

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

Carlsbad Field Office

FORM APPROVED
OMB NO. 1004-0137
Expires: January 31, 2018HOBBS OGD
JUL 11 2017

RECEIVED

SUNDRY NOTICES AND REPORTS ON WELLS
Do not use this form for proposals to drill or to re-enter an abandoned well. Use form 3160-3 (APD) for such proposals.

SUBMIT IN TRIPLICATE - Other instructions on page 2

5. Lease Serial No.
NMNM0392082A

6. If Indian, Allottee or Tribe Name

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

1. Type of Well

☐ Oil Well ☒ Gas Well ☐ Other8. Well Name and No.
HALLERTAU 5 FEDERAL 8H2. Name of Operator
CIMAREX ENERGY COMPANYContact: ARICKA EASTERLING
E-Mail: aeasterling@cimarex.com9. API Well No.
30-025-426663a. Address
202 S. CHEYENNE AVE, SUITE 1000
TULSA, OK 741033b. Phone No. (include area code)
Ph: 918-560-706010. Field and Pool or Exploratory Area
WILDCAT WOLFCAMP

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

Sec 5 T26S R32E SWSW 500FSL 330FWL

11. County or Parish, State

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

13. Describe Proposed or Completed Operation: Clearly state all pertinent details, including estimated starting date of any proposed work and approximate duration thereof. If the proposal is to deepen directionally or recompleat horizontally, give subsurface locations and measured and true vertical depths of all pertinent markers and zones. Attach the Bond under which the work will be performed or provide the Bond No. on file with BLM/BIA. Required subsequent reports must be filed within 30 days following completion of the involved operations. If the operation results in a multiple completion or recompletion 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 request approval to change the original drilling plan for the above referenced well. Cimarex proposes to change the SHL there by changing the directional plan. No additional disturbance is required for the well pad.

Approved:
SHL: 500 FSL & 330 FWL
Proposed
SHL: 491 FSL & 358 FWL

Please see attached plat, directional prelim & drilling plan for changes.

SEE ATTACHED FOR
CONDITIONS OF APPROVALNM OIL CONSERVATION
ARTESIA DISTRICT

JUL 03 2017

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

Electronic Submission #370754 verified by the BLM Well Information System
For CIMAREX ENERGY COMPANY, sent to the Hobbs
Committed to AFMSS for processing by DEBORAH MCKINNEY on 04/11/2017 ()

RECEIVED

Name (Printed/Typed) ARICKA EASTERLING

Title REGULATORY ANALYST

Signature (Electronic Submission)

Date 03/23/2017

THIS SPACE FOR FEDERAL OR STATE OFFICE USE

Approved By

Title

FIELD MANAGER

Date

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

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)

** OPERATOR-SUBMITTED ** OPERATOR-SUBMITTED ** OPERATOR-SUBMITTED **



**Cimarex Hallertau 5 Federal #8H Rev5 RM 23Feb17 Proposal Geodetic
Report
(Non-Def Plan)**



Report Date: February 23, 2017 - 08:47 AM
Client: Cimarex
Field: NM Lea County (NAD 83)
Structure / Slot: Cimarex Hallertau 5 Federal #8H / Cimarex Hallertau 5 Federal #8H
Well: Cimarex Hallertau 5 Federal #8H
Borehole: Original Borehole
UWI / API#: Unknown / Unknown
Survey Name: Cimarex Hallertau 5 Federal #8H Rev5 RM 23Feb17
Survey Date: January 13, 2017
Tort / AHD / DDI / ERD Ratio: 90.204 ° / 4520.034 ft / 5.744 / 0.381
Coordinate Reference System: NAD83 New Mexico State Plane, Eastern Zone, US Feet
Location Lat / Long: N 32° 3' 58.49976", W 103° 42' 16.82506"
Location Grid N/E Y/X: N 388406.470 ftUS, E 736075.970 ftUS
CRS Grid Convergence Angle: 0.3338 °
Grid Scale Factor: 0.99995253
Version / Patch: 2.10.254.0

