

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

OCD Artesia

FORM APPROVED
OMB NO. 1004-0135
Expires: July 31, 2010

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 reverse side.

1. Type of Well ☐ Oil Well ☒ Gas Well ☐ Other		5. Lease Serial No. NMNM120350
2. Name of Operator CIMAREX ENERGY COMPANY OF CO Contact: DEYSI FAVELA Email: dfavela@cimarex.com		6. If Indian, Allottee or Tribe Name
3a. Address 600 NORTH MARIENFELD STREET SUITE 600 MIDLAND, TX 79701	3b. Phone No. (include area code) Ph: 432-620-1964	7. If Unit or CA/Agreement, Name and/or No. HORNSBY 35 FEDERAL COM 2H
4. Location of Well (Footage, Sec., T., R., M., or Survey Description) Sec 35 T26S R27E Lot 4 0210FSL 1270FWL 32.000208 N Lat, 104.095445 W Lon		8. Well Name and No. 30-015-42165-00-X1
		9. API Well No. WILDCAT
		10. Field and Pool, or Exploratory EDDY COUNTY, NM
		11. County or Parish, and State

12. CHECK 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	☐ Fracture Treat	☐ 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 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 shall 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 shall be filed once testing has been completed. Final Abandonment Notices shall 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 Energy Co. respectfully request changes to the original APD:

Approved:
BHL 660' FNL & 750' FEL
KOP 9408'
EOC 10158'
MD 16228'
TVD 9885'
Pool Wolfcamp

Casing

NM OIL CONSERVATION
ARTESIA DISTRICT

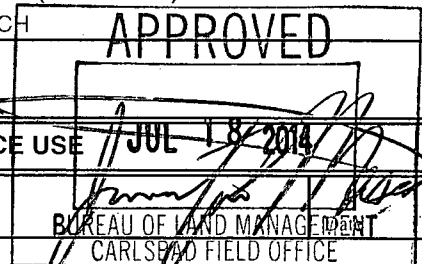
JUL 25 2014

RECEIVED

SEE ATTACHED FOR
CONDITIONS OF APPROVAL

Accepted for record 105
NMOCD 7-30-14

14. I hereby certify that the foregoing is true and correct. Electronic Submission #249973 verified by the BLM Well Information System For CIMAREX ENERGY COMPANY OF CO, sent to the Carlsbad Committed to AFMSS for processing by CATHY QUEEN on 06/18/2014 (14CQ0476SE)	
Name (Printed/Typed) DEYSI FAVELA	Title DRILLING TECH
Signature (Electronic Submission)	Date 06/17/2014
THIS SPACE FOR FEDERAL OR STATE OFFICE USE	
Approved By	Title
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.	
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.	



Additional data for EC transaction #249973 that would not fit on the form

32. Additional remarks, continued

Surface-17 1/2" Hole Size, 13 3/8 Casing, 48# H-40 ST&C, Setting Deth 400/400 MD/TVD

Intermediate- 12 1/4" Hole Size, 9 5/8 Casing, 36# J-55 LT&C, Setting Depth 2200/2200 MD/TVD

Production- 8 3/4 Hole Size, 7 Casing, 32# L-80 LT&C, Setting Depth 10158/9885 MD/TVD

Completion- 6 Hole Size, 4 1/2 Casing, 11.6# P-110 BT&C, Setting Depth

Proposed:

BHL 330' FNL 750' FWL

KOP 6994'

EOC 8615'

MD 14523'

TVD 7788'

Pool Bone Spring

Casing Design

Change Surface Casing/Remove 7" Casing/Remove 6" hole and 4-1/2" casing

Surface-17 1/2" Hole Size, 13 3/8 Casing, 48# J-55 ST&C, Setting Deth 400/400 MD/TVD

Intermediate- 12 1/4" Hole Size, 9 5/8 Casing, 36# J-55 LT&C, Setting Depth ²²⁰⁰~~2250/2260~~ MD/TVD

Production-8 3/4 Hole Size, 5 1/2 Casing, 17# N-80 LT&C, Setting Depth 7267/7267 MD/TVD

Production-8 3/4 Hole Size, 5 1/2 Casing, 17# L-80 BT&C, Setting Depth ^{14523/7788}~~14416/7764~~ MD/TVD

Surface Lead 60 sxs, 1.75 yld, 13.50 ppg, 104 cubic feet, Class C + Bentonite + Calcium Chloride +

LCM, 8.829 gps water.

Tail 195 sxs, 1.34 yld, 14.80 ppgm, 260 cubic feet, Class C + LCM, 6.320 gps water

TOC: 0, 31% Excess, Centralizers per Onshore Order 2.III.B.1f

Intermediate

Lead 419 sxs, 1.88 yld, 12.90 ppg, 787 cubic feet, 35:65 (Poz:C) + Salt + Bentonite + LCM +

Retarder, 9.650 gps water

Tail 132 sxs, 1.34 yld, 14.80 ppg, 176 cubic feet, Class C + Retarder + LCM, 6.320 gps water

TOC: 0, 44% Excess

Production

Lead 615 sxs, 2.40 yld, 11.90 ppg, 1474 cubic feet, 35:65 (poz:H) + Salt + Sodium Metasilcate +

Bentonite + Fluid Loss + Dispersant + LCM + Retarder, 13.800 gps water

Tail 1636 sxs, 1.30 yld, 14.50 ppg, 2126 cubic feet 50:50 (Poz:H) + Salt + Bentonite + Fluid Loss +

Dispersant + Expanding Agent + Retarder + Antifoam + LCM, 5.790 gps water

TOC: ²⁰⁶⁰~~2060~~, 16% Excess, No centralizers planned in the lateral section. 1 every jt from EOC to

KOP. 1 every 4th joint from KOP to 500' inside previous casing.

Hole

KOP: 6994 EOC: 8615

Set Surface and Intermediate casing strings. Drill production hole to KOP. Continue drilling

lateral through the curve to TD. Run prod casing & cement.

The Hornsby 35 Fed 2H is now a Bone Springs well rather than a Wolfcamp well. The pressure in the

Bone Springs does not require a 4 string casing design. The Bone Springs are only 3 string casing

designs; therefore, the 7" and 4-1/2" are being removed and a 5-1/2" longstring will be our

production casing ran from the end of lateral to surface.

Remove 5(M) BOP System

A BOP consisting of two rams with blind rams and pipe rams, and one annular preventer. Below the

surface casing, a 2M system will be used. Below the intermediate casing, a 3M system will be used.

See attachments for BOP and choke manifold diagrams, an accumulator that meets the requirements in

Onshore Order #2 for the pressure rating of the BOP stack. A Rotating head may be installed as

needed. A Kelly cock will be installed and maintained in operable condition and a drill string

safety valve in the open position will be available on the rig floor.

*next time
submit in a
word document
like an APD*

DISTRICT I

1825 N. French Dr., Hobbs, NM 88240
Phone (505) 593-8101 Fax: (505) 593-0720

DISTRICT II

811 S. First St., Artesia, NM 88210
Phone (505) 746-1283 Fax: (505) 746-9720

DISTRICT III

1000 Rio Brazos Rd., Aztec, NM 87410
Phone (505) 834-9170 Fax: (505) 834-8170

DISTRICT IV

1820 S. St. Francis Dr., Santa Fe, NM 87505
Phone (505) 476-3460 Fax: (505) 476-3462State of New Mexico
Energy, Minerals and Natural Resources Department

Form C-102

Revised August 1, 2011

Submit one copy to appropriate
District Office

OIL CONSERVATION DIVISION

1220 South St. Francis Dr.
Santa Fe, New Mexico 87505

WELL LOCATION AND ACREAGE DEDICATION PLAT

☐ AMENDED REPORT

API Number 30015-42165	Pool Code 30215	Pool Name Hay Hallow; Bone Spring
Property Code 40444	Property Name HORNSBY 35 FEDERAL COM	Well Number 2H
OGRID No. 215099	Operator Name CIMAREX ENERGY CO.	Elevation 3275'

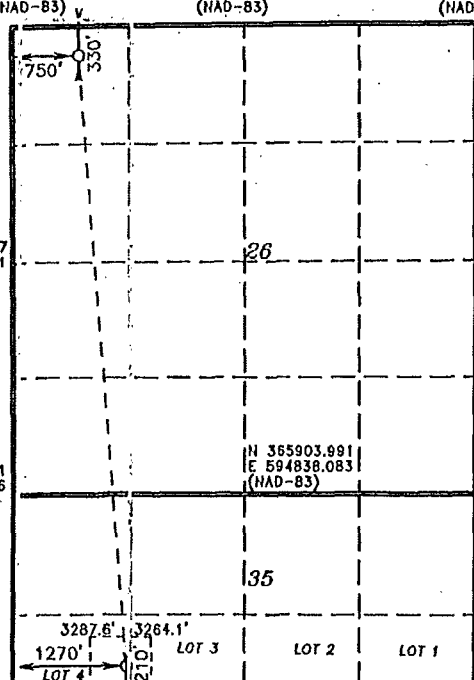
Surface Location

UL or lot No.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County
LOT 4	35	26 S	27 E		210	SOUTH	1270	WEST	EDDY

Bottom Hole Location If Different From Surface

UL or lot No.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County
D	26	26 S	27 E		330	NORTH	750	WEST	EDDY
Dedicated Acres 224.02	Joint or Infill	Consolidation Code	Order No. NSL/NSP pending						

NO ALLOWABLE WILL BE ASSIGNED TO THIS COMPLETION UNTIL ALL INTERESTS HAVE BEEN CONSOLIDATED
OR A NON-STANDARD UNIT HAS BEEN APPROVED BY THE DIVISION

