

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

NM OIL CONSERVATION

ARTESIA DISTRICT

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

DEC 22 2016

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. **RECEIVED**

5. Lease Serial No. NMNM120350
6. If Indian, Allottee or Tribe Name
7. If Unit or CA/Agreement, Name and/or No.
8. Well Name and No. HORNSBY 35 FEDERAL COM 10H
9. API Well No. 30-015-42170
10. Field and Pool or Exploratory Area WILDCAT; BONE SPRING
11. County or Parish, State EDDY COUNTY, NM

SUBMIT IN TRIPLICATE - Other instructions on page 2

1. Type of Well <input checked="" type="checkbox"/> Oil Well <input type="checkbox"/> Gas Well <input type="checkbox"/> Other	
2. Name of Operator CIMAREX ENERGY COMPANY	Contact: ARICKA EASTERLING E-Mail: aeasterling@cimarex.com
3a. Address 202 S CHEYENNE AVE, SUITE 1000 TULSA, OK 74103	3b. Phone No. (include area code) Ph: 918-560-7060
4. Location of Well (Footage, Sec., T., R., M., or Survey Description) Sec 35 T26S R27E SESE 210FSL 790FEL	

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

TYPE OF SUBMISSION	TYPE OF ACTION			
<input checked="" type="checkbox"/> Notice of Intent	<input type="checkbox"/> Acidize	<input type="checkbox"/> Deepen	<input type="checkbox"/> Production (Start/Resume)	<input type="checkbox"/> Water Shut-Off
<input type="checkbox"/> Subsequent Report	<input type="checkbox"/> Alter Casing	<input type="checkbox"/> Hydraulic Fracturing	<input type="checkbox"/> Reclamation	<input type="checkbox"/> Well Integrity
<input type="checkbox"/> Final Abandonment Notice	<input type="checkbox"/> Casing Repair	<input type="checkbox"/> New Construction	<input type="checkbox"/> Recomplete	<input checked="" type="checkbox"/> Other
	<input type="checkbox"/> Change Plans	<input type="checkbox"/> Plug and Abandon	<input type="checkbox"/> Temporarily Abandon	Change to Original A PD
	<input type="checkbox"/> Convert to Injection	<input type="checkbox"/> Plug Back	<input type="checkbox"/> 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 recomplete 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/ BHL there by changing the directional plan. Cimarex also proposes to move the well closer to other wells on the pad. No additional disturbance is required for the well pad. This well was approved as a Wolfcamp, however Cimarex is proposing to dill it as a Bone Spring Oil Well.

Approved:
SHL 210 FSL & 790 FEL Sec. 35-26S-27E
BHL 330 FNL & 790 FEL Sec. 26-26S-27E
Proposed:
SHL 290 FSL & 820 FEL Sec. 35-26S-27E
BHL 330 FNL & 550 FEL Sec. 26-26S-27E

SEE ATTACHED FOR
CONDITIONS OF APPROVAL

Eng ok 10/7/16 epw

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

Electronic Submission #321179 verified by the BLM Well Information System
For CIMAREX ENERGY COMPANY, sent to the Carlsbad
Committed to AFMSS for processing by LINDA DENNISTON on 10/26/2015 ()

Name (Printed/Typed) ARICKA EASTERLING	Title REGULATORY ANALYST
Signature (Electronic Submission)	Date 10/23/2015

THIS SPACE FOR FEDERAL OR STATE OFFICE USE

Approved By <i>[Signature]</i>	Title AFM Land & Minerals	Date 12/19/16
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 CEO

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 ****

Additional data for EC transaction #321179 that would not fit on the form

32. Additional remarks, continued

Please see attached proposed drilling plan and other related documents.

1. Geological Formations

TVD of target 7,710
MD at TD 14,426

Pilot Hole TD N/A
Deepest expected fresh water

Formation	Depth (TVD) from KB	Water/Mineral Bearing/Target Zone	Hazards
OSE Ground water	100	N/A	
Salado	1575	N/A	
Castille	2120	N/A	
Bell Canyon	2285	N/A	
Cherry Canyon	3260	N/A	
Brushy Canyon	4440	N/A	
Brushy Canyon Lower	5735	N/A	
Bone Spring	5950	Hydrocarbons	
Bone Spring A Shale	6165	Hydrocarbons	
Bone Spring C Shale	6565	Hydrocarbons	
1st Bone Spring Ss	6890	Hydrocarbons	
2nd Bone Spring Ss	7390	Hydrocarbons	
2nd BS Ss Horz target	7745	Hydrocarbons	
3rd BS Limestone	7830	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	400	13-3/8"	48.00	H-40	ST&C	4.29	10.02	16.77
12 1/4	0	2200	9-5/8"	36.00	J-55	LT&C	1.73	3.02	5.72
8 3/4	0	7151	5-1/2"	17.00	L-80	LT&C	1.84	2.26	2.58
8 3/4	7151	14426	5-1/2"	17.00	L-80	BT&C	1.71	2.10	41.78
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

Cimarex Energy Co., Hornsby 35 Federal Com #10H

	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.	N
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

3. Cementing Program

Casing	# Skts	Wt. lb/gal	Yld ft ³ /sack	H ₂ O gal/sk	500# Comp. Strength (hours)	Slurry Description
Surface	60	13.50	1.75	8.83	15.5	Lead: Class C + Bentonite + Calcium Chloride + LCM
	195	14.80	1.34	6.32	9.5	Tail: Class C + LCM
Intermediate	421	12.90	1.88	9.65	12	Lead: 35:65 (Poz:C) + Salt + Bentonite
	129	14.80	1.34	6.32	9.5	Tail: Class C + LCM
Production	689	10.80	2.35	9.60	17:43	Lead: Tuned Light I Class H
	1556	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	31
Intermediate	0	45
Production	2000	16

4. Pressure Control Equipment

A variance is requested for the use of a diverter on the surface casing. See attached for schematic.					
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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	3M	Annular	X	50% of working pressure
			Blind Ram		3M
			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.

