

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENTFORM 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.*5. Lease Serial No.
NMNM120350

6. If Indian, Allottee or Tribe Name

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

SUBMIT IN TRIPLICATE - Other instructions on reverse side.

1. Type of Well

☒ Oil Well ☐ Gas Well ☐ Other8. Well Name and No.
HORNSBY 35 FEDERAL COM 3H

2. Name of Operator

CIMAREX ENERGY COMPANY OF CO

Contact: DEYSI FAVELA

E-Mail: dfavela@cimarex.com

9. API Well No.

30-015-42208-00-X1

3a. Address

600 NORTH MARIENFELD STREET SUITE 600
MIDLAND, TX 79701

3b. Phone No. (include area code)

Ph: 432-620-1964

10. Field and Pool, or Exploratory
WILDCAT

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

Sec 35 T26S R27E Lot 4 0210FSL 1310FWL
32.000208 N Lat, 104.095399 W Lon

11. County or Parish, and State

EDDY COUNTY, NM

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 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 shall 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 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 respectfully requests changes to the APD:

Directional Changes, Casing Design, Cmt volume

Approved:

KOP 7146'

EOC 8251'

MD 14570'

TVD 7734'

Surface-13 3/8" 48#, H-40 ST&C Casing, Setting Depth 400' MD/TVD

Intermediate-9 5/8" 36#, J-55 LT&C Casing, Setting Depth 2200' MD/TVD

Production-5 1/2" 17# L-80 LT&C Casing, Setting Depth 7257' MD/TVD

Accepted for record
NMOCD 7/6/14**SEE ATTACHED FOR
CONDITIONS OF APPROVAL****NM OIL CONSERVATION
ARTESIA DISTRICT**

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

Electronic Submission #247863 verified by the BLM Well Information System
For CIMAREX ENERGY COMPANY OF CO, sent to the Carlsbad
Committed to AFMSS for processing by JENNIFER MASON on 06/03/2014 (14JAM0348SE)

Name (Printed/Typed) DEYSI FAVELA

Title DRILLING TECH

Signature

(Electronic Submission)

Date 06/03/2014

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.

Office

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

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

Additional data for EC transaction #247863 that would not fit on the form

32. Additional remarks, continued

Production-5 1/2" 17# L-80 BT&C Casing, Setting Depth from 7257', 14406' MD
Pool Bone Spring
2000# (2M) BOP System
3000# (3M) BOP System

Proposed:
No Pilot Hole
Pool Wolfcamp D

KOP 9545'
EOC 10623'
MD 16702'
TVD 10100'

Surface-13 3/8" 48#, J-55 ST&C Casing, Setting Depth 400' MD/TVD
Intermediate-9 5/8" 36#, J-55 LT&C Casing, Setting Depth 2200 MD/TVD
Production-7", 32# L-80 LT&C Casing, Setting Depth 9602' MD/TVD
Production-7", 32# L-80 BT&C Casing, Setting Depth from 9545', 10128' MD, 9963' TVD
Completion System-4 1/2" 13.5# P-110 BT&C Liner, Setting Depth from 9545', 16701' MD, 10100' TVD.

hole sizes same as APD

← 6" hole

The liner Sft is calculated for the worse case scenario of running in the hole. 4 1/2" completion system will be ran in the hole and cemented from the 4 1/2" shoe up to previous 7" casing shoe with a 10% OH Excess. A liner hanger with an isolation packer or HES versaset liner hanger will be set at the top of the 4-1/2" completion system close to the KOP. The length of liner overlap is to help with the fracture treatment efficiency during the pumping down of guns/plugs

Surface
Lead cmt 60 sxs 1.75 yld, 13.50 ppg, 104 cubic feet, Class C + Bentonite + Calcium Chloride + LCM, 8.829 gps water.
Tail cmt 195 sxs 1.34 yld, 14.80 ppg, 260 cubic feet, Class C + LCM, 6.320 gps water.
Intermediate
Lead cmt 407 sxs, 1.88 yld, 12.9 ppg, 765 cubic feet, 35:65 (POZ:C) + Salt + Bentonite + LCM + Retarder, 9.650 gps water.
Tail cmt 129 sxs, 1.34 yld, 14.8 ppg, 173 cubic feet, Class C + retarder + LCM, 6.320 gps water.

TOC surface

TOC surface

Production
Lead cmt 540 sxs, 2.46 yld, 11.90 ppg, 1327 cubic feet, 50:50 (Poz:H) + Salt + Bentonite + Dispersant + Retarder + LCM, 14.300 gps water.
Tail cmt 169 sxs, 1.23 yld, 14.5 ppg, 207 cubic feet, 50:50 (Poz:H) + salt + bentonite + fluid loss+ dispersant + retarder+ antifoam, 5.530 gps water

← 200' over lap previous shoe per APD

Completion System
Tail cmt 465 sxs 1.30 yld, 14.20 ppg, 604 cubic feet, 50:50 (Poz:H) + Salt + Bentonite + Fluid Loss + Dispersant + SMS + Retarder + LCM, 5.860 gps water.

~~TOC: 1035' + 10% Excess No centralizers planned in the lateral section.~~

See COA

TOC must be to top of liner
Add 5000# (5M) BOP System, keep 2(M) & 3(M) as is:

BOPS will be tested by an independent service company. The ram preventer, choke manifold, and safety valves will be tested as follows: On the surface casing, pressure tests will be made to 250 psi low and 2000 psi high. On the intermediate casing, pressure tests will be made to 250 psi low and 3000 psi high. On the production casing, pressure tests will be made to 250 psi low and 5000 psi high.

DISTRICT I1026 N. French Dr., Hobbs, NM 88240
Phone (505) 893-9101 Fax: (505) 893-9720**DISTRICT II**811 S. First St., Artesia, NM 88210
Phone (505) 748-1289 Fax: (505) 748-9720**DISTRICT III**1000 Rio Dragon Rd., Anton, NM 87410
Phone (505) 884-9178 Fax: (505) 884-9170**DISTRICT IV**1220 S. St. Francis Dr., Santa Fe, NM 87505
Phone (505) 476-3400 Fax: (505) 476-3103**State 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 30015-42208		Pool Code 98017		Pool Name WC-015 S262728A; WC (Gas)	
Property Code 40444		Property Name HORNSBY 35 FEDERAL COM			Well Number 3H
GRID No. 215099		Operator Name CIMAREX ENERGY CO.			Elevation 3274

