

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

OCD Artesia

FORM APPROVED
OMB NO. 1004-0135
Expires: July 31, 2010**SUNDRY NOTICES AND REPORTS ON WELLS**
*Do not use this form for proposals to drill or to re-enter an abandoned well. Use form 3160-3 (APD) for such proposals.***SUBMIT IN TRIPLICATE - Other instructions on reverse side.**

1. Type of Well ☐ Oil Well ☒ Gas Well ☐ Other		5. Lease Serial No. NMNM112920
2. Name of Operator CIMAREX ENERGY COMPANY OF CO Contact: ARICKA EASTERLING E-Mail: aeasterling@cimarex.com		6. If Indian, Allottee or Tribe Name
3a. Address 600 NORTH MARIENFELD STREET SUITE 600 MIDLAND, TX 79701	3b. Phone No. (include area code) Ph: 918-560-7060	7. If Unit or CA/Agreement, Name and/or No. RIVERBEND 14 FEDERAL COM 2H
4. Location of Well (Footage, Sec., T., R., M., or Survey Description) Sec 14 T25S R28E NENW 75FNL 1980FWL 32.081396 N Lat, 104.033637 W Lon		8. Well Name and No. RIVERBEND 14 FEDERAL COM 2H
		9. API Well No. 30-015-41589-00-X1
		10. Field and Pool, or Exploratory WILDCAT
		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	Drilling Operations
	☐ 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 recomplate horizontally, give subsurface locations and measured and true vertical depths of all pertinent markers and zones. Attach the Bond under which the work will be performed or provide the Bond No. on file with BLM/BIA. Required subsequent reports shall be filed within 30 days following completion of the involved operations. If the operation results in a multiple completion or recompletion in a new interval, a Form 3160-4 shall be filed once testing has been completed. Final Abandonment Notices shall be filed only after all requirements, including reclamation, have been completed, and the operator has determined that the site is ready for final inspection.)

Cimarex respectfully requests changes to the drilling plan.

Riverbend 14 Federal 2H Cement Plug Whipstock and Sidetrack Procedure:

1. POOH
2. P/U 600' of 2-7/8" 6.5# EUE tubing with perforated sub.
3. TIH as deep as possible (Last reaming depth that we were able to keep clean is at 11,012').
4. Pump 20 bbls of 14.5 ppg spacer
5. Pump 21 bbls (100 sacks) of 15.6 ppg, 1.19 cuft/sack cement
6. Pump 10 bbls of 14.5ppg spacer
7. Displace with 97 bbls of OBM (5 bbls under displaced)
8. POOH slowly with tubing (3 min/stand) to 10,300' (100' above estimated TOC)

Accepted for record
AD NMOC 2/10/15
NM OIL CONSERVATION
ARTESIA DISTRICT
FEB 06 2015
RECEIVED

14. I hereby certify that the foregoing is true and correct. Electronic Submission #290277 verified by the BLM Well Information System For CIMAREX ENERGY COMPANY OF CO, sent to the Carlsbad Committed to AFMSS for processing by CHRISTOPHER WALLS on 02/04/2015 (15CRW0054SE)	
Name (Printed/Typed) ARICKA EASTERLING	Title REGULATORY ANALYST
Signature (Electronic Submission)	Date 02/02/2015
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 _____
APPROVED FEB 4 2015 /s/ Chris Walls BUREAU OF LAND MANAGEMENT CARLSBAD FIELD 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 #290277 that would not fit on the form

32. Additional remarks, continued

9. Reverse out 2 bottoms up 3 bbl/min.
10. POOH wait 12 hours.
11. P/U tricone bit
12. RIH to dress out top of cement to the desired whipstock setting depth at 10,766'.
 - a. If you encounter green cement to 10,500' contact Sup about additional WOC time
13. Circulate hole clean
14. POOH
15. P/U mill
16. TIH with mill to 10,766' to gauge hole for whipstock
17. TOOH
18. P/U whipstock
19. RIH to +10,736' and orientate whipstock to 180deg via MWD
20. Set down and engage slips.
21. Shear milling BHA from the anchor
22. Mill window in casing
23. TOOH
24. If mills are in gauge after cutting window. Go to step 29.
25. If mills are not in gauge P/U new mill
26. TIH to cut window.
27. Mill Window
28. TOOH
29. P/U directional BHA
30. TIH
31. Drilling curve
 - a. MW going forward will be in the 12.5 to 13 ppg to help with hole stability.
32. TOOH
33. PU Lateral assembly
34. TIH
35. Drill Lateral