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.	
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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.
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N	Are anchors required by manufacturer?
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5. Mud Program

Depth	Type	Weight (ppg)	Viscosity	Water Loss
0' to 400'	FW Spud Mud	7.80 - 8.30	28	N/C
400' to 2200'	Brine Water	9.70 - 10.20	30-32	N/C
2200' to 14426'	FW/Cut Brine	8.70 - 9.20	30-32	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	
	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.
X	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	3688 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

Drilling 12-1/4" hole
below 13 3/8" Casing

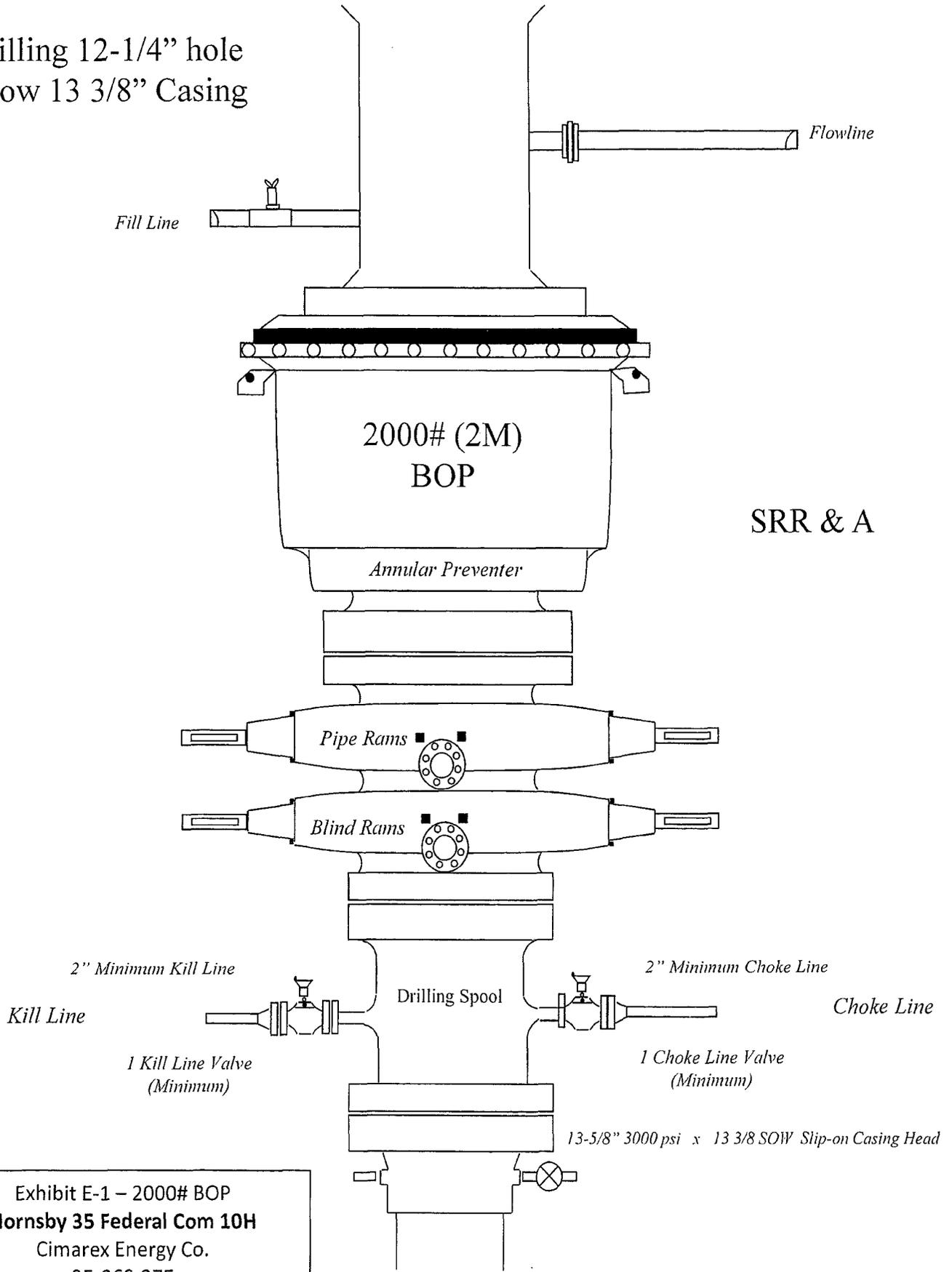


Exhibit E-1 – 2000# BOP
Hornsby 35 Federal Com 10H
Cimarex Energy Co.
35-26S-27E
Eddy County, NM