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	1310	WEST	EDDY

Bottom Hole Location If Different From Surface

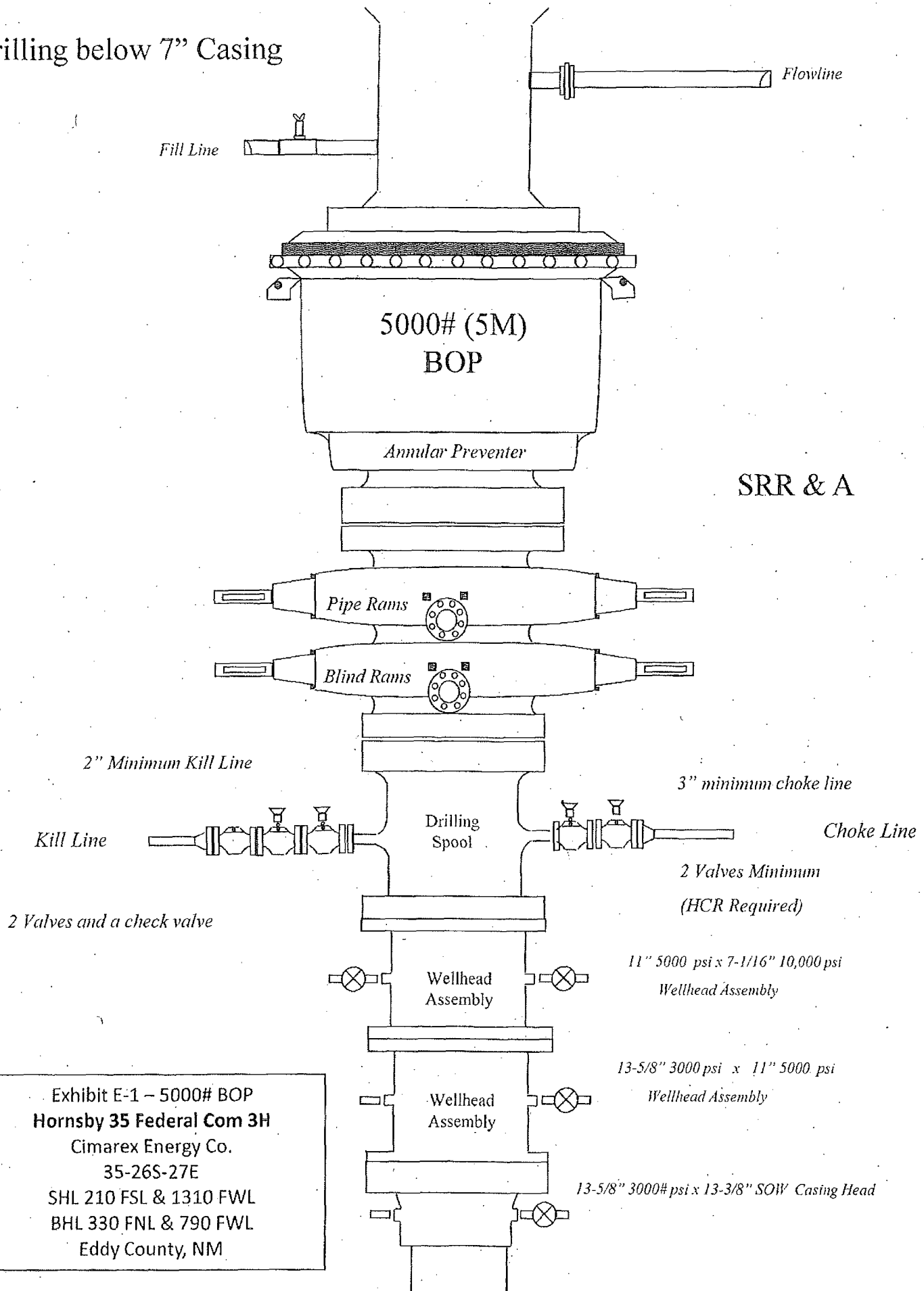
UL or lot No.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County
D	26	26 S	27 E		330	NORTH	790	WEST	EDDY

Dedicated Acres 448.09	Joint or Infill	Consolidation Code	Order No. NSL/NSP pending
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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

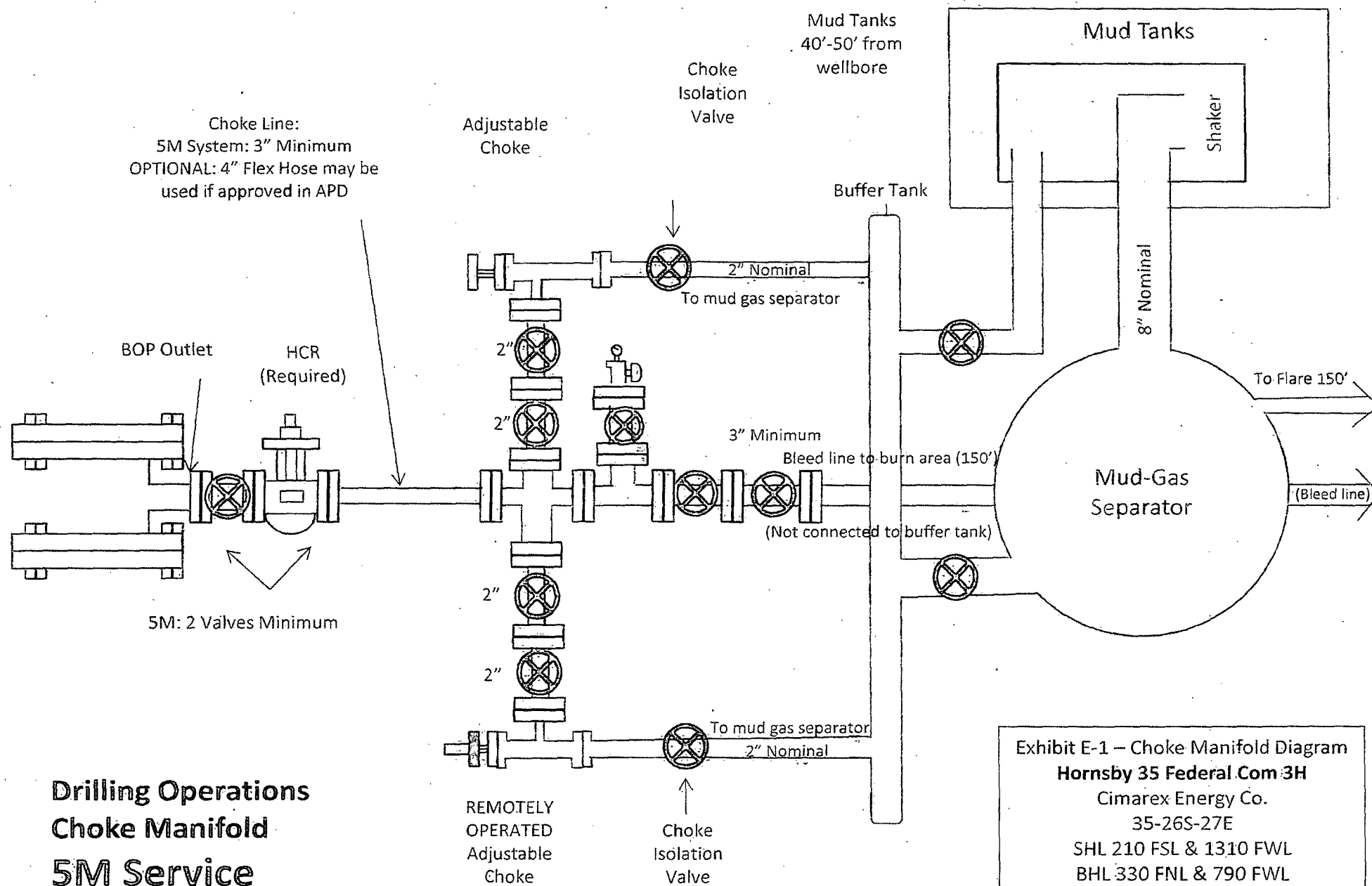
PROPOSED BOTTOM HOLE LOCATION Lat - N 32°01'09.92" Long - W 104°10'00.43" NMSPEC - N 370844.847 E 592854.181 (NAD-83) SURFACE LOCATION Lat - N 32°00'02.08" Long - W 104°08'53.99" NMSPEC - E 593519.582 (NAD-83)	OPERATOR CERTIFICATION I hereby certify that the information contained herein is true and complete 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 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> Signature Professional Surveyor Certificate No. Gary L. Jones 7977 BASIN SURVEYS 29239
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Drilling below 7" Casing



