

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.

OCD Hobbs

SUBMIT IN TRIPLICATE - Other instructions on reverse side.

HOBBS OCD

1. Type of Well ☒ Oil Well ☐ Gas Well ☐ Other		8. Well Name and No. HALLERTAU 4 FEDERAL 7H
2. Name of Operator CIMAREX ENERGY COMPANY OF CO		9. API Well No. 30-025-40476-00-X1
Contact TERRI STATHEM E-Mail: tstathe@cimarex.com		10. Field and Pool, or Exploratory WILDCAT G06 S2632
3a. Address 600 NORTH MARIENFELD STREET, SUITE 600 MIDLAND, TX 79701	3b. Phone No. (include area code) Ph. 432-620-1936	11. County or Parish, and State LEA COUNTY, NM
4. Location of Well (Footage, Sec., T., R., M., or Survey Description) Sec 4 T26S R32E NWNE 330FNL 1650FEL		

NOV 19 2012

RECEIVED

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 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 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 Co. respectfully requests approval of the following changes to the original APD:

Casing & Cement.

Surface Casing - Hole Size: 17-1/2", 13-3/8", 48#, STC, H-40 csg set @ 1207'. No change to cement

Inter Casing - Hole Size: 12-1/4", 9-5/8", 40#, LTC, J-55 csg set @ 4509'. No change to cement.

Prod Casing - Hole size: 8-3/4", 5-1/2", 17#, LTC/BTC, P110 csg set @ 15182'. Set a DV tool @ 6200' in the 5-1/2" production string and cement in 2 stages.

1st Stage (25% excess)

Lead: 485 sx EconoCem (Class H) 11 9 ppg, Yield 2 45

Tail: 1360 sx VersaCem (Class H) 14 5 ppg, Yield 1.23

2nd stage (45% excess)

Lead: 220 sx EconoCem (Class H) 11.9 ppg, Yield 2.45

14. I hereby certify that the foregoing is true and correct	
Electronic Submission #155572 verified by the BLM Well Information System For CIMAREX ENERGY COMPANY OF CO, sent to the Hobbs Committed to AFMSS for processing by KURT SIMMONS on 10/24/2012 (13KMS1345SE)	
Name (Printed/Typed) TERRI STATHEM	Title REGULATORY ANALYST
Signature (Electronic Submission)	Date 10/19/2012

THIS SPACE FOR FEDERAL OR STATE OFFICE USE

Approved By CHRISTOPHER WALLS	Title PETROLEUM ENGINEER	Date 11/15/2012
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 Hobbs

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 **

NOV 19 2012

Additional data for EC transaction #155572 that would not fit on the form

32. Additional remarks, continued

Tail: 100 sx HalCem (Class C) 14.8 ppg, Yield 1.33

Total Depth of Well: 15182' MD / 10723' TVD (dir plan attached)

Proposed drilling plan. Drill 8-3/4" hole to KOP @ 10225'. Drill 8-3/4" lateral to TD @ 15182' MD, 10723' TVD. Run 5-1/2", 17#, P110 LTC csg from 0-10125' and 5-1/2", 17#, P110, BTC csg from 10125' to 15182' and cement.

Estimated BHP: 4950 psi, Estimated BHT: 165 degrees

Estimated Tops.