Survey / DLS Computation: Minimum Curvature / Lubinski
Vertical Section Azimuth: 359.740 ° (Grid North)
Vertical Section Origin: 0.000 ft, 0.000 ft
TVD Reference Datum: RKB
TVD Reference Elevation: 3291.700 ft above MSL
Seabed / Ground Elevation: 3271.000 ft above MSL
Magnetic Declination: 6.883 °
Total Gravity Field Strength: 998.4259mgn (9.80665 Based)
Gravity Model: GARM
Total Magnetic Field Strength: 47996.906 nT
Magnetic Dip Angle: 59.781 °
Declination Date: February 23, 2017
Magnetic Declination Model: HDGM 2016
North Reference: Grid North
Grid Convergence Used: 0.3338 °
Total Corr Mag North->Grid North: 6.5489 °
Local Coord Referenced To: Structure Reference Point

**NM OIL CONSERVATION
ARTESIA DISTRICT**

JUL 03 2017

RECEIVED

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 [490' FSL, 358 FWL]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	N/A	388406.47	736075.97	N 32 3 58.50 W 103 42 16.83	
	100.00	0.00	1.95	100.00	0.00	0.00	0.00	0.00	388406.47	736075.97	N 32 3 58.50 W 103 42 16.83	
	200.00	0.00	1.95	200.00	0.00	0.00	0.00	0.00	388406.47	736075.97	N 32 3 58.50 W 103 42 16.83	
	300.00	0.00	1.95	300.00	0.00	0.00	0.00	0.00	388406.47	736075.97	N 32 3 58.50 W 103 42 16.83	
	400.00	0.00	1.95	400.00	0.00	0.00	0.00	0.00	388406.47	736075.97	N 32 3 58.50 W 103 42 16.83	
	500.00	0.00	1.95	500.00	0.00	0.00	0.00	0.00	388406.47	736075.97	N 32 3 58.50 W 103 42 16.83	
	600.00	0.00	1.95	600.00	0.00	0.00	0.00	0.00	388406.47	736075.97	N 32 3 58.50 W 103 42 16.83	
	700.00	0.00	1.95	700.00	0.00	0.00	0.00	0.00	388406.47	736075.97	N 32 3 58.50 W 103 42 16.83	
	800.00	0.00	1.95	800.00	0.00	0.00	0.00	0.00	388406.47	736075.97	N 32 3 58.50 W 103 42 16.83	
	900.00	0.00	1.95	900.00	0.00	0.00	0.00	0.00	388406.47	736075.97	N 32 3 58.50 W 103 42 16.83	
	1000.00	0.00	1.95	1000.00	0.00	0.00	0.00	0.00	388406.47	736075.97	N 32 3 58.50 W 103 42 16.83	
	1100.00	0.00	1.95	1100.00	0.00	0.00	0.00	0.00	388406.47	736075.97	N 32 3 58.50 W 103 42 16.83	
	1200.00	0.00	1.95	1200.00	0.00	0.00	0.00	0.00	388406.47	736075.97	N 32 3 58.50 W 103 42 16.83	
	1300.00	0.00	1.95	1300.00	0.00	0.00	0.00	0.00	388406.47	736075.97	N 32 3 58.50 W 103 42 16.83	
	1400.00	0.00	1.95	1400.00	0.00	0.00	0.00	0.00	388406.47	736075.97	N 32 3 58.50 W 103 42 16.83	
	1500.00	0.00	1.95	1500.00	0.00	0.00	0.00	0.00	388406.47	736075.97	N 32 3 58.50 W 103 42 16.83	
	1600.00	0.00	1.95	1600.00	0.00	0.00	0.00	0.00	388406.47	736075.97	N 32 3 58.50 W 103 42 16.83	
	1700.00	0.00	1.95	1700.00	0.00	0.00	0.00	0.00	388406.47	736075.97	N 32 3 58.50 W 103 42 16.83	
	1800.00	0.00	1.95	1800.00	0.00	0.00	0.00	0.00	388406.47	736075.97	N 32 3 58.50 W 103 42 16.83	
	1900.00	0.00	1.95	1900.00	0.00	0.00	0.00	0.00	388406.47	736075.97	N 32 3 58.50 W 103 42 16.83	
	2000.00	0.00	1.95	2000.00	0.00	0.00	0.00	0.00	388406.47	736075.97	N 32 3 58.50 W 103 42 16.83	
	2100.00	0.00	1.95	2100.00	0.00	0.00	0.00	0.00	388406.47	736075.97	N 32 3 58.50 W 103 42 16.83	
	2200.00	0.00	1.95	2200.00	0.00	0.00	0.00	0.00	388406.47	736075.97	N 32 3 58.50 W 103 42 16.83	
	2300.00	0.00	1.95	2300.00	0.00	0.00	0.00	0.00	388406.47	736075.97	N 32 3 58.50 W 103 42 16.83	
	2400.00	0.00	1.95	2400.00	0.00	0.00	0.00	0.00	388406.47	736075.97	N 32 3 58.50 W 103 42 16.83	
	2500.00	0.00	1.95	2500.00	0.00	0.00	0.00	0.00	388406.47	736075.97	N 32 3 58.50 W 103 42 16.83	