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

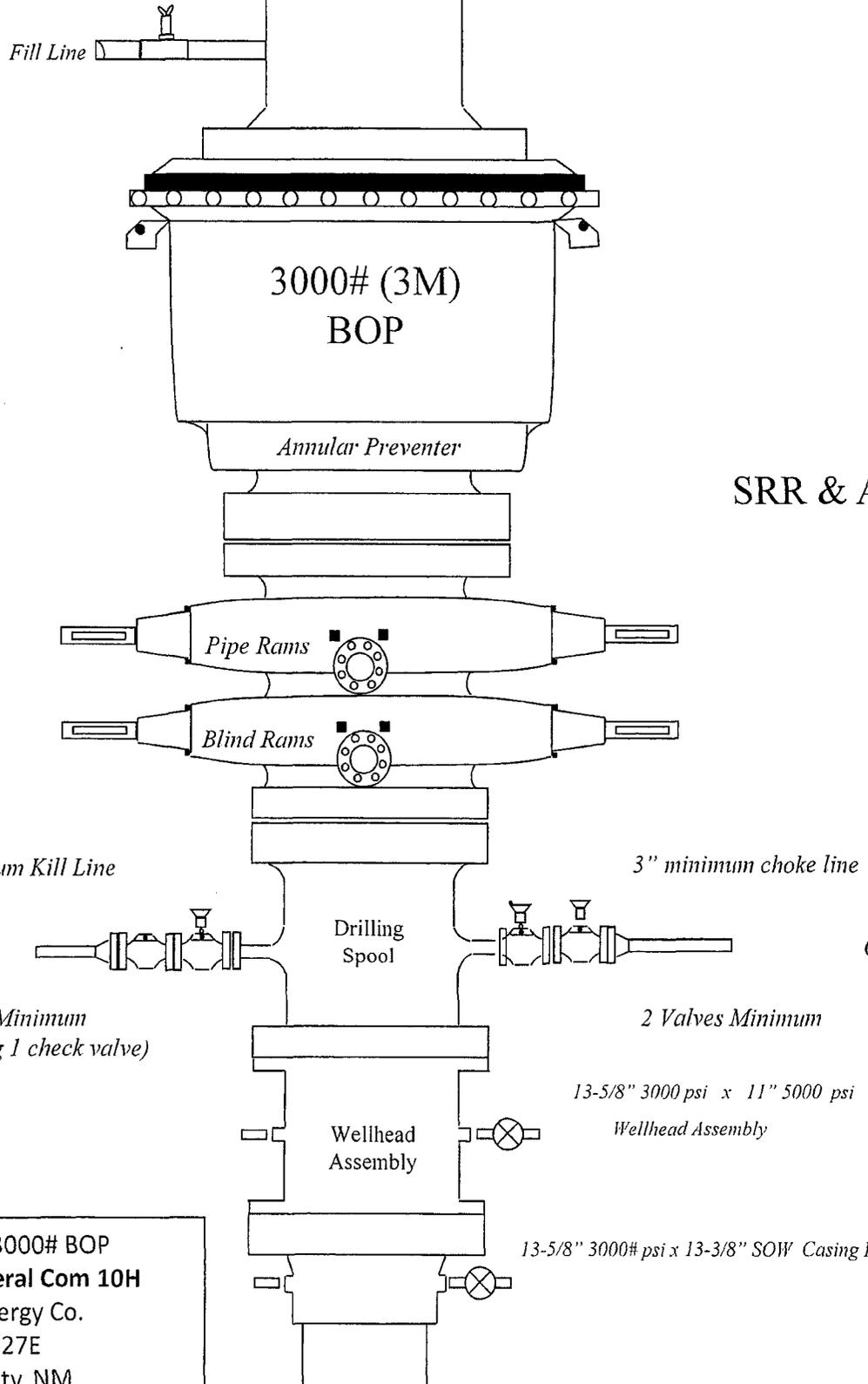
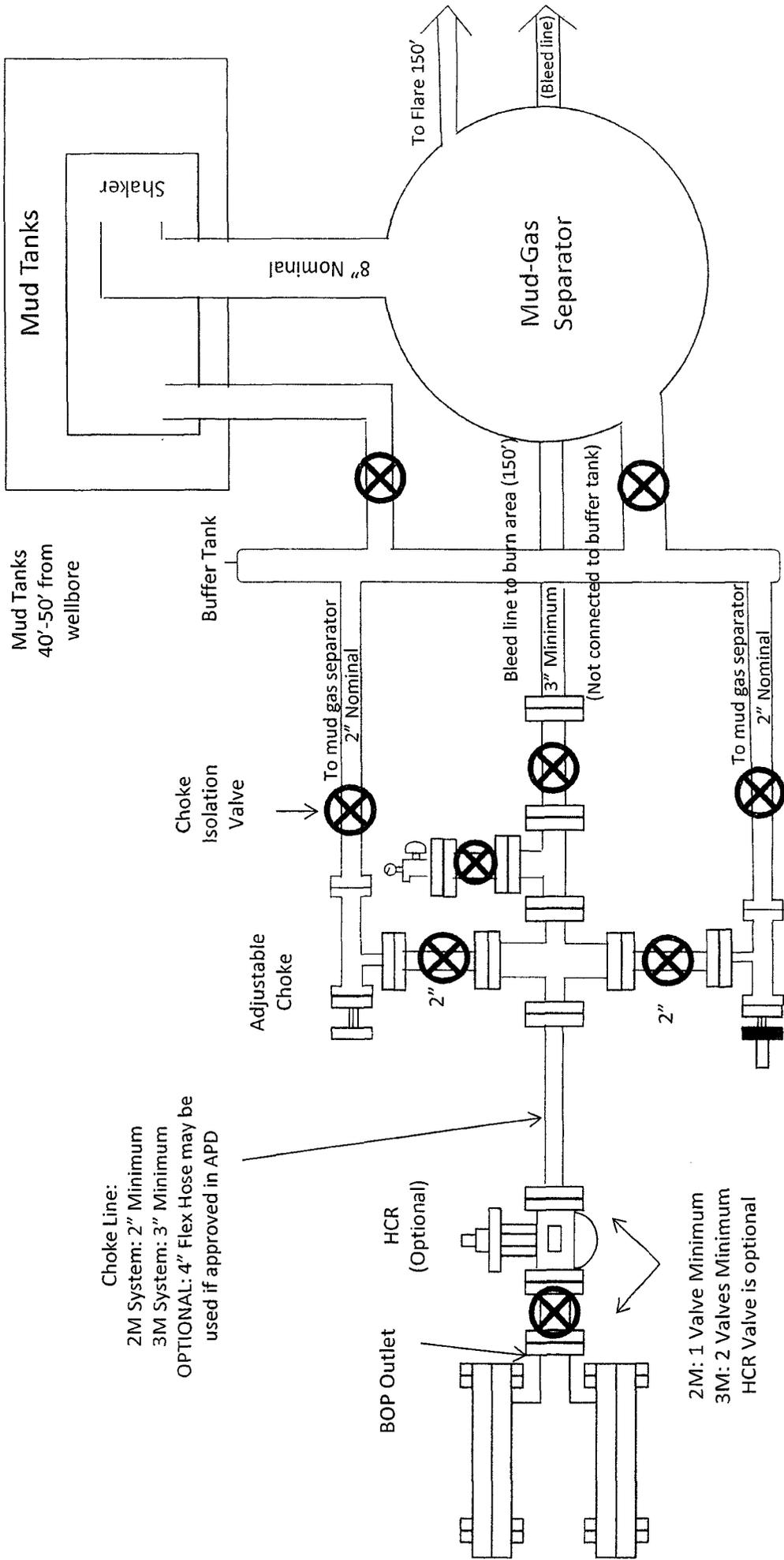


