

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

OCD Hobbs

FORM APPROVED
OMB NO. 1004-0137
Expires: January 31, 2018

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

SUBMIT IN TRIPLICATE - Other instructions on page 2

HOBBS OCD
DEC 11 2017
RECEIVED

1. Type of Well ☒ Oil Well ☐ Gas Well ☐ Other		5. Lease Serial No. NMNM082
2. Name of Operator CIMAREX ENERGY COMPANY		6. If Indian, Allottee or Tribe Name
Contact: TERRI STATHEM E-Mail: tstathem@cimarex.com		7. If Unit or CA/Agreement, Name and/or No.
3a. Address 202 S. CHEYENNE AVE, STE 1000 TULSA, OK 74103	3b. Phone No. (include area code) Ph: 432-620-1936	8. Well Name and No. PERRY 22 FEDERAL COM 4H
4. Location of Well (Footage, Sec., T., R., M., or Survey Description) Sec 22 T20S R34E NWNW 330FNL 660FWL		9. API Well No. 30-025-41608
		10. Field and Pool or Exploratory Area LEA
		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 APD
	☐ Convert to Injection	☐ Plug Back	☐ Water Disposal	

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.

Based off of recent information in regards to the bottom hole pressure, Cimarex respectfully requests approval to change the maximum mud weight in the 6" hole from 12.5 to 10.0 ppg. The lower pressure, allows for a change from a 10K BOP system to a 5K BOP system. The maximum anticipated bottom hole pressure is now 5,839 psi resulting in a maximum surface pressure of 3,369 psi (.052 X 10 X 11230 - .22 X 11230).

Please see attached 5M BOP schematic.

* Intermediate casing must be kept 1/3 fluid filled
* Intermediate casing depth 5300'
* Approved for 5M BOP
Original COAs still apply w/ the exception of items listed above

14. I hereby certify that the foregoing is true and correct. Electronic Submission #396824 verified by the BLM Well Information System For CIMAREX ENERGY COMPANY, sent to the Hobbs Committed to AFMSS for processing by CHARLES NIMMER on 12/05/2017 ()	
Name (Printed/Typed) TERRI STATHEM	Title MANAGER REGULATORY COMPLIANCE
Signature (Electronic Submission)	Date 12/04/2017

THIS SPACE FOR FEDERAL OR STATE OFFICE USE

Approved By <u>C. Nimmer</u>	Title <u>Engineer</u>	Date <u>12/5/2017</u>
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 <u>BLM - CFO</u>

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 ****

KZ

1. Geological Formations

TVD of target 11,230

Pilot Hole TD N/A

MD at TD 15,204

Deepest expected fresh water

Formation	Depth (TVD) from KB	Water/Mineral Bearing/Target Zone	Hazards
OSE Groundwater	200	N/A	
Rustler	1650	N/A	
Salt	1800	N/A	
Tansill	3400	N/A	
Capitan Reef	3970	N/A	
Cherry Canyon	5700	N/A	
Bone Spring	8390	Hydrocarbons	
1st BSS	9560	Hydrocarbons	
2nd BSS	10750	Hydrocarbons	
3rd BSS	10800	Hydrocarbons	
Wolfcamp	11073	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	1700	13-3/8"	54.50	J-55	ST&C	1.45	3.52	5.55
12 1/4	0	5300 ⁵⁶⁰⁰	9-5/8"	40.00	J-55	LT&C	1.29	1.33	2.32
8 3/4	0	10607	7"	26.00	L-80	LT&C		1.43	1.75
8 3/4	10607	11565	7"	26.00	L-80	BT&C		1.35	37.29
6	10607	15204	4-1/2"	11.60	P-110	BT&C		1.47	50.78
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	# Sks	Wt. lb/gal	Yld ft ³ /sack	H ₂ O gal/sk	500# Comp. Strength (hours)	Slurry Description
Surface	824	13.50	1.72	9.15	15.5	Lead: Class C + Bentonite
	221	14.80	1.34	6.32	9.5	Tail: Class C + LCM
Intermediate	1054	12.90	1.88	9.65	12	Lead: 35:65 (Poz:C) + Salt + Bentonite
	288	14.80	1.36	6.57	9.5	Tail: Class C + Retarder
Production	158	9.20	6.18	28.80		Lead: Class C + Extender + Salt + Strength Enhancement + LCM + Fluid Loss + Retarder
	123	14.20	1.30	5.86	14:30	Tail: 50:50 (Poz:H) + Salt + Bentonite + Fluid Loss + Dispersant + SMS
Completion System	264	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	5400	23
Completion System	11565	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	X	
			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	13 5/8	10M 5M	Annular	X	50% of working pressure
			Blind Ram		10M 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 1700'	FW Spud Mud	8.30 - 8.80	28	N/C
1700' to 5600'	Brine Water	9.70 - 10.20	30-32	N/C
5600' to 11565'	FW/Cut Brine	8.70 - 9.20	30-32	N/C
11565' to 15204'	Oil Based Mud	12.00 - 12.50	50-70	N/C

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

What will be used to monitor the loss or gain of fluid?	PVT/Pason/Visual Monitoring
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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	7299 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

Cimarex Energy Perry 22 Federal 4H Rev2 tmn 26Jun17 Proposal Geodetic Report (Del Plan)

Report Date: June 26, 2017 - 11:46 AM
 Client: Cimarex Energy
 Field: NM Lea County (NAAD 83)
 Structure / Slot: Cimarex Perry 22 Federal 4H / Perry 22 Federal 4H
 Well: Perry 22 Federal 4H
 Borehole: Original Borehole
 UWI / API#: Unknown / Unknown
 Survey Name: Cimarex Energy Perry 22 Federal 4H Rev2 tmn 26Jun17
 Survey Date: June 26, 2017
 Tori / AHD / DDI / ERD Ratio: 88.236 * / 4317.838 N / 5.712 / 0.384
 Coordinate Reference System: NAD83 New Mexico State Plane, Eastern Zone, US Feet
 Location Lat / Long: N 32° 33' 50.86125" W 103° 33' 18.53983"
 Location Grid N/E Y/X: N 569936.200 NUS, E 780993.950 NUS
 CRS Grid Convergence Angle: 0.4187°
 Grid Scale Factor: 0.99997487
 Version / Patch: 2.10.302.0