Rustler 1167

T. Salt 1282

B. Salt 4319

Delaware 4534

Cherry Canyon 5532

Brushy Canyon 7290

Lower Brushy Cny 8424

Bone Spring 8620

2nd Bone Spring 10235



Cimarex

Cactus 101

Rev01

HALLONAU 4 FEDERAL #7H

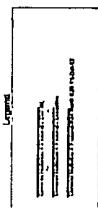
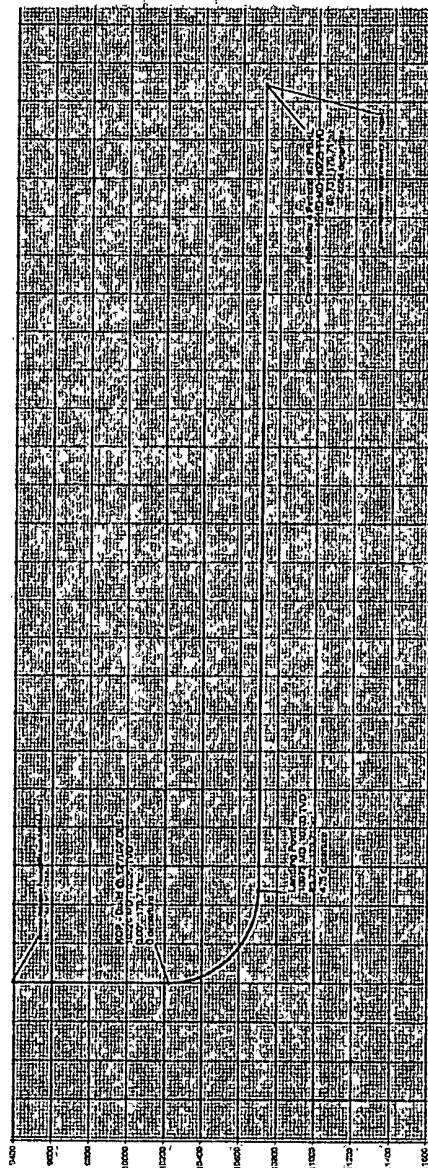
NM Lea County

Cactus 101.

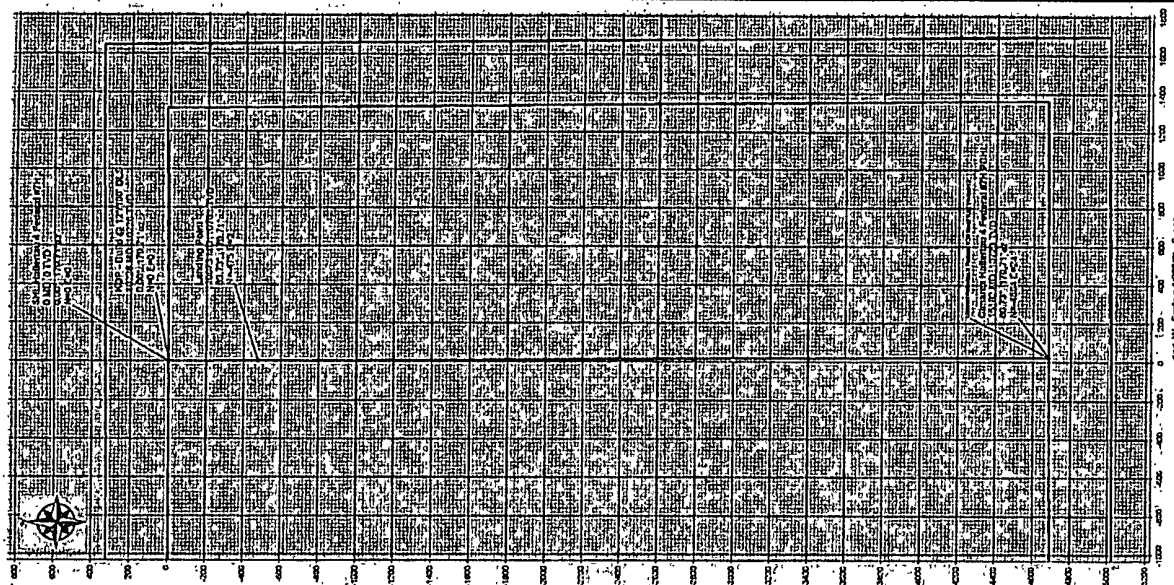
Hydrogen Parameters		Solvent Location		Solvent		Measurements	
Run	Sample	Date	Collection Day (2012)	Lat	Long	Location	Instrument
1	1000000000	10/10/12	10/10/12	10.10	10.10	1000000000	1000000000
2	1000000000	10/10/12	10/10/12	10.10	10.10	1000000000	1000000000
3	1000000000	10/10/12	10/10/12	10.10	10.10	1000000000	1000000000
4	1000000000	10/10/12	10/10/12	10.10	10.10	1000000000	1000000000
5	1000000000	10/10/12	10/10/12	10.10	10.10	1000000000	1000000000
6	1000000000	10/10/12	10/10/12	10.10	10.10	1000000000	1000000000
7	1000000000	10/10/12	10/10/12	10.10	10.10	1000000000	1000000000
8	1000000000	10/10/12	10/10/12	10.10	10.10	1000000000	1000000000
9	1000000000	10/10/12	10/10/12	10.10	10.10	1000000000	1000000000
10	1000000000	10/10/12	10/10/12	10.10	10.10	1000000000	1000000000
11	1000000000	10/10/12	10/10/12	10.10	10.10	1000000000	1000000000
12	1000000000	10/10/12	10/10/12	10.10	10.10	1000000000	1000000000
13	1000000000	10/10/12	10/10/12	10.10	10.10	1000000000	1000000000
14	1000000000	10/10/12	10/10/12	10.10	10.10	1000000000	1000000000
15	1000000000	10/10/12	10/10/12	10.10	10.10	1000000000	1000000000
16	1000000000	10/10/12	10/10/12	10.10	10.10	1000000000	1000000000
17	1000000000	10/10/12	10/10/12	10.10	10.10	1000000000	1000000000
18	1000000000	10/10/12	10/10/12	10.10	10.10	1000000000	1000000000
19	1000000000	10/10/12	10/10/12	10.10	10.10	1000000000	1000000000
20	1000000000	10/10/12	10/10/12	10.10	10.10	1000000000	1000000000
21	1000000000	10/10/12	10/10/12	10.10	10.10	1000000000	1000000000
22	1000000000	10/10/12	10/10/12	10.10	10.10	1000000000	1000000000
23	1000000000	10/10/12	10/10/12	10.10	10.10	1000000000	1000000000
24	1000000000	10/10/12	10/10/12	10.10	10.10	1000000000	1000000000
25	1000000000	10/10/12	10/10/12	10.10	10.10	1000000000	1000000000
26	1000000000	10/10/12	10/10/12	10.10	10.10	1000000000	1000000000
27	1000000000	10/10/12	10/10/12	10.10	10.10	1000000000	1000000000
28	1000000000	10/10/12	10/10/12	10.10	10.10	1000000000	1000000000
29	1000000000	10/10/12	10/10/12	10.10	10.10	1000000000	1000000000
30	1000000000	10/10/12	10/10/12	10.10	10.10	1000000000	1000000000
31	1000000000	10/10/12	10/10/12	10.10	10.10	1000000000	1000000000
32	1000000000	10/10/12	10/10/12	10.10	10.10	1000000000	1000000000
33	1000000000	10/10/12	10/10/12	10.10	10.10	1000000000	1000000000
34	1000000000	10/10/12	10/10/12	10.10	10.10	1000000000	1000000000
35	1000000000	10/10/12	10/10/12	10.10	10.10	1000000000	1000000000
36	1000000000	10/10/12	10/10/12	10.10	10.10	1000000000	1000000000