SRR & A

Exhibit E-1 – 5000# BOP
Hornsby 35 Federal Com 3H
Cimarex Energy Co.
35-26S-27E
SHL 210 FSL & 1310 FWL
BHL 330 FNL & 790 FWL
Eddy County, NM



Drilling Operations **Choke Manifold** **5M Service**

Exhibit E-1 – Choke Manifold Diagram
Hornsby 35 Federal Com 3H
Cimarex Energy Co.
35-26S-27E
SHL 210 FSL & 1310 FWL
BHL 330 FNL & 790 FWL
Eddy County, NM



Cactus 112

Cimarex

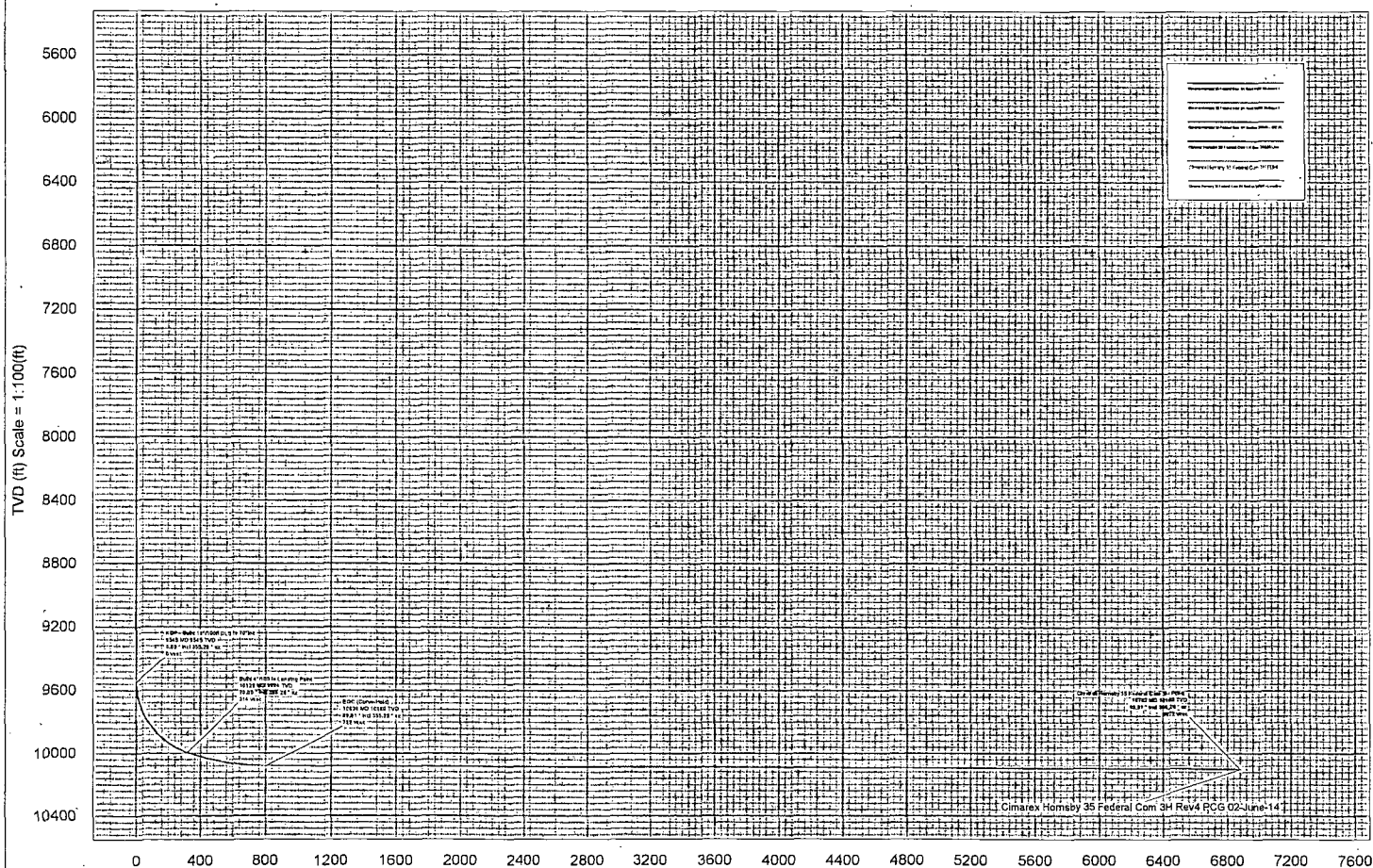
Rev 4

PATHFINDER
A Schlumberger Company

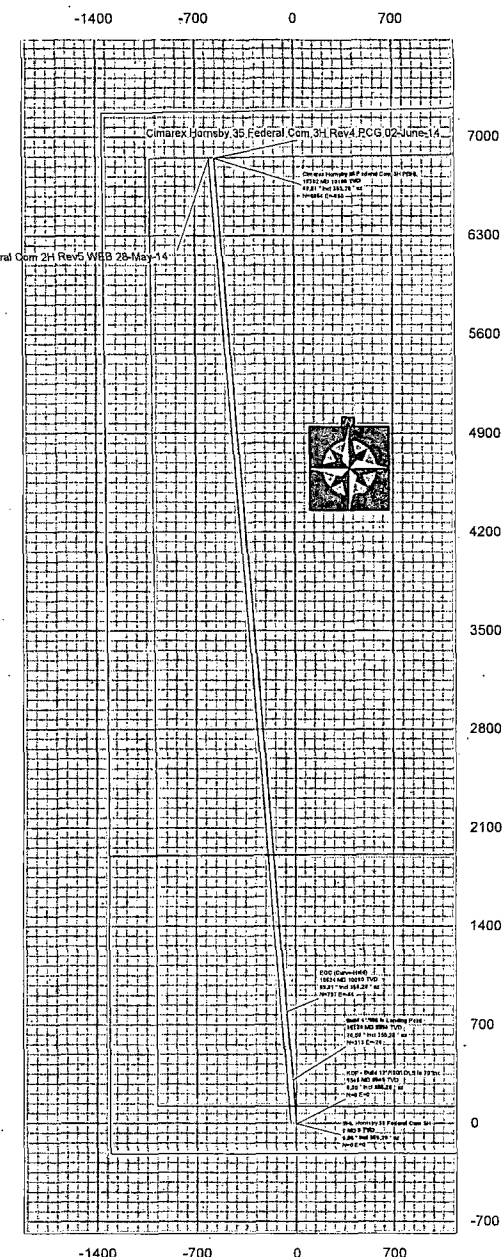
Borehole:	Well:	Field:	Structure:
Original Borehole	Hornsby 35 Federal Com 3H	NM Eddy County (NAD 83)	Cactus 112

Gravity & Magnetic Parameters	Surface Location	NAD83 New Mexico State Plane, Eastern Zone, US Feet	Miscellaneous
Model: BOOM 2014 Dip: 58.792° Date: 27-May-2014	Lat: N 32 0 2.06	Nothing: 353891.264US Grid Conv: 0.0892°	Sect: Hornsby 35
MagDec: 7.637° FS: 46081.935nT Gravity FS: 996.583mgal (8.80655 Based)	Lon: W 104 9 53.99	Easting: 693516.622US Scale Fact: 0.98201221	Federal Com 3H
			Plan: Rev4