Survey / DLS Computation: Minimum Curvature / Lubinski
 Vertical Section Azimuth: 179.590° (Grid North)
 Vertical Section Origin: 0.000 ft, 0.000 ft
 TVD Reference Datum: RKB
 TVD Reference Elevation: 3671.100 ft above MSL
 Sealed / Ground Elevation: 3647.100 ft above MSL
 Magnetic Declination: 6.767°
 Total Gravity Field Strength: 998.503bmgn (9.80655 Based)
 Gravity Model: GARM
 Total Magnetic Field Strength: 48330.627 nT
 Magnetic Dip Angle: 60.534°
 Declination Date: June 26, 2017
 Magnetic Declination Model: HDGM 2017
 North Reference: Grid North
 Grid Convergence Used: 0.4187°
 Total Corr Mag North-Grid North: 6.3486°
 Local Coord Referenced To: Well Head

Comments	MD (ft)	Incl (°)	Azim Grid (°)	TVD (ft)	TVDSS (ft)	VSEC (ft)	NS (ft)	EW (ft)	DLS (1/100ft)	Closure (ft)	Closure Azimuth (°)	Northing (ftUS)	Easting (ftUS)	Latitude (N/S ° ' '')	Longitude (E/W ° ' '')
SL [630' FNL, 380' FWL]	0.00	0.00	0.00	0.00	-3671.10	0.00	0.00	0.00	N/A	0.00	0.00	569836.20	780993.95	N 32 33 50.86	W 103 33 18.54
	100.00	0.00	179.59	100.00	-3571.10	0.00	0.00	0.00	0.00	0.00	0.00	569836.20	780993.95	N 32 33 50.86	W 103 33 18.54
	200.00	0.00	179.59	200.00	-3471.10	0.00	0.00	0.00	0.00	0.00	0.00	569836.20	780993.95	N 32 33 50.86	W 103 33 18.54
	300.00	0.00	179.59	300.00	-3371.10	0.00	0.00	0.00	0.00	0.00	0.00	569836.20	780993.95	N 32 33 50.86	W 103 33 18.54
	400.00	0.00	179.59	400.00	-3271.10	0.00	0.00	0.00	0.00	0.00	0.00	569836.20	780993.95	N 32 33 50.86	W 103 33 18.54
	500.00	0.00	179.59	500.00	-3171.10	0.00	0.00	0.00	0.00	0.00	0.00	569836.20	780993.95	N 32 33 50.86	W 103 33 18.54
	600.00	0.00	179.59	600.00	-3071.10	0.00	0.00	0.00	0.00	0.00	0.00	569836.20	780993.95	N 32 33 50.86	W 103 33 18.54
	700.00	0.00	179.59	700.00	-2971.10	0.00	0.00	0.00	0.00	0.00	0.00	569836.20	780993.95	N 32 33 50.86	W 103 33 18.54
	800.00	0.00	179.59	800.00	-2871.10	0.00	0.00	0.00	0.00	0.00	0.00	569836.20	780993.95	N 32 33 50.86	W 103 33 18.54
	900.00	0.00	179.59	900.00	-2771.10	0.00	0.00	0.00	0.00	0.00	0.00	569836.20	780993.95	N 32 33 50.86	W 103 33 18.54
	1000.00	0.00	179.59	1000.00	-2671.10	0.00	0.00	0.00	0.00	0.00	0.00	569836.20	780993.95	N 32 33 50.86	W 103 33 18.54
	1100.00	0.00	179.59	1100.00	-2571.10	0.00	0.00	0.00	0.00	0.00	0.00	569836.20	780993.95	N 32 33 50.86	W 103 33 18.54
	1200.00	0.00	179.59	1200.00	-2471.10	0.00	0.00	0.00	0.00	0.00	0.00	569836.20	780993.95	N 32 33 50.86	W 103 33 18.54
	1300.00	0.00	179.59	1300.00	-2371.10	0.00	0.00	0.00	0.00	0.00	0.00	569836.20	780993.95	N 32 33 50.86	W 103 33 18.54
	1400.00	0.00	179.59	1400.00	-2271.10	0.00	0.00	0.00	0.00	0.00	0.00	569836.20	780993.95	N 32 33 50.86	W 103 33 18.54
	1500.00	0.00	179.59	1500.00	-2171.10	0.00	0.00	0.00	0.00	0.00	0.00	569836.20	780993.95	N 32 33 50.86	W 103 33 18.54
	1600.00	0.00	179.59	1600.00	-2071.10	0.00	0.00	0.00	0.00	0.00	0.00	569836.20	780993.95	N 32 33 50.86	W 103 33 18.54
	1700.00	0.00	179.59	1700.00	-1971.10	0.00	0.00	0.00	0.00	0.00	0.00	569836.20	780993.95	N 32 33 50.86	W 103 33 18.54
	1800.00	0.00	179.59	1800.00	-1871.10	0.00	0.00	0.00	0.00	0.00	0.00	569836.20	780993.95	N 32 33 50.86	W 103 33 18.54
	1900.00	0.00	179.59	1900.00	-1771.10	0.00	0.00	0.00	0.00	0.00	0.00	569836.20	780993.95	N 32 33 50.86	W 103 33 18.54
