

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENTCarlsbad Field Office
OCD ArtesiaFORM APPROVED
OMB NO. 1004-0137
Expires: January 31, 2018

RECEIVED
BLM OIL CONSERVATION DISTRICT
ARTESIA DISTRICT
DEC 22 2016

VARIOUS 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.

3. 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 page 2

1. Type of Well

☐ Oil Well ☒ Gas Well ☐ Other8. Well Name and No.
HORNSBY 35 FEDERAL COM 7H

2. Name of Operator

CIMAREX ENERGY COMPANY OF CO

Contact: ARICKA EASTERLING

E-Mail: aeasterling@cimarex.com

9. API Well No.

30-015-42168-00-X1

3a. Address

202 S CHEYENNE AVE SUITE 1000
TULSA, OK 74103.4346

3b. Phone No. (include area code)

Ph: 918-560-7060

10. Field and Pool or Exploratory Area
WILDCAT

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

Sec 35 T26S R27E Lot 2 0210FSL 2020FEL
32.000207 N Lat, 104.093151 W Lon

11. County or Parish, State

EDDY COUNTY, NM

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

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

13. Describe Proposed or Completed Operation: Clearly state all pertinent details, including estimated starting date of any proposed work and approximate duration thereof. If the proposal is to deepen directionally or recompleat horizontally, give subsurface locations and measured and true vertical depths of all pertinent markers and zones. Attach the Bond under which the work will be performed or provide the Bond No. on file with BLM/BIA. Required subsequent reports must be filed within 30 days following completion of the involved operations. If the operation results in a multiple completion or recompleat in a new interval, a Form 3160-4 must be filed once testing has been completed. Final Abandonment Notices must be filed only after all requirements, including reclamation, have been completed and the operator has determined that the site is ready for final inspection.

Cimarex has changed the dedicated acreage and modified the drilling plan. Please see the attached Plat and Drilling plan.

All previous COAs still apply.

Additional cement maybe required for surface + production casing.

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

Electronic Submission #359394 verified by the BLM Well Information System

For CIMAREX ENERGY COMPANY OF CO, sent to the Carlsbad

Committed to AFMSS for processing by CHARLES NIMMER on 12/08/2016 (17CN0050SE)

Name (Printed/Typed) ARICKA EASTERLING

Title REGULATORY ANALYST

Signature (Electronic Submission)

Date 11/30/2016

THIS SPACE FOR FEDERAL OR STATE OFFICE USE

Approved By CHARLES NIMMER

Title PETROLEUM ENGINEER

Date 12/13/2016

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 Carlsbad

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

(Instructions on page 2)

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

NM OIL CONSERVATION

ARTESIA DISTRICT

Form C-102

Revised August 1, 2011

Submit one copy to appropriate

District Office

State of New Mexico
Energy, Minerals & Natural Resources Department
OIL CONSERVATION DIVISION
1220 South St. Francis Dr.
Santa Fe, NM 87505

DEC 22 2016

RECEIVED ☐ AMENDED REPORT

District I
1625 N. French Dr., Hobbs, NM 88240
Phone: (575) 393-6161 Fax: (575) 393-0720
District II
811 S. First St., Artesia, NM 88210
Phone: (575) 748-1283 Fax: (575) 748-9720
District III
1000 Rio Brazos Road, Aztec, NM 87410
Phone: (505) 334-6178 Fax: (505) 334-6170
District IV
1220 S. St. Francis Dr., Santa Fe, NM 87505
Phone: (505) 476-3460 Fax: (505) 476-3462

WELL LOCATION AND ACREAGE DEDICATION PLAT

¹ API Number 30-015-42168	² Pool Code 30215	³ Pool Name Hay Hollow; Bone Spring
⁴ Property Code	⁵ Property Name HORNSBY 35 FEDERAL COM	⁶ Well Number 7H
⁷ OGRID No. 215099	⁸ Operator Name CIMAREX ENERGY CO.	⁹ Elevation 3240.6'

¹⁰ Surface Location

UL or lot no.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County
2	35	26S	27E		290	SOUTH	2050	EAST	EDDY

¹¹ 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
C	26	26S	27E		330	NORTH	2590	WEST	EDDY

¹² Dedicated Acres 224.13	¹³ Joint or Infill	¹⁴ Consolidation Code	¹⁵ Order No.
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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.

- ¹⁶ ● = SURFACE HOLE LOCATION
◆ = LANDING POINT
○ = BOTTOM HOLE LOCATION
▲ = SECTION CORNER LOCATED

NOTE:
Distances referenced on plat to section lines are perpendicular.

REV: I 10-28-16 D.P. (BHL MOVE)

NAD 83 (SURFACE HOLE LOCATION)
LATITUDE = 32°00'02.86" (32.000794)
LONGITUDE = 104°09'31.96" (104.158878)
NAD 27 (SURFACE HOLE LOCATION)
LATITUDE = 32°00'02.42" (32.000672)
LONGITUDE = 104°09'30.10" (104.158361)
STATE PLANE NAD 83 (N.M. EAST)
N: 364072.12 E: 595424.85
STATE PLANE NAD 27 (N.M. EAST)
N: 364015.38 E: 554240.40

NAD 83 (BOTTOM HOLE LOCATION)
LATITUDE = 32°01'10.12" (32.019478)
LONGITUDE = 104°09'39.53" (104.160981)
NAD 27 (BOTTOM HOLE LOCATION)
LATITUDE = 32°01'09.68" (32.019356)
LONGITUDE = 104°09'37.76" (104.160489)
STATE PLANE NAD 83 (N.M. EAST)
N: 370867.68 E: 594753.69
STATE PLANE NAD 27 (N.M. EAST)
N: 370810.82 E: 553569.39

¹⁷ 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.

Aricka Easterling
Signature

11/21/16
Date

Aricka Easterling

Printed Name

aeasterling@cimarex.com

E-mail Address

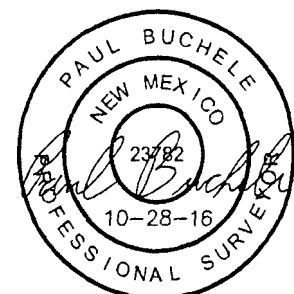
¹⁸ SURVEYOR CERTIFICATION

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.

