

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

RECEIVED

FEB 05 2020

FORM APPROVED
OMB NO. 1004-0137
Expires: January 31, 2018**SUNDRY NOTICES AND REPORTS OF MINERAL-PRODUCING ARTESIAN**
*Do not use this form for proposals to drill or to re-enter an abandoned well. Use form 3160-3 (APD) for such proposals.*Lease Serial No.
MNM100332

6. If Indian, Allottee or Tribe Name

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

SUBMIT IN TRIPLICATE - Other Instructions on page 2

1. Type of Well

☐ Oil Well ☒ Gas Well ☐ Other

8. Well Name and No.

DAVINCI 7-18 FEDERAL COM 29H

2. Name of Operator

CIMAREX ENERGY COMPANY OF CO

Contact: FATIMA VASQUEZ

E-Mail: fvasquez@climaxex.com

9. API Well No.

30-015-44695-00-X1

3a. Address

600 N MARIENFELD STE 600
MIDLAND, TX 79701

3b. Phone No. (include area code)

Ph: 432.620.1933

10. Field and Pool or Exploratory Area

WHITE CITY-PENN (GAS)

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

Sec 7 T25S R27E NWNE 390FNL 1410FEL
32.150780 N Lat, 104.225510 W Lon

11. County or Parish, State

EDDY COUNTY, NM

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

TYPE OF SUBMISSION

TYPE OF ACTION

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

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

Cimarex respectfully requests the following changes:

Change the well name to Davinci 7-18 Federal Com 29H. ✓

Change BHL to:

330' FSL & 330' FEL of Section 18, 25S, 27E.

Changes to Production liner.

No new surface disturbance.

See attached wellsite layout, updated C102, updated Drilling Plan, and updated Directional Survey.

**Carlsbad Field Office
Operator Copy****SEE ATTACHED FOR
CONDITIONS OF APPROVAL**

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

Electronic Submission #494370 verified by the BLM Well Information System

For CIMAREX ENERGY COMPANY OF CO, sent to the Carlsbad

Committed to AFMSS for processing by PRISCILLA PEREZ on 12/04/2019 (20PP0566SE)

Name (Printed/Typed) FATIMA VASQUEZ

Title REGULATORY ANALYST

Signature

(Electronic Submission)

Date: 12/03/2019

THIS SPACE FOR FEDERAL OR STATE OFFICE USE

Approved By JEROMY PORTER

Title PETROLEUM ENGINEER

Date 12/10/2019

Conditions of approval, if any, are attached. Approval of this notice does not warrant or certify that the applicant holds legal or equitable title to those rights in the subject lease which would entitle the applicant to conduct operations thereon.

Office Carlsbad

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

(Instructions on page 2)

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

RW 2-7-2020

Revisions to Operator-Submitted EC Data for Sundry Notice #494370

	Operator Submitted	BLM Revised (AFMSS)
Sundry Type:	APDCH NOI	APDCH NOI
Lease:	NMNM100332	NMNM100332
Agreement:		
Operator:	CIMAREX ENERGY COMPANY 600 N MARIENFELD ST SUITE 600 MIDLAND, TX 79701 Ph: 432-571-7800	CIMAREX ENERGY COMPANY OF CO 600 N MARIENFELD STE 600 MIDLAND, TX 79701 Ph: 432.620.1936 Fx: 918.749.8059
Admin Contact:	FATIMA VASQUEZ REGULATORY ANALYST E-Mail: fvasquez@cimarex.com Ph: 432.620.1933	FATIMA VASQUEZ REGULATORY ANALYST E-Mail: fvasquez@cimarex.com Ph: 432.620.1933
Tech Contact:	FATIMA VASQUEZ REGULATORY ANALYST E-Mail: fvasquez@cimarex.com Ph: 432.620.1933	FATIMA VASQUEZ REGULATORY ANALYST E-Mail: fvasquez@cimarex.com Ph: 432.620.1933
Location:		
State:	NM	NM
County:	EDDY	EDDY
Field/Pool:	PURPLE SAGE;WOLFCAMP(GAS)	WHITE CITY-PENN (GAS)
Well/Facility:	DAVINCI 7 FEDERAL COM 29H Sec 7 T25S R27E NWNE 390FNL 1410FEL 32.150781 N Lat, 104.225511 W Lon	DAVINCI 7-18 FEDERAL COM 29H Sec 7 T25S R27E NWNE 390FNL 1410FEL 32.150780 N Lat, 104.225510 W Lon

Cimarex DaVinci 7-18 Federal Com #29H Rev1 RM 11Oct19 Proposal

Geodetic Report

(Def Plan)



Report Date: October 11, 2019 - 11:14 AM
 Client: Cimarex
 Field: NM Eddy County (NAD 83)
 Structure / Slot: Cimarex DaVinci 7-18 Federal Com #29H / Cimarex DaVinci 7-18 Federal Com #29H
 Well: Cimarex DaVinci 7-18 Federal Com #29H
 Borehole: Original Borehole
 UWI / API#: Unknown / Unknown
 Survey Name: Cimarex DaVinci 7-18 Federal Com #29H Rev1 RM 11Oct19
 Survey Date: October 11, 2019
 Tort / AHD / DDI / ERD Ratio: 109.489' / 10962.374 ft / 6.382' / 1.142
 Coordinate Reference System: NAD83 New Mexico State Plane, Eastern Zone, US Feet
 Location Lat / Long: N 32° 9' 2.80649", W 104° 13' 31.83835"
 Location Grid N/E Y/X: N 418605.690 ftUS, E 574706.440 ftUS
 CRS Grid Convergence Angle: 0.0574°
 Grid Scale Factor: 0.99991037
 Version / Patch: 2.10.782.0

Survey / DLS Computation: Minimum Curvature / Lubinski
 Vertical Section Azimuth: 179.649° (Grid North)
 Vertical Section Origin: 0.000 ft, 0.000 ft
 TVD Reference Datum: RKB
 TVD Reference Elevation: 3334.900 ft above MSL
 Seabed / Ground Elevation: 3308.900 ft above MSL
 Magnetic Declination: 7.228°
 Total Gravity Field Strength: 998.4343mgal (9.80665 Based)
 Gravity Model: GARM
 Total Magnetic Field Strength: 47774.468 nT
 Magnetic Dip Angle: 59.788°
 Declination Date: October 11, 2019
 Magnetic Declination Model: HDGM 2019
 North Reference: Grid North
 Grid Convergence Used: 0.0574°
 Total Corr Mag North->Grid: 7.1706°
 North:
 Local Coord Referenced To: Structure Reference Point

Comments	MD (ft)	Incl (°)	Azim Grid (°)	TVD (ft)	VSEC (ft)	NS (ft)	EW (ft)	DLS (*/100ft)	Northing (ftUS)	Easting (ftUS)	Latitude (N/S ° ' ")	Longitude (E/W ° ' ")
SHL [390' FNL 1410' FEL]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	N/A	418605.69	574706.44	N 32° 9' 2.81"	W 104° 13' 31.84"
	100.00	0.00	89.35	100.00	0.00	0.00	0.00	0.00	418605.69	574706.44	N 32° 9' 2.81"	W 104° 13' 31.84"
	200.00	0.00	89.35	200.00	0.00	0.00	0.00	0.00	418605.69	574706.44	N 32° 9' 2.81"	W 104° 13' 31.84"
	300.00	0.00	89.35	300.00	0.00	0.00	0.00	0.00	418605.69	574706.44	N 32° 9' 2.81"	W 104° 13' 31.84"
	400.00	0.00	89.35	400.00	0.00	0.00	0.00	0.00	418605.69	574706.44	N 32° 9' 2.81"	W 104° 13' 31.84"
	500.00	0.00	89.35	500.00	0.00	0.00	0.00	0.00	418605.69	574706.44	N 32° 9' 2.81"	W 104° 13' 31.84"
	600.00	0.00	89.35	600.00	0.00	0.00	0.00	0.00	418605.69	574706.44	N 32° 9' 2.81"	W 104° 13' 31.84"
	700.00	0.00	89.35	700.00	0.00	0.00	0.00	0.00	418605.69	574706.44	N 32° 9' 2.81"	W 104° 13' 31.84"
	800.00	0.00	89.35	800.00	0.00	0.00	0.00	0.00	418605.69	574706.44	N 32° 9' 2.81"	W 104° 13' 31.84"
	900.00	0.00	89.35	900.00	0.00	0.00	0.00	0.00	418605.69	574706.44	N 32° 9' 2.81"	W 104° 13' 31.84"
	1000.00	0.00	89.35	1000.00	0.00	0.00	0.00	0.00	418605.69	574706.44	N 32° 9' 2.81"	W 104° 13' 31.84"
	1100.00	0.00	89.35	1100.00	0.00	0.00	0.00	0.00	418605.69	574706.44	N 32° 9' 2.81"	W 104° 13' 31.84"
	1200.00	0.00	89.35	1200.00	0.00	0.00	0.00	0.00	418605.69	574706.44	N 32° 9' 2.81"	W 104° 13' 31.84"
	1300.00	0.00	89.35	1300.00	0.00	0.00	0.00	0.00	418605.69	574706.44	N 32° 9' 2.81"	W 104° 13' 31.84"
Salado (Top Salt)	1334.00	0.00	89.35	1334.00	0.00	0.00	0.00	0.00	418605.69	574706.44	N 32° 9' 2.81"	W 104° 13' 31.84"
	1400.00	0.00	89.35	1400.00	0.00	0.00	0.00	0.00	418605.69	574706.44	N 32° 9' 2.81"	W 104° 13' 31.84"
	1500.00	0.00	89.35	1500.00	0.00	0.00	0.00	0.00	418605.69	574706.44	N 32° 9' 2.81"	W 104° 13' 31.84"
	1600.00	0.00	89.35	1600.00	0.00	0.00	0.00	0.00	418605.69	574706.44	N 32° 9' 2.81"	W 104° 13' 31.84"
	1700.00	0.00	89.35	1700.00	0.00	0.00	0.00	0.00	418605.69	574706.44	N 32° 9' 2.81"	W 104° 13' 31.84"
	1800.00	0.00	89.35	1800.00	0.00	0.00	0.00	0.00	418605.69	574706.44	N 32° 9' 2.81"	W 104° 13' 31.84"
Castile (Base Salt)	1859.00	0.00	89.35	1859.00	0.00	0.00	0.00	0.00	418605.69	574706.44	N 32° 9' 2.81"	W 104° 13' 31.84"
	1900.00	0.00	89.35	1900.00	0.00	0.00	0.00	0.00	418605.69	574706.44	N 32° 9' 2.81"	W 104° 13' 31.84"
	2000.00	0.00	89.35	2000.00	0.00	0.00	0.00	0.00	418605.69	574706.44	N 32° 9' 2.81"	W 104° 13' 31.84"

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 ° ' ")
<i>Bell Canyon (Top Delaware)</i>	2090.00	0.00	89.35	2090.00	0.00	0.00	0.00	0.00	418605.69	574706.44	N 32 9 2.81	W 104 13 31.84
	2100.00	0.00	89.35	2100.00	0.00	0.00	0.00	0.00	418605.69	574706.44	N 32 9 2.81	W 104 13 31.84
	2200.00	0.00	89.35	2200.00	0.00	0.00	0.00	0.00	418605.69	574706.44	N 32 9 2.81	W 104 13 31.84
<i>Nudge 2°/100'</i>	2300.00	0.00	89.35	2300.00	0.00	0.00	0.00	0.00	418605.69	574706.44	N 32 9 2.81	W 104 13 31.84
<i>DLS</i>	2400.00	2.00	89.35	2399.98	-0.02	0.02	1.75	2.00	418605.71	574708.18	N 32 9 2.81	W 104 13 31.82
	2500.00	4.00	89.35	2499.84	-0.06	0.08	6.98	2.00	418605.77	574713.42	N 32 9 2.81	W 104 13 31.76
	2600.00	6.00	89.35	2599.45	-0.14	0.18	15.69	2.00	418605.87	574722.13	N 32 9 2.81	W 104 13 31.66
	2700.00	8.00	89.35	2698.70	-0.24	0.32	27.88	2.00	418606.01	574734.32	N 32 9 2.81	W 104 13 31.51
<i>Hold Nudge</i>	2794.25	9.89	89.35	2791.80	-0.37	0.48	42.53	2.00	418606.17	574748.96	N 32 9 2.81	W 104 13 31.34
	2800.00	9.89	89.35	2797.47	-0.38	0.50	43.51	0.00	418606.19	574749.95	N 32 9 2.81	W 104 13 31.33
	2900.00	9.89	89.35	2895.98	-0.53	0.69	60.68	0.00	418606.38	574767.11	N 32 9 2.81	W 104 13 31.13
<i>Cherry Canyon</i>	2948.74	9.89	89.35	2944.00	-0.60	0.79	69.05	0.00	418606.48	574775.48	N 32 9 2.81	W 104 13 31.04
	3000.00	9.89	89.35	2994.50	-0.68	0.89	77.85	0.00	418606.58	574784.28	N 32 9 2.81	W 104 13 30.93
	3100.00	9.89	89.35	3093.01	-0.83	1.08	95.01	0.00	418606.77	574801.44	N 32 9 2.82	W 104 13 30.73
	3200.00	9.89	89.35	3191.53	-0.98	1.28	112.18	0.00	418606.97	574818.61	N 32 9 2.82	W 104 13 30.53
	3300.00	9.89	89.35	3290.04	-1.13	1.47	129.34	0.00	418607.16	574835.77	N 32 9 2.82	W 104 13 30.33
	3400.00	9.89	89.35	3388.56	-1.28	1.67	146.51	0.00	418607.36	574852.94	N 32 9 2.82	W 104 13 30.13
	3500.00	9.89	89.35	3487.07	-1.43	1.87	163.68	0.00	418607.56	574870.10	N 32 9 2.82	W 104 13 29.93
	3600.00	9.89	89.35	3585.59	-1.58	2.06	180.84	0.00	418607.75	574887.27	N 32 9 2.83	W 104 13 29.73
	3700.00	9.89	89.35	3684.11	-1.73	2.26	198.01	0.00	418607.95	574904.43	N 32 9 2.83	W 104 13 29.54
	3800.00	9.89	89.35	3782.62	-1.89	2.45	215.17	0.00	418608.14	574921.59	N 32 9 2.83	W 104 13 29.34
	3900.00	9.89	89.35	3881.14	-2.04	2.65	232.34	0.00	418608.34	574938.76	N 32 9 2.83	W 104 13 29.14
	4000.00	9.89	89.35	3979.65	-2.19	2.84	249.51	0.00	418608.53	574955.92	N 32 9 2.83	W 104 13 28.94
<i>Brushy Canyon</i>	4026.75	9.89	89.35	4006.00	-2.23	2.90	254.10	0.00	418608.59	574960.51	N 32 9 2.83	W 104 13 28.88
	4100.00	9.89	89.35	4078.17	-2.34	3.04	266.67	0.00	418608.73	574973.09	N 32 9 2.83	W 104 13 28.74
	4200.00	9.89	89.35	4176.68	-2.49	3.24	283.84	0.00	418608.92	574990.25	N 32 9 2.84	W 104 13 28.54
	4300.00	9.89	89.35	4275.20	-2.64	3.43	301.00	0.00	418609.12	575007.42	N 32 9 2.84	W 104 13 28.34
	4400.00	9.89	89.35	4373.71	-2.79	3.63	318.17	0.00	418609.32	575024.58	N 32 9 2.84	W 104 13 28.14
	4500.00	9.89	89.35	4472.23	-2.94	3.82	335.34	0.00	418609.51	575041.75	N 32 9 2.84	W 104 13 27.94
	4600.00	9.89	89.35	4570.74	-3.09	4.02	352.50	0.00	418609.71	575058.91	N 32 9 2.84	W 104 13 27.74
	4700.00	9.89	89.35	4669.26	-3.24	4.21	369.67	0.00	418609.90	575076.07	N 32 9 2.84	W 104 13 27.54
	4800.00	9.89	89.35	4767.77	-3.39	4.41	386.83	0.00	418610.10	575093.24	N 32 9 2.85	W 104 13 27.34
	4900.00	9.89	89.35	4866.29	-3.54	4.60	404.00	0.00	418610.29	575110.40	N 32 9 2.85	W 104 13 27.14
	5000.00	9.89	89.35	4964.81	-3.69	4.80	421.17	0.00	418610.49	575127.57	N 32 9 2.85	W 104 13 26.94
	5100.00	9.89	89.35	5063.32	-3.84	5.00	438.33	0.00	418610.69	575144.73	N 32 9 2.85	W 104 13 26.74
	5200.00	9.89	89.35	5161.84	-3.99	5.19	455.50	0.00	418610.88	575161.90	N 32 9 2.85	W 104 13 26.54
	5300.00	9.89	89.35	5260.35	-4.14	5.39	472.66	0.00	418611.08	575179.06	N 32 9 2.86	W 104 13 26.34
	5400.00	9.89	89.35	5358.87	-4.29	5.58	489.83	0.00	418611.27	575196.23	N 32 9 2.86	W 104 13 26.14
	5500.00	9.89	89.35	5457.38	-4.44	5.78	507.00	0.00	418611.47	575213.39	N 32 9 2.86	W 104 13 25.94
	5600.00	9.89	89.35	5555.90	-4.59	5.97	524.16	0.00	418611.66	575230.55	N 32 9 2.86	W 104 13 25.74
<i>Top Bone Spring</i>	5669.13	9.89	89.35	5624.00	-4.70	6.11	536.03	0.00	418611.80	575242.42	N 32 9 2.86	W 104 13 25.60
	5700.00	9.89	89.35	5654.41	-4.74	6.17	541.33	0.00	418611.86	575247.72	N 32 9 2.86	W 104 13 25.54
	5800.00	9.89	89.35	5752.93	-4.89	6.37	558.49	0.00	418612.05	575264.88	N 32 9 2.86	W 104 13 25.34
	5900.00	9.89	89.35	5851.44	-5.04	6.56	575.66	0.00	418612.25	575282.05	N 32 9 2.87	W 104 13 25.14
	6000.00	9.89	89.35	5949.96	-5.19	6.76	592.83	0.00	418612.45	575299.21	N 32 9 2.87	W 104 13 24.94
	6100.00	9.89	89.35	6048.48	-5.34	6.95	609.99	0.00	418612.64	575316.38	N 32 9 2.87	W 104 13 24.74
	6200.00	9.89	89.35	6146.99	-5.50	7.15	627.16	0.00	418612.84	575333.54	N 32 9 2.87	W 104 13 24.54
	6300.00	9.89	89.35	6245.51	-5.65	7.34	644.32	0.00	418613.03	575350.71	N 32 9 2.87	W 104 13 24.34
	6400.00	9.89	89.35	6344.02	-5.80	7.54	661.49	0.00	418613.23	575367.87	N 32 9 2.87	W 104 13 24.14
	6500.00	9.89	89.35	6442.54	-5.95	7.73	678.66	0.00	418613.42	575385.03	N 32 9 2.88	W 104 13 23.94
<i>Top 1st BSPG SS</i>	6593.86	9.89	89.35	6535.00	-6.09	7.92	694.77	0.00	418613.61	575401.14	N 32 9 2.88	W 104 13 23.76
	6600.00	9.89	89.35	6541.05	-6.10	7.93	695.82	0.00	418613.62	575402.20	N 32 9 2.88	W 104 13 23.74
	6700.00	9.89	89.35	6639.57	-6.25	8.13	712.99	0.00	418613.82	575419.36	N 32 9 2.88	W 104 13 23.55
	6800.00	9.89	89.35	6738.08	-6.40	8.32	730.15	0.00	418614.01	575436.53	N 32 9 2.88	W 104 13 23.35

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 ° ' ")
Top 2nd BSPG SS	6900.00	9.89	89.35	6836.60	-6.55	8.52	747.32	0.00	418614.21	575453.69	N 32 9 2.88	W 104 13 23.15
	7000.00	9.89	89.35	6935.11	-6.70	8.71	764.49	0.00	418614.40	575470.86	N 32 9 2.89	W 104 13 22.95
	7100.00	9.89	89.35	7033.63	-6.85	8.91	781.65	0.00	418614.60	575488.02	N 32 9 2.89	W 104 13 22.75
	7176.51	9.89	89.35	7109.00	-6.96	9.06	794.79	0.00	418614.75	575501.15	N 32 9 2.89	W 104 13 22.59
	7200.00	9.89	89.35	7132.15	-7.00	9.10	798.82	0.00	418614.79	575505.19	N 32 9 2.89	W 104 13 22.55
	7300.00	9.89	89.35	7230.66	-7.15	9.30	815.98	0.00	418614.99	575522.35	N 32 9 2.89	W 104 13 22.35
	7400.00	9.89	89.35	7329.18	-7.30	9.50	833.15	0.00	418615.18	575539.51	N 32 9 2.89	W 104 13 22.15
	7500.00	9.89	89.35	7427.69	-7.45	9.69	850.32	0.00	418615.38	575556.68	N 32 9 2.89	W 104 13 21.95
	7600.00	9.89	89.35	7526.21	-7.60	9.89	867.48	0.00	418615.58	575573.84	N 32 9 2.90	W 104 13 21.75
	7700.00	9.89	89.35	7624.72	-7.75	10.08	884.65	0.00	418615.77	575591.01	N 32 9 2.90	W 104 13 21.55
	7800.00	9.89	89.35	7723.24	-7.90	10.28	901.81	0.00	418615.97	575608.17	N 32 9 2.90	W 104 13 21.35
	7900.00	9.89	89.35	7821.75	-8.05	10.47	918.98	0.00	418616.16	575625.34	N 32 9 2.90	W 104 13 21.15
	8000.00	9.89	89.35	7920.27	-8.20	10.67	936.15	0.00	418616.36	575642.50	N 32 9 2.90	W 104 13 20.95
	8100.00	9.89	89.35	8018.78	-8.35	10.87	953.31	0.00	418616.55	575659.66	N 32 9 2.90	W 104 13 20.75
	8200.00	9.89	89.35	8117.30	-8.50	11.06	970.48	0.00	418616.75	575676.83	N 32 9 2.91	W 104 13 20.55
	8300.00	9.89	89.35	8215.82	-8.65	11.26	987.64	0.00	418616.95	575693.99	N 32 9 2.91	W 104 13 20.35
Top 3rd BSPS SS	8400.00	9.89	89.35	8314.33	-8.80	11.45	1004.81	0.00	418617.14	575711.16	N 32 9 2.91	W 104 13 20.15
	8464.63	9.89	89.35	8378.00	-8.90	11.58	1015.90	0.00	418617.27	575722.25	N 32 9 2.91	W 104 13 20.02
Drop to Vertical 2°/100' DLS	8500.00	9.89	89.35	8412.85	-8.95	11.65	1021.98	0.00	418617.34	575728.32	N 32 9 2.91	W 104 13 19.95
	8588.47	9.89	89.35	8500.00	-9.09	11.82	1037.16	0.00	418617.51	575743.51	N 32 9 2.91	W 104 13 19.77
Top Wolfcamp	8600.00	9.65	89.35	8511.37	-9.10	11.84	1039.12	2.00	418617.53	575745.46	N 32 9 2.91	W 104 13 19.75
	8700.00	7.65	89.35	8610.22	-9.24	12.01	1054.17	2.00	418617.70	575760.51	N 32 9 2.91	W 104 13 19.58
	8800.00	5.65	89.35	8709.54	-9.34	12.15	1065.75	2.00	418617.84	575772.09	N 32 9 2.92	W 104 13 19.44
	8826.57	5.12	89.35	8736.00	-9.36	12.18	1068.25	2.00	418617.86	575774.59	N 32 9 2.92	W 104 13 19.41
	8900.00	3.65	89.35	8809.21	-9.41	12.24	1073.87	2.00	418617.93	575780.21	N 32 9 2.92	W 104 13 19.35
	9000.00	1.65	89.35	8909.10	-9.45	12.29	1078.50	2.00	418617.98	575784.84	N 32 9 2.92	W 104 13 19.29
Wolfcamp A Hold Vertical	9036.91	0.92	89.35	8946.00	-9.46	12.30	1079.32	2.00	418617.99	575785.66	N 32 9 2.92	W 104 13 19.28
	9082.72	0.00	89.35	8991.80	-9.46	12.31	1079.69	2.00	418617.99	575786.03	N 32 9 2.92	W 104 13 19.28
	9100.00	0.00	89.35	9009.08	-9.46	12.31	1079.69	0.00	418617.99	575786.03	N 32 9 2.92	W 104 13 19.28
KOP - Build 12°/100' DLS	9135.93	0.00	89.35	9045.01	-9.46	12.31	1079.69	0.00	418617.99	575786.03	N 32 9 2.92	W 104 13 19.28
	9200.00	7.69	179.85	9108.89	-5.17	8.01	1079.70	12.00	418613.70	575786.04	N 32 9 2.87	W 104 13 19.28
	9300.00	19.69	179.85	9205.87	-18.45	-15.61	1079.76	12.00	418590.08	575786.10	N 32 9 2.64	W 104 13 19.28
Wolfcamp A2	9306.52	20.47	179.85	9212.00	20.69	-17.85	1079.77	12.00	418587.85	575786.11	N 32 9 2.62	W 104 13 19.28
	9400.00	31.69	179.85	9295.83	61.72	-58.88	1079.88	12.00	418546.82	575786.22	N 32 9 2.21	W 104 13 19.28
Wolfcamp B	9455.18	38.31	179.85	9341.00	93.35	-90.51	1079.96	12.00	418515.19	575786.30	N 32 9 1.90	W 104 13 19.28
	9500.00	43.69	179.85	9374.82	122.75	-119.90	1080.04	12.00	418485.80	575786.38	N 32 9 1.61	W 104 13 19.28
	9600.00	55.69	179.85	9439.39	198.86	-196.01	1080.24	12.00	418409.69	575786.58	N 32 9 0.86	W 104 13 19.28
	9700.00	67.69	179.85	9486.73	286.74	-283.89	1080.47	12.00	418321.82	575786.81	N 32 8 59.99	W 104 13 19.27
Wolfcamp C Build 4°/100' DLS	9735.57	71.96	179.85	9499.00	320.12	-317.27	1080.56	12.00	418288.44	575786.90	N 32 8 59.66	W 104 13 19.27
	9760.93	75.00	179.85	9506.21	344.43	-341.58	1080.62	12.00	418264.14	575786.96	N 32 8 59.42	W 104 13 19.27
	9800.00	76.56	179.85	9515.81	382.30	-379.45	1080.72	4.00	418226.27	575787.06	N 32 8 59.04	W 104 13 19.27
	9900.00	80.56	179.85	9535.63	480.29	-477.45	1080.98	4.00	418128.29	575787.32	N 32 8 58.07	W 104 13 19.27
Wolfcamp 'C' Target Landing Point	10000.00	84.56	179.85	9548.57	579.43	-576.59	1081.24	4.00	418029.16	575787.58	N 32 8 57.09	W 104 13 19.27
	10100.00	88.56	179.85	9554.57	679.23	-676.36	1081.50	4.00	417929.37	575787.85	N 32 8 56.10	W 104 13 19.27
	10128.90	89.72	179.85	9555.00	708.13	-705.28	1081.58	4.00	417900.48	575787.92	N 32 8 55.82	W 104 13 19.27
	10200.00	89.72	179.85	9555.35	779.23	-776.38	1081.77	0.00	417829.38	575788.11	N 32 8 55.11	W 104 13 19.27
	10300.00	89.72	179.85	9555.84	879.23	-876.38	1082.03	0.00	417729.39	575788.37	N 32 8 54.12	W 104 13 19.26
	10400.00	89.72	179.85	9556.33	979.23	-976.38	1082.30	0.00	417629.40	575788.64	N 32 8 53.13	W 104 13 19.26
	10500.00	89.72	179.85	9556.82	1079.22	-1076.38	1082.56	0.00	417529.41	575788.90	N 32 8 52.14	W 104 13 19.26
	10600.00	89.72	179.85	9557.31	1179.22	-1176.37	1082.82	0.00	417429.42	575789.16	N 32 8 51.16	W 104 13 19.26
	10700.00	89.72	179.85	9557.80	1279.22	-1276.37	1083.09	0.00	417329.43	575789.43	N 32 8 50.17	W 104 13 19.26