	2000.00	0.00	179.59	2000.00	-1671.10	0.00	0.00	0.00	0.00	0.00	0.00	569836.20	780993.95	N 32 33 50.86	W 103 33 18.54
	2100.00	0.00	179.59	2100.00	-1571.10	0.00	0.00	0.00	0.00	0.00	0.00	569836.20	780993.95	N 32 33 50.86	W 103 33 18.54
	2200.00	0.00	179.59	2200.00	-1471.10	0.00	0.00	0.00	0.00	0.00	0.00	569836.20	780993.95	N 32 33 50.86	W 103 33 18.54
	2300.00	0.00	179.59	2300.00	-1371.10	0.00	0.00	0.00	0.00	0.00	0.00	569836.20	780993.95	N 32 33 50.86	W 103 33 18.54
	2400.00	0.00	179.59	2400.00	-1271.10	0.00	0.00	0.00	0.00	0.00	0.00	569836.20	780993.95	N 32 33 50.86	W 103 33 18.54
	2500.00	0.00	179.59	2500.00	-1171.10	0.00	0.00	0.00	0.00	0.00	0.00	569836.20	780993.95	N 32 33 50.86	W 103 33 18.54
	2600.00	0.00	179.59	2600.00	-1071.10	0.00	0.00	0.00	0.00	0.00	0.00	569836.20	780993.95	N 32 33 50.86	W 103 33 18.54
	2700.00	0.00	179.59	2700.00	-971.10	0.00	0.00	0.00	0.00	0.00	0.00	569836.20	780993.95	N 32 33 50.86	W 103 33 18.54
	2800.00	0.00	179.59	2800.00	-871.10	0.00	0.00	0.00	0.00	0.00	0.00	569836.20	780993.95	N 32 33 50.86	W 103 33 18.54
	2900.00	0.00	179.59	2900.00	-771.10	0.00	0.00	0.00	0.00	0.00	0.00	569836.20	780993.95	N 32 33 50.86	W 103 33 18.54
	3000.00	0.00	179.59	3000.00	-671.10	0.00	0.00	0.00	0.00	0.00	0.00	569836.20	780993.95	N 32 33 50.86	W 103 33 18.54
	3100.00	0.00	179.59	3100.00	-571.10	0.00	0.00	0.00	0.00	0.00	0.00	569836.20	780993.95	N 32 33 50.86	W 103 33 18.54
	3200.00	0.00	179.59	3200.00	-471.10	0.00	0.00	0.00	0.00	0.00	0.00	569836.20	780993.95	N 32 33 50.86	W 103 33 18.54
	3300.00	0.00	179.59	3300.00	-371.10	0.00	0.00	0.00	0.00	0.00	0.00	569836.20	780993.95	N 32 33 50.86	W 103 33 18.54
	3400.00	0.00	179.59	3400.00	-271.10	0.00	0.00	0.00	0.00	0.00	0.00	569836.20	780993.95	N 32 33 50.86	W 103 33 18.54
	3500.00	0.00	179.59	3500.00	-171.10	0.00	0.00	0.00	0.00	0.00	0.00	569836.20	780993.95	N 32 33 50.86	W 103 33 18.54
	3600.00	0.00	179.59	3600.00	-71.10	0.00	0.00	0.00	0.00	0.00	0.00	569836.20	780993.95	N 32 33 50.86	W 103 33 18.54
	3700.00	0.00	179.59	3700.00	28.90	0.00	0.00	0.00	0.00	0.00	0.00	569836.20	780993.95	N 32 33 50.86	W 103 33 18.54
	3800.00	0.00	179.59	3800.00	128.90	0.00	0.00	0.00	0.00	0.00	0.00	569836.20	780993.95	N 32 33 50.86	W 103 33 18.54
	3900.00	0.00	179.59	3900.00	228.90	0.00	0.00	0.00	0.00	0.00	0.00	569836.20	780993.95	N 32 33 50.86	W 103 33 18.54
	4000.00	0.00	179.59	4000.00	328.90	0.00	0.00	0.00	0.00	0.00	0.00	569836.20	780993.95	N 32 33 50.86	W 103 33 18.54
	4100.00	0.00	179.59	4100.00	428.90	0.00	0.00	0.00	0.00	0.00	0.00	569836.20	780993.95	N 32 33 50.86	W 103 33 18.54
	4200.00	0.00	179.59	4200.00	528.90	0.00	0.00	0.00	0.00	0.00	0.00	569836.20	780993.95	N 32 33 50.86	W 103 33 18.54
	4300.00	0.00	179.59	4300.00	628.90	0.00	0.00	0.00	0.00	0.00	0.00	569836.20	780993.95	N 32 33 50.86	W 103 33 18.54
	4400.00	0.00	179.59	4400.00	728.90	0.00	0.00	0.00	0.00	0.00	0.00	569836.20	780993.95	N 32 33 50.86	W 103 33 18.54
	4500.00	0.00	179.59	4500.00	828.90	0.00	0.00	0.00	0.00	0.00	0.00	569836.20	780993.95	N 32 33 50.86	W 103 33 18.54
	4600.00	0.00	179.59	4600.00	928.90	0.00	0.00	0.00	0.00	0.00	0.00	569836.20	780993.95	N 32 33 50.86	W 103 33 18.54