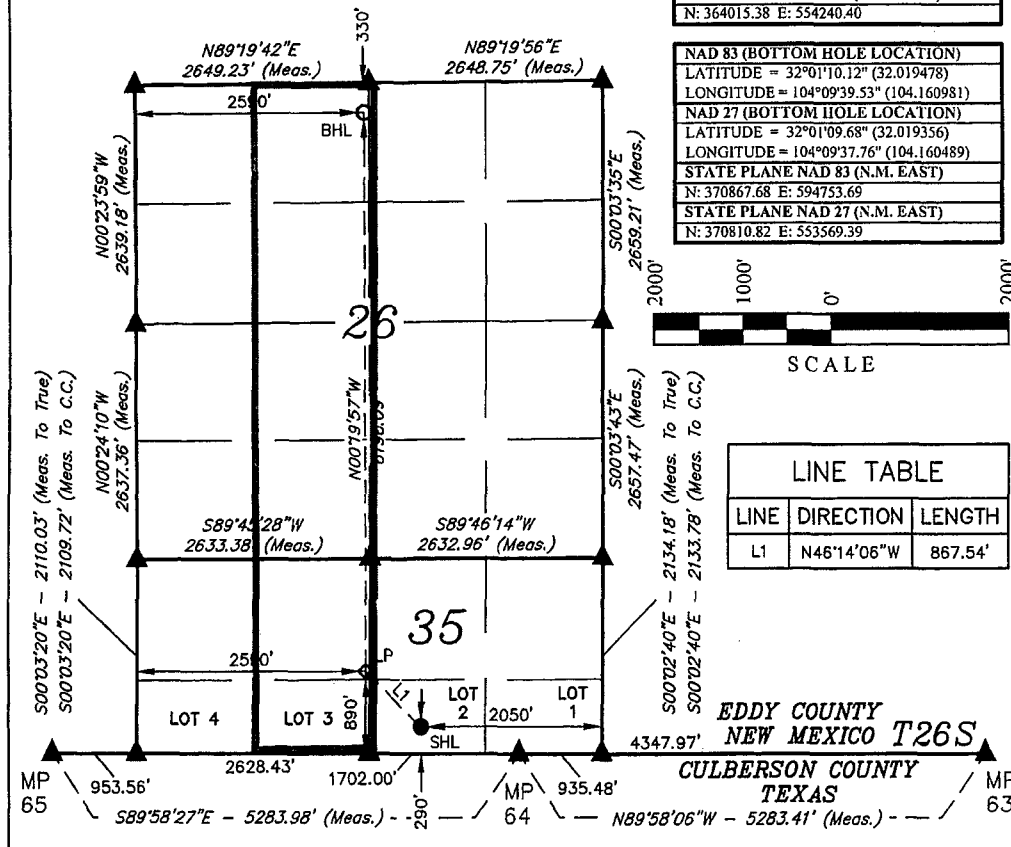
October 5, 2015

Date of Survey

Signature and Seal of Professional Surveyor:



Certificate Number:



1. Geological Formations

TVD of target 7,710
MD at TD 14,560

Pilot Hole TD N/A
Deepest expected fresh water

Formation	Depth (TVD) from KB	Water/Mineral Bearing/Target Zone	Hazards
Rustler	0	N/A	
Salado	1550	N/A	
Castille	2102	N/A	
Bell Canyon	2260	N/A	
Cherry Canyon	3290	N/A	
Brushy Canyon	4470	N/A	
Brushy Canyon Lower	5735	N/A	
Bone Spring	5935	Hydrocarbons	
Bone Spring A Shale	6150	Hydrocarbons	
Bone Spring C Shale	6550	Hydrocarbons	
1st Bone Spring Ss	6850	Hydrocarbons	
2nd Bone Spring Ss	7325	Hydrocarbons	
2nd BS Ss Horz target	7770	Hydrocarbons	
3rd BS Limestone	7855	Hydrocarbons	

2. Casing Program

Hole Size	Casing Depth From	Casing Depth To	Casing Size	Weight (lb/ft)	Grade	Conn.	SF Collapse	SF Burst	SF Tension
17 1/2	0	400	13-3/8"	48.00	H-40/J-55 Hybrid	ST&C	4.29	10.02	16.77
12 1/4	0	2200	9-5/8"	36.00	J-55	LT&C	1.77	3.08	5.72
8 3/4	0	7051	5-1/2"	17.00	L-80	LT&C	1.86	2.29	2.58
8 3/4	7051	14560	5-1/2"	17.00	L-80	BT&C	1.71	2.10	35.44
BLM Minimum Safety Factor							1.125	1	1.6 Dry 1.8 Wet

All casing strings will be tested in accordance with Onshore Oil and Gas Order #2 III.B.1.h

	Y or N
Is casing new? If used, attach certification as required in Onshore Order #1	Y
Does casing meet API specifications? If no, attach casing specification sheet.	Y
Is premium or uncommon casing planned? If yes attach casing specification sheet.	N
Does the above casing design meet or exceed BLM's minimum standards? If not provide justification (loading assumptions, casing design criteria).	Y
Will the intermediate pipe be kept at a minimum 1/3 fluid filled to avoid approaching the collapse pressure rating of the casing?	N
Is well located within Capitan Reef?	N
If yes, does production casing cement tie back a minimum of 50' above the Reef?	N
Is well within the designated 4 string boundary.	N
Is well located in SOPA but not in R-111-P?	N
If yes, are the first 2 strings cemented to surface and 3rd string cement tied back 500' into previous casing?	N
Is well located in R-111-P and SOPA?	N
If yes, are the first three strings cemented to surface?	N
Is 2nd string set 100' to 600' below the base of salt?	N
Is well located in high Cave/Karst?	N
If yes, are there two strings cemented to surface?	N
(For 2 string wells) If yes, is there a contingency casing if lost circulation occurs?	N
Is well located in critical Cave/Karst?	N
If yes, are there three strings cemented to surface?	N

3. Cementing Program

Casing	# Sks	Wt. lb/gal	Yld ft ³ /sack	H ₂ O gal/sk	500# Comp. Strength (hours)	Slurry Description
Surface	60	13.50	1.75	8.83	15.5	Lead: Class C + Bentonite + Calcium Chloride + LCM
	195	14.80	1.34	6.32	9.5	Tail: Class C + LCM
Intermediate	421	12.90	1.88	9.65	12	Lead: 35:65 (Poz:C) + Salt + Bentonite
	129	14.80	1.34	6.32	9.5	Tail: Class C + LCM
Production	1220	14.20	1.30	5.86	14:30	Lead: 50:50 (Poz:H) + Salt + Bentonite + Fluid Loss + Dispersant + SMS
	889	10.80	2.35	9.60	17:43	Tail: Tuned Light I Class H

