.34	OSF1.50	14250.00	12515.00				MinPt-CtCt	
	607.43	76.00	556.43	531.42	12.13	OSF1.50	14310.00	12515.00				MINPT-O-EOU	
	607.79	76.45	556.49	531.34	12.06	OSF1.50	14330.00	12515.00				MinPt-O-ADP	
	588.65	116.37	510.74	472.28	7.64	OSF1.50	15970.00	12515.00				MinPt-CtCt	
	591.91	128.46	505.94	463.45	6.95	OSF1.50	16410.00	12515.00				MINPT-O-EOU	
	592.84	129.62	506.10	463.22	6.90	OSF1.50	16450.00	12515.00				MinPt-O-ADP	
	604.91	139.02	511.90	465.89	6.56	OSF1.50	16790.00	12515.00				MINPT-O-EOU	
	605.64	139.92	512.03	465.72	6.53	OSF1.50	16820.00	12515.00				MinPt-O-ADP	
	618.17	157.16	513.07	461.01	5.93	OSF1.50	17440.00	12515.00				MinPt-CtCt	
	621.07	181.25	499.91	439.83	5.16	OSF1.50	18280.00	12515.00				MinPt-CtCt	
	623.32	187.19	498.20	436.13	5.01	OSF1.50	18480.00	12515.00				MINPT-O-EOU	
	623.93	188.08	498.22	435.85	4.99	OSF1.50	18510.00	12515.00	OSF<5.00			Enter Alert	
	622.96	199.01	489.96	423.95	4.71	OSF1.50	18890.00	12515.00				MinPt-CtCt	
	623.46	200.60	489.39	422.85	4.68	OSF1.50	18940.00	12515.00				MINPT-O-EOU	
	623.77	204.89	486.85	418.88	4.58	OSF1.50	19090.00	12515.00				MinPt-CtCt	
	626.36	221.74	478.21	404.62	4.25	OSF1.50	19660.00	12515.00				MinPt-CtCt	
	630.87	242.70	468.74	388.17	3.91	OSF1.50	20370.00	12515.00				MinPt-CtCt	

Offset Trajectory	Separation			Allow	Sep.	Controlling	Reference Trajectory		Risk Level			Alert	Status
	Ct-Ct (ft)	MAS (ft)	EOU (ft)	Dev. (ft)	Fact.	Rule	MD (ft)	TVD (ft)	Alert	Minor	Major		
	621.49	269.87	441.25	351.62	3.46	OSF1.50	21280.00	12515.00				MinPt-CtCt	
	615.30	275.54	431.28	339.76	3.36	OSF1.50	21470.00	12515.00				MinPt-CtCt	
	606.63	289.03	413.62	317.60	3.15	OSF1.50	21920.00	12515.00				MinPt-CtCt	
	591.41	298.98	391.76	292.43	2.97	OSF1.50	22280.00	12515.00				MinPts	
	584.54	302.90	382.28	281.65	2.90	OSF1.50	22380.00	12515.00				MinPt-CtCt	
	584.55	302.99	382.22	281.56	2.90	OSF1.50	22382.10	12515.00				MinPts	
Cimarex Red Hills Unit #2H (Offset) Gas Inc Only 0ft-15005ft (Def Survey)													Warning Alert
	5906.64	32.81	5904.66	5873.83	N/A	MAS = 10.00 (m)	0.00	0.00				Surface	
	5906.46	32.81	5904.46	5873.66	234496.07	MAS = 10.00 (m)	23.00	23.00				MinPt-O-SF	
	5906.37	32.81	5904.28	5873.56	52169.67	MAS = 10.00 (m)	60.00	60.00				MinPts	
	5906.38	32.81	5887.59	5873.58	351.14	MAS = 10.00 (m)	610.00	610.00				MinPts	
	5905.87	36.97	5880.56	5868.89	253.06	OSF1.50	800.00	800.00				MinPt-CtCt	
	5901.60	68.68	5855.15	5832.92	132.68	OSF1.50	1380.00	1380.00				MinPt-CtCt	
	5899.41	111.60	5824.35	5787.81	80.70	OSF1.50	2200.00	2200.00				MinPt-CtCt	
	5901.38	117.62	5822.31	5783.77	76.53	OSF1.50	2420.00	2420.00				MINPT-O-EOU	
	5903.61	120.31	5822.74	5783.30	74.81	OSF1.50	2520.00	2520.00				MinPt-O-ADP	
	5903.26	145.91	5805.33	5757.36	61.50	OSF1.50	2800.00	2799.45				MinPt-CtCt	
	5905.92	153.34	5803.03	5752.57	58.51	OSF1.50	3030.00	3027.44				MINPT-O-EOU	
	5906.13	153.58	5803.09	5752.56	58.42	OSF1.50	3040.00	3037.34				MinPt-O-ADP	
	5911.72	168.86	5798.48	5742.85	53.12	OSF1.50	3260.00	3255.20				MINPT-O-EOU	
	5912.02	169.22	5798.54	5742.80	53.01	OSF1.50	3290.00	3284.91				MinPt-O-ADP	
	5916.54	181.03	5795.19	5735.51	49.55	OSF1.50	3510.00	3502.77				MINPT-O-EOU	
	5917.29	181.90	5795.36	5735.38	49.32	OSF1.50	3560.00	3552.28				MinPt-O-ADP	
	5920.18	184.89	5796.25	5735.28	48.53	OSF1.50	3680.00	3671.11				MinPt-O-ADP	
	5927.34	205.09	5789.96	5722.25	43.76	OSF1.50	3900.00	3888.97				MinPt-CtCt	
	5927.50	205.64	5789.75	5721.86	43.64	OSF1.50	3950.00	3938.48				MINPT-O-EOU	
	5927.76	205.96	5789.79	5721.80	43.58	OSF1.50	3980.00	3968.19				MinPt-O-ADP	
	5936.81	227.64	5784.39	5709.17	39.45	OSF1.50	4440.00	4423.71				MINPT-O-EOU	
	5939.43	230.77	5784.92	5708.66	38.93	OSF1.50	4550.00	4532.64				MinPt-O-ADP	
	5944.88	245.04	5780.86	5699.84	36.67	OSF1.50	4700.00	4681.18				MINPT-O-EOU	
	5945.16	245.39	5780.91	5699.77	36.63	OSF1.50	4730.00	4710.89				MinPt-O-ADP	
	5948.33	254.68	5777.89	5693.66	35.30	OSF1.50	4880.00	4859.43				MinPts	
	5951.00	264.94	5773.72	5686.06	33.94	OSF1.50	5040.00	5017.88				MinPt-CtCt	
	5951.18	265.44	5773.56	5685.74	33.87	OSF1.50	5090.00	5067.39				MINPT-O-EOU	
	5951.35	265.63	5773.60	5685.72	33.85	OSF1.50	5110.00	5087.19				MinPt-O-ADP	
	5957.50	281.64	5769.08	5675.86	31.94	OSF1.50	5460.00	5433.79				MINPT-O-EOU	
	5959.48	284.02	5769.48	5675.46	31.68	OSF1.50	5550.00	5522.91				MinPt-O-ADP	
	5971.02	297.36	5772.11	5673.65	30.31	OSF1.50	5880.00	5849.70				MinPt-O-ADP	
	5977.78	360.06	5737.07	5617.71	25.03	OSF1.50	7030.00	6996.97				MinPt-CtCt	
	5985.32	383.10	5729.26	5602.22	23.55	OSF1.50	7610.00	7576.97				MINPT-O-EOU	
	5977.45	432.75	5688.29	5544.70	20.81	OSF1.50	8420.00	8386.97				MinPt-CtCt	
	5980.48	442.66	5684.71	5537.82	20.35	OSF1.50	8720.00	8686.97				MINPT-O-EOU	
	5983.78	446.64	5685.36	5537.14	20.18	OSF1.50	8850.00	8816.97				MinPt-O-ADP	
	5981.63	472.12	5666.23	5509.52	19.08	OSF1.50	9170.00	9136.97				MinPt-CtCt	
	5982.30	474.02	5665.62	5508.28	19.00	OSF1.50	9280.00	9246.97				MINPT-O-EOU	
	5983.06	474.94	5665.77	5508.12	18.97	OSF1.50	9330.00	9296.97				MinPt-O-ADP	
	5986.67	513.98	5643.36	5472.69	17.53	OSF1.50	10000.00	9966.97				MinPt-CtCt	
	5987.87	618.07	5575.17	5369.80	14.57	OSF1.50	12010.00	11976.97				MinPt-CtCt	
	2156.15	653.44	1717.92	1502.71	4.99	OSF1.50	16370.00	12515.00	OSF<5.00			Enter Alert	
	1145.54	657.06	706.83	488.47	2.62	OSF1.50	18200.00	12515.00				MinPts	
	2161.64	651.20	1726.85	1510.44	4.99	OSF1.50	20030.00	12515.00	OSF>5.00			Exit Alert	
	4339.11	649.68	3905.32	3689.42	10.04	OSF1.50	22382.10	12515.00				TD	
Neil H Wills Continental State #1 (Offset) Plugged Blind 0ft-5020ft (Def Survey)													Warning Alert
	3338.32	32.81	3336.34	3305.51	N/A	MAS = 10.00 (m)	0.00	0.00				Surface	
	3338.10	32.81	3336.09	3305.29	119081.27	MAS = 10.00 (m)	23.00	23.00				MinPt-O-SF	
	3338.03	758.72	2831.56	2579.31	6.61	OSF1.50	2500.00	2500.00				MinPt-CtCt	
	3382.39	1017.84	2703.16	2364.54	4.99	OSF1.50	3330.00	3324.52	OSF<5.00			Enter Alert	
	3515.65	1567.62	2469.91	1948.03	3.37	OSF1.50	5100.00	5077.29				MinPts	
	4339.68	1303.32	3470.14	3036.36	5.00	OSF1.50	7520.00	7486.97	OSF>5.00			Exit Alert	
	7743.66	439.62	7449.92	7304.04	26.53	OSF1.50	15210.00	12515.00				MinPt-CtCt	
	7743.70	439.74	7449.88	7303.96	26.53	OSF1.50	15240.00	12515.00				MINPT-O-EOU	
	7744.02	440.11	7449.96	7303.91	26.51	OSF1.50	15290.00	12515.00				MinPt-O-ADP	
	10502.61	1119.18	9755.83	9383.43	14.10	OSF1.50	22310.00	12515.00				MinPt-O-SF	
	10551.45	1124.33	9801.24	9427.13	14.10	OSF1.50	22382.10	12515.00				TD	
Final Surveys - Cimarex Red Hills 32-5 Fed Com #156H MWD 0ft-20955ft (Surcon Corrected) (Def Survey)													Pass
	639.28	32.81	638.00	606.47	N/A	MAS = 10.00 (m)	0.00	0.00				Surface	
	639.28	32.81	637.99	606.47	386051.97	MAS = 10.00 (m)	23.00	23.00				WRP	
	638.61	32.81	635.59	605.81	367.30	MAS = 10.00 (m)	440.00	440.00				MinPts	
	639.42	32.81	635.05	606.62	206.93	MAS = 10.00 (m)	720.00	720.00				MINPT-O-EOU	
	636.47	32.81	627.17	603.67	77.79	MAS = 10.00 (m)	1840.00	1840.00				MinPts	
	636.55	32.81	627.04	603.74	75.89	MAS = 10.00 (m)	1890.00	1890.00				MINPT-O-EOU	
	685.06	32.81	672.52	652.25	59.93	MAS = 10.00 (m)	2600.00	2599.98				MinPt-O-SF	
	649.04	32.81	628.53	616.23	33.25	MAS = 10.00 (m)	5680.00	5651.65				MinPts	
	632.59	32.81	610.73	599.78	30.37	MAS = 10.00 (m)	6100.00	6067.68				MinPt-O-SF	
	592.51	35.51	568.46	557.00	25.81	OSF1.50	7620.00	7586.97				MinPt-CtCt	
	592.53	35.56	568.44	556.97	25.77	OSF1.50	7630.00	7596.97				MINPT-O-EOU	
	592.57	35.61	568.45	556.95	25.73	OSF1.50	7640.00	7606.97				MinPt-O-ADP	
	610.68	43.09	581.59	567.59	21.78	OSF1.50	9080.00	9046.97				MinPt-O-ADP	
	611.49	46.03	580.44	565.46	20.38	OSF1.50	9610.00	9576.97				MinPt-CtCt	
	611.55	46.24	580.36	565.31	20.28	OSF1.50	9650.00	9616.97				MINPT-O-EOU	
	611.63	46.34	580.38	565.29	20.24	OSF1.50	9670.00	9636.97				MinPt-O-ADP	
	625.92	51.90	590.97	574.03	18.44	OSF1.50	10670.00	10636.97				MinPt-CtCt	
	625.85	52.28	590.65	573.57	18.30	OSF1.50	10730.00	10696.97				MinPt-CtCt	
	625.85	52.34	590.61	573.51	18.27	OSF1.50	10740.00	10706.97				MINPT-O-EOU	
	625.90	52.41	590.61	573.49	18.25	OSF1.50	10750.00	10716.97				MinPt-O-ADP	
	624.39	53.26	588.54	571.13	17.90	OSF1.50	10880.00	10846.97				MinPt-CtCt	
	624.42	53.33	588.53	571.09	17.88	OSF1.50	10890.00	10856.97				MinPts	
	625.63	53.55	589.59	572.08	17.84	OSF1.50	10930.00	10896.97				MinPt-O-SF	
	1639.18	42.95	1610.21	1596.23	58.61	OSF1.50	13250.00	12515.00				MinPt-CtCt	
	1638.86	60.96	1597.88	1577.90	40.99	OSF1.50	14090.00	12515.00				MinPt-CtCt	
	1653.82	125.33	1569.93	1528.49	19.94	OSF1.50	16440.00	12515.00				MinPt-CtCt	
	1673.32	172.14	1558.22	1501.18	14.66	OSF1.50	18040.00	12515.00				MINPT-O-EOU	