Comments	MD (ft)	Incl (°)	Azim Grid (°)	TVD (ft)	VSEC (ft)	NS (ft)	EW (ft)	DLS (ft/100ft)	Northing (ftUS)	Easting (ftUS)	Latitude (N/S ° ' ")	Longitude (E/W ° ' ")
	10800.00	89.72	179.85	9558.30	1379.22	-1376.37	1083.35	0.00	417229.45	575789.69	N 32 8 49.18	W 104 13 19.25
	10900.00	89.72	179.85	9558.79	1479.22	-1476.37	1083.61	0.00	417129.46	575789.95	N 32 8 48.19	W 104 13 19.25
	11000.00	89.72	179.85	9559.28	1579.22	-1576.37	1083.88	0.00	417029.47	575790.22	N 32 8 47.20	W 104 13 19.25
	11100.00	89.72	179.85	9559.77	1679.22	-1676.37	1084.14	0.00	416929.48	575790.48	N 32 8 46.21	W 104 13 19.25
	11200.00	89.72	179.85	9560.26	1779.22	-1776.38	1084.40	0.00	416829.49	575790.74	N 32 8 45.22	W 104 13 19.25
	11300.00	89.72	179.85	9560.75	1879.21	-1876.36	1084.67	0.00	416729.50	575791.01	N 32 8 44.23	W 104 13 19.24
	11400.00	89.72	179.85	9561.24	1979.21	-1976.36	1084.93	0.00	416629.51	575791.27	N 32 8 43.24	W 104 13 19.24
	11500.00	89.72	179.85	9561.73	2079.21	-2076.36	1085.19	0.00	416529.52	575791.53	N 32 8 42.25	W 104 13 19.24
	11600.00	89.72	179.85	9562.22	2179.21	-2176.36	1085.46	0.00	416429.53	575791.80	N 32 8 41.26	W 104 13 19.24
	11700.00	89.72	179.85	9562.71	2279.21	-2276.36	1085.72	0.00	416329.54	575792.06	N 32 8 40.27	W 104 13 19.24
	11800.00	89.72	179.85	9563.20	2379.21	-2376.35	1085.98	0.00	416229.55	575792.32	N 32 8 39.28	W 104 13 19.24
	11900.00	89.72	179.85	9563.70	2479.21	-2476.35	1086.25	0.00	416129.56	575792.59	N 32 8 38.29	W 104 13 19.23
	12000.00	89.72	179.85	9564.19	2579.21	-2576.35	1086.51	0.00	416029.57	575792.85	N 32 8 37.30	W 104 13 19.23
	12100.00	89.72	179.85	9564.68	2679.21	-2676.35	1086.77	0.00	415929.58	575793.12	N 32 8 36.31	W 104 13 19.23
	12200.00	89.72	179.85	9565.17	2779.20	-2776.35	1087.04	0.00	415829.60	575793.38	N 32 8 35.32	W 104 13 19.23
	12300.00	89.72	179.85	9565.66	2879.20	-2876.35	1087.30	0.00	415729.61	575793.64	N 32 8 34.33	W 104 13 19.23
	12400.00	89.72	179.85	9566.15	2979.20	-2976.35	1087.57	0.00	415629.62	575793.91	N 32 8 33.34	W 104 13 19.22
	12500.00	89.72	179.85	9566.64	3079.20	-3076.34	1087.83	0.00	415529.63	575794.17	N 32 8 32.35	W 104 13 19.22
	12600.00	89.72	179.85	9567.13	3179.20	-3176.34	1088.09	0.00	415429.64	575794.43	N 32 8 31.36	W 104 13 19.22
	12700.00	89.72	179.85	9567.62	3279.20	-3276.34	1088.36	0.00	415329.65	575794.70	N 32 8 30.38	W 104 13 19.22
	12800.00	89.72	179.85	9568.11	3379.20	-3376.34	1088.62	0.00	415229.66	575794.96	N 32 8 29.39	W 104 13 19.22
	12900.00	89.72	179.85	9568.61	3479.20	-3476.34	1088.88	0.00	415129.67	575795.22	N 32 8 28.40	W 104 13 19.21
	13000.00	89.72	179.85	9569.10	3579.19	-3576.34	1089.15	0.00	415029.68	575795.49	N 32 8 27.41	W 104 13 19.21
	13100.00	89.72	179.85	9569.59	3679.19	-3676.33	1089.41	0.00	414929.69	575795.75	N 32 8 26.42	W 104 13 19.21
	13200.00	89.72	179.85	9570.08	3779.19	-3776.33	1089.67	0.00	414829.70	575796.01	N 32 8 25.43	W 104 13 19.21
	13300.00	89.72	179.85	9570.57	3879.19	-3876.33	1089.94	0.00	414729.71	575796.28	N 32 8 24.44	W 104 13 19.21
	13400.00	89.72	179.85	9571.06	3979.19	-3976.33	1090.20	0.00	414629.72	575796.54	N 32 8 23.45	W 104 13 19.21
	13500.00	89.72	179.85	9571.55	4079.19	-4076.33	1090.46	0.00	414529.73	575796.80	N 32 8 22.46	W 104 13 19.20
	13600.00	89.72	179.85	9572.04	4179.19	-4176.33	1090.73	0.00	414429.75	575797.07	N 32 8 21.47	W 104 13 19.20
	13700.00	89.72	179.85	9572.53	4279.19	-4276.33	1090.99	0.00	414329.76	575797.33	N 32 8 20.48	W 104 13 19.20
	13800.00	89.72	179.85	9573.02	4379.18	-4376.32	1091.25	0.00	414229.77	575797.59	N 32 8 19.49	W 104 13 19.20
	13900.00	89.72	179.85	9573.52	4479.18	-4476.32	1091.52	0.00	414129.78	575797.86	N 32 8 18.50	W 104 13 19.20
	14000.00	89.72	179.85	9574.01	4579.18	-4576.32	1091.78	0.00	414029.79	575798.12	N 32 8 17.51	W 104 13 19.19
	14100.00	89.72	179.85	9574.50	4679.18	-4676.32	1092.04	0.00	413929.80	575798.38	N 32 8 16.52	W 104 13 19.19
	14200.00	89.72	179.85	9574.99	4779.18	-4776.32	1092.31	0.00	413829.81	575798.65	N 32 8 15.53	W 104 13 19.19
	14300.00	89.72	179.85	9575.48	4879.18	-4876.32	1092.57	0.00	413729.82	575798.91	N 32 8 14.54	W 104 13 19.19
	14400.00	89.72	179.85	9575.97	4979.18	-4976.31	1092.84	0.00	413629.83	575799.18	N 32 8 13.55	W 104 13 19.19
	14500.00	89.72	179.85	9576.46	5079.18	-5076.31	1093.10	0.00	413529.84	575799.44	N 32 8 12.56	W 104 13 19.19
	14600.00	89.72	179.85	9576.95	5179.17	-5176.31	1093.36	0.00	413429.85	575799.70	N 32 8 11.57	W 104 13 19.18
	14700.00	89.72	179.85	9577.44	5279.17	-5276.31	1093.63	0.00	413329.86	575799.97	N 32 8 10.58	W 104 13 19.18
	14800.00	89.72	179.85	9577.93	5379.17	-5376.31	1093.89	0.00	413229.87	575800.23	N 32 8 9.60	W 104 13 19.18
	14900.00	89.72	179.85	9578.43	5479.17	-5476.31	1094.15	0.00	413129.89	575800.49	N 32 8 8.61	W 104 13 19.18
	15000.00	89.72	179.85	9578.92	5579.17	-5576.31	1094.42	0.00	413029.90	575800.76	N 32 8 7.62	W 104 13 19.18
	15100.00	89.72	179.85	9579.41	5679.17	-5676.30	1094.68	0.00	412929.91	575801.02	N 32 8 6.63	W 104 13 19.17
	15200.00	89.72	179.85	9579.90	5779.17	-5776.30	1094.94	0.00	412829.92	575801.28	N 32 8 5.64	W 104 13 19.17
Wolfcamp C2	15220.64	89.72	179.85	9580.00	5799.81	-5796.94	1095.00	0.00	412809.28	575801.34	N 32 8 5.43	W 104 13 19.17
	15300.00	89.72	179.85	9580.39	5879.17	-5876.30	1095.21	0.00	412729.93	575801.55	N 32 8 4.65	W 104 13 19.17
	15400.00	89.72	179.85	9580.88	5979.17	-5976.30	1095.47	0.00	412629.94	575801.81	N 32 8 3.66	W 104 13 19.17
	15500.00	89.72	179.85	9581.37	6079.16	-6076.30	1095.73	0.00	412529.95	575802.07	N 32 8 2.67	W 104 13 19.17
	15600.00	89.72	179.85	9581.86	6179.16	-6176.30	1096.00	0.00	412429.96	575802.34	N 32 8 1.68	W 104 13 19.16
	15700.00	89.72	179.85	9582.35	6279.16	-6276.29	1096.26	0.00	412329.97	575802.60	N 32 8 0.69	W 104 13 19.16
	15800.00	89.72	179.85	9582.84	6379.16	-6376.29	1096.52	0.00	412229.98	575802.86	N 32 7 59.70	W 104 13 19.16
	15900.00	89.72	179.85	9583.34	6479.16	-6476.29	1096.79	0.00	412129.99	575803.13	N 32 7 58.71	W 104 13 19.16
	16000.00	89.72	179.85	9583.83	6579.16	-6576.29	1097.05	0.00	412030.00	575803.39	N 32 7 57.72	W 104 13 19.16
	16100.00	89.72	179.85	9584.32	6679.16	-6676.29	1097.31	0.00	411930.01	575803.65	N 32 7 56.73	W 104 13 19.16
	16200.00	89.72	179.85	9584.81	6779.16	-6776.29	1097.58	0.00	411830.02	575803.92	N 32 7 55.74	W 104 13 19.15
	16300.00	89.72	179.85	9585.30	6879.15	-6876.29	1097.84	0.00	411730.04	575804.18	N 32 7 54.75	W 104 13 19.15
	16400.00	89.72	179.85	9585.79	6979.15	-6976.28	1098.11	0.00	411630.05	575804.44	N 32 7 53.76	W 104 13 19.15

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 ° ' ")
	16500.00	89.72	179.85	9586.28	7079.15	-7076.28	1098.37	0.00	411530.06	575804.71	N 32 7 52.77	W 104 13 19.15
	16600.00	89.72	179.85	9586.77	7179.15	-7176.28	1098.63	0.00	411430.07	575804.97	N 32 7 51.78	W 104 13 19.15
	16700.00	89.72	179.85	9587.26	7279.15	-7276.28	1098.90	0.00	411330.08	575805.24	N 32 7 50.79	W 104 13 19.14
	16800.00	89.72	179.85	9587.75	7379.15	-7376.28	1099.16	0.00	411230.09	575805.50	N 32 7 49.81	W 104 13 19.14
	16900.00	89.72	179.85	9588.25	7479.15	-7476.28	1099.42	0.00	411130.10	575805.76	N 32 7 48.82	W 104 13 19.14
	17000.00	89.72	179.85	9588.74	7579.15	-7576.27	1099.69	0.00	411030.11	575806.03	N 32 7 47.83	W 104 13 19.14
	17100.00	89.72	179.85	9589.23	7679.14	-7676.27	1099.95	0.00	410930.12	575806.29	N 32 7 46.84	W 104 13 19.14
	17200.00	89.72	179.85	9589.72	7779.14	-7776.27	1100.21	0.00	410830.13	575806.55	N 32 7 45.85	W 104 13 19.13
	17300.00	89.72	179.85	9590.21	7879.14	-7876.27	1100.48	0.00	410730.14	575806.82	N 32 7 44.86	W 104 13 19.13
	17400.00	89.72	179.85	9590.70	7979.14	-7976.27	1100.74	0.00	410630.15	575807.08	N 32 7 43.87	W 104 13 19.13
	17500.00	89.72	179.85	9591.19	8079.14	-8076.27	1101.00	0.00	410530.16	575807.34	N 32 7 42.88	W 104 13 19.13
	17600.00	89.72	179.85	9591.68	8179.14	-8176.26	1101.27	0.00	410430.17	575807.61	N 32 7 41.89	W 104 13 19.13
	17700.00	89.72	179.85	9592.17	8279.14	-8276.26	1101.53	0.00	410330.19	575807.87	N 32 7 40.90	W 104 13 19.13
	17800.00	89.72	179.85	9592.66	8379.14	-8376.26	1101.79	0.00	410230.20	575808.13	N 32 7 39.91	W 104 13 19.12
	17900.00	89.72	179.85	9593.16	8479.14	-8476.26	1102.06	0.00	410130.21	575808.40	N 32 7 38.92	W 104 13 19.12
	18000.00	89.72	179.85	9593.65	8579.13	-8576.26	1102.32	0.00	410030.22	575808.66	N 32 7 37.93	W 104 13 19.12
	18100.00	89.72	179.85	9594.14	8679.13	-8676.26	1102.58	0.00	409930.23	575808.92	N 32 7 36.94	W 104 13 19.12
	18200.00	89.72	179.85	9594.63	8779.13	-8776.26	1102.85	0.00	409830.24	575809.19	N 32 7 35.95	W 104 13 19.12
	18300.00	89.72	179.85	9595.12	8879.13	-8876.25	1103.11	0.00	409730.25	575809.45	N 32 7 34.96	W 104 13 19.11
	18400.00	89.72	179.85	9595.61	8979.13	-8976.25	1103.38	0.00	409630.26	575809.71	N 32 7 33.97	W 104 13 19.11
	18500.00	89.72	179.85	9596.10	9079.13	-9076.25	1103.64	0.00	409530.27	575809.98	N 32 7 32.98	W 104 13 19.11
	18600.00	89.72	179.85	9596.59	9179.13	-9176.25	1103.90	0.00	409430.28	575810.24	N 32 7 31.99	W 104 13 19.11
	18700.00	89.72	179.85	9597.08	9279.13	-9276.25	1104.17	0.00	409330.29	575810.50	N 32 7 31.00	W 104 13 19.11
	18800.00	89.72	179.85	9597.57	9379.12	-9376.25	1104.43	0.00	409230.30	575810.77	N 32 7 30.01	W 104 13 19.11
	18900.00	89.72	179.85	9598.07	9479.12	-9476.24	1104.69	0.00	409130.31	575811.03	N 32 7 29.03	W 104 13 19.10
	19000.00	89.72	179.85	9598.56	9579.12	-9576.24	1104.96	0.00	409030.32	575811.30	N 32 7 28.04	W 104 13 19.10
	19100.00	89.72	179.85	9599.05	9679.12	-9676.24	1105.22	0.00	408930.34	575811.56	N 32 7 27.05	W 104 13 19.10
	19200.00	89.72	179.85	9599.54	9779.12	-9776.24	1105.48	0.00	408830.35	575811.82	N 32 7 26.06	W 104 13 19.10
Cimarex DaVinci 7-18 Federal Com #29H - PBHL [330' FSL, 330' FEL]	19294.04	89.72	179.85	9600.00	9873.15	-9870.27	1105.73	0.00	408736.32	575812.07	N 32 7 25.13	W 104 13 19.10

Survey Type: Def Plan

Survey Error Model: ISCWSA Rev 0 *** 3-D 95.000% Confidence 2.7955 sigma
Survey Program:

Description	Part	MD From (ft)	MD To (ft)	EOU Freq (ft)	Hole Size (in)	Casing Diameter (in)	Expected Max Inclination (deg)	Survey Tool Type	Borehole / Survey
	1	0.000	26.000	1/100.000	17.500	13.375		NAL_MWD_IFR1+MS-Depth Only	Original Borehole / Cimarex DaVinci 7-18 Federal Com #29H Rev1 RM 11Oct19
	1	26.000	19294.036	1/100.000	17.500	13.375		NAL_MWD_IFR1+MS	Original Borehole / Cimarex DaVinci 7-18 Federal Com #29H

Cimarex DaVinci 7-18 Federal Com #29H Rev1 RM 11Oct19 Proposal

Geodetic Report

(Def Plan)



Report Date: October 11, 2019 - 11:14 AM
 Client: Cimarex
 Field: NM Eddy County (NAD 83)
 Structure / Slot: Cimarex DaVinci 7-18 Federal Com #29H / Cimarex DaVinci 7-18 Federal Com #29H
 Well: Cimarex DaVinci 7-18 Federal Com #29H
 Borehole: Original Borehole
 UWI / API#: Unknown / Unknown
 Survey Name: Cimarex DaVinci 7-18 Federal Com #29H Rev1 RM 11Oct19
 Survey Date: October 11, 2019
 Tort / AHD / DDI / ERD Ratio: 109.489' / 10962.374 ft / 6.382' / 1.142
 Coordinate Reference System: NAD83 New Mexico State Plane, Eastern Zone, US Feet
 Location Lat / Long: N 32° 9' 2.80649", W 104° 13' 31.83835"
 Location Grid N/E Y/X: N 418605.690 ftUS, E 574706.440 ftUS
 CRS Grid Convergence Angle: 0.0574°
 Grid Scale Factor: 0.99991037
 Version / Patch: 2.10.782.0

Survey / DLS Computation: Minimum Curvature / Lubinski
 Vertical Section Azimuth: 179.849° (Grid North)
 Vertical Section Origin: 0.000 ft, 0.000 ft
 TVD Reference Datum: RKB
 TVD Reference Elevation: 3334.900 ft above MSL
 Seabed / Ground Elevation: 3308.900 ft above MSL
 Magnetic Declination: 7:228°
 Total Gravity Field Strength: 998.4343mgm (9.80665 Based)
 Gravity Model: GARM
 Total Magnetic Field Strength: 47774.468 nT
 Magnetic Dip Angle: 59.788°
 Declination Date: October 11, 2019
 Magnetic Declination Model: HDGM 2019
 North Reference: Grid North
 Grid Convergence Used: 0.0574°
 Total Corr Mag North->Grid: 7.1706°
 North:
 Local Coord Referenced To: Structure Reference Point

Comments	MD (ft)	Incl (°)	Azim Grid (°)	TVD (ft)	VSEC (ft)	NS (ft)	EW (ft)	DLS (°/100ft)	Northing (ftUS)	Easting (ftUS)	Latitude (N/S ° ' ")	Longitude (E/W ° ' ")
SHL [390' FNL, 1410' FEL]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	N/A	418605.69	574706.44	N 32° 9' 2.81"	W 104° 13' 31.84"
Nudge 2"/100' DLS	2300.00	0.00	89.35	2300.00	0.00	0.00	0.00	0.00	418605.69	574706.44	N 32° 9' 2.81"	W 104° 13' 31.84"
Hold Nudge	2794.25	9.89	89.35	2791.80	-0.37	0.48	42.53	2.00	418606.17	574748.96	N 32° 9' 2.81"	W 104° 13' 31.34"
Drop to Vertical 2"/100' DLS	8588.47	9.89	89.35	8500.00	-9.09	11.82	1037.16	0.00	418617.51	575743.51	N 32° 9' 2.91"	W 104° 13' 19.77"
Hold Vertical	9082.72	0.00	89.35	8991.80	-9.46	12.31	1079.69	2.00	418617.99	575786.03	N 32° 9' 2.92"	W 104° 13' 19.28"
KOP - Build 12"/100' DLS	9135.93	0.00	89.35	9045.01	-9.46	12.31	1079.69	0.00	418617.99	575786.03	N 32° 9' 2.92"	W 104° 13' 19.28"
Build 4"/100' DLS	9760.93	75.00	179.85	9506.21	344.43	-341.58	1080.62	12.00	418264.14	575786.96	N 32° 8' 59.42"	W 104° 13' 19.27"
Landing Point	10128.90	89.72	179.85	9555.00	708.13	-705.28	1081.58	4.00	417900.48	575787.92	N 32° 8' 55.82"	W 104° 13' 19.27"
Cimarex DaVinci 7-18 Federal Com #29H - PBHL [330' FSL, 330' FEL]	19294.04	89.72	179.85	9600.00	9873.15	-9870.27	1105.73	0.00	408736.32	575812.07	N 32° 7' 25.13"	W 104° 13' 19.10"