Casing String	TOC	% Excess
Surface	0	31
Intermediate	0	45
Production	2000	16

4. Pressure Control Equipment

A variance is requested for the use of a diverter on the surface casing. See attached for schematic.					
BOP installed and tested before drilling which hole?	Size	Min Required WP	Type		Tested To
12 1/4	13 5/8	2M	Annular	X	50% of working pressure
			Blind Ram		2M
			Pipe Ram		
			Double Ram	X	
			Other		
8 3/4	13 5/8	3M	Annular	X	50% of working pressure
			Blind Ram	X	3M
			Pipe Ram		
			Double Ram	X	
			Other		

BOP/BOPE will be tested by an independent service company to 250 psi low and the high pressure indicated above per Onshore Order 2 requirements. The System may be upgraded to a higher pressure but still tested to the working pressure listed in the table above. If the system is upgraded all the components installed will be functional and tested.

Pipe rams will be operationally checked each 24 hour period. Blind rams will be operationally checked on each trip out of the hole. These checks will be noted on the daily tour sheets. Other accessories to the BOP equipment will include a Kelly cock and floor safety valve (inside BOP) and choke lines and choke manifold. See attached schematics.

Formation integrity test will be performed per Onshore Order #2. On Exploratory wells or on that portion of any well approved for a 5M BOPE system or greater, a pressure integrity test of each casing shoe shall be performed. Will be tested in accordance with Onshore Oil and Gas Order #2 III.B.1.i.	
X	A variance is requested for the use of a flexible choke line from the BOP to Choke Manifold. See attached for specs and hydrostatic test chart.
N	Are anchors required by manufacturer?

5. Mud Program

Depth	Type	Weight (ppg)	Viscosity	Water Loss
0' to 400'	FW Spud Mud	7.80 - 8.30	28	N/C
400' to 2200'	Brine Water	9.50 - 10.00	30-32	N/C
2200' to 14560'	FW/Cut Brine	8.70 - 9.20	30-32	N/C

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

What will be used to monitor the loss or gain of fluid?	PVT/Pason/Visual Monitoring
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6. Logging and Testing Procedures

Logging, Coring and Testing	
X	Will run GR/CNL from TD to surface (horizontal well – vertical portion of hole). Stated logs run will be in the Completion Report and submitted to the BLM.
	No logs are planned based on well control or offset log information.
	Drill stem test?
	Coring?

Additional Logs Planned	Interval
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7. Drilling Conditions

Condition	
BH Pressure at deepest TVD	3688 psi
Abnormal Temperature	No

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

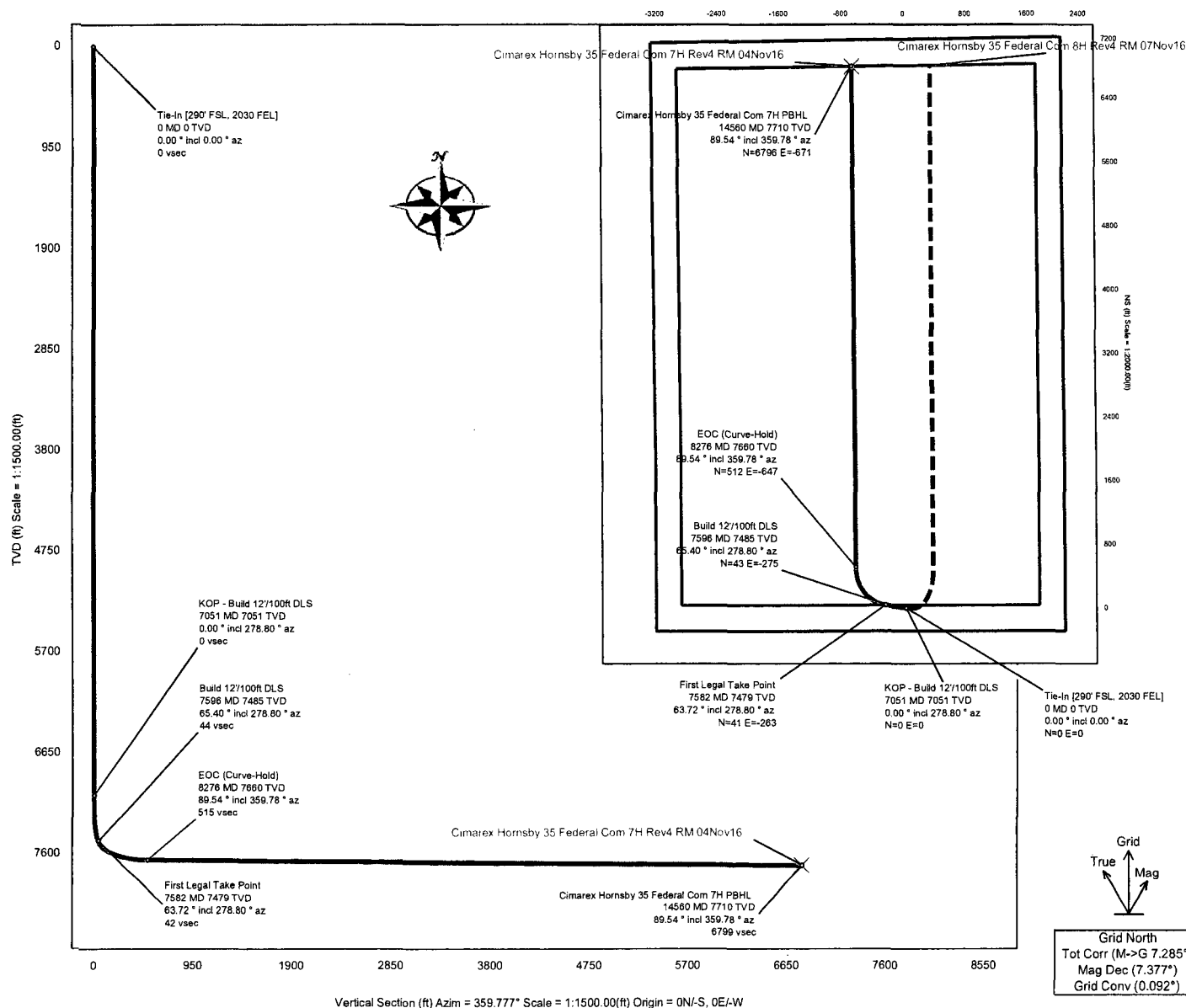
X	H2S is present
X	H2S plan is attached

8. Other Facets of Operation

Borehole:	Well:	Field:	Structure:
Original Borehole	Cimarex Hornsby 35 Federal Com 7H	NM Eddy County (NAD 83)	Cimarex Hornsby 35 Federal Com 7H