Exhibit E-1 – 3000# BOP
Hornsby 35 Federal Com 10H
Cimarex Energy Co.
35-26S-27E
Eddy County, NM



Choke Line:
 2M System: 2" Minimum
 3M System: 3" Minimum
 OPTIONAL: 4" Flex Hose may be used if approved in APD

BOP Outlet
 HCR (Optional)

2M: 1 Valve Minimum
 3M: 2 Valves Minimum
 HCR Valve is optional

REMOTELY OPERATED Adjustable Choke

Choke Isolation Valve

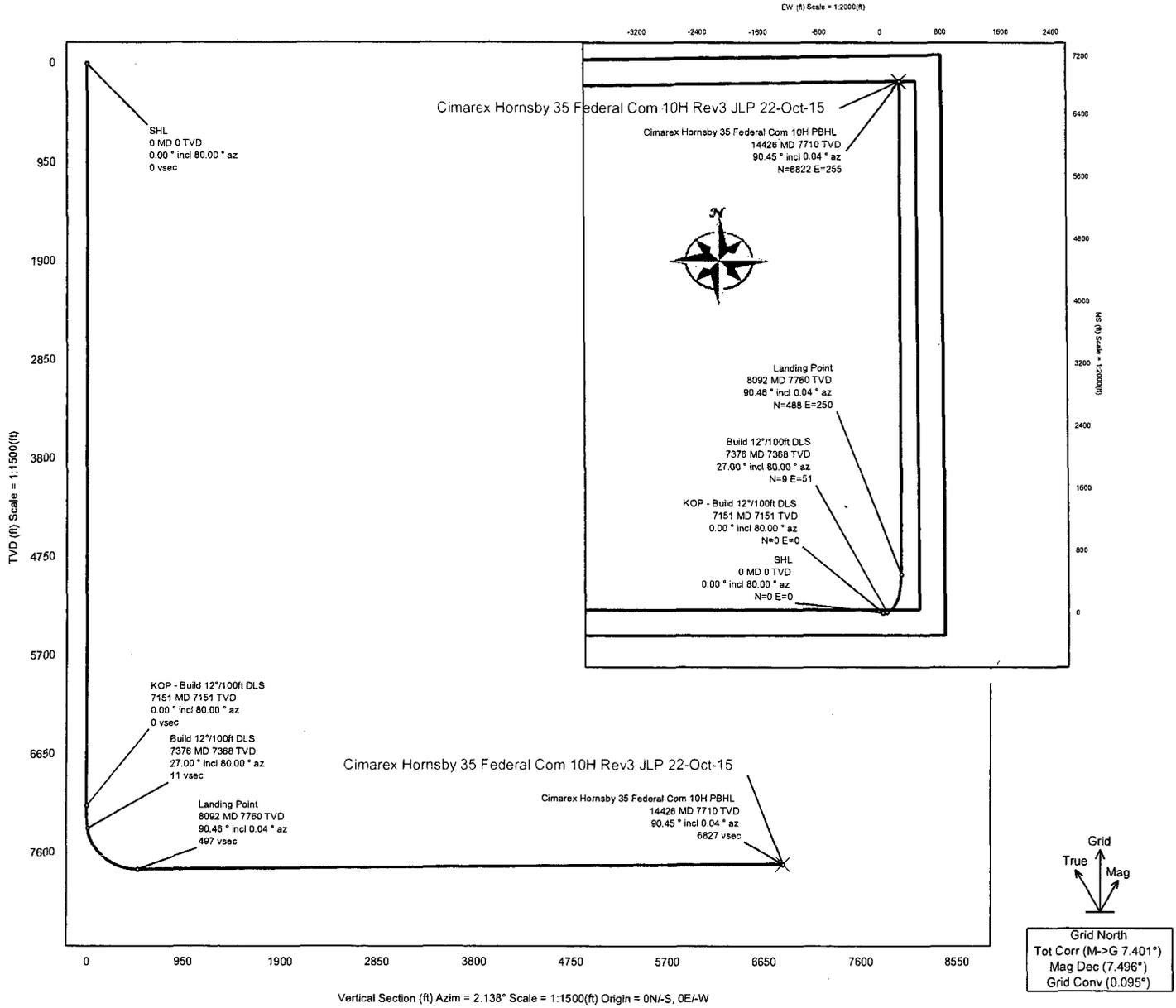
Choke Isolation Valve

Exhibit E-1 – Choke Manifold Diagram
Hornsby 35 Federal Com 10H
 Cimarex Energy Co.
 35-26S-27E
 Eddy County, NM

**Drilling Operations
 Choke Manifold
 2M/3M Service**

Borehole: Original Borehole	Well: Hornsby 35 Federal Com 10H	Field: NM Eddy County (NAD 83)	Structure: TBD
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Gravity & Magnetic Parameters		Surface Location NAD83 New Mexico State Plane, Eastern Zone, US Feet		Miscellaneous	
Model: HDGM 2015	Dip: 59.722° Date: 20-Jul-2015	Lat: N 32 0 2.85	Northing: 364073.28RU	Grid Conv: 0.0946°	Slot: 10H
MagDec: 7.496°	FS: T	Gravity FS: 998.664mgm (9.80665 Based)	Lon: W 104 9 17.58	Easting: 596654.54RU	TVD Ref: Ground level(3225.1ft above MSL)
				Scale Fact: 0.9999126	Plan: Rev3 JLP 22-Oct-15



Critical Points								
Critical Point	MD	INCL	AZIM	TVD	VSEC	N(+)/S(-)	E(+)/W(-)	DLS
SHL	0.00	0.00	80.00	0.00	0.00	0.00	0.00	
KOP - Build 12"/100ft DLS	7151.00	0.00	80.00	7151.00	0.00	0.00	0.00	0.00
Build 12"/100ft DLS	7376.00	27.00	80.00	7367.76	10.94	9.04	51.25	12.00
Landing Point	8091.50	90.45	0.04	7760.00	497.20	488.21	250.15	12.00
Cimarex Hornsby 35 Federal Com 10H PBHL	14425.94	90.45	0.04	7710.00	6827.21	6822.45	254.67	0.00