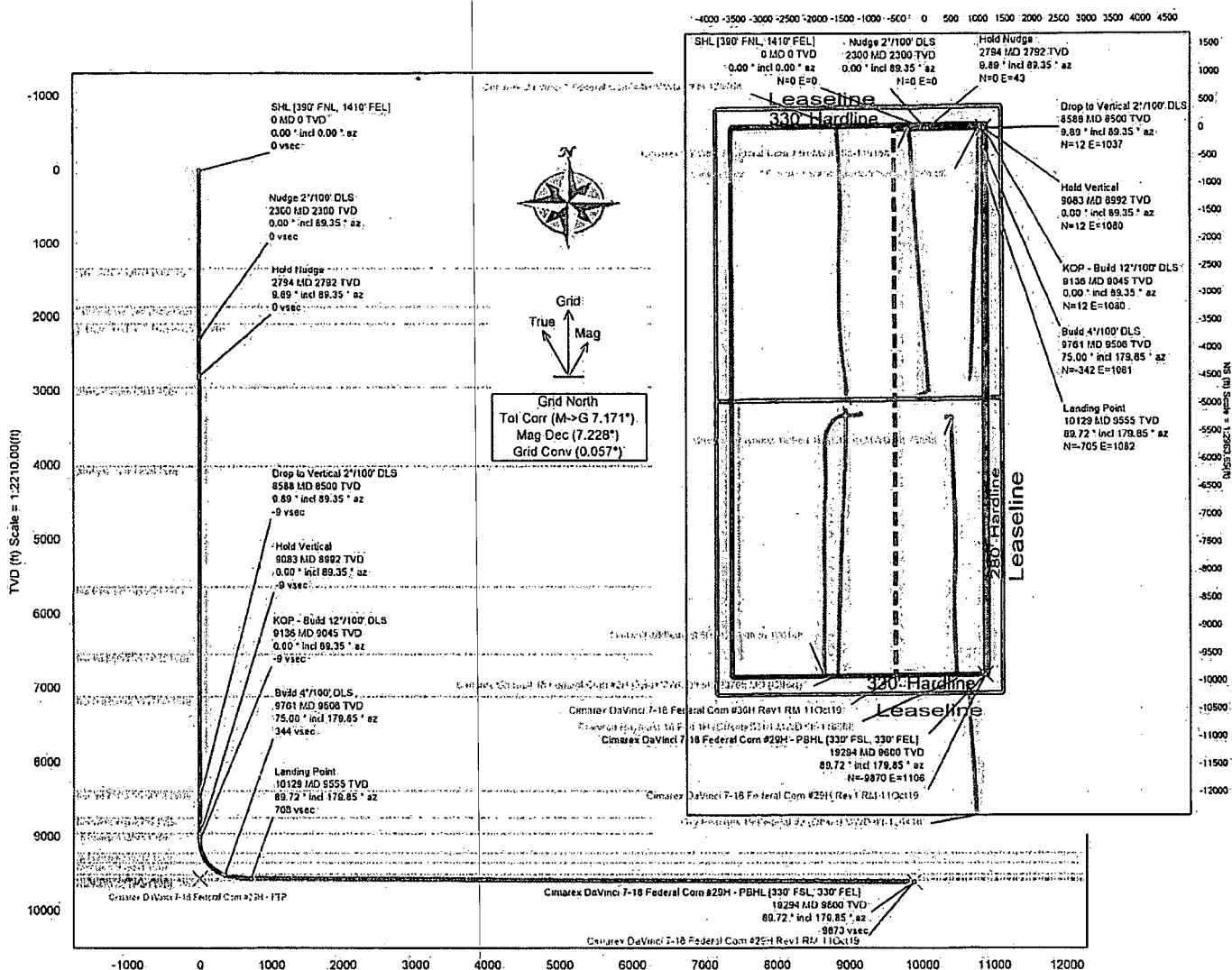
Survey Type: Def Plan

Survey Error Model: ISCWSA Rev 0 *** 3-D 95.000% Confidence 2.7955 sigma

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 ° ' ")
Survey Program:												
Description	Part	MD From (ft)	MD To (ft)	EOU Freq (ft)	Hole Size (in)	Casing Diameter (in)	Expected Max Inclination (deg)	Survey Tool Type	Borehole / Survey			
	1	0.000	26.000	1/100.000	17.500	13.375		NAL_MWD_IFR1+MS-Depth Only	Original Borehole / Cimarex DaVinci 7-18 Federal Com #29H Rev1 RM 11Oct19			
	1	26.000	19294.036	1/100.000	17.500	13.375		NAL_MWD_IFR1+MS	Original Borehole / Cimarex DaVinci 7-18 Federal Com #29H			

Borehole:	Well:	Field:	Structure:
Original Borehole:	Cimarex DaVinci 7-18 Federal Com #29H	NM Eddy County (NAD 83)	Cimarex DaVinci 7-18 Federal Com #29H

Gravity & Magnetic Parameters	Surface Location	Miscellaneous
Model: HOGM 2419 Dip: 55.785° Date: 11-Oct-2015 MagDec: 7.228° FB: 47774.418mT Gravity FB: 998.414mgs (9.81665 Based)	NAD83 New Mexico State Plane, Eastern Zone, US Feet Lat: N 32 S 2.81 Merithing: 141046.670US Grid Conv: 0.0574° Lon: W 104 S 31.04 Easting: 674706.441US Scale Fact: 0.99991037	Cimarex DaVinci 7-18 Federal Com #29H Plan: Cimarex DaVinci 7-18 Federal Com #29H Rev1 RM 11Oct15 TVD Ref: RMB(3334.811 above 1555) EV (N) Scale = 1:2843.65(N)



Critical Points							
Critical Point	MD	INCL	AZIM	TVD	VSEC	N(+)/S(-)	E(+)/W(-)
SHL (390° FNL, 1410° FEL)	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Salado (Top Salt)	1354.00	0.00	89.35	1334.00	0.00	0.00	0.00
Castile (Base Salt)	1859.00	0.00	89.35	1859.00	0.00	0.00	0.00
Beil Canyon (Top Delaware)	2050.00	0.00	89.35	2050.00	0.00	0.00	0.00
Nudge 2'/100' DLS	2300.00	0.00	89.35	2300.00	0.00	0.00	0.00
Hold Nudge	2794.25	9.89	89.35	2791.80	-0.37	0.48	-42.53
Cherry Canyon	2948.74	9.89	89.35	2944.00	-0.60	0.79	-69.05
Brushy Canyon	4028.76	9.89	89.35	4006.00	-2.23	2.80	-254.10
Top Bone Spring	5009.13	9.89	89.35	5024.00	-4.70	6.11	-536.03
Top 1st BSPG SS	6503.80	9.89	89.35	6535.00	-8.00	7.92	-694.77
Top 2nd BSPG SS	7176.51	9.89	89.35	7109.00	-6.66	9.06	-794.79
Top 3rd BSPG SS	8464.63	9.89	89.35	8378.00	-8.90	11.58	-1015.90
Drop to Vertical 2'/100' DLS	8588.47	9.89	89.35	8500.00	-0.09	11.82	-1037.16
Top Wolfcamp	8528.57	5.12	89.35	8736.00	-9.36	12.18	-1068.25
Wolfcamp A	9028.91	0.92	89.35	9046.00	-9.48	12.30	-1079.32
Hold Vertical	9082.72	0.00	89.35	8991.80	-9.48	12.31	-1079.09
KOP - Build 12'/100' DLS	9135.93	0.00	89.35	9045.01	-9.46	12.31	-1079.69
Wolfcamp A2	9306.62	20.47	179.85	9212.00	20.69	-17.85	1079.17
Wolfcamp B	9455.18	38.31	179.85	9341.00	93.35	-90.51	1079.86
Wolfcamp C	9735.57	71.05	179.85	9499.00	320.12	-317.27	1080.56
Build 4'/100' DLS	9700.93	75.00	179.85	9508.21	344.43	-311.68	1080.02
Wolfcamp C Target	10128.90	89.72	179.85	9555.00	708.13	-705.28	1081.58
Landing Point	10128.90	89.72	179.85	9555.00	708.13	-705.28	1081.58
Wolfcamp C2	15220.64	89.72	179.85	9586.00	5799.81	-5798.94	1095.00
Cimarex DaVinci 7-18 Federal Com #29H - PBHL (330° FSL, 330° FEL)	19294.04	89.72	179.85	9600.00	9873.16	-9870.27	1105.73

Cimarex DaVinci 7-18 Federal Com #29H Rev1 RM 11Oct19 Proposal

Geodetic Report

(Def Plan)



Report Date: October 11, 2019 - 11:14 AM
 Client: Cimarex
 Field: NM Eddy County (NAD 83)
 Structure / Slot: Cimarex DaVinci 7-18 Federal Com #29H / Cimarex DaVinci 7-18 Federal Com #29H
 Well: Cimarex DaVinci 7-18 Federal Com #29H
 Borehole: Original Borehole
 UWI / API#: Unknown / Unknown
 Survey Name: Cimarex DaVinci 7-18 Federal Com #29H Rev1 RM 11Oct19
 Survey Date: October 11, 2019
 Tort / AHD / DDI / ERD Ratio: 109.489 ° / 10962.374 ft / 6.382 / 1.142
 Coordinate Reference System: NAD83 New Mexico State Plane, Eastern Zone, US Feet
 Location Lat / Long: N 32° 9' 2.80649", W 104° 13' 31.83835"
 Location Grid N/E Y/X: N 418605.690 ftUS, E 574706.440 ftUS
 CRS Grid Convergence Angle: 0.0574 °
 Grid Scale Factor: 0.99991037
 Version / Patch: 2.10.782.0

Survey / DLS Computation: Minimum Curvature / Lubinski
 Vertical Section Azimuth: 179.849 ° (Grid North)
 Vertical Section Origin: 0.000 ft, 0.000 ft
 TVD Reference Datum: RKB
 TVD Reference Elevation: 3334.900 ft above MSL
 Seabed / Ground Elevation: 3308.900 ft above MSL
 Magnetic Declination: 7.228 °
 Total Gravity Field Strength: 998.4343mgn (9.80665 Based)
 Gravity Model: GARM
 Total Magnetic Field Strength: 47774.468 nT
 Magnetic Dip Angle: 59.788 °
 Declination Date: October 11, 2019
 Magnetic Declination Model: HDGM 2019
 North Reference: Grid North
 Grid Convergence Used: 0.0574 °
 Total Corr Mag North->Grid North: 7.1706 °
 Local Coord Referenced To: Structure Reference Point

Comments	MD (ft)	Incl (°)	Azim Grid (°)	TVD (ft)	VSEC (ft)	NS (ft)	EW (ft)	DLS (*/100ft)	Northing (ftUS)	Easting (ftUS)	Latitude (N/S ° ' ")	Longitude (E/W ° ' ")
SHL (390' FNL, 1410' FEL)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	N/A	418605.69	574706.44	N 32 9 2.81	W 104 13 31.84
Nudge 2"/100' DLS	2300.00	0.00	89.35	2300.00	0.00	0.00	0.00	0.00	418605.69	574706.44	N 32 9 2.81	W 104 13 31.84
Hold Nudge	2794.25	9.89	89.35	2791.80	-0.37	0.48	42.53	-2.00	418606.17	574748.96	N 32 9 2.81	W 104 13 31.34
Drop to Vertical 2"/100' DLS	8588.47	9.89	89.35	8500.00	-9.09	11.82	1037.16	0.00	418617.51	575743.51	N 32 9 2.91	W 104 13 19.77
Hold Vertical	9082.72	0.00	89.35	8991.80	-9.46	12.31	1079.69	-2.00	418617.99	575786.03	N 32 9 2.92	W 104 13 19.28
KOP - Build 12"/100' DLS	9135.93	0.00	89.35	9045.01	-9.46	12.31	1079.69	0.00	418617.99	575786.03	N 32 9 2.92	W 104 13 19.28
Build 4"/100' DLS	9760.93	75.00	179.85	9506.21	344.43	-341.58	1080.62	12.00	418264.14	575786.96	N 32 8 59.42	W 104 13 19.27
Landing Point	10128.90	89.72	179.85	9555.00	708.13	-705.28	1081.58	4.00	417900.48	575787.92	N 32 8 55.82	W 104 13 19.27
Cimarex DaVinci 7-18 Federal Com #29H - PBHL (330' FSL, 330' FEL)	19294.04	89.72	179.85	9800.00	9873.15	-9870.27	1105.73	0.00	408736.32	575812.07	N 32 7 25.13	W 104 13 19.10

Survey Type: Def Plan

Survey Error Model: ICSWSA Rev 0 *** 3-D 95.000% Confidence 2.7955 sigma

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 ° ' ")
Survey Program:												
Description	Part	MD From (ft)	MD To (ft)	EOU Freq (ft)	Hole Size (in)	Casing Diameter (in)	Expected Max Inclination (deg)	Survey Tool Type	Borehole / Survey			
	1	0.000	26.000	1/100.000	17.500	13.375		NAL_MWD_IFR1+MS-Depth Only	Original Borehole / Cimarex DaVinci 7-18 Federal Com #29H Rev1 RM 11Oct19			
	1	26.000	19294.036	1/100.000	17.500	13.375		NAL_MWD_IFR1+MS	Original Borehole / Cimarex DaVinci 7-18 Federal Com #29H			

Cimarex DaVinci 7-18 Federal Com #29H Rev1 RM 11Oct19 Proposal

Geodetic Report

(Def Plan)



Report Date: October 11, 2019 - 11:14 AM
 Client: Cimarex
 Field: NM Eddy County (NAD 83)
 Structure / Slot: Cimarex DaVinci 7-18 Federal Com #29H / Cimarex DaVinci 7-18 Federal Com #29H
 Well: Cimarex DaVinci 7-18 Federal Com #29H
 Borehole: Original Borehole
 UWI / API#: Unknown / Unknown
 Survey Name: Cimarex DaVinci 7-18 Federal Com #29H Rev1 RM 11Oct19
 Survey Date: October 11, 2019
 Tort / AHD / DDI / ERD Ratio: 109.489° / 10962.374 ft / 6.382 / 1:142
 Coordinate Reference System: NAD83 New Mexico State Plane, Eastern Zone, US Feet
 Location-Lat / Long: N 32° 9' 2.80649", W 104° 13' 31.83835"
 Location Grid N/E Y/X: N 418605.690 ftUS, E 574706.440 ftUS
 CRS Grid Convergence Angle: 0.0574°
 Grid Scale Factor: 0.99991037
 Version / Patch: 2.10.782.0

Survey / DLS Computation: Minimum Curvature / Lubinski
 Vertical Section Azimuth: 179.849° (Grid North)
 Vertical Section Origin: 0.000 ft, 0.000 ft
 TVD Reference Datum: RKB
 TVD Reference Elevation: 3334.900 ft above MSL
 Seabed / Ground Elevation: 3308.900 ft above MSL
 Magnetic Declination: 7.228°
 Total Gravity Field Strength: 998.4343mgn (9.80665 Based)
 Gravity Model: GARM
 Total Magnetic Field Strength: 47774.468 nT
 Magnetic Dip Angle: 59.788°
 Declination Date: October 11, 2019
 Magnetic Declination Model: HDGM 2019
 North Reference: Grid North
 Grid Convergence Used: 0.0574°
 Total Corr Mag North->Grid: 7.1706°
 North:
 Local Coord Referenced To: Structure Reference Point

Comments	MD (ft)	Incl (°)	Azim Grid (°)	TVD (ft)	VSEC (ft)	NS (ft)	EW (ft)	DLS (°/100ft)	Northing (ftUS)	Easting (ftUS)	Latitude (N/S ° ' ")	Longitude (E/W ° ' ")
SHL [390° FNL, 1410° FEL]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	N/A	418605.69	574706.44	N 32° 9' 2.81"	W 104° 13' 31.84"
	100.00	0.00	89.35	100.00	0.00	0.00	0.00	0.00	418605.69	574706.44	N 32° 9' 2.81"	W 104° 13' 31.84"
	200.00	0.00	89.35	200.00	0.00	0.00	0.00	0.00	418605.69	574706.44	N 32° 9' 2.81"	W 104° 13' 31.84"
	300.00	0.00	89.35	300.00	0.00	0.00	0.00	0.00	418605.69	574706.44	N 32° 9' 2.81"	W 104° 13' 31.84"
	400.00	0.00	89.35	400.00	0.00	0.00	0.00	0.00	418605.69	574706.44	N 32° 9' 2.81"	W 104° 13' 31.84"
	500.00	0.00	89.35	500.00	0.00	0.00	0.00	0.00	418605.69	574706.44	N 32° 9' 2.81"	W 104° 13' 31.84"
	600.00	0.00	89.35	600.00	0.00	0.00	0.00	0.00	418605.69	574706.44	N 32° 9' 2.81"	W 104° 13' 31.84"
	700.00	0.00	89.35	700.00	0.00	0.00	0.00	0.00	418605.69	574706.44	N 32° 9' 2.81"	W 104° 13' 31.84"
	800.00	0.00	89.35	800.00	0.00	0.00	0.00	0.00	418605.69	574706.44	N 32° 9' 2.81"	W 104° 13' 31.84"
	900.00	0.00	89.35	900.00	0.00	0.00	0.00	0.00	418605.69	574706.44	N 32° 9' 2.81"	W 104° 13' 31.84"
	1000.00	0.00	89.35	1000.00	0.00	0.00	0.00	0.00	418605.69	574706.44	N 32° 9' 2.81"	W 104° 13' 31.84"
	1100.00	0.00	89.35	1100.00	0.00	0.00	0.00	0.00	418605.69	574706.44	N 32° 9' 2.81"	W 104° 13' 31.84"
	1200.00	0.00	89.35	1200.00	0.00	0.00	0.00	0.00	418605.69	574706.44	N 32° 9' 2.81"	W 104° 13' 31.84"
	1300.00	0.00	89.35	1300.00	0.00	0.00	0.00	0.00	418605.69	574706.44	N 32° 9' 2.81"	W 104° 13' 31.84"
Safado (Top Salt)	1334.00	0.00	89.35	1334.00	0.00	0.00	0.00	0.00	418605.69	574706.44	N 32° 9' 2.81"	W 104° 13' 31.84"
	1400.00	0.00	89.35	1400.00	0.00	0.00	0.00	0.00	418605.69	574706.44	N 32° 9' 2.81"	W 104° 13' 31.84"
	1500.00	0.00	89.35	1500.00	0.00	0.00	0.00	0.00	418605.69	574706.44	N 32° 9' 2.81"	W 104° 13' 31.84"
	1600.00	0.00	89.35	1600.00	0.00	0.00	0.00	0.00	418605.69	574706.44	N 32° 9' 2.81"	W 104° 13' 31.84"
	1700.00	0.00	89.35	1700.00	0.00	0.00	0.00	0.00	418605.69	574706.44	N 32° 9' 2.81"	W 104° 13' 31.84"
	1800.00	0.00	89.35	1800.00	0.00	0.00	0.00	0.00	418605.69	574706.44	N 32° 9' 2.81"	W 104° 13' 31.84"
Castille (Base Salt)	1859.00	0.00	89.35	1859.00	0.00	0.00	0.00	0.00	418605.69	574706.44	N 32° 9' 2.81"	W 104° 13' 31.84"
	1900.00	0.00	89.35	1900.00	0.00	0.00	0.00	0.00	418605.69	574706.44	N 32° 9' 2.81"	W 104° 13' 31.84"
	2000.00	0.00	89.35	2000.00	0.00	0.00	0.00	0.00	418605.69	574706.44	N 32° 9' 2.81"	W 104° 13' 31.84"