Gravity & Magnetic Parameters	Surface Location	Miscellaneous
Model: HDGM 2016 Dip: 59.715° Date: 04-Nov-2016	NAD83 New Mexico State Plane, Eastern Zone, US Feet	Slot: Hornsby 35
MagDec: 7.377° FS: 48047.873nT Gravity FS: 999.428mgm (9.80665 Based)	Lat: N 32 0 2.86 Northing: 364072.12RU9 Grid Conv: 0.0926°	TVD Ref: RKB(3280.8ft above MSL)
	Lon: W 104 9 31.88 Easting: 595424.85RU9 Scale Fact: 0.99991244	Plan: Cimarex Hornsby 35 Federal Com 7H Rev4 RM 04Nov16

EW (ft) Scale = 1:2000.00(ft)



Critical Points

Critical Point	MD	INCL	AZIM	TVD	VSEC	N(+)/S(-)	E(+)/W(-)	DLS
Tie-In [290° FSL, 2030 FEL]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
KOP - Build 12'/100ft DLS	7050.98	0.00	278.80	7050.98	0.00	0.00	0.00	0.00
First Legal Take Point	7582.00	63.72	278.80	7479.10	66.03	40.71	-262.95	12.00
Build 12'/100ft DLS	7595.98	65.40	278.80	7485.11	69.16	42.64	-275.42	12.00
EOC (Curve-Hold)	8276.11	89.54	359.78	7660.00	572.61	512.22	-647.41	12.00
Cimarex Hornsby 35 Federal Com 7H PBHL	14560.31	89.54	359.78	7710.00	6829.23	6796.17	-671.22	0.00

CONTROLLED

Plan ref	Cimarex Hornsby 35 Federal Com 7H Rev4 RM 04Nov16
Drawing ref	
Copy number	of 3
Date	07-Nov-2016

1	Client	
2	Client	
3	Office	
4	Office	

Copy number for

Cimarex Hornsby 35 Federal Com 7H Rev4 RM 04Nov16 Proposal

Geodetic Report
(Non-Def Plan)

Report Date: November 07, 2016 - 11:48 AM
Client: Cimarex
Field: NM Eddy County (NAD 83)
Structure / Slot: Cimarex Hornsby 35 Federal Com 7H / Cimarex Hornsby 35 Federal Com 7H
Well: Cimarex Hornsby 35 Federal Com 7H
Borehole: Original Borehole
UWI / API#: Unknown / Unknown
Survey Name: Cimarex Hornsby 35 Federal Com 7H Rev4 RM 04Nov16
Survey Date: November 04, 2016
Tort / AHD / DDI / ERD Ratio: 147.016° / 7214.212 ft / 6.302 / 0.936
Coordinate Reference System: NAD83 New Mexico State Plane, Eastern Zone, US Feet
Location Lat / Long: N 32° 0' 2.85952" W 104° 9' 31.85967"
Location Grid N/E Y/X: N 364072.120 ftUS, E 595424.850 ftUS
CRS Grid Convergence Angle: 0.0925°
Grid Scale Factor: 0.99991244
Version / Patch: 2.10.254.0

Survey / DLS Computation: Minimum Curvature / Lubinski
Vertical Section Azimuth: 354.432° (Grid North)
Vertical Section Origin: 0.000 ft, 0.000 ft
TVD Reference Datum: RKB
TVD Reference Elevation: 3260.600 ft above MSL
Seabed / Ground Elevation: 3240.600 ft above MSL
Magnetic Declination: 7.377°
Total Gravity Field Strength: 998.4279mgn (9.80665 Based)
Gravity Model: GARM
Total Magnetic Field Strength: 48047.873 nT
Magnetic Dip Angle: 59.715°
Declination Date: November 04, 2016
Magnetic Declination Model: HDGM 2016
North Reference: Grid North
Grid Convergence Used: 0.0925°
Total Corr Mag North->Grid North: 7.2845°
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 ° ' ")
Tie-In [290° FSL, 2030 FEL]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	N/A	364072.12	595424.85	N 32 0 2.86 W 104 9 31.86	
	100.00	0.00	278.80	100.00	0.00	0.00	0.00	0.00	364072.12	595424.85	N 32 0 2.86 W 104 9 31.86	
	200.00	0.00	278.80	200.00	0.00	0.00	0.00	0.00	364072.12	595424.85	N 32 0 2.86 W 104 9 31.86	
	300.00	0.00	278.80	300.00	0.00	0.00	0.00	0.00	364072.12	595424.85	N 32 0 2.86 W 104 9 31.86	
	400.00	0.00	278.80	400.00	0.00	0.00	0.00	0.00	364072.12	595424.85	N 32 0 2.86 W 104 9 31.86	
	500.00	0.00	278.80	500.00	0.00	0.00	0.00	0.00	364072.12	595424.85	N 32 0 2.86 W 104 9 31.86	
	600.00	0.00	278.80	600.00	0.00	0.00	0.00	0.00	364072.12	595424.85	N 32 0 2.86 W 104 9 31.86	
	700.00	0.00	278.80	700.00	0.00	0.00	0.00	0.00	364072.12	595424.85	N 32 0 2.86 W 104 9 31.86	
	800.00	0.00	278.80	800.00	0.00	0.00	0.00	0.00	364072.12	595424.85	N 32 0 2.86 W 104 9 31.86	
	900.00	0.00	278.80	900.00	0.00	0.00	0.00	0.00	364072.12	595424.85	N 32 0 2.86 W 104 9 31.86	
	1000.00	0.00	278.80	1000.00	0.00	0.00	0.00	0.00	364072.12	595424.85	N 32 0 2.86 W 104 9 31.86	
	1100.00	0.00	278.80	1100.00	0.00	0.00	0.00	0.00	364072.12	595424.85	N 32 0 2.86 W 104 9 31.86	
	1200.00	0.00	278.80	1200.00	0.00	0.00	0.00	0.00	364072.12	595424.85	N 32 0 2.86 W 104 9 31.86	
	1300.00	0.00	278.80	1300.00	0.00	0.00	0.00	0.00	364072.12	595424.85	N 32 0 2.86 W 104 9 31.86	
	1400.00	0.00	278.80	1400.00	0.00	0.00	0.00	0.00	364072.12	595424.85	N 32 0 2.86 W 104 9 31.86	
	1500.00	0.00	278.80	1500.00	0.00	0.00	0.00	0.00	364072.12	595424.85	N 32 0 2.86 W 104 9 31.86	
	1600.00	0.00	278.80	1600.00	0.00	0.00	0.00	0.00	364072.12	595424.85	N 32 0 2.86 W 104 9 31.86	
	1700.00	0.00	278.80	1700.00	0.00	0.00	0.00	0.00	364072.12	595424.85	N 32 0 2.86 W 104 9 31.86	
	1800.00	0.00	278.80	1800.00	0.00	0.00	0.00	0.00	364072.12	595424.85	N 32 0 2.86 W 104 9 31.86	
	1900.00	0.00	278.80	1900.00	0.00	0.00	0.00	0.00	364072.12	595424.85	N 32 0 2.86 W 104 9 31.86	
	2000.00	0.00	278.80	2000.00	0.00	0.00	0.00	0.00	364072.12	595424.85	N 32 0 2.86 W 104 9 31.86	
	2100.00	0.00	278.80	2100.00	0.00	0.00	0.00	0.00	364072.12	595424.85	N 32 0 2.86 W 104 9 31.86	
	2200.00	0.00	278.80	2200.00	0.00	0.00	0.00	0.00	364072.12	595424.85	N 32 0 2.86 W 104 9 31.86	
	2300.00	0.00	278.80	2300.00	0.00	0.00	0.00	0.00	364072.12	595424.85	N 32 0 2.86 W 104 9 31.86	
	2400.00	0.00	278.80	2400.00	0.00	0.00	0.00	0.00	364072.12	595424.85	N 32 0 2.86 W 104 9 31.86	
	2500.00	0.00	278.80	2500.00	0.00	0.00	0.00	0.00	364072.12	595424.85	N 32 0 2.86 W 104 9 31.86	