Comments	Survey Azim (m)	Inclination (deg)	Azimuth (deg)	TVD (ft)	See-See TVD	US (m)	US (m)	EW (m)	Latitude (deg)	Longitude (deg)	Easting (m)	Northing (m)	DLS (m)	Face (deg)
S-L Forster 35 Federal Com 3H	0.02	0.02	355.28	0.00	-3295.00	0.00	0.00	1.00	N 32 0 2.06	W 104 9 53.99	693516.62	353911.25		355.28
RCP-End 12" 100' DLS	95.41.95	0.00	355.28	2546.55	6255.55	0.00	0.00	1.00	N 32 0 2.06	W 104 9 53.99	693516.62	353911.25	0.02	355.28
EOC	10125.22	70.00	355.28	2993.32	6295.32	344.16	343.40	-25.56	N 32 0 5.138	W 104 9 54.222	693453.73	354304.30	0.00	0.00
EOC (Cactus 112)	10523.57	82.81	355.28	13050.00	6782.00	795.35	795.60	-65.76	N 32 0 2.933	W 104 9 54.157	693453.53	354787.84	4.00	0.00
Cimarex Hornsby 35 Federal Com 3H PBL	16701.73	83.81	355.28	16490.00	6202.00	6677.48	6654.20	-565.45	N 32 1 5.923	W 104 10 0.434	692254.18	370544.85	0.00	0.00



Vertical Section (ft) Azim = 355.284° Scale = 1:100(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")

EW (ft) Scale = 1:120(ft)

CONTROLLED	
Plan No.	353891.264US
Drawing Ref.	
Scale	1 of 1
Date	28-Jan-2014
Drawn by	
Checked by	
Approved by	
Copy Number	



Cimarex Hornsby 35 Federal Com 3H Rev4 PCG 02-June-14 Proposal

Geodetic Report

(Non-Def Plan)



Report Date: June 02, 2014 - 02:05 PM
Client: Cimarex
Field: NM Eddy County (NAD 83)
Structure / Slot: Cimarex Hornsby 35 Federal Com 3H / Cimarex Hornsby 35 Federal Com 3H
Well: Cimarex Hornsby 35 Federal Com 3H
Borehole: Original Borehole
UWI / API#: Unknown / Unknown
Survey Name: Cimarex Hornsby 35 Federal Com 3H Rev4 PCG 02-June-14
Survey Date: October 09, 2013
Tort / AHD / DDI / ERD Ratio: 89.811 ° / 6877.483 ft / 6.009 / 0.681
Coordinate Reference System: NAD83 New Mexico State Plane, Eastern Zone, US Feet
Location Lat / Long: N 32° 0' 2.08923", W 104° 9' 53.98777"
Location Grid N/E Y/X: N 363991.264 ftUS, E 593519.582 ftUS
CRS Grid Convergence Angle: 0.0892 °
Grid Scale Factor: 0.99991221
Version / Patch: 2.7.1043.0

Survey / DLS Computation: Minimum Curvature / Lubinski
Vertical Section Azimuth: 355.284 ° (Grid North)
Vertical Section Origin: 0.000 ft, 0.000 ft
TVD Reference Datum: RKB
TVD Reference Elevation: 3298.000 ft above
Seabed / Ground Elevation: 3274.000 ft above
Magnetic Declination: 7.637 °
Total Gravity Field Strength: 998.6833mgn (9.80665 Based)
Gravity Model: DOX
Total Magnetic Field Strength: 48081.935 nT
Magnetic Dip Angle: 59.792 °
Declination Date: May 27, 2014
Magnetic Declination Model: BGGM 2014
North Reference: Grid North
Grid Convergence Used: 0.0892 °
Total Corr Mag North->Grid North: 7.5482 °
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 3H	0.00	0.00	355.28	0.00	0.00	0.00	0.00	N/A	363991.26	593519.58	N 32 0 2.09 W 104 9 53.99	
KOP - Build 12"/100ft DLS to 70°Inc	9544.95	0.00	355.28	9544.95	0.00	0.00	0.00	0.00	363991.26	593519.58	N 32 0 2.09 W 104 9 53.99	
Build 4"/100 to Landing Point	10128.28	70.00	355.28	9993.62	314.16	313.10	-25.85	12.00	364304.33	593493.73	N 32 0 5.19 W 104 9 54.28	
EOC (Curve-Hold)	10623.57	89.81	355.28	10080.00	799.36	796.65	-65.76	4.00	364787.84	593453.83	N 32 0 9.97 W 104 9 54.74	
Cimarex Hornsby 35 Federal Com 3H PBHL	16701.73	89.81	355.28	10100.00	6877.48	6854.20	-565.45	0.00	370844.85	592954.18	N 32 1 9.92 W 104 10 0.43	

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
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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 ° ' ")
		1	0.000	24.000	1/100.000	30.000	30.000	SLB_MWD-POOR-Depth Only			Original Borehole / Cimarex Hornsby 35 Federal Com 3H Rev4	
		1	24.000	9602.500	1/100.000	30.000	30.000	SLB_MWD-POOR			Original Borehole / Cimarex Hornsby 35 Federal Com 3H Rev4	
		2	9544.950	16701.729	1/100.000	30.000	30.000	SLB_MWD-STD			Original Borehole / Cimarex Hornsby 35 Federal Com 3H Rev4	



Cimarex Hornsby 35 Federal Com 3H Rev4 PCG 02-June-14 Proposal
Geodetic Report - 100ft Interpolated
 (Non-Def Plan)



Report Date: June 02, 2014 - 02:06 PM
Client: Cimarex
Field: NM Eddy County (NAD 83)
Structure / Slot: Cimarex Hornsby 35 Federal Com 3H / Cimarex Hornsby 35 Federal Com 3H
Well: Cimarex Hornsby 35 Federal Com 3H
Borehole: Original Borehole
UWM / API#: Unknown / Unknown
Survey Name: Cimarex Hornsby 35 Federal Com 3H Rev4 PCG 02-June-14
Survey Date: October 09, 2013
Tort / AHD / DDI / ERD Ratio: 89.811' / 6877.483 ft / 6.009 / 0.681
Coordinate Reference System: NAD83 New Mexico State Plane, Eastern Zone, US Feet
Location Lat / Long: N 32° 0' 2.08923", W 104° 9' 53.98777"
Location Grid N/E Y/X: N 363991.264 ftUS, E 593519.582 ftUS
CRS Grid Convergence Angle: 0.0892°
Grid Scale Factor: 0.99991221
Version / Patch: 2.7.1043.0