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 ° ' ")
Bell Canyon (Top Delaware)	2090.00	0.00	89.35	2090.00	0.00	0.00	0.00	0.00	418605.69	574706.44	N 32 9 2.81	W 104 13 31.84
	2100.00	0.00	89.35	2100.00	0.00	0.00	0.00	0.00	418605.69	574706.44	N 32 9 2.81	W 104 13 31.84
	2200.00	0.00	89.35	2200.00	0.00	0.00	0.00	0.00	418605.69	574706.44	N 32 9 2.81	W 104 13 31.84
Nudge 2°/100' DLS	2300.00	0.00	89.35	2300.00	0.00	0.00	0.00	0.00	418605.69	574706.44	N 32 9 2.81	W 104 13 31.84
	2400.00	2.00	89.35	2399.98	-0.02	0.02	1.75	2.00	418605.71	574708.18	N 32 9 2.81	W 104 13 31.82
	2500.00	4.00	89.35	2499.84	-0.06	0.08	6.98	2.00	418605.77	574713.42	N 32 9 2.81	W 104 13 31.76
	2600.00	6.00	89.35	2599.45	-0.14	0.18	15.69	2.00	418605.87	574722.13	N 32 9 2.81	W 104 13 31.66
	2700.00	8.00	89.35	2698.70	-0.24	0.32	27.88	2.00	418606.01	574734.32	N 32 9 2.81	W 104 13 31.51
Hold Nudge	2794.25	9.89	89.35	2791.80	-0.37	0.48	42.53	2.00	418606.17	574748.96	N 32 9 2.81	W 104 13 31.34
	2800.00	9.89	89.35	2797.47	-0.38	0.50	43.51	0.00	418606.19	574749.95	N 32 9 2.81	W 104 13 31.33
	2900.00	9.89	89.35	2895.98	-0.53	0.69	60.68	0.00	418606.38	574767.11	N 32 9 2.81	W 104 13 31.13
	2948.74	9.89	89.35	2944.00	-0.60	0.79	69.05	0.00	418606.48	574775.48	N 32 9 2.81	W 104 13 31.04
Cherry Canyon	3000.00	9.89	89.35	2994.50	-0.68	0.89	77.85	0.00	418606.58	574784.28	N 32 9 2.81	W 104 13 30.93
	3100.00	9.89	89.35	3093.01	-0.83	1.08	95.01	0.00	418606.77	574801.44	N 32 9 2.82	W 104 13 30.73
	3200.00	9.89	89.35	3191.53	-0.98	1.28	112.18	0.00	418606.97	574818.61	N 32 9 2.82	W 104 13 30.53
	3300.00	9.89	89.35	3290.04	-1.13	1.47	129.34	0.00	418607.16	574835.77	N 32 9 2.82	W 104 13 30.33
	3400.00	9.89	89.35	3388.56	-1.28	1.67	146.51	0.00	418607.36	574852.94	N 32 9 2.82	W 104 13 30.13
	3500.00	9.89	89.35	3487.07	-1.43	1.87	163.68	0.00	418607.56	574870.10	N 32 9 2.82	W 104 13 29.93
	3600.00	9.89	89.35	3585.59	-1.58	2.06	180.84	0.00	418607.75	574887.27	N 32 9 2.83	W 104 13 29.73
	3700.00	9.89	89.35	3684.11	-1.73	2.26	198.01	0.00	418607.95	574904.43	N 32 9 2.83	W 104 13 29.54
	3800.00	9.89	89.35	3782.62	-1.89	2.45	215.17	0.00	418608.14	574921.59	N 32 9 2.83	W 104 13 29.34
	3900.00	9.89	89.35	3881.14	-2.04	2.65	232.34	0.00	418608.34	574938.76	N 32 9 2.83	W 104 13 29.14
	4000.00	9.89	89.35	3979.65	-2.19	2.84	249.51	0.00	418608.53	574955.92	N 32 9 2.83	W 104 13 28.94
	4026.75	9.89	89.35	4006.00	-2.23	2.90	254.10	0.00	418608.59	574960.51	N 32 9 2.83	W 104 13 28.88
	4100.00	9.89	89.35	4078.17	-2.34	3.04	266.67	0.00	418608.73	574973.09	N 32 9 2.83	W 104 13 28.74
	4200.00	9.89	89.35	4176.68	-2.49	3.24	283.84	0.00	418608.92	574990.25	N 32 9 2.84	W 104 13 28.54
	4300.00	9.89	89.35	4275.20	-2.64	3.43	301.00	0.00	418609.12	575007.42	N 32 9 2.84	W 104 13 28.34
	4400.00	9.89	89.35	4373.71	-2.79	3.63	318.17	0.00	418609.32	575024.58	N 32 9 2.84	W 104 13 28.14
Brushy Canyon	4500.00	9.89	89.35	4472.23	-2.94	3.82	335.34	0.00	418609.51	575041.75	N 32 9 2.84	W 104 13 27.94
	4600.00	9.89	89.35	4570.74	-3.09	4.02	352.50	0.00	418609.71	575058.91	N 32 9 2.84	W 104 13 27.74
	4700.00	9.89	89.35	4669.26	-3.24	4.21	369.67	0.00	418609.90	575076.07	N 32 9 2.84	W 104 13 27.54
	4800.00	9.89	89.35	4767.77	-3.39	4.41	386.83	0.00	418610.10	575093.24	N 32 9 2.85	W 104 13 27.34
	4900.00	9.89	89.35	4866.29	-3.54	4.60	404.00	0.00	418610.29	575110.40	N 32 9 2.85	W 104 13 27.14
	5000.00	9.89	89.35	4964.81	-3.69	4.80	421.17	0.00	418610.49	575127.57	N 32 9 2.85	W 104 13 26.94
	5100.00	9.89	89.35	5063.32	-3.84	5.00	438.33	0.00	418610.69	575144.73	N 32 9 2.85	W 104 13 26.74
	5200.00	9.89	89.35	5161.84	-3.99	5.19	455.50	0.00	418610.88	575161.90	N 32 9 2.85	W 104 13 26.54
	5300.00	9.89	89.35	5260.35	-4.14	5.39	472.66	0.00	418611.08	575179.06	N 32 9 2.86	W 104 13 26.34
	5400.00	9.89	89.35	5358.87	-4.29	5.58	489.83	0.00	418611.27	575196.23	N 32 9 2.86	W 104 13 26.14
	5500.00	9.89	89.35	5457.38	-4.44	5.78	507.00	0.00	418611.47	575213.39	N 32 9 2.86	W 104 13 25.94
	5600.00	9.89	89.35	5555.90	-4.59	5.97	524.16	0.00	418611.66	575230.55	N 32 9 2.86	W 104 13 25.74
	5669.13	9.89	89.35	5624.00	-4.70	6.11	536.03	0.00	418611.80	575242.42	N 32 9 2.86	W 104 13 25.60
	5700.00	9.89	89.35	5654.41	-4.74	6.17	541.33	0.00	418611.86	575247.72	N 32 9 2.86	W 104 13 25.54
	5800.00	9.89	89.35	5752.93	-4.89	6.37	558.49	0.00	418612.05	575264.88	N 32 9 2.86	W 104 13 25.34
	5900.00	9.89	89.35	5851.44	-5.04	6.56	575.66	0.00	418612.25	575282.05	N 32 9 2.87	W 104 13 25.14
Top Bone Spring	6000.00	9.89	89.35	5949.95	-5.19	6.76	592.83	0.00	418612.45	575299.21	N 32 9 2.87	W 104 13 24.94
	6100.00	9.89	89.35	6048.48	-5.34	6.95	609.99	0.00	418612.64	575316.38	N 32 9 2.87	W 104 13 24.74
	6200.00	9.89	89.35	6146.99	-5.50	7.15	627.16	0.00	418612.84	575333.54	N 32 9 2.87	W 104 13 24.54
	6300.00	9.89	89.35	6245.51	-5.65	7.34	644.32	0.00	418613.03	575350.71	N 32 9 2.87	W 104 13 24.34
	6400.00	9.89	89.35	6344.02	-5.80	7.54	661.49	0.00	418613.23	575367.87	N 32 9 2.87	W 104 13 24.14
	6500.00	9.89	89.35	6442.54	-5.95	7.73	678.66	0.00	418613.42	575385.03	N 32 9 2.88	W 104 13 23.94
	6593.86	9.89	89.35	6535.00	-6.09	7.92	694.77	0.00	418613.61	575401.14	N 32 9 2.88	W 104 13 23.76
	6600.00	9.89	89.35	6541.05	-6.10	7.93	695.82	0.00	418613.62	575402.20	N 32 9 2.88	W 104 13 23.74
	6700.00	9.89	89.35	6639.57	-6.25	8.13	712.99	0.00	418613.82	575419.36	N 32 9 2.88	W 104 13 23.55
	6800.00	9.89	89.35	6738.08	-6.40	8.32	730.15	0.00	418614.01	575436.53	N 32 9 2.88	W 104 13 23.35
Top 1st BSPG SS												

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 ° ' ")
Top 2nd BSPG SS	6900.00	9.89	89.35	6836.60	-6.55	8.52	747.32	0.00	418614.21	575453.69	N 32 9 2.88	W 104 13 23.15
	7000.00	9.89	89.35	6935.11	-6.70	8.71	764.49	0.00	418614.40	575470.86	N 32 9 2.89	W 104 13 22.95
	7100.00	9.89	89.35	7033.63	-6.85	8.91	781.65	0.00	418614.60	575488.02	N 32 9 2.89	W 104 13 22.75
	7176.51	9.89	89.35	7109.00	-6.96	9.06	794.79	0.00	418614.75	575501.15	N 32 9 2.89	W 104 13 22.59
	7200.00	9.89	89.35	7132.15	-7.00	9.10	798.82	0.00	418614.79	575505.19	N 32 9 2.89	W 104 13 22.55
	7300.00	9.89	89.35	7230.66	-7.15	9.30	815.98	0.00	418614.99	575522.35	N 32 9 2.89	W 104 13 22.35
	7400.00	9.89	89.35	7329.18	-7.30	9.50	833.15	0.00	418615.18	575539.51	N 32 9 2.89	W 104 13 22.15
	7500.00	9.89	89.35	7427.69	-7.45	9.69	850.32	0.00	418615.38	575556.68	N 32 9 2.89	W 104 13 21.95
	7600.00	9.89	89.35	7526.21	-7.60	9.89	867.48	0.00	418615.58	575573.84	N 32 9 2.90	W 104 13 21.75
	7700.00	9.89	89.35	7624.72	-7.75	10.08	884.65	0.00	418615.77	575591.01	N 32 9 2.90	W 104 13 21.55
	7800.00	9.89	89.35	7723.24	-7.90	10.28	901.81	0.00	418615.97	575608.17	N 32 9 2.90	W 104 13 21.35
	7900.00	9.89	89.35	7821.75	-8.05	10.47	918.98	0.00	418616.16	575625.34	N 32 9 2.90	W 104 13 21.15
	8000.00	9.89	89.35	7920.27	-8.20	10.67	936.15	0.00	418616.36	575642.50	N 32 9 2.90	W 104 13 20.95
	8100.00	9.89	89.35	8018.78	-8.35	10.87	953.31	0.00	418616.55	575659.66	N 32 9 2.90	W 104 13 20.75
	8200.00	9.89	89.35	8117.30	-8.50	11.06	970.48	0.00	418616.75	575676.83	N 32 9 2.91	W 104 13 20.55
	8300.00	9.89	89.35	8215.82	-8.65	11.26	987.64	0.00	418616.95	575693.99	N 32 9 2.91	W 104 13 20.35
Top 3rd BSPS SS	8400.00	9.89	89.35	8314.33	-8.80	11.45	1004.81	0.00	418617.14	575711.16	N 32 9 2.91	W 104 13 20.15
	8464.63	9.89	89.35	8378.00	-8.90	11.58	1015.90	0.00	418617.27	575722.25	N 32 9 2.91	W 104 13 20.02
Drop to Vertical 2°/100' DLS	8500.00	9.89	89.35	8412.85	-8.95	11.65	1021.98	0.00	418617.34	575728.32	N 32 9 2.91	W 104 13 19.95
	8588.47	9.89	89.35	8500.00	-9.09	11.82	1037.16	0.00	418617.51	575743.51	N 32 9 2.91	W 104 13 19.77
Top Wolfcamp	8600.00	9.65	89.35	8511.37	-9.10	11.84	1039.12	2.00	418617.53	575745.46	N 32 9 2.91	W 104 13 19.75
	8700.00	7.65	89.35	8610.22	-9.24	12.01	1054.17	2.00	418617.70	575760.51	N 32 9 2.91	W 104 13 19.58
	8800.00	5.65	89.35	8709.54	-9.34	12.15	1065.75	2.00	418617.84	575772.09	N 32 9 2.92	W 104 13 19.44
	8826.57	5.12	89.35	8736.00	-9.36	12.18	1068.25	2.00	418617.86	575774.59	N 32 9 2.92	W 104 13 19.41
	8900.00	3.65	89.35	8809.21	-9.41	12.24	1073.87	2.00	418617.93	575780.21	N 32 9 2.92	W 104 13 19.35
	9000.00	1.65	89.35	8909.10	-9.45	12.29	1078.50	2.00	418617.98	575784.84	N 32 9 2.92	W 104 13 19.29
Wolfcamp A Hold Vertical	9036.91	0.92	89.35	8946.00	-9.46	12.30	1079.32	2.00	418617.99	575785.66	N 32 9 2.92	W 104 13 19.28
	9082.72	0.00	89.35	8991.80	-9.46	12.31	1079.69	2.00	418617.99	575786.03	N 32 9 2.92	W 104 13 19.28
KOP - Build 12°/100' DLS	9100.00	0.00	89.35	9009.08	-9.46	12.31	1079.69	0.00	418617.99	575786.03	N 32 9 2.92	W 104 13 19.28
	9135.93	0.00	89.35	9045.01	-9.46	12.31	1079.69	0.00	418617.99	575786.03	N 32 9 2.92	W 104 13 19.28
Wolfcamp A2	9200.00	7.69	179.85	9108.89	-5.17	8.01	1079.70	12.00	418613.70	575786.04	N 32 9 2.67	W 104 13 19.28
	9300.00	19.69	179.85	9205.87	18.45	-15.61	1079.76	12.00	418590.08	575786.10	N 32 9 2.64	W 104 13 19.28
	9306.52	20.47	179.85	9212.00	20.69	-17.85	1079.77	12.00	418587.85	575786.11	N 32 9 2.62	W 104 13 19.28
	9400.00	31.69	179.85	9295.83	61.72	-58.88	1079.88	12.00	418546.82	575786.22	N 32 9 2.21	W 104 13 19.28
Wolfcamp B	9455.18	38.31	179.85	9341.00	93.35	-90.51	1079.96	12.00	418515.19	575786.30	N 32 9 1.90	W 104 13 19.28
	9500.00	43.69	179.85	9374.82	122.75	-119.90	1080.04	12.00	418485.80	575786.35	N 32 9 1.61	W 104 13 19.28
	9600.00	55.69	179.85	9439.39	198.86	-196.01	1080.24	12.00	418409.69	575786.58	N 32 9 0.86	W 104 13 19.28
	9700.00	67.69	179.85	9486.73	286.74	-283.89	1080.47	12.00	418321.82	575786.81	N 32 8 59.99	W 104 13 19.27
Wolfcamp C Build 4°/100' DLS	9735.57	71.96	179.85	9499.00	320.12	-317.27	1080.56	12.00	418288.44	575786.90	N 32 8 59.66	W 104 13 19.27
	9760.93	75.00	179.85	9506.21	344.43	-341.58	1080.62	12.00	418264.14	575786.96	N 32 8 59.42	W 104 13 19.27
	9800.00	76.56	179.85	9515.81	382.30	-379.45	1080.72	4.00	418226.27	575787.06	N 32 8 59.04	W 104 13 19.27
	9900.00	80.56	179.85	9535.63	480.29	-477.45	1080.98	4.00	418128.29	575787.32	N 32 8 58.07	W 104 13 19.27
Wolfcamp 'C' Target Landing Point	10000.00	84.56	179.85	9548.57	579.43	-576.59	1081.24	4.00	418029.16	575787.58	N 32 8 57.09	W 104 13 19.27
	10100.00	88.56	179.85	9554.57	679.23	-676.38	1081.50	4.00	417929.37	575787.85	N 32 8 56.10	W 104 13 19.27
	10128.90	89.72	179.85	9555.00	708.13	-705.28	1081.58	4.00	417900.48	575787.92	N 32 8 55.82	W 104 13 19.27
	10200.00	89.72	179.85	9555.35	779.23	-776.38	1081.77	0.00	417829.38	575788.11	N 32 8 55.11	W 104 13 19.27
	10300.00	89.72	179.85	9555.84	879.23	-876.38	1082.03	0.00	417729.39	575788.37	N 32 8 54.12	W 104 13 19.26
	10400.00	89.72	179.85	9556.33	979.23	-976.38	1082.30	0.00	417629.40	575788.64	N 32 8 53.13	W 104 13 19.26
	10500.00	89.72	179.85	9556.82	1079.22	-1076.38	1082.55	0.00	417529.41	575788.90	N 32 8 52.14	W 104 13 19.26
	10600.00	89.72	179.85	9557.31	1179.22	-1176.37	1082.82	0.00	417429.42	575789.16	N 32 8 51.16	W 104 13 19.26
	10700.00	89.72	179.85	9557.80	1279.22	-1276.37	1083.09	0.00	417329.43	575789.43	N 32 8 50.17	W 104 13 19.26

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 ° ' ")
	10800.00	89.72	179.85	9558.30	1379.22	-1376.37	1083.35	0.00	417229.45	575789.69	N 32 8 49.18	W 104 13 19.25
	10900.00	89.72	179.85	9558.79	1479.22	-1476.37	1083.61	0.00	417129.46	575789.95	N 32 8 48.19	W 104 13 19.25
	11000.00	89.72	179.85	9559.28	1579.22	-1576.37	1083.88	0.00	417029.47	575790.22	N 32 8 47.20	W 104 13 19.25
	11100.00	89.72	179.85	9559.77	1679.22	-1676.37	1084.14	0.00	416929.48	575790.48	N 32 8 46.21	W 104 13 19.25
	11200.00	89.72	179.85	9560.26	1779.22	-1776.36	1084.40	0.00	416829.49	575790.74	N 32 8 45.22	W 104 13 19.25
	11300.00	89.72	179.85	9560.75	1879.21	-1876.36	1084.67	0.00	416729.50	575791.01	N 32 8 44.23	W 104 13 19.24
	11400.00	89.72	179.85	9561.24	1979.21	-1976.36	1084.93	0.00	416629.51	575791.27	N 32 8 43.24	W 104 13 19.24
	11500.00	89.72	179.85	9561.73	2079.21	-2076.36	1085.19	0.00	416529.52	575791.53	N 32 8 42.25	W 104 13 19.24
	11600.00	89.72	179.85	9562.22	2179.21	-2176.36	1085.46	0.00	416429.53	575791.80	N 32 8 41.26	W 104 13 19.24
	11700.00	89.72	179.85	9562.71	2279.21	-2276.36	1085.72	0.00	416329.54	575792.06	N 32 8 40.27	W 104 13 19.24
	11800.00	89.72	179.85	9563.20	2379.21	-2376.35	1085.98	0.00	416229.55	575792.32	N 32 8 39.28	W 104 13 19.24
	11900.00	89.72	179.85	9563.70	2479.21	-2476.35	1086.25	0.00	416129.56	575792.59	N 32 8 38.29	W 104 13 19.23
	12000.00	89.72	179.85	9564.19	2579.21	-2576.35	1086.51	0.00	416029.57	575792.85	N 32 8 37.30	W 104 13 19.23
	12100.00	89.72	179.85	9564.68	2679.21	-2676.35	1086.77	0.00	415929.58	575793.12	N 32 8 36.31	W 104 13 19.23
	12200.00	89.72	179.85	9565.17	2779.20	-2776.35	1087.04	0.00	415829.60	575793.38	N 32 8 35.32	W 104 13 19.23
	12300.00	89.72	179.85	9565.66	2879.20	-2876.35	1087.30	0.00	415729.61	575793.64	N 32 8 34.33	W 104 13 19.23
	12400.00	89.72	179.85	9566.15	2979.20	-2976.35	1087.57	0.00	415629.62	575793.91	N 32 8 33.34	W 104 13 19.22
	12500.00	89.72	179.85	9566.64	3079.20	-3076.34	1087.83	0.00	415529.63	575794.17	N 32 8 32.35	W 104 13 19.22
	12600.00	89.72	179.85	9567.13	3179.20	-3176.34	1088.09	0.00	415429.64	575794.43	N 32 8 31.36	W 104 13 19.22
	12700.00	89.72	179.85	9567.62	3279.20	-3276.34	1088.36	0.00	415329.65	575794.70	N 32 8 30.38	W 104 13 19.22
	12800.00	89.72	179.85	9568.11	3379.20	-3376.34	1088.62	0.00	415229.66	575794.96	N 32 8 29.39	W 104 13 19.22
	12900.00	89.72	179.85	9568.61	3479.20	-3476.34	1088.88	0.00	415129.67	575795.22	N 32 8 28.40	W 104 13 19.21
	13000.00	89.72	179.85	9569.10	3579.19	-3576.34	1089.15	0.00	415029.68	575795.49	N 32 8 27.41	W 104 13 19.21
	13100.00	89.72	179.85	9569.59	3679.19	-3676.33	1089.41	0.00	414929.69	575795.75	N 32 8 26.42	W 104 13 19.21
	13200.00	89.72	179.85	9570.08	3779.19	-3776.33	1089.67	0.00	414829.70	575796.01	N 32 8 25.43	W 104 13 19.21
	13300.00	89.72	179.85	9570.57	3879.19	-3876.33	1089.94	0.00	414729.71	575796.28	N 32 8 24.44	W 104 13 19.21
	13400.00	89.72	179.85	9571.06	3979.19	-3976.33	1090.20	0.00	414629.72	575796.54	N 32 8 23.45	W 104 13 19.21
	13500.00	89.72	179.85	9571.55	4079.19	-4076.33	1090.46	0.00	414529.73	575796.80	N 32 8 22.46	W 104 13 19.20
	13600.00	89.72	179.85	9572.04	4179.19	-4176.33	1090.73	0.00	414429.75	575797.07	N 32 8 21.47	W 104 13 19.20
	13700.00	89.72	179.85	9572.53	4279.19	-4276.33	1090.99	0.00	414329.76	575797.33	N 32 8 20.48	W 104 13 19.20
	13800.00	89.72	179.85	9573.02	4379.18	-4376.32	1091.25	0.00	414229.77	575797.59	N 32 8 19.49	W 104 13 19.20
	13900.00	89.72	179.85	9573.52	4479.18	-4476.32	1091.52	0.00	414129.78	575797.86	N 32 8 18.50	W 104 13 19.20
	14000.00	89.72	179.85	9574.01	4579.18	-4576.32	1091.78	0.00	414029.79	575798.12	N 32 8 17.51	W 104 13 19.19
	14100.00	89.72	179.85	9574.50	4679.18	-4676.32	1092.04	0.00	413929.80	575798.38	N 32 8 16.52	W 104 13 19.19
	14200.00	89.72	179.85	9574.99	4779.18	-4776.32	1092.31	0.00	413829.81	575798.65	N 32 8 15.53	W 104 13 19.19
	14300.00	89.72	179.85	9575.48	4879.18	-4876.32	1092.57	0.00	413729.82	575798.91	N 32 8 14.54	W 104 13 19.19
	14400.00	89.72	179.85	9575.97	4979.18	-4976.31	1092.84	0.00	413629.83	575799.18	N 32 8 13.55	W 104 13 19.19
	14500.00	89.72	179.85	9576.46	5079.18	-5076.31	1093.10	0.00	413529.84	575799.44	N 32 8 12.56	W 104 13 19.19
	14600.00	89.72	179.85	9576.95	5179.17	-5176.31	1093.36	0.00	413429.85	575799.70	N 32 8 11.57	W 104 13 19.18
	14700.00	89.72	179.85	9577.44	5279.17	-5276.31	1093.63	0.00	413329.86	575799.97	N 32 8 10.58	W 104 13 19.18
	14800.00	89.72	179.85	9577.93	5379.17	-5376.31	1093.89	0.00	413229.87	575800.23	N 32 8 9.60	W 104 13 19.18
	14900.00	89.72	179.85	9578.43	5479.17	-5476.31	1094.15	0.00	413129.89	575800.49	N 32 8 8.61	W 104 13 19.18
	15000.00	89.72	179.85	9578.92	5579.17	-5576.31	1094.42	0.00	413029.90	575800.76	N 32 8 7.62	W 104 13 19.18
	15100.00	89.72	179.85	9579.41	5679.17	-5676.30	1094.68	0.00	412929.91	575801.02	N 32 8 6.63	W 104 13 19.17
	15200.00	89.72	179.85	9579.90	5779.17	-5776.30	1094.94	0.00	412829.92	575801.28	N 32 8 5.64	W 104 13 19.17
Wolfcamp C2	15220.64	89.72	179.85	9580.00	5799.81	-5796.94	1095.00	0.00	412809.28	575801.34	N 32 8 5.43	W 104 13 19.17
	15300.00	89.72	179.85	9580.39	5879.17	-5876.30	1095.21	0.00	412729.93	575801.55	N 32 8 4.65	W 104 13 19.17
	15400.00	89.72	179.85	9580.88	5979.17	-5976.30	1095.47	0.00	412629.94	575801.81	N 32 8 3.66	W 104 13 19.17
	15500.00	89.72	179.85	9581.37	6079.16	-6076.30	1095.73	0.00	412529.95	575802.07	N 32 8 2.67	W 104 13 19.17
	15600.00	89.72	179.85	9581.86	6179.16	-6176.30	1096.00	0.00	412429.96	575802.34	N 32 8 1.68	W 104 13 19.16
	15700.00	89.72	179.85	9582.35	6279.16	-6276.29	1096.26	0.00	412329.97	575802.60	N 32 8 0.69	W 104 13 19.16
	15800.00	89.72	179.85	9582.84	6379.16	-6376.29	1096.52	0.00	412229.98	575802.86	N 32 7 59.70	W 104 13 19.16
	15900.00	89.72	179.85	9583.34	6479.16	-6476.29	1096.79	0.00	412129.99	575803.13	N 32 7 58.71	W 104 13 19.16
	16000.00	89.72	179.85	9583.83	6579.16	-6576.29	1097.05	0.00	412030.00	575803.39	N 32 7 57.72	W 104 13 19.16
	16100.00	89.72	179.85	9584.32	6679.16	-6676.29	1097.31	0.00	411930.01	575803.65	N 32 7 56.73	W 104 13 19.16
	16200.00	89.72	179.85	9584.81	6779.16	-6776.29	1097.58	0.00	411830.02	575803.92	N 32 7 55.74	W 104 13 19.15
	16300.00	89.72	179.85	9585.30	6879.15	-6876.29	1097.84	0.00	411730.04	575804.18	N 32 7 54.75	W 104 13 19.15
	16400.00	89.72	179.85	9585.79	6979.15	-6976.28	1098.11	0.00	411630.05	575804.44	N 32 7 53.76	W 104 13 19.15