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 ° ' '')
	2600.00	0.00	278.80	2600.00	0.00	0.00	0.00	0.00	364072.12	595424.85	N 32 0 2.86 W 104	9 31.86
	2700.00	0.00	278.80	2700.00	0.00	0.00	0.00	0.00	364072.12	595424.85	N 32 0 2.86 W 104	9 31.86
	2800.00	0.00	278.80	2800.00	0.00	0.00	0.00	0.00	364072.12	595424.85	N 32 0 2.86 W 104	9 31.86
	2900.00	0.00	278.80	2900.00	0.00	0.00	0.00	0.00	364072.12	595424.85	N 32 0 2.86 W 104	9 31.86
	3000.00	0.00	278.80	3000.00	0.00	0.00	0.00	0.00	364072.12	595424.85	N 32 0 2.86 W 104	9 31.86
	3100.00	0.00	278.80	3100.00	0.00	0.00	0.00	0.00	364072.12	595424.85	N 32 0 2.86 W 104	9 31.86
	3200.00	0.00	278.80	3200.00	0.00	0.00	0.00	0.00	364072.12	595424.85	N 32 0 2.86 W 104	9 31.86
	3300.00	0.00	278.80	3300.00	0.00	0.00	0.00	0.00	364072.12	595424.85	N 32 0 2.86 W 104	9 31.86
	3400.00	0.00	278.80	3400.00	0.00	0.00	0.00	0.00	364072.12	595424.85	N 32 0 2.86 W 104	9 31.86
	3500.00	0.00	278.80	3500.00	0.00	0.00	0.00	0.00	364072.12	595424.85	N 32 0 2.86 W 104	9 31.86
	3600.00	0.00	278.80	3600.00	0.00	0.00	0.00	0.00	364072.12	595424.85	N 32 0 2.86 W 104	9 31.86
	3700.00	0.00	278.80	3700.00	0.00	0.00	0.00	0.00	364072.12	595424.85	N 32 0 2.86 W 104	9 31.86
	3800.00	0.00	278.80	3800.00	0.00	0.00	0.00	0.00	364072.12	595424.85	N 32 0 2.86 W 104	9 31.86
	3900.00	0.00	278.80	3900.00	0.00	0.00	0.00	0.00	364072.12	595424.85	N 32 0 2.86 W 104	9 31.86
	4000.00	0.00	278.80	4000.00	0.00	0.00	0.00	0.00	364072.12	595424.85	N 32 0 2.86 W 104	9 31.86
	4100.00	0.00	278.80	4100.00	0.00	0.00	0.00	0.00	364072.12	595424.85	N 32 0 2.86 W 104	9 31.86
	4200.00	0.00	278.80	4200.00	0.00	0.00	0.00	0.00	364072.12	595424.85	N 32 0 2.86 W 104	9 31.86
	4300.00	0.00	278.80	4300.00	0.00	0.00	0.00	0.00	364072.12	595424.85	N 32 0 2.86 W 104	9 31.86
	4400.00	0.00	278.80	4400.00	0.00	0.00	0.00	0.00	364072.12	595424.85	N 32 0 2.86 W 104	9 31.86
	4500.00	0.00	278.80	4500.00	0.00	0.00	0.00	0.00	364072.12	595424.85	N 32 0 2.86 W 104	9 31.86
	4600.00	0.00	278.80	4600.00	0.00	0.00	0.00	0.00	364072.12	595424.85	N 32 0 2.86 W 104	9 31.86
	4700.00	0.00	278.80	4700.00	0.00	0.00	0.00	0.00	364072.12	595424.85	N 32 0 2.86 W 104	9 31.86
	4800.00	0.00	278.80	4800.00	0.00	0.00	0.00	0.00	364072.12	595424.85	N 32 0 2.86 W 104	9 31.86
	4900.00	0.00	278.80	4900.00	0.00	0.00	0.00	0.00	364072.12	595424.85	N 32 0 2.86 W 104	9 31.86
	5000.00	0.00	278.80	5000.00	0.00	0.00	0.00	0.00	364072.12	595424.85	N 32 0 2.86 W 104	9 31.86
	5100.00	0.00	278.80	5100.00	0.00	0.00	0.00	0.00	364072.12	595424.85	N 32 0 2.86 W 104	9 31.86
	5200.00	0.00	278.80	5200.00	0.00	0.00	0.00	0.00	364072.12	595424.85	N 32 0 2.86 W 104	9 31.86
	5300.00	0.00	278.80	5300.00	0.00	0.00	0.00	0.00	364072.12	595424.85	N 32 0 2.86 W 104	9 31.86
	5400.00	0.00	278.80	5400.00	0.00	0.00	0.00	0.00	364072.12	595424.85	N 32 0 2.86 W 104	9 31.86
	5500.00	0.00	278.80	5500.00	0.00	0.00	0.00	0.00	364072.12	595424.85	N 32 0 2.86 W 104	9 31.86
	5600.00	0.00	278.80	5600.00	0.00	0.00	0.00	0.00	364072.12	595424.85	N 32 0 2.86 W 104	9 31.86
	5700.00	0.00	278.80	5700.00	0.00	0.00	0.00	0.00	364072.12	595424.85	N 32 0 2.86 W 104	9 31.86
	5800.00	0.00	278.80	5800.00	0.00	0.00	0.00	0.00	364072.12	595424.85	N 32 0 2.86 W 104	9 31.86
	5900.00	0.00	278.80	5900.00	0.00	0.00	0.00	0.00	364072.12	595424.85	N 32 0 2.86 W 104	9 31.86
	6000.00	0.00	278.80	6000.00	0.00	0.00	0.00	0.00	364072.12	595424.85	N 32 0 2.86 W 104	9 31.86
	6100.00	0.00	278.80	6100.00	0.00	0.00	0.00	0.00	364072.12	595424.85	N 32 0 2.86 W 104	9 31.86
	6200.00	0.00	278.80	6200.00	0.00	0.00	0.00	0.00	364072.12	595424.85	N 32 0 2.86 W 104	9 31.86
	6300.00	0.00	278.80	6300.00	0.00	0.00	0.00	0.00	364072.12	595424.85	N 32 0 2.86 W 104	9 31.86
	6400.00	0.00	278.80	6400.00	0.00	0.00	0.00	0.00	364072.12	595424.85	N 32 0 2.86 W 104	9 31.86
	6500.00	0.00	278.80	6500.00	0.00	0.00	0.00	0.00	364072.12	595424.85	N 32 0 2.86 W 104	9 31.86
	6600.00	0.00	278.80	6600.00	0.00	0.00	0.00	0.00	364072.12	595424.85	N 32 0 2.86 W 104	9 31.86
	6700.00	0.00	278.80	6700.00	0.00	0.00	0.00	0.00	364072.12	595424.85	N 32 0 2.86 W 104	9 31.86
	6800.00	0.00	278.80	6800.00	0.00	0.00	0.00	0.00	364072.12	595424.85	N 32 0 2.86 W 104	9 31.86
	6900.00	0.00	278.80	6900.00	0.00	0.00	0.00	0.00	364072.12	595424.85	N 32 0 2.86 W 104	9 31.86
	7000.00	0.00	278.80	7000.00	0.00	0.00	0.00	0.00	364072.12	595424.85	N 32 0 2.86 W 104	9 31.86
KOP - Build 12'/100ft DLS	7050.98	0.00	278.80	7050.98	0.00	0.00	0.00	0.00	364072.12	595424.85	N 32 0 2.86 W 104	9 31.86
	7100.00	5.88	278.80	7099.91	0.62	0.38	-2.48	12.00	364072.50	595422.37	N 32 0 2.86 W 104	9 31.89
	7200.00	17.88	278.80	7197.59	5.72	3.53	-22.80	12.00	364075.65	595402.06	N 32 0 2.89 W 104	9 32.12
	7300.00	29.88	278.80	7288.86	15.75	9.71	-62.73	12.00	364081.83	595362.12	N 32 0 2.96 W 104	9 32.59
	7400.00	41.88	278.80	7369.74	30.27	18.66	-120.55	12.00	364090.78	595304.31	N 32 0 3.05 W 104	9 33.26
	7500.00	53.88	278.80	7436.68	48.64	29.99	-193.72	12.00	364102.11	595231.15	N 32 0 3.16 W 104	9 34.11
First Legal Take Point Build 12'/100ft DLS	7582.00	63.72	278.80	7479.10	66.03	40.71	-262.95	12.00	364112.82	595161.92	N 32 0 3.27 W 104	9 34.91
	7595.98	65.40	278.80	7485.11	69.16	42.64	-275.42	12.00	364114.75	595149.45	N 32 0 3.29 W 104	9 35.06
	7600.00	65.43	279.33	7486.78	70.08	43.21	-279.03	12.00	364115.33	595145.84	N 32 0 3.29 W 104	9 35.10
	7700.00	66.74	292.38	7527.47	103.43	68.17	-366.70	12.00	364140.28	595058.18	N 32 0 3.54 W 104	9 36.12
	7800.00	69.10	305.09	7565.19	155.58	112.67	-447.69	12.00	364184.78	594977.20	N 32 0 3.98 W 104	9 37.06