Comments	MID (ft)	Incl (°)	Acim Grd (°)	TVD (ft)	TVDSS (ft)	VSEC (ft)	NS (ft)	EW (ft)	DLS (ft/mile)	Closure (ft)	Closure Azimuth (°)	Northing (ft)	Eastng (ft)	Latitude (N/S ° °)	Longitude (E/W ° °)
Build 4" DLS Wellcamp A1	4700.00	0.00	179.59	4700.00	1028.90	0.00	0.00	0.00	0.00	0.00	0.00	569836.20	760993.95	N 32.33 50.66	W 103.33 19.54
	4800.00	0.00	179.59	4800.00	1128.90	0.00	0.00	0.00	0.00	0.00	0.00	569836.20	760993.95	N 32.33 50.66	W 103.33 19.54
	4900.00	0.00	179.59	4900.00	1228.90	0.00	0.00	0.00	0.00	0.00	0.00	569836.20	760993.95	N 32.33 50.66	W 103.33 19.54
	5000.00	0.00	179.59	5000.00	1328.90	0.00	0.00	0.00	0.00	0.00	0.00	569836.20	760993.95	N 32.33 50.66	W 103.33 19.54
	5100.00	0.00	179.59	5100.00	1428.90	0.00	0.00	0.00	0.00	0.00	0.00	569836.20	760993.95	N 32.33 50.66	W 103.33 19.54
	5200.00	0.00	179.59	5200.00	1528.90	0.00	0.00	0.00	0.00	0.00	0.00	569836.20	760993.95	N 32.33 50.66	W 103.33 19.54
	5300.00	0.00	179.59	5300.00	1628.90	0.00	0.00	0.00	0.00	0.00	0.00	569836.20	760993.95	N 32.33 50.66	W 103.33 19.54
	5400.00	0.00	179.59	5400.00	1728.90	0.00	0.00	0.00	0.00	0.00	0.00	569836.20	760993.95	N 32.33 50.66	W 103.33 19.54
	5500.00	0.00	179.59	5500.00	1828.90	0.00	0.00	0.00	0.00	0.00	0.00	569836.20	760993.95	N 32.33 50.66	W 103.33 19.54
	5600.00	0.00	179.59	5600.00	1928.90	0.00	0.00	0.00	0.00	0.00	0.00	569836.20	760993.95	N 32.33 50.66	W 103.33 19.54
KOP - Build 12" DLS	5700.00	0.00	179.59	5700.00	2028.90	0.00	0.00	0.00	0.00	0.00	0.00	569836.20	760993.95	N 32.33 50.66	W 103.33 19.54
	5800.00	0.00	179.59	5800.00	2128.90	0.00	0.00	0.00	0.00	0.00	0.00	569836.20	760993.95	N 32.33 50.66	W 103.33 19.54
	5900.00	0.00	179.59	5900.00	2228.90	0.00	0.00	0.00	0.00	0.00	0.00	569836.20	760993.95	N 32.33 50.66	W 103.33 19.54
	6000.00	0.00	179.59	6000.00	2328.90	0.00	0.00	0.00	0.00	0.00	0.00	569836.20	760993.95	N 32.33 50.66	W 103.33 19.54
	6100.00	0.00	179.59	6100.00	2428.90	0.00	0.00	0.00	0.00	0.00	0.00	569836.20	760993.95	N 32.33 50.66	W 103.33 19.54
	6200.00	0.00	179.59	6200.00	2528.90	0.00	0.00	0.00	0.00	0.00	0.00	569836.20	760993.95	N 32.33 50.66	W 103.33 19.54
	6300.00	0.00	179.59	6300.00	2628.90	0.00	0.00	0.00	0.00	0.00	0.00	569836.20	760993.95	N 32.33 50.66	W 103.33 19.54
	6400.00	0.00	179.59	6400.00	2728.90	0.00	0.00	0.00	0.00	0.00	0.00	569836.20	760993.95	N 32.33 50.66	W 103.33 19.54
	6500.00	0.00	179.59	6500.00	2828.90	0.00	0.00	0.00	0.00	0.00	0.00	569836.20	760993.95	N 32.33 50.66	W 103.33 19.54
	6600.00	0.00	179.59	6600.00	2928.90	0.00	0.00	0.00	0.00	0.00	0.00	569836.20	760993.95	N 32.33 50.66	W 103.33 19.54
LP (1311 FNL, 380 FNL)	6700.00	0.00	179.59	6700.00	3028.90	0.00	0.00	0.00	0.00	0.00	0.00	569836.20	760993.95	N 32.33 50.66	W 103.33 19.54
	6800.00	0.00	179.59	6800.00	3128.90	0.00	0.00	0.00	0.00	0.00	0.00	569836.20	760993.95	N 32.33 50.66	W 103.33 19.54
	6900.00	0.00	179.59	6900.00	3228.90	0.00	0.00	0.00	0.00	0.00	0.00	569836.20	760993.95	N 32.33 50.66	W 103.33 19.54
	7000.00	0.00	179.59	7000.00	3328.90	0.00	0.00	0.00	0.00	0.00	0.00	569836.20	760993.95	N 32.33 50.66	W 103.33 19.54
	7100.00	0.00	179.59	7100.00	3428.90	0.00	0.00	0.00	0.00	0.00	0.00	569836.20	760993.95	N 32.33 50.66	W 103.33 19.54
	7200.00	0.00	179.59	7200.00	3528.90	0.00	0.00	0.00	0.00	0.00	0.00	569836.20	760993.95	N 32.33 50.66	W 103.33 19.54
	7300.00	0.00	179.59	7300.00	3628.90	0.00	0.00	0.00	0.00	0.00	0.00	569836.20	760993.95	N 32.33 50.66	W 103.33 19.54
	7400.00	0.00	179.59	7400.00	3728.90	0.00	0.00	0.00	0.00	0.00	0.00	569836.20	760993.95	N 32.33 50.66	W 103.33 19.54
	7500.00	0.00	179.59	7500.00	3828.90	0.00	0.00	0.00	0.00	0.00	0.00	569836.20	760993.95	N 32.33 50.66	W 103.33 19.54
	7600.00	0.00	179.59	7600.00	3928.90	0.00	0.00	0.00	0.00	0.00	0.00	569836.20	760993.95	N 32.33 50.66	W 103.33 19.54
Drilling Office 2.10.302.0	7700.00	0.00	179.59	7700.00	4028.90	0.00	0.00	0.00	0.00	0.00	0.00	569836.20	760993.95	N 32.33 50.66	W 103.33 19.54
	7800.00	0.00	179.59	7800.00	4128.90	0.00	0.00	0.00	0.00	0.00	0.00	569836.20	760993.95	N 32.33 50.66	W 103.33 19.54
	7900.00	0.00	179.59	7900.00	4228.90	0.00	0.00	0.00	0.00	0.00	0.00	569836.20	760993.95	N 32.33 50.66	W 103.33 19.54
	8000.00	0.00	179.59	8000.00	4328.90	0.00	0.00	0.00	0.00	0.00	0.00	569836.20	760993.95	N 32.33 50.66	W 103.33 19.54
	8100.00	0.00	179.59	8100.00	4428.90	0.00	0.00	0.00	0.00	0.00	0.00	569836.20	760993.95	N 32.33 50.66	W 103.33 19.54
	8200.00	0.00	179.59	8200.00	4528.90	0.00	0.00	0.00	0.00	0.00	0.00	569836.20	760993.95	N 32.33 50.66	W 103.33 19.54
	8300.00	0.00	179.59	8300.00	4628.90	0.00	0.00	0.00	0.00	0.00	0.00	569836.20	760993.95	N 32.33 50.66	W 103.33 19.54
	8400.00	0.00	179.59	8400.00	4728.90	0.00	0.00	0.00	0.00	0.00	0.00	569836.20	760993.95	N 32.33 50.66	W 103.33 19.54
	8500.00	0.00	179.59	8500.00	4828.90	0.00	0.00	0.00	0.00	0.00	0.00	569836.20	760993.95	N 32.33 50.66	W 103.33 19.54
	8600.00	0.00	179.59	8600.00	4928.90	0.00	0.00	0.00	0.00	0.00	0.00	569836.20	760993.95	N 32.33 50.66	W 103.33 19.54