Drilling Office 2.10.254.0

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 ° ' ")
	8500.00	0.00	1.95	8500.00	0.00	0.00	0.00	0.00	388406.47	736075.97	N 32	3 58.50 W 103 42 16.83
	8600.00	0.00	1.95	8600.00	0.00	0.00	0.00	0.00	388406.47	736075.97	N 32	3 58.50 W 103 42 16.83
	8700.00	0.00	1.95	8700.00	0.00	0.00	0.00	0.00	388406.47	736075.97	N 32	3 58.50 W 103 42 16.83
	8800.00	0.00	1.95	8800.00	0.00	0.00	0.00	0.00	388406.47	736075.97	N 32	3 58.50 W 103 42 16.83
	8900.00	0.00	1.95	8900.00	0.00	0.00	0.00	0.00	388406.47	736075.97	N 32	3 58.50 W 103 42 16.83
	9000.00	0.00	1.95	9000.00	0.00	0.00	0.00	0.00	388406.47	736075.97	N 32	3 58.50 W 103 42 16.83
	9100.00	0.00	1.95	9100.00	0.00	0.00	0.00	0.00	388406.47	736075.97	N 32	3 58.50 W 103 42 16.83
	9200.00	0.00	1.95	9200.00	0.00	0.00	0.00	0.00	388406.47	736075.97	N 32	3 58.50 W 103 42 16.83
	9300.00	0.00	1.95	9300.00	0.00	0.00	0.00	0.00	388406.47	736075.97	N 32	3 58.50 W 103 42 16.83
	9400.00	0.00	1.95	9400.00	0.00	0.00	0.00	0.00	388406.47	736075.97	N 32	3 58.50 W 103 42 16.83
	9500.00	0.00	1.95	9500.00	0.00	0.00	0.00	0.00	388406.47	736075.97	N 32	3 58.50 W 103 42 16.83
	9600.00	0.00	1.95	9600.00	0.00	0.00	0.00	0.00	388406.47	736075.97	N 32	3 58.50 W 103 42 16.83
	9700.00	0.00	1.95	9700.00	0.00	0.00	0.00	0.00	388406.47	736075.97	N 32	3 58.50 W 103 42 16.83
	9800.00	0.00	1.95	9800.00	0.00	0.00	0.00	0.00	388406.47	736075.97	N 32	3 58.50 W 103 42 16.83
	9900.00	0.00	1.95	9900.00	0.00	0.00	0.00	0.00	388406.47	736075.97	N 32	3 58.50 W 103 42 16.83
	10000.00	0.00	1.95	10000.00	0.00	0.00	0.00	0.00	388406.47	736075.97	N 32	3 58.50 W 103 42 16.83
	10100.00	0.00	1.95	10100.00	0.00	0.00	0.00	0.00	388406.47	736075.97	N 32	3 58.50 W 103 42 16.83
	10200.00	0.00	1.95	10200.00	0.00	0.00	0.00	0.00	388406.47	736075.97	N 32	3 58.50 W 103 42 16.83
	10300.00	0.00	1.95	10300.00	0.00	0.00	0.00	0.00	388406.47	736075.97	N 32	3 58.50 W 103 42 16.83
	10400.00	0.00	1.95	10400.00	0.00	0.00	0.00	0.00	388406.47	736075.97	N 32	3 58.50 W 103 42 16.83
	10500.00	0.00	1.95	10500.00	0.00	0.00	0.00	0.00	388406.47	736075.97	N 32	3 58.50 W 103 42 16.83
	10600.00	0.00	1.95	10600.00	0.00	0.00	0.00	0.00	388406.47	736075.97	N 32	3 58.50 W 103 42 16.83
	10700.00	0.00	1.95	10700.00	0.00	0.00	0.00	0.00	388406.47	736075.97	N 32	3 58.50 W 103 42 16.83
	10800.00	0.00	1.95	10800.00	0.00	0.00	0.00	0.00	388406.47	736075.97	N 32	3 58.50 W 103 42 16.83
	10900.00	0.00	1.95	10900.00	0.00	0.00	0.00	0.00	388406.47	736075.97	N 32	3 58.50 W 103 42 16.83
	11000.00	0.00	1.95	11000.00	0.00	0.00	0.00	0.00	388406.47	736075.97	N 32	3 58.50 W 103 42 16.83
	11100.00	0.00	1.95	11100.00	0.00	0.00	0.00	0.00	388406.47	736075.97	N 32	3 58.50 W 103 42 16.83
	11200.00	0.00	1.95	11200.00	0.00	0.00	0.00	0.00	388406.47	736075.97	N 32	3 58.50 W 103 42 16.83
	11300.00	0.00	1.95	11300.00	0.00	0.00	0.00	0.00	388406.47	736075.97	N 32	3 58.50 W 103 42 16.83