Comments	MD (ft)	Incl (°)	Azim Grid (°)	TVD (ft)	VSEC (ft)	NS (ft)	EW (ft)	DLS (°/100ft)	Northing (RUS)	Easting (RUS)	Latitude (N/S ° ' ")	Longitude (E/W ° ' ")
EOC (Curve-Hold)	7900.00	72.36	317.32	7598.30	224.26	174.78	-518.48	12.00	364246.88	594906.42	N 32 0 4.60 W 104 9 37.88	9 37.88
	8000.00	76.35	329.08	7625.35	306.47	251.78	-575.95	12.00	364323.87	594848.95	N 32 0 5.36 W 104 9 38.54	9 38.54
	8100.00	80.87	340.43	7645.16	398.61	340.30	-617.61	12.00	364412.39	594807.30	N 32 0 6.24 W 104 9 39.03	9 39.03
	8200.00	85.73	351.48	7656.86	496.66	436.47	-641.63	12.00	364508.55	594783.28	N 32 0 7.19 W 104 9 39.30	9 39.30
	8276.11	89.54	359.78	7660.00	572.61	512.22	-647.41	12.00	364584.29	594777.50	N 32 0 7.94 W 104 9 39.37	9 39.37
	8300.00	89.54	359.78	7660.19	596.40	536.11	-647.50	0.00	364608.18	594777.41	N 32 0 8.17 W 104 9 39.37	9 39.37
	8400.00	89.54	359.78	7660.99	695.96	636.10	-647.88	0.00	364708.16	594777.03	N 32 0 9.16 W 104 9 39.37	9 39.37
	8500.00	89.54	359.78	7661.78	795.52	736.10	-648.26	0.00	364808.15	594776.65	N 32 0 10.15 W 104 9 39.37	9 39.37
	8600.00	89.54	359.78	7662.58	895.08	836.09	-648.63	0.00	364908.14	594776.27	N 32 0 11.14 W 104 9 39.38	9 39.38
	8700.00	89.54	359.78	7663.37	994.64	936.09	-649.01	0.00	365008.13	594775.89	N 32 0 12.13 W 104 9 39.38	9 39.38
	8800.00	89.54	359.78	7664.17	1094.20	1036.09	-649.39	0.00	365108.11	594775.52	N 32 0 13.12 W 104 9 39.38	9 39.38
	8900.00	89.54	359.78	7664.96	1193.76	1136.08	-649.77	0.00	365208.10	594775.14	N 32 0 14.11 W 104 9 39.38	9 39.38
	9000.00	89.54	359.78	7665.76	1293.33	1236.08	-650.15	0.00	365308.09	594774.76	N 32 0 15.10 W 104 9 39.39	9 39.39
	9100.00	89.54	359.78	7666.56	1392.89	1336.07	-650.53	0.00	365408.07	594774.38	N 32 0 16.09 W 104 9 39.39	9 39.39
	9200.00	89.54	359.78	7667.35	1492.45	1436.07	-650.91	0.00	365508.06	594774.00	N 32 0 17.08 W 104 9 39.39	9 39.39
	9300.00	89.54	359.78	7668.15	1592.01	1536.07	-651.29	0.00	365608.05	594773.62	N 32 0 18.07 W 104 9 39.39	9 39.39
	9400.00	89.54	359.78	7668.94	1691.57	1636.06	-651.67	0.00	365708.04	594773.24	N 32 0 19.06 W 104 9 39.40	9 39.40
	9500.00	89.54	359.78	7669.74	1791.13	1736.06	-652.05	0.00	365808.02	594772.86	N 32 0 20.05 W 104 9 39.40	9 39.40
	9600.00	89.54	359.78	7670.53	1890.69	1836.05	-652.42	0.00	365908.01	594772.48	N 32 0 21.04 W 104 9 39.40	9 39.40
	9700.00	89.54	359.78	7671.33	1990.25	1936.05	-652.80	0.00	366008.00	594772.11	N 32 0 22.03 W 104 9 39.40	9 39.40
	9800.00	89.54	359.78	7672.13	2089.81	2036.05	-653.18	0.00	366107.98	594771.73	N 32 0 23.02 W 104 9 39.41	9 39.41
	9900.00	89.54	359.78	7672.92	2189.38	2136.04	-653.56	0.00	366207.97	594771.35	N 32 0 24.01 W 104 9 39.41	9 39.41
	10000.00	89.54	359.78	7673.72	2288.94	2236.04	-653.94	0.00	366307.96	594770.97	N 32 0 25.00 W 104 9 39.41	9 39.41
	10100.00	89.54	359.78	7674.51	2388.50	2336.04	-654.32	0.00	366407.95	594770.59	N 32 0 25.99 W 104 9 39.41	9 39.41
	10200.00	89.54	359.78	7675.31	2488.06	2436.03	-654.70	0.00	366507.93	594770.21	N 32 0 26.98 W 104 9 39.42	9 39.42
	10300.00	89.54	359.78	7676.10	2587.62	2536.03	-655.08	0.00	366607.92	594769.83	N 32 0 27.97 W 104 9 39.42	9 39.42
	10400.00	89.54	359.78	7676.90	2687.18	2636.02	-655.46	0.00	366707.91	594769.45	N 32 0 28.95 W 104 9 39.42	9 39.42
	10500.00	89.54	359.78	7677.69	2786.74	2736.02	-655.83	0.00	366807.89	594769.07	N 32 0 29.94 W 104 9 39.42	9 39.42