Grid North
Tot Corr (M→G:7.2105°)
Mag Dec (7.559°)
Grid Conv (0.349°)

[illegible]

Verbal Cognitive Function



Drawn By _____
 Date Created _____
 Created By _____
 Created Date _____
 Approved By _____



Cimarex Hallertau 4 Federal #7H Rev0 RJS 19-Oct-12 Proposal Report 100'
Interpolated
(Non-Def Plan)



Report Date: October 18, 2012 - 01:17 PM
Client: Cimarex
Field: NM Loo County (NAD 83)
Structure / Slot: Cactus 101 / Cimarex Hallertau 4 Federal #7H
Well: Cimarex Hallertau 4 Federal #7H
Borehole: Original Borehole
UWI / AP#: Unknown / Unknown
Survey Name: Cimarex Hallertau 4 Federal #7H Rev0 RJS 19-Oct-12
Survey Date: October 19, 2012
Tort / AMD / DOI / ERD Ratio: 89.737 * / 4693.844 ft / 5.75 / 0.437
Coordinate Reference System: NAD83 New Mexico State Plane, Eastern Zone, US Feet
Location Lat / Long: N 32° 4' 43.4816" W 103° 40' 36.5194"
Location Grid N/E Y/X: N 393003.672 ftUS, E 744679.431 ftUS
CRS Grid Convergence Angle: 0.3487 *
Grid Scale Factor: 0.99993645
Survey / DLS Computation: Minimum Curvature / Lubinski
Vertical Section Azimuth: 179.707 * (Grid North)
Vertical Section Origin: 0.000 ft, 0.000 ft
TVD Reference Datum: KB
TVD Reference Elevation: 3326.000 ft above MSL
Seasbed / Ground Elevation: 3308.000 ft above MSL
Magnetic Declination: 7.559 *
Total Gravity Field Strength: 999.1614 mgn (9.8 base)
Total Magnetic Field Strength: 48370.219 nT
Magnetic Dip Angle: 59.959 *
Declination Date: October 19, 2012
Magnetic Declination Model: BGSIM 2012
North Reference: Grid North
Grid Convergence Used: 0.3487 *
Total Corr Mag North-Grid North: -7.2105 *
Local Coord Referenced To: Structure Reference Point