PROPOSED BOTTOM HOLE LOCATION Lat - N 32°01'09.92" Long - W 104°10'00.89" NMSPCE- N 370844.2 E 592914.4 (NAD-83)		PROPOSED SURFACE LOCATION Lat - N 32°00'02.08" Long - W 104°09'54.45" NMSPCE- N 363991.246 E 593479.548 (NAD-83)				OPERATOR CERTIFICATION I hereby certify that the information contained herein is true and complete to the best of my knowledge and belief, and that this organization either owns a working interest or unleased mineral interest in the land including the proposed bottom hole location or has a right to drill this well at this location pursuant to a contract with an owner of such a mineral or working interest, or to a voluntary pooling agreement or a compulsory pooling order heretofore entered by the division. <i>Deysi Favela</i> 5-2-14 Signature Date Deysi Favela Printed Name dfavela@cimarex.com Email Address
				SURVEYOR CERTIFICATION I hereby certify that the well location shown on this plat was plotted from field notes of actual surveys made by me or under my supervision and that the same is true and correct to the best of my belief. <i>Gary L. Jones</i> Date Surveyed Signature & Seal of Professional Surveyor Certificate No. Gary L. Jones 7977 BASIN SURVEYS 29238		



Cactus 112

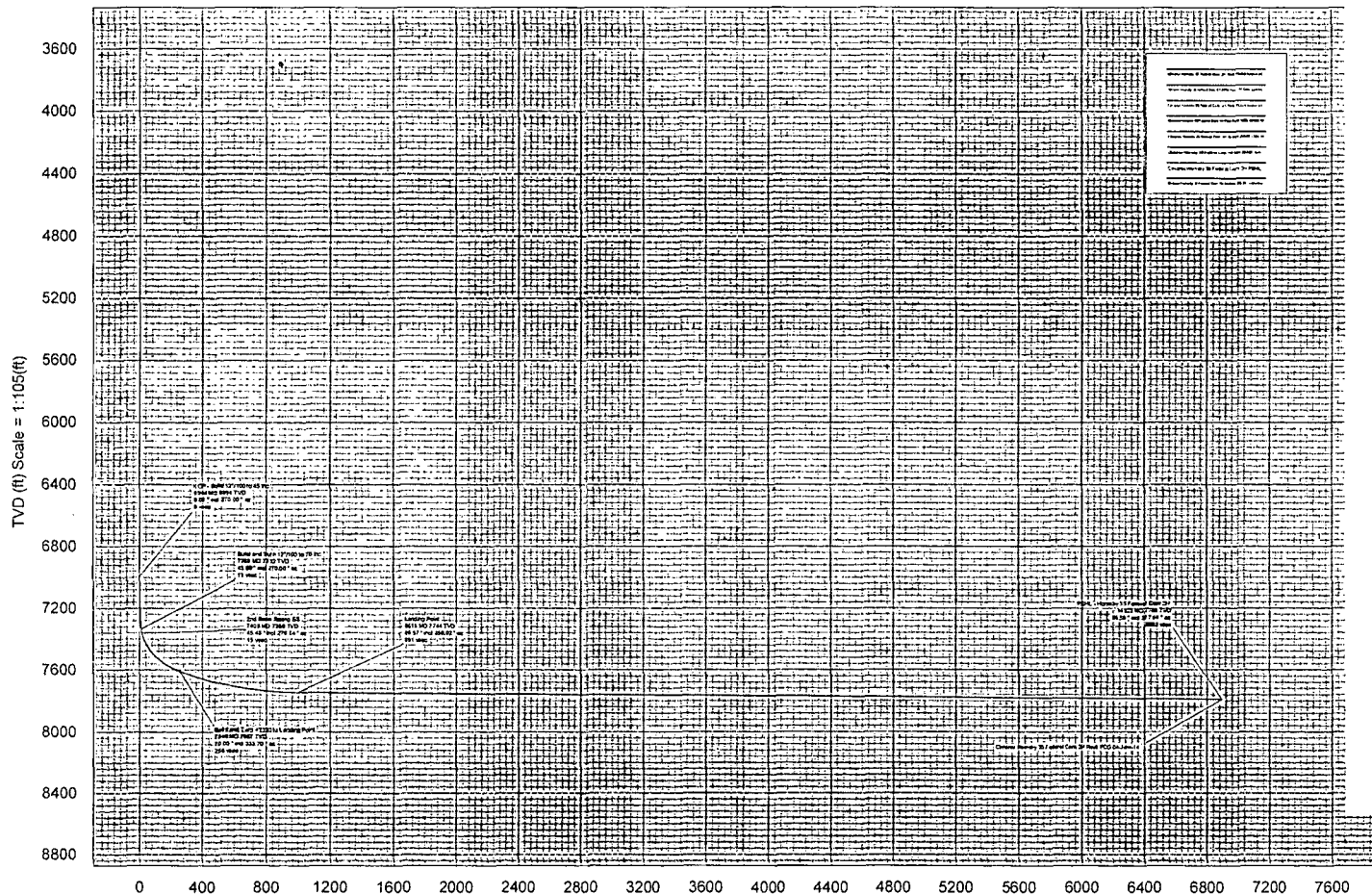
Cimarex

Rev6

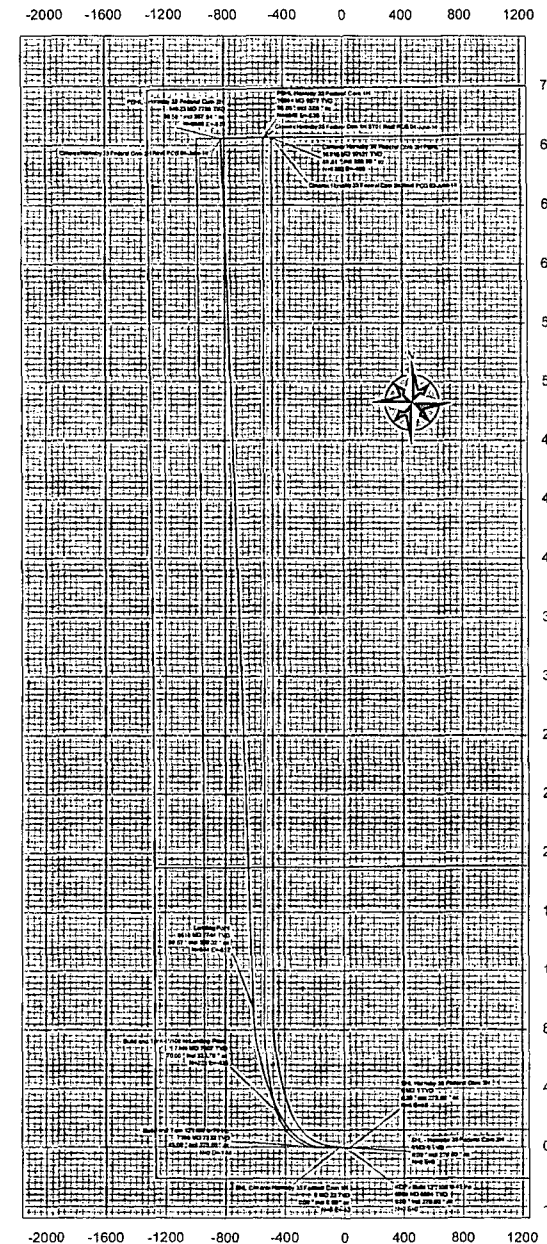
PATHFINDER
A Schlumberger Company

Borehole:	Well:	Field:	Structure:
Original Borehole	Hornsby 35 Federal Com 2H	NM Eddy County (NAD 83)	Cactus 112
Gravity & Magnetic Parameters			
Model: BGM 2014	Dip: 69.792°	Date: 27-May-2014	Surface Location: NAD83 New Mexico State Plane, Eastern Zone, US Feet
Mag Dec: 7.531°	FS: 48081.912nT	Gravity FS: 958.683mgals (9.80665 Based)	Lat: N 32 0 2.09 Northing: 363991.248NUS Grid Conv: 0.0891°
			Long: W 104 9 54.45 Easting: 593479.548EUS Scale Fact: 0.9999122
Miscellaneous			
Slot: Hornsby 35	TVD Ref: RKB(3299ft above)		
Federal Com 2H			
Rev6			

Critical Points											
Comments	Survey MD(ft)	Inclination(deg)	Azimuth(deg)	TVD(ft)	Sub-Sea TVD	VS(ft)	IS(ft)	EW(ft)	Latitude(deg)	Longitude(deg)	Easting(NUS)
SHL - Hornsby 35 Federal Com 2H	0.00	0.00	0.00	270.00	0.00	-3299.00	0.00	0.00	32 0 2.0901	W 104 9 54.453	593479.55
KOP - Build 12"/100 to 45 Inc	6994.00	0.00	0.00	270.00	6994.00	3695.00	0.00	0.00	32 0 2.0901	W 104 9 54.453	593479.55
Build and Turn 12"/100 to 70 Inc	7369.00	45.00	0.00	270.00	7331.62	4032.62	11.49	0.00	32 0 2.092	W 104 9 56.077	593339.71
2nd Bone Spring SS	7407.86	45.48	0.00	276.54	7359.00	4060.00	15.33	1.58	32 0 2.1083	W 104 9 56.396	593312.20
Build and Turn 4"/100 to Landing Point	7848.76	70.00	0.00	333.70	7606.84	4307.84	255.96	220.99	32 0 4.283	W 104 9 59.495	593045.02
Landing Point	8614.60	89.57	0.00	358.02	7744.00	4445.00	990.82	943.75	32 0 11.438	W 104 10 1.537	592858.09
PBHL - Hornsby 35 Federal Com 2H	14522.69	89.58	0.00	357.94	7788.00	4489.00	6892.23	6848.00	32 1 9.666	W 104 10 3.853	592659.62



Vertical Section (ft) Azim = 355.286° Scale = 1:105(ft) Origin = 0N/-S, 0E/-W



Grid
True
Mag

Grid North
Tot Corr (M-G 7.548°)
Mag Dec (7.637°)
Grid Conv (0.089°)

CONTROLLED	
Drawn by	20130501/01/01/01/01
Checked by	
Date	01-Jun-2014
Drawn by	
Checked by	
Date	
Drawn by	
Checked by	
Date	



Cimarex Hornsby 35 Federal Com 2H Rev6 PCG 04-June-14 Proposal Geodetic Report (Non-Def Plan)