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 ° ' ")
	16500.00	89.72	179.85	9586.28	7079.15	-7076.28	1098.37	0.00	411530.06	575804.71	N 32 7 52.77	W 104 13 19.15
	16600.00	89.72	179.85	9586.77	7179.15	-7176.28	1098.63	0.00	411430.07	575804.97	N 32 7 51.78	W 104 13 19.15
	16700.00	89.72	179.85	9587.26	7279.15	-7276.28	1098.90	0.00	411330.08	575805.24	N 32 7 50.79	W 104 13 19.14
	16800.00	89.72	179.85	9587.75	7379.15	-7376.28	1099.16	0.00	411230.09	575805.50	N 32 7 49.81	W 104 13 19.14
	16900.00	89.72	179.85	9588.25	7479.15	-7476.28	1099.42	0.00	411130.10	575805.76	N 32 7 48.82	W 104 13 19.14
	17000.00	89.72	179.85	9588.74	7579.15	-7576.27	1099.69	0.00	411030.11	575806.03	N 32 7 47.83	W 104 13 19.14
	17100.00	89.72	179.85	9589.23	7679.14	-7676.27	1099.95	0.00	410930.12	575806.29	N 32 7 46.84	W 104 13 19.14
	17200.00	89.72	179.85	9589.72	7779.14	-7776.27	1100.21	0.00	410830.13	575806.55	N 32 7 45.85	W 104 13 19.13
	17300.00	89.72	179.85	9590.21	7879.14	-7876.27	1100.48	0.00	410730.14	575806.82	N 32 7 44.86	W 104 13 19.13
	17400.00	89.72	179.85	9590.70	7979.14	-7976.27	1100.74	0.00	410630.15	575807.08	N 32 7 43.87	W 104 13 19.13
	17500.00	89.72	179.85	9591.19	8079.14	-8076.27	1101.00	0.00	410530.16	575807.34	N 32 7 42.88	W 104 13 19.13
	17600.00	89.72	179.85	9591.68	8179.14	-8176.26	1101.27	0.00	410430.17	575807.61	N 32 7 41.89	W 104 13 19.13
	17700.00	89.72	179.85	9592.17	8279.14	-8276.26	1101.53	0.00	410330.19	575807.87	N 32 7 40.90	W 104 13 19.13
	17800.00	89.72	179.85	9592.66	8379.14	-8376.26	1101.79	0.00	410230.20	575808.13	N 32 7 39.91	W 104 13 19.12
	17900.00	89.72	179.85	9593.16	8479.14	-8476.26	1102.06	0.00	410130.21	575808.40	N 32 7 38.92	W 104 13 19.12
	18000.00	89.72	179.85	9593.65	8579.13	-8576.26	1102.32	0.00	410030.22	575808.66	N 32 7 37.93	W 104 13 19.12
	18100.00	89.72	179.85	9594.14	8679.13	-8676.26	1102.58	0.00	409930.23	575808.92	N 32 7 36.94	W 104 13 19.12
	18200.00	89.72	179.85	9594.63	8779.13	-8776.26	1102.85	0.00	409830.24	575809.19	N 32 7 35.95	W 104 13 19.12
	18300.00	89.72	179.85	9595.12	8879.13	-8876.25	1103.11	0.00	409730.25	575809.45	N 32 7 34.96	W 104 13 19.11
	18400.00	89.72	179.85	9595.61	8979.13	-8976.25	1103.38	0.00	409630.26	575809.71	N 32 7 33.97	W 104 13 19.11
	18500.00	89.72	179.85	9596.10	9079.13	-9076.25	1103.64	0.00	409530.27	575809.98	N 32 7 32.98	W 104 13 19.11
	18600.00	89.72	179.85	9596.59	9179.13	-9176.25	1103.90	0.00	409430.28	575810.24	N 32 7 31.99	W 104 13 19.11
	18700.00	89.72	179.85	9597.08	9279.13	-9276.25	1104.17	0.00	409330.29	575810.50	N 32 7 31.00	W 104 13 19.11
	18800.00	89.72	179.85	9597.57	9379.12	-9376.25	1104.43	0.00	409230.30	575810.77	N 32 7 30.01	W 104 13 19.11
	18900.00	89.72	179.85	9598.07	9479.12	-9476.24	1104.69	0.00	409130.31	575811.03	N 32 7 29.03	W 104 13 19.10
	19000.00	89.72	179.85	9598.56	9579.12	-9576.24	1104.96	0.00	409030.32	575811.30	N 32 7 28.04	W 104 13 19.10
	19100.00	89.72	179.85	9599.05	9679.12	-9676.24	1105.22	0.00	408930.34	575811.56	N 32 7 27.05	W 104 13 19.10
	19200.00	89.72	179.85	9599.54	9779.12	-9776.24	1105.48	0.00	408830.35	575811.82	N 32 7 26.06	W 104 13 19.10
Cimarex DaVinci 7-18 Federal Com #29H - PBHL [330' FSL, 330' FEL]	19294.04	89.72	179.85	9600.00	9873.15	-9870.27	1105.73	0.00	408736.32	575812.07	N 32 7 25.13	W 104 13 19.10

Survey Type: Def Plan

Survey Error Model: ISCWSA Rev 0 *** 3-D 95.000% Confidence 2.7955 sigma

Survey Program:

Description	Part	MD From (ft)	MD To (ft)	EOU Freq (ft)	Hole Size (in)	Casing Diameter (in)	Expected Max Inclination (deg)	Survey Tool Type	Borehole / Survey
	1	0.000	26.000	1/100.000	17.500	13.375		NAL_MWD_IFR1+MS-Depth Only	Original Borehole / Cimarex DaVinci 7-18 Federal Com #29H Rev1 RM 11Oct19
	1	26.000	19294.036	1/100.000	17.500	13.375		NAL_MWD_IFR1+MS	Original Borehole / Cimarex DaVinci 7-18 Federal Com #29H

Cimarex DaVinci 7-18 Federal Com #29H Rev1 RM 11Oct19 Anti-Collision Summary Report

Analysis Date-24hr Time: October 11, 2019 - 11:15
 Client: Cimarex
 Field: NM Eddy County (NAD 83)
 Structure: Cimarex DaVinci 7-18 Federal Com #29H
 Slot: Cimarex DaVinci 7-18 Federal Com #29H
 Well: Cimarex DaVinci 7-18 Federal Com #29H
 Borehole: Original Borehole
 Scan MD Range: 0.00ft ~ 19294.04ft

Analysis Method: 3D Least Distance
 Reference Trajectory: Cimarex DaVinci 7-18 Federal Com #29H Rev1 RM 11Oct19 (Def Plan)
 Depth Interval: Every 10.00 Measured Depth (ft)
 Rule Set: NAL Procedure: D&M AntiCollision Standard S002
 Min Pts: All local minima indicated.
 Version / Patch: 2.10.782.0
 Database \ Project: US1153APP452.dir.slb.com\drilling-NM Eddy County 2.10

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

Offset Trajectories Summary

Offset Selection Criteria

Wellhead distance scan: Not performed!
 Selection filters: Definitive Surveys - Definitive Plans - Definitive surveys exclude definitive plans
 - All Non-Def Surveys when no Def-Survey is set in a borehole - All Non-Def Plans when no Def-Plan is set in a borehole

Offset Trajectory	Separation			Allow Dev. (ft)	Sep. Fact.	Controlling Rule	Reference Trajectory		Risk Level			Alert	Status
	Ct-Ct (ft)	MAS (ft)	EOU (ft)				MD (ft)	TVD (ft)	Alert	Minor	Major		
Results highlighted: Sep-Factor separation <= 1.50 ft													
Cimarex DaVinci 7-18 Federal Com #20H Rev1 RM 11Oct19 (Def Plan)													
	19.98	16.24	18.69	3.74	N/A	MAS = 4.95 (m)	0.00	0.00	CtCt<=15m<15.00			Enter Alert	Fail Minor
	19.97	16.24	18.69	3.74	N/A	MAS = 4.95 (m)	26.00	26.00				WRP	
	19.97	20.01	6.20	-0.04	1.50	OSF1.50	2050.00	2050.00		OSF<1.50		Enter Minor	
	19.97	20.49	5.89	-0.51	1.46	OSF1.50	2100.00	2100.00				MinPt-CtCt	
	19.99	20.56	5.86	-0.57	1.46	OSF1.50	2110.00	2110.00				MINPT-O-EOU	
	20.04	20.63	5.86	-0.59	1.45	OSF1.50	2120.00	2120.00				MinPts	
	20.01	20.98	6.40	-0.17	1.49	OSF1.50	2170.00	2170.00		OSF>1.50		Exit Minor	
	69.81	22.04	54.69	47.77	4.95	OSF1.50	2570.00	2569.60	OSF>5.00			Exit Alert	
	1427.33	54.43	1390.62	1372.90	40.25	OSF1.50	7540.00	7467.10				MinPt-O-SF	
	2441.75	307.25	2236.49	2134.50	11.96	OSF1.50	19294.04	9600.00				MinPts	

Cimarex D5.Vmci 7-18 Federal													
Com #2H Gyro+MWD Off to													
116904 MD (Def Survey)													
Fall Minor													
4846.71	32.81	4844.73	4613.90	N/A	MAS = 10.00 (m)	0.00	0.00		Surface				
4848.30	32.81	4844.27	4613.50	79354.57	MAS = 10.00 (m)	26.00	26.00		MinPt-O-SF				
4845.92	32.81	4643.80	4613.11	32658.29	MAS = 10.00 (m)	90.00	90.00		MinPts				
4646.78	32.81	4643.12	4613.97	2763.81	MAS = 10.00 (m)	380.00	380.00		MINPT-O-EQU				
4650.57	32.81	4644.01	4617.87	993.02	MAS = 10.00 (m)	1080.00	1080.00		MinPts				
468.47	144.59	369.35	321.88	4.89	OSF 1.50	7030.00	6964.67	OSF<5.00	Enter Alert				
205.41	213.72	63.40	-6.81	1.45	OSF 1.50	7340.00	7270.07	OSF<1.50	Enter Minor				
164.43	237.06	4.99	-72.98	-1.03	OSF 1.50	7450.00	7378.43		MinPts				
163.43	235.98	4.97	-72.65	1.03	OSF 1.50	7480.00	7388.29		MINPT-O-EQU				
163.13	234.16	6.05	-70.98	1.04	OSF 1.50	7470.00	7398.14		MinPt-CIC				

Offset Trajectory	Separation			Allow Dev. (ft)	Sep. Fact.	Controlling Rule	Reference Trajectory		Risk Level			Alert	Status
	Ct-Ct (ft)	MAS (ft)	EOU (ft)				MD (ft)	TVD (ft)	Alert	Minor	Major		
187.00	194.23	57.27	-6.63	1.45		OSF1.50	7560.00	7488.80		OSF>1.50		Exit Minor	
370.27	115.42	292.67	254.85	4.87		OSF1.50	7800.00	7723.24	OSF>5.00			Exit Alert	
2198.42	77.01	2148.42	2121.41	43.91		OSF1.50	10700.00	9557.80				MINPT-O-EQU	
2198.37	76.86	2146.46	2121.50	44.00		OSF1.50	10730.00	9557.95				MinPt-CtCt	
2197.77	74.82	2147.22	2122.94	45.21		OSF1.50	10950.00	9559.03				MinPt-O-ADP	
2197.74	74.79	2147.22	2122.95	45.24		OSF1.50	10960.00	9559.08				MINPT-O-EQU	
2195.97	72.70	2146.84	2123.27	46.53		OSF1.50	11470.00	9561.58				MinPt-CtCt	
2196.02	72.82	2146.81	2123.19	46.45		OSF1.50	11490.00	9561.68				MINPT-O-EQU	
2196.07	72.88	2146.82	2123.19	46.42		OSF1.50	11500.00	9561.73				MinPt-O-ADP	
2197.87	73.52	2148.00	2124.15	46.03		OSF1.50	11600.00	9562.22				MinPt-O-SF	
2205.19	74.67	2155.75	2131.52	45.49		OSF1.50	11920.00	9563.79				MinPt-O-SF	
2205.71	74.30	2155.51	2131.40	45.70		OSF1.50	12100.00	9564.68				MinPt-CtCt	
2205.72	74.43	2155.44	2131.29	45.63		OSF1.50	12120.00	9564.78				MinPt-O-SF	
2203.19	77.09	2151.13	2126.10	43.96		OSF1.50	12440.00	9566.35				MinPt-CtCt	
2204.01	79.23	2150.54	2124.79	42.76		OSF1.50	12620.00	9567.23				MINPT-O-EQU	
2204.46	79.78	2150.61	2124.68	42.46		OSF1.50	12660.00	9567.43				MinPt-O-ADP	
2211.18	91.25	2149.69	2119.93	37.12		OSF1.50	13400.00	9571.06				MINPT-O-EQU	
2211.63	91.82	2149.76	2119.81	36.89		OSF1.50	13430.00	9571.21				MinPt-O-ADP	
2319.45	103.56	2249.75	2215.89	34.22		OSF1.50	14180.00	9574.69				MinPt-O-SF	
5928.00	101.94	5859.38	5826.07	88.93		OSF1.50	19294.04	9600.00				TD	

Cimarex Da Vinci 7 Federal
Com #3H MWD 0R-11915h
(Def Survey)

Pass

4906.02	32.81	4904.04	4873.21	N/A	MAS = 10.00 (m)	0.00	0.00	Surface
4905.58	32.81	4903.54	4872.77	76351.04	MAS = 10.00 (m)	26.00	26.00	MinPt-O-SF
1127.58	248.46	961.28	879.12	6.85	OSF1.50	7270.00	7201.11	MinPt-CtCt
1127.83	249.06	961.13	878.77	6.84	OSF1.50	7290.00	7220.81	MINPT-O-EQU
1128.09	249.33	961.21	878.76	6.83	OSF1.50	7300.00	7230.66	MinPt-O-ADP
1131.50	250.64	963.75	880.86	6.81	OSF1.50	7360.00	7289.77	MinPt-O-SF
2534.35	125.06	2450.31	2409.28	30.86	OSF1.50	10380.00	9556.23	MinPt-O-ADP
2529.82	119.92	2449.21	2409.90	32.15	OSF1.50	10570.00	9557.17	MINPT-O-EQU
2527.20	113.73	2450.72	2413.47	33.90	OSF1.50	10810.00	9558.34	MinPt-CtCt
2527.32	106.77	2455.48	2420.55	36.15	OSF1.50	11050.00	9559.52	MinPt-CtCt
2500.03	86.67	2441.60	2413.37	44.25	OSF1.50	11920.00	9583.79	MinPt-O-ADP
2498.76	85.30	2441.23	2413.45	44.95	OSF1.50	12000.00	9564.19	MinPts
2490.80	82.12	2435.39	2408.66	46.58	OSF1.50	12290.00	9565.61	MinPts
2485.11	80.49	2430.79	2404.61	47.44	OSF1.50	12450.00	9566.40	MinPt-O-SF
2480.61	80.12	2426.53	2400.48	47.58	OSF1.50	12660.00	9567.43	MinPt-O-ADP
2470.49	80.38	2418.25	2390.12	47.23	OSF1.50	12930.00	9568.75	MinPt-O-SF
2446.76	88.19	2387.31	2358.57	42.54	OSF1.50	13640.00	9572.24	MinPt-CtCt
2446.92	88.79	2387.07	2358.13	42.24	OSF1.50	13680.00	9572.44	MINPT-O-EQU
2447.15	89.10	2387.10	2358.06	42.10	OSF1.50	13700.00	9572.53	MinPt-O-ADP
2549.09	98.76	2482.59	2450.33	39.48	OSF1.50	14460.00	9576.27	MinPt-O-SF
5830.61	98.47	5764.31	5732.15	90.61	OSF1.50	19294.04	9600.00	TD

Oxy Peaches 19 Federal #2
(Offset) MWD 0R-12641R (Def Survey)

Pass

10145.94	32.81	10144.85	10113.13	N/A	MAS = 10.00 (m)	0.00	0.00	Surface
10145.54	32.81	10144.19	10112.73	160898.85	MAS = 10.00 (m)	26.00	26.00	MinPt-O-SF
10143.13	32.81	10138.63	10110.32	3154.22	MAS = 10.00 (m)	770.00	770.00	MinPts
10143.34	32.81	10138.43	10110.53	2797.96	MAS = 10.00 (m)	870.00	870.00	MINPT-O-EQU
10142.54	32.81	10135.43	10109.73	1740.35	MAS = 10.00 (m)	1370.00	1370.00	MinPts
10143.03	32.81	10135.05	10110.22	1516.05	MAS = 10.00 (m)	1560.00	1560.00	MINPT-O-EQU
10142.91	32.81	10132.99	10110.10	1174.18	MAS = 10.00 (m)	1990.00	1990.00	MinPts

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		
10137.55	32.81	10122.83	10104.74	754.86		MAS = 10.00 (m)	4040.00	4019.05				MinPts	
10136.60	32.81	10121.15	10103.79	716.05		MAS = 10.00 (m)	4250.00	4225.94				MinPts	
10136.68	32.81	10121.07	10103.87	707.39		MAS = 10.00 (m)	4300.00	4275.20				MINPT-O-EQU	
10224.23	34.01	10201.13	10190.22	468.57		OSF1.50	6090.00	6038.62				MinPt-CtCt	
10224.46	34.74	10200.87	10189.72	458.34		OSF1.50	6200.00	6146.99				MINPT-O-EQU	
10224.74	35.08	10200.99	10189.66	453.82		OSF1.50	6250.00	6196.25				MinPt-O-ADP	
10228.16	37.31	10202.85	10190.84	425.83		OSF1.50	6570.00	6511.50				MinPt-O-ADP	
10230.05	39.17	10203.51	10190.88	404.97		OSF1.50	6840.00	6777.49				MinPt-O-ADP	
10233.34	41.09	10205.51	10192.24	385.57		OSF1.50	7110.00	7043.48				MinPt-CtCt	
10233.78	42.38	10205.11	10191.42	373.67		OSF1.50	7290.00	7220.81				MINPT-O-EQU	
10234.01	42.64	10205.16	10191.37	371.16		OSF1.50	7330.00	7260.22				MinPt-O-ADP	
10312.38	51.18	10277.83	10261.19	309.97		OSF1.50	8500.00	8511.37				MinPt-O-SF	
10388.35	48.69	10355.46	10339.66	328.68		OSF1.50	9135.93	9045.01				MinPt-O-SF	
1851.72	202.45	1716.04	1649.28	13.85		OSF1.50	19294.04	9600.00				MinPts	

Chevron/Hayhurst 18 Fed 1H
(Offset) MWD OR-75000 (Def Survey)

Pass

5259.20	32.81	5257.91	5228.39	N/A		MAS = 10.00 (m)	0.00	0.00				Surface	
5258.76	32.81	5257.41	5225.95	81310.70		MAS = 10.00 (m)	26.00	26.00				MinPt-O-SF	
5258.23	32.81	5256.78	5225.42	31973.18		MAS = 10.00 (m)	100.00	100.00				MinPts	
5258.47	32.81	5256.56	5225.66	8490.19		MAS = 10.00 (m)	200.00	200.00				MINPT-O-EQU	
5236.57	32.81	5226.68	5203.76	609.42		MAS = 10.00 (m)	1890.00	1890.00				MinPts	
5237.03	32.81	5226.27	5204.23	552.56		MAS = 10.00 (m)	2150.00	2150.00				MINPT-O-EQU	
5228.91	32.81	5210.05	5196.10	297.63		MAS = 10.00 (m)	5030.00	4994.36				MinPts	
5229.32	32.81	5209.46	5196.52	281.40		MAS = 10.00 (m)	5280.00	5240.65				MINPT-O-EQU	
5238.01	34.73	5214.42	5203.28	234.86		OSF1.50	6090.00	6038.62				MinPt-O-ADP	
5370.91	51.19	5336.38	5319.73	161.41		OSF1.50	8588.47	8500.00				MinPt-O-SF	
2073.45	111.54	1998.66	1961.91	28.19		OSF1.50	14670.00	9577.30				MinPt-CtCt	
2073.59	111.87	1998.58	1961.72	28.11		OSF1.50	14690.00	9577.39				MINPT-O-EQU	
2073.73	112.03	1998.62	1961.70	28.07		OSF1.50	14700.00	9577.44				MinPt-O-ADP	
2103.53	116.07	2025.72	1987.46	27.47		OSF1.50	15020.00	9579.01				MinPt-O-SF	
5071.74	90.67	5010.86	4981.06	85.09		OSF1.50	19294.04	9600.00				TD	

Chevron/Hayhurst 18 Fed 1H
(Offset) STD1 MWD OR-118000
(Def Survey)

Pass

5259.20	32.81	5257.91	5226.39	N/A		MAS = 10.00 (m)	0.00	0.00				Surface	
5258.76	32.81	5257.41	5225.95	81310.70		MAS = 10.00 (m)	26.00	26.00				MinPt-O-SF	
5258.23	32.81	5256.78	5225.42	31973.18		MAS = 10.00 (m)	100.00	100.00				MinPts	
5258.47	32.81	5256.56	5225.66	8490.19		MAS = 10.00 (m)	200.00	200.00				MINPT-O-EQU	
5236.57	32.81	5226.68	5203.76	609.42		MAS = 10.00 (m)	1890.00	1890.00				MinPts	
5237.03	32.81	5226.27	5204.23	552.56		MAS = 10.00 (m)	2150.00	2150.00				MINPT-O-EQU	
5228.91	32.81	5210.05	5196.10	297.63		MAS = 10.00 (m)	5030.00	4994.36				MinPts	
5229.32	32.81	5209.46	5196.52	281.40		MAS = 10.00 (m)	5280.00	5240.65				MINPT-O-EQU	
5238.01	34.73	5214.42	5203.28	234.86		OSF1.50	6090.00	6038.62				MinPt-O-ADP	
5496.81	49.81	5463.17	5447.00	169.90		OSF1.50	8588.47	8500.00				MinPt-O-SF	
2233.03	126.37	2148.35	2106.66	26.76		OSF1.50	15290.00	9580.34				MinPt-CtCt	
2233.70	128.08	2147.88	2105.61	26.41		OSF1.50	15370.00	9580.73				MINPT-O-EQU	
2234.63	129.18	2148.08	2105.49	26.19		OSF1.50	15420.00	9580.98				MinPt-O-ADP	
2234.93	134.63	2144.75	2100.31	25.13		OSF1.50	15620.00	9581.96				MinPt-CtCt	
2233.83	142.15	2138.64	2091.68	23.77		OSF1.50	15910.00	9583.38				MinPt-CtCt	
2227.83	154.29	2124.54	2073.54	21.83		OSF1.50	16360.00	9585.59				MinPt-CtCt	
2227.16	163.93	2117.44	2063.23	20.53		OSF1.50	16710.00	9587.31				MinPt-CtCt	
2228.16	169.60	2114.67	2058.57	19.85		OSF1.50	16930.00	9588.39				MINPT-O-EQU	
2228.93	170.53	2114.81	2058.40	19.74		OSF1.50	16970.00	9588.59				MinPt-O-ADP	

Offset Trajectory	Separation			Allow Dev. (ft)	Sep. Fact	Controlling Rule	Reference Trajectory		Risk Level			Alert	Status
	Ct-Ct (ft)	MAS (ft)	EOU (ft)				MD (ft)	TVD (ft)	Alert	Minor	Major		
2226.86	188.78	2100.58	2038.08	17.81		OSF1.50	17590.00	9591.63				MinPt-CtCt	
2227.51	190.91	2099.81	2036.60	17.61		OSF1.50	17680.00	9592.08				MINPT-O-EQU	
2229.21	192.88	2100.21	2036.35	17.44		OSF1.50	17760.00	9592.47				MinPt-O-ADP	
2234.07	199.27	2100.80	2034.80	16.92		OSF1.50	17970.00	9593.50				MINPT-O-EQU	
2236.97	208.39	2097.61	2028.56	16.19		OSF1.50	18260.00	9594.92				MinPt-CtCt	
2238.15	211.63	2096.63	2028.52	15.95		OSF1.50	18390.00	9595.56				MINPT-O-EQU	
2239.64	213.43	2098.93	2028.22	15.83		OSF1.50	18460.00	9595.90				MinPt-O-ADP	
2238.56	225.56	2087.78	2013.00	14.96		OSF1.50	18840.00	9597.77				MinPt-CtCt	
2239.11	227.40	2087.06	2011.70	14.85		OSF1.50	18920.00	9598.16				MINPT-O-EQU	
2241.70	236.20	2083.81	2005.51	14.31		OSF1.50	19220.00	9599.64				MINPT-O-EQU	
2242.69	237.38	2084.00	2005.31	14.24		OSF1.50	19270.00	9599.88				MinPt-O-ADP	
2243.30	237.94	2084.25	2005.36	14.21		OSF1.50	19294.04	9600.00				MinPt-O-SF	

Cimarex Da Vinci 7 Federal
Com #4H MWD 0H to 12076H
(Def Survey)