*Isolation plug shall
be a minimum of 210' thick*



Cactus 116

Cimarex

ST01 Rev0

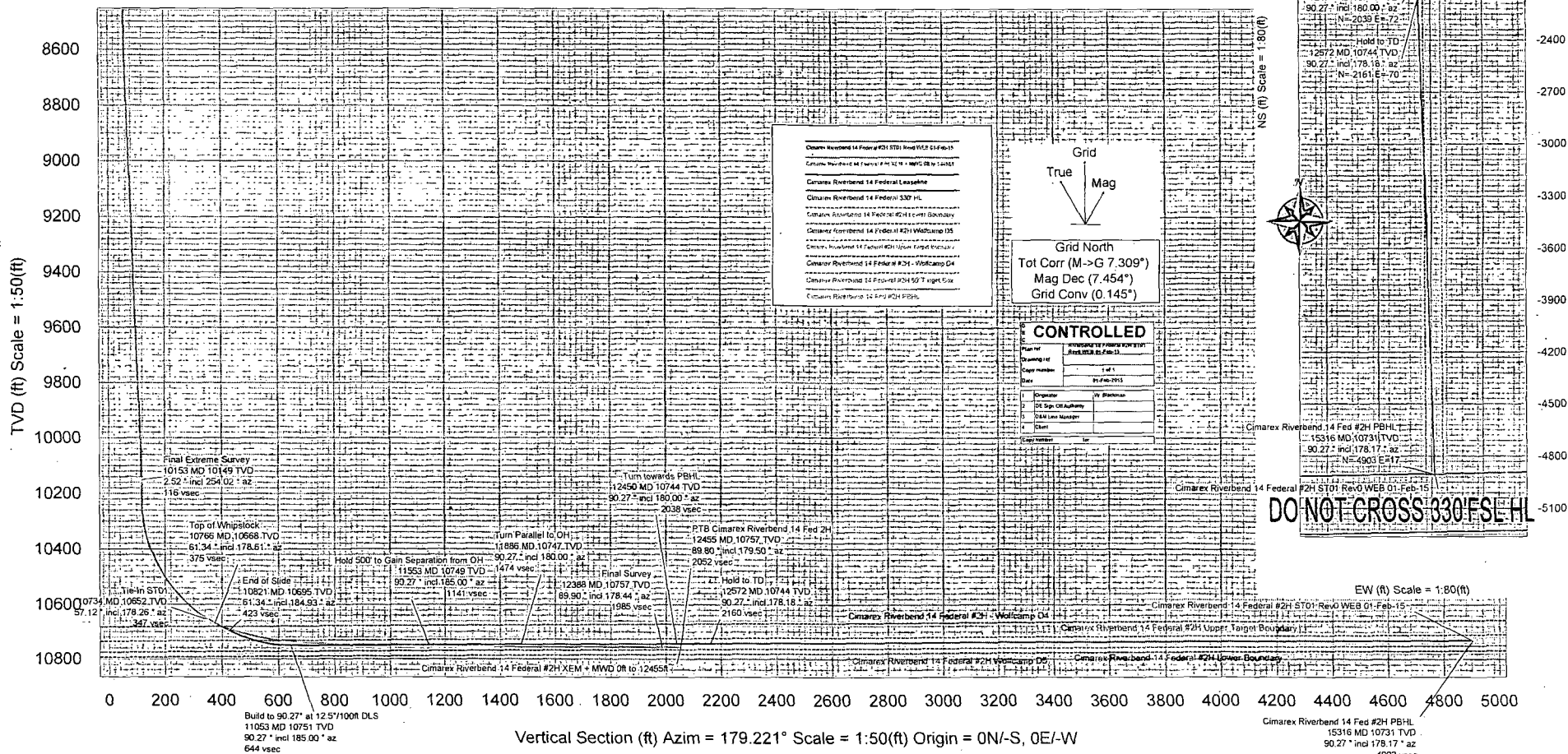


A Schlumberger Company

Borehole:	ST01 Borehole	Well:	Riverbend 14 Federal #2H	Field:	NM Eddy County (NAD 83)	Structure:	Cactus 116
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Gravity & Magnetic Parameters	Surface Location	NADES New Mexico State Plane, Eastern Zone, US Feet	Miscellaneous
Model: HDGM 2014	Lat: N 32 8 13.96	Northings: 413760.30	Stn: Riverbend 14
Dip: 59.979'	Long: W 104 3 36.37	Eastings: 625909.40	Federal #2H
Date: 01-Feb-2015	Grid Conv: 0.1452'	Scale Fact: 0.99991728	TVD Ref: RKB(2957' above MSL)
MagDec: 7.454'			Plan: ST01 Rev0 WEB 01-Feb-15