Survey / DLS Computation: Minimum Curvature / Lubinski
Vertical Section Azimuth: 355.284° (Grid North)
Vertical Section Origin: 0.000 ft, 0.000 ft
TVD Reference Datum: RKB
TVD Reference Elevation: 3298.000 ft above
Seabed / Ground Elevation: 3274.000 ft above
Magnetic Declination: 7.637°
Total Gravity Field Strength: 998.6833mgn (9.80665 Based)
Gravity Model: DOX
Total Magnetic Field Strength: 48081.935 nT
Magnetic Dip Angle: 59.792°
Declination Date: May 27, 2014
Magnetic Declination Model: BGGM 2014
North Reference: Grid North
Grid Convergence Used: 0.0892°
Total Corr Mag North->Grid North: 7.5482°
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 3H	0.00	0.00	355.28	0.00	0.00	0.00	0.00	N/A	363991.26	593519.58	N 32° 0' 2.09 W 104° 9' 53.99	
	100.00	0.00	355.28	100.00	0.00	0.00	0.00	0.00	363991.26	593519.58	N 32° 0' 2.09 W 104° 9' 53.99	
	200.00	0.00	355.28	200.00	0.00	0.00	0.00	0.00	363991.26	593519.58	N 32° 0' 2.09 W 104° 9' 53.99	
	300.00	0.00	355.28	300.00	0.00	0.00	0.00	0.00	363991.26	593519.58	N 32° 0' 2.09 W 104° 9' 53.99	
	400.00	0.00	355.28	400.00	0.00	0.00	0.00	0.00	363991.26	593519.58	N 32° 0' 2.09 W 104° 9' 53.99	
	500.00	0.00	355.28	500.00	0.00	0.00	0.00	0.00	363991.26	593519.58	N 32° 0' 2.09 W 104° 9' 53.99	
	600.00	0.00	355.28	600.00	0.00	0.00	0.00	0.00	363991.26	593519.58	N 32° 0' 2.09 W 104° 9' 53.99	
	700.00	0.00	355.28	700.00	0.00	0.00	0.00	0.00	363991.26	593519.58	N 32° 0' 2.09 W 104° 9' 53.99	
	800.00	0.00	355.28	800.00	0.00	0.00	0.00	0.00	363991.26	593519.58	N 32° 0' 2.09 W 104° 9' 53.99	
	900.00	0.00	355.28	900.00	0.00	0.00	0.00	0.00	363991.26	593519.58	N 32° 0' 2.09 W 104° 9' 53.99	
	1000.00	0.00	355.28	1000.00	0.00	0.00	0.00	0.00	363991.26	593519.58	N 32° 0' 2.09 W 104° 9' 53.99	
	1100.00	0.00	355.28	1100.00	0.00	0.00	0.00	0.00	363991.26	593519.58	N 32° 0' 2.09 W 104° 9' 53.99	
	1200.00	0.00	355.28	1200.00	0.00	0.00	0.00	0.00	363991.26	593519.58	N 32° 0' 2.09 W 104° 9' 53.99	
	1300.00	0.00	355.28	1300.00	0.00	0.00	0.00	0.00	363991.26	593519.58	N 32° 0' 2.09 W 104° 9' 53.99	
	1400.00	0.00	355.28	1400.00	0.00	0.00	0.00	0.00	363991.26	593519.58	N 32° 0' 2.09 W 104° 9' 53.99	
	1500.00	0.00	355.28	1500.00	0.00	0.00	0.00	0.00	363991.26	593519.58	N 32° 0' 2.09 W 104° 9' 53.99	
	1600.00	0.00	355.28	1600.00	0.00	0.00	0.00	0.00	363991.26	593519.58	N 32° 0' 2.09 W 104° 9' 53.99	
	1700.00	0.00	355.28	1700.00	0.00	0.00	0.00	0.00	363991.26	593519.58	N 32° 0' 2.09 W 104° 9' 53.99	
	1800.00	0.00	355.28	1800.00	0.00	0.00	0.00	0.00	363991.26	593519.58	N 32° 0' 2.09 W 104° 9' 53.99	
	1900.00	0.00	355.28	1900.00	0.00	0.00	0.00	0.00	363991.26	593519.58	N 32° 0' 2.09 W 104° 9' 53.99	
	2000.00	0.00	355.28	2000.00	0.00	0.00	0.00	0.00	363991.26	593519.58	N 32° 0' 2.09 W 104° 9' 53.99	
	2100.00	0.00	355.28	2100.00	0.00	0.00	0.00	0.00	363991.26	593519.58	N 32° 0' 2.09 W 104° 9' 53.99	
	2200.00	0.00	355.28	2200.00	0.00	0.00	0.00	0.00	363991.26	593519.58	N 32° 0' 2.09 W 104° 9' 53.99	
	2300.00	0.00	355.28	2300.00	0.00	0.00	0.00	0.00	363991.26	593519.58	N 32° 0' 2.09 W 104° 9' 53.99	
	2400.00	0.00	355.28	2400.00	0.00	0.00	0.00	0.00	363991.26	593519.58	N 32° 0' 2.09 W 104° 9' 53.99	
	2500.00	0.00	355.28	2500.00	0.00	0.00	0.00	0.00	363991.26	593519.58	N 32° 0' 2.09 W 104° 9' 53.99	
	2600.00	0.00	355.28	2600.00	0.00	0.00	0.00	0.00	363991.26	593519.58	N 32° 0' 2.09 W 104° 9' 53.99	
	2700.00	0.00	355.28	2700.00	0.00	0.00	0.00	0.00	363991.26	593519.58	N 32° 0' 2.09 W 104° 9' 53.99	
	2800.00	0.00	355.28	2800.00	0.00	0.00	0.00	0.00	363991.26	593519.58	N 32° 0' 2.09 W 104° 9' 53.99	
	2900.00	0.00	355.28	2900.00	0.00	0.00	0.00	0.00	363991.26	593519.58	N 32° 0' 2.09 W 104° 9' 53.99	
	3000.00	0.00	355.28	3000.00	0.00	0.00	0.00	0.00	363991.26	593519.58	N 32° 0' 2.09 W 104° 9' 53.99	
	3100.00	0.00	355.28	3100.00	0.00	0.00	0.00	0.00	363991.26	593519.58	N 32° 0' 2.09 W 104° 9' 53.99	
	3200.00	0.00	355.28	3200.00	0.00	0.00	0.00	0.00	363991.26	593519.58	N 32° 0' 2.09 W 104° 9' 53.99	
	3300.00	0.00	355.28	3300.00	0.00	0.00	0.00	0.00	363991.26	593519.58	N 32° 0' 2.09 W 104° 9' 53.99	
	3400.00	0.00	355.28	3400.00	0.00	0.00	0.00	0.00	363991.26	593519.58	N 32° 0' 2.09 W 104° 9' 53.99	
	3500.00	0.00	355.28	3500.00	0.00	0.00	0.00	0.00	363991.26	593519.58	N 32° 0' 2.09 W 104° 9' 53.99	
	3600.00	0.00	355.28	3600.00	0.00	0.00	0.00	0.00	363991.26	593519.58	N 32° 0' 2.09 W 104° 9' 53.99	
	3700.00	0.00	355.28	3700.00	0.00	0.00	0.00	0.00	363991.26	593519.58	N 32° 0' 2.09 W 104° 9' 53.99	
	3800.00	0.00	355.28	3800.00	0.00	0.00	0.00	0.00	363991.26	593519.58	N 32° 0' 2.09 W 104° 9' 53.99	
	3900.00	0.00	355.28	3900.00	0.00	0.00	0.00	0.00	363991.26	593519.58	N 32° 0' 2.09 W 104° 9' 53.99	
	4000.00	0.00	355.28	4000.00	0.00	0.00	0.00	0.00	363991.26	593519.58	N 32° 0' 2.09 W 104° 9' 53.99	
	4100.00	0.00	355.28	4100.00	0.00	0.00	0.00	0.00	363991.26	593519.58	N 32° 0' 2.09 W 104° 9' 53.99	
	4200.00	0.00	355.28	4200.00	0.00	0.00	0.00	0.00	363991.26	593519.58	N 32° 0' 2.09 W 104° 9' 53.99	
	4300.00	0.00	355.28	4300.00	0.00	0.00	0.00	0.00	363991.26	593519.58	N 32° 0' 2.09 W 104° 9' 53.99	
	4400.00	0.00	355.28	4400.00	0.00	0.00	0.00	0.00	363991.26	593519.58	N 32° 0' 2.09 W 104° 9' 53.99	
	4500.00	0.00	355.28	4500.00	0.00	0.00	0.00	0.00	363991.26	593519.58	N 32° 0' 2.09 W 104° 9' 53.99	
	4600.00	0.00	355.28	4600.00	0.00	0.00	0.00	0.00	363991.26	593519.58	N 32° 0' 2.09 W 104° 9' 53.99	
	4700.00	0.00	355.28	4700.00	0.00	0.00	0.00	0.00	363991.26	593519.58	N 32° 0' 2.09 W 104° 9' 53.99	
	4800.00	0.00	355.28	4800.00	0.00	0.00	0.00	0.00	363991.26	593519.58	N 32° 0' 2.09 W 104° 9' 53.99	
	4900.00	0.00	355.28	4900.00	0.00	0.00	0.00	0.00	363991.26	593519.58	N 32° 0' 2.09 W 104° 9' 53.99	
	5000.00	0.00	355.28	5000.00	0.00	0.00	0.00	0.00	363991.26	593519.58	N 32° 0' 2.09 W 104° 9' 53.99	
	5100.00	0.00	355.28	5100.00	0.00	0.00	0.00	0.00	363991.26	593519.58	N 32° 0' 2.09 W 104° 9' 53.99	
	5200.00	0.00	355.28	5200.00	0.00	0.00	0.00	0.00	363991.26	593519.58	N 32° 0' 2.09 W 104° 9' 53.99	
	5300.00	0.00	355.28	5300.00	0.00	0.00	0.00	0.00	363991.26	593519.58	N 32° 0' 2.09 W 104° 9' 53.99	
	5400.00	0.00	355.28	5400.00	0.00	0.00	0.00	0.00	363991.26	593519.58	N 32° 0' 2.09 W 104° 9' 53.99	
	5500.00	0.00	355.28	5500.00	0.00	0.00	0.00	0.00	363991.26	593519.58	N 32° 0' 2.09 W 104° 9' 53.99	
	5600.00	0.00	355.28	5600.00	0.00	0.00	0.00	0.00	363991.26	593519.58	N 32° 0' 2.09 W 104° 9' 53.99	
	5700.00	0.00	355.28	5700.00	0.00	0.00	0.00	0.00	363991.26	593519.58	N 32° 0' 2.09 W 104° 9' 53.99	
	5800.00	0.00	355.28	5800.00	0.00	0.00	0.00	0.00	363991.26	593519.58	N 32° 0' 2.09 W 104° 9' 53.99	
	5900.00	0.00	355.28	5900.00	0.00	0.00	0.00	0.00	363991.26	593519.58	N 32° 0' 2.09 W 104° 9' 53.99	
	6000.00	0.00	355.28	6000.00	0.00	0.00	0.00	0.00	363991.26	593519.58	N 32° 0' 2.09 W 104° 9' 53.99	
	6100.00	0.00	355.28	6100.00	0.00	0.00	0.00	0.00	363991.26	593519.58	N 32° 0' 2.09 W 104° 9' 53.99	