Offset Trajectory	Separation			Allow	Sep.	Controlling	Reference Trajectory		Risk Level			Alert	Status
	Ct-Ct (ft)	MAS (ft)	EOU (ft)	Dev. (ft)	Fact.	Rule	MD (ft)	TVD (ft)	Alert	Minor	Major		
	1679.15	196.36	1547.91	1482.79	12.89	OSF1.50	18850.00	12515.00				MinPt-CtCt	
	1679.92	204.37	1543.34	1475.55	12.38	OSF1.50	19120.00	12515.00				MinPt-CtCt	
	1682.56	219.79	1535.69	1462.77	11.53	OSF1.50	19640.00	12515.00				MinPt-CtCt	
	1682.65	226.91	1531.03	1455.73	11.17	OSF1.50	19880.00	12515.00				MinPt-CtCt	
	1681.69	240.00	1521.35	1441.69	10.55	OSF1.50	20320.00	12515.00				MinPt-CtCt	
	1680.16	250.74	1512.66	1429.42	10.09	OSF1.50	20680.00	12515.00				MinPt-CtCt	
	1678.41	262.96	1502.76	1415.44	9.61	OSF1.50	21090.00	12515.00				MinPt-CtCt	
	1678.48	270.15	1498.04	1408.32	9.35	OSF1.50	21330.00	12515.00				MinPt-CtCt	
	1670.89	287.45	1478.92	1383.45	8.75	OSF1.50	21910.00	12515.00				MinPt-CtCt	
	1671.99	290.84	1477.76	1381.16	8.65	OSF1.50	22030.00	12515.00				MINPT-O-EOU	
	1672.89	291.91	1477.94	1380.98	8.62	OSF1.50	22070.00	12515.00				MinPt-O-ADP	
	1688.39	301.42	1487.10	1386.97	8.43	OSF1.50	22382.10	12515.00				MinPts	
Final Surveys - Cimarex Red Hills 32-5 Fed Com #157H MWD 0ft-20220ft (Surcon Corrected) (Def Survey)													Pass
	659.28	32.81	658.00	626.47	N/A	MAS = 10.00 (m)	0.00	0.00				Surface	
	659.26	32.81	657.96	626.45	65423.54	MAS = 10.00 (m)	23.00	23.00				WRP	
	657.07	32.81	654.53	624.27	521.69	MAS = 10.00 (m)	330.00	330.00				MinPts	
	657.13	32.81	654.46	624.32	476.50	MAS = 10.00 (m)	360.00	360.00				MINPT-O-EOU	
	766.72	32.81	754.23	733.91	67.45	MAS = 10.00 (m)	2600.00	2599.98				MinPt-O-SF	
	643.72	32.81	621.72	610.91	30.81	MAS = 10.00 (m)	6110.00	6077.62				MinPt-O-SF	
	630.24	32.81	609.03	597.44	31.37	MAS = 10.00 (m)	6400.00	6366.97				MINPT-O-EOU	
	630.22	32.81	609.04	597.41	31.42	MAS = 10.00 (m)	6410.00	6376.97				MinPts	
	610.00	43.99	580.27	566.00	21.34	OSF1.50	9240.00	9206.97				MinPt-CtCt	
	608.92	45.69	578.05	563.23	20.49	OSF1.50	9560.00	9526.97				MinPt-CtCt	
	608.98	45.85	578.01	563.13	20.42	OSF1.50	9590.00	9556.97				MINPT-O-EOU	
	609.02	45.90	578.02	563.12	20.40	OSF1.50	9600.00	9566.97				MinPt-O-ADP	
	618.11	48.90	585.12	569.21	19.39	OSF1.50	10140.00	10106.97				MinPt-O-SF	
	2229.56	37.18	2204.43	2192.38	92.44	OSF1.50	13130.00	12515.00				MINPT-O-EOU	
	2230.22	37.97	2204.56	2192.25	90.50	OSF1.50	13180.00	12515.00				MinPt-O-ADP	
	2234.40	42.84	2205.50	2191.56	80.11	OSF1.50	13440.00	12515.00				MinPt-CtCt	
	2234.32	45.77	2203.47	2188.55	74.85	OSF1.50	13580.00	12515.00				MinPt-CtCt	
	2235.16	48.32	2202.61	2186.84	70.86	OSF1.50	13700.00	12515.00				MINPT-O-EOU	
	2236.04	49.41	2202.77	2186.64	69.29	OSF1.50	13750.00	12515.00				MinPt-O-ADP	
	2226.48	66.47	2181.82	2160.01	51.00	OSF1.50	14420.00	12515.00				MinPt-CtCt	
	2226.83	67.60	2181.42	2159.23	50.15	OSF1.50	14470.00	12515.00				MINPT-O-EOU	
	2227.37	68.27	2181.52	2159.10	49.66	OSF1.50	14500.00	12515.00				MinPt-O-ADP	
	2241.64	75.35	2191.07	2166.30	45.22	OSF1.50	14770.00	12515.00				MinPt-O-ADP	
	2248.58	80.18	2194.79	2168.41	42.59	OSF1.50	14930.00	12515.00				MINPT-O-EOU	
	2249.38	81.14	2194.95	2168.24	42.10	OSF1.50	14970.00	12515.00				MinPt-O-ADP	
	2248.57	97.39	2183.31	2151.19	34.99	OSF1.50	15530.00	12515.00				MinPt-CtCt	
	2247.80	102.50	2179.12	2145.30	33.21	OSF1.50	15710.00	12515.00				MinPt-CtCt	
	2248.80	105.63	2178.04	2143.17	32.23	OSF1.50	15830.00	12515.00				MINPT-O-EOU	
	2250.75	113.70	2174.61	2137.06	29.95	OSF1.50	16100.00	12515.00				MinPt-CtCt	
	2251.31	115.41	2174.03	2135.90	29.51	OSF1.50	16170.00	12515.00				MINPT-O-EOU	
	2251.91	116.14	2174.14	2135.77	29.33	OSF1.50	16200.00	12515.00				MinPt-O-ADP	
	2261.74	125.10	2178.00	2136.64	27.33	OSF1.50	16490.00	12515.00				MinPt-CtCt	
	2262.38	127.11	2177.30	2135.27	26.90	OSF1.50	16570.00	12515.00				MINPT-O-EOU	
	2263.21	128.10	2177.47	2135.11	26.70	OSF1.50	16610.00	12515.00				MinPt-O-ADP	
	2267.35	133.84	2177.78	2133.51	25.59	OSF1.50	16790.00	12515.00				MinPt-CtCt	
	2267.92	135.60	2177.18	2132.32	25.27	OSF1.50	16860.00	12515.00				MINPT-O-EOU	
	2268.72	136.59	2177.32	2132.12	25.09	OSF1.50	16900.00	12515.00				MinPt-O-ADP	
	2273.22	147.07	2174.84	2126.15	23.34	OSF1.50	17240.00	12515.00				MinPt-CtCt	
	2272.58	161.34	2164.68	2111.24	21.25	OSF1.50	17720.00	12515.00				MinPt-CtCt	
	2273.14	163.05	2164.10	2110.09	21.03	OSF1.50	17790.00	12515.00				MINPT-O-EOU	
	2273.77	163.77	2164.25	2110.00	20.95	OSF1.50	17820.00	12515.00				MinPt-O-ADP	
	2280.05	168.97	2167.07	2111.08	20.35	OSF1.50	17990.00	12515.00				MINPT-O-EOU	
	2281.88	171.15	2167.44	2110.73	20.11	OSF1.50	18070.00	12515.00				MinPt-O-ADP	
	2285.42	174.68	2168.63	2110.74	19.73	OSF1.50	18190.00	12515.00				MinPt-O-ADP	
	2260.56	224.25	2110.71	2036.30	15.18	OSF1.50	19840.00	12515.00				MinPt-CtCt	
	2261.35	226.56	2109.97	2034.80	15.03	OSF1.50	19930.00	12515.00				MINPT-O-EOU	
	2260.32	240.04	2099.95	2020.28	14.18	OSF1.50	20370.00	12515.00				MinPt-CtCt	
	2260.39	243.62	2097.64	2016.77	13.97	OSF1.50	20490.00	12515.00				MinPt-CtCt	
	2261.83	252.28	2093.30	2009.55	13.50	OSF1.50	20780.00	12515.00				MinPt-CtCt	
	2261.22	264.29	2084.69	1996.93	12.88	OSF1.50	21180.00	12515.00				MinPt-CtCt	
	2265.36	292.44	2070.06	1972.92	11.65	OSF1.50	22120.00	12515.00				MinPt-CtCt	
	2265.40	300.26	2064.88	1965.13	11.35	OSF1.50	22382.10	12515.00				MinPts	
Cimarex Red Hills Unit #4 (Offset) Gas Gyro to 12499 Blind to 17675ft (Def Survey)													Pass
	4659.18	32.81	4657.20	4626.37	N/A	MAS = 10.00 (m)	0.00	0.00				Surface	
	4659.01	32.81	4657.01	4626.20	211477.70	MAS = 10.00 (m)	23.00	23.00				MinPt-O-SF	
	4658.85	32.81	4655.70	4626.05	3962.48	MAS = 10.00 (m)	320.00	320.00				MinPts	
	4542.17	32.99	4519.48	4509.17	220.14	OSF1.50	6100.00	6067.68				MinPt-O-SF	
	4540.80	32.81	4518.56	4508.00	224.91	MAS = 10.00 (m)	6250.00	6217.09				MINPT-O-EOU	
	4540.74	32.81	4518.62	4507.93	226.24	MAS = 10.00 (m)	6290.00	6257.02				MinPts	
	4568.97	52.59	4533.21	4516.38	135.64	OSF1.50	10430.00	10396.97				MinPt-CtCt	
	4569.38	54.00	4532.70	4515.38	131.87	OSF1.50	10680.00	10646.97				MINPT-O-EOU	
	4569.90	54.82	4532.68	4515.08	129.82	OSF1.50	10800.00	10766.97				MINPT-O-EOU	
	4571.02	56.14	4532.93	4514.88	126.59	OSF1.50	10990.00	10956.97				MinPt-O-ADP	
	4574.11	61.09	4532.68	4513.01	116.23	OSF1.50	11730.00	11696.97				MinPt-CtCt	
	4574.14	61.23	4532.64	4512.91	115.89	OSF1.50	11760.00	11726.97				MINPT-O-EOU	
	4574.25	61.37	4532.66	4512.88	115.56	OSF1.50	11790.00	11756.97				MinPt-O-ADP	
	4569.51	62.84	4526.91	4506.67	112.83	OSF1.50	12100.00	12066.80				MinPt-O-SF	
	1053.45	110.51	979.01	942.94	14.57	OSF1.50	16770.00	12515.00				MinPt-CtCt	
	1053.51	110.72	978.95	942.79	14.54	OSF1.50	16780.00	12515.00				MINPT-O-EOU	
	1053.66	110.92	979.00	942.75	14.50	OSF1.50	16790.00	12515.00				MinPt-O-ADP	
	1067.31	114.01	990.65	953.31	14.26	OSF1.50	16940.00	12515.00				MinPt-O-SF	
	5709.48	83.85	5652.92	5625.63	104.56	OSF1.50	22382.10	12515.00				TD	
Final Surveys - Cimarex Red Hills 32-5 Fed Com #127H MWD 0ft-22412ft (Surcon Corrected) (Def Survey)													Pass
	2494.06	32.81	2492.77	2461.25	N/A	MAS = 10.00 (m)	0.00	0.00				Surface	
	2494.03	32.81	2492.74	2461.22	N/A	MAS = 10.00 (m)	10.00	10.00				MinPts	
	2494.03	32.81	2492.74	2461.22	N/A	MAS = 10.00 (m)	20.00	20.00				MinPts	
	2494.03	32.81	2492.74	2461.22	N/A	MAS = 10.00 (m)	23.00	23.00				WRP	
	2494.11	32.81	2492.70	2461.30	20344.08	MAS = 10.00 (m)	70.00	70.00				MINPT-O-EOU	