Build @ 12"/100' DLS	11344.33	0.00	1.95	11344.33	0.00	0.00	0.00	0.00	388406.47	736075.97	N 32	3 58.50 W 103 42 16.83
	11400.00	6.68	1.95	11399.87	3.24	3.24	0.11	12.00	388409.71	736076.08	N 32	3 58.53 W 103 42 16.82
	11500.00	18.68	1.95	11497.26	25.13	25.14	0.86	12.00	388431.61	736076.83	N 32	3 58.75 W 103 42 16.81
	11600.00	30.68	1.95	11587.96	66.78	66.79	2.27	12.00	388473.26	736078.24	N 32	3 59.16 W 103 42 16.79
	11700.00	42.68	1.95	11668.01	126.36	126.38	4.30	12.00	388532.85	736080.27	N 32	3 59.75 W 103 42 16.77
Top Wolfcamp	11715.18	44.50	1.95	11679.00	136.82	136.84	4.66	12.00	388543.31	736080.63	N 32	3 59.85 W 103 42 16.76
	11800.00	54.68	1.95	11733.91	201.28	201.31	6.85	12.00	388607.77	736082.82	N 32	4 0.49 W 103 42 16.73
	11900.00	66.68	1.95	11782.79	288.24	288.29	9.82	12.00	388694.74	736085.78	N 32	4 1.35 W 103 42 16.69
Build & Turn @ 4"/100' DLS	11969.33	75.00	1.95	11805.53	353.62	353.68	12.04	12.00	388760.14	736088.01	N 32	4 2.00 W 103 42 16.66
	12000.00	76.21	1.74	11813.15	383.31	383.37	13.00	4.00	388789.83	736088.97	N 32	4 2.29 W 103 42 16.65
	12100.00	80.16	1.07	11833.63	481.13	481.21	15.39	4.00	388887.65	736091.36	N 32	4 3.26 W 103 42 16.61
	12200.00	84.10	0.41	11847.32	580.15	580.23	16.66	4.00	388986.68	736092.63	N 32	4 4.24 W 103 42 16.59
	12300.00	88.05	359.76	11854.16	679.90	679.98	16.81	4.00	389086.42	736092.78	N 32	4 5.23 W 103 42 16.58
Wolfcamp Y sst Target	12346.30	89.88	359.46	11855.00	726.18	726.27	16.49	4.00	389132.70	736092.46	N 32	4 5.69 W 103 42 16.58
Landing Point	12349.42	90.00	359.44	11855.00	729.31	729.39	16.46	4.00	389135.82	736092.43	N 32	4 5.72 W 103 42 16.58
	12400.00	90.00	359.44	11855.00	779.89	779.97	15.97	0.00	389186.40	736091.94	N 32	4 6.22 W 103 42 16.59
	12500.00	90.00	359.44	11855.00	879.88	879.96	14.99	0.00	389286.39	736090.96	N 32	4 7.21 W 103 42 16.59
	12600.00	90.00	359.44	11855.00	979.88	979.96	14.02	0.00	389386.38	736089.99	N 32	4 8.20 W 103 42 16.60
	12700.00	90.00	359.44	11855.00	1079.88	1079.95	13.05	0.00	389486.37	736089.01	N 32	4 9.19 W 103 42 16.60
	12800.00	90.00	359.44	11855.00	1179.88	1179.95	12.07	0.00	389586.36	736088.04	N 32	4 10.17 W 103 42 16.60
	12900.00	90.00	359.44	11855.00	1279.88	1279.94	11.10	0.00	389686.35	736087.07	N 32	4 11.16 W 103 42 16.61
	13000.00	90.00	359.44	11855.00	1379.88	1379.94	10.12	0.00	389786.34	736086.09	N 32	4 12.15 W 103 42 16.61
	13100.00	90.00	359.44	11855.00	1479.88	1479.93	9.15	0.00	389886.33	736085.12	N 32	4 13.14 W 103 42 16.62
	13200.00	90.00	359.44	11855.00	1579.88	1579.93	8.17	0.00	389986.32	736084.14	N 32	4 14.13 W 103 42 16.62
	13300.00	90.00	359.44	11855.00	1679.87	1679.92	7.20	0.00	390086.31	736083.17	N 32	4 15.12 W 103 42 16.63
	13400.00	90.00	359.44	11855.00	1779.87	1779.92	6.22	0.00	390186.30	736082.19	N 32	4 16.11 W 103 42 16.63
	13500.00	90.00	359.44	11855.00	1879.87	1879.91	5.25	0.00	390286.29	736081.22	N 32	4 17.10 W 103 42 16.64