CONTROLLED		
Plan ref	Cimarex Hornsby 35 Federal Com 10H Rev3 JLP 22-Oct-15	
Drawing ref		
Copy number	of 3	
Date	22-Oct-2015	
1	Client	
2	Client	
3	Office	
4	Office	
Copy number		for

Cimarex Hornsby 35 Federal Com 10H Rev3 JLP 22-Oct-15 Proposal Geodetic Report (Non-Def Plan)

Report Date: October 22, 2015 - 04:43 PM
Client: Cimarex
Field: NM Eddy County (NAD 83)
Structure / Slot: Cimarex Hornsby 35 Federal Com 10H / Cimarex Hornsby 35 Federal Com 10H
Well: Cimarex Hornsby 35 Federal Com 10H
Borehole: Original Borehole
UWI / API#: Unknown / Unknown
Survey Date: October 14, 2013
Tort / AHD / DDI / ERD Ratio: 112.872° / 6936.038 ft / 6.163 / 0.694
Coordinate Reference System: NAD83 New Mexico State Plane, Eastern Zone, US Feet
Location Lat / Long: N 32° 0' 2.85120", W 104° 9' 17.57880"
Location Grid N/E Y/X: N 364073.286 ftUS, E 596654.538 ftUS
CRS Grid Convergence Angle: 0.0946°
Grid Scale Factor: 0.9999126
Version / Patch: 2.8.572.0

Survey / DLS Computation: Minimum Curvature / Lubinski
Vertical Section Azimuth: 2.138° (Grid North)
Vertical Section Origin: 0.000 ft, 0.000 ft
TVD Reference Datum: Ground level
TVD Reference Elevation: 3225.100 ft above MSL
Seabed / Ground Elevation: 3225.100 ft above MSL
Magnetic Declination: 7.496°
Total Gravity Field Strength: 998.6843mgm (9.80665 Based)
Gravity Model: DOX
Total Magnetic Field Strength: 48182.141 nT
Magnetic Dip Angle: 59.722°
Declination Date: July 20, 2015
Magnetic Declination Model: HDGM 2015
North Reference: Grid North
Grid Convergence Used: 0.0946°
Total Corr Mag North->Grid North: 7.4015°
Local Coord Referenced To: Structure Reference Point

NM OIL CONSERVATION
ARTESIA DISTRICT

DEC 22 2016

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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	0.00	0.00	80.00	0.00	0.00	0.00	0.00	N/A	364073.29	596654.54	N 32 0 2.85 W 104	9 17.58
	100.00	0.00	80.00	100.00	0.00	0.00	0.00	0.00	364073.29	596654.54	N 32 0 2.85 W 104	9 17.58
	200.00	0.00	80.00	200.00	0.00	0.00	0.00	0.00	364073.29	596654.54	N 32 0 2.85 W 104	9 17.58
	300.00	0.00	80.00	300.00	0.00	0.00	0.00	0.00	364073.29	596654.54	N 32 0 2.85 W 104	9 17.58
	400.00	0.00	80.00	400.00	0.00	0.00	0.00	0.00	364073.29	596654.54	N 32 0 2.85 W 104	9 17.58
	500.00	0.00	80.00	500.00	0.00	0.00	0.00	0.00	364073.29	596654.54	N 32 0 2.85 W 104	9 17.58
	600.00	0.00	80.00	600.00	0.00	0.00	0.00	0.00	364073.29	596654.54	N 32 0 2.85 W 104	9 17.58
	700.00	0.00	80.00	700.00	0.00	0.00	0.00	0.00	364073.29	596654.54	N 32 0 2.85 W 104	9 17.58
	800.00	0.00	80.00	800.00	0.00	0.00	0.00	0.00	364073.29	596654.54	N 32 0 2.85 W 104	9 17.58
	900.00	0.00	80.00	900.00	0.00	0.00	0.00	0.00	364073.29	596654.54	N 32 0 2.85 W 104	9 17.58
	1000.00	0.00	80.00	1000.00	0.00	0.00	0.00	0.00	364073.29	596654.54	N 32 0 2.85 W 104	9 17.58
	1100.00	0.00	80.00	1100.00	0.00	0.00	0.00	0.00	364073.29	596654.54	N 32 0 2.85 W 104	9 17.58
	1200.00	0.00	80.00	1200.00	0.00	0.00	0.00	0.00	364073.29	596654.54	N 32 0 2.85 W 104	9 17.58
	1300.00	0.00	80.00	1300.00	0.00	0.00	0.00	0.00	364073.29	596654.54	N 32 0 2.85 W 104	9 17.58
	1400.00	0.00	80.00	1400.00	0.00	0.00	0.00	0.00	364073.29	596654.54	N 32 0 2.85 W 104	9 17.58
	1500.00	0.00	80.00	1500.00	0.00	0.00	0.00	0.00	364073.29	596654.54	N 32 0 2.85 W 104	9 17.58
	1600.00	0.00	80.00	1600.00	0.00	0.00	0.00	0.00	364073.29	596654.54	N 32 0 2.85 W 104	9 17.58
	1700.00	0.00	80.00	1700.00	0.00	0.00	0.00	0.00	364073.29	596654.54	N 32 0 2.85 W 104	9 17.58
	1800.00	0.00	80.00	1800.00	0.00	0.00	0.00	0.00	364073.29	596654.54	N 32 0 2.85 W 104	9 17.58
	1900.00	0.00	80.00	1900.00	0.00	0.00	0.00	0.00	364073.29	596654.54	N 32 0 2.85 W 104	9 17.58
	2000.00	0.00	80.00	2000.00	0.00	0.00	0.00	0.00	364073.29	596654.54	N 32 0 2.85 W 104	9 17.58
	2100.00	0.00	80.00	2100.00	0.00	0.00	0.00	0.00	364073.29	596654.54	N 32 0 2.85 W 104	9 17.58
	2200.00	0.00	80.00	2200.00	0.00	0.00	0.00	0.00	364073.29	596654.54	N 32 0 2.85 W 104	9 17.58