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 ° ' ")
	6200.00	0.00	355.28	6200.00	0.00	0.00	0.00	0.00	363991.26	593519.58	N 32 0 2.09 W 104	9 53.99
	6300.00	0.00	355.28	6300.00	0.00	0.00	0.00	0.00	363991.26	593519.58	N 32 0 2.09 W 104	9 53.99
	6400.00	0.00	355.28	6400.00	0.00	0.00	0.00	0.00	363991.26	593519.58	N 32 0 2.09 W 104	9 53.99
	6500.00	0.00	355.28	6500.00	0.00	0.00	0.00	0.00	363991.26	593519.58	N 32 0 2.09 W 104	9 53.99
	6600.00	0.00	355.28	6600.00	0.00	0.00	0.00	0.00	363991.26	593519.58	N 32 0 2.09 W 104	9 53.99
	6700.00	0.00	355.28	6700.00	0.00	0.00	0.00	0.00	363991.26	593519.58	N 32 0 2.09 W 104	9 53.99
	6800.00	0.00	355.28	6800.00	0.00	0.00	0.00	0.00	363991.26	593519.58	N 32 0 2.09 W 104	9 53.99
	6900.00	0.00	355.28	6900.00	0.00	0.00	0.00	0.00	363991.26	593519.58	N 32 0 2.09 W 104	9 53.99
	7000.00	0.00	355.28	7000.00	0.00	0.00	0.00	0.00	363991.26	593519.58	N 32 0 2.09 W 104	9 53.99
	7100.00	0.00	355.28	7100.00	0.00	0.00	0.00	0.00	363991.26	593519.58	N 32 0 2.09 W 104	9 53.99
	7200.00	0.00	355.28	7200.00	0.00	0.00	0.00	0.00	363991.26	593519.58	N 32 0 2.09 W 104	9 53.99
	7300.00	0.00	355.28	7300.00	0.00	0.00	0.00	0.00	363991.26	593519.58	N 32 0 2.09 W 104	9 53.99
	7400.00	0.00	355.28	7400.00	0.00	0.00	0.00	0.00	363991.26	593519.58	N 32 0 2.09 W 104	9 53.99
	7500.00	0.00	355.28	7500.00	0.00	0.00	0.00	0.00	363991.26	593519.58	N 32 0 2.09 W 104	9 53.99
	7600.00	0.00	355.28	7600.00	0.00	0.00	0.00	0.00	363991.26	593519.58	N 32 0 2.09 W 104	9 53.99
	7700.00	0.00	355.28	7700.00	0.00	0.00	0.00	0.00	363991.26	593519.58	N 32 0 2.09 W 104	9 53.99
	7800.00	0.00	355.28	7800.00	0.00	0.00	0.00	0.00	363991.26	593519.58	N 32 0 2.09 W 104	9 53.99
	7900.00	0.00	355.28	7900.00	0.00	0.00	0.00	0.00	363991.26	593519.58	N 32 0 2.09 W 104	9 53.99
	8000.00	0.00	355.28	8000.00	0.00	0.00	0.00	0.00	363991.26	593519.58	N 32 0 2.09 W 104	9 53.99
	8100.00	0.00	355.28	8100.00	0.00	0.00	0.00	0.00	363991.26	593519.58	N 32 0 2.09 W 104	9 53.99
	8200.00	0.00	355.28	8200.00	0.00	0.00	0.00	0.00	363991.26	593519.58	N 32 0 2.09 W 104	9 53.99
	8300.00	0.00	355.28	8300.00	0.00	0.00	0.00	0.00	363991.26	593519.58	N 32 0 2.09 W 104	9 53.99
	8400.00	0.00	355.28	8400.00	0.00	0.00	0.00	0.00	363991.26	593519.58	N 32 0 2.09 W 104	9 53.99
	8500.00	0.00	355.28	8500.00	0.00	0.00	0.00	0.00	363991.26	593519.58	N 32 0 2.09 W 104	9 53.99
	8600.00	0.00	355.28	8600.00	0.00	0.00	0.00	0.00	363991.26	593519.58	N 32 0 2.09 W 104	9 53.99
	8700.00	0.00	355.28	8700.00	0.00	0.00	0.00	0.00	363991.26	593519.58	N 32 0 2.09 W 104	9 53.99
	8800.00	0.00	355.28	8800.00	0.00	0.00	0.00	0.00	363991.26	593519.58	N 32 0 2.09 W 104	9 53.99
	8900.00	0.00	355.28	8900.00	0.00	0.00	0.00	0.00	363991.26	593519.58	N 32 0 2.09 W 104	9 53.99
	9000.00	0.00	355.28	9000.00	0.00	0.00	0.00	0.00	363991.26	593519.58	N 32 0 2.09 W 104	9 53.99
	9100.00	0.00	355.28	9100.00	0.00	0.00	0.00	0.00	363991.26	593519.58	N 32 0 2.09 W 104	9 53.99
	9200.00	0.00	355.28	9200.00	0.00	0.00	0.00	0.00	363991.26	593519.58	N 32 0 2.09 W 104	9 53.99
	9300.00	0.00	355.28	9300.00	0.00	0.00	0.00	0.00	363991.26	593519.58	N 32 0 2.09 W 104	9 53.99
	9400.00	0.00	355.28	9400.00	0.00	0.00	0.00	0.00	363991.26	593519.58	N 32 0 2.09 W 104	9 53.99
	9500.00	0.00	355.28	9500.00	0.00	0.00	0.00	0.00	363991.26	593519.58	N 32 0 2.09 W 104	9 53.99
KOP - Build 12"/100ft DLS to 70"inc	9544.95	0.00	355.28	9544.95	0.00	0.00	0.00	0.00	363991.26	593519.58	N 32 0 2.09 W 104	9 53.99
	9600.00	6.61	355.28	9599.88	3.17	3.16	-0.26	12.00	363994.42	593519.32	N 32 0 2.12 W 104	9 53.99
	9700.00	18.61	355.28	9697.29	24.95	24.87	-2.05	12.00	364016.13	593517.53	N 32 0 2.34 W 104	9 54.01
	9800.00	30.61	355.28	9788.04	66.52	66.29	-5.47	12.00	364057.55	593514.11	N 32 0 2.75 W 104	9 54.05
	9900.00	42.61	355.28	9868.17	125.04	125.61	-10.37	12.00	364116.86	593509.21	N 32 0 3.33 W 104	9 54.11
	10000.00	54.61	355.28	9934.17	200.92	200.24	-16.53	12.00	364191.48	593503.05	N 32 0 4.07 W 104	9 54.18
	10100.00	66.61	355.28	9983.17	287.89	286.91	-23.69	12.00	364278.15	593495.89	N 32 0 4.93 W 104	9 54.26
Build 4"/100 to Landing Point	10128.28	70.00	355.28	9993.62	314.16	313.10	-25.85	12.00	364304.33	593493.73	N 32 0 5.19 W 104	9 54.28
	10200.00	72.87	355.28	10016.45	382.14	380.84	-31.44	4.00	364372.07	593488.14	N 32 0 5.86 W 104	9 54.35
	10300.00	76.87	355.28	10042.55	478.65	477.03	-39.38	4.00	364468.25	593480.20	N 32 0 6.81 W 104	9 54.44
	10400.00	80.87	355.28	10061.85	578.75	574.80	-47.45	4.00	364566.01	593472.13	N 32 0 7.78 W 104	9 54.53
	10500.00	84.87	355.28	10074.26	675.96	673.67	-55.61	4.00	364664.87	593463.98	N 32 0 8.76 W 104	9 54.62
	10600.00	88.87	355.28	10079.72	775.79	773.16	-63.82	4.00	364764.35	593455.77	N 32 0 9.74 W 104	9 54.71
EOC (Curve- Hold)	10623.57	89.81	355.28	10080.00	799.36	796.65	-65.76	4.00	364787.84	593453.83	N 32 0 9.97 W 104	9 54.74
	10700.00	89.81	355.28	10080.25	875.79	872.82	-72.04	0.00	364864.00	593447.55	N 32 0 10.73 W 104	9 54.81
	10800.00	89.81	355.28	10080.58	975.79	972.48	-80.26	0.00	364963.66	593439.33	N 32 0 11.71 W 104	9 54.90
	10900.00	89.81	355.28	10080.91	1075.79	1072.14	-88.48	0.00	365063.31	593431.11	N 32 0 12.70 W 104	9 55.00
	11000.00	89.81	355.28	10081.24	1175.78	1171.80	-96.70	0.00	365162.96	593422.89	N 32 0 13.69 W 104	9 55.09
	11100.00	89.81	355.28	10081.56	1275.78	1271.46	-104.93	0.00	365262.61	593414.67	N 32 0 14.67 W 104	9 55.18
	11200.00	89.81	355.28	10081.89	1375.78	1371.12	-113.15	0.00	365362.26	593406.45	N 32 0 15.66 W 104	9 55.28
	11300.00	89.81	355.28	10082.22	1475.78	1470.78	-121.37	0.00	365461.92	593398.23	N 32 0 16.65 W 104	9 55.37
	11400.00	89.81	355.28	10082.55	1575.78	1570.44	-129.59	0.00	365561.57	593390.00	N 32 0 17.63 W 104	9 55.46
	11500.00	89.81	355.28	10082.88	1675.78	1670.11	-137.81	0.00	365661.22	593381.78	N 32 0 18.62 W 104	9 55.56
	11600.00	89.81	355.28	10083.21	1775.78	1769.77	-146.03	0.00	365760.87	593373.56	N 32 0 19.60 W 104	9 55.65
	11700.00	89.81	355.28	10083.54	1875.78	1869.43	-154.25	0.00	365860.52	593365.34	N 32 0 20.59 W 104	9 55.75
	11800.00	89.81	355.28	10083.87	1975.78	1969.09	-162.47	0.00	365960.18	593357.12	N 32 0 21.58 W 104	9 55.84
	11900.00	89.81	355.28	10084.20	2075.78	2068.75	-170.69	0.00	366059.83	593348.90	N 32 0 22.56 W 104	9 55.93
	12000.00	89.81	355.28	10084.53	2175.78	2168.41	-178.92	0.00	366159.48	593340.68	N 32 0 23.55 W 104	9 56.03
	12100.00	89.81	355.28	10084.86	2275.78	2268.07	-187.14	0.00	366259.13	593332.46	N 32 0 24.54 W 104	9 56.12
	12200.00	89.81	355.28	10085.18	2375.78	2367.73	-195.36	0.00	366358.78	593324.24	N 32 0 25.52 W 104	9 56.21
	12300.00	89.81	355.28	10085.51	2475.78	2467.39	-203.58	0.00	366458.44	593316.02	N 32 0 26.51 W 104	9 56.31
	12400.00	89.81	355.28	10085.84	2575.78	2567.05	-211.80	0.00	366558.09	593307.80	N 32 0 27.49 W 104	9 56.40
	12500.00	89.81	355.28	10086.17	2675.78	2666.72	-220.02	0.00	366657.74	593299.58	N 32 0 28.48 W 104	9 56.49
	12600.00	89.81	355.28	10086.50	2775.78	2766.38	-228.24	0.00	366757.39	593291.36	N 32 0 29.47 W 104	9 56.59
	12700.00	89.81	355.28	10086.83	2875.78	2866.04	-236.46	0.00	366857.04	593283.14	N 32 0 30.45 W 104	9 56.68
	12800.00	89.81	355.28	10087.16	2975.77	2965.70	-244.68	0.00	366956.70	593274.92	N 32 0 31.44 W 104	9 56.78
	12900.00	89.81	355.28	10087.49	3075.77	3065.36	-252.91	0.00	367056.35	593266.70	N 32 0 32.43 W 104	9 56.87
	13000.00	89.81	355.28	10087.82	3175.77	3165.02	-261.13	0.00	367156.00	593258.48	N 32 0 33.41 W 104	9 56.96
	13100.00	89.81	355.28	10088.15	3275.77	3264.68	-269.35	0.00	367255.65	593250.26	N 32 0 34.40 W 104	9 57.06
	13200.00	89.81	355.28	10088.48	3375.77	3364.34	-277.57	0.00	367355.30	593242.04	N 32 0 35.39 W 104	9 57.15
	13300.00	89.81	355.28	10088.80	3475.77	3464.00	-285.79	0.00	367454.96	593233.82	N 32 0 36.37 W 104	9 57.24
	13400.00	89.81	355.28	10089.13	3575.77	3563.66	-294.01	0.00	367554.61	593225.60	N 32 0 37.36 W 104	9 57.34
	13500.00	89.81	355.28	10089.46	3675.77	3663.32	-302.23	0.00	367654.26	593217.38	N 32 0 38.34 W 104	9 57.43
	13600.00	89.81	355.28	10089.79	3775.77	3762.99	-310.45	0.00	367753.91	593209.16	N 32 0 39.33 W 104	9 57.53
	13700.00	89.81	355.28	10090.12	3875.77	3862.65	-318.68	0.00				