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 ° ' ")
	13600.00	90.00	359.44	11855.00	1979.87	1979.91	4.27	0.00	390386.28	736080.24	N 32 4 18.09 W	103 42 16.64
	13700.00	90.00	359.44	11855.00	2079.87	2079.90	3.30	0.00	390486.27	736079.27	N 32 4 19.08 W	103 42 16.65
	13800.00	90.00	359.44	11855.00	2179.87	2179.90	2.32	0.00	390586.26	736078.29	N 32 4 20.07 W	103 42 16.65
	13900.00	90.00	359.44	11855.00	2279.87	2279.90	1.35	0.00	390686.25	736077.32	N 32 4 21.06 W	103 42 16.66
	14000.00	90.00	359.44	11855.00	2379.86	2379.89	0.37	0.00	390786.24	736076.34	N 32 4 22.05 W	103 42 16.66
	14100.00	90.00	359.44	11855.00	2479.86	2479.89	-0.60	0.00	390886.23	736075.37	N 32 4 23.04 W	103 42 16.66
	14200.00	90.00	359.44	11855.00	2579.86	2579.88	-1.57	0.00	390986.22	736074.40	N 32 4 24.03 W	103 42 16.67
	14300.00	90.00	359.44	11855.00	2679.86	2679.88	-2.55	0.00	391086.21	736073.42	N 32 4 25.02 W	103 42 16.67
	14400.00	90.00	359.44	11855.00	2779.86	2779.87	-3.52	0.00	391186.20	736072.45	N 32 4 26.01 W	103 42 16.68
	14500.00	90.00	359.44	11855.00	2879.86	2879.87	-4.50	0.00	391286.19	736071.47	N 32 4 27.00 W	103 42 16.68
	14600.00	90.00	359.44	11855.00	2979.86	2979.86	-5.47	0.00	391386.18	736070.50	N 32 4 27.99 W	103 42 16.69
	14700.00	90.00	359.44	11855.00	3079.86	3079.86	-6.45	0.00	391486.18	736069.52	N 32 4 28.98 W	103 42 16.69
	14800.00	90.00	359.44	11855.00	3179.85	3179.85	-7.42	0.00	391586.17	736068.55	N 32 4 29.97 W	103 42 16.70
	14900.00	90.00	359.44	11855.00	3279.85	3279.85	-8.40	0.00	391686.16	736067.57	N 32 4 30.96 W	103 42 16.70
	15000.00	90.00	359.44	11855.00	3379.85	3379.84	-9.37	0.00	391786.15	736066.60	N 32 4 31.94 W	103 42 16.71
	15100.00	90.00	359.44	11855.00	3479.85	3479.84	-10.35	0.00	391886.14	736065.62	N 32 4 32.93 W	103 42 16.71
	15200.00	90.00	359.44	11855.00	3579.85	3579.83	-11.32	0.00	391986.13	736064.65	N 32 4 33.92 W	103 42 16.71
	15300.00	90.00	359.44	11855.00	3679.85	3679.83	-12.30	0.00	392086.12	736063.67	N 32 4 34.91 W	103 42 16.72
	15400.00	90.00	359.44	11855.00	3779.85	3779.82	-13.27	0.00	392186.11	736062.70	N 32 4 35.90 W	103 42 16.72
	15500.00	90.00	359.44	11855.00	3879.84	3879.82	-14.25	0.00	392286.10	736061.73	N 32 4 36.89 W	103 42 16.73
	15600.00	90.00	359.44	11855.00	3979.84	3979.81	-15.22	0.00	392386.09	736060.75	N 32 4 37.88 W	103 42 16.73
	15700.00	90.00	359.44	11855.00	4079.84	4079.81	-16.19	0.00	392486.08	736059.78	N 32 4 38.87 W	103 42 16.74
	15800.00	90.00	359.44	11855.00	4179.84	4179.81	-17.17	0.00	392586.07	736058.80	N 32 4 39.86 W	103 42 16.74
	15900.00	90.00	359.44	11855.00	4279.84	4279.80	-18.14	0.00	392686.06	736057.83	N 32 4 40.85 W	103 42 16.75
	16000.00	90.00	359.44	11855.00	4379.84	4379.80	-19.12	0.00	392786.05	736056.85	N 32 4 41.84 W	103 42 16.75
	16100.00	90.00	359.44	11855.00	4479.84	4479.79	-20.09	0.00	392886.04	736055.88	N 32 4 42.83 W	103 42 16.76