Comments	MD (ft)	Incl (°)	Azim Grd (°)	TVD (ft)	TVDSS (ft)	VSEC (ft)	NS (ft)	EW (ft)	DLS (ft/100ft)	Closure (ft)	Closure Azimuth (°)	Northing	Easting	Latitude (N/S ° °')	Longitude (E/W ° °')
	12000.00	88.24	179.59	1131.40	7460.30	1115.74	-1115.72	8.03	0.00	1115.74	179.59	568720.51	781001.98	N 32.33 39.82	W 103.33 19.54
	12100.00	88.24	179.59	1131.40	7463.38	1215.70	-1215.67	8.75	0.00	1215.70	179.59	568620.57	781002.70	N 32.33 38.83	W 103.33 19.54
	12200.00	88.24	179.59	1131.37	7466.46	1315.65	-1315.62	9.46	0.00	1315.65	179.59	568520.62	781003.41	N 32.33 37.84	W 103.33 19.54
	12300.00	88.24	179.59	1131.35	7469.53	1415.60	-1415.57	10.18	0.00	1415.60	179.59	568420.67	781004.13	N 32.33 36.85	W 103.33 19.54
	12400.00	88.24	179.59	1131.32	7472.61	1515.56	-1515.52	10.89	0.00	1515.56	179.59	568320.73	781004.84	N 32.33 35.87	W 103.33 19.54
	12500.00	88.24	179.59	1131.29	7475.69	1615.51	-1615.47	11.61	0.00	1615.51	179.59	568220.78	781005.56	N 32.33 34.88	W 103.33 19.54
	12600.00	88.24	179.59	1131.26	7478.77	1715.46	-1715.42	12.33	0.00	1715.46	179.59	568120.83	781006.28	N 32.33 33.89	W 103.33 19.54
	12700.00	88.24	179.59	1131.23	7481.85	1815.41	-1815.37	13.04	0.00	1815.41	179.59	568020.88	781006.99	N 32.33 32.90	W 103.33 19.54
	12800.00	88.24	179.59	1131.20	7484.92	1915.37	-1915.32	13.76	0.00	1915.37	179.59	567920.94	781007.71	N 32.33 31.91	W 103.33 19.54
	12900.00	88.24	179.59	1131.17	7488.00	2015.32	-2015.27	14.47	0.00	2015.32	179.59	567821.00	781008.42	N 32.33 30.92	W 103.33 19.54
	13000.00	88.24	179.59	1131.14	7491.08	2115.27	-2115.22	15.19	0.00	2115.27	179.59	567721.04	781009.14	N 32.33 29.93	W 103.33 19.54
	13100.00	88.24	179.59	1131.11	7494.16	2215.22	-2215.17	15.90	0.00	2215.22	179.59	567621.09	781010.85	N 32.33 28.94	W 103.33 19.54
	13200.00	88.24	179.59	1131.08	7497.23	2315.18	-2315.12	16.62	0.00	2315.18	179.59	567521.15	781011.57	N 32.33 27.95	W 103.33 19.54
	13300.00	88.24	179.59	1131.05	7500.31	2415.13	-2415.07	17.34	0.00	2415.13	179.59	567421.20	781012.29	N 32.33 26.96	W 103.33 19.54
	13400.00	88.24	179.59	1131.02	7503.39	2515.08	-2515.02	18.05	0.00	2515.08	179.59	567321.25	781013.00	N 32.33 25.97	W 103.33 19.54
	13500.00	88.24	179.59	1130.99	7506.47	2615.03	-2614.97	18.77	0.00	2615.03	179.59	567221.30	781013.72	N 32.33 24.98	W 103.33 19.54
	13600.00	88.24	179.59	1130.96	7509.54	2714.99	-2714.92	19.48	0.00	2714.99	179.59	567121.36	781014.43	N 32.33 23.99	W 103.33 19.54
	13700.00	88.24	179.59	1130.93	7512.62	2814.94	-2814.87	20.20	0.00	2814.94	179.59	567021.41	781015.15	N 32.33 23.01	W 103.33 19.54
	13800.00	88.24	179.59	1130.90	7515.70	2914.89	-2914.82	20.91	0.00	2914.89	179.59	566921.46	781015.86	N 32.33 22.02	W 103.33 19.54
	13900.00	88.24	179.59	1130.87	7518.78	3014.84	-3014.77	21.63	0.00	3014.84	179.59	566821.52	781016.58	N 32.33 21.03	W 103.33 19.54
	14000.00	88.24	179.59	1130.84	7521.86	3114.80	-3114.72	22.35	0.00	3114.80	179.59	566721.57	781017.30	N 32.33 20.04	W 103.33 19.54
	14100.00	88.24	179.59	1130.81	7524.93	3214.75	-3214.67	23.06	0.00	3214.75	179.59	566621.62	781018.01	N 32.33 19.05	W 103.33 19.54
	14200.00	88.24	179.59	1130.78	7528.01	3314.70	-3314.62	23.78	0.00	3314.70	179.59	566521.67	781018.73	N 32.33 18.06	W 103.33 19.54
	14300.00	88.24	179.59	1130.75	7531.09	3414.65	-3414.57	24.49	0.00	3414.65	179.59	566421.73	781019.44	N 32.33 17.07	W 103.33 19.54
	14400.00	88.24	179.59	1130.72	7534.17	3514.61	-3514.52	25.21	0.00	3514.61	179.59	566321.78	781020.16	N 32.33 16.08	W 103.33 19.54
	14500.00	88.24	179.59	1130.69	7537.24	3614.56	-3614.47	25.92	0.00	3614.56	179.59	566221.83	781020.87	N 32.33 15.09	W 103.33 19.54
	14600.00	88.24	179.59	1130.66	7540.32	3714.51	-3714.42	26.64	0.00	3714.51	179.59	566121.88	781021.59	N 32.33 14.10	W 103.33 19.54
	14700.00	88.24	179.59	1130.63	7543.40	3814.47	-3814.37	27.36	0.00	3814.47	179.59	566021.94	781022.30	N 32.33 13.11	W 103.33 19.54
	14800.00	88.24	179.59	1130.60	7546.48	3914.42	-3914.32	28.07	0.00	3914.42	179.59	565921.99	781023.02	N 32.33 12.12	W 103.33 19.54
	14900.00	88.24	179.59	1130.57	7549.56	4014.37	-4014.27	28.79	0.00	4014.37	179.59	565822.04	781023.74	N 32.33 11.13	W 103.33 19.54
	15000.00	88.24	179.59	1130.54	7552.63	4114.32	-4114.22	29.50	0.00	4114.32	179.59	565722.09	781024.45	N 32.33 10.14	W 103.33 19.54
	15100.00	88.24	179.59	1130.51	7555.71	4214.28	-4214.17	30.22	0.00	4214.28	179.59	565622.15	781025.17	N 32.33 9.15	W 103.33 19.54
	15200.00	88.24	179.59	1130.48	7558.79	4314.23	-4314.12	30.93	0.00	4314.23	179.59	565522.20	781025.88	N 32.33 8.16	W 103.33 19.54
	15203.61	88.24	179.59	11230.00	7558.80	4317.84	-4317.73	30.96	0.00	4317.84	179.59	565518.59	781026.59	N 32.33 7.17	W 103.33 19.54