Report Date: June 04, 2014 - 03:53 PM
Client: Cimarex
Field: NM Eddy County (NAD 83)
Structure / Slot: Cimarex Hornsby 35 Federal Com 2H / Cimarex Hornsby 35 Federal Com 2H
Well: Cimarex Hornsby 35 Federal Com 2H
Borehole: Original Borehole
UWI / API#: Unknown / Unknown
Survey Name: Cimarex Hornsby 35 Federal Com 2H Rev6 PCG 04-June-14
Survey Date: March 25, 2014
Tort / AHD / DDI / ERD Ratio: 133.469 ° / 7185.269 ft / 6.252 / 0.923
Coordinate Reference System: NAD83 New Mexico State Plane, Eastern Zone, US Feet
Location Lat / Long: N 32° 0' 2.08967", W 104° 9' 54.45270"
Location Grid N/E Y/X: N 363991.246 ftUS, E 593479.548 ftUS
CRS Grid Convergence Angle: 0.0891 °
Grid Scale Factor: 0.9999122
Version / Patch: 2.7.1043.0

Survey / DLS Computation: Minimum Curvature / Lubinski
Vertical Section Azimuth: 355.286 ° (Grid North)
Vertical Section Origin: 0.000 ft, 0.000 ft
TVD Reference Datum: RKB
TVD Reference Elevation: 3299.000 ft above
Seabed / Ground Elevation: 3275.000 ft above
Magnetic Declination: 7.637 °
Total Gravity Field Strength: 998.6833mgn (9.80665 Based)
Gravity Model: DOX
Total Magnetic Field Strength: 48081.912 nT
Magnetic Dip Angle: 59.792 °
Declination Date: May 27, 2014
Magnetic Declination Model: BGGM 2014
North Reference: Grid North
Grid Convergence Used: 0.0891 °
Total Corr Mag North->Grid North: 7.5483 °
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 - Hornsby 35 Federal Com 2H	0.00	0.00	270.00	0.00	0.00	0.00	0.00	N/A	363991.25	593479.55	N 32 0 2.09	W 104 9 54.45
KOP - Build 12"/100 to 45 Inc	6994.00	0.00	270.00	6994.00	0.00	0.00	0.00	0.00	363991.25	593479.55	N 32 0 2.09	W 104 9 54.45
Build and Turn 12"/100 to 70 Inc	7369.00	45.00	270.00	7331.62	11.49	0.00	-139.85	12.00	363991.25	593339.71	N 32 0 2.09	W 104 9 56.08
2nd Bone Spring SS	7407.86	45.48	276.54	7359.00	15.33	1.58	-167.37	12.00	363992.82	593312.20	N 32 0 2.11	W 104 9 56.40
Build and Turn 4"/100 to Landing Point	7848.76	70.00	333.70	7606.84	255.96	220.99	-434.57	12.00	364212.22	593045.02	N 32 0 4.28	W 104 9 59.50
Landing Point	8614.60	89.57	358.02	7744.00	990.82	943.75	-611.51	4.02	364934.92	592868.09	N 32 0 11.44	W 104 10 1.54
PBHL - Hornsby 35 Federal Com 2H	14522.69	89.58	357.94	7788.00	6892.23	6848.00	-820.00	0.00	370838.63	592659.62	N 32 1 9.87	W 104 10 3.85

Survey Type: Non-Def Plan

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 ° ' ")
	6800.00	0.00	270.00	6800.00	0.00	0.00	0.00	0.00	363991.25	593479.55	N 32 0 2.09 W 104	9 54.45
	6900.00	0.00	270.00	6900.00	0.00	0.00	0.00	0.00	363991.25	593479.55	N 32 0 2.09 W 104	9 54.45
KOP - Build 12°/100 to 45 Inc	6994.00	0.00	270.00	6994.00	0.00	0.00	0.00	0.00	363991.25	593479.55	N 32 0 2.09 W 104	9 54.45
	7000.00	0.72	270.00	7000.00	0.00	0.00	-0.04	12.00	363991.25	593479.51	N 32 0 2.09 W 104	9 54.45
	7100.00	12.72	270.00	7099.13	0.96	0.00	-11.72	12.00	363991.25	593467.83	N 32 0 2.09 W 104	9 54.59
	7200.00	24.72	270.00	7193.67	3.60	0.00	-43.75	12.00	363991.25	593435.80	N 32 0 2.09 W 104	9 54.96
	7300.00	36.72	270.00	7279.48	7.79	0.00	-94.74	12.00	363991.25	593384.81	N 32 0 2.09 W 104	9 55.55
Build and Turn 12°/100 to 70 Inc	7369.00	45.00	270.00	7331.62	11.49	0.00	-139.85	12.00	363991.25	593339.71	N 32 0 2.09 W 104	9 56.08
	7400.00	45.35	275.22	7353.48	14.30	1.00	-161.80	12.00	363992.25	593317.77	N 32 0 2.10 W 104	9 56.33
2nd Bone Spring SS	7407.86	45.48	276.54	7359.00	15.33	1.58	-167.37	12.00	363992.82	593312.20	N 32 0 2.11 W 104	9 56.40
	7500.00	48.03	291.33	7422.31	36.84	17.82	-232.11	12.00	364009.07	593247.46	N 32 0 2.27 W 104	9 57.15
	7600.00	52.74	305.68	7486.25	79.11	54.69	-299.30	12.00	364045.93	593180.27	N 32 0 2.64 W 104	9 57.93
	7700.00	58.95	318.11	7542.52	139.25	110.00	-360.45	12.00	364101.23	593119.13	N 32 0 3.18 W 104	9 58.64
	7800.00	66.20	328.90	7588.65	214.64	181.32	-412.87	12.00	364172.55	593066.71	N 32 0 3.89 W 104	9 59.24
Build and Turn 4°/100 to Landing Point	7848.76	70.00	333.70	7606.84	255.96	220.99	-434.57	12.00	364212.22	593045.02	N 32 0 4.28 W 104	9 59.50
	7900.00	71.23	335.45	7623.85	301.17	264.65	-455.31	4.02	364255.87	593024.28	N 32 0 4.72 W 104	9 59.74
	8000.00	73.69	338.79	7653.99	391.76	352.48	-492.36	4.02	364343.70	592987.24	N 32 0 5.59 W 104	10 0.16
	8100.00	76.19	342.05	7679.97	485.08	443.45	-524.69	4.02	364434.66	592954.91	N 32 0 6.49 W 104	10 0.54
	8200.00	78.74	345.25	7701.67	580.67	537.11	-552.15	4.02	364528.30	592927.45	N 32 0 7.41 W 104	10 0.85
	8300.00	81.32	348.38	7718.99	678.06	632.98	-574.60	4.02	364624.17	592905.00	N 32 0 8.36 W 104	10 1.11
	8400.00	83.93	351.47	7731.82	776.78	730.60	-591.94	4.02	364721.78	592887.66	N 32 0 9.33 W 104	10 1.31
	8500.00	86.55	354.53	7740.12	876.34	829.50	-604.08	4.02	364820.67	592875.53	N 32 0 10.31 W 104	10 1.45
Landing Point	8600.00	89.19	357.58	7743.84	976.24	929.17	-610.95	4.02	364920.33	592868.65	N 32 0 11.29 W 104	10 1.53
	8614.60	89.57	358.02	7744.00	990.82	943.75	-611.51	4.02	364934.92	592868.09	N 32 0 11.44 W 104	10 1.54
	8700.00	89.57	358.02	7744.64	1076.13	1029.11	-614.46	0.00	365020.26	592865.14	N 32 0 12.28 W 104	10 1.57
	8800.00	89.57	358.02	7745.39	1176.01	1129.04	-617.92	0.00	365120.19	592861.68	N 32 0 13.27 W 104	10 1.61
	8900.00	89.57	358.02	7746.14	1275.89	1228.98	-621.38	0.00	365220.12	592858.22	N 32 0 14.26 W 104	10 1.65
	9000.00	89.57	358.01	7746.89	1375.78	1328.92	-624.84	0.00	365320.04	592854.76	N 32 0 15.25 W 104	10 1.68
	9100.00	89.57	358.01	7747.64	1475.66	1428.85	-628.31	0.00	365419.97	592851.30	N 32 0 16.24 W 104	10 1.72
	9200.00	89.57	358.01	7748.39	1575.54	1528.79	-631.78	0.00	365519.90	592847.83	N 32 0 17.23 W 104	10 1.76
	9300.00	89.57	358.01	7749.14	1675.43	1628.73	-635.25	0.00	365619.83	592844.36	N 32 0 18.22 W 104	10 1.80
	9400.00	89.57	358.01	7749.89	1775.31	1728.67	-638.72	0.00	365719.76	592840.88	N 32 0 19.21 W 104	10 1.84
	9500.00	89.57	358.01	7750.64	1875.20	1828.60	-642.20	0.00	365819.68	592837.41	N 32 0 20.19 W 104	10 1.88
	9600.00	89.57	358.01	7751.39	1975.08	1928.54	-645.68	0.00	365919.61	592833.93	N 32 0 21.18 W 104	10 1.92
	9700.00	89.57	358.00	7752.13	2074.97	2028.48	-649.16	0.00	366019.54	592830.45	N 32 0 22.17 W 104	10 1.95
	9800.00	89.57	358.00	7752.88	2174.85	2128.41	-652.64	0.00	366119.47	592826.97	N 32 0 23.16 W 104	10 1.99
	9900.00	89.57	358.00	7753.63	2274.74	2228.35	-656.13	0.00	366219.39	592823.48	N 32 0 24.15 W 104	10 2.03
	10000.00	89.57	358.00	7754.38	2374.62	2328.28	-659.61	0.00	366319.32	592819.99	N 32 0 25.14 W 104	10 2.07
	10100.00	89.57	358.00	7755.13	2474.51	2428.22	-663.11	0.00	366419.25	592816.50	N 32 0 26.13 W 104	10 2.11
	10200.00	89.57	358.00	7755.87	2574.39	2528.16	-666.60	0.00	366519.18	592813.01	N 32 0 27.12 W 104	10 2.15
	10300.00	89.57	358.00	7756.62	2674.28	2628.09	-670.09	0.00	366619.10	592809.51	N 32 0 28.11 W 104	10 2.19
	10400.00	89.57	357.99	7757.37	2774.16	2728.03	-673.59	0.00	366719.03	592806.02	N 32 0 29.10 W 104	10 2.23