Wolfcamp Y sst
Target
Cimarex
Hallertau 5
Federal #8H -
PBHL [330'
FNL, 380' FWL]

Survey Type: Non-Def Plan

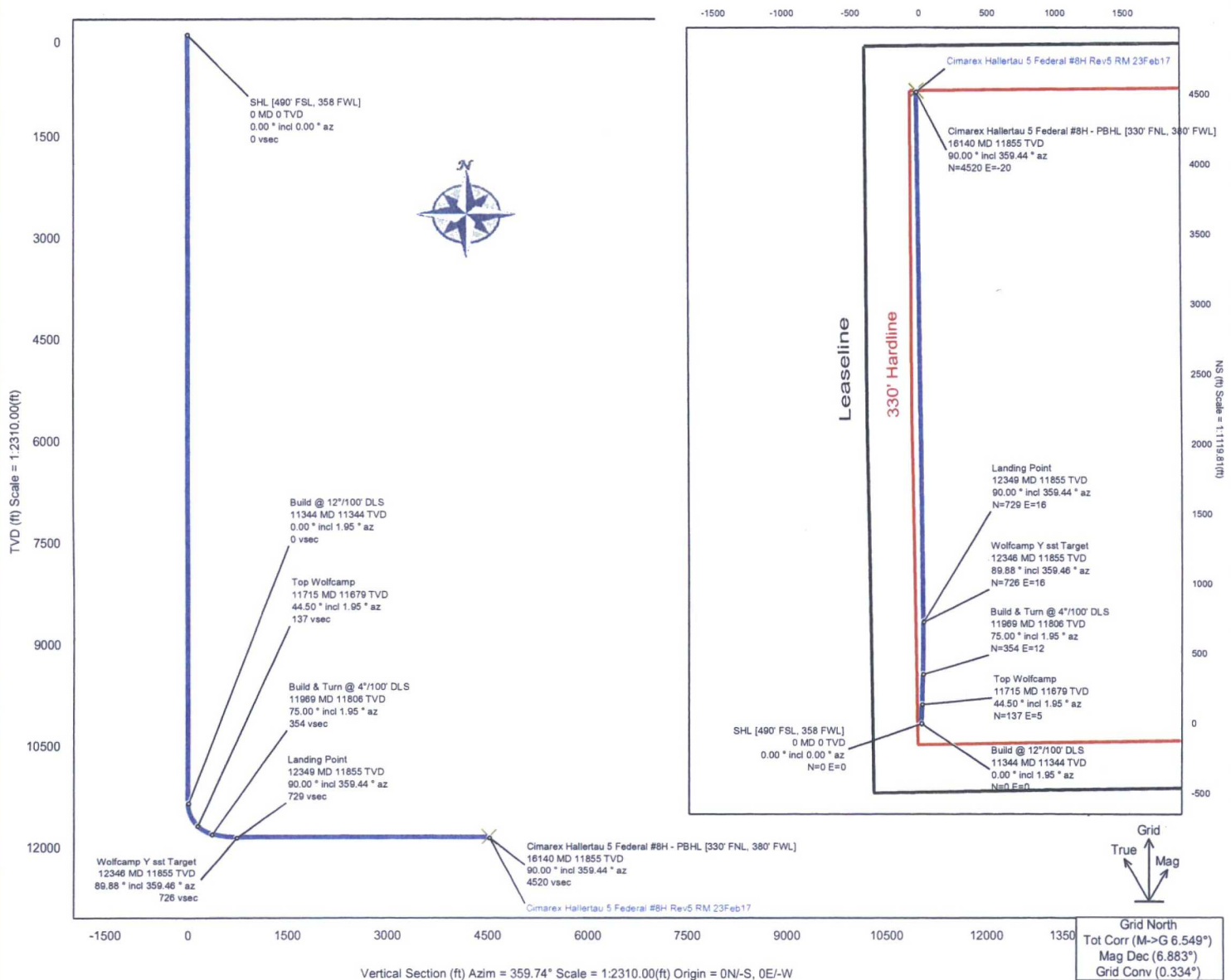
Survey Error Model: ISCWSA Rev 0 *** 3-D 95.000% Confidence 2.7955 sigma
Survey Program:

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	20.700	1/100.000	30.000	30.000		NAL_MWD_PLUS_0.5_DEG- Depth Only	Original Borehole / Cimarex Hallertau 5 Federal #8H Rev5 RM 23Feb17
	1	20.700	16139.805	1/100.000	30.000	30.000		NAL_MWD_PLUS_0.5_DEG	Original Borehole / Cimarex Hallertau 5 Federal #8H Rev5

Borehole:	Well:	Field:	Structure:
Original Borehole	Cimarex Hallertau 5 Federal #8H	NM Lea County (NAD 83)	Cimarex Hallertau 5 Federal #8H

Gravity & Magnetic Parameters		Surface Location NAD83 New Mexico State Plane, Eastern Zone, US Feet		Miscellaneous	
Model:	HDGM 2016	Dip:	59.781°	Date:	23-Feb-2017
MagDec:	6.883°	FS:	47996.906nT	Gravity FS:	998.426mgn (9.80665 Based)
Lat:	N 32 3 58.50	Northing:	368406.477US	Grid Conv:	0.3338°
Lon:	W 103 42 16.83	Easting:	736075.977US	Scale Fact:	0.99995253
				Slot:	Hallertau 5
				TVD Ref:	RKB(3291.7ft above MSL)
				Plan:	Cimarex Hallertau 5 Federal #8H Rev5 RM 23Feb17

EW (ft) Scale = 1:1119.81 (ft)



Critical Points

Critical Point	MD	INCL	AZIM	TVD	VSEC	N(+)/S(-)	E(+)/W(-)	DLS
SHL [490' FSL, 358 FWL]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
Build @ 12°/100' DLS	11344.33	0.00	1.95	11344.33	0.00	0.00	0.00	0.00
Top Wolfcamp	11715.18	44.50	1.95	11679.00	136.82	136.84	4.66	12.00
Build & Turn @ 4°/100' DLS	11969.33	75.00	1.95	11805.53	353.62	353.68	12.04	12.00
Wolfcamp Y sst Target	12346.30	89.88	359.46	11855.00	726.18	726.27	16.49	4.00
Landing Point	12349.42	90.00	359.44	11855.00	729.31	729.39	16.46	4.00
Wolfcamp Y sst Target	16139.80	90.00	359.44	11855.00	4519.64	4519.59	-20.48	0.00
Cimarex Hallertau 5 Federal #8H - PBHL [330° FNL, 380° FWL]	16139.80	90.00	359.44	11855.00	4519.64	4519.59	-20.48	0.00