Comments	MD (ft)	Incl (°)	Azim Grid (°)	TVD (ft)	VSEC (ft)	NS (ft)	EW (ft)	DLS (°/100ft)	Northing (ftUS)	Eastings (ftUS)	Latitude (N/S °.')	Longitude (E/W °.')
KOP - Build 12"/100ft DLS	7100.00	0.00	80.00	7100.00	0.00	0.00	0.00	0.00	364073.29	596654.54	N 32 0 2.85 W 104 9 17.58	9 17.58
	7151.00	0.00	80.00	7151.00	0.00	0.00	0.00	0.00	364073.29	596654.54	N 32 0 2.85 W 104 9 17.58	9 17.58
	7200.00	5.88	80.00	7199.91	0.53	0.44	2.47	12.00	364073.72	596657.01	N 32 0 2.86 W 104 9 17.55	9 17.55
	7300.00	17.88	80.00	7297.59	4.85	4.00	22.71	12.00	364077.29	596677.25	N 32 0 2.89 W 104 9 17.32	9 17.32
	7376.00	27.00	80.00	7367.76	10.94	9.04	51.25	12.00	364082.32	596705.78	N 32 0 2.94 W 104 9 16.98	9 16.98
	7400.00	27.59	73.85	7389.10	13.83	11.53	61.96	12.00	364084.81	596716.49	N 32 0 2.96 W 104 9 16.86	9 16.86
	7500.00	32.59	51.92	7475.85	38.58	34.67	105.56	12.00	364107.95	596760.09	N 32 0 3.19 W 104 9 16.35	9 16.35
	7600.00	40.36	36.42	7556.38	82.88	77.49	146.13	12.00	364150.76	596800.66	N 32 0 3.62 W 104 9 15.88	9 15.88
	7700.00	49.60	25.53	7627.14	144.81	138.12	181.90	12.00	364211.39	596836.42	N 32 0 4.21 W 104 9 15.46	9 15.46
	7800.00	59.60	17.37	7685.06	221.64	213.91	211.29	12.00	364287.18	596865.81	N 32 0 4.96 W 104 9 15.12	9 15.12
7900.00	70.02	10.77	7727.61	310.04	301.55	233.03	12.00	364374.81	596887.55	N 32 0 5.83 W 104 9 14.87	9 14.87	
8000.00	80.65	5.00	7752.91	406.12	397.21	246.16	12.00	364470.46	596900.68	N 32 0 6.78 W 104 9 14.71	9 14.71	
8091.50	90.45	0.04	7760.00	497.20	488.21	250.15	12.00	364561.45	596904.66	N 32 0 7.68 W 104 9 14.66	9 14.66	
8100.00	90.45	0.04	7759.93	505.70	496.71	250.15	0.00	364569.95	596904.67	N 32 0 7.76 W 104 9 14.66	9 14.66	
8200.00	90.45	0.04	7759.14	605.63	596.71	250.22	0.00	364669.94	596904.74	N 32 0 8.75 W 104 9 14.66	9 14.66	
8300.00	90.45	0.04	7758.35	705.56	696.70	250.29	0.00	364769.93	596904.81	N 32 0 9.74 W 104 9 14.66	9 14.66	
8400.00	90.45	0.04	7757.55	805.49	796.70	250.36	0.00	364869.92	596904.88	N 32 0 10.73 W 104 9 14.66	9 14.66	
8500.00	90.45	0.04	7756.76	905.42	896.70	250.43	0.00	364969.90	596904.95	N 32 0 11.72 W 104 9 14.65	9 14.65	
8600.00	90.45	0.04	7755.97	1005.34	996.69	250.50	0.00	365069.89	596905.02	N 32 0 12.71 W 104 9 14.65	9 14.65	
8700.00	90.45	0.04	7755.17	1105.27	1096.69	250.57	0.00	365169.88	596905.09	N 32 0 13.70 W 104 9 14.65	9 14.65	
8800.00	90.45	0.04	7754.38	1205.20	1196.69	250.64	0.00	365269.87	596905.16	N 32 0 14.69 W 104 9 14.65	9 14.65	
8900.00	90.45	0.04	7753.59	1305.13	1296.68	250.71	0.00	365369.85	596905.23	N 32 0 15.68 W 104 9 14.64	9 14.64	
9000.00	90.45	0.04	7752.80	1405.06	1396.68	250.78	0.00	365469.84	596905.30	N 32 0 16.67 W 104 9 14.64	9 14.64	
9100.00	90.45	0.04	7752.00	1504.99	1496.68	250.85	0.00	365569.83	596905.37	N 32 0 17.66 W 104 9 14.64	9 14.64	
9200.00	90.45	0.04	7751.21	1604.92	1596.68	250.92	0.00	365669.82	596905.44	N 32 0 18.65 W 104 9 14.63	9 14.63	
9300.00	90.45	0.04	7750.42	1704.85	1696.67	250.99	0.00	365769.81	596905.51	N 32 0 19.64 W 104 9 14.63	9 14.63	
9400.00	90.45	0.04	7749.63	1804.78	1796.67	251.06	0.00	365869.79	596905.58	N 32 0 20.63 W 104 9 14.63	9 14.63	
9500.00	90.45	0.04	7748.84	1904.71	1896.67	251.13	0.00	365969.78	596905.65	N 32 0 21.62 W 104 9 14.63	9 14.63	
9600.00	90.45	0.04	7748.04	2004.64	1996.66	251.21	0.00	366069.77	596905.72	N 32 0 22.61 W 104 9 14.62	9 14.62	
9700.00	90.45	0.04	7747.25	2104.57	2096.66	251.28	0.00	366169.76	596905.79	N 32 0 23.59 W 104 9 14.62	9 14.62	
9800.00	90.45	0.04	7746.46	2204.50	2196.66	251.35	0.00	366269.75	596905.86	N 32 0 24.58 W 104 9 14.62	9 14.62	
9900.00	90.45	0.04	7745.67	2304.43	2296.65	251.42	0.00	366369.73	596905.93	N 32 0 25.57 W 104 9 14.62	9 14.62	
10000.00	90.45	0.04	7744.88	2404.36	2396.65	251.49	0.00	366469.72	596906.00	N 32 0 26.56 W 104 9 14.61	9 14.61	
10100.00	90.45	0.04	7744.09	2504.29	2496.65	251.56	0.00	366569.71	596906.07	N 32 0 27.55 W 104 9 14.61	9 14.61	
10200.00	90.45	0.04	7743.30	2604.22	2596.64	251.63	0.00	366669.70	596906.15	N 32 0 28.54 W 104 9 14.61	9 14.61	
10300.00	90.45	0.04	7742.51	2704.15	2696.64	251.70	0.00	366769.69	596906.22	N 32 0 29.53 W 104 9 14.60	9 14.60	
10400.00	90.45	0.04	7741.72	2804.08	2796.64	251.77	0.00	366869.67	596906.29	N 32 0 30.52 W 104 9 14.60	9 14.60	
10500.00	90.45	0.04	7740.93	2904.01	2896.63	251.84	0.00	366969.66	596906.36	N 32 0 31.51 W 104 9 14.60	9 14.60	
10600.00	90.45	0.04	7740.14	3003.94	2996.63	251.91	0.00	367069.65	596906.43	N 32 0 32.50 W 104 9 14.60	9 14.60	
10700.00	90.45	0.04	7739.35	3103.87	3096.63	251.99	0.00	367169.64	596906.50	N 32 0 33.49 W 104 9 14.59	9 14.59	
10800.00	90.45	0.04	7738.56	3203.80	3196.62	252.06	0.00	367269.63	596906.57	N 32 0 34.48 W 104 9 14.59	9 14.59	
10900.00	90.45	0.04	7737.77	3303.73	3296.62	252.13	0.00	367369.61	596906.64	N 32 0 35.47 W 104 9 14.59	9 14.59	
11000.00	90.45	0.04	7736.98	3403.66	3396.62	252.20	0.00	367469.60	596906.71	N 32 0 36.46 W 104 9 14.58	9 14.58	
11100.00	90.45	0.04	7736.19	3503.59	3496.62	252.27	0.00	367569.59	596906.79	N 32 0 37.45 W 104 9 14.58	9 14.58	
11200.00	90.45	0.04	7735.40	3603.52	3596.61	252.34	0.00	367669.58	596906.86	N 32 0 38.44 W 104 9 14.58	9 14.58	
11300.00	90.45	0.04	7734.61	3703.45	3696.61	252.41	0.00	367769.56	596906.93	N 32 0 39.43 W 104 9 14.58	9 14.58	
11400.00	90.45	0.04	7733.82	3803.38	3796.61	252.49	0.00	367869.55	596907.00	N 32 0 40.42 W 104 9 14.57	9 14.57	