Comments	MD (ft)	hei (ft)	Azin Grid (ft)	TVD (ft)	TVDSS (ft)	VSEC (ft)	NS (ft)	EW (ft)	DLS (ft)	BR (ft)	TR (ft)	Northing (ftUS)	Easting (ftUS)	Latitude (N/S...)	Longitude (E/W...)
SHL Hallertau 4 Federal #7H	0.00	0.00	179.71	0.00	-3326.00	0.00	0.00	0.00	N/A	N/A	N/A	393003.67	744679.43	N 32° 4' 43.49"	W 103° 40' 36.52"
	100.00	0.00	179.71	100.00	-3226.00	0.00	0.00	0.00	0.00	0.00	0.00	393003.67	744679.43	N 32° 4' 43.49"	W 103° 40' 36.52"
	200.00	0.00	179.71	200.00	-3126.00	0.00	0.00	0.00	0.00	0.00	0.00	393003.67	744679.43	N 32° 4' 43.49"	W 103° 40' 36.52"
	300.00	0.00	179.71	300.00	-3026.00	0.00	0.00	0.00	0.00	0.00	0.00	393003.67	744679.43	N 32° 4' 43.49"	W 103° 40' 36.52"
	400.00	0.00	179.71	400.00	-2926.00	0.00	0.00	0.00	0.00	0.00	0.00	393003.67	744679.43	N 32° 4' 43.49"	W 103° 40' 36.52"
	500.00	0.00	179.71	500.00	-2826.00	0.00	0.00	0.00	0.00	0.00	0.00	393003.67	744679.43	N 32° 4' 43.49"	W 103° 40' 36.52"
	600.00	0.00	179.71	600.00	-2726.00	0.00	0.00	0.00	0.00	0.00	0.00	393003.67	744679.43	N 32° 4' 43.49"	W 103° 40' 36.52"
	700.00	0.00	179.71	700.00	-2626.00	0.00	0.00	0.00	0.00	0.00	0.00	393003.67	744679.43	N 32° 4' 43.49"	W 103° 40' 36.52"
	800.00	0.00	179.71	800.00	-2526.00	0.00	0.00	0.00	0.00	0.00	0.00	393003.67	744679.43	N 32° 4' 43.49"	W 103° 40' 36.52"
	900.00	0.00	179.71	900.00	-2426.00	0.00	0.00	0.00	0.00	0.00	0.00	393003.67	744679.43	N 32° 4' 43.49"	W 103° 40' 36.52"
	1000.00	0.00	179.71	1000.00	-2326.00	0.00	0.00	0.00	0.00	0.00	0.00	393003.67	744679.43	N 32° 4' 43.49"	W 103° 40' 36.52"
	1100.00	0.00	179.71	1100.00	-2226.00	0.00	0.00	0.00	0.00	0.00	0.00	393003.67	744679.43	N 32° 4' 43.49"	W 103° 40' 36.52"
	1200.00	0.00	179.71	1200.00	-2126.00	0.00	0.00	0.00	0.00	0.00	0.00	393003.67	744679.43	N 32° 4' 43.49"	W 103° 40' 36.52"
	1300.00	0.00	179.71	1300.00	-2026.00	0.00	0.00	0.00	0.00	0.00	0.00	393003.67	744679.43	N 32° 4' 43.49"	W 103° 40' 36.52"
	1400.00	0.00	179.71	1400.00	-1926.00	0.00	0.00	0.00	0.00	0.00	0.00	393003.67	744679.43	N 32° 4' 43.49"	W 103° 40' 36.52"
	1500.00	0.00	179.71	1500.00	-1826.00	0.00	0.00	0.00	0.00	0.00	0.00	393003.67	744679.43	N 32° 4' 43.49"	W 103° 40' 36.52"
	1600.00	0.00	179.71	1600.00	-1726.00	0.00	0.00	0.00	0.00	0.00	0.00	393003.67	744679.43	N 32° 4' 43.49"	W 103° 40' 36.52"
	1700.00	0.00	179.71	1700.00	-1626.00	0.00	0.00	0.00	0.00	0.00	0.00	393003.67	744679.43	N 32° 4' 43.49"	W 103° 40' 36.52"
	1800.00	0.00	179.71	1800.00	-1526.00	0.00	0.00	0.00	0.00	0.00	0.00	393003.67	744679.43	N 32° 4' 43.49"	W 103° 40' 36.52"
	1900.00	0.00	179.71	1900.00	-1426.00	0.00	0.00	0.00	0.00	0.00	0.00	393003.67	744679.43	N 32° 4' 43.49"	W 103° 40' 36.52"
	2000.00	0.00	179.71	2000.00	-1326.00	0.00	0.00	0.00	0.00	0.00	0.00	393003.67	744679.43	N 32° 4' 43.49"	W 103° 40' 36.52"
	2100.00	0.00	179.71	2100.00	-1226.00	0.00	0.00	0.00	0.00	0.00	0.00	393003.67	744679.43	N 32° 4' 43.49"	W 103° 40' 36.52"
	2200.00	0.00	179.71	2200.00	-1126.00	0.00	0.00	0.00	0.00	0.00	0.00	393003.67	744679.43	N 32° 4' 43.49"	W 103° 40' 36.52"
	2300.00	0.00	179.71	2300.00	-1026.00	0.00	0.00	0.00	0.00	0.00	0.00	393003.67	744679.43	N 32° 4' 43.49"	W 103° 40' 36.52"
	2400.00	0.00	179.71	2400.00	-926.00	0.00	0.00	0.00	0.00	0.00	0.00	393003.67	744679.43	N 32° 4' 43.49"	W 103° 40' 36.52"
	2500.00	0.00	179.71	2500.00	-826.00	0.00	0.00	0.00	0.00	0.00	0.00	393003.67	744679.43	N 32° 4' 43.49"	W 103° 40' 36.52"
	2600.00	0.00	179.71	2600.00	-726.00	0.00	0.00	0.00	0.00	0.00	0.00	393003.67	744679.43	N 32° 4' 43.49"	W 103° 40' 36.52"
	2700.00	0.00	179.71	2700.00	-626.00	0.00	0.00	0.00	0.00	0.00	0.00	393003.67	744679.43	N 32° 4' 43.49"	W 103° 40' 36.52"
	2800.00	0.00	179.71	2800.00	-526.00	0.00	0.00	0.00	0.00	0.00	0.00	393003.67	744679.43	N 32° 4' 43.49"	W 103° 40' 36.52"
	2900.00	0.00	179.71	2900.00	-426.00	0.00	0.00	0.00	0.00	0.00	0.00	393003.67	744679.43	N 32° 4' 43.49"	W 103° 40' 36.52"
	3000.00	0.00	179.71	3000.00	-326.00	0.00	0.00	0.00	0.00	0.00	0.00	393003.67	744679.43	N 32° 4' 43.49"	W 103° 40' 36.52"
	3100.00	0.00	179.71	3100.00	-226.00	0.00	0.00	0.00	0.00	0.00	0.00	393003.67	744679.43	N 32° 4' 43.49"	W 103° 40' 36.52"
	3200.00	0.00	179.71	3200.00	-126.00	0.00	0.00	0.00	0.00	0.00	0.00	393003.67	744679.43	N 32° 4' 43.49"	W 103° 40' 36.52"
	3300.00	0.00	179.71	3300.00	-26.00	0.00	0.00	0.00	0.00	0.00	0.00	393003.67	744679.43	N 32° 4' 43.49"	W 103° 40' 36.52"