	10600.00	89.54	359.78	7678.49	2886.30	2836.02	-656.21	0.00	366907.88	594768.70	N 32 0 30.93 W 104 9 39.43	9 39.43
	10700.00	89.54	359.78	7679.29	2985.86	2936.01	-656.59	0.00	367007.87	594768.32	N 32 0 31.92 W 104 9 39.43	9 39.43
	10800.00	89.54	359.78	7680.08	3085.43	3036.01	-656.97	0.00	367107.86	594767.94	N 32 0 32.91 W 104 9 39.43	9 39.43
	10900.00	89.54	359.78	7680.88	3184.99	3136.00	-657.35	0.00	367207.84	594767.56	N 32 0 33.90 W 104 9 39.43	9 39.43
	11000.00	89.54	359.78	7681.67	3284.55	3236.00	-657.73	0.00	367307.83	594767.18	N 32 0 34.89 W 104 9 39.44	9 39.44
	11100.00	89.54	359.78	7682.47	3384.11	3336.00	-658.11	0.00	367407.82	594766.80	N 32 0 35.88 W 104 9 39.44	9 39.44
	11200.00	89.54	359.78	7683.26	3483.67	3435.99	-658.49	0.00	367507.80	594766.42	N 32 0 36.87 W 104 9 39.44	9 39.44
	11300.00	89.54	359.78	7684.06	3583.23	3535.99	-658.87	0.00	367607.79	594766.04	N 32 0 37.86 W 104 9 39.45	9 39.45
	11400.00	89.54	359.78	7684.86	3682.79	3635.98	-659.24	0.00	367707.78	594765.66	N 32 0 38.85 W 104 9 39.45	9 39.45
	11500.00	89.54	359.78	7685.65	3782.35	3735.98	-659.62	0.00	367807.77	594765.29	N 32 0 39.84 W 104 9 39.45	9 39.45
	11600.00	89.54	359.78	7686.45	3881.91	3835.98	-660.00	0.00	367907.75	594764.91	N 32 0 40.83 W 104 9 39.45	9 39.45
	11700.00	89.54	359.78	7687.24	3981.48	3935.97	-660.38	0.00	368007.74	594764.53	N 32 0 41.82 W 104 9 39.46	9 39.46
	11800.00	89.54	359.78	7688.04	4081.04	4035.97	-660.76	0.00	368107.73	594764.15	N 32 0 42.81 W 104 9 39.46	9 39.46
	11900.00	89.54	359.78	7688.83	4180.60	4135.97	-661.14	0.00	368207.71	594763.77	N 32 0 43.80 W 104 9 39.46	9 39.46
	12000.00	89.54	359.78	7689.63	4280.16	4235.96	-661.52	0.00	368307.70	594763.39	N 32 0 44.79 W 104 9 39.46	9 39.46
	12100.00	89.54	359.78	7690.42	4379.72	4335.96	-661.90	0.00	368407.69	594763.01	N 32 0 45.78 W 104 9 39.47	9 39.47
	12200.00	89.54	359.78	7691.22	4479.28	4435.95	-662.28	0.00	368507.68	594762.63	N 32 0 46.77 W 104 9 39.47	9 39.47
	12300.00	89.54	359.78	7692.02	4578.84	4535.95	-662.66	0.00	368607.66	594762.25	N 32 0 47.76 W 104 9 39.47	9 39.47
	12400.00	89.54	359.78	7692.81	4678.40	4635.95	-663.03	0.00	368707.65	594761.88	N 32 0 48.74 W 104 9 39.47	9 39.47
	12500.00	89.54	359.78	7693.61	4777.96	4735.94	-663.41	0.00	368807.64	594761.50	N 32 0 49.73 W 104 9 39.48	9 39.48
	12600.00	89.54	359.78	7694.40	4877.53	4835.94	-663.79	0.00	368907.63	594761.12	N 32 0 50.72 W 104 9 39.48	9 39.48
	12700.00	89.54	359.78	7695.20	4977.09	4935.93	-664.17	0.00	369007.61	594760.74	N 32 0 51.71 W 104 9 39.48	9 39.48
	12800.00	89.54	359.78	7695.99	5076.65	5035.93	-664.55	0.00	369107.60	594760.36	N 32 0 52.70 W 104 9 39.48	9 39.48
	12900.00	89.54	359.78	7696.79	5176.21	5135.93	-664.93	0.00	369207.59	594759.98	N 32 0 53.69 W 104 9 39.49	9 39.49
	13000.00	89.54	359.78	7697.59	5275.77	5235.92	-665.31	0.00	369307.57	594759.60	N 32 0 54.68 W 104 9 39.49	9 39.49
	13100.00	89.54	359.78	7698.38	5375.33	5335.92	-665.69	0.00	369407.56	594759.22	N 32 0 55.67 W 104 9 39.49	9 39.49
	13200.00	89.54	359.78	7699.18	5474.89	5435.91	-666.07	0.00	369507.55	594758.84	N 32 0 56.66 W 104 9 39.49	9 39.49
	13300.00	89.54	359.78	7699.97	5574.45	5535.91	-666.44	0.00	369607.54	594758.47	N 32 0 57.65 W 104 9 39.50	9 39.50
	13400.00	89.54	359.78	7700.77	5674.01	5635.91	-666.82	0.00	369707.52	594758.09	N 32 0 58.64 W 104 9 39.50	9 39.50
	13500.00	89.54	359.78	7701.56	5773.58	5735.90	-667.20	0.00	369807.51	594757.71	N 32 0 59.63 W 104 9 39.50	9 39.50