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 ° ' ")	
	10500.00	89.57	357.99	7758.12	2874.05	2827.96	-677.09	0.00	366818.96	592802.52	N 32	0 30.08 W	104 10	2.26
	10600.00	89.57	357.99	7758.86	2973.93	2927.90	-680.60	0.00	366918.88	592799.01	N 32	0 31.07 W	104 10	2.30
	10700.00	89.57	357.99	7759.61	3073.82	3027.84	-684.10	0.00	367018.81	592795.51	N 32	0 32.06 W	104 10	2.34
	10800.00	89.57	357.99	7760.35	3173.70	3127.77	-687.61	0.00	367118.74	592792.00	N 32	0 33.05 W	104 10	2.38
	10900.00	89.57	357.99	7761.10	3273.59	3227.71	-691.12	0.00	367218.66	592788.49	N 32	0 34.04 W	104 10	2.42
	11000.00	89.57	357.99	7761.85	3373.48	3327.64	-694.64	0.00	367318.59	592784.97	N 32	0 35.03 W	104 10	2.46
	11100.00	89.57	357.98	7762.59	3473.36	3427.58	-698.15	0.00	367418.52	592781.46	N 32	0 36.02 W	104 10	2.50
	11200.00	89.57	357.98	7763.34	3573.25	3527.51	-701.67	0.00	367518.44	592777.94	N 32	0 37.01 W	104 10	2.54
	11300.00	89.57	357.98	7764.08	3673.14	3627.45	-705.19	0.00	367618.37	592774.42	N 32	0 38.00 W	104 10	2.58
	11400.00	89.57	357.98	7764.83	3773.02	3727.38	-708.71	0.00	367718.30	592770.90	N 32	0 38.98 W	104 10	2.62
	11500.00	89.57	357.98	7765.57	3872.91	3827.32	-712.24	0.00	367818.22	592767.37	N 32	0 39.97 W	104 10	2.66
	11600.00	89.57	357.98	7766.32	3972.80	3927.25	-715.77	0.00	367918.15	592763.84	N 32	0 40.96 W	104 10	2.69
	11700.00	89.57	357.98	7767.06	4072.68	4027.19	-719.30	0.00	368018.07	592760.31	N 32	0 41.95 W	104 10	2.73
	11800.00	89.57	357.97	7767.81	4172.57	4127.12	-722.83	0.00	368118.00	592756.78	N 32	0 42.94 W	104 10	2.77
	11900.00	89.57	357.97	7768.55	4272.46	4227.06	-726.37	0.00	368217.92	592753.24	N 32	0 43.93 W	104 10	2.81
	12000.00	89.57	357.97	7769.30	4372.34	4326.99	-729.91	0.00	368317.85	592749.71	N 32	0 44.92 W	104 10	2.85
	12100.00	89.57	357.97	7770.04	4472.23	4426.93	-733.45	0.00	368417.78	592746.17	N 32	0 45.91 W	104 10	2.89
	12200.00	89.57	357.97	7770.78	4572.12	4526.86	-736.99	0.00	368517.70	592742.62	N 32	0 46.90 W	104 10	2.93
	12300.00	89.57	357.97	7771.53	4672.01	4626.80	-740.54	0.00	368617.63	592739.08	N 32	0 47.89 W	104 10	2.97
	12400.00	89.57	357.97	7772.27	4771.89	4726.73	-744.09	0.00	368717.55	592735.53	N 32	0 48.87 W	104 10	3.01
	12500.00	89.57	357.96	7773.01	4871.78	4826.66	-747.64	0.00	368817.48	592731.98	N 32	0 49.86 W	104 10	3.05
	12600.00	89.57	357.96	7773.76	4971.67	4926.60	-751.19	0.00	368917.40	592728.42	N 32	0 50.85 W	104 10	3.09
	12700.00	89.57	357.96	7774.50	5071.56	5026.53	-754.75	0.00	369017.33	592724.87	N 32	0 51.84 W	104 10	3.13
	12800.00	89.57	357.96	7775.24	5171.45	5126.47	-758.31	0.00	369117.25	592721.31	N 32	0 52.83 W	104 10	3.17
	12900.00	89.57	357.96	7775.98	5271.34	5226.40	-761.87	0.00	369217.18	592717.75	N 32	0 53.82 W	104 10	3.21
	13000.00	89.57	357.96	7776.72	5371.22	5326.33	-765.43	0.00	369317.10	592714.19	N 32	0 54.81 W	104 10	3.25
	13100.00	89.57	357.96	7777.47	5471.11	5426.27	-769.00	0.00	369417.03	592710.62	N 32	0 55.80 W	104 10	3.29
	13200.00	89.58	357.95	7778.21	5571.00	5526.20	-772.56	0.00	369516.95	592707.05	N 32	0 56.79 W	104 10	3.33
	13300.00	89.58	357.95	7778.95	5670.89	5626.13	-776.14	0.00	369616.88	592703.48	N 32	0 57.77 W	104 10	3.37
	13400.00	89.58	357.95	7779.69	5770.78	5726.07	-779.71	0.00	369716.80	592699.91	N 32	0 58.76 W	104 10	3.41
	13500.00	89.58	357.95	7780.43	5870.67	5826.00	-783.29	0.00	369816.72	592696.33	N 32	0 59.75 W	104 10	3.44
	13600.00	89.58	357.95	7781.17	5970.56	5925.93	-786.86	0.00	369916.65	592692.76	N 32	1 0.74 W	104 10	3.48
	13700.00	89.58	357.95	7781.91	6070.45	6025.87	-790.44	0.00	370016.57	592689.17	N 32	1 1.73 W	104 10	3.52
	13800.00	89.58	357.95	7782.65	6170.34	6125.80	-794.03	0.00	370116.50	592685.59	N 32	1 2.72 W	104 10	3.56
	13900.00	89.58	357.94	7783.39	6270.23	6225.73	-797.61	0.00	370216.42	592682.01	N 32	1 3.71 W	104 10	3.60
	14000.00	89.58	357.94	7784.13	6370.12	6325.67	-801.20	0.00	370316.34	592678.42	N 32	1 4.70 W	104 10	3.64
	14100.00	89.58	357.94	7784.87	6470.01	6425.60	-804.79	0.00	370416.27	592674.83	N 32	1 5.69 W	104 10	3.68
	14200.00	89.58	357.94	7785.61	6569.90	6525.53	-808.39	0.00	370516.19	592671.23	N 32	1 6.68 W	104 10	3.72
	14300.00	89.58	357.94	7786.35	6669.79	6625.46	-811.98	0.00	370616.12	592667.64	N 32	1 7.66 W	104 10	3.76
	14400.00	89.58	357.94	7787.09	6769.68	6725.40	-815.58	0.00	370716.04	592664.04	N 32	1 8.65 W	104 10	3.80
	14500.00	89.58	357.94	7787.83	6869.57	6825.33	-819.18	0.00	370815.96	592660.44	N 32	1 9.64 W	104 10	3.84
PBHL - Hornsby 35 Federal Com 2H	14522.69	89.58	357.94	7788.00	6892.23	6848.00	-820.00	0.00	370838.63	592659.62	N 32	1 9.87 W	104 10	3.85

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 ° ' ")
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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	24.000	1/100.000	30.000	30.000	SLB_MWD-POOR-Depth Only	Original Borehole / Cimarex Hornsby 35 Federal Com 2H Rev6
	1	24.000	6994.000	1/100.000	30.000	30.000	SLB_MWD-POOR	Original Borehole / Cimarex Hornsby 35 Federal Com 2H Rev6
	1	6994.000	14522.686	1/100.000	30.000	30.000	SLB_MWD-STD	Original Borehole / Cimarex Hornsby 35 Federal Com 2H Rev6



Cimarex Hornsby 35 Federal Com 2H Rev6 PCG 04-June-14 Proposal

Geodetic Report

(Non-Def Plan)



Report Date: June 04, 2014 - 03:52 PM
Client: Cimarex
Field: NM Eddy County (NAD 83)
Structure / Slot: Cimarex Hornsby 35 Federal Com 2H / Cimarex Hornsby 35 Federal Com 2H
Well: Cimarex Hornsby 35 Federal Com 2H
Borehole: Original Borehole
UWI / API#: Unknown / Unknown
Survey Name: Cimarex Hornsby 35 Federal Com 2H Rev6 PCG 04-June-14
Survey Date: March 25, 2014
Tort / AHD / DDI / ERD Ratio: 133.469 ° / 7185.269 ft / 6.252 / 0.923
Coordinate Reference System: NAD83 New Mexico State Plane, Eastern Zone, US Feet
Location Lat / Long: N 32° 0' 2.08967", W 104° 9' 54.45270"
Location Grid N/E Y/X: N 363991.246 ftUS, E 593479.548 ftUS
CRS Grid Convergence Angle: 0.0891 °
Grid Scale Factor: 0.9999122
Version / Patch: 2.7.1043.0