Comments	Survey MD(ft)	Inclination(deg)	Azimuth(deg)	TVD(ft)	Sub-Sp TVD	VS(ft)	NS(ft)	EW(ft)	Lat/Long(deg)	Eastings(ft)	Northings(ft)	Closure(ft)	Closure Azimuth(deg)	DI Sp/1000'	Tool Face(deg)
SHL Riverbend 14 Fed #2H - 1980 FWL 75 FNL	0.00	0.00	179.80	0.00	2957.00	0.00	0.00	0.00	N 32 8 13.959 W 104 3 36.371	625909.40	413760.30	0.00	0.00		232.47
Tie-In ST01	10734.00	57.12	178.26	10651.88	7694.88	347.13	347.08	5.83	N 32 8 10.525 W 104 3 36.313	625915.23	413413.25	347.13	179.04	11.21	4.17
Top of Whipstock	10766.00	61.34	178.61	10668.25	7711.25	374.61	374.56	6.58	N 32 8 10.253 W 104 3 36.305	625915.98	413385.77	374.62	178.99	13.22	90.00
End of Slide	10821.45	61.34	184.93	10694.86	7737.86	423.19	423.16	5.08	N 32 8 9.772 W 104 3 36.324	625914.48	413337.18	423.19	179.31	10.00	0.14
Build to 90.27° at 12.5°/100' DLS	11052.82	90.27	185.00	10751.00	7794.00	644.01	644.26	-14.14	N 32 8 7.585 W 104 3 36.554	625895.26	413116.10	644.41	181.26	12.50	0.00
Hold 500' to Gain Separation from OH	11552.82	90.27	185.00	10748.64	7791.64	1141.46	1142.35	-57.72	N 32 8 2.657 W 104 3 37.076	625851.69	412618.05	1143.81	182.89	0.00	-90.00
Turn Parallel to OH	11886.15	90.27	180.00	10747.07	7790.07	1474.13	1475.25	-72.25	N 32 7 59.363 W 104 3 37.255	625837.16	412285.17	1477.02	182.80	1.50	0.00
Turn towards PBHL	12450.00	90.27	180.00	10744.41	7787.41	2037.92	2039.09	-72.25	N 32 7 53.784 W 104 3 37.271	625837.16	411721.38	2040.37	182.03	0.00	-90.00
Hold to TD	12571.67	90.27	178.17	10743.84	7786.84	2159.59	2160.74	-70.31	N 32 7 52.580 W 104 3 37.252	625839.09	411599.74	2161.83	181.06	1.50	-166.70
Cimarex Riverbend 14 Fed #2H PBHL	15315.67	90.27	178.17	10731.00	7774.00	4903.10	4903.32	17.10	N 32 7 25.439 W 104 3 36.317	625926.50	408857.40	4903.35	179.80	0.00	





Cimarex Riverbend 14 Federal #2H ST01 Rev0 WEB 01-Feb-15 Proposal

Geodetic Report 100' Interpolated

(Non-Def Plan)



Report Date: February 01, 2015 - 04:04 PM
 Client: Cimarex
 Field: NM Eddy County (NAD 83)
 Structure / Slot: Cimarex Riverbend 14 Federal #2H / Cimarex Riverbend 14 Federal #2H
 Well: Cimarex Riverbend 14 Federal #2H
 Borehole: ST01 Borehole
 UWI / API#: Unknown / 30-015-41589
 Survey Name: Cimarex Riverbend 14 Federal #2H ST01 Rev0 WEB 01-Feb-15
 Survey Date: February 01, 2015
 Tort / AHD / DDI / ERD Ratio: 146.234 * / 5035.564 ft / 6.021 / 0.468
 Coordinate Reference System: NAD83 New Mexico State Plane, Eastern Zone, US Feet
 Location Lat / Long: N 32° 8' 13.95939", W 104° 3' 36.37088"
 Location Grid N/E Y/X: N 413760.300 ftUS, E 625909.400 ftUS
 CRS Grid Convergence Angle: 0.1453°
 Grid Scale Factor: 0.99991728
 Version / Patch: 2.7.1043.0