Offset Trajectory	Separation			Allow	Sep.	Controlling	Reference Trajectory		Risk Level			Alert	Status
	Ct-Ct (ft)	MAS (ft)	EOU (ft)	Dev. (ft)	Fact.	Rule	MD (ft)	TVD (ft)	Alert	Minor	Major		
	2494.27	32.81	2492.72	2461.46	9668.15	MAS = 10.00 (m)	110.00	110.00				MINPT-O-EOU	
	2490.76	32.81	2485.35	2457.95	588.75	MAS = 10.00 (m)	1010.00	1010.00				MINPT-O-EOU	
	2489.26	32.81	2482.05	2456.45	403.55	MAS = 10.00 (m)	1440.00	1440.00				MinPts	
	1462.90	33.12	1440.07	1429.78	70.98	OSF1.50	6360.00	6326.98				MinPt-O-SF	
	1115.86	54.37	1078.61	1061.49	32.50	OSF1.50	10270.00	10236.97				MinPt-CtCt	
	1115.89	54.49	1078.56	1061.40	32.42	OSF1.50	10290.00	10256.97				MINPT-O-EOU	
	1115.94	54.55	1078.57	1061.39	32.39	OSF1.50	10300.00	10266.97				MinPt-O-ADP	
	1151.25	61.78	1109.10	1089.47	29.26	OSF1.50	11660.00	11626.97				MinPt-CtCt	
	1151.36	62.09	1109.00	1089.27	29.11	OSF1.50	11710.00	11676.97				MINPT-O-EOU	
	1151.47	62.22	1109.03	1089.26	29.05	OSF1.50	11730.00	11696.97				MinPt-O-ADP	
	1156.07	64.12	1112.35	1091.94	28.25	OSF1.50	12038.02	12005.00				MinPt-O-SF	
	1104.14	62.60	1061.42	1041.53	27.69	OSF1.50	13070.00	12515.00				MinPt-CtCt	
	1104.18	62.69	1061.40	1041.49	27.65	OSF1.50	13090.00	12515.00				MINPT-O-EOU	
	1104.23	62.74	1061.42	1041.49	27.63	OSF1.50	13100.00	12515.00				MinPt-O-ADP	
	1089.04	72.66	1039.61	1016.38	23.38	OSF1.50	13990.00	12515.00				MinPt-CtCt	
	1089.51	73.75	1039.35	1015.76	23.03	OSF1.50	14060.00	12515.00				MINPT-O-EOU	
	1090.46	74.94	1039.51	1015.53	22.67	OSF1.50	14130.00	12515.00				MinPt-O-ADP	
	1095.21	78.34	1042.00	1016.87	21.74	OSF1.50	14320.00	12515.00				MinPt-O-ADP	
	1101.88	84.40	1044.63	1017.48	20.24	OSF1.50	14620.00	12515.00				MinPt-O-ADP	
	1104.20	100.17	1036.43	1004.03	16.99	OSF1.50	15300.00	12515.00				MinPt-CtCt	
	1104.25	107.79	1031.41	996.46	15.76	OSF1.50	15610.00	12515.00				MinPt-CtCt	
	1103.93	113.61	1027.21	990.32	14.92	OSF1.50	15840.00	12515.00				MinPt-CtCt	
	1104.62	115.77	1026.46	988.85	14.65	OSF1.50	15930.00	12515.00				MINPT-O-EOU	
	1105.42	116.72	1026.62	988.69	14.53	OSF1.50	15970.00	12515.00				MinPt-O-ADP	
	1140.59	135.88	1049.04	1004.71	12.83	OSF1.50	16690.00	12515.00				MINPT-O-EOU	
	1094.41	167.39	981.83	927.02	9.96	OSF1.50	17810.00	12515.00				MinPt-CtCt	
	1099.13	182.07	976.77	917.06	9.18	OSF1.50	18330.00	12515.00				MINPT-O-EOU	
	1091.00	226.07	939.30	864.93	7.32	OSF1.50	19840.00	12515.00				MinPt-CtCt	
	1092.18	228.74	938.70	863.44	7.24	OSF1.50	19940.00	12515.00				MINPT-O-EOU	
	1093.92	231.02	938.92	862.90	7.18	OSF1.50	20020.00	12515.00				MinPt-O-ADP	
	1102.52	244.29	938.67	858.23	6.83	OSF1.50	20460.00	12515.00				MinPt-CtCt	
	1103.14	248.50	936.50	854.65	6.72	OSF1.50	20610.00	12515.00				MINPT-O-EOU	
	1103.78	249.25	936.63	854.53	6.70	OSF1.50	20640.00	12515.00				MinPt-O-ADP	
	1096.90	269.21	916.44	827.69	6.16	OSF1.50	21300.00	12515.00				MinPt-CtCt	
	1095.90	273.90	912.31	822.00	6.05	OSF1.50	21460.00	12515.00				MinPt-CtCt	
	1097.03	276.61	911.63	820.42	6.00	OSF1.50	21560.00	12515.00				MINPT-O-EOU	
	1098.94	278.82	912.07	820.12	5.96	OSF1.50	21640.00	12515.00				MinPt-O-ADP	
	1104.13	284.95	913.18	819.18	5.86	OSF1.50	21840.00	12515.00				MINPT-O-EOU	
	1099.91	301.51	897.93	798.41	5.51	OSF1.50	22382.10	12515.00				MinPts	
Cimarex Red Hills 32-5 Fed Com #199H Rev0 RM 04Sept19 (Non-Def Plan)													Pass
	1876.41	32.81	1874.43	1843.60	N/A	MAS = 10.00 (m)	0.00	0.00				Surface	
	1876.35	32.81	1874.36	1843.54	250961.75	MAS = 10.00 (m)	10.00	10.00				MinPt-O-SF	
	1876.33	32.81	1874.35	1843.53	N/A	MAS = 10.00 (m)	23.00	23.00				WRP	
	1876.33	32.81	1859.09	1843.53	122.78	MAS = 10.00 (m)	2500.00	2500.00				MinPts	
	1874.09	32.81	1856.51	1841.28	119.97	MAS = 10.00 (m)	2610.00	2609.97				MinPt-O-SF	
	1860.62	32.81	1842.83	1827.81	117.57	MAS = 10.00 (m)	2900.00	2898.70				MinPts	
	1597.92	80.82	1543.20	1517.10	30.56	OSF1.50	11820.00	11786.97				MinPt-CtCt	
	1597.95	80.96	1543.14	1516.99	30.51	OSF1.50	11850.00	11816.97				MINPT-O-EOU	
	1598.01	81.04	1543.15	1516.97	30.48	OSF1.50	11870.00	11836.97				MinPt-O-ADP	
	1599.69	81.31	1544.65	1518.38	30.40	OSF1.50	12010.00	11976.97				MinPt-O-SF	
	1611.91	76.29	1560.24	1535.62	32.68	OSF1.50	12670.00	12467.98				MINPT-O-EOU	
	1610.19	75.26	1559.21	1534.93	33.10	OSF1.50	13060.00	12515.00				MinPt-O-SF	
	1610.06	75.26	1559.08	1534.80	33.10	OSF1.50	13120.00	12515.00				MinPt-CtCt	
	1612.69	312.68	1403.43	1300.00	7.78	OSF1.50	22382.10	12515.00				MinPts	
Cimarex Red Hills 32-5 State Com #198H Rev2 RM 11Nov20 (Def Plan)													Pass
	1896.39	32.81	1895.11	1863.58	N/A	MAS = 10.00 (m)	0.00	0.00				Surface	
	1896.33	32.81	1895.04	1863.52	263865.11	MAS = 10.00 (m)	10.00	10.00				MinPt-O-SF	
	1896.32	32.81	1895.03	1863.51	N/A	MAS = 10.00 (m)	23.00	23.00				WRP	
	1896.32	32.81	1879.76	1863.51	124.13	MAS = 10.00 (m)	2500.00	2500.00				MinPts	
	1869.75	32.81	1852.30	1836.94	115.63	MAS = 10.00 (m)	2900.00	2898.70				MinPts	
	1694.94	48.43	1662.15	1646.51	54.13	OSF1.50	6290.00	6257.02				MinPt-O-SF	
	1628.19	47.93	1595.68	1580.26	52.73	OSF1.50	7050.00	7016.97				MinPt-O-SF	
	1627.67	83.21	1571.63	1544.45	29.91	OSF1.50	11870.00	11836.97				MinPt-O-SF	
	1627.06	83.17	1571.06	1543.89	29.91	OSF1.50	11960.00	11926.97				MinPt-O-SF	
	1626.92	83.16	1570.92	1543.75	29.91	OSF1.50	12010.00	11976.97				MinPts	
	1647.29	75.70	1596.32	1571.59	33.28	OSF1.50	13110.00	12515.00				MinPt-O-SF	
	1650.37	309.88	1443.29	1340.49	8.02	OSF1.50	22382.10	12515.00				MinPts	
Final Surveys - Cimarex Red Hills 32-5 Fed Com #130H MWD 0ft-22088ft (Surcon Corrected) (Def Survey)													Pass
	2514.05	32.81	2512.77	2481.24	N/A	MAS = 10.00 (m)	0.00	0.00				Surface	
	2514.02	32.81	2512.73	2481.21	N/A	MAS = 10.00 (m)	10.00	10.00				MinPt-O-SF	
	2514.02	32.81	2512.73	2481.21	920647.43	MAS = 10.00 (m)	23.00	23.00				WRP	
	2513.60	32.81	2511.92	2480.80	6360.22	MAS = 10.00 (m)	130.00	130.00				MINPT-O-EOU	
	2513.41	32.81	2511.65	2480.60	4320.85	MAS = 10.00 (m)	180.00	180.00				MinPts	
	2513.47	32.81	2511.59	2480.66	3578.61	MAS = 10.00 (m)	210.00	210.00				MINPT-O-EOU	
	2515.20	32.81	2509.62	2482.39	570.91	MAS = 10.00 (m)	1010.00	1010.00				MINPT-O-EOU	
	2510.67	32.81	2502.59	2477.86	356.82	MAS = 10.00 (m)	1610.00	1610.00				MinPts	
	2510.77	32.81	2502.48	2477.96	346.38	MAS = 10.00 (m)	1660.00	1660.00				MINPT-O-EOU	
	2511.65	32.81	2499.86	2478.84	233.67	MAS = 10.00 (m)	2440.00	2440.00				MinPts	
	2511.77	32.81	2499.76	2478.96	228.94	MAS = 10.00 (m)	2490.00	2490.00				MINPT-O-EOU	
	1723.01	32.81	1700.70	1690.20	84.54	MAS = 10.00 (m)	6100.00	6067.68				MinPt-O-SF	
	1627.98	43.53	1598.25	1584.45	58.92	OSF1.50	8960.00	8926.97				MinPt-CtCt	
	1628.35	44.36	1598.06	1583.99	57.76	OSF1.50	9110.00	9076.97				MINPT-O-EOU	
	1628.73	44.83	1598.13	1583.90	57.15	OSF1.50	9190.00	9156.97				MinPt-O-ADP	
	1631.44	47.13	1599.32	1584.32	54.31	OSF1.50	9620.00	9586.97				MINPT-O-EOU	
	1631.54	47.24	1599.34	1584.30	54.18	OSF1.50	9640.00	9606.97				MinPt-O-ADP	
	1631.99	55.79	1594.08	1576.19	45.56	OSF1.50	11120.00	11086.97				MinPt-CtCt	
	1632.03	55.92	1594.04	1576.10	45.45	OSF1.50	11140.00	11106.97				MINPT-O-EOU	
	1632.14	56.05	1594.06	1576.08	45.34	OSF1.50	11160.00	11126.97				MinPt-O-ADP	
	1648.87	60.45	1607.88	1588.42	42.32	OSF1.50	11900.00	11866.97				MinPt-CtCt	
	1648.89	60.51	1607.85	1588.38	42.27	OSF1.50	11910.00	11876.97				MINPT-O-EOU	
	1648.94	60.57	1607.86	1588.36	42.23	OSF1.50	11920.00	11886.97				MinPt-O-ADP	
	1651.60	61.28	1610.06	1590.32	41.78	OSF1.50	12038.02	12005.00				MinPt-O-SF	
	1659.68	60.32	1618.80	1599.36	42.64	OSF1.50	12290.00	12245.44				MinPt-CtCt	