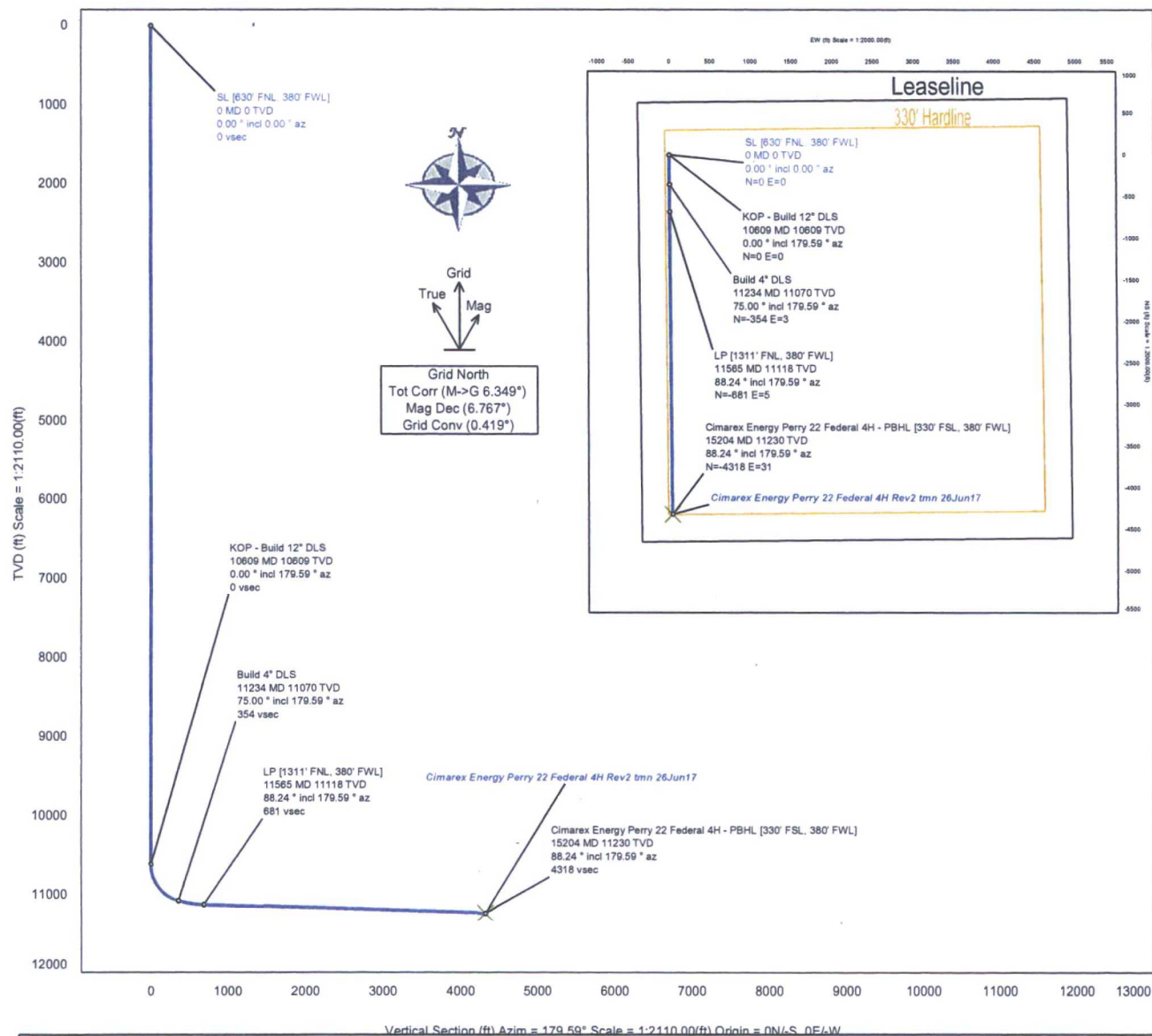
Cimarex Energy Perry 22 Federal 4H -
PBHL (330 FSL, 380 FWL)