Survey / DLS Computation: Minimum Curvature / Lubinski
 Vertical Section Azimuth: 179.221° (Grid North)
 Vertical Section Origin: 0.000 ft, 0.000 ft
 TVD Reference Datum: RKB
 TVD Reference Elevation: 2957.000 ft above MSL
 Seabed / Ground Elevation: 2939.000 ft above MSL
 Magnetic Declination: 7.454°
 Total Gravity Field Strength: 998.4581mgn (9.80665 Based)
 Gravity Model: GARM
 Total Magnetic Field Strength: 48310.325 nT
 Magnetic Dip Angle: 59.978°
 Declination Date: February 01, 2015
 Magnetic Declination Model: HDGM 2014
 North Reference: Grid North
 Grid Convergence Used: 0.1453°
 Total Corr Mag North->Grid North: 7.3090°
 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 ST01	10734.00	57.12	178.26	10651.88	347.13	-347.08	5.83	N/A	413413.25	625915.23	N 32 8 10.52	W 104 3 36.31
Top of Whipstock	10766.00	61.34	178.61	10668.25	374.61	-374.56	6.58	13.22	413385.77	625915.98	N 32 8 10.25	W 104 3 36.31
End of Slide	10800.00	61.31	182.49	10684.57	404.43	-404.38	6.30	10.00	413355.95	625915.69	N 32 8 9.96	W 104 3 36.31
	10821.45	61.34	184.93	10694.86	423.19	-423.16	5.08	10.00	413337.18	625914.48	N 32 8 9.77	W 104 3 36.32
	10900.00	71.16	184.96	10726.46	494.64	-494.70	-1.11	12.50	413265.64	625908.29	N 32 8 9.06	W 104 3 36.40
Build to 90.27° at 12.5°/100ft DLS	11000.00	83.67	184.99	10748.21	591.55	-591.74	-9.55	12.50	413168.61	625899.85	N 32 8 8.10	W 104 3 36.50
	11052.82	90.27	185.00	10751.00	644.01	-644.26	-14.14	12.50	413116.10	625895.26	N 32 8 7.58	W 104 3 36.55
	11100.00	90.27	185.00	10750.78	690.94	-691.25	-18.25	0.00	413069.10	625891.15	N 32 8 7.12	W 104 3 36.60
	11200.00	90.27	185.00	10750.31	790.43	-790.87	-26.97	0.00	412969.49	625882.44	N 32 8 6.13	W 104 3 36.71
	11300.00	90.27	185.00	10749.84	889.92	-890.49	-35.68	0.00	412869.89	625873.72	N 32 8 5.15	W 104 3 36.81
Hold 500' to Gain Separation from OH	11400.00	90.27	185.00	10749.36	989.41	-990.11	-44.40	0.00	412770.28	625865.01	N 32 8 4.16	W 104 3 36.92
	11500.00	90.27	185.00	10748.89	1088.90	-1089.73	-53.11	0.00	412670.67	625856.29	N 32 8 3.18	W 104 3 37.02
	11552.82	90.27	185.00	10748.64	1141.46	-1142.35	-57.72	0.00	412618.05	625851.69	N 32 8 2.66	W 104 3 37.08
	11600.00	90.27	184.29	10748.42	1188.42	-1189.37	-61.54	1.50	412571.03	625847.87	N 32 8 2.19	W 104 3 37.12
	11700.00	90.27	182.79	10747.95	1288.14	-1289.17	-67.72	1.50	412471.23	625841.69	N 32 8 1.20	W 104 3 37.20
Turn Parallel to OH	11800.00	90.27	181.29	10747.48	1388.01	-1389.11	-71.28	1.50	412371.31	625838.13	N 32 8 0.22	W 104 3 37.24
	11865.15	90.27	180.00	10747.07	1474.13	-1475.25	-72.25	1.50	412285.17	625837.16	N 32 7 59.36	W 104 3 37.25
	11900.00	90.27	180.00	10747.01	1487.98	-1488.10	-72.25	0.00	412271.33	625837.16	N 32 7 59.23	W 104 3 37.26