Offset Trajectory	Separation			Allow	Sep.	Controlling	Reference Trajectory		Risk Level			Alert	Status
	Ct-Ct (ft)	MAS (ft)	EOU (ft)	Dev. (ft)	Fact.	Rule	MD (ft)	TVD (ft)	Alert	Minor	Major		
	1649.38	74.45	1599.11	1574.93	34.07	OSF1.50	14190.00	12515.00				MinPt-CtCt	
	1649.86	79.79	1596.03	1570.07	31.74	OSF1.50	14460.00	12515.00				MinPt-CtCt	
	1650.19	85.05	1592.85	1565.13	29.74	OSF1.50	14710.00	12515.00				MinPt-CtCt	
	1651.44	99.56	1584.43	1551.88	25.34	OSF1.50	15330.00	12515.00				MinPt-CtCt	
	1651.81	112.05	1576.47	1539.76	22.47	OSF1.50	15820.00	12515.00				MinPt-CtCt	
	1651.78	115.70	1574.01	1536.08	21.75	OSF1.50	15960.00	12515.00				MinPt-CtCt	
	1652.61	118.10	1573.24	1534.51	21.31	OSF1.50	16060.00	12515.00				MINPT-O-EOU	
	1652.96	118.62	1573.25	1534.34	21.22	OSF1.50	16080.00	12515.00				MINPT-O-EOU	
	1656.01	125.09	1571.98	1530.92	20.14	OSF1.50	16320.00	12515.00				MINPT-O-EOU	
	1660.36	135.13	1569.65	1525.23	18.67	OSF1.50	16690.00	12515.00				MINPT-O-EOU	
	1667.15	147.53	1568.18	1519.62	17.15	OSF1.50	17140.00	12515.00				MINPT-O-EOU	
	1667.93	148.50	1568.31	1519.43	17.04	OSF1.50	17180.00	12515.00				MinPt-O-ADP	
	1650.57	184.82	1526.72	1465.75	13.52	OSF1.50	18440.00	12515.00				MinPt-CtCt	
	1651.19	186.86	1525.98	1464.33	13.38	OSF1.50	18520.00	12515.00				MINPT-O-EOU	
	1654.07	195.22	1523.29	1458.85	12.82	OSF1.50	18810.00	12515.00				MINPT-O-EOU	
	1655.48	203.95	1518.89	1451.53	12.28	OSF1.50	19100.00	12515.00				MinPt-CtCt	
	1656.95	208.89	1517.07	1448.07	11.99	OSF1.50	19280.00	12515.00				MINPT-O-EOU	
	1670.07	240.64	1509.02	1429.43	10.48	OSF1.50	20360.00	12515.00				MINPT-O-EOU	
	1670.89	241.66	1509.16	1429.23	10.44	OSF1.50	20400.00	12515.00				MinPt-O-ADP	
	1650.80	274.48	1467.18	1376.32	9.07	OSF1.50	21490.00	12515.00				MinPt-CtCt	
	1654.53	283.07	1465.19	1371.45	8.82	OSF1.50	21790.00	12515.00				MINPT-O-EOU	
	1655.61	284.39	1465.39	1371.21	8.78	OSF1.50	21840.00	12515.00				MinPt-O-ADP	
	1658.21	292.88	1462.33	1365.33	8.54	OSF1.50	22110.00	12515.00				MinPt-CtCt	
	1659.44	297.59	1460.42	1361.85	8.41	OSF1.50	22280.00	12515.00				MINPT-O-EOU	
	1660.84	300.90	1459.61	1359.93	8.32	OSF1.50	22382.10	12515.00				MinPts	
Cimarex Red Hills 32-5 State Com #197H Rev2 RM 11Nov20 (Def Plan)													Pass
	1916.36	32.81	1915.07	1883.55	N/A	MAS = 10.00 (m)	0.00	0.00				Surface	
	1916.30	32.81	1915.01	1883.49	338041.96	MAS = 10.00 (m)	10.00	10.00				MinPt-O-SF	
	1916.29	32.81	1915.01	1883.48	N/A	MAS = 10.00 (m)	23.00	23.00				WRP	
	1916.29	32.81	1899.74	1883.48	125.40	MAS = 10.00 (m)	2500.00	2500.00				MinPts	
	1916.31	32.81	1899.71	1883.50	125.02	MAS = 10.00 (m)	2510.00	2510.00				MINPT-O-EOU	
	1944.15	32.81	1926.07	1911.34	115.66	MAS = 10.00 (m)	2900.00	2898.70				MINPT-O-EOU	
	1964.45	32.81	1945.74	1931.64	112.67	MAS = 10.00 (m)	3050.00	3047.24				MinPt-O-SF	
	2151.36	42.55	2122.56	2108.80	78.15	OSF1.50	6026.88	5995.15				MinPt-O-SF	
	2173.34	85.49	2115.91	2087.85	38.69	OSF1.50	12040.00	12006.97				MinPts	
	2171.78	255.48	2001.03	1916.30	12.81	OSF1.50	20560.00	12515.00				MinPt-CtCt	
	2171.79	312.24	1963.20	1859.55	10.47	OSF1.50	22382.10	12515.00				MinPts	
Cimarex Red Hills 32-5 Fed Com #128H Rev3 RM 19Nov19 (Def Plan)													Pass
	2574.74	32.81	2573.45	2541.93	N/A	MAS = 10.00 (m)	0.00	0.00				Surface	
	2574.72	32.81	2573.43	2541.91	N/A	MAS = 10.00 (m)	10.00	10.00				MinPts	
	2574.72	32.81	2573.43	2541.91	N/A	MAS = 10.00 (m)	23.00	23.00				WRP	
	2374.91	34.44	2351.46	2340.47	107.97	OSF1.50	4120.00	4106.83				MinPt-O-SF	
	2082.86	83.49	2026.58	1999.37	38.24	OSF1.50	10440.00	10406.97				MinPts	
	2073.22	82.38	2017.67	1990.84	38.60	OSF1.50	10820.00	10786.97				MinPts	
	2073.99	82.44	2018.41	1991.56	38.58	OSF1.50	10890.00	10856.97				MinPt-O-SF	
	2622.86	312.53	2414.08	2310.33	12.63	OSF1.50	22190.00	12515.00				MINPT-O-EOU	
	2623.03	312.74	2414.11	2310.29	12.63	OSF1.50	22200.00	12515.00				MinPt-O-ADP	
	2632.79	315.87	2421.78	2316.92	12.55	OSF1.50	22382.10	12515.00				MinPt-O-SF	
Cimarex Red Hills 32-5 Fed Com #129H Rev2 RM 15Nov19 (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	
	2103.93	80.81	2049.44	2023.13	39.94	OSF1.50	9830.00	9796.97				MinPts	
	2082.18	79.77	2028.37	2002.41	40.07	OSF1.50	10220.00	10186.97				MinPts	
	2083.87	79.91	2029.97	2003.95	40.02	OSF1.50	10310.00	10276.97				MinPt-O-SF	
	3027.29	310.91	2819.59	2716.38	14.66	OSF1.50	22190.00	12515.00				MINPT-O-EOU	
	3027.62	311.32	2819.64	2716.30	14.64	OSF1.50	22210.00	12515.00				MinPt-O-ADP	
	3035.90	314.30	2825.94	2721.60	14.54	OSF1.50	22382.10	12515.00				MinPt-O-SF	
Final Surveys - Cimarex Red Hills 32-5 Fed Com #131H MWD 0ft-22334 (Surcon Corrected) (Def Survey)													Pass
	2534.05	32.81	2532.88	2501.25	N/A	MAS = 10.00 (m)	0.00	0.00				Surface	
	2534.02	32.81	2532.84	2501.21	N/A	MAS = 10.00 (m)	10.00	10.00				MinPt-O-SF	
	2534.02	32.81	2532.84	2501.21	842459.40	MAS = 10.00 (m)	23.00	23.00				WRP	
	2533.26	32.81	2531.40	2500.45	3708.71	MAS = 10.00 (m)	200.00	200.00				MinPts	
	2533.37	32.81	2531.29	2500.56	2817.57	MAS = 10.00 (m)	250.00	250.00				MINPT-O-EOU	
	2534.29	32.81	2530.50	2501.48	970.09	MAS = 10.00 (m)	640.00	640.00				MINPT-O-EOU	
	2503.13	32.81	2488.62	2470.32	186.36	MAS = 10.00 (m)	3830.00	3819.65				MinPt-O-SF	
	2206.66	32.81	2184.75	2173.85	107.95	MAS = 10.00 (m)	6100.00	6067.68				MinPt-O-SF	
	2179.02	33.32	2156.30	2145.70	102.74	OSF1.50	7210.00	7176.97				MinPt-CtCt	
	2179.19	33.86	2156.11	2145.33	101.02	OSF1.50	7320.00	7286.97				MINPT-O-EOU	
	2176.46	38.04	2150.58	2138.42	89.37	OSF1.50	8200.00	8166.97				MinPt-CtCt	
	2173.41	42.37	2144.64	2131.03	79.79	OSF1.50	9040.00	9006.97				MinPt-CtCt	
	2172.27	44.55	2142.05	2127.72	75.71	OSF1.50	9440.00	9406.97				MinPt-CtCt	
	2172.35	44.78	2141.97	2127.56	75.31	OSF1.50	9480.00	9446.97				MINPT-O-EOU	
	2172.49	44.96	2142.00	2127.53	75.01	OSF1.50	9510.00	9476.97				MinPt-O-ADP	
	2163.82	52.51	2128.28	2111.30	63.66	OSF1.50	10820.00	10786.97				MinPt-CtCt	
	2163.69	53.47	2127.53	2110.23	62.49	OSF1.50	10980.00	10946.97				MinPt-CtCt	
	2163.80	53.76	2127.43	2110.04	62.14	OSF1.50	11030.00	10996.97				MINPT-O-EOU	
	2163.95	53.94	2127.47	2110.01	61.93	OSF1.50	11060.00	11026.97				MinPt-O-ADP	
	2177.04	59.85	2136.64	2117.20	55.95	OSF1.50	12038.02	12005.00				MinPt-O-SF	
	2198.76	58.16	2159.51	2140.61	58.13	OSF1.50	12380.00	12318.48				MinPt-O-SF	
	2197.22	57.73	2158.25	2139.49	58.54	OSF1.50	12470.00	12380.41				MinPts	
	2197.19	57.68	2158.25	2139.51	58.59	OSF1.50	12480.00	12386.50				MinPt-CtCt	
	2200.82	57.17	2162.22	2143.65	59.20	OSF1.50	12650.00	12462.65				MinPt-O-SF	
	2201.46	57.19	2162.85	2144.27	59.21	OSF1.50	12690.00	12472.93				MinPt-O-SF	
	2180.91	62.46	2138.79	2118.45	53.57	OSF1.50	13570.00	12515.00				MinPt-CtCt	
	2181.01	65.89	2136.61	2115.12	50.71	OSF1.50	13810.00	12515.00				MinPt-CtCt	
	2181.50	67.31	2136.16	2114.20	49.63	OSF1.50	13910.00	12515.00				MINPT-O-EOU	
	2178.69	84.43	2121.93	2094.26	39.35	OSF1.50	14780.00	12515.00				MinPt-CtCt	
	2177.23	93.44	2114.46	2083.79	35.47	OSF1.50	15160.00	12515.00				MinPt-CtCt	
	2176.27	102.22	2107.65	2074.06	32.37	OSF1.50	15520.00	12515.00				MinPt-CtCt	
	2177.09	112.82	2101.40	2064.27	29.30	OSF1.50	15930.00	12515.00				MinPt-CtCt	

Offset Trajectory	Separation			Allow	Sep.	Controlling	Reference Trajectory		Risk Level			Alert	Status
	Ct-Ct (ft)	MAS (ft)	EOU (ft)	Dev. (ft)	Fact.	Rule	MD (ft)	TVD (ft)	Alert	Minor	Major		
	2178.94	122.88	2096.54	2056.06	26.89	OSF1.50	16310.00	12515.00				MinPt-CtCt	
	2179.30	126.63	2094.41	2052.67	26.09	OSF1.50	16450.00	12515.00				MinPt-CtCt	
	2181.65	134.27	2091.66	2047.37	24.62	OSF1.50	16740.00	12515.00				MINPT-O-EOU	
	2185.54	144.02	2089.06	2041.52	22.97	OSF1.50	17090.00	12515.00				MINPT-O-EOU	
	2186.80	145.55	2089.30	2041.25	22.74	OSF1.50	17150.00	12515.00				MinPt-O-ADP	
	2191.95	151.88	2090.23	2040.07	21.84	OSF1.50	17370.00	12515.00				MINPT-O-EOU	
	2159.85	191.31	2031.82	1968.54	17.05	OSF1.50	18730.00	12515.00				MinPt-CtCt	
	2160.44	193.04	2031.26	1967.39	16.90	OSF1.50	18800.00	12515.00				MINPT-O-EOU	
	2161.06	193.77	2031.39	1967.28	16.84	OSF1.50	18830.00	12515.00				MinPt-O-ADP	
	2173.42	243.20	2010.80	1930.22	13.48	OSF1.50	20500.00	12515.00				MinPt-CtCt	
	2175.91	250.82	2008.22	1925.09	13.08	OSF1.50	20770.00	12515.00				MINPT-O-EOU	
	2177.73	253.02	2008.58	1924.71	12.98	OSF1.50	20850.00	12515.00				MinPt-O-ADP	
	2180.25	260.32	2006.23	1919.93	12.62	OSF1.50	21080.00	12515.00				MinPt-CtCt	
	2181.56	263.87	2005.17	1917.69	12.46	OSF1.50	21210.00	12515.00				MINPT-O-EOU	
	2179.00	271.97	1997.22	1907.04	12.07	OSF1.50	21470.00	12515.00				MinPt-CtCt	
	2163.74	299.14	1963.82	1864.60	10.90	OSF1.50	22380.00	12515.00				MinPt-CtCt	
	2163.74	299.19	1963.80	1864.55	10.89	OSF1.50	22382.10	12515.00				MinPts	
Cimarex Red Hills SWD #1 (Offset) Inc Only 0ft-19000ft (Def Survey)													Pass
	6656.60	32.81	6654.62	6623.79	N/A	MAS = 10.00 (m)	0.00	0.00				Surface	
	6656.39	32.81	6654.38	6623.58	198313.91	MAS = 10.00 (m)	23.00	23.00				MinPt-O-SF	
	6656.21	32.81	6654.12	6623.40	63715.32	MAS = 10.00 (m)	70.00	70.00				MinPts	
	6659.33	88.38	6599.75	6570.95	115.58	OSF1.50	1770.00	1770.00				MinPt-CtCt	
	6675.03	160.30	6567.50	6514.73	63.22	OSF1.50	3040.00	3037.34				MINPT-O-EOU	
	6682.46	169.10	6569.07	6513.36	59.96	OSF1.50	3300.00	3294.81				MinPt-O-ADP	
	6729.36	256.82	6557.49	6472.54	39.60	OSF1.50	4700.00	4681.18				MinPt-CtCt	
	6730.74	260.84	6556.19	6469.90	38.99	OSF1.50	4870.00	4849.53				MINPT-O-EOU	
	6732.30	262.69	6556.51	6469.61	38.72	OSF1.50	4950.00	4928.75				MinPt-O-ADP	
	6793.94	309.40	6587.02	6484.54	33.14	OSF1.50	6000.00	5968.53				MINPT-O-EOU	
	6797.94	347.74	6565.45	6450.20	29.48	OSF1.50	6790.00	6756.97				MinPt-CtCt	
	6801.60	432.78	6512.42	6368.83	23.68	OSF1.50	8440.00	8406.97				MinPt-CtCt	
	6800.12	514.55	6456.43	6285.57	19.89	OSF1.50	10010.00	9976.97				MinPt-CtCt	
	6790.75	598.72	6390.94	6192.03	17.06	OSF1.50	11610.00	11576.97				MinPt-CtCt	
	6792.21	603.14	6389.45	6189.07	16.94	OSF1.50	11800.00	11766.97				MINPT-O-EOU	
	6794.12	605.90	6389.52	6188.21	16.87	OSF1.50	11900.00	11866.97				MINPT-O-EOU	
	2345.75	660.70	1904.62	1685.05	5.34	OSF1.50	18700.00	12515.00				MinPt-CtCt	
	2345.76	660.73	1904.61	1685.03	5.34	OSF1.50	18710.00	12515.00				MinPts	
	2345.90	660.78	1904.71	1685.11	5.34	OSF1.50	18730.00	12515.00				MinPt-O-SF	
	4362.85	655.14	3925.43	3707.71	10.01	OSF1.50	22382.10	12515.00				TD	
Rector Oil Maechtel Permit #1 (Offset) Plugged Oil Blind 0ft-5006ft (Def Survey)													Pass
	10170.97	32.81	10169.69	10138.16	N/A	MAS = 10.00 (m)	0.00	0.00				Surface	
	10170.68	32.81	10169.35	10137.88	197086.81	MAS = 10.00 (m)	23.00	23.00				MinPt-O-SF	
	10082.68	1559.29	9042.69	8523.39	9.71	OSF1.50	5330.00	5305.05				MinPt-O-SF	
	10081.53	1558.90	9041.81	8522.63	9.71	OSF1.50	5450.00	5423.89				MinPt-O-ADP	
	10081.50	1558.86	9041.80	8522.64	9.71	OSF1.50	5460.00	5433.79				MINPT-O-EOU	
	10081.46	1558.72	9041.86	8522.74	9.71	OSF1.50	5490.00	5463.50				MinPt-CtCt	
	10393.28	1101.13	9658.76	9292.15	14.17	OSF1.50	15130.00	12515.00				MinPt-O-SF	
	7679.09	490.13	7351.91	7188.96	23.56	OSF1.50	22130.00	12515.00				MinPt-CtCt	
	7679.57	491.36	7351.57	7188.22	23.50	OSF1.50	22220.00	12515.00				MINPT-O-EOU	
	7681.59	493.69	7352.04	7187.90	23.40	OSF1.50	22330.00	12515.00				MinPt-O-ADP	
	7683.10	495.12	7352.59	7187.98	23.33	OSF1.50	22382.10	12515.00				MinPt-O-SF	