Survey Type:

Def Plan

Borehole:	Well:	Field:	Structure:
Original Borehole	Perry 22 Federal 4H	NM Lea County (NAD 83)	Cimarex Perry 22 Federal 4H

Gravity & Magnetic Parameters	Surface Location	Miscellaneous
Model: HDGM 2017 Dip: 60.534° Date: 26-Jun-2017	NAD83 New Mexico State Plane, Eastern Zone, US Feet	Slot: Perry 22 Federal 4H
MagDec: 6.767° FS: 48330.827nT Gravity FS: 998.504mgN (8.80665 Based)	Lat: N 32 33 50.86 Northing: 569856.28US Grid Conv: 0.4187°	TVD Ref: RKB(3871.1ft above MSL)
	Lon: W 103 33 19.54 Easting: 780993.95RUS Scale Fact: 0.99997487	Plan: Cimarex Energy Perry 22 Federal 4H Rev2 tnn 26Jun17



Critical Points

Critical Point	MD	INCL	AZIM	TVD	VSEC	N(+)/S(-)	E(+)/W(-)	DLS
SL [630' FNL, 380' FWL]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
KOP - Build 12° DLS	10608.68	0.00	179.59	10608.68	0.00	0.00	0.00	0.00
Build 4° DLS	11233.68	75.00	179.59	11069.87	353.89	-353.88	2.56	12.00
LP [1311' FNL, 380' FWL]	11564.58	88.24	179.59	11118.00	680.53	-680.52	4.92	4.00
WFMP	11564.59	88.24	179.59	11118.00	680.54	-680.53	4.92	0.00
Cimarex Energy Perry 22 Federal 4H - PBHL [330' FSL, 380' FWL]	15203.61	88.24	179.59	11230.00	4317.84	-4317.73	30.96	0.00