Pass

5172.10	32.81	5170.12	5139.29	N/A		MAS = 10.00 (m)	0.00	0.00				Surface	
5171.57	32.81	5169.51	5138.76	63391.51		MAS = 10.00 (m)	26.00	26.00				MinPt-O-SF	
5154.09	32.81	5143.48	5121.28	597.02		MAS = 10.00 (m)	1930.00	1930.00				MinPts	
5154.22	32.81	5143.35	5121.41	579.82		MAS = 10.00 (m)	1990.00	1990.00				MINPT-O-EQU	
2429.49	248.57	2263.11	2180.91	14.77		OSF1.50	6980.00	6915.41				MinPt-CtCt	
2429.60	248.86	2263.04	2180.74	14.75		OSF1.50	7000.00	6935.11				MINPT-O-EQU	
2429.72	248.99	2263.06	2180.72	14.74		OSF1.50	7010.00	6944.97				MinPt-O-ADP	
2437.18	250.70	2269.39	2186.48	14.69		OSF1.50	7170.00	7102.59				MinPt-O-SF	
3443.87	166.98	3331.89	3278.89	31.29		OSF1.50	10380.00	9556.23				MinPts	
3435.95	158.77	3329.45	3277.19	32.85		OSF1.50	10620.00	9557.41				MinPt-O-ADP	
3434.89	157.48	3329.24	3277.41	33.11		OSF1.50	10680.00	9557.71				MINPT-O-EQU	
3433.36	150.98	3332.05	3282.38	34.54		OSF1.50	10900.00	9558.79				MinPt-CtCt	
3436.39	135.14	3345.63	3301.24	38.69		OSF1.50	11360.00	9561.04				MinPt-CtCt	
3453.49	113.29	3377.31	3340.21	46.51		OSF1.50	12010.00	9564.24				MinPt-O-ADP	
3453.22	112.95	3377.26	3340.27	46.65		OSF1.50	12040.00	9564.38				MINPT-O-EQU	
3453.06	112.50	3377.41	3340.57	46.84		OSF1.50	12080.00	9564.58				MinPt-CtCt	
3462.54	99.97	3395.23	3362.57	52.97		OSF1.50	12630.00	9567.28				MinPt-CtCt	
3460.36	95.67	3395.92	3364.69	55.37		OSF1.50	12830.00	9568.26				MinPt-O-ADP	
3459.89	95.16	3395.78	3364.73	55.66		OSF1.50	12880.00	9568.51				MINPT-O-EQU	
3453.80	92.26	3391.64	3361.55	57.35		OSF1.50	13060.00	9569.39				MinPts	
3448.44	89.00	3388.44	3359.44	59.40		OSF1.50	13130.00	9569.74				MinPts	
3378.68	94.60	3314.95	3284.08	54.69		OSF1.50	13940.00	9573.71				MinPt-CtCt	
3378.80	94.97	3314.83	3283.83	54.47		OSF1.50	13970.00	9573.86				MINPT-O-EQU	
3379.00	95.22	3314.86	3283.78	54.33		OSF1.50	13990.00	9573.96				MinPt-O-ADP	
3527.49	106.32	3455.95	3421.17	50.68		OSF1.50	15040.00	9579.11				MinPt-O-SF	
6113.26	109.59	6039.54	6003.67	85.18		OSF1.50	18294.04	9600.00				TD	

Cimarex Gadwell 18 Federal
Com #2H Gyro-MWD 0H to
12375H MD (Offset) (Def
Survey)

Pass

5304.50	32.81	5302.52	5271.70	N/A		MAS = 10.00 (m)	0.00	0.00				Surface	
5303.98	32.81	5301.92	5271.17	65969.71		MAS = 10.00 (m)	26.00	26.00				MinPt-O-SF	
5303.15	32.81	5300.92	5270.34	20929.36		MAS = 10.00 (m)	120.00	120.00				MinPts	
5303.54	32.81	5300.53	5270.73	5174.06		MAS = 10.00 (m)	280.00	280.00				MINPT-O-EQU	
5306.31	32.81	5299.72	5273.50	1150.72		MAS = 10.00 (m)	1080.00	1080.00				MinPts	
5282.90	32.81	5270.64	5250.10	513.51		MAS = 10.00 (m)	2370.00	2369.99				MinPts	
5282.94	32.81	5270.61	5250.13	510.80		MAS = 10.00 (m)	2390.00	2389.99				MINPT-O-EQU	
5785.25	52.98	5749.27	5732.27	170.10		OSF1.50	8586.47	8500.00				MinPt-O-SF	
3059.78	119.52	2979.45	2940.27	39.02		OSF1.50	15000.00	9578.92				MinPt-CtCt	

Offset Trajectory	Separation			Allow Dev. (ft)	Sep. Fact.	Controlling Rule	Reference Trajectory		Risk Level			Alert	Status
	Ct-Ct (ft)	MAS (ft)	EOU (ft)				MD (ft)	TVD (ft)	Alert	Minor	Major		
3061.07	122.56	2978.70	2938.51	38.05		OSF1.50	15130.00	9579.55				MINPT-O-EQU	
3061.44	122.96	2978.80	2938.48	37.93		OSF1.50	15150.00	9579.65				MinPt-O-ADP	
3077.41	134.84	2986.86	2942.57	34.72		OSF1.50	15550.00	9581.62				MinPts	
3088.89	143.82	2992.35	2945.07	32.64		OSF1.50	15810.00	9582.89				MinPt-O-ADP	
3098.22	151.04	2996.87	2947.16	31.16		OSF1.50	16010.00	9583.88				MinPt-O-ADP	
3111.67	162.62	3002.59	2949.04	29.04		OSF1.50	16310.00	9585.35				MINPT-O-EQU	
3114.05	165.53	3003.04	2948.52	28.54		OSF1.50	16370.00	9585.64				MinPt-O-ADP	
3129.09	188.85	3002.53	2940.24	25.10		OSF1.50	16900.00	9588.25				MINPT-O-EQU	
3136.46	199.79	3002.81	2936.67	23.77		OSF1.50	17150.00	9589.47				MINPT-O-EQU	
3137.24	200.64	3002.82	2936.61	23.67		OSF1.50	17180.00	9589.62				MinPt-O-ADP	
3155.08	217.20	3009.62	2937.88	21.98		OSF1.50	17580.00	9591.58				MINPT-O-EQU	
3161.41	233.09	3005.36	2928.32	20.51		OSF1.50	17890.00	9593.11				MINPT-O-EQU	
3162.12	234.00	3005.46	2928.12	20.43		OSF1.50	17920.00	9593.25				MinPt-O-ADP	
3190.83	279.46	3003.87	2911.38	17.24		OSF1.50	18890.00	9598.02				MINPT-O-EQU	
3194.23	283.51	3004.56	2910.72	17.01		OSF1.50	19010.00	9598.61				MinPt-O-ADP	
3204.96	298.63	3006.54	2908.33	16.31		OSF1.50	19294.04	9600.00				MinPts	

Gadwall 18 Federal SH-MWD
Oh to 12016ft (Def Survey)

P 253

5308.91	32.81	5306.93	5276.10	N/A		MAS = 10.00 (m)	0.00	0.00				Surface	
5308.45	32.81	5306.40	5275.64	77272.80		MAS = 10.00 (m)	26.00	26.00				MinPt-O-SF	
5307.84	32.81	5305.66	5275.04	25404.87		MAS = 10.00 (m)	110.00	110.00				MinPts	
5289.68	32.81	5277.39	5256.87	513.20		MAS = 10.00 (m)	2360.00	2360.00				MinPts	
5289.70	32.81	5277.36	5256.89	510.94		MAS = 10.00 (m)	2380.00	2379.99				MINPT-O-EQU	
5916.47	49.87	5882.58	5866.60	185.24		OSF1.50	8588.47	8500.00				MinPt-O-SF	
3575.75	105.40	3504.82	3470.34	51.83		OSF1.50	14600.00	9576.95				MinPt-CtCt	
3575.90	105.85	3504.67	3470.04	51.61		OSF1.50	14630.00	9577.10				MINPT-O-EQU	
3576.14	106.15	3504.71	3489.99	51.47		OSF1.50	14650.00	9577.20				MinPt-O-ADP	
3700.54	116.48	3622.23	3584.06	48.43		OSF1.50	15550.00	9581.62				MinPt-O-SF	
3741.62	144.66	3644.52	3596.98	39.32		OSF1.50	15850.00	9583.09				MINPT-O-EQU	
3743.88	147.48	3645.00	3586.50	38.58		OSF1.50	15950.00	9583.58				MinPt-O-ADP	
3746.85	151.48	3645.20	3595.37	37.57		OSF1.50	16050.00	9584.07				MINPT-O-EQU	
3749.36	154.26	3645.86	3595.10	36.91		OSF1.50	16140.00	9584.51				MinPt-O-ADP	
3752.90	158.61	3646.50	3594.29	35.92		OSF1.50	16250.00	9585.05				MINPT-O-EQU	
3757.27	164.03	3647.26	3593.24	34.76		OSF1.50	16400.00	9585.79				MinPt-O-ADP	
3761.84	181.18	3640.40	3580.67	31.47		OSF1.50	16760.00	9587.56				MinPt-CtCt	
3726.39	230.55	3572.03	3495.84	24.44		OSF1.50	17920.00	9593.25				MinPt-CtCt	
3700.50	320.28	3486.32	3380.21	17.43		OSF1.50	19294.04	9600.00				MinPts	

Cimarex DaVinci 7-18 Federal Com #29H Rev1 RM 11Oct19 Anti-Collision Summary Report

Analysis Date-24hr Time: November 21, 2019 - 14:52

Client: Cimarex

Field: NM Eddy County (NAD 83)

Structure: Cimarex DaVinci 7-18 Federal Com #29H

Slot: Cimarex DaVinci 7-18 Federal Com #29H

Well: Cimarex DaVinci 7-18 Federal Com #29H

Borehole: Original Borehole

Scan MD Range: 0.00ft - 19294.04ft

Analysis Method:

Reference Trajectory:

Depth Interval:

Rule Set:

Min Pts:

Version / Patch:

Database / Project:

3D Least Distance

Cimarex DaVinci 7-18 Federal Com #29H Rev1 RM 11Oct19 (Def Plan)

Every 10.00 Measured Depth (ft)

NAL Procedure: D&M AntiCollision Standard S002

All local minima indicated.

2.10.782.0

US1153APP452.dir.slb.com\drilling-NM Eddy County 2.10

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

Offset Trajectories Summary

Offset Selection Criteria

Wellhead distance scan:

Selection filters:

Not performed!

Definitive Surveys - Definitive Plans - Definitive surveys exclude definitive plans

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

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

Results highlighted: Sep-Factor separation <= 1.50 ft

Cimarex DaVinci 7-18 Federal Com #29H Rev1 RM 11Oct19 (Def Plan)													
10.08	16.24	18.69	3.74	N/A	MAS = 4.95 (m)	0.00	0.00	CtCt<=15m<15.00				Enter Alert	
19.97	16.24	18.69	3.74	N/A	MAS = 4.95 (m)	26.00	26.00					WRP	
19.97	20.01	5.20	-0.04	1.50	OSF1.50	2050.00	2050.00		OSF<1.50			Enter Minor	
19.97	20.49	5.89	-0.51	1.46	OSF1.50	2100.00	2100.00					MinPt-CtCt	
19.97	20.56	5.86	-0.57	1.46	OSF1.50	2110.00	2110.00					MINPT-O-EOU	
20.04	20.63	5.86	-0.59	1.45	OSF1.50	2120.00	2120.00					MinPts	
20.01	20.98	6.40	-0.17	1.49	OSF1.50	2170.00	2170.00		OSF>1.50			Exit Minor	
69.82	22.04	54.70	47.78	4.95	OSF1.50	2570.00	2569.60	OSF>5.00				Exit Alert	
1427.62	54.43	1390.90	1373.19	40.26	OSF1.50	7540.00	7467.10					MinPt-O-SF	
2439.44	307.28	2234.16	2132.16	11.95	OSF1.50	19294.04	9600.00					MinPts	

Cimarex DaVinci 7-18 Federal Com #29H Gyro-MWD OR ID 11690H MD (Def Survey)													
4646.71	32.81	4644.73	4613.90	N/A	MAS = 10.00 (m)	0.00	0.00					Surface	
4646.30	32.81	4644.27	4613.50	79354.57	MAS = 10.00 (m)	26.00	26.00					MinPt-O-SF	
4645.92	32.81	4643.80	4613.11	32858.29	MAS = 10.00 (m)	90.00	90.00					MinPts	
4646.78	32.81	4643.12	4613.97	2763.81	MAS = 10.00 (m)	380.00	380.00					MINPT-O-EOU	
4650.67	32.81	4644.01	4617.87	993.02	MAS = 10.00 (m)	1080.00	1080.00					MinPts	
466.47	144.59	369.35	321.88	4.89	OSF1.50	7030.00	6984.67	OSF<5.00				Enter Alert	
203.01	213.72	63.40	-6.81	1.45	OSF1.50	7340.00	7270.67		OSF<1.50			Enter Minor	
164.08	237.06	4.99	-72.98	1.03	OSF1.50	7450.00	7378.43					MinPts	

Offset Trajectory	Separation			Allow Dev. (ft)	Sep. Fact.	Controlling Rule	Reference Trajectory		Risk Level			Alert	Status
	Ct-Ct (ft)	MAS (ft)	EOU (ft)				MD (ft)	TVD (ft)	Alert	Minor	Major		
163.53	235.98	4.97	-72.65	1.03		OSF1.50	7460.00	7388.29				MINPT-O-EQU	
163.19	234.16	6.05	-70.99	1.04		OSF1.50	7470.00	7398.14				MinPt-CtCt	
187.50	194.23	57.27	-6.63	1.45		OSF1.50	7560.00	7488.80		OSF>1.50		Exit Minor	
370.27	115.42	292.67	254.85	4.87		OSF1.50	7800.00	7723.24	OSF>5.00			Exit Alert	
2198.42	77.01	2146.42	2121.41	43.91		OSF1.50	10700.00	9557.80				MINPT-O-EQU	
2198.37	76.86	2146.46	2121.50	44.00		OSF1.50	10730.00	9557.95				MinPt-CtCt	
2197.77	74.82	2147.22	2122.94	45.21		OSF1.50	10950.00	9559.03				MinPt-O-ADP	
2197.74	74.79	2147.22	2122.95	45.24		OSF1.50	10960.00	9559.08				MINPT-O-EQU	
2195.97	72.70	2146.84	2123.27	46.53		OSF1.50	11470.00	9561.58				MinPt-CtCt	
2196.02	72.82	2149.81	2123.19	46.45		OSF1.50	11490.00	9561.68				MINPT-O-EQU	
2196.07	72.88	2146.82	2123.19	46.42		OSF1.50	11500.00	9561.73				MinPt-O-ADP	
2197.67	73.52	2148.00	2124.19	46.03		OSF1.50	11600.00	9562.22				MinPt-O-SF	
2206.19	74.67	2155.75	2131.52	45.49		OSF1.50	11920.00	9563.79				MinPt-O-SF	
2205.71	74.30	2155.51	2131.40	45.70		OSF1.50	12100.00	9564.68				MinPt-CtCt	
2205.72	74.43	2155.44	2131.26	45.63		OSF1.50	12120.00	9564.78				MinPt-O-SF	
2203.19	77.09	2151.13	2128.10	43.96		OSF1.50	12440.00	9566.35				MinPt-CtCt	
2204.01	79.23	2150.54	2124.79	42.76		OSF1.50	12620.00	9567.23				MINPT-O-EQU	
2204.46	79.78	2150.61	2124.68	42.46		OSF1.50	12660.00	9567.43				MinPt-O-ADP	
2211.18	91.25	2149.69	2119.93	37.12		OSF1.50	13400.00	9571.06				MINPT-O-EQU	
2211.63	91.82	2149.76	2119.81	36.89		OSF1.50	13430.00	9571.21				MinPt-O-ADP	
2319.45	103.56	2249.75	2215.89	34.22		OSF1.50	14180.00	9574.89				MinPt-O-SF	
5928.00	101.94	5859.38	5826.07	68.93		OSF1.50	19294.04	9600.00				TD	

Cimarex DaVinci Federal
Com #39H MWD 08-11916H
(Def Survey)

4906.02	32.81	4904.04	4873.21	N/A	MAS = 10.00 (m)	0.00	0.00	Surface
4905.58	32.81	4903.54	4872.77	76351.04	MAS = 10.00 (m)	26.00	26.00	MinPt-O-SF
1127.58	248.46	961.28	879.12	6.85	OSF1.50	7270.00	7201.11	MinPt-CtCt
1127.83	249.06	961.13	878.77	6.84	OSF1.50	7290.00	7220.81	MINPT-O-EQU
1128.09	249.33	961.21	878.76	6.83	OSF1.50	7300.00	7230.66	MinPt-O-ADP
1131.50	250.64	963.75	880.85	6.81	OSF1.50	7360.00	7289.77	MinPt-O-SF
2534.35	125.06	2450.31	2409.26	30.86	OSF1.50	10380.00	9556.23	MinPt-O-ADP
2529.82	119.92	2449.21	2409.90	32.15	OSF1.50	10570.00	9557.17	MINPT-O-EQU
2527.20	113.73	2450.72	2413.47	33.90	OSF1.50	10810.00	9558.34	MinPt-CtCt
2527.32	106.77	2455.48	2420.55	36.15	OSF1.50	11050.00	9558.52	MinPt-CtCt
2500.03	86.67	2441.60	2413.37	44.25	OSF1.50	11920.00	9563.79	MinPt-O-ADP
2498.76	85.30	2441.23	2413.45	44.95	OSF1.50	12000.00	9564.19	MinPts
2490.80	82.12	2435.35	2408.68	46.58	OSF1.50	12290.00	9565.61	MinPts
2485.11	80.49	2430.79	2404.61	47.44	OSF1.50	12450.00	9566.40	MinPt-O-SF
2480.61	80.12	2426.53	2400.46	47.58	OSF1.50	12660.00	9567.43	MinPt-O-ADP
2470.49	80.38	2416.25	2390.12	47.23	OSF1.50	12930.00	9568.75	MinPt-O-SF
2446.76	88.19	2387.31	2358.57	42.54	OSF1.50	13640.00	9572.24	MinPt-CtCt
2446.92	88.76	2387.07	2358.13	42.24	OSF1.50	13680.00	9572.44	MINPT-O-EQU
2447.15	89.10	2387.10	2359.06	42.10	OSF1.50	13700.00	9572.53	MinPt-O-ADP
2549.09	98.76	2482.59	2450.33	39.48	OSF1.50	14460.00	9576.27	MinPt-O-SF
5830.61	98.47	5764.31	5732.14	90.61	OSF1.50	19294.04	9600.00	TD

Ort Peaches 19 Federal #2
(Offset) MWD 08-12641H (Def
Survey)

10145.94	32.81	10144.65	10113.13	N/A	MAS = 10.00 (m)	0.00	0.00	Surface
10145.54	32.81	10144.19	10112.73	160898.85	MAS = 10.00 (m)	26.00	26.00	MinPt-O-SF
10143.13	32.81	10138.63	10110.32	3154.22	MAS = 10.00 (m)	770.00	770.00	MinPts

Offset Trajectory	Separation			Allow Dev. (ft)	Sep. Fact.	Controlling Rule	Reference Trajectory		Risk Level			Alert	Status
	Ct-Ct (ft)	MAS (ft)	EOU (ft)				MD (ft)	TVD (ft)	Alert	Minor	Major		
10143.34	32.81	10138.43	10110.53	2797.96		MAS = 10.00 (m)	870.00	870.00				MINPT-O-EQU	
10142.54	32.81	10135.43	10109.73	1740.35		MAS = 10.00 (m)	1370.00	1370.00				MinPls	
10143.03	32.81	10135.05	10110.22	1516.05		MAS = 10.00 (m)	1560.00	1560.00				MINPT-O-EQU	
10142.91	32.81	10132.99	10110.10	1174.18		MAS = 10.00 (m)	1990.00	1990.00				MinPls	
10137.53	32.81	10122.83	10104.74	754.86		MAS = 10.00 (m)	4040.00	4019.06				MinPls	
10136.60	32.81	10121.15	10103.79	716.05		MAS = 10.00 (m)	4250.00	4225.94				MinPls	
10136.68	32.81	10121.07	10103.87	707.39		MAS = 10.00 (m)	4300.00	4275.20				MINPT-O-EQU	
10224.23	34.01	10201.13	10190.22	468.57		OSF1.50	6090.00	6038.62				MinPl-CICt	
10224.46	34.74	10200.87	10189.72	458.34		OSF1.50	6200.00	6146.99				MINPT-O-EQU	
10224.74	35.08	10200.93	10189.66	453.82		OSF1.50	6250.00	6196.25				MinPl-O-ADP	
10228.16	37.31	10202.85	10190.84	425.83		OSF1.50	6570.00	6511.50				MinPl-O-ADP	
10230.05	39.17	10203.51	10190.89	404.97		OSF1.50	6840.00	6777.49				MinPl-O-ADP	
10233.34	41.09	10205.51	10192.24	385.56		OSF1.50	7110.00	7043.48				MinPl-CICt	
10233.78	42.36	10205.11	10191.42	373.67		OSF1.50	7290.00	7220.81				MINPT-O-EQU	
10234.01	42.64	10205.16	10191.37	371.16		OSF1.50	7330.00	7260.22				MinPl-O-ADP	
10312.38	51.18	10277.83	10261.19	309.96		OSF1.50	8800.00	8511.37				MinPl-O-SF	
10388.35	48.69	10355.46	10339.66	328.68		OSF1.50	9135.93	9045.01				MinPl-O-SF	
1851.72	202.45	1716.04	1649.27	13.85		OSF1.50	19294.04	9600.00				MinPls	

Chevron Hayhurst 18 Feb 11H
(Offset) MWD On 7500ft (Def Survey)

Pass

5259.20	32.81	5257.91	5226.39	N/A		MAS = 10.00 (m)	0.00	0.00				Surface	
5258.76	32.81	5257.41	5225.95	81310.70		MAS = 10.00 (m)	26.00	26.00				MinPl-O-SF	
5258.23	32.81	5256.78	5225.42	31973.18		MAS = 10.00 (m)	100.00	100.00				MinPls	
5258.47	32.81	5256.56	5225.66	8490.19		MAS = 10.00 (m)	200.00	200.00				MINPT-O-EQU	
5236.57	32.81	5226.68	5203.76	609.42		MAS = 10.00 (m)	1890.00	1890.00				MinPls	
5237.03	32.81	5226.27	5204.23	552.56		MAS = 10.00 (m)	2150.00	2150.00				MINPT-O-EQU	
5228.91	32.81	5210.05	5196.10	297.63		MAS = 10.00 (m)	5030.00	4994.36				MinPls	
5229.32	32.81	5209.46	5196.52	281.40		MAS = 10.00 (m)	5280.00	5240.65				MINPT-O-EQU	
5238.07	34.80	5214.45	5203.28	234.40		OSF1.50	6100.00	6048.48				MinPl-O-ADP	
5370.91	51.19	5336.36	5319.73	161.41		OSF1.50	8588.47	8500.00				MinPl-O-SF	
2073.45	111.54	1998.66	1961.91	28.19		OSF1.50	14670.00	9577.30				MinPl-CICt	
2073.59	111.87	1998.58	1961.72	28.11		OSF1.50	14690.00	9577.39				MINPT-O-EQU	
2073.73	112.03	1998.62	1961.70	28.07		OSF1.50	14700.00	9577.44				MinPl-O-ADP	
2103.53	116.07	2025.72	1987.46	27.47		OSF1.50	15020.00	9579.01				MinPl-O-SF	
5071.74	90.67	5010.86	4981.06	85.09		OSF1.50	16294.04	9600.00				TD	

Chevron Hayhurst 18 Feb 11H
(Offset) ST01 MWD On 11300ft
(Def Survey)