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Cimarex Energy Rev1

CIMAREX

Borehole:	Well:	Field:	Structure:
Red Hills 32-5 Fed Com #171H	Red Hills 32-5 Fed Com #171H	NM Lea County (NAD 83)	Cimarex Red Hills 32-5 Fed Com #171H

Gravity & Magnetic Parameters					Surface Location	NAD83 New Mexico State Plane, Eastern Zone, US Feet				Miscellaneous			
Model:	HDGM 2021	Dip:	59.691°	Date:	14-Jun-2021	Lat:	N 32 5 35.67	Northing:	398445.25ftUS	Grid Conv:	0.3933°	Slot:	New Slot	TVD Ref:	RKB(3432.6ft above MSL)
MagDec:	6.407°	FS:	47554.368nT	Gravity FS:	998.429mgn (9.80665 Based)	Lon:	W 103 35 35.36	Easting:	770554.1ftUS	Scale Fact:	0.9999627	Plan:	Cimarex Red Hills 32-5 Fed Com #171H Rev1 RM 14Jun21		

Critical Points

Critical Point	MD	INCL	AZIM	TVD	VSEC	N(+)/S(-)	E(+)/W(-)	DLS
SHL [390' FNL, 2285' FEL]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
Rustler	934.00	0.00	269.67	934.00	0.00	0.00	0.00	0.00
Top of Salt	1349.00	0.00	269.67	1349.00	0.00	0.00	0.00	0.00
Nudge 2°/100' DLS	2500.00	0.00	269.67	2500.00	0.00	0.00	0.00	0.00
Hold Nudge	2900.00	8.00	269.67	2898.70	-0.03	-0.16	-27.88	2.00
Base of Salt	4669.52	8.00	269.67	4651.00	-0.33	-1.60	-274.14	0.00
Lamar	4912.89	8.00	269.67	4892.00	-0.37	-1.79	-308.01	0.00
Bell Canyon	4950.25	8.00	269.67	4929.00	-0.38	-1.82	-313.21	0.00
Drop to Vertical 2°/100' DLS	6026.88	8.00	269.67	5995.15	-0.56	-2.70	-463.05	0.00
Cherry Canyon	6032.79	7.88	269.67	6001.00	-0.56	-2.70	-463.86	2.00
Hold Vertical	6426.87	0.00	269.67	6393.85	-0.59	-2.86	-490.93	2.00
Brusy Canyon	7570.03	0.00	269.67	7537.00	-0.59	-2.86	-490.93	0.00
Bone Spring	9072.03	0.00	269.67	9039.00	-0.59	-2.86	-490.93	0.00
Leonard Shale	9127.03	0.00	269.67	9094.00	-0.59	-2.86	-490.93	0.00
Avalon Shale	9389.03	0.00	269.67	9356.00	-0.59	-2.86	-490.93	0.00
Lower Avalon Shale	9764.03	0.00	269.67	9731.00	-0.59	-2.86	-490.93	0.00
1st Bone Spring Sand	10069.03	0.00	269.67	10036.00	-0.59	-2.86	-490.93	0.00
2nd Bone Spring Carb	10256.03	0.00	269.67	10223.00	-0.59	-2.86	-490.93	0.00
2nd Bone Spring Sand	10597.03	0.00	269.67	10564.00	-0.59	-2.86	-490.93	0.00
3rd Bone Spring Carb	11050.03	0.00	269.67	11017.00	-0.59	-2.86	-490.93	0.00
3rd Bone Spring Sand	11715.03	0.00	269.67	11682.00	-0.59	-2.86	-490.93	0.00
KOP - Build 12°/100' DLS	12038.02	0.00	269.67	12005.00	-0.59	-2.86	-490.93	0.00
Wolfcamp	12159.33	14.56	179.60	12125.00	14.73	-18.19	-490.82	12.00
Wolfcamp Y Sand	12301.14	31.57	179.60	12255.00	70.09	-73.54	-490.43	12.00
Wolfcamp Y SS Target	12337.23	35.90	179.60	12285.00	90.13	-93.58	-490.29	12.00
Wolfcamp A1	12357.29	38.31	179.60	12301.00	102.23	-105.68	-490.20	12.00
Build 4°/100' DLS	12663.02	75.00	179.60	12466.19	353.29	-356.74	-488.44	12.00
Landing Point	13038.02	90.00	179.60	12515.00	724.03	-727.46	-485.83	4.00
Private Leaseline Crossing	17203.89	90.00	179.60	12515.00	4889.89	-4893.22	-456.54	0.00
Private - NMNM01060404 Crossing	18526.25	90.00	179.60	12515.00	6212.25	-6215.55	-447.24	0.00
NMNM01060404 - NMNM0160973 Crossing	19848.62	90.00	179.60	12515.00	7534.62	-7537.89	-437.95	0.00
Cimarex Red Hills 32-5 Fed Com #171H - PBHL [100' FSL, 2515' FEL]	22382.10	90.00	179.60	12515.00	10068.11	-10071.31	-420.13	0.00
Wolfcamp A2	NaN			12848.00				

Grid
True
Mag

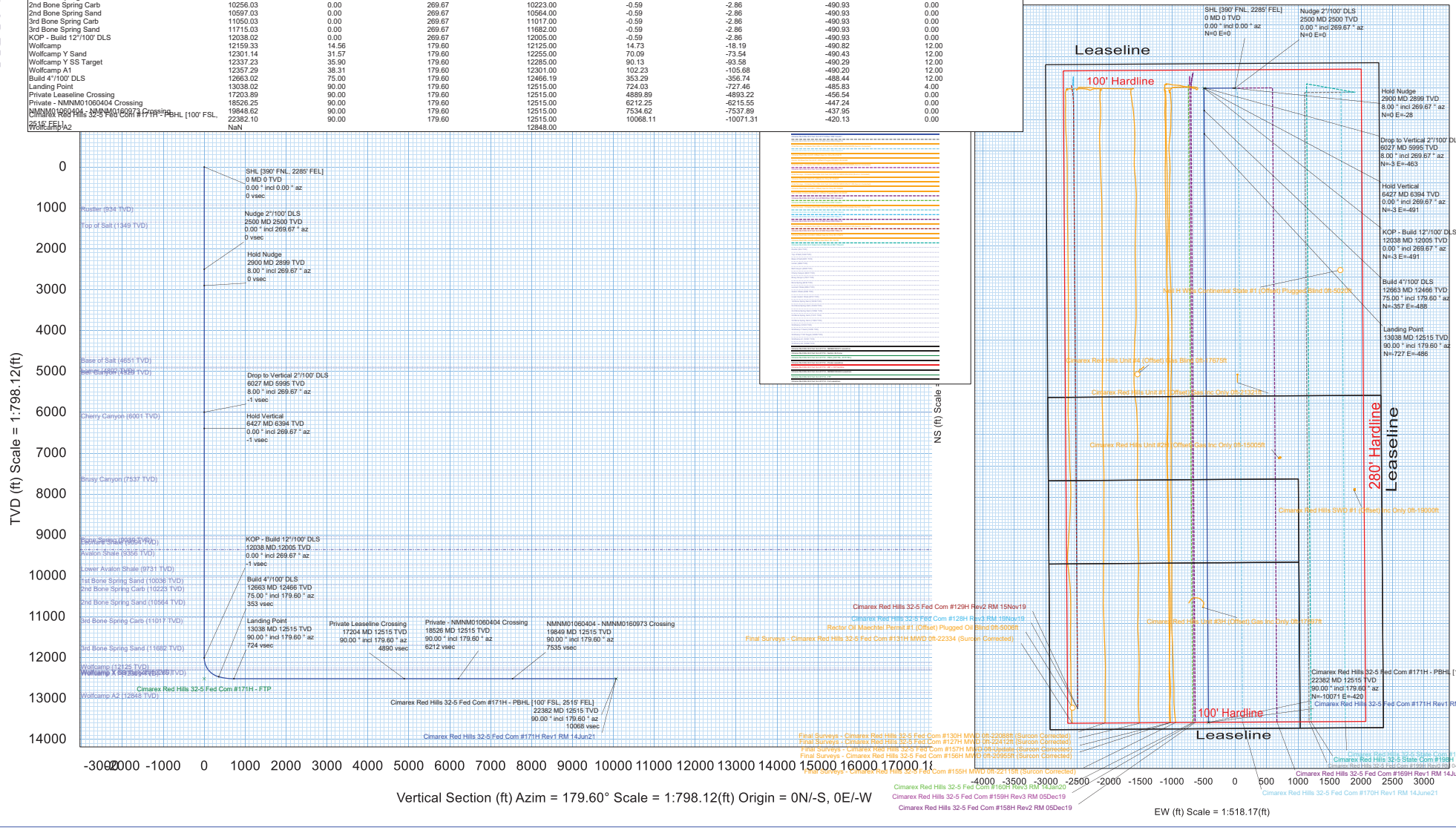
Grid North
Tot Corr (M->G 6.014°)
Mag Dec (6.407°)
Grid Conv (0.393°)

CONTROLLED

Plan ref	Cimarex Red Hills 32-5 Fed Com #171H Rev1 RM 14Jun21
Drawing ref	
Copy number	of 3
Date	14-Jun-2021