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 ° ' '')
	14500.00	89.81	355.28	10092.75	4675.77	4659.93	-384.44	0.00	368650.78	593135.17	N 32 0 48.21	W 104 9 58.37
	14600.00	89.81	355.28	10093.08	4775.77	4759.60	-392.67	0.00	368750.43	593126.95	N 32 0 49.19	W 104 9 58.46
	14700.00	89.81	355.28	10093.41	4875.76	4859.26	-400.89	0.00	368850.08	593118.73	N 32 0 50.18	W 104 9 58.56
	14800.00	89.81	355.28	10093.74	4975.76	4958.92	-409.11	0.00	368949.74	593110.51	N 32 0 51.17	W 104 9 58.65
	14900.00	89.81	355.28	10094.07	5075.76	5058.58	-417.33	0.00	369049.39	593102.29	N 32 0 52.15	W 104 9 58.74
	15000.00	89.81	355.28	10094.40	5175.76	5158.24	-425.55	0.00	369149.04	593094.07	N 32 0 53.14	W 104 9 58.84
	15100.00	89.81	355.28	10094.73	5275.76	5257.90	-433.77	0.00	369248.69	593085.85	N 32 0 54.13	W 104 9 58.93
	15200.00	89.81	355.28	10095.06	5375.76	5357.56	-441.99	0.00	369348.34	593077.63	N 32 0 55.11	W 104 9 59.02
	15300.00	89.81	355.28	10095.39	5475.76	5457.22	-450.21	0.00	369448.00	593069.41	N 32 0 56.10	W 104 9 59.12
	15400.00	89.81	355.28	10095.72	5575.76	5556.88	-458.43	0.00	369547.65	593061.19	N 32 0 57.08	W 104 9 59.21
	15500.00	89.81	355.28	10096.05	5675.76	5656.54	-466.66	0.00	369647.30	593052.97	N 32 0 58.07	W 104 9 59.31
	15600.00	89.81	355.28	10096.37	5775.76	5756.20	-474.88	0.00	369746.95	593044.75	N 32 0 59.06	W 104 9 59.40
	15700.00	89.81	355.28	10096.70	5875.76	5855.87	-483.10	0.00	369846.60	593036.53	N 32 1 0.04	W 104 9 59.49
	15800.00	89.81	355.28	10097.03	5975.76	5955.53	-491.32	0.00	369946.25	593028.31	N 32 1 1.03	W 104 9 59.59
	15900.00	89.81	355.28	10097.36	6075.76	6055.19	-499.54	0.00	370045.91	593020.09	N 32 1 2.02	W 104 9 59.68
	16000.00	89.81	355.28	10097.69	6175.76	6154.85	-507.76	0.00	370145.56	593011.87	N 32 1 3.00	W 104 9 59.77
	16100.00	89.81	355.28	10098.02	6275.76	6254.51	-515.98	0.00	370245.21	593003.65	N 32 1 3.99	W 104 9 59.87
	16200.00	89.81	355.28	10098.35	6375.76	6354.17	-524.20	0.00	370344.86	592995.43	N 32 1 4.97	W 104 9 59.96
	16300.00	89.81	355.28	10098.68	6475.76	6453.83	-532.43	0.00	370444.52	592987.20	N 32 1 5.96	W 104 10 0.05
	16400.00	89.81	355.28	10099.01	6575.76	6553.49	-540.65	0.00	370544.17	592978.98	N 32 1 6.95	W 104 10 0.15
	16500.00	89.81	355.28	10099.34	6675.76	6653.15	-548.87	0.00	370643.82	592970.76	N 32 1 7.93	W 104 10 0.24
	16600.00	89.81	355.28	10099.67	6775.76	6752.81	-557.09	0.00	370743.47	592962.54	N 32 1 8.92	W 104 10 0.34
	16700.00	89.81	355.28	10099.99	6875.76	6852.48	-565.31	0.00	370843.12	592954.32	N 32 1 9.91	W 104 10 0.43
Cimarex Hornsby 35 Federal Com 3H PBHL	16701.73	89.81	355.28	10100.00	6877.48	6854.20	-565.45	0.00	370844.85	592954.18	N 32 1 9.92	W 104 10 0.43