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 ° ' ")
	11500.00	90.45	0.04	7733.03	3903.31	3896.60	252.56	0.00	367969.54	596907.07	N 32 0 41.41 W 104 9 14.57	
	11600.00	90.45	0.04	7732.24	4003.24	3996.60	252.63	0.00	368069.53	596907.14	N 32 0 42.40 W 104 9 14.57	
	11700.00	90.45	0.04	7731.45	4103.17	4096.60	252.70	0.00	368169.52	596907.22	N 32 0 43.38 W 104 9 14.57	
	11800.00	90.45	0.04	7730.66	4203.10	4196.59	252.77	0.00	368269.50	596907.29	N 32 0 44.37 W 104 9 14.56	
	11900.00	90.45	0.04	7729.87	4303.03	4296.59	252.84	0.00	368369.49	596907.36	N 32 0 45.36 W 104 9 14.56	
	12000.00	90.45	0.04	7729.09	4402.96	4396.59	252.92	0.00	368469.48	596907.43	N 32 0 46.35 W 104 9 14.56	
	12100.00	90.45	0.04	7728.30	4502.89	4496.58	252.99	0.00	368569.47	596907.50	N 32 0 47.34 W 104 9 14.55	
	12200.00	90.45	0.04	7727.51	4602.82	4596.58	253.06	0.00	368669.46	596907.57	N 32 0 48.33 W 104 9 14.55	
	12300.00	90.45	0.04	7726.72	4702.75	4696.58	253.13	0.00	368769.44	596907.65	N 32 0 49.32 W 104 9 14.55	
	12400.00	90.45	0.04	7725.93	4802.68	4796.57	253.20	0.00	368869.43	596907.72	N 32 0 50.31 W 104 9 14.55	
	12500.00	90.45	0.04	7725.15	4902.61	4896.57	253.28	0.00	368969.42	596907.79	N 32 0 51.30 W 104 9 14.54	
	12600.00	90.45	0.04	7724.36	5002.54	4996.57	253.35	0.00	369069.41	596907.86	N 32 0 52.29 W 104 9 14.54	
	12700.00	90.45	0.04	7723.57	5102.47	5096.57	253.42	0.00	369169.40	596907.94	N 32 0 53.28 W 104 9 14.54	
	12800.00	90.45	0.04	7722.78	5202.40	5196.56	253.49	0.00	369269.38	596908.01	N 32 0 54.27 W 104 9 14.54	
	12900.00	90.45	0.04	7722.00	5302.33	5296.56	253.56	0.00	369369.37	596908.08	N 32 0 55.26 W 104 9 14.53	
	13000.00	90.45	0.04	7721.21	5402.26	5396.56	253.64	0.00	369469.36	596908.15	N 32 0 56.25 W 104 9 14.53	
	13100.00	90.45	0.04	7720.42	5502.19	5496.55	253.71	0.00	369569.35	596908.22	N 32 0 57.24 W 104 9 14.53	
	13200.00	90.45	0.04	7719.64	5602.12	5596.55	253.78	0.00	369669.34	596908.30	N 32 0 58.23 W 104 9 14.52	
	13300.00	90.45	0.04	7718.85	5702.05	5696.55	253.85	0.00	369769.32	596908.37	N 32 0 59.22 W 104 9 14.52	
	13400.00	90.45	0.04	7718.06	5801.98	5796.54	253.93	0.00	369869.31	596908.44	N 32 1 0.21 W 104 9 14.52	
	13500.00	90.45	0.04	7717.28	5901.91	5896.54	254.00	0.00	369969.30	596908.51	N 32 1 1.20 W 104 9 14.52	
	13600.00	90.45	0.04	7716.49	6001.84	5996.54	254.07	0.00	370069.29	596908.59	N 32 1 2.19 W 104 9 14.51	
	13700.00	90.45	0.04	7715.71	6101.77	6096.53	254.15	0.00	370169.28	596908.66	N 32 1 3.18 W 104 9 14.51	
	13800.00	90.45	0.04	7714.92	6201.70	6196.53	254.22	0.00	370269.26	596908.73	N 32 1 4.16 W 104 9 14.51	
	13900.00	90.45	0.04	7714.13	6301.63	6296.53	254.29	0.00	370369.25	596908.81	N 32 1 5.15 W 104 9 14.50	
	14000.00	90.45	0.04	7713.35	6401.56	6396.52	254.36	0.00	370469.24	596908.88	N 32 1 6.14 W 104 9 14.50	
	14100.00	90.45	0.04	7712.56	6501.49	6496.52	254.44	0.00	370569.23	596908.95	N 32 1 7.13 W 104 9 14.50	
	14200.00	90.45	0.04	7711.77	6601.42	6596.52	254.51	0.00	370669.21	596909.02	N 32 1 8.12 W 104 9 14.50	
	14300.00	90.45	0.04	7710.99	6701.35	6696.52	254.58	0.00	370769.20	596909.10	N 32 1 9.11 W 104 9 14.49	
	14400.00	90.45	0.04	7710.20	6801.28	6796.51	254.66	0.00	370869.19	596909.17	N 32 1 10.10 W 104 9 14.49	
	14425.94	90.45	0.04	7710.00	6827.21	6822.45	254.67	0.00	370895.13	596909.19	N 32 1 10.36 W 104 9 14.49	