Comments	MD (ft)	Incl (°)	Asin Grd (°)	TVD (ft)	TVDSS (ft)	VSEC (ft)	NS (ft)	EW (ft)	DLS (ft)	BR (ft)	TR (ft)	Northing (ft)	Easting (ft)	Latitude (N/S/°)	Longitude (E/W/°)
KOP- Build @ 127100' DLS	9400.00	0.00	178.71	9400.00	6074.00	0.00	0.00	0.00	0.00	0.00	0.00	393003.67	744679.43	N 32.4 43.49	W 103.40 36.52
	9500.00	0.00	178.71	9500.00	6174.00	0.00	0.00	0.00	0.00	0.00	0.00	393003.67	744679.43	N 32.4 43.49	W 103.40 36.52
	9600.00	0.00	178.71	9600.00	6274.00	0.00	0.00	0.00	0.00	0.00	0.00	393003.67	744679.43	N 32.4 43.49	W 103.40 36.52
	9700.00	0.00	178.71	9700.00	6374.00	0.00	0.00	0.00	0.00	0.00	0.00	393003.67	744679.43	N 32.4 43.49	W 103.40 36.52
	9800.00	0.00	178.71	9800.00	6474.00	0.00	0.00	0.00	0.00	0.00	0.00	393003.67	744679.43	N 32.4 43.49	W 103.40 36.52
	9900.00	0.00	178.71	9900.00	6574.00	0.00	0.00	0.00	0.00	0.00	0.00	393003.67	744679.43	N 32.4 43.49	W 103.40 36.52
	10000.00	0.00	178.71	10000.00	6674.00	0.00	0.00	0.00	0.00	0.00	0.00	393003.67	744679.43	N 32.4 43.49	W 103.40 36.52
	10100.00	0.00	178.71	10100.00	6774.00	0.00	0.00	0.00	0.00	0.00	0.00	393003.67	744679.43	N 32.4 43.49	W 103.40 36.52
	10200.00	0.00	178.71	10200.00	6874.00	0.00	0.00	0.00	0.00	0.00	0.00	393003.67	744679.43	N 32.4 43.49	W 103.40 36.52
	10225.50	0.00	178.71	10225.50	6889.50	0.00	0.00	0.00	0.00	0.00	0.00	393003.67	744679.43	N 32.4 43.49	W 103.40 36.52
Landing Point	10300.00	8.94	179.71	10299.70	6973.70	5.80	-5.80	0.00	12.00	12.00	0.00	392997.87	744679.46	N 32.4 43.43	W 103.40 36.52
	10400.00	20.94	179.71	10396.14	7070.14	31.53	-31.53	0.16	12.00	12.00	0.00	392972.14	744679.59	N 32.4 43.17	W 103.40 36.52
	10500.00	32.94	178.71	10485.13	7159.13	76.75	-76.75	0.40	12.00	12.00	0.00	392926.93	744679.83	N 32.4 42.73	W 103.40 36.52
	10600.00	44.94	179.71	10562.77	7236.77	139.48	-139.48	0.72	12.00	12.00	0.00	392884.20	744680.15	N 32.4 42.10	W 103.40 36.52
	10700.00	56.94	179.71	10625.68	7299.68	216.98	-216.98	1.12	12.00	12.00	0.00	392786.70	744680.55	N 32.4 41.54	W 103.40 36.52
	10800.00	68.93	179.71	10671.09	7345.09	305.87	-305.87	1.57	12.00	12.00	0.00	392697.82	744681.01	N 32.4 40.46	W 103.40 36.52
	10900.00	80.93	179.71	10697.04	7371.04	402.26	-402.26	2.07	12.00	12.00	0.00	392601.44	744681.50	N 32.4 39.50	W 103.40 36.52
	10973.31	89.73	178.71	10703.00	7377.00	475.26	-475.26	2.46	12.00	12.00	0.00	392528.44	744681.88	N 32.4 38.78	W 103.40 36.52
	11000.00	89.73	179.71	10703.13	7377.13	501.94	-501.94	2.56	0.00	0.00	0.00	392501.76	744682.02	N 32.4 38.52	W 103.40 36.52