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 3H Rev4
	1	24.000	9602.500	1/100.000	30.000	30.000	SLB_MWD-POOR	Original Borehole / Cimarex Hornsby 35 Federal Com 3H Rev4
	2	9544.950	16701.729	1/100.000	30.000	30.000	SLB_MWD-STD	Original Borehole / Cimarex Hornsby 35 Federal Com 3H Rev4

CONDITIONS OF APPROVAL

OPERATOR'S NAME:	Cimarex Energy Co. of Colorado
LEASE NO.:	NMNM-120350
WELL NAME & NO.:	Hornsby 35 Federal Com 3H
SURFACE HOLE FOOTAGE:	0210' FSL & 1310' FWL
BOTTOM HOLE FOOTAGE:	0330' FNL & 0790' FWL Sec. 26, T. 26 S., R 27 E
LOCATION:	Section 35, T. 26 S., R 27 E., NMPM
COUNTY:	Eddy County, New Mexico
API:	30-015-42208

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. 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.

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 **7** 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. The minimum required fill of cement behind the **4-1/2** inch production Liner is:
- ☒ Cement to tie back to top of liner. Operator shall provide method of verification. **Excess calculates to negative 3% - Additional cement will be required.**
5. 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 (Installing 5M test to 2,000 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 (Installing 5M test to 3,000 psi).**
5. Minimum working pressure of the blowout preventer (BOP) and related equipment (BOPE) required for drilling below the **7** production casing shoe shall be **5000 (5M) psi. 5M system requires an HCR valve, remote kill line and annular to match. The remote kill line is to be installed prior to testing the system and tested to stack pressure.**
6. 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.

JAM 060314