Pass

5259.20	32.81	5257.91	5226.39	N/A		MAS = 10.00 (m)	0.00	0.00				Surface	
5258.76	32.81	5257.41	5225.95	81310.70		MAS = 10.00 (m)	26.00	26.00				MinPl-O-SF	
5258.23	32.81	5256.78	5225.42	31973.18		MAS = 10.00 (m)	100.00	100.00				MinPls	
5258.47	32.81	5256.56	5225.66	8490.19		MAS = 10.00 (m)	200.00	200.00				MINPT-O-EQU	
5236.57	32.81	5226.68	5203.76	609.42		MAS = 10.00 (m)	1890.00	1890.00				MinPls	
5237.03	32.81	5226.27	5204.23	552.56		MAS = 10.00 (m)	2150.00	2150.00				MINPT-O-EQU	
5228.91	32.81	5210.05	5196.10	297.63		MAS = 10.00 (m)	5030.00	4994.36				MinPls	
5229.32	32.81	5209.46	5196.52	281.40		MAS = 10.00 (m)	5280.00	5240.65				MINPT-O-EQU	
5238.07	34.80	5214.45	5203.28	234.40		OSF1.50	6100.00	6048.48				MinPl-O-ADP	
5406.81	49.81	5463.17	5447.00	169.90		OSF1.50	8588.47	8500.00				MinPl-O-SF	
2233.03	126.37	2148.35	2106.66	26.76		OSF1.50	15290.00	9580.34				MinPl-CICt	
2233.70	128.06	2147.88	2105.61	26.41		OSF1.50	15370.00	9580.73				MINPT-O-EQU	
2234.63	129.18	2148.08	2105.45	26.19		OSF1.50	15420.00	9580.96				MinPl-O-ADP	

Offset Trajectory	Separation			Allow Dev. (ft)	Sep. Fact	Controlling Rule	Reference Trajectory		Risk Level			Alert	Status
	Ct-Ct (ft)	MAS (ft)	EOU (ft)				MD (ft)	TVD (ft)	Alert	Minor	Major		
	2234.93	134.63	2144.75	2100.31	25.13	OSF1.50	15620.00	9581.96				MinPt-CICt	
	2233.83	142.15	2138.64	2091.68	23.77	OSF1.50	15910.00	9583.38				MinPt-CICt	
	2227.83	154.29	2124.54	2073.54	21.83	OSF1.50	16360.00	9585.59				MinPt-CICt	
	2227.16	163.93	2117.44	2063.23	20.53	OSF1.50	16710.00	9587.31				MinPt-CICt	
	2228.18	169.60	2114.67	2058.57	19.85	OSF1.50	16930.00	9588.39				MINPT-O-EQU	
	2228.93	170.53	2114.81	2058.40	19.74	OSF1.50	16970.00	9588.59				MinPt-O-ADP	
	2228.86	188.78	2100.58	2038.08	17.81	OSF1.50	17590.00	9591.63				MinPt-CICt	
	2227.51	190.91	2099.81	2036.60	17.61	OSF1.50	17680.00	9592.08				MINPT-O-EQU	
	2229.21	192.86	2100.21	2036.35	17.44	OSF1.50	17760.00	9592.47				MinPt-O-ADP	
	2234.07	199.27	2100.80	2034.80	16.92	OSF1.50	17970.00	9593.50				MINPT-O-EQU	
	2236.97	208.39	2097.61	2028.58	16.19	OSF1.50	18260.00	9594.92				MinPt-CICt	
	2238.15	211.60	2096.63	2028.52	15.95	OSF1.50	18390.00	9595.56				MINPT-O-EQU	
	2239.64	213.43	2096.93	2028.22	15.83	OSF1.50	18460.00	9595.90				MinPt-O-ADP	
	2238.56	225.56	2087.76	2013.00	14.96	OSF1.50	18840.00	9597.77				MinPt-CICt	
	2239.11	227.40	2087.08	2011.70	14.85	OSF1.50	18920.00	9598.16				MINPT-O-EQU	
	2241.70	236.20	2083.81	2005.51	14.31	OSF1.50	19220.00	9599.64				MINPT-O-EQU	
	2242.69	237.38	2084.00	2005.31	14.24	OSF1.50	19270.00	9599.88				MinPt-O-ADP	
	2243.30	237.94	2084.25	2005.36	14.21	OSF1.50	19294.04	9600.00				MinPt-O-SF	

Cimarex Da Vinci 7 Federal
Com #2H MWD On to 12076 ft
(Def Survey)

Page 74

5172.10	32.81	5170.12	5139.29	N/A	MAS = 10.00 (m)	0.00	0.00	Surface
5171.57	32.81	5169.51	5138.76	63391.51	MAS = 10.00 (m)	26.00	26.00	MinPt-O-SF
5154.09	32.81	5143.48	5121.26	597.02	MAS = 10.00 (m)	1930.00	1930.00	MinPis
5154.22	32.81	5143.35	5121.41	579.82	MAS = 10.00 (m)	1990.00	1990.00	MINPT-O-EQU
2429.49	248.57	2263.11	2180.91	14.77	OSF1.50	6980.00	6915.41	MinPt-CICt
2429.60	248.86	2263.04	2180.74	14.75	OSF1.50	7000.00	6935.11	MINPT-O-EQU
2429.72	248.99	2263.06	2180.72	14.74	OSF1.50	7010.00	6944.97	MinPt-O-ADP
2437.18	250.70	2269.39	2188.48	14.69	OSF1.50	7170.00	7102.59	MinPt-O-SF
3443.87	166.98	3331.83	3276.89	31.29	OSF1.50	10380.00	9556.23	MinPis
3435.95	158.77	3329.49	3277.19	32.85	OSF1.50	10620.00	9557.41	MinPt-O-ADP
3434.89	157.48	3329.24	3277.41	33.11	OSF1.50	10680.00	9557.71	MINPT-O-EQU
3433.36	150.98	3332.05	3282.38	34.54	OSF1.50	10900.00	9558.79	MinPt-CICt
3436.38	135.14	3345.63	3301.24	38.69	OSF1.50	11360.00	9561.04	MinPt-CICt
3453.49	113.29	3377.31	3340.21	46.51	OSF1.50	12010.00	9564.24	MinPt-O-ADP
3453.22	112.95	3377.26	3340.27	46.65	OSF1.50	12040.00	9564.38	MINPT-O-EQU
3453.06	112.50	3377.41	3340.57	46.84	OSF1.50	12090.00	9564.58	MinPt-CICt
3462.54	99.97	3395.23	3362.56	52.97	OSF1.50	12630.00	9567.28	MinPt-CICt
3460.36	95.67	3395.92	3364.68	55.37	OSF1.50	12830.00	9568.28	MinPt-O-ADP
3459.89	95.16	3395.79	3364.73	55.66	OSF1.50	12880.00	9568.51	MINPT-O-EQU
3453.80	92.26	3391.84	3361.55	57.35	OSF1.50	13060.00	9569.39	MinPis
3448.44	89.00	3388.44	3359.44	59.40	OSF1.50	13130.00	9569.74	MinPis
3378.68	94.60	3314.95	3284.08	54.69	OSF1.50	13940.00	9573.71	MinPt-CICt
3378.80	94.97	3314.83	3283.83	54.47	OSF1.50	13970.00	9573.86	MINPT-O-EQU
3379.00	95.22	3314.86	3283.78	54.33	OSF1.50	13990.00	9573.96	MinPt-O-ADP
3527.49	106.32	3455.95	3421.17	50.68	OSF1.50	15040.00	9579.11	MinPt-O-SF
6113.26	109.59	6039.54	6003.67	85.18	OSF1.50	19294.04	9600.00	TD

Cimarex Gao Wei 18 Federal
Com #2H Gyro-MWD On to
123739 MD (Offset) (Def
Survey)

Page 75

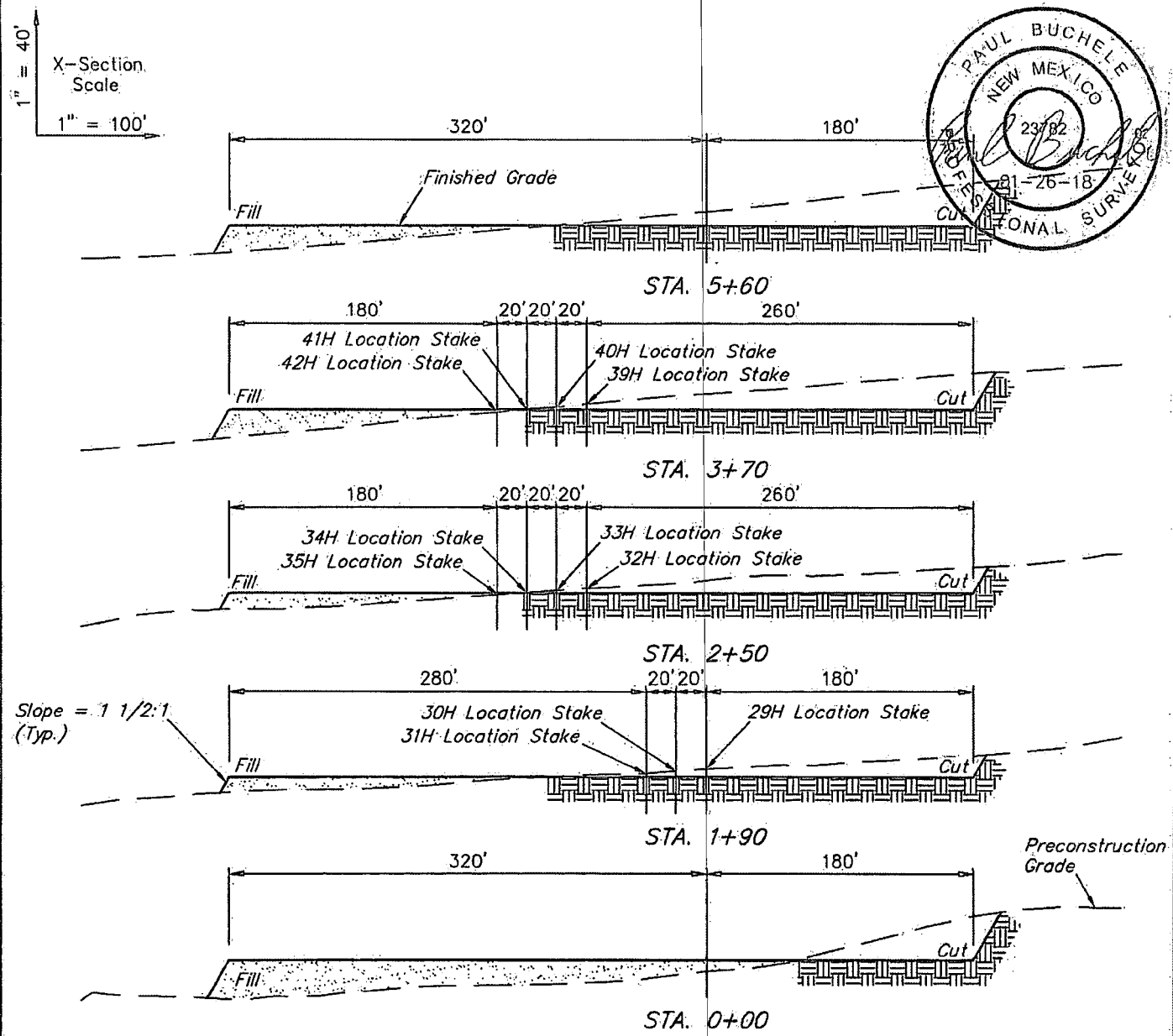
5304.50	32.81	5302.52	5271.70	N/A	MAS = 10.00 (m)	0.00	0.00	Surface
---------	-------	---------	---------	-----	-----------------	------	------	---------

Offset Trajectory	Separation			Allow	Sep.	Controlling Rule	Reference Trajectory		Risk Level			Alert	Status
	Ct-Ct (ft)	MAS (ft)	EOU (ft)	Dev. (ft)	Fact.		MD (ft)	TVD (ft)	Alert	Minor	Major		
5303.98		32.81	5301.92	5271.17	65969.71	MAS = 10.00 (m)	26.00	26.00				MinPt-O-SF	
5303.15		32.81	5300.92	5270.34	20929.36	MAS = 10.00 (m)	120.00	120.00				MinPts	
5303.54		32.81	5300.53	5270.73	5174.06	MAS = 10.00 (m)	280.00	280.00				MINPT-O-EQU	
5306.31		32.81	5299.72	5273.50	1150.72	MAS = 10.00 (m)	1080.00	1080.00				MinPts	
5282.90		32.81	5270.64	5250.10	513.51	MAS = 10.00 (m)	2370.00	2369.99				MinPts	
5282.94		32.81	5270.61	5250.13	510.80	MAS = 10.00 (m)	2390.00	2389.99				MINPT-O-EQU	
5785.25		52.98	5749.27	5732.27	170.10	OSF1.50	8588.47	8500.00				MinPt-O-SF	
3059.76		119.52	2979.45	2940.27	39.02	OSF1.50	15000.00	9578.92				MinPt-CICI	
3061.07		122.55	2978.70	2938.51	38.05	OSF1.50	15130.00	9579.55				MINPT-O-EQU	
3061.44		122.95	2978.80	2938.48	37.93	OSF1.50	15150.00	9579.65				MinPt-O-ADP	
3077.41		134.84	2986.86	2942.57	34.72	OSF1.50	15550.00	9581.62				MinPts	
3088.89		143.82	2992.35	2945.07	32.64	OSF1.50	15810.00	9582.89				MinPt-O-ADP	
3098.22		151.04	2996.87	2947.18	31.16	OSF1.50	16010.00	9583.88				MinPt-O-ADP	
3111.67		162.62	3002.59	2949.04	29.04	OSF1.50	16310.00	9585.35				MINPT-O-EQU	
3114.05		165.53	3003.04	2948.52	28.54	OSF1.50	16370.00	9585.64				MinPt-O-ADP	
3129.09		188.85	3002.53	2940.24	25.10	OSF1.50	16900.00	9588.25				MINPT-O-EQU	
3136.46		199.79	3002.61	2936.67	23.77	OSF1.50	17150.00	9589.47				MINPT-O-EQU	
3137.24		200.64	3002.82	2936.61	23.67	OSF1.50	17180.00	9589.62				MinPt-O-ADP	
3155.05		217.20	3008.62	2937.88	21.98	OSF1.50	17580.00	9591.58				MINPT-O-EQU	
3161.41		233.09	3005.36	2928.32	20.51	OSF1.50	17890.00	9593.11				MINPT-O-EQU	
3162.12		234.00	3005.46	2928.12	20.43	OSF1.50	17920.00	9593.25				MinPt-O-ADP	
3180.83		278.46	3003.87	2911.38	17.24	OSF1.50	18890.00	9598.02				MINPT-O-EQU	
3194.23		283.51	3004.58	2910.72	17.01	OSF1.50	19010.00	9598.61				MinPt-O-ADP	
3204.96		296.63	3008.54	2908.33	16.31	OSF1.50	19294.04	9600.00				MinPts	

Cadwall 18 Federal 5H MVD
On 10/12/16 (Def Survey)

Pass

5308.91	32.81	5306.93	5276.10	N/A	MAS = 10.00 (m)	0.00	0.00					Surface	
5308.45	32.81	5306.40	5275.64	77272.80	MAS = 10.00 (m)	26.00	26.00					MinPt-O-SF	
5307.84	32.81	5305.68	5275.04	25404.87	MAS = 10.00 (m)	110.00	110.00					MinPts	
5289.68	32.81	5277.39	5256.87	513.20	MAS = 10.00 (m)	2360.00	2360.00					MinPts	
5289.70	32.81	5277.36	5256.89	510.94	MAS = 10.00 (m)	2380.00	2379.99					MINPT-O-EQU	
5916.47	49.87	5882.56	5866.80	185.24	OSF1.50	8588.47	8500.00					MinPt-O-SF	
3575.75	105.40	3504.82	3470.34	51.83	OSF1.50	14600.00	9576.95					MinPt-CICI	
3575.90	105.85	3504.67	3470.04	51.61	OSF1.50	14630.00	9577.10					MINPT-O-EQU	
3576.14	106.15	3504.71	3469.99	51.47	OSF1.50	14650.00	9577.20					MinPt-O-ADP	
3700.54	116.48	3622.23	3584.06	48.45	OSF1.50	15550.00	9581.62					MinPt-O-SF	
3741.62	144.66	3644.52	3596.96	39.32	OSF1.50	15850.00	9583.09					MINPT-O-EQU	
3743.98	147.48	3645.00	3596.50	38.58	OSF1.50	15950.00	9583.58					MinPt-O-ADP	
3746.85	151.48	3645.20	3595.37	37.57	OSF1.50	16050.00	9584.07					MINPT-O-EQU	
3749.36	154.26	3645.86	3595.10	36.91	OSF1.50	16140.00	9584.51					MinPt-O-ADP	
3752.90	158.61	3646.50	3594.29	35.92	OSF1.50	16250.00	9585.05					MINPT-O-EQU	
3757.27	164.03	3647.26	3593.24	34.76	OSF1.50	16400.00	9585.79					MinPt-O-ADP	
3761.84	181.18	3640.40	3580.67	31.47	OSF1.50	16760.00	9587.58					MinPt-CICI	
3726.39	230.55	3572.03	3495.84	24.44	OSF1.50	17920.00	9593.25					MinPt-CICI	
3700.50	320.28	3486.32	3380.21	17.43	OSF1.50	19294.04	9600.00					MinPts	



APPROXIMATE EARTHWORK QUANTITIES	
(4") TOPSOIL STRIPPING	3,730 Cu. Yds.
REMAINING LOCATION	22,290 Cu. Yds.
TOTAL CUT	26,020 Cu. Yds.
FILL	22,290 Cu. Yds.
EXCESS MATERIAL	3,730 Cu. Yds.
TOPSOIL	3,730 Cu. Yds.
EXCESS UNBALANCE (After Interim Rehabilitation)	0 Cu. Yds.

APPROXIMATE SURFACE DISTURBANCE AREAS			
	DISTANCE	ACRES	
WELL SITE DISTURBANCE	NA	±7.139	
30' WIDE ACCESS ROAD R-O-W DISTURBANCE	±30.08'	±0.021	
60' WIDE FLOW LINE R-O-W DISTURBANCE	±504.99'	±0.696	
30' WIDE FLOW LINE LATERAL R-O-W DISTURBANCE	±664.96'	±0.458	
30' WIDE POWER LINE R-O-W DISTURBANCE	±49.23'	±0.034	
TOTAL SURFACE USE AREA		±8.348	

REV: 2 01-25-18 S.F. (RE-ROUTE FLOW LINE & ADD LATERAL)

NOTES:

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

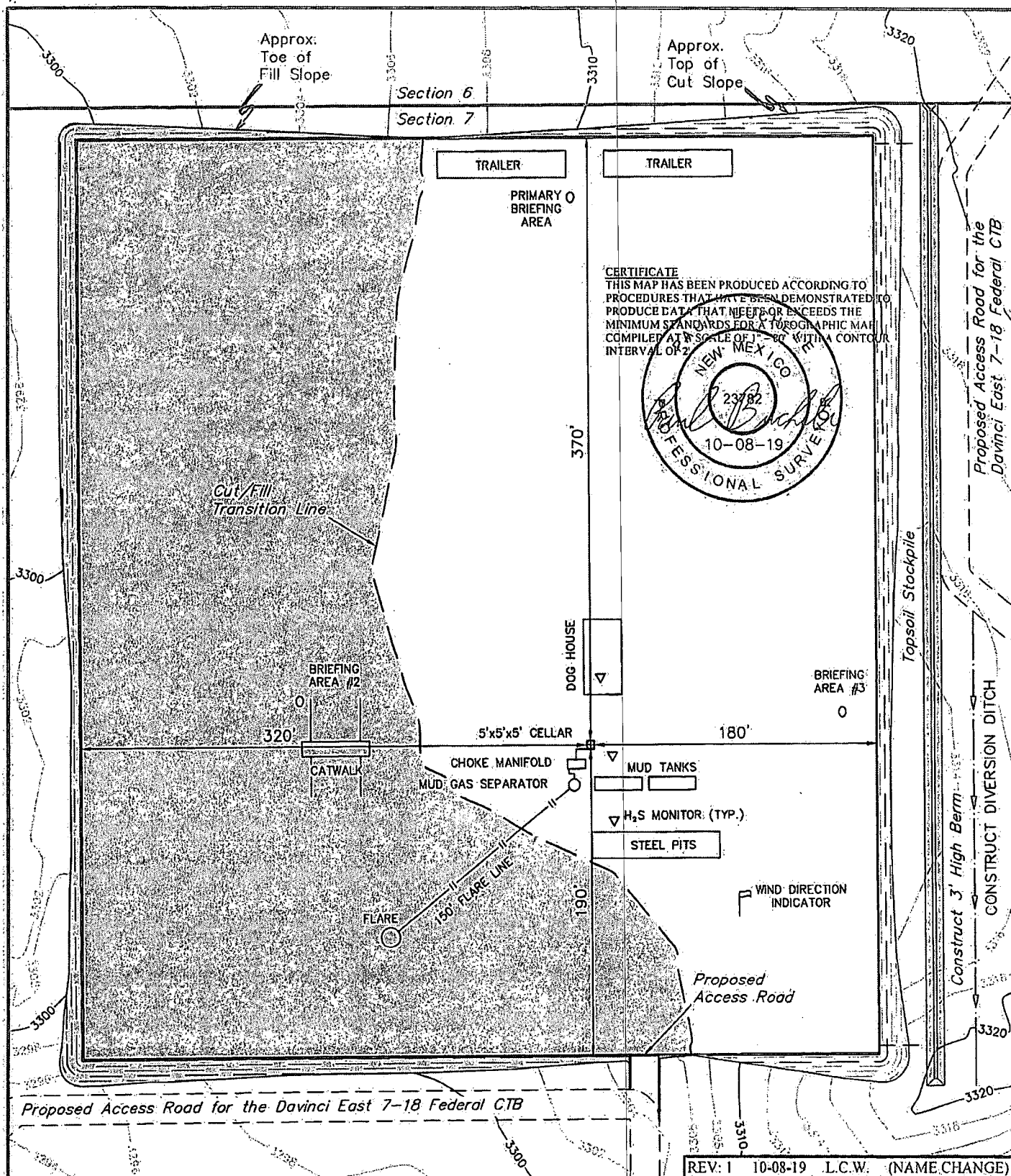
CIMAREX ENERGY CO.

DAVINCI 7-18 FEDERAL W2E2
N 1/2 NE 1/4, SECTION 7, T25S, R27E, N.M.P.M.
EDDY COUNTY, NEW MEXICO



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

SURVEYED BY	M.P., B.D.	05-10-17	SCALE
DRAWN BY	S.F.	05-29-17	AS SHOWN
TYPICAL CROSS SECTIONS EXHIBIT D			



NOTES:

- Contours shown at 2' intervals.

CIMAREX ENERGY CO.

DAVINCI 7-18 FEDERAL COM 29H
390' FNL 1410' FEL
NW 1/4 NE 1/4, SECTION 7, T25S, R27E, N.M.P.M.
EDDY COUNTY, NEW MEXICO

SURVEYED BY	M.P., B.D.	05-10-17	SCALE
DRAWN BY	S.F.	05-29-17	1" = 80'
TYPICAL RIG LAYOUT		EXHIBIT D	

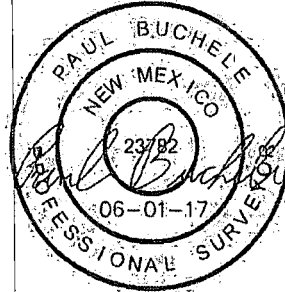
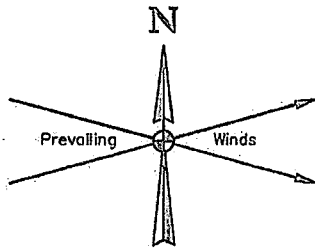


UELS, LLC
Corporate Office * 85 South 200 East
Vernal, UT 84078 * (435) 789-1017

760' X 700' Archaeological Survey Boundary

Section 6

Section 7



42H • 40H • 39H
41H
38H • 37H • 36H
35H • 34H • 32H
33H
31H • 30H • 29H

Topsail Stockpile

Proposed Access Road for the
Davinci East 7-18 Federal CTB

Proposed
Access Road

Proposed Access Road for the
Davinci East 7-18 Federal CTB

NOTES:

CIMAREX ENERGY CO.