	11100.00	89.73	179.71	10703.60	7377.60	601.94	-601.94	3.10	0.00	0.00	0.00	392401.77	744682.53	N 32.4 37.53	W 103.40 36.53
KOP- Build @ 127100' DLS	11200.00	89.73	179.71	10704.07	7378.07	701.94	-701.94	3.61	0.00	0.00	0.00	392301.77	744683.04	N 32.4 36.54	W 103.40 36.53
	11300.00	89.73	178.71	10704.54	7378.54	801.94	-801.94	4.13	0.00	0.00	0.00	392201.78	744683.56	N 32.4 35.55	W 103.40 36.53
	11400.00	89.73	178.71	10705.01	7379.01	901.94	-901.94	4.64	0.00	0.00	0.00	392101.79	744684.07	N 32.4 34.56	W 103.40 36.53
	11500.00	89.73	178.71	10705.48	7379.48	1001.94	-1001.94	5.16	0.00	0.00	0.00	392001.80	744684.59	N 32.4 33.57	W 103.40 36.53
	11600.00	89.73	178.71	10705.96	7379.96	1101.93	-1101.92	5.67	0.00	0.00	0.00	391901.81	744685.10	N 32.4 32.58	W 103.40 36.53
	11700.00	89.73	179.71	10706.43	7380.43	1201.93	-1201.92	6.18	0.00	0.00	0.00	391801.81	744685.61	N 32.4 31.59	W 103.40 36.53
	11800.00	89.73	179.71	10706.90	7380.90	1301.93	-1301.92	6.70	0.00	0.00	0.00	391701.82	744686.13	N 32.4 30.60	W 103.40 36.53
	11900.00	89.73	179.71	10707.38	7381.38	1401.93	-1401.91	7.21	0.00	0.00	0.00	391601.82	744686.64	N 32.4 29.61	W 103.40 36.54
	12000.00	89.73	179.71	10707.85	7381.85	1501.93	-1501.91	7.72	0.00	0.00	0.00	391501.83	744687.15	N 32.4 28.62	W 103.40 36.54
	12100.00	89.73	179.71	10708.32	7382.32	1601.93	-1601.91	8.23	0.00	0.00	0.00	391401.84	744687.66	N 32.4 27.63	W 103.40 36.54
KOP- Build @ 127100' DLS	12200.00	89.73	179.71	10708.79	7382.79	1701.93	-1701.91	8.75	0.00	0.00	0.00	391301.84	744688.18	N 32.4 26.64	W 103.40 36.54
	12300.00	89.73	179.71	10709.27	7383.27	1801.93	-1801.90	9.26	0.00	0.00	0.00	391201.85	744688.69	N 32.4 25.65	W 103.40 36.54
	12400.00	89.73	179.71	10709.74	7383.74	1901.93	-1901.89	9.77	0.00	0.00	0.00	391101.86	744689.21	N 32.4 24.66	W 103.40 36.54
	12500.00	89.73	179.71	10710.22	7384.22	2001.92	-2001.90	10.28	0.00	0.00	0.00	391001.86	744689.72	N 32.4 23.68	W 103.40 36.54
	12600.00	89.73	179.71	10710.69	7384.69	2101.92	-2101.90	10.79	0.00	0.00	0.00	390901.87	744690.22	N 32.4 22.69	W 103.40 36.54
	12700.00	89.73	179.71	10711.16	7385.16	2201.92	-2201.89	11.30	0.00	0.00	0.00	390801.88	744690.73	N 32.4 21.70	W 103.40 36.54
	12800.00	89.73	179.71	10711.64	7385.64	2301.92	-2301.89	11.81	0.00	0.00	0.00	390701.89	744691.25	N 32.4 20.71	W 103.40 36.54
	12900.00	89.73	179.71	10712.11	7386.11	2401.92	-2401.89	12.33	0.00	0.00	0.00	390601.89	744691.76	N 32.4 19.72	W 103.40 36.55
	13000.00	89.73	179.71	10712.59	7386.59	2501.92	-2501.89	12.84	0.00	0.00	0.00	390501.90	744692.27	N 32.4 18.73	W 103.40 36.55