Drilling 8-3/4" hole below
9 5/8" Casing

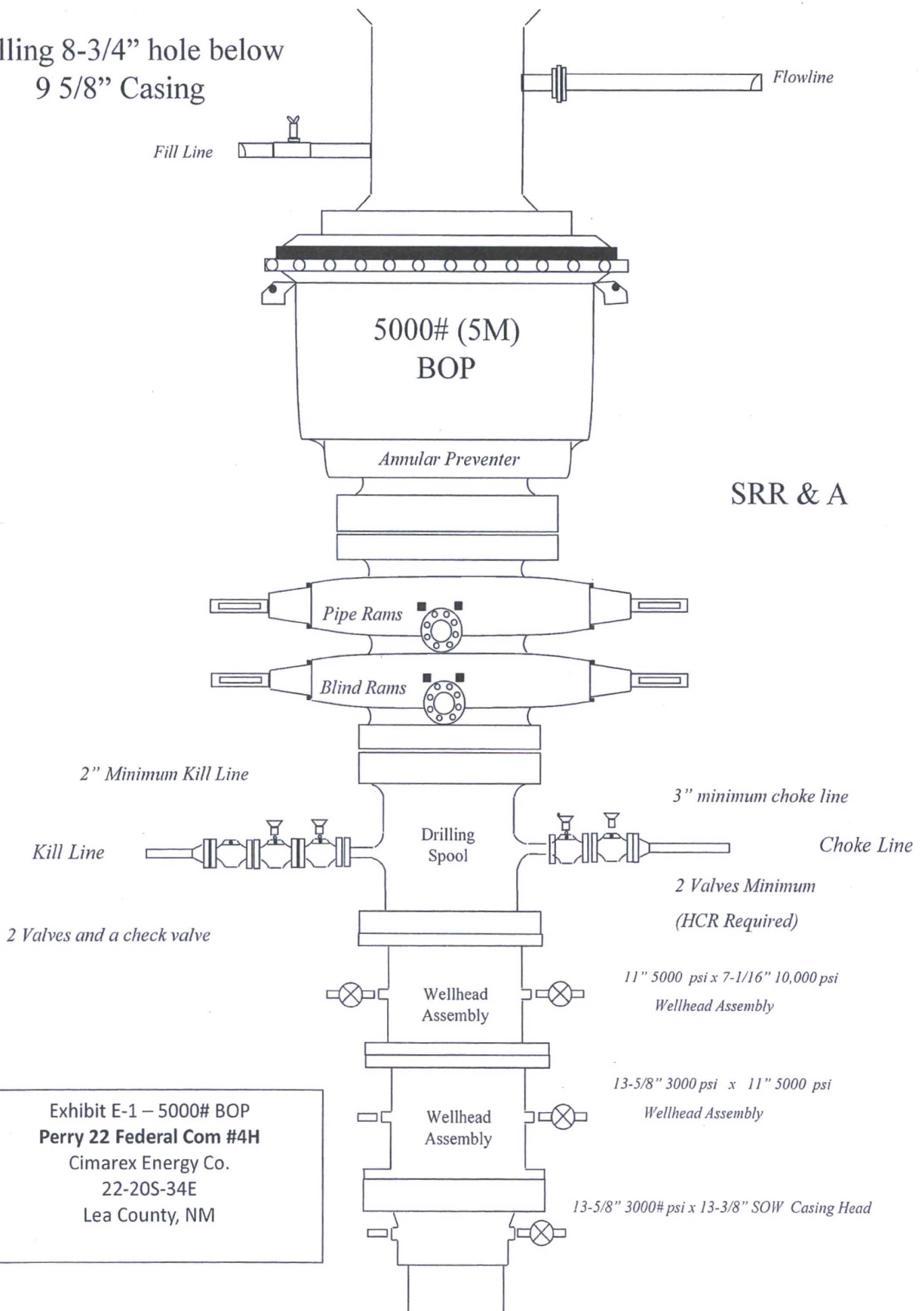
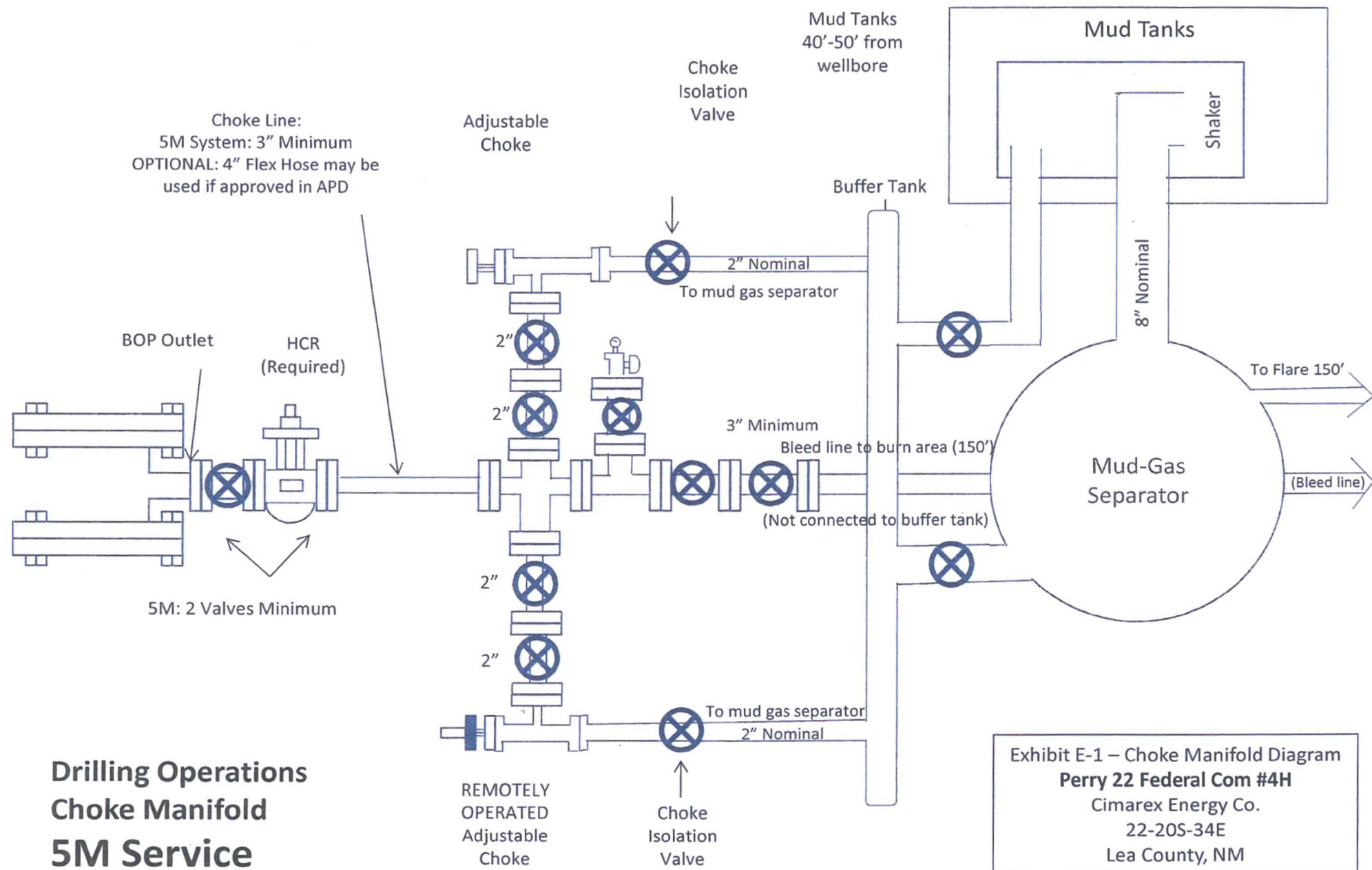


Exhibit E-1 – 5000# BOP
Perry 22 Federal Com #4H
Cimarex Energy Co.
22-20S-34E
Lea County, NM



Drilling Operations Choke Manifold 5M Service

Exhibit E-1 – Choke Manifold Diagram
Perry 22 Federal Com #4H
Cimarex Energy Co.
22-20S-34E
Lea County, NM