Survey / DLS Computation: Minimum Curvature / Lubinski
Vertical Section Azimuth: 355.286 ° (Grid North)
Vertical Section Origin: 0.000 ft, 0.000 ft
TVD Reference Datum: RKB
TVD Reference Elevation: 3299.000 ft above
Seabed / Ground Elevation: 3275.000 ft above
Magnetic Declination: 7.637 °
Total Gravity Field Strength: 998.6833mgn (9.80665 Based)
Gravity Model: DOX
Total Magnetic Field Strength: 48081.912 nT
Magnetic Dip Angle: 59.792 °
Declination Date: May 27, 2014
Magnetic Declination Model: BGGM 2014
North Reference: Grid North
Grid Convergence Used: 0.0891 °
Total Corr Mag North->Grid North: 7.5483 °
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 - Hornsby 35 Federal Com 2H	0.00	0.00	270.00	0.00	0.00	0.00	0.00	N/A	363991.25	593479.55	N 32 0 2.09 W 104	9 54.45
	100.00	0.00	270.00	100.00	0.00	0.00	0.00	0.00	363991.25	593479.55	N 32 0 2.09 W 104	9 54.45
	200.00	0.00	270.00	200.00	0.00	0.00	0.00	0.00	363991.25	593479.55	N 32 0 2.09 W 104	9 54.45
	300.00	0.00	270.00	300.00	0.00	0.00	0.00	0.00	363991.25	593479.55	N 32 0 2.09 W 104	9 54.45
	400.00	0.00	270.00	400.00	0.00	0.00	0.00	0.00	363991.25	593479.55	N 32 0 2.09 W 104	9 54.45
	500.00	0.00	270.00	500.00	0.00	0.00	0.00	0.00	363991.25	593479.55	N 32 0 2.09 W 104	9 54.45
	600.00	0.00	270.00	600.00	0.00	0.00	0.00	0.00	363991.25	593479.55	N 32 0 2.09 W 104	9 54.45
	700.00	0.00	270.00	700.00	0.00	0.00	0.00	0.00	363991.25	593479.55	N 32 0 2.09 W 104	9 54.45
	800.00	0.00	270.00	800.00	0.00	0.00	0.00	0.00	363991.25	593479.55	N 32 0 2.09 W 104	9 54.45
	900.00	0.00	270.00	900.00	0.00	0.00	0.00	0.00	363991.25	593479.55	N 32 0 2.09 W 104	9 54.45
	1000.00	0.00	270.00	1000.00	0.00	0.00	0.00	0.00	363991.25	593479.55	N 32 0 2.09 W 104	9 54.45
	1100.00	0.00	270.00	1100.00	0.00	0.00	0.00	0.00	363991.25	593479.55	N 32 0 2.09 W 104	9 54.45
	1200.00	0.00	270.00	1200.00	0.00	0.00	0.00	0.00	363991.25	593479.55	N 32 0 2.09 W 104	9 54.45
	1300.00	0.00	270.00	1300.00	0.00	0.00	0.00	0.00	363991.25	593479.55	N 32 0 2.09 W 104	9 54.45
	1400.00	0.00	270.00	1400.00	0.00	0.00	0.00	0.00	363991.25	593479.55	N 32 0 2.09 W 104	9 54.45
	1500.00	0.00	270.00	1500.00	0.00	0.00	0.00	0.00	363991.25	593479.55	N 32 0 2.09 W 104	9 54.45
	1600.00	0.00	270.00	1600.00	0.00	0.00	0.00	0.00	363991.25	593479.55	N 32 0 2.09 W 104	9 54.45
	1700.00	0.00	270.00	1700.00	0.00	0.00	0.00	0.00	363991.25	593479.55	N 32 0 2.09 W 104	9 54.45
	1800.00	0.00	270.00	1800.00	0.00	0.00	0.00	0.00	363991.25	593479.55	N 32 0 2.09 W 104	9 54.45
	1900.00	0.00	270.00	1900.00	0.00	0.00	0.00	0.00	363991.25	593479.55	N 32 0 2.09 W 104	9 54.45

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 ° ' '')	
	2000.00	0.00	270.00	2000.00	0.00	0.00	0.00	0.00	363991.25	593479.55	N 32 0	2.09 W 104	9 54.45	
	2100.00	0.00	270.00	2100.00	0.00	0.00	0.00	0.00	363991.25	593479.55	N 32 0	2.09 W 104	9 54.45	
	2200.00	0.00	270.00	2200.00	0.00	0.00	0.00	0.00	363991.25	593479.55	N 32 0	2.09 W 104	9 54.45	
	2300.00	0.00	270.00	2300.00	0.00	0.00	0.00	0.00	363991.25	593479.55	N 32 0	2.09 W 104	9 54.45	
	2400.00	0.00	270.00	2400.00	0.00	0.00	0.00	0.00	363991.25	593479.55	N 32 0	2.09 W 104	9 54.45	
	2500.00	0.00	270.00	2500.00	0.00	0.00	0.00	0.00	363991.25	593479.55	N 32 0	2.09 W 104	9 54.45	
	2600.00	0.00	270.00	2600.00	0.00	0.00	0.00	0.00	363991.25	593479.55	N 32 0	2.09 W 104	9 54.45	
	2700.00	0.00	270.00	2700.00	0.00	0.00	0.00	0.00	363991.25	593479.55	N 32 0	2.09 W 104	9 54.45	
	2800.00	0.00	270.00	2800.00	0.00	0.00	0.00	0.00	363991.25	593479.55	N 32 0	2.09 W 104	9 54.45	
	2900.00	0.00	270.00	2900.00	0.00	0.00	0.00	0.00	363991.25	593479.55	N 32 0	2.09 W 104	9 54.45	
	3000.00	0.00	270.00	3000.00	0.00	0.00	0.00	0.00	363991.25	593479.55	N 32 0	2.09 W 104	9 54.45	
	3100.00	0.00	270.00	3100.00	0.00	0.00	0.00	0.00	363991.25	593479.55	N 32 0	2.09 W 104	9 54.45	
	3200.00	0.00	270.00	3200.00	0.00	0.00	0.00	0.00	363991.25	593479.55	N 32 0	2.09 W 104	9 54.45	
	3300.00	0.00	270.00	3300.00	0.00	0.00	0.00	0.00	363991.25	593479.55	N 32 0	2.09 W 104	9 54.45	
	3400.00	0.00	270.00	3400.00	0.00	0.00	0.00	0.00	363991.25	593479.55	N 32 0	2.09 W 104	9 54.45	
	3500.00	0.00	270.00	3500.00	0.00	0.00	0.00	0.00	363991.25	593479.55	N 32 0	2.09 W 104	9 54.45	
	3600.00	0.00	270.00	3600.00	0.00	0.00	0.00	0.00	363991.25	593479.55	N 32 0	2.09 W 104	9 54.45	
	3700.00	0.00	270.00	3700.00	0.00	0.00	0.00	0.00	363991.25	593479.55	N 32 0	2.09 W 104	9 54.45	
	3800.00	0.00	270.00	3800.00	0.00	0.00	0.00	0.00	363991.25	593479.55	N 32 0	2.09 W 104	9 54.45	
	3900.00	0.00	270.00	3900.00	0.00	0.00	0.00	0.00	363991.25	593479.55	N 32 0	2.09 W 104	9 54.45	
	4000.00	0.00	270.00	4000.00	0.00	0.00	0.00	0.00	363991.25	593479.55	N 32 0	2.09 W 104	9 54.45	
	4100.00	0.00	270.00	4100.00	0.00	0.00	0.00	0.00	363991.25	593479.55	N 32 0	2.09 W 104	9 54.45	
	4200.00	0.00	270.00	4200.00	0.00	0.00	0.00	0.00	363991.25	593479.55	N 32 0	2.09 W 104	9 54.45	
	4300.00	0.00	270.00	4300.00	0.00	0.00	0.00	0.00	363991.25	593479.55	N 32 0	2.09 W 104	9 54.45	
	4400.00	0.00	270.00	4400.00	0.00	0.00	0.00	0.00	363991.25	593479.55	N 32 0	2.09 W 104	9 54.45	
	4500.00	0.00	270.00	4500.00	0.00	0.00	0.00	0.00	363991.25	593479.55	N 32 0	2.09 W 104	9 54.45	
	4600.00	0.00	270.00	4600.00	0.00	0.00	0.00	0.00	363991.25	593479.55	N 32 0	2.09 W 104	9 54.45	
	4700.00	0.00	270.00	4700.00	0.00	0.00	0.00	0.00	363991.25	593479.55	N 32 0	2.09 W 104	9 54.45	
	4800.00	0.00	270.00	4800.00	0.00	0.00	0.00	0.00	363991.25	593479.55	N 32 0	2.09 W 104	9 54.45	
	4900.00	0.00	270.00	4900.00	0.00	0.00	0.00	0.00	363991.25	593479.55	N 32 0	2.09 W 104	9 54.45	
	5000.00	0.00	270.00	5000.00	0.00	0.00	0.00	0.00	363991.25	593479.55	N 32 0	2.09 W 104	9 54.45	
	5100.00	0.00	270.00	5100.00	0.00	0.00	0.00	0.00	363991.25	593479.55	N 32 0	2.09 W 104	9 54.45	
	5200.00	0.00	270.00	5200.00	0.00	0.00	0.00	0.00	363991.25	593479.55	N 32 0	2.09 W 104	9 54.45	
	5300.00	0.00	270.00	5300.00	0.00	0.00	0.00	0.00	363991.25	593479.55	N 32 0	2.09 W 104	9 54.45	
	5400.00	0.00	270.00	5400.00	0.00	0.00	0.00	0.00	363991.25	593479.55	N 32 0	2.09 W 104	9 54.45	
	5500.00	0.00	270.00	5500.00	0.00	0.00	0.00	0.00	363991.25	593479.55	N 32 0	2.09 W 104	9 54.45	
	5600.00	0.00	270.00	5600.00	0.00	0.00	0.00	0.00	363991.25	593479.55	N 32 0	2.09 W 104	9 54.45	
	5700.00	0.00	270.00	5700.00	0.00	0.00	0.00	0.00	363991.25	593479.55	N 32 0	2.09 W 104	9 54.45	
	5800.00	0.00	270.00	5800.00	0.00	0.00	0.00	0.00	363991.25	593479.55	N 32 0	2.09 W 104	9 54.45	
	5900.00	0.00	270.00	5900.00	0.00	0.00	0.00	0.00	363991.25	593479.55	N 32 0	2.09 W 104	9 54.45	
	6000.00	0.00	270.00	6000.00	0.00	0.00	0.00	0.00	363991.25	593479.55	N 32 0	2.09 W 104	9 54.45	
	6100.00	0.00	270.00	6100.00	0.00	0.00	0.00	0.00	363991.25	593479.55	N 32 0	2.09 W 104	9 54.45	
	6200.00	0.00	270.00	6200.00	0.00	0.00	0.00	0.00	363991.25	593479.55	N 32 0	2.09 W 104	9 54.45	
	6300.00	0.00	270.00	6300.00	0.00	0.00	0.00	0.00	363991.25	593479.55	N 32 0	2.09 W 104	9 54.45	
	6400.00	0.00	270.00	6400.00	0.00	0.00	0.00	0.00	363991.25	593479.55	N 32 0	2.09 W 104	9 54.45	
	6500.00	0.00	270.00	6500.00	0.00	0.00	0.00	0.00	363991.25	593479.55	N 32 0	2.09 W 104	9 54.45	
	6600.00	0.00	270.00	6600.00	0.00	0.00	0.00	0.00	363991.25	593479.55	N 32 0	2.09 W 104	9 54.45	
	6700.00	0.00	270.00	6700.00	0.00	0.00	0.00	0.00	363991.25	593479.55	N 32 0	2.09 W 104	9 54.45	