DAVINCI 7-18 FEDERAL W2E2
N 1/2 NE 1/4, SECTION 7, T25S, R27E, N.M.P.M.
EDDY COUNTY, NEW MEXICO



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

SURVEYED BY	M.P., B.D.	05-10-17	SCALE
DRAWN BY	S.F.	05-29-17	1" = 100'
ARCHAEOLOGICAL SURVEY BOUNDARY			EXHIBIT D

1. Geological Formations

TVD of target 9,600
MD at TD 19,294

Pilot Hole TD N/A
Deepest expected fresh water

Formation	Depth (TVD) from KB	Water/Mineral Bearing/Target Zone	Hazards
Rustler	0	N/A	
Salado	1252	N/A	
Castille	1870	N/A	
Bell Canyon	2088	Hydrocarbons	
Cherry Canyon	3075	Hydrocarbons	
Brushy Canyon	4127	Hydrocarbons	
Bone Spring	5621	Hydrocarbons	
Bone Spring A Shale	5739	Hydrocarbons	
Bone Spring C Shale	6085	Hydrocarbons	
1st Bone Spring	6576	Hydrocarbons	
2nd Bone Spring	7037	Hydrocarbons	
3rd Bone Spring	8389	Hydrocarbons	
Wolfcamp	8713	Hydrocarbons	
Cisco-Canyon	10189	Hydrocarbons	
Cisco Canyon Target	10329	Hydrocarbons	

2. Casing Program

Hole Size	Casing Depth From	Casing Depth To	Setting Depth TVD	Casing Size	Weight (lb/ft)	Grade	Conn.	SF Collapse	SF Burst	SF Tension
17 1/2	0	460	460	13-3/8"	48.00	H-40/J-55 Hybrid	ST&C	3.52	8.22	14.58
12 1/4	0	2068	2068	9-5/8"	36.00	J-55	LT&C	1.84		
8 3/4	0	8236	8236	7"	29.00	L-80	LT&C	1.69	1.96	2.38
8 3/4	8236	9761	9506	7"	26.00	L-80	BT&C	1.13	1.51	18.29
6 1/8	8135	19294	9600	4-1/2"	11.60	P-110	BT&C	1.42	2.01	21.60
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

	Y or N
Is casing new? If used, attach certification as required in Onshore Order #1	Y
Does casing meet API specifications? If no, attach casing specification sheet.	Y
Is premium or uncommon casing planned? If yes attach casing specification sheet.	N
Does the above casing design meet or exceed BLM's minimum standards? If not provide justification (loading assumptions, casing design criteria).	Y
Will the intermediate pipe be kept at a minimum 1/3 fluid filled to avoid approaching the collapse pressure rating of the casing?	N
Is well located within Capitan Reef?	N
If yes, does production casing cement tie back a minimum of 50' above the Reef?	N
Is well within the designated 4 string boundary.	N
Is well located in SOPA but not in R-111-P?	N
If yes, are the first 2 strings cemented to surface and 3rd string cement tied back 500' into previous casing?	N
Is well located in R-111-P and SOPA?	N
If yes, are the first three strings cemented to surface?	N
Is 2nd string set 100' to 600' below the base of salt?	N
Is well located in high Cave/Karst?	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	# Skts	Wt. lb/gal	Yld ft ³ /sack	H ₂ O gal/sk	500# Comp. Strength (hours)	Slurry Description
Surface	97	13.50	1.72	9.15	15.5	Lead: Class C + Bentonite
	195	14.80	1.34	6.32	9.5	Tail: Class C + LCM
Intermediate	391	12.90	1.88	9.65	12	Lead: 35:65 (Poz.C) + Salt + Bentonite
	121	14.80	1.34	6.32	9.5	Tail: Class C + LCM
Production	792	13.50	1.72	9.15	15.5	Lead: Class C + Bentonite
	89	14.80	1.34	6.32	9.5	Tail: Class C + LCM
Completion System	776	14.20	1.30	5.86	14:30	Tail: 50:50 (Poz.H) + Salt + Bentonite + Fluid Loss + Dispersant + SMS

Casing String	TOC	% Excess
Surface	0	34
Intermediate	0	50
Production	1868	25
Completion System	9561	10

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

4. Pressure Control Equipment

A variance is requested for the use of a diverter on the surface casing. See attached for schematic.					
BOP installed and tested before drilling which hole?	Size	Min Required WP	Type		Tested To
12 1/4	13 5/8	2M	Annular	X	50% of working pressure
			Blind Ram		2M
			Pipe Ram		
			Double Ram	X	
			Other		
8 3/4	13 5/8	5M	Annular	X	50% of working pressure
			Blind Ram		5M
			Pipe Ram	X	
			Double Ram	X	
			Other		
6 1/8	13 5/8	5M	Annular	X	50% of working pressure
			Blind Ram		5M
			Pipe Ram	X	
			Double Ram	X	
			Other		

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

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

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

5. Mud Program

Depth	Type	Weight (ppg)	Viscosity	Water Loss
0' to 460'		8.30 - 8.80		N/C
460' to 2068'		9.70 - 10.20		N/C
2068' to 9761'	Cut Brine or OBM	9.20 - 9.70	27-70	N/C
10129' to 19294'	Cut Brine or OBM	10.20 - 10.70	27-70	N/C

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

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

6. Logging and Testing Procedures

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

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

7. Drilling Conditions

Condition	
BH Pressure at deepest TVD	5341 psi
Abnormal Temperature	No

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

8. Other Facets of Operation**9. Wellhead**

A multi-bowl wellhead system will be utilized.

After running the 13-3/8" surface casing, a 13 5/8" BOP/BOPE system with a minimum working pressure of 5000 psi will be installed on the wellhead system and will be pressure tested to 250 psi low followed by a 5000 psi test. Annular will be tested to 50% of working pressure. The pressure test will be repeated at least every 30 days, as per Onshore Order No. 2.

The multi-bowl wellhead will be installed by vendor's representative. A copy of the installation instructions has been sent to the BLM field office.

The wellhead will be installed by a third-party welder while being monitored by the wellhead vendor representative.

All BOP equipment will be tested utilizing a conventional test plug. Not a cup or J-packer type.

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

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

All casing strings will be tested as per Onshore Order No.2 to 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.

25277B APDAPD CHANGE SUNDRY DAVINCI 7-18 FEDERAL COM 29H LEA
NMNM100332 CIMAREX ENERGY COMPANY 13 494370 12102019 JJP

13 3/8 surface csg in a 17 1/2 inch hole.						Design Factors SURFACE			
Segment	#/ft	Grade	Coupling	Joint		Collapse	Burst	Length	Weight
"A"	48.00	H 40	STC	14.58		3.66	1.58	460	22,080
w/8.4#/g mud, 30min Sfc Csg Test psig: 1,010 Tail Cmt does not circ to sfc.							Totals:	460	22,080
Comparison of Proposed to Minimum Required Cement Volumes									
Hole Size	Annular Volume	1 Stage Cmt Sx	1 Stage CuFt Cmt	Min Cu Ft	1 Stage % Excess	Drilling Mud Wt	Calc MASP	Req'd BOPE	Min Dist Hole-Cplg
17 1/2	0.6946	292	428	374	14	8.80	641	2M	1.56

9 5/8 casing inside the 13 3/8						Design Factors INTERMEDIATE			
Segment	#/ft	Grade	Coupling	Joint		Collapse	Burst	Length	Weight
"A"	36.00	J 55	LTC	6.08		1.84	0.73	2,068	74,448
w/8.4#/g mud, 30min Sfc Csg Test psig: The cement volume(s) are intended to achieve a top of 0							Totals:	2,068	74,448
						ft from surface or a 460 overlap.			
Hole Size	Annular Volume	1 Stage Cmt Sx	1 Stage CuFt Cmt	Min Cu Ft	1 Stage % Excess	Drilling Mud Wt	Calc MASP	Req'd BOPE	Min Dist Hole-Cplg
12 1/4	0.3132	512	897	696	29	10.20	2699	3M	0.81

Burst Frac Gradient(s) for Segment(s): A, B, C, D = 1.7, b, c, d All > 0.70, OK.

7 casing inside the 9 5/8						Design Factors PRODUCTION			
Segment	#/ft	Grade	Coupling	Joint		Collapse	Burst	Length	Weight
"A"	29.00	L 80	LTC	2.16		1.69	1.53	8,236	238,844
"B"	26.00	L 80	BTC	3.54		1.00	1.36	1,525	39,650
w/8.4#/g mud, 30min Sfc Csg Test psig: 920							Totals:	9,761	278,494
B's would be: 18.29						1.13 if it were a vertical wellbore.			
No. Pilot Hole Planned MTD: 9761 Max VTD: 9506 Csg VD: 9506						Curve-KOP	Dogleg°	Severity°	MEOC
The cement volume(s) are intended to achieve a top of 1868						9136	75	12	9761
						ft from surface or a 200 overlap.			
Hole Size	Annular Volume	1 Stage Cmt Sx	1 Stage CuFt Cmt	Min Cu Ft	1 Stage % Excess	Drilling Mud Wt	Calc MASP	Req'd BOPE	Min Dist Hole-Cplg
8 3/4	0.1503	881	1482	1199	24	9.70	3224	5M	0.55

Class 'H' tail cmt yld > 1.20

Production Casing must be at least 1/3 fluid filled to meet BLM Collapse Requirement.

Tail cmt 4 1/2 Liner w/top @ 8135						Design Factors LINER			
Segment	#/ft	Grade	Coupling	Body		Collapse	Burst	Length	Weight
"A"	11.60	P 110	BTC	2.40		1.31	2	1,994	23,130
"B"	11.60	P 110	BTC	4.16		1.42	2	9,165	106,314
w/8.4#/g mud, 30min Sfc Csg Test psig: 2,112							Totals:	11,159	129,444
A Segment Design Factors would be: 3.46						1.42 if it were a vertical wellbore.			
No. Pilot Hole Planned MTD: 19294 Max VTD: 9600 Csg VD: 9600						Curve-KOP	Dogleg°	Severity°	MEOC
The cement volume(s) are intended to achieve a top of 8135						9136	90	9	10129
						ft from surface or a 1626 overlap.			
Hole Size	Annular Volume	1 Stage Cmt Sx	1 Stage CuFt Cmt	Min Cu Ft	1 Stage % Excess	Drilling Mud Wt	Calc MASP	Req'd BOPE	Min Dist Hole-Cplg
6 1/8	0.0942	776	1009	911	11	10.70			0.56

Class 'H' tail cmt yld > 1.20

Capitan Reef est top XXXX.

PECOS DISTRICT DRILLING CONDITIONS OF APPROVAL

OPERATOR'S NAME:	CIMAREX ENERGY COMPANY
LEASE NO.:	NMNM100332
WELL NAME & NO.:	DAVINCI 7-18 FEDERAL COM 29H
SURFACE HOLE FOOTAGE:	390'/N & 1410'/E
BOTTOM HOLE FOOTAGE:	330'/S & 330'/E
LOCATION:	Section 7, T.25 S., R.27 E., NMPM
COUNTY:	EDDY County, New Mexico

COA

H2S	☐ Yes	☒ No	
Potash	☒ None	☐ Secretary	☐ R-111-P
Cave/Karst Potential	☐ Low	☐ Medium	☒ High
Cave/Karst Potential	☐ Critical		
Variance	☐ None	☒ Flex Hose	☐ Other
Wellhead	☐ Conventional	☒ Multibowl	☐ Both
Other	☐ 4 String Area	☐ Capitan Reef	☐ WIPP
Other	☐ Fluid Filled	☐ Cement Squeeze	☐ Pilot Hole
Special Requirements	☐ Water Disposal	☒ COM	☐ Unit

All Previous COAs still apply, except for the following:

A. CASING

1. The 13-3/8 inch surface casing shall be set at approximately 460 feet (a minimum of 70 feet (Eddy County) into the Rustler Anhydrite and above the salt) and cemented to the surface. Excess cement calculates to 14%, additional cement might be required.
 - a. If cement does not circulate to the surface, the appropriate BLM office shall be notified and a temperature survey utilizing an electronic type temperature survey with surface log readout will be used or a cement bond log shall be run to verify the top of the cement. Temperature survey will be run a minimum of six hours after pumping cement and ideally between 8-10 hours after completing the cement job.
 - b. Wait on cement (WOC) time for a primary cement job will be a minimum of 8 hours or 500 pounds compressive strength, whichever is greater. (This is to include the lead cement)
 - c. Wait on cement (WOC) time for a remedial job will be a minimum of 4 hours after bringing cement to surface or 500 pounds compressive strength, whichever is greater.

- d. If cement falls back, remedial cementing will be done prior to drilling out that string.
2. The minimum required fill of cement behind the **9-5/8** inch intermediate casing is:
- Cement to surface. If cement does not circulate see B.1.a, c-d above.
Wait on cement (WOC) time for a primary cement job is to include the lead cement slurry due to cave/karst or potash.

*In High Cave/Karst Areas if cement does not circulate to surface on the first two casing strings, the cement on the 3rd casing string must come to surface.

Production Casing must be kept at least 1/3 fluid filled to meet BLM Collapse Requirement.

3. The minimum required fill of cement behind the **7** inch production casing is:
- Cement should tie-back at least **200 feet** into previous casing string. Operator shall provide method of verification.
4. The minimum required fill of cement behind the **4-1/2** inch production liner is:
- Cement should tie-back at least **100 feet** into previous casing string. Operator shall provide method of verification. **Excess cement calculates to 11%, additional cement might be required.**

B. PRESSURE CONTROL

1. Variance approved to use flex line from BOP to choke manifold. Manufacturer's specification to be readily available. No external damage to flex line. Flex line to be installed as straight as possible (no hard bends).²
2. Minimum working pressure of the blowout preventer (BOP) and related equipment (BOPE) required for drilling below the surface casing shoe shall be **2000 (2M)**
3. Minimum working pressure of the blowout preventer (BOP) and related equipment (BOPE) required for drilling below the intermediate casing shoe shall be **3000 (3M)**
4. Operator has proposed a multi-bowl wellhead assembly. This assembly will only be tested when installed on the surface casing. Minimum working pressure of the blowout preventer (BOP) and related equipment (BOPE) required for drilling below the production casing shoe shall be **5000 (5M)** psi.

- a. Wellhead shall be installed by manufacturer's representatives, submit documentation with subsequent sundry.
- b. If the welding is performed by a third party, the manufacturer's representative shall monitor the temperature to verify that it does not exceed the maximum temperature of the seal.
- c. Manufacturer representative shall install the test plug for the initial BOP test.
- d. If the cement does not circulate and one inch operations would have been possible with a standard wellhead, the well head shall be cut off, cementing operations performed and another wellhead installed.
- e. Whenever any seal subject to test pressure is broken, all the tests in OOGO2.III.A.2.i must be followed.

C. SPECIAL REQUIREMENT (S)

Communitization Agreement

- The operator will submit a Communitization Agreement to the Carlsbad Field Office, 620 E Greene St. Carlsbad, New Mexico 88220, at least 90 days before the anticipated date of first production from a well subject to a spacing order issued by the New Mexico Oil Conservation Division. The Communitization Agreement will include the signatures of all working interest owners in all Federal and Indian leases subject to the Communitization Agreement (i.e., operating rights owners and lessees of record), or certification that the operator has obtained the written signatures of all such owners and will make those signatures available to the BLM immediately upon request.
- If the operator does not comply with this condition of approval, the BLM may take enforcement actions that include, but are not limited to, those specified in 43 CFR 3163.1.
- In addition, the well sign shall include the surface and bottom hole lease numbers. When the Communitization Agreement number is known, it shall also be on the sign.

GENERAL REQUIREMENTS

The BLM is to be notified in advance for a representative to witness:

- a. Spudding well (minimum of 24 hours)
- b. Setting and/or Cementing of all casing strings (minimum of 4 hours)
- c. BOPE tests (minimum of 4 hours)

☒ Eddy County

Call the Carlsbad Field Office, 620 East Greene St., Carlsbad, NM 88220,
(575) 361-2822

☒ Lea County

Call the Hobbs Field Station, 414 West Taylor, Hobbs NM 88240, (575)

1. Unless the production casing has been run and cemented or the well has been properly plugged, the drilling rig shall not be removed from over the hole without prior approval.
 - a. In the event the operator has proposed to drill multiple wells utilizing a skid/walking rig. Operator shall secure the wellbore on the current well, after installing and testing the wellhead, by installing a blind flange of like pressure rating to the wellhead and a pressure gauge that can be monitored while drilling is performed on the other well(s).
 - b. When the operator proposes to set surface casing with Spudder Rig
 - Notify the BLM when moving in and removing the Spudder Rig.
 - Notify the BLM when moving in the 2nd Rig. Rig to be moved in within 90 days of notification that Spudder Rig has left the location.
 - BOP/BOPE test to be conducted per Onshore Oil and Gas Order No. 2 as soon as 2nd Rig is rigged up on well.
2. Floor controls are required for 3M or Greater systems. These controls will be on the rig floor, unobstructed, readily accessible to the driller and will be operational at all times during drilling and/or completion activities. Rig floor is defined as the area immediately around the rotary table; the area immediately above the substructure on which the draw works are located, this does not include the dog house or stairway area.
3. The record of the drilling rate along with the GR/N well log run from TD to surface (horizontal well – vertical portion of hole) shall be submitted to the BLM office as well as all other logs run on the borehole 30 days from completion. If available, a digital copy of the logs is to be submitted in addition to the paper copies. The Rustler top and top and bottom of Salt are to be recorded on the Completion Report.

A. CASING

1. Changes to the approved APD casing program need prior approval if the items substituted are of lesser grade or different casing size or are Non-API. The Operator can exchange the components of the proposal with that of superior strength (i.e. changing from J-55 to N-80, or from 36# to 40#). Changes to the approved cement program need prior approval if the altered cement plan has less volume or strength or if the changes are substantial (i.e. Multistage tool, ECP, etc.). The initial wellhead installed on the well will remain on the well with spools used as needed.
2. Wait on cement (WOC) for Potash Areas: After cementing but before commencing any tests, the casing string shall stand cemented under pressure until both of the following conditions have been met: 1) cement reaches a minimum compressive strength of 500 psi for all cement blends, 2) until cement has been in place at least 24

hours. WOC time will be recorded in the driller's log. The casing integrity test can be done (prior to the cement setting up) immediately after bumping the plug.

3. Wait on cement (WOC) for Water Basin: After cementing but before commencing any tests, the casing string shall stand cemented under pressure until both of the following conditions have been met: 1) cement reaches a minimum compressive strength of 500 psi at the shoe, 2) until cement has been in place at least 8 hours. WOC time will be recorded in the driller's log. See individual casing strings for details regarding lead cement slurry requirements. The casing integrity test can be done (prior to the cement setting up) immediately after bumping the plug.
4. Provide compressive strengths including hours to reach required 500 pounds compressive strength prior to cementing each casing string. Have well specific cement details onsite prior to pumping the cement for each casing string.
5. No pea gravel permitted for remedial or fall back remedial without prior authorization from the BLM engineer.
6. On that portion of any well approved for a 5M BOPE system or greater, a pressure integrity test of each casing shoe shall be performed. Formation at the shoe shall be tested to a minimum of the mud weight equivalent anticipated to control the formation pressure to the next casing depth or at total depth of the well. This test shall be performed before drilling more than 20 feet of new hole.
7. If hardband drill pipe is rotated inside casing, returns will be monitored for metal. If metal is found in samples, drill pipe will be pulled and rubber protectors which have a larger diameter than the tool joints of the drill pipe will be installed prior to continuing drilling operations.
8. Whenever a casing string is cemented in the R-111-P potash area, the NMOCD requirements shall be followed.

B. PRESSURE CONTROL

1. All blowout preventer (BOP) and related equipment (BOPE) shall comply with well control requirements as described in Onshore Oil and Gas Order No. 2 and API RP 53 Sec. 17.
2. If a variance is approved for a flexible hose to be installed from the BOP to the choke manifold, the following requirements apply: The flex line must meet the requirements of API 16C. Check condition of flexible line from BOP to choke manifold, replace if exterior is damaged or if line fails test. Line to be as straight as possible with no hard bends and is to be anchored according to Manufacturer's requirements. The flexible hose can be exchanged with a hose of equal size and equal or greater pressure rating. Anchor requirements, specification sheet and hydrostatic pressure test certification matching the hose in service, to be onsite for review. These documents shall be posted in the company man's trailer and on the rig floor.

3. 5M or higher system requires an HCR valve, remote kill line and annular to match. The remote kill line is to be installed prior to testing the system and tested to stack pressure.
4. If the operator has proposed a multi-bowl wellhead assembly in the APD. The following requirements must be met:
 - a. Wellhead shall be installed by manufacturer's representatives, submit documentation with subsequent sundry.
 - b. If the welding is performed by a third party, the manufacturer's representative shall monitor the temperature to verify that it does not exceed the maximum temperature of the seal.
 - c. Manufacturer representative shall install the test plug for the initial BOP test.
 - d. Whenever any seal subject to test pressure is broken, all the tests in OOGO2.III.A.2.i must be followed.
 - e. If the cement does not circulate and one inch operations would have been possible with a standard wellhead, the well head shall be cut off, cementing operations performed and another wellhead installed.
5. The appropriate BLM office shall be notified a minimum of 4 hours in advance for a representative to witness the tests.
 - a. In a water basin, for all casing strings utilizing slips, these are to be set as soon as the crew and rig are ready and any fallback cement remediation has been done. The casing cut-off and BOP installation can be initiated four hours after installing the slips, which will be approximately six hours after bumping the plug. For those casing strings not using slips, the minimum wait time before cut-off is eight hours after bumping the plug. BOP/BOPE testing can begin after cut-off or once cement reaches 500 psi compressive strength (including lead when specified), whichever is greater. However, if the float does not hold, cut-off cannot be initiated until cement reaches 500 psi compressive strength (including lead when specified).
 - b. In potash areas, for all casing strings utilizing slips, these are to be set as soon as the crew and rig are ready and any fallback cement remediation has been done. For all casing strings, casing cut-off and BOP installation can be initiated at twelve hours after bumping the plug. However, **no tests** shall commence until the cement has had a minimum of 24 hours setup time, except the casing pressure test can be initiated immediately after bumping the plug (only applies to single stage cement jobs).
 - c. The tests shall be done by an independent service company utilizing a test plug not a cup or J-packer. The operator also has the option of utilizing an independent tester to test without a plug (i.e. against the casing) pursuant to

Onshore Order 2 with the pressure not to exceed 70% of the burst rating for the casing. Any test against the casing must meet the WOC time for water basin (8 hours) or potash (24 hours) or 500 pounds compressive strength, whichever is greater, prior to initiating the test (see casing segment as lead cement may be critical item).

- d. The test shall be run on a 5000 psi chart for a 2-3M BOP/BOP, on a 10000 psi chart for a 5M BOP/BOPE and on a 15000 psi chart for a 10M BOP/BOPE. If a linear chart is used, it shall be a one hour chart. A circular chart shall have a maximum 2 hour clock. If a twelve hour or twenty-four hour chart is used, tester shall make a notation that it is run with a two hour clock.
- e. The results of the test shall be reported to the appropriate BLM office.
- f. All tests are required to be recorded on a calibrated test chart. A copy of the BOP/BOPE test chart and a copy of independent service company test will be submitted to the appropriate BLM office.
- g. The BOP/BOPE test shall include a low pressure test from 250 to 300 psi. The test will be held for a minimum of 10 minutes if test is done with a test plug and 30 minutes without a test plug. This test shall be performed prior to the test at full stack pressure.
- h. BOP/BOPE must be tested by an independent service company within 500 feet of the top of the Wolfcamp formation if the time between the setting of the intermediate casing and reaching this depth exceeds 20 days. This test does not exclude the test prior to drilling out the casing shoe as per Onshore Order No. 2.

JJP12102019