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)	Survey Tool Type	Borehole / Survey
	1	0.000	14425.943	1/100.000	30.000	30.000	SLB_MWD-STD	Original Borehole / Cimarex Hornsby 35 Federal Com 10H

DEC 22 2016

**PECOS DISTRICT
CONDITIONS OF APPROVAL**

RECEIVED

OPERATOR'S NAME:	Cimarex Energy Co. of Colorado
LEASE NO.:	NMNM-120350
WELL NAME & NO.:	Hornsby 35 Federal Com 10H
SURFACE HOLE FOOTAGE:	0290' FSL & 0820' FEL
BOTTOM HOLE FOOTAGE:	0330' FNL & 0550' FEL Sec. 26, T. 26 S., R 27 E
LOCATION:	Section 35, T. 26 S., R 27 E., NMPM
COUNTY:	Eddy County, New Mexico

I. DRILLING

A. DRILLING OPERATIONS 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

1. **Hydrogen Sulfide (H2S) monitors shall be installed prior to drilling out the surface shoe. If H2S is detected in concentrations greater than 100 ppm, the Hydrogen Sulfide area shall meet Onshore Order 6 requirements, which includes equipment and personnel/public protection items. If Hydrogen Sulfide is encountered, provide measured values and formations to the BLM.**
2. 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. **If the drilling rig is removed without approval – an Incident of Non-Compliance will be written and will be a “Major” violation.**
3. 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 is located, this does not include the dog house or stairway area.
4. **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 top and bottom of Salt are to be recorded on the Completion Report.

B. CASING

Changes to the approved APD casing program need prior approval if the items substituted are of lesser grade or different casing size. 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.).

Centralizers required on surface casing per Onshore Order 2.III.B.1.f.

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.

No pea gravel permitted for remedial or fall back remedial without prior authorization from the BLM engineer.

Medium Cave/Karst

Possibility of water flows in the Castile and Delaware.

Possibility of lost circulation in the Salado and Delaware.

- 1. The 13-3/8 inch surface casing shall be set at approximately 400 feet and cemented to the surface. If salt is encountered, set casing at least 25 feet above the salt. Excess calculates to 20% - Additional cement may 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 is to include the lead cement slurry.**
 - 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, which shall be set at approximately **2200** feet, 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.**

If 75% or greater lost circulation occurs while drilling the intermediate casing hole, the cement on the production casing must come to surface.

3. The minimum required fill of cement behind the 5-1/2 inch production casing is:
 - Cement should tie-back at least 200 feet into previous casing string. Operator shall provide method of verification. **Excess calculates to 24% - Additional cement may be required.**
4. 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.

C. 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. Variance approved to use flex line from BOP to choke manifold. 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.** If the BLM inspector questions the straightness of the hose, a BLM engineer will be contacted and will review in the field or via picture supplied by inspector to determine if changes are required (operator shall expect delays if this occurs).

3. Minimum working pressure of the blowout preventer (BOP) and related equipment (BOPE) required for drilling below the surface casing shoe shall be **2000 (2M)** psi.
4. Minimum working pressure of the blowout preventer (BOP) and related equipment (BOPE) required for drilling below the **9-5/8** intermediate casing shoe shall be **3000 (3M)** psi.
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. 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 (18 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).
 - c. 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.
 - d. The results of the test shall be reported to the appropriate BLM office.
 - e. 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.**
 - f. 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.

D. DRILL STEM TEST

If drill stem tests are performed, Onshore Order 2.III.D shall be followed.

E. WASTE MATERIAL AND FLUIDS

All waste (i.e. drilling fluids, trash, salts, chemicals, sewage, gray water, etc.) created as a result of drilling operations and completion operations shall be safely contained and disposed of properly at a waste disposal facility. No waste material or fluid shall be disposed of on the well location or surrounding area.

Porto-johns and trash containers will be on-location during fracturing operations or any other crew-intensive operations.

CRW 10716