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 ° ' ")
	6800.00	0.00	270.00	6800.00	0.00	0.00	0.00	0.00	363991.25	593479.55	N 32 0 2.09 W 104 9 54.45	
	6900.00	0.00	270.00	6900.00	0.00	0.00	0.00	0.00	363991.25	593479.55	N 32 0 2.09 W 104 9 54.45	
KOP - Build 12"/100 to 45 Inc	6994.00	0.00	270.00	6994.00	0.00	0.00	0.00	0.00	363991.25	593479.55	N 32 0 2.09 W 104 9 54.45	
	7000.00	0.72	270.00	7000.00	0.00	0.00	-0.04	12.00	363991.25	593479.51	N 32 0 2.09 W 104 9 54.45	
	7100.00	12.72	270.00	7099.13	0.96	0.00	-11.72	12.00	363991.25	593467.83	N 32 0 2.09 W 104 9 54.59	
	7200.00	24.72	270.00	7193.67	3.60	0.00	-43.75	12.00	363991.25	593435.80	N 32 0 2.09 W 104 9 54.96	
	7300.00	36.72	270.00	7279.48	7.79	0.00	-94.74	12.00	363991.25	593384.81	N 32 0 2.09 W 104 9 55.55	
Build and Turn 12"/100 to 70 Inc	7369.00	45.00	270.00	7331.62	11.49	0.00	-139.85	12.00	363991.25	593339.71	N 32 0 2.09 W 104 9 56.08	
	7400.00	45.35	275.22	7353.48	14.30	1.00	-161.80	12.00	363992.25	593317.77	N 32 0 2.10 W 104 9 56.33	
2nd Bone Spring SS	7407.86	45.48	276.54	7359.00	15.33	1.58	-167.37	12.00	363992.82	593312.20	N 32 0 2.11 W 104 9 56.40	
	7500.00	48.03	291.33	7422.31	36.84	17.82	-232.11	12.00	364009.07	593247.46	N 32 0 2.27 W 104 9 57.15	
	7600.00	52.74	305.68	7486.25	79.11	54.69	-299.30	12.00	364045.93	593180.27	N 32 0 2.64 W 104 9 57.93	
	7700.00	58.95	318.11	7542.52	139.25	110.00	-360.45	12.00	364101.23	593119.13	N 32 0 3.18 W 104 9 58.64	
	7800.00	66.20	328.90	7588.65	214.64	181.32	-412.87	12.00	364172.55	593066.71	N 32 0 3.89 W 104 9 59.24	
Build and Turn 4"/100 to Landing Point	7848.76	70.00	333.70	7606.84	255.96	220.99	-434.57	12.00	364212.22	593045.02	N 32 0 4.28 W 104 9 59.50	
	7900.00	71.23	335.45	7623.85	301.17	264.65	-455.31	4.02	364255.87	593024.28	N 32 0 4.72 W 104 9 59.74	
	8000.00	73.69	338.79	7653.99	391.76	352.48	-492.36	4.02	364343.70	592987.24	N 32 0 5.59 W 104 10 0.16	
	8100.00	76.19	342.05	7679.97	485.08	443.45	-524.69	4.02	364434.66	592954.91	N 32 0 6.49 W 104 10 0.54	
	8200.00	78.74	345.25	7701.67	580.67	537.11	-552.15	4.02	364528.30	592927.45	N 32 0 7.41 W 104 10 0.85	
	8300.00	81.32	348.38	7718.99	678.06	632.98	-574.60	4.02	364624.17	592905.00	N 32 0 8.36 W 104 10 1.11	
	8400.00	83.93	351.47	7731.82	776.78	730.60	-591.94	4.02	364721.78	592887.66	N 32 0 9.33 W 104 10 1.31	
	8500.00	86.55	354.53	7740.12	876.34	829.50	-604.08	4.02	364820.67	592875.53	N 32 0 10.31 W 104 10 1.45	
Landing Point	8600.00	89.19	357.58	7743.84	976.24	929.17	-610.95	4.02	364920.33	592868.65	N 32 0 11.29 W 104 10 1.53	
	8614.60	89.57	358.02	7744.00	990.82	943.75	-611.51	4.02	364934.92	592868.09	N 32 0 11.44 W 104 10 1.54	
	8700.00	89.57	358.02	7744.64	1076.13	1029.11	-614.46	0.00	365020.26	592865.14	N 32 0 12.28 W 104 10 1.57	
	8800.00	89.57	358.02	7745.39	1176.01	1129.04	-617.92	0.00	365120.19	592861.68	N 32 0 13.27 W 104 10 1.61	
	8900.00	89.57	358.02	7746.14	1275.89	1228.98	-621.38	0.00	365220.12	592858.22	N 32 0 14.26 W 104 10 1.65	
	9000.00	89.57	358.01	7746.89	1375.78	1328.92	-624.84	0.00	365320.04	592854.76	N 32 0 15.25 W 104 10 1.68	
	9100.00	89.57	358.01	7747.64	1475.66	1428.85	-628.31	0.00	365419.97	592851.30	N 32 0 16.24 W 104 10 1.72	
	9200.00	89.57	358.01	7748.39	1575.54	1528.79	-631.78	0.00	365519.90	592847.83	N 32 0 17.23 W 104 10 1.76	
	9300.00	89.57	358.01	7749.14	1675.43	1628.73	-635.25	0.00	365619.83	592844.36	N 32 0 18.22 W 104 10 1.80	
	9400.00	89.57	358.01	7749.89	1775.31	1728.67	-638.72	0.00	365719.76	592840.88	N 32 0 19.21 W 104 10 1.84	
	9500.00	89.57	358.01	7750.64	1875.20	1828.60	-642.20	0.00	365819.68	592837.41	N 32 0 20.19 W 104 10 1.88	
	9600.00	89.57	358.01	7751.39	1975.08	1928.54	-645.68	0.00	365919.61	592833.93	N 32 0 21.18 W 104 10 1.92	
	9700.00	89.57	358.00	7752.13	2074.97	2028.48	-649.16	0.00	366019.54	592830.45	N 32 0 22.17 W 104 10 1.95	
	9800.00	89.57	358.00	7752.88	2174.85	2128.41	-652.64	0.00	366119.47	592826.97	N 32 0 23.16 W 104 10 1.99	
	9900.00	89.57	358.00	7753.63	2274.74	2228.35	-656.13	0.00	366219.39	592823.48	N 32 0 24.15 W 104 10 2.03	
	10000.00	89.57	358.00	7754.38	2374.62	2328.28	-659.61	0.00	366319.32	592819.99	N 32 0 25.14 W 104 10 2.07	
	10100.00	89.57	358.00	7755.13	2474.51	2428.22	-663.11	0.00	366419.25	592816.50	N 32 0 26.13 W 104 10 2.11	
	10200.00	89.57	358.00	7755.87	2574.39	2528.16	-666.60	0.00	366519.18	592813.01	N 32 0 27.12 W 104 10 2.15	
	10300.00	89.57	358.00	7756.62	2674.28	2628.09	-670.09	0.00	366619.10	592809.51	N 32 0 28.11 W 104 10 2.19	
	10400.00	89.57	357.99	7757.37	2774.16	2728.03	-673.59	0.00	366719.03	592806.02	N 32 0 29.10 W 104 10 2.23	