1. Geological Formations

TVD of target 11,855
MD at TD 16,139

Pilot Hole TD N/A
Deepest expected fresh water

Formation	Depth (TVD) from KB	Water/Mineral Bearing/Target Zone	Hazards
Rustler	1019	N/A	
Salt	1345	N/A	
Castille	2800	N/A	
Base Last Salt	4159	N/A	
Lamar	4435	N/A	
Bell Canyon	4455	Hydrocarbons	
Cherry Canyon	5411	Hydrocarbons	
Brushy Canyon	6730	Hydrocarbons	
Top Bone Spring	8436	Hydrocarbons	
Top Wolfcamp	11679	Hydrocarbons	
Wolfcamp A-1 Shale	11856	Hydrocarbons	
Wolfcamp Target	11865	Hydrocarbons	

2. Casing Program

Hole Size	Casing Depth From	Casing Depth To	Casing Size	Weight (lb/ft)	Grade	Conn.	SF Collapse	SF Burst	SF Tension
17 1/2	0	1225	13-3/8"	48.00	H-40/J-55 Hybrid	ST&C	1.32	3.09	5.48
12 1/4	0	4400	9-5/8"	40.00	J-55	LT&C	1.23	1.69	2.95
8 3/4	0	11344	7"	32.00	L-80	LT&C	1.62	1.70	1.77
8 3/4	11344	12349	7"	32.00	L-80	BT&C	1.55	1.52	45.56
6	11344	16139	4-1/2"	13.50	P-110	BT&C	1.45	1.68	61.17
BLM Minimum Safety Factor							1.125	1	1.6 Dry 1.8 Wet

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?	Y
Is well located within Capitan Reef?	N
If yes, does production casing cement tie back a minimum of 50' above the Reef?	N
Is well within the designated 4 string boundary.	N
Is well located in SOPA but not in R-111-P?	N
If yes, are the first 2 strings cemented to surface and 3rd string cement tied back 500' into previous casing?	N
Is well located in R-111-P and SOPA?	N
If yes, are the first three strings cemented to surface?	N
Is 2nd string set 100' to 600' below the base of salt?	N
Is well located in high Cave/Karst?	N
If yes, are there two strings cemented to surface?	N
(For 2 string wells) If yes, is there a contingency casing if lost circulation occurs?	N
Is well located in critical Cave/Karst?	N
If yes, are there three strings cemented to surface?	N

3. Cementing Program

Casing	# Sk	Wt. lb/gal	Yld ft ³ /sack	H ₂ O gal/sk	500# Comp. Strength (hours)	Slurry Description
Surface	594	13.50	1.72	9.15	15.5	Lead: Class C + Bentonite
	159	14.80	1.34	6.32	9.5	Tail: Class C + LCM
Intermediate	820	12.90	1.88	9.65	12	Lead: 35:65 (Poz:C) + Salt + Bentonite
	257	14.80	1.34	6.32	9.5	Tail: Class C + LCM
Production	217	9.20	6.18	28.80		Lead: Class C + Extender + Salt + Strength Enhancement + LCM + Fluid Loss + Retarder
	129	14.20	1.30	5.86	14:30	Tail: 50:50 (Poz:H) + Salt + Bentonite + Fluid Loss + Dispersant + SMS
Completion System	276	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	45
Intermediate	0	44
Production	4200	23
Completion System	12349	10

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	10M	Annular	X	50% of working pressure
			Blind Ram		10M
			Pipe Ram		
			Double Ram	X	
			Other		
6	13 5/8	10M	Annular	X	50% of working pressure
			Blind Ram		10M
			Pipe Ram		
			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 1225'	FW Spud Mud	8.30 - 8.80	28	N/C
1225' to 4400'	Brine Water	9.70 - 10.20	30-32	N/C
4400' to 12349'	FW/Cut Brine	8.50 - 9.00	30-32	N/C
12349' to 16139'	Oil Based Mud	11.50 - 12.00	50-70	N/C

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

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
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7. Drilling Conditions

Condition	
BH Pressure at deepest TVD	5548 psi
Abnormal Temperature	No

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

X	H ₂ S is present
X	H ₂ S plan is attached

8. Other Facets of Operation