1	Client	
2	Client	
3	Office	
4	Office	

Copy number for



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

CIMAREX

Report Date:	June 14, 2021 - 11:51 AM	**Survey / DLS Computation:**	Minimum Curvature / Lubinski
Client:	Cimarex Energy	**Vertical Section Azimuth:**	179.597 ° (Grid North)
Field:	NM Lea County (NAD 83)	**Vertical Section Origin:**	0.000 ft, 0.000 ft
Structure / Slot:	Cimarex Red Hills 32-5 Fed Com #171H / New Slot	**TVD Reference Datum:**	RKB
Well:	Red Hills 32-5 Fed Com #171H	**TVD Reference Elevation:**	3432.600 ft above MSL
Borehole:	Red Hills 32-5 Fed Com #171H	**Seabed / Ground Elevation:**	3409.600 ft above MSL
UWI / API#:	Unknown / Unknown	**Magnetic Declination:**	6.407 °
Survey Name:	Cimarex Red Hills 32-5 Fed Com #171H Rev1 RM 14Jun21	**Total Gravity Field Strength:**	998.4291mgn (9.80665 Based)
Survey Date:	September 04, 2019	**Gravity Model:**	GARM
Tort / AHD / DDI / ERD Ratio:	106.000 ° / 10559.633 ft / 6.301 / 0.844	**Total Magnetic Field Strength:**	47554.368 nT
Coordinate Reference System:	NAD83 New Mexico State Plane, Eastern Zone, US Feet	**Magnetic Dip Angle:**	59.691 °
Location Lat / Long:	N 32° 5' 35.67470", W 103° 35' 35.35967"	**Declination Date:**	June 14, 2021
Location Grid N/E Y/X:	N 398445.250 ftUS, E 770554.100 ftUS	**Magnetic Declination Model:**	HDGM 2021
CRS Grid Convergence Angle:	0.3933 °	**North Reference:**	Grid North
Grid Scale Factor:	0.99996927	**Grid Convergence Used:**	0.3933 °
Version / Patch:	2.10.825.0	**Total Corr Mag North->Grid North:**	6.0137 °
		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, 2285' FEL]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	N/A	398445.25	770554.10	N 32 5 35.67	W 103 35 35.36
Nudge 2°/100' DLS	2500.00	0.00	269.67	2500.00	0.00	0.00	0.00	0.00	398445.25	770554.10	N 32 5 35.67	W 103 35 35.36
Hold Nudge	2900.00	8.00	269.67	2898.70	-0.03	-0.16	-27.88	2.00	398445.09	770526.22	N 32 5 35.67	W 103 35 35.68
Drop to Vertical 2°/100' DLS	6026.88	8.00	269.67	5995.15	-0.56	-2.70	-463.05	0.00	398442.55	770091.07	N 32 5 35.68	W 103 35 40.74
Hold Vertical	6426.87	0.00	269.67	6393.85	-0.59	-2.86	-490.93	2.00	398442.39	770063.19	N 32 5 35.68	W 103 35 41.07
KOP - Build 12°/100' DLS	12038.02	0.00	269.67	12005.00	-0.59	-2.86	-490.93	0.00	398442.39	770063.19	N 32 5 35.68	W 103 35 41.07
Build 4°/100' DLS	12663.02	75.00	179.60	12466.19	353.29	-356.74	-488.44	12.00	398088.52	770065.68	N 32 5 32.18	W 103 35 41.07
Landing Point	13038.02	90.00	179.60	12515.00	724.03	-727.46	-485.83	4.00	397717.81	770068.28	N 32 5 28.51	W 103 35 41.06
Cimarex Red Hills 32-5 Fed Com #171H - PBHL [100' FSL, 2515' FEL]	22382.10	90.00	179.60	12515.00	10068.11	-10071.31	-420.13	0.00	388374.27	770133.98	N 32 3 56.05	W 103 35 41.04

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 #171H / Cimarex Red Hills 32-5 Fed Com #171H Rev1 RM 14Jun21
	1	23.000	22382.103	1/100.000	17.500	13.375		NAL_MWD_IFR1+MS	Red Hills 32-5 Fed Com #171H / Cimarex Red Hills 32-5 Fed Com

1. Geological Formations

TVD of target 12,515
MD at TD 22,382

Pilot Hole TD N/A
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	
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	12663	12466	7-5/8"	29.70	L-80	BT&C	2.45	1.18	1.79
6 3/4	0	12000	12000	5-1/2"	20.00	L-80	LT&C	1.13	1.18	1.85
6 3/4	12000	22382	12515	5"	18.00	P-110	BT&C	1.65	1.67	62.57
					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

	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	# Sks	Wt. lb/gal	Yld ft3/sack	H2O 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	600	10.30	3.64	22.18		Lead: Tuned Light + LCM
	198	14.80	1.36	6.57	9.5	Tail: Class C + Retarder
Intermediate Stage 2	793	12.90	1.88	9.65	12	Lead: 35:65 (Poz:C) + Salt + Bentonite
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	12463	25

Cimarex request the ability to perform casing integrity tests after plug bump of cement job.

4. Pressure Control Equipment

	A variance is requested for the use of a diverter on the surface casing. See attached for schematic.

BOP installed and tested before drilling which hole?	Size	Min Required WP	Type		Tested To
9 7/8	**13 5/8**	**5M**	Annular	X	5M
			Blind Ram		
			Pipe Ram	X	
			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 12663'	Brine Diesel Emulsion	8.50 - 9.00	30-35	N/C
12663' to 22382'	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 fromTD 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	8134 psi
Abnormal Temperature	No

Hydrogen Sulfide (H2S) monitors will be installed prior to drilling out the surface shoe. If H2S is detected in concentrations greater than 100 ppm, the operator will comply with the provisions of Onshore Oil and Gas Order #6. If Hydrogen Sulfide is encountered, measured values and formations will be provided to the BLM.	
X	H2S is present
X	H2S plan is attached

8. Other Facets of Operation

9. Wellhead

A multi-bowl wellhead system will be utilized.

After running the 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.

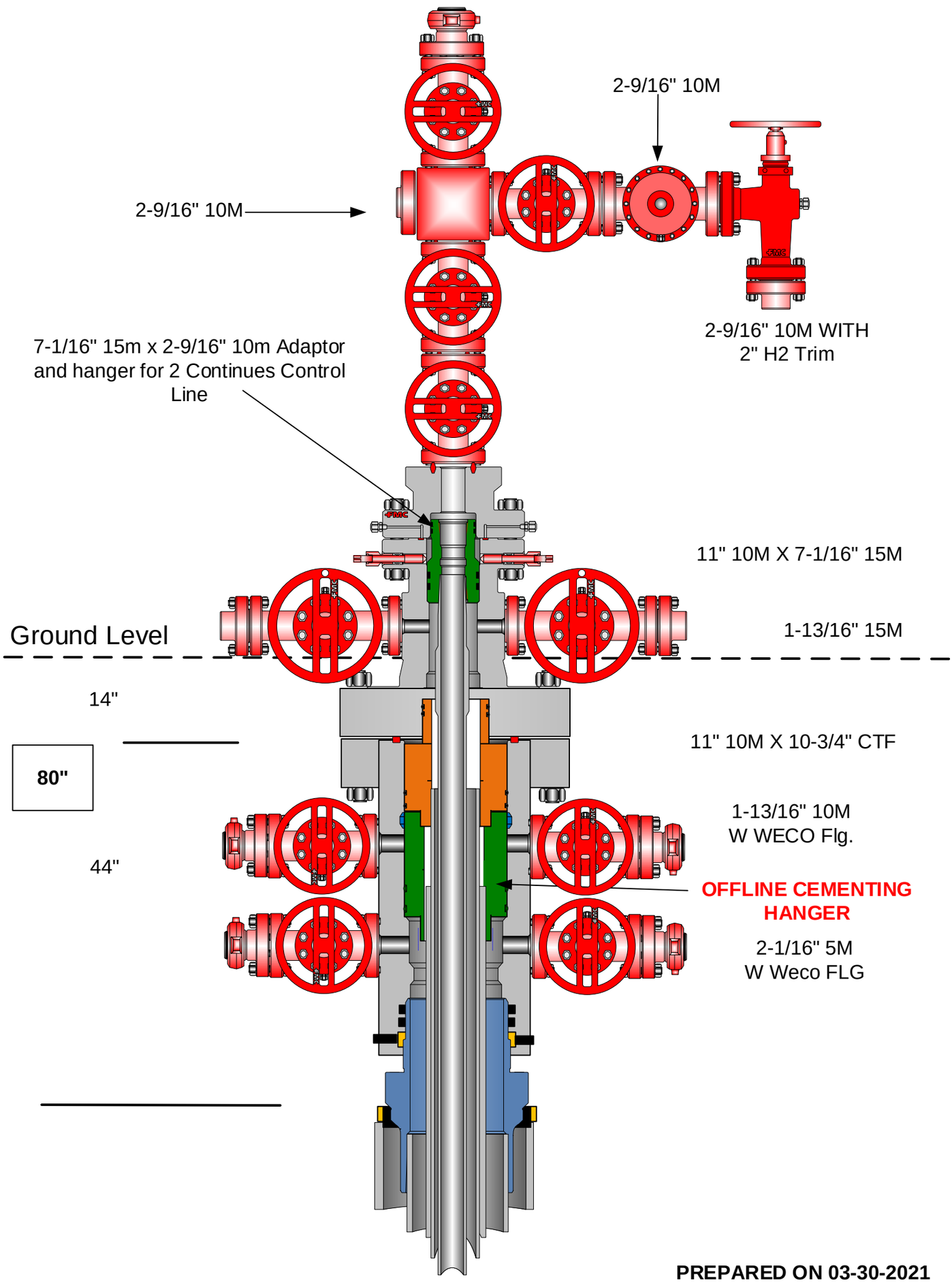
All casing strings will be tested as per Onshore Order No.2 to atleast 0.22 psi/ft or 1,500 whichever is greater and not to exceed 70% of casing burst.

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

Hole Size	Casing Interval Depth From	Depth To	Casing Interval 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	12663	12466	7-5/8"	29.70	L-80	BT&C	2.45	1.18	1.79
6 3/4	0	12000	12000	5-1/2"	20.00	L-80	LT&C	1.13	1.18	1.85
6 3/4	12000	22382	12515	5"	18.00	P-110	BT&C	1.65	1.67	62.57
					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 171H
LEA CO., NM



PREPARED ON 03-30-2021

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

Cementing Operational Workflow

Conventional Cementing

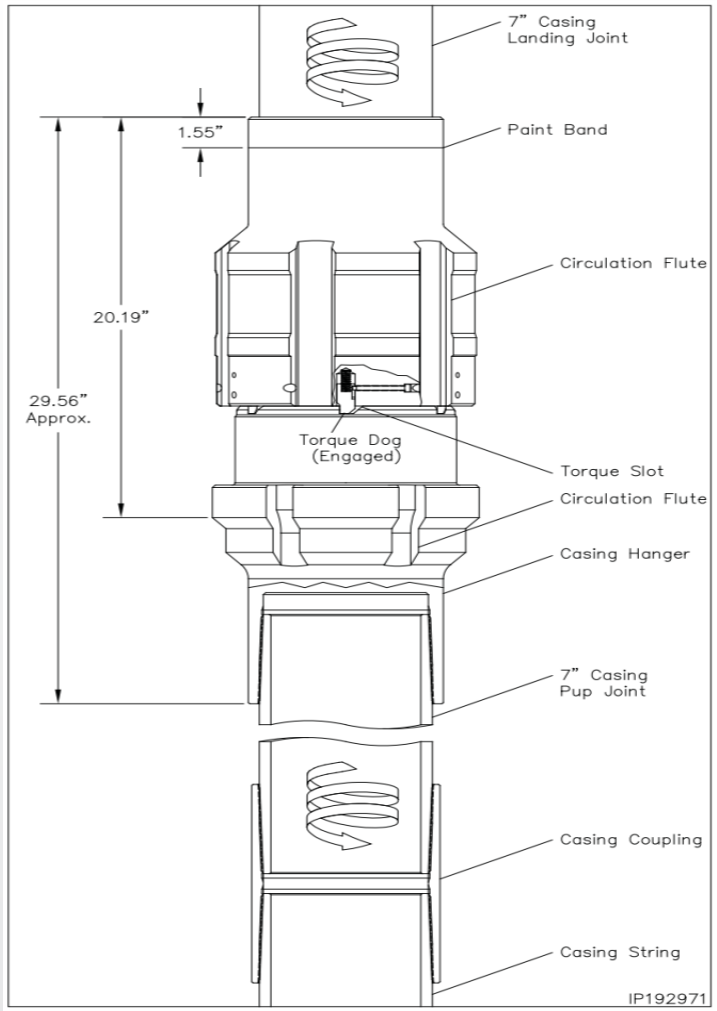
1. Land casing on fluted mandrel hanger
2. Circulate down casing, taking returns through BOP stack
3. Pump lead and tail cement
4. Displace cement and bump the plug
5. Ensure floats are holding pressure
6. RD cement crew
7. Install packoff to isolate pressure
8. Install BPV and skid rig