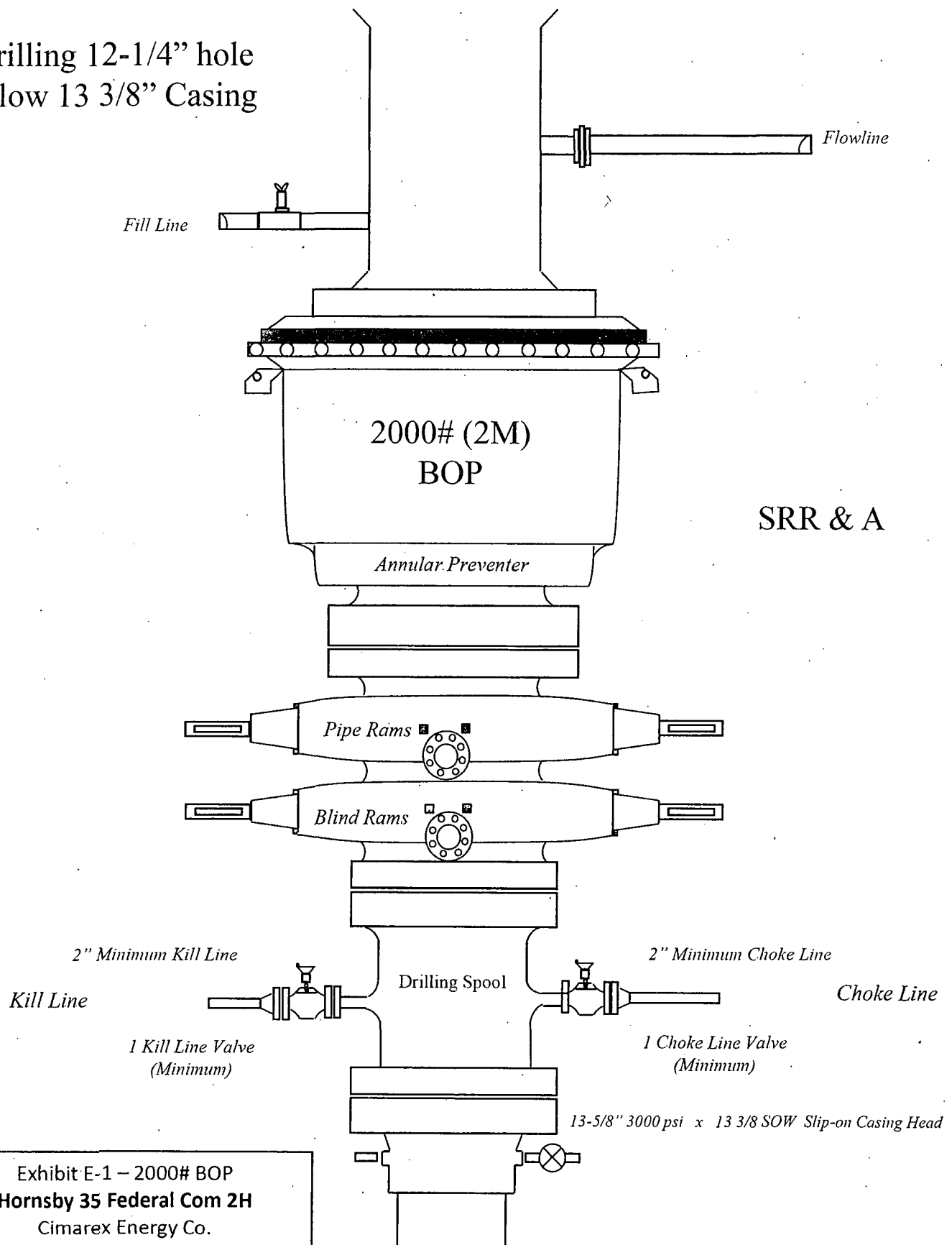
Comments	MD (ft)	Incl (°)	Azim Grid (°)	TVD (ft)	VSEC (ft)	NS (ft)	EW (ft)	DLS (°/100ft)	Northing (ftUS)	Easting (ftUS)	Latitude (N/S ° ' ")	Longitude (E/W ° ' ")
	10500.00	89.57	357.99	7758.12	2874.05	2827.96	-677.09	0.00	366818.96	592802.52	N 32 0 30.08	W 104 10 2.26
	10600.00	89.57	357.99	7758.86	2973.93	2927.90	-680.60	0.00	366918.88	592799.01	N 32 0 31.07	W 104 10 2.30
	10700.00	89.57	357.99	7759.61	3073.82	3027.84	-684.10	0.00	367018.81	592795.51	N 32 0 32.06	W 104 10 2.34
	10800.00	89.57	357.99	7760.35	3173.70	3127.77	-687.61	0.00	367118.74	592792.00	N 32 0 33.05	W 104 10 2.38
	10900.00	89.57	357.99	7761.10	3273.59	3227.71	-691.12	0.00	367218.66	592788.49	N 32 0 34.04	W 104 10 2.42
	11000.00	89.57	357.99	7761.85	3373.48	3327.64	-694.64	0.00	367318.59	592784.97	N 32 0 35.03	W 104 10 2.46
	11100.00	89.57	357.98	7762.59	3473.36	3427.58	-698.15	0.00	367418.52	592781.46	N 32 0 36.02	W 104 10 2.50
	11200.00	89.57	357.98	7763.34	3573.25	3527.51	-701.67	0.00	367518.44	592777.94	N 32 0 37.01	W 104 10 2.54
	11300.00	89.57	357.98	7764.08	3673.14	3627.45	-705.19	0.00	367618.37	592774.42	N 32 0 38.00	W 104 10 2.58
	11400.00	89.57	357.98	7764.83	3773.02	3727.38	-708.71	0.00	367718.30	592770.90	N 32 0 38.98	W 104 10 2.62
	11500.00	89.57	357.98	7765.57	3872.91	3827.32	-712.24	0.00	367818.22	592767.37	N 32 0 39.97	W 104 10 2.66
	11600.00	89.57	357.98	7766.32	3972.80	3927.25	-715.77	0.00	367918.15	592763.84	N 32 0 40.96	W 104 10 2.69
	11700.00	89.57	357.98	7767.06	4072.68	4027.19	-719.30	0.00	368018.07	592760.31	N 32 0 41.95	W 104 10 2.73
	11800.00	89.57	357.97	7767.81	4172.57	4127.12	-722.83	0.00	368118.00	592756.78	N 32 0 42.94	W 104 10 2.77
	11900.00	89.57	357.97	7768.55	4272.46	4227.06	-726.37	0.00	368217.92	592753.24	N 32 0 43.93	W 104 10 2.81
	12000.00	89.57	357.97	7769.30	4372.34	4326.99	-729.91	0.00	368317.85	592749.71	N 32 0 44.92	W 104 10 2.85
	12100.00	89.57	357.97	7770.04	4472.23	4426.93	-733.45	0.00	368417.78	592746.17	N 32 0 45.91	W 104 10 2.89
	12200.00	89.57	357.97	7770.78	4572.12	4526.86	-736.99	0.00	368517.70	592742.62	N 32 0 46.90	W 104 10 2.93
	12300.00	89.57	357.97	7771.53	4672.01	4626.80	-740.54	0.00	368617.63	592739.08	N 32 0 47.89	W 104 10 2.97
	12400.00	89.57	357.97	7772.27	4771.89	4726.73	-744.09	0.00	368717.55	592735.53	N 32 0 48.87	W 104 10 3.01
	12500.00	89.57	357.96	7773.01	4871.78	4826.66	-747.64	0.00	368817.48	592731.98	N 32 0 49.86	W 104 10 3.05
	12600.00	89.57	357.96	7773.76	4971.67	4926.60	-751.19	0.00	368917.40	592728.42	N 32 0 50.85	W 104 10 3.09
	12700.00	89.57	357.96	7774.50	5071.56	5026.53	-754.75	0.00	369017.33	592724.87	N 32 0 51.84	W 104 10 3.13
	12800.00	89.57	357.96	7775.24	5171.45	5126.47	-758.31	0.00	369117.25	592721.31	N 32 0 52.83	W 104 10 3.17
	12900.00	89.57	357.96	7775.98	5271.34	5226.40	-761.87	0.00	369217.18	592717.75	N 32 0 53.82	W 104 10 3.21
	13000.00	89.57	357.96	7776.72	5371.22	5326.33	-765.43	0.00	369317.10	592714.19	N 32 0 54.81	W 104 10 3.25
	13100.00	89.57	357.96	7777.47	5471.11	5426.27	-769.00	0.00	369417.03	592710.62	N 32 0 55.80	W 104 10 3.29
	13200.00	89.58	357.95	7778.21	5571.00	5526.20	-772.56	0.00	369516.95	592707.05	N 32 0 56.79	W 104 10 3.33
	13300.00	89.58	357.95	7778.95	5670.89	5626.13	-776.14	0.00	369616.88	592703.48	N 32 0 57.77	W 104 10 3.37
	13400.00	89.58	357.95	7779.69	5770.78	5726.07	-779.71	0.00	369716.80	592699.91	N 32 0 58.76	W 104 10 3.41
	13500.00	89.58	357.95	7780.43	5870.67	5826.00	-783.29	0.00	369816.72	592696.33	N 32 0 59.75	W 104 10 3.44
	13600.00	89.58	357.95	7781.17	5970.56	5925.93	-786.86	0.00	369916.65	592692.76	N 32 1 0 0.74	W 104 10 3.48
	13700.00	89.58	357.95	7781.91	6070.45	6025.87	-790.44	0.00	370016.57	592689.17	N 32 1 0 1.73	W 104 10 3.52
	13800.00	89.58	357.95	7782.65	6170.34	6125.80	-794.03	0.00	370116.50	592685.59	N 32 1 0 2.72	W 104 10 3.56
	13900.00	89.58	357.94	7783.39	6270.23	6225.73	-797.61	0.00	370216.42	592682.01	N 32 1 0 3.71	W 104 10 3.60
	14000.00	89.58	357.94	7784.13	6370.12	6325.67	-801.20	0.00	370316.34	592678.42	N 32 1 0 4.70	W 104 10 3.64
	14100.00	89.58	357.94	7784.87	6470.01	6425.60	-804.79	0.00	370416.27	592674.83	N 32 1 0 5.69	W 104 10 3.68
	14200.00	89.58	357.94	7785.61	6569.90	6525.53	-808.39	0.00	370516.19	592671.23	N 32 1 0 6.68	W 104 10 3.72
	14300.00	89.58	357.94	7786.35	6669.79	6625.46	-811.98	0.00	370616.12	592667.64	N 32 1 0 7.66	W 104 10 3.76
	14400.00	89.58	357.94	7787.09	6769.68	6725.40	-815.58	0.00	370716.04	592664.04	N 32 1 0 8.65	W 104 10 3.80
	14500.00	89.58	357.94	7787.83	6869.57	6825.33	-819.18	0.00	370815.96	592660.44	N 32 1 0 9.64	W 104 10 3.84
PBHL - Hornsby 35 Federal Com 2H	14522.69	89.58	357.94	7788.00	6892.23	6848.00	-820.00	0.00	370838.63	592659.62	N 32 1 0 9.87	W 104 10 3.85

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 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	24.000	1/100.000	30.000	30.000	SLB_MWD-POOR-Depth Only	Original Borehole / Cimarex Hornsby 35 Federal Com 2H Rev6
	1	24.000	6994.000	1/100.000	30.000	30.000	SLB_MWD-POOR	Original Borehole / Cimarex Hornsby 35 Federal Com 2H Rev6
	1	6994.000	14522.686	1/100.000	30.000	30.000	SLB_MWD-STD	Original Borehole / Cimarex Hornsby 35 Federal Com 2H Rev6