	13100.00	89.73	179.71	10713.06	7387.06	2601.92	-2601.88	13.35	0.00	0.00	0.00	390401.91	744692.78	N 32.4 17.74	W 103.40 36.55
KOP- Build @ 127100' DLS	13200.00	89.73	179.71	10713.54	7387.54	2701.92	-2701.88	13.86	0.00	0.00	0.00	390301.91	744693.29	N 32.4 16.75	W 103.40 36.55
	13300.00	89.73	179.71	10714.02	7388.02	2801.92	-2801.88	14.37	0.00	0.00	0.00	390201.92	744693.80	N 32.4 15.76	W 103.40 36.55
	13400.00	89.73	179.71	10714.49	7388.49	2901.91	-2901.86	14.88	0.00	0.00	0.00	390101.93	744694.31	N 32.4 14.77	W 103.40 36.55
	13500.00	89.73	179.71	10714.97	7388.97	3001.91	-3001.87	15.38	0.00	0.00	0.00	390001.93	744694.82	N 32.4 13.78	W 103.40 36.55
	13600.00	89.73	179.71	10715.44	7389.44	3101.91	-3101.87	15.89	0.00	0.00	0.00	389901.94	744695.32	N 32.4 12.79	W 103.40 36.55
	13700.00	89.73	179.71	10715.92	7389.92	3201.91	-3201.87	16.40	0.00	0.00	0.00	389801.95	744695.83	N 32.4 11.80	W 103.40 36.56
	13800.00	89.73	179.71	10716.40	7390.40	3301.91	-3301.87	16.91	0.00	0.00	0.00	389701.96	744696.34	N 32.4 10.81	W 103.40 36.56
	13900.00	89.73	179.71	10716.87	7390.87	3401.91	-3401.86	17.42	0.00	0.00	0.00	389601.96	744696.85	N 32.4 9.82	W 103.40 36.56
	14000.00	89.73	179.71	10717.35	7391.35	3501.91	-3501.86	17.93	0.00	0.00	0.00	389501.97	744697.36	N 32.4 8.83	W 103.40 36.56
	14100.00	89.73	179.71	10717.83	7391.83	3601.91	-3601.86	18.44	0.00	0.00	0.00	389401.98	744697.87	N 32.4 7.84	W 103.40 36.56
KOP- Build @ 127100' DLS	14200.00	89.73	179.71	10718.30	7392.30	3701.91	-3701.86	18.94	0.00	0.00	0.00	389301.98	744698.37	N 32.4 6.85	W 103.40 36.56
	14300.00	89.73	179.71	10718.78	7392.78	3801.90	-3801.85	19.45	0.00	0.00	0.00	389201.99	744698.88	N 32.4 5.86	W 103.40 36.56
	14400.00	89.73	179.71	10719.26	7393.26	3901.90	-3901.85	19.96	0.00	0.00	0.00	389102.00	744699.39	N 32.4 4.87	W 103.40 36.56
	14500.00	89.73	179.71	10719.74	7393.74	4001.90	-4001.85	20.47	0.00	0.00	0.00	389002.00	744699.90	N 32.4 3.88	W 103.40 36.56
	14600.00	89.73	179.71	10720.21	7394.21	4101.90	-4101.85	20.98	0.00	0.00	0.00	388902.01	744700.41	N 32.4 2.89	W 103.40 36.57
	14700.00	89.73	179.71	10720.69	7394.69	4201.90	-4201.84	21.49	0.00	0.00	0.00	388802.02	744700.91	N 32.4 1.91	W 103.40 36.57
	14800.00	89.73	179.71	10721.17	7395.17	4301.90	-4301.84	21.99	0.00	0.00	0.00	388702.03	744701.42	N 32.4 0.92	W 103.40 36.57
	14900.00	89.73	179.71	10721.65	7395.65	4401.90	-4401.84	22.49	0.00	0.00	0.00	388602.03	744701.92	N 32.3 59.53	W 103.40 36.57
	15000.00	89.73	179.71	10722.13	7396.13	4501.90	-4501.84	23.00	0.00	0.00	0.00	388502.04	744702.43	N 32.3 58.54	W 103.40 36.57