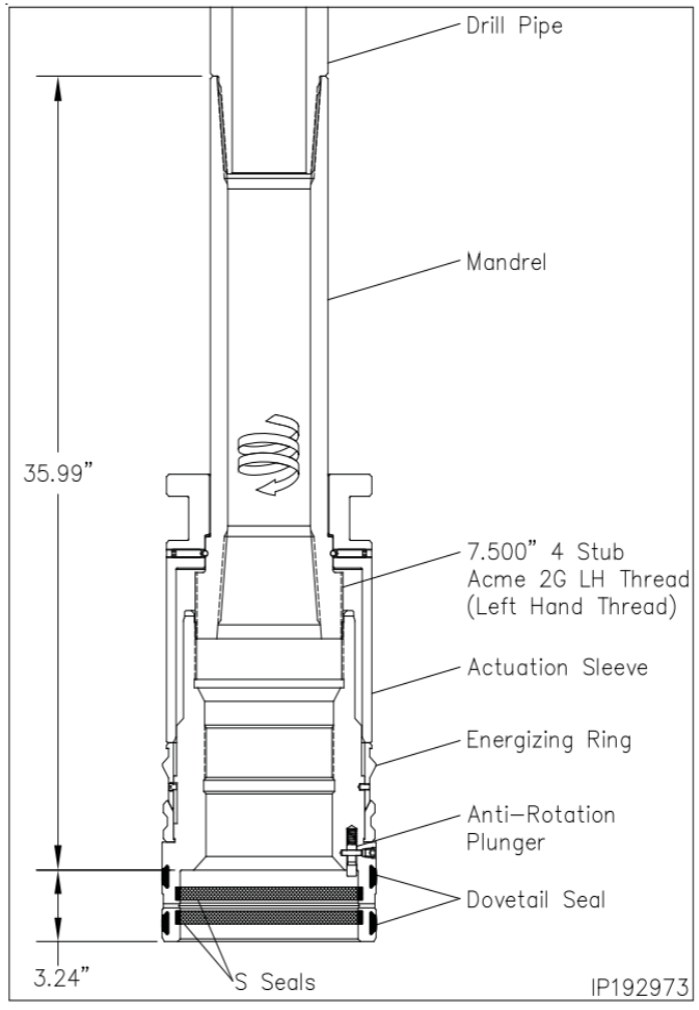
Offline Cementing

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

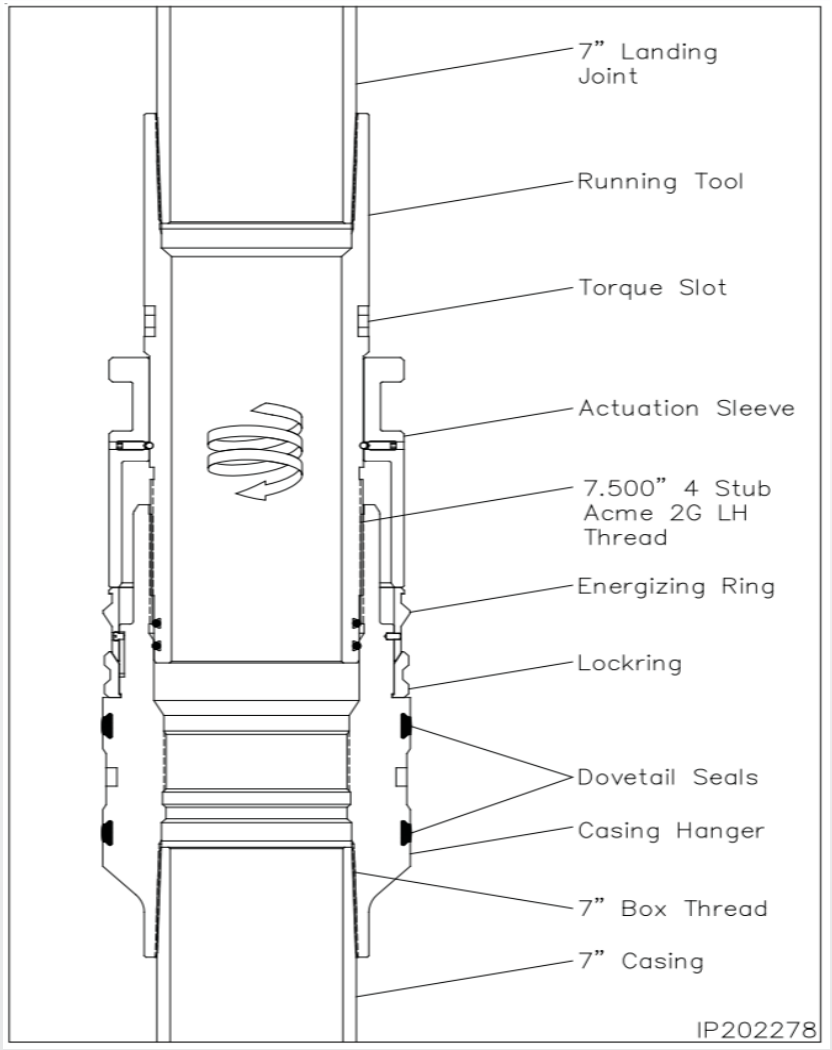
- Fluted Hanger allows returns up past the hanger body
- Returns throughout cement job flow up through BOP stack and into flowline
- Packoff is installed **after** cement job to isolate pressure above and below hanger
- Lockring engaged during packoff installation



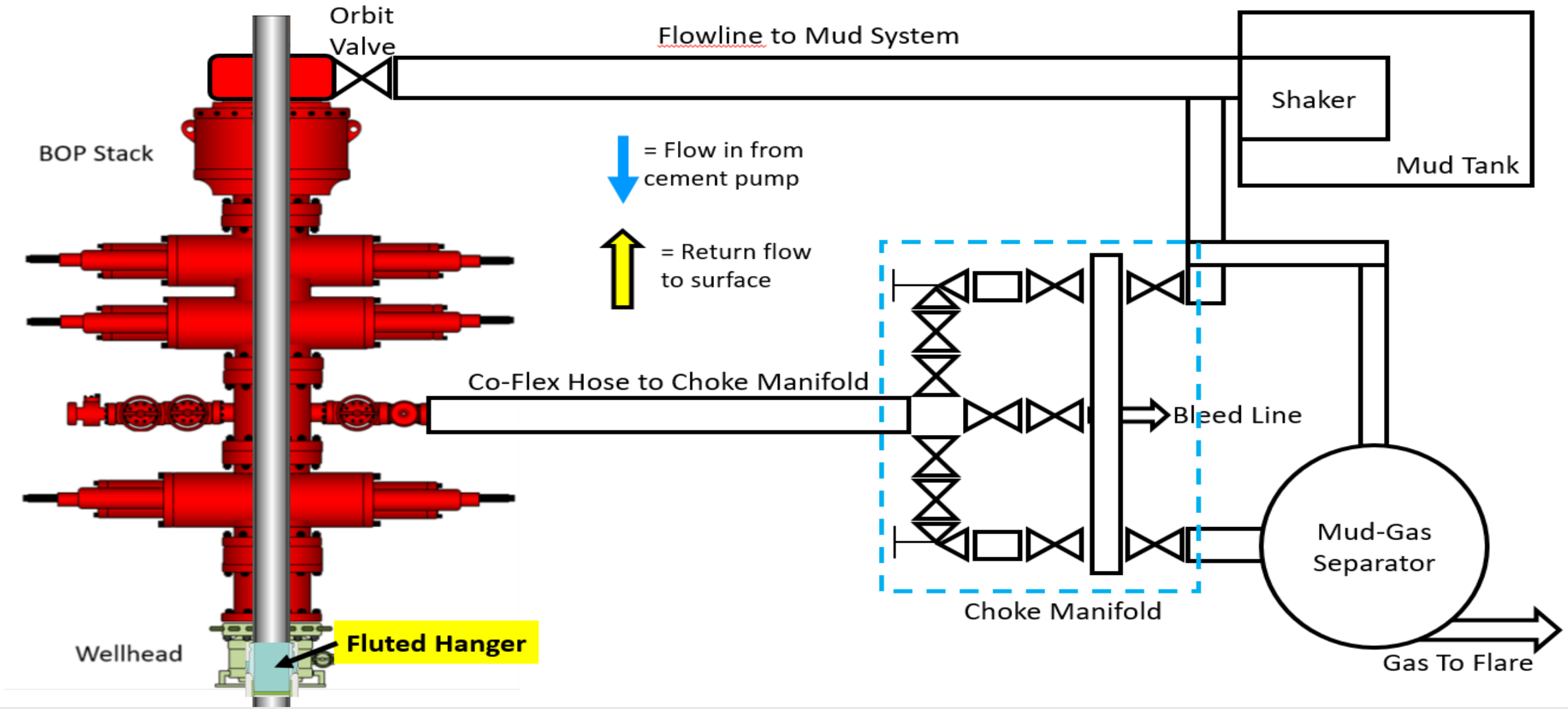


Offline Cementing Equipment-Solid Body Mandrel Hanger

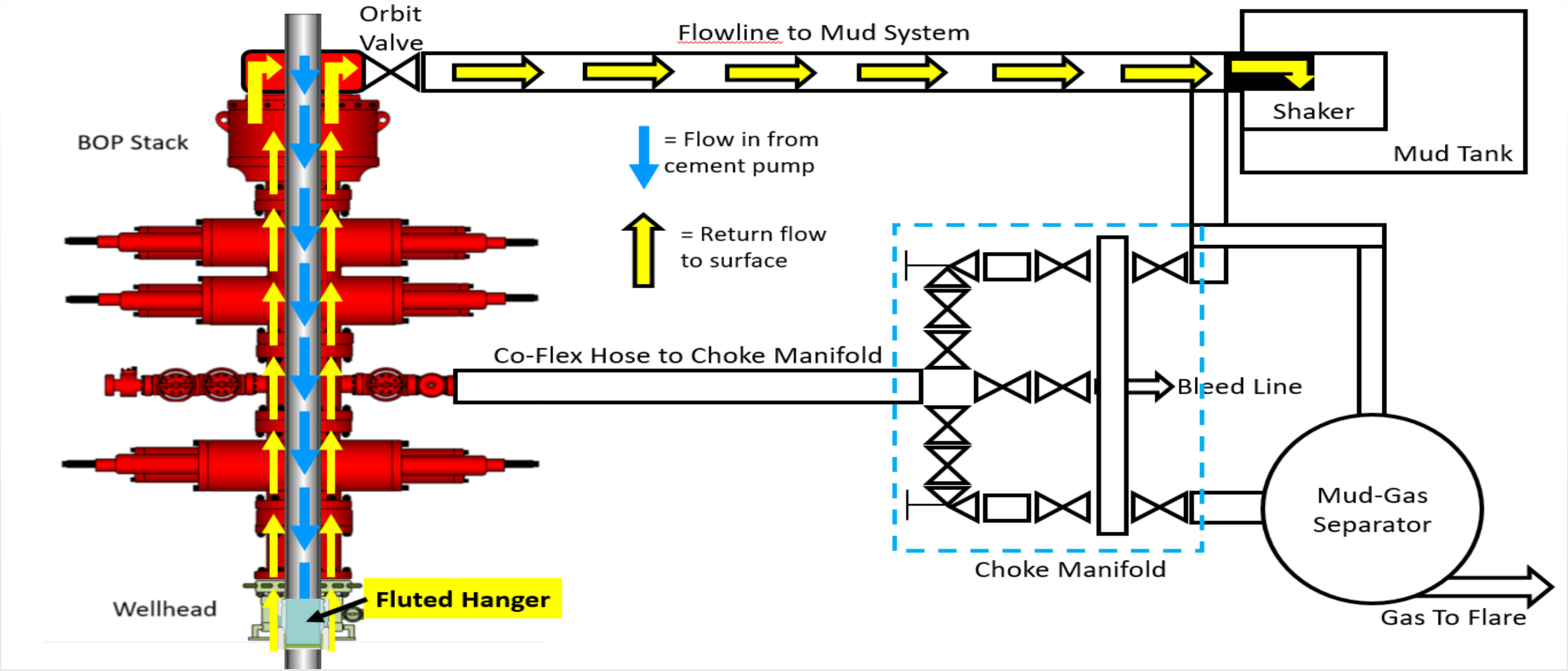
- Solid Body Mandrel Hanger allows for casing to be landed and pressure isolated in one step, **prior** to cementing
- Lockring is engaged to lock casing in place
- Casing is isolated and returns throughout cement job flow through the casing valves and through flowback iron independent of rig