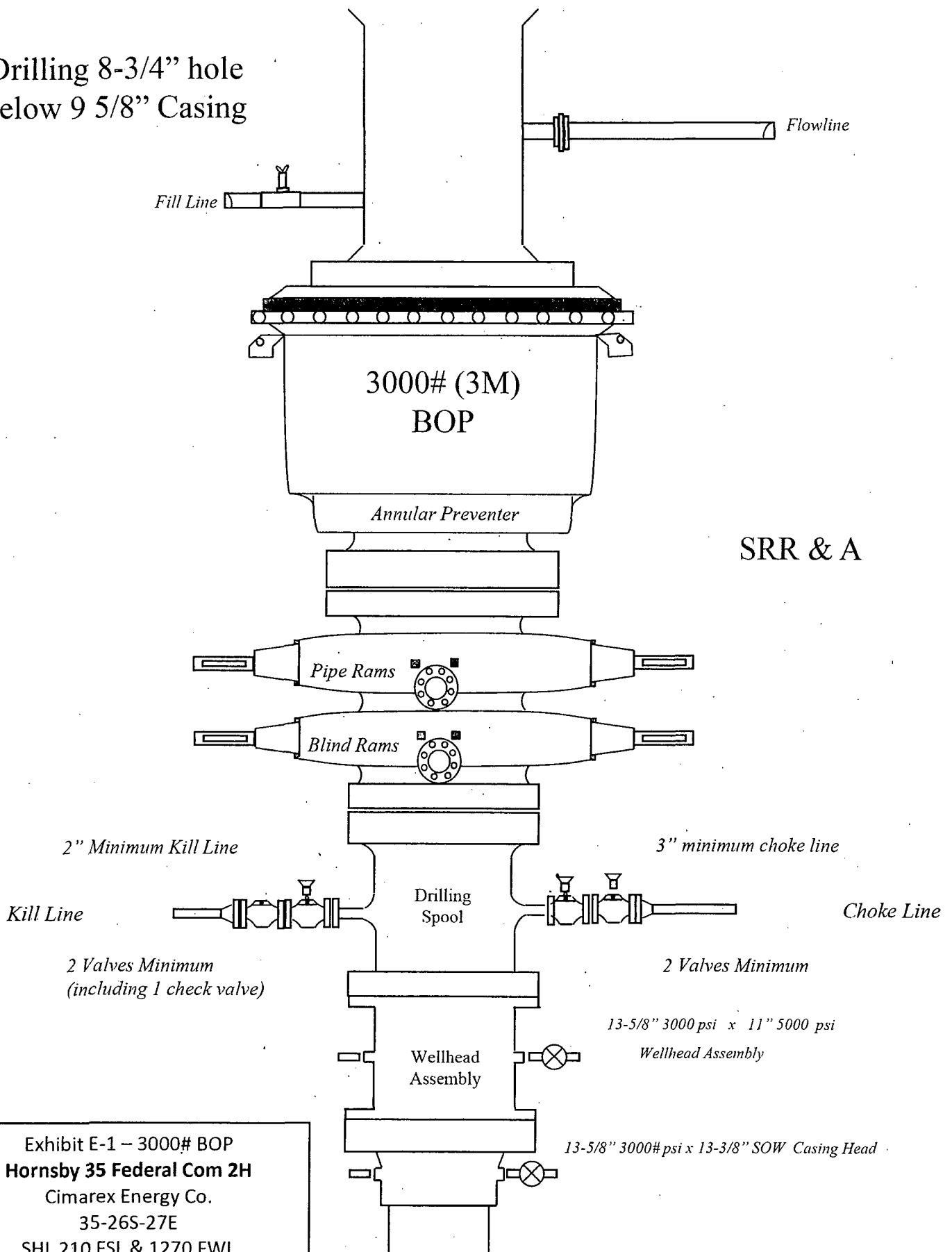
Drilling 12-1/4" hole
below 13 3/8" Casing



SRR & A

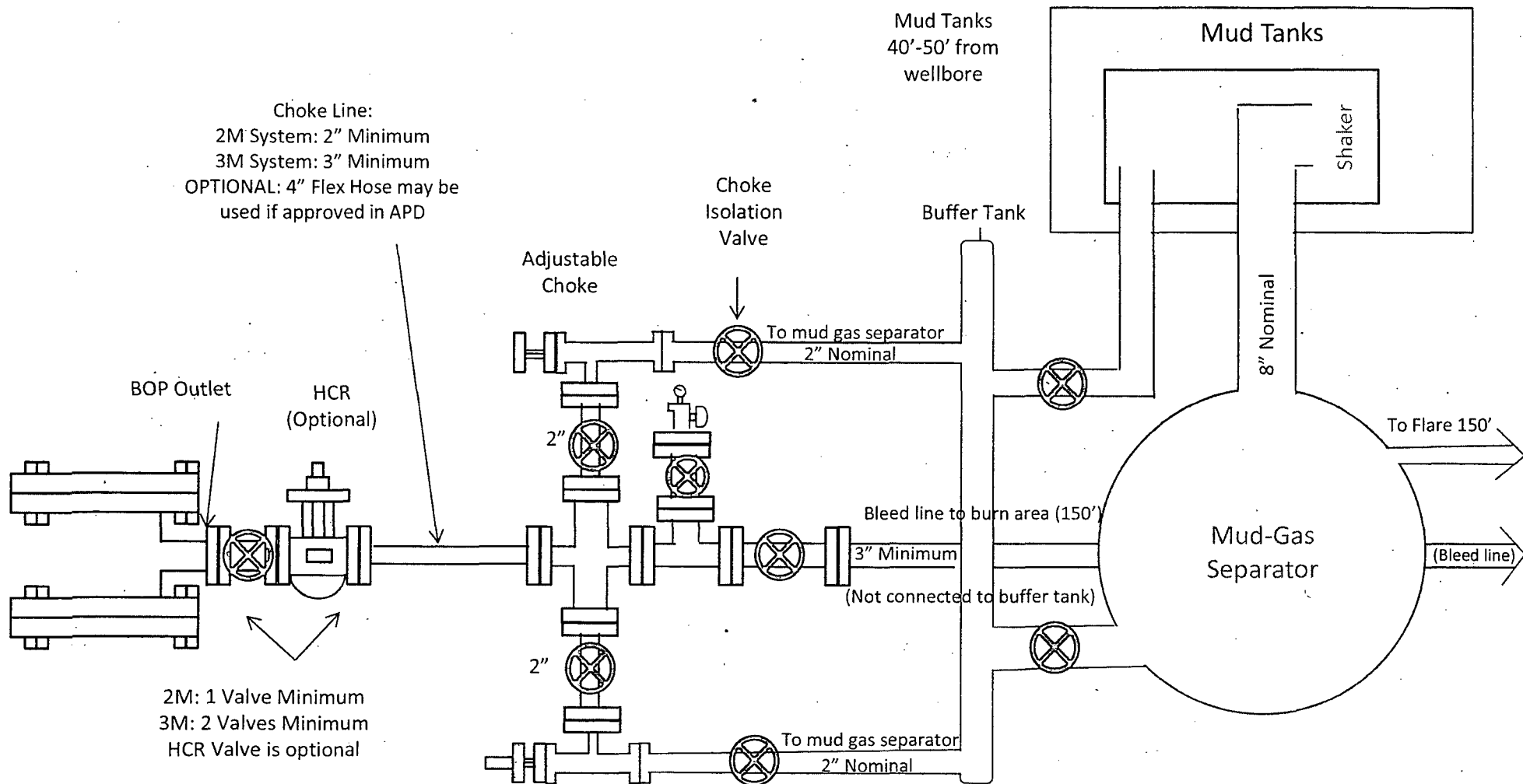
Exhibit E-1 – 2000# BOP
Hornsby 35 Federal Com 2H
Cimarex Energy Co.
35-26S-27E
SHL 210 FSL & 1270 FWL
BHL 330 FNL & 750 FWL
Eddy County, NM

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



SRR & A

Exhibit E-1 – 3000# BOP
Hornsby 35 Federal Com 2H
Cimarex Energy Co.
35-26S-27E
SHL 210 FSL & 1270 FWL
BHL 330 FNL & 750 FWL
Eddy County, NM



Drilling Operations Choke Manifold 2M/3M Service

Exhibit E-1 – Choke Manifold Diagram
Hornsby 35 Federal Com 2H
 Cimarex Energy Co.
 35-26S-27E
 SHL 210 FSL & 1270 FWL
 BHL 330 FNL & 750 FWL
 Eddy County, NM

PECOS DISTRICT
CONDITIONS OF APPROVAL

OPERATOR'S NAME:	Cimarex Energy Co. of Colorado
LEASE NO.:	NMNM-120350
WELL NAME & NO.:	Hornsby 35 Federal Com 2H
SURFACE HOLE FOOTAGE:	0210' FSL & 1270' FWL
BOTTOM HOLE FOOTAGE:	0330' FNL & 0750' FWL Sec. 26, T. 26 S., R 27 E
LOCATION:	Section 35, T. 26 S., R 27 E., NMPM
COUNTY:	Eddy County, New Mexico

The original COAs still stand with the following drilling modifications:

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. **Although Hydrogen Sulfide has not been reported in the area, it is always a potential hazard. If Hydrogen Sulfide is encountered, report measured amounts 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 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.).

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

Wait on cement (WOC) time prior to drilling out for a primary cement job will be a minimum 18 hours for a water basin, 24 hours in the potash area, or 500 pounds compressive strength, whichever is greater for all casing strings. DURING THIS WOC TIME, NO DRILL PIPE, ETC. SHALL BE RUN IN THE HOLE. Provide compressive strengths including hours to reach required 500 pounds compressive strength prior to cementing each casing string. IF OPERATOR DOES NOT HAVE THE WELL SPECIFIC CEMENT DETAILS ONSITE PRIOR TO PUMPING THE CEMENT FOR EACH CASING STRING, THE WOC WILL BE 30 HOURS. 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.

Abnormal pressures may be encountered within the 3rd Bone Spring and Wolfcamp formations.

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 10% - 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.

Centralizers approved as written.

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 14% - 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.
 - a. **For surface casing only:** If the BOP/BOPE is to be tested against casing, the wait on cement (WOC) time for that casing is to be met (see WOC statement at start of casing section). Independent service company required.
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.

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