Comments	MD (ft)	Incl (°)	Azim Grid (°)	TVD (ft)	VSEC (ft)	NS (ft)	EW (ft)	DLS (°/100ft)	Northing (ftUS)	Easting (ftUS)	Latitude (N/S ° ' ")	Longitude (E/W ° ' ")
	13600.00	89.54	359.78	7702.36	5873.14	5835.90	-667.58	0.00	369907.50	594757.33	N 32 1 0.62 W 104	9 39.50
	13700.00	89.54	359.78	7703.16	5972.70	5935.90	-667.96	0.00	370007.48	594756.95	N 32 1 1.61 W 104	9 39.51
	13800.00	89.54	359.78	7703.95	6072.26	6035.89	-668.34	0.00	370107.47	594756.57	N 32 1 2.60 W 104	9 39.51
	13900.00	89.54	359.78	7704.75	6171.82	6135.89	-668.72	0.00	370207.46	594756.19	N 32 1 3.59 W 104	9 39.51
	14000.00	89.54	359.78	7705.54	6271.38	6235.88	-669.10	0.00	370307.45	594755.81	N 32 1 4.58 W 104	9 39.51
	14100.00	89.54	359.78	7706.34	6370.94	6335.88	-669.48	0.00	370407.43	594755.43	N 32 1 5.57 W 104	9 39.52
	14200.00	89.54	359.78	7707.13	6470.50	6435.88	-669.85	0.00	370507.42	594755.06	N 32 1 6.56 W 104	9 39.52
	14300.00	89.54	359.78	7707.93	6570.06	6535.87	-670.23	0.00	370607.41	594754.68	N 32 1 7.55 W 104	9 39.52
	14400.00	89.54	359.78	7708.72	6669.63	6635.87	-670.61	0.00	370707.39	594754.30	N 32 1 8.54 W 104	9 39.52
	14500.00	89.54	359.78	7709.52	6769.19	6735.86	-670.99	0.00	370807.38	594753.92	N 32 1 9.52 W 104	9 39.53
Cimarex Hornsby 35 Federal Com 7H PBHL	14560.31	89.54	359.78	7710.00	6829.23	6796.17	-671.22	0.00	370867.68	594753.69	N 32 1 10.12 W 104	9 39.53

Survey Type:

Non-Def Plan

Survey Error Model:

ISCWSA Rev 0 *** 3-D 95.000% Confidence 2.7955 sigma

Survey Program:

Description	Part	MD From (ft)	MD To (ft)	EOU Freq (ft)	Hole Size (in)	Casing Diameter (in)	Expected Max Inclination (deg)	Survey Tool Type	Borehole / Survey
	1	0.000	20.000	1/100.000	30.000	30.000		NAL_MWMD_PLUS_0.5_DEG- Depth Only	Original Borehole / Cimarex Hornsby 35 Federal Com 7H Rev4 RM 04Nov16
	1	20.000	14560.307	1/100.000	30.000	30.000		NAL_MWMD_PLUS_0.5_DEG	Original Borehole / Cimarex Hornsby 35 Federal Com 7H