Conventional Cementing Flow Diagram



Conventional Cementing Flow Diagram



Offline Cementing -- Intermediate Casing

= Flow in from cement pump

= Return flow to surface

Cement Company Iron

Tank

Mud-Gas Separator

Gas To Flare

Solid Body Hanger

3” Flowback Iron

Same process flow as other casing valve

Choke Manifold

Open Top Tank

Offline Cementing -- Intermediate Casing

= Flow in from cement pump

= Return flow to surface

Cement Company Iron

Tank

Mud-Gas Separator

Gas To Flare

Solid Body Hanger

3” Flowback Iron

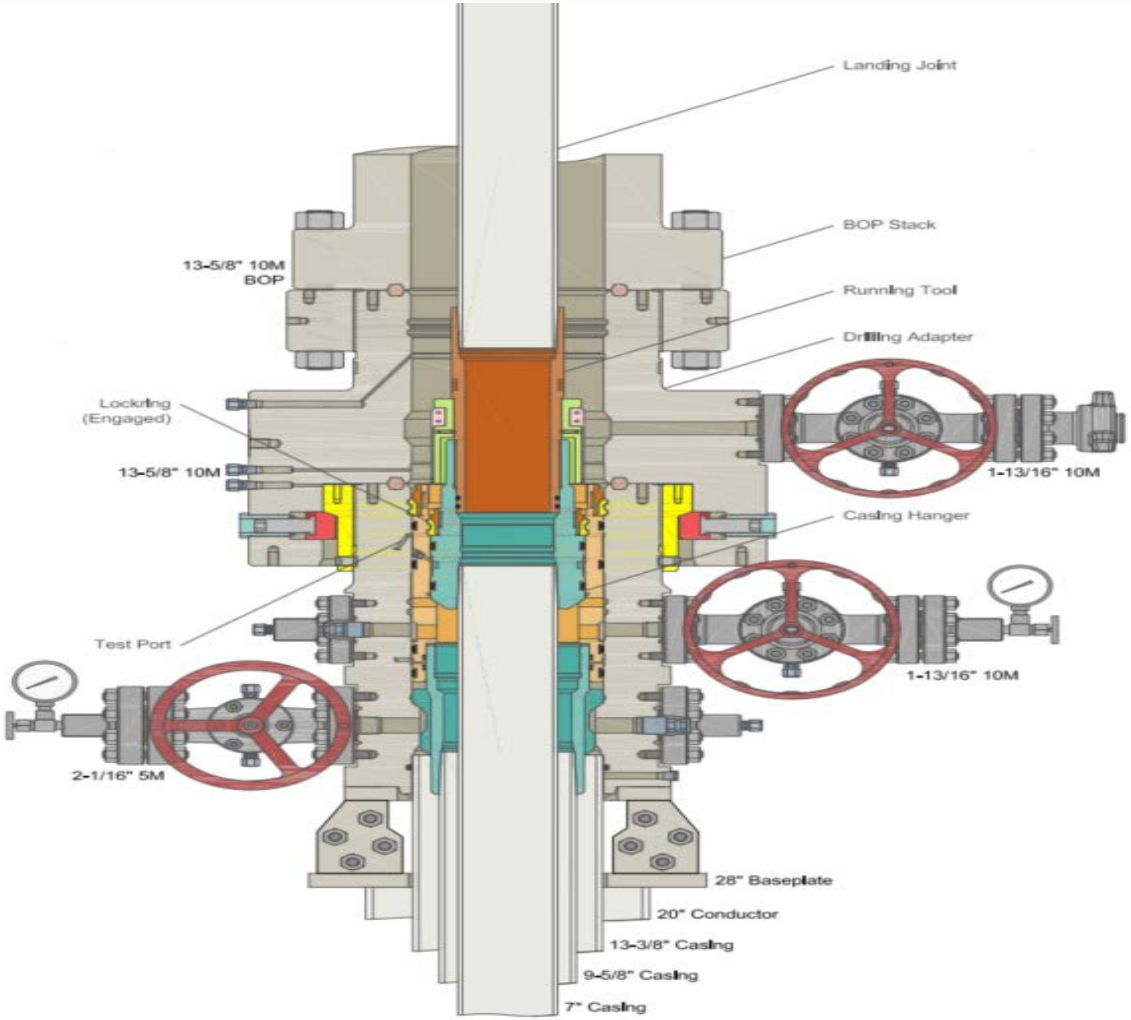
Same process flow as other casing valve

Choke Manifold

Open Top Tank

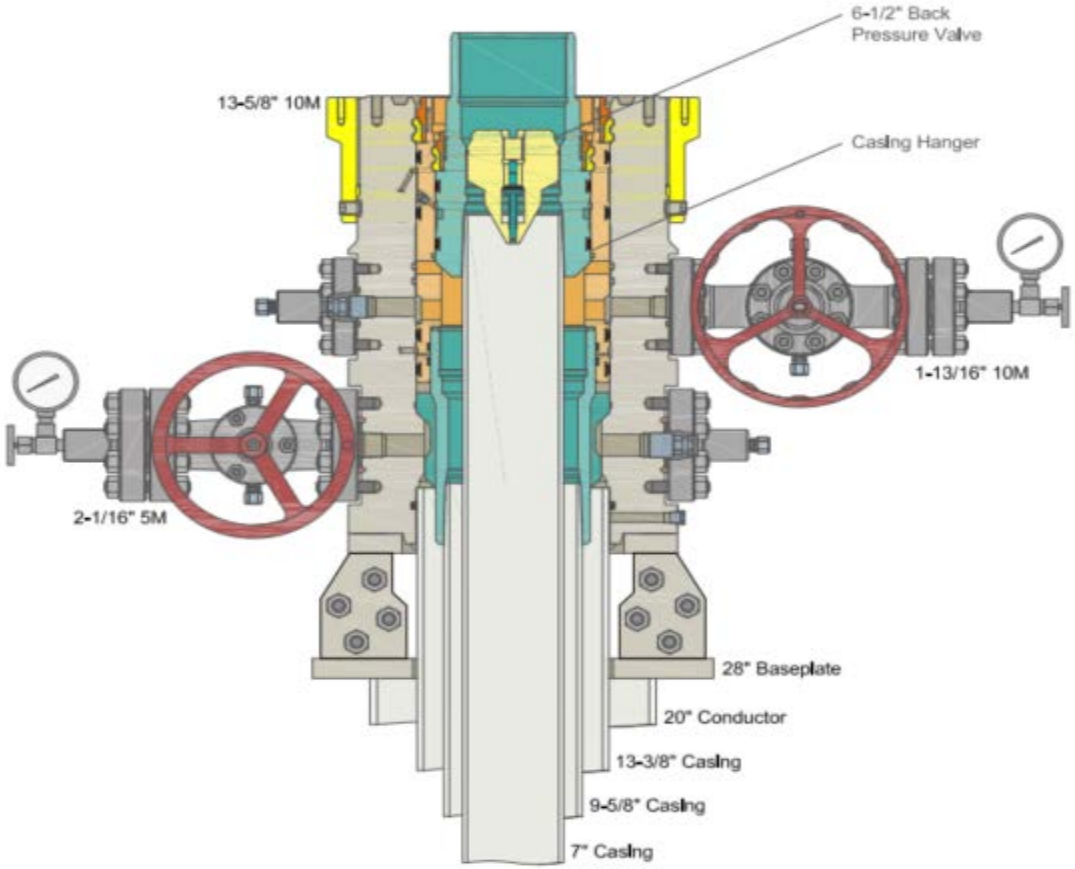
Offline Cementing Progression

- 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 <u>WILL NOT</u> set solid body packoff.**
  - 10K float collar-Internal Barrier
  - 10k float Shoe-Internal Barrier
    - **<u>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</u>**



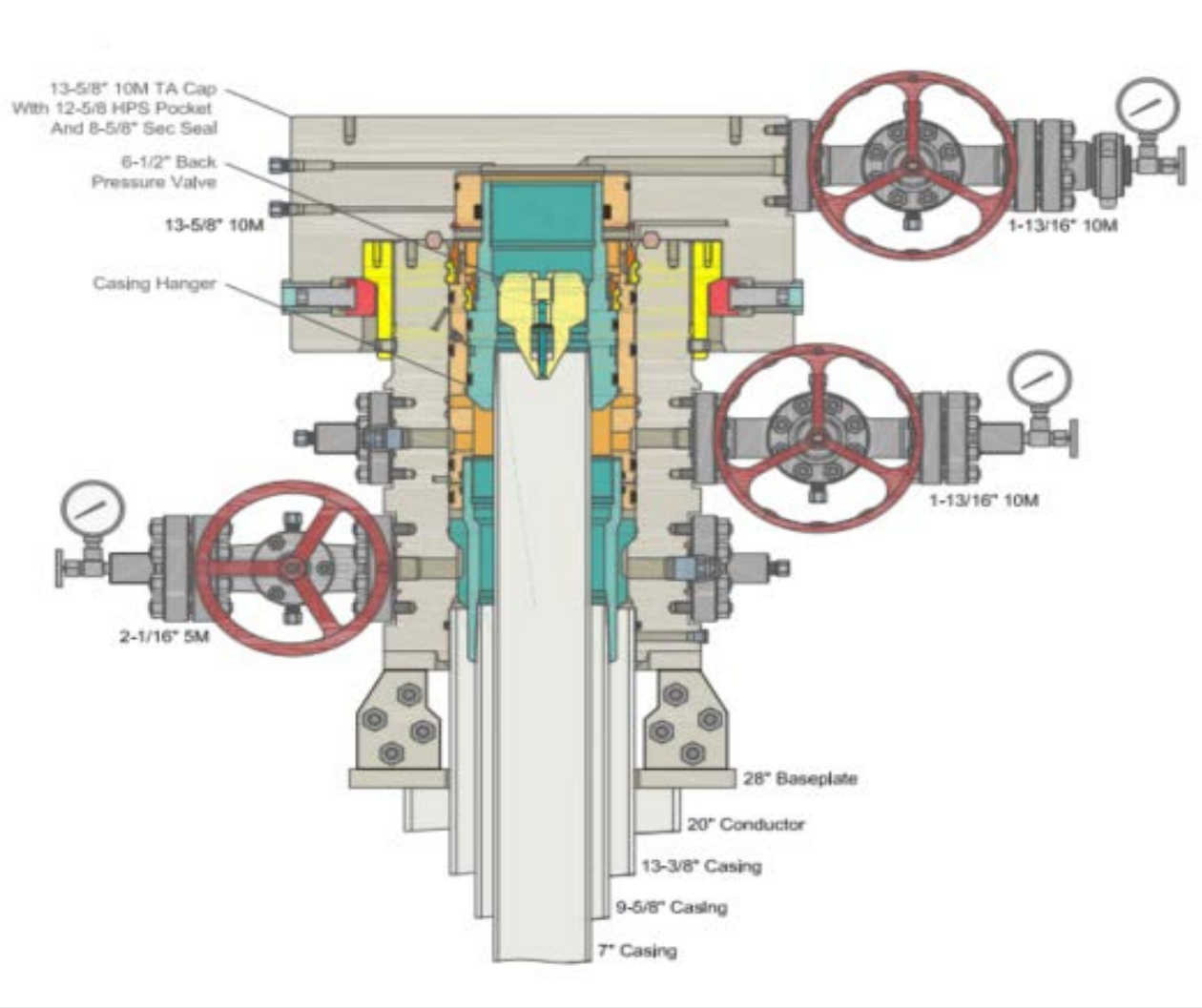
Offline Cementing Progression

- 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



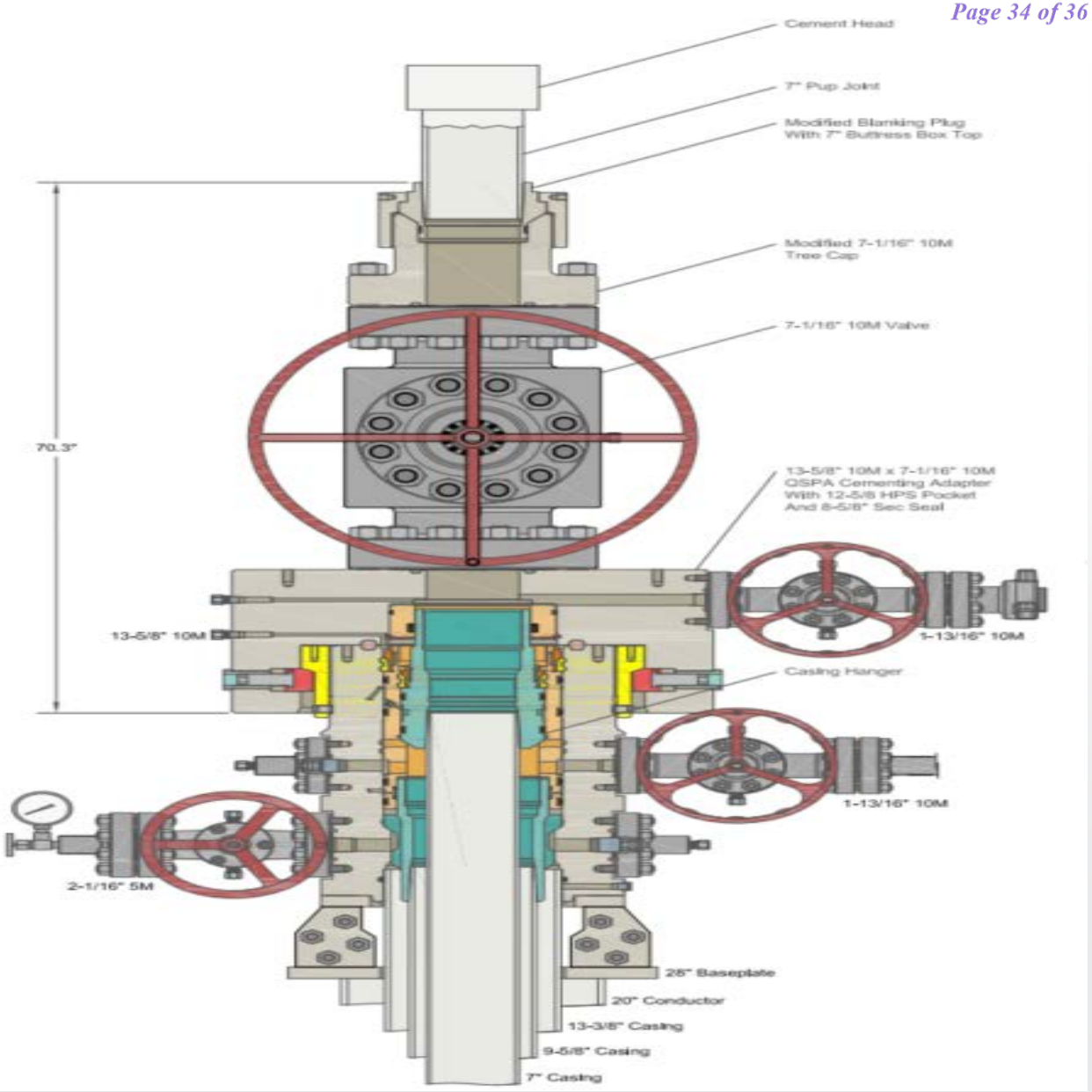
Offline Cementing Progression

- 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 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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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 104516

CONDITIONS

Operator: CIMAREX ENERGY CO. OF COLORADO 600 N. Marienfeld Street Midland, TX 79701	OGRID: 162683
	Action Number: 104516
	Action Type: [C-103] NOI Change of Plans (C-103A)

CONDITIONS

Created By	Condition	Condition Date
pkautz	REQUIRES NSP	5/23/2022