Comments	MD (ft)	Incl (°)	Azim Grid (°)	TVD (ft)	TVDSS (ft)	VSEC (ft)	NS (ft)	EW (ft)	DLS (*/100ft)	BR (*/100ft)	TR (*/100ft)	Northing (ftUS)	Easting (ftUS)	Latitude (N/S***)	Longitude (E/W***)
Cimarex Hallertau 4	15100.00	89.73	179.71	10722.61	7396.61	4801.90	-4601.84	23.50	0.00	0.00	0.00	388402.05	744702.93	N 32 3 57.95	W 103 40 36 57
Federal #7H PBHL	15181.95	89.73	179.71	10723.00	7397.00	4683.84	-4683.78	23.92	0.00	0.00	0.00	388320.10	744703.35	N 32 3 57.14	W 103 40 36 57

Survey Type: Non-Def Plan

Survey Error Model: ISCWSA Rev 0 *** 3-D 95.000% Confidence 2.7955 sigma
Survey Program:

Description	MD From (ft)	MD To (ft)	EOU Freq (ft)	Hole Size (in)	Casing Diameter (in)	Survey Tool Type	Borehole / Survey
	0.000	16.000	1/100.000	30.000	30.000	SLB_MWD-STD-Depth Only	Original Borehole / Cimarex Hallertau 4 Federal #7H Rev0
	16.000	15181.950	1/100.000	30.000	30.000	SLB_MWD-STD	Original Borehole / Cimarex Hallertau 4 Federal #7H Rev0