	12000.00	90.27	180.00	10746.54	1587.97	-1589.10	-72.25	0.00	412171.34	625837.16	N 32 7 58.24	W 104 3 37.26
	12100.00	90.27	180.00	10746.06	1687.96	-1689.10	-72.25	0.00	412071.35	625837.16	N 32 7 57.25	W 104 3 37.26
Turn towards PBHL	12200.00	90.27	180.00	10745.59	1787.95	-1789.10	-72.25	0.00	411971.36	625837.16	N 32 7 56.26	W 104 3 37.26
	12300.00	90.27	180.00	10745.12	1887.94	-1889.09	-72.25	0.00	411871.37	625837.16	N 32 7 55.27	W 104 3 37.27
	12400.00	90.27	180.00	10744.65	1987.93	-1989.09	-72.25	0.00	411771.38	625837.16	N 32 7 54.28	W 104 3 37.27
	12450.00	90.27	180.00	10744.41	2037.92	-2039.09	-72.25	0.00	411721.38	625837.16	N 32 7 53.78	W 104 3 37.27
	12500.00	90.27	179.25	10744.18	2087.92	-2089.09	-71.92	1.50	411671.39	625837.48	N 32 7 53.29	W 104 3 37.27
Hold to TD	12571.67	90.27	178.17	10743.84	2159.59	-2160.74	-70.31	1.50	411599.74	625839.09	N 32 7 52.58	W 104 3 37.25
	12600.00	90.27	178.17	10743.71	2187.91	-2189.06	-69.41	0.00	411571.43	625840.00	N 32 7 52.30	W 104 3 37.24
	12700.00	90.27	178.17	10743.24	2287.89	-2289.00	-66.23	0.00	411471.49	625843.18	N 32 7 51.31	W 104 3 37.21
	12800.00	90.27	178.17	10742.77	2387.87	-2388.95	-63.04	0.00	411371.55	625846.36	N 32 7 50.32	W 104 3 37.17
	12900.00	90.27	178.17	10742.30	2487.86	-2488.90	-59.86	0.00	411271.61	625849.55	N 32 7 49.33	W 104 3 37.14
	13000.00	90.27	178.17	10741.83	2587.84	-2588.85	-56.67	0.00	411171.67	625852.73	N 32 7 48.34	W 104 3 37.11
	13100.00	90.27	178.17	10741.36	2687.82	-2688.80	-53.49	0.00	411071.73	625855.92	N 32 7 47.35	W 104 3 37.07
	13200.00	90.27	178.17	10740.89	2787.80	-2788.75	-50.30	0.00	410971.79	625859.10	N 32 7 46.37	W 104 3 37.04
	13300.00	90.27	178.17	10740.42	2887.79	-2888.69	-47.12	0.00	410871.85	625862.29	N 32 7 45.38	W 104 3 37.00
	13400.00	90.27	178.17	10739.95	2987.77	-2988.64	-43.93	0.00	410771.91	625865.47	N 32 7 44.39	W 104 3 36.97
	13500.00	90.27	178.17	10739.48	3087.75	-3088.59	-40.74	0.00	410671.97	625868.66	N 32 7 43.40	W 104 3 36.94
	13600.00	90.27	178.17	10739.01	3187.73	-3188.54	-37.56	0.00	410572.03	625871.84	N 32 7 42.41	W 104 3 36.90
	13700.00	90.27	178.17	10738.54	3287.71	-3288.49	-34.37	0.00	410472.09	625875.03	N 32 7 41.42	W 104 3 36.87
	13800.00	90.27	178.17	10738.07	3387.70	-3388.43	-31.19	0.00	410372.15	625878.21	N 32 7 40.43	W 104 3 36.83
	13900.00	90.27	178.17	10737.60	3487.68	-3488.38	-28.00	0.00	410272.21	625881.40	N 32 7 39.44	W 104 3 36.80
	14000.00	90.27	178.17	10737.13	3587.66	-3588.33	-24.82	0.00	410172.27	625884.58	N 32 7 38.45	W 104 3 36.77
	14100.00	90.27	178.17	10736.67	3687.64	-3688.28	-21.63	0.00	410072.33	625887.77	N 32 7 37.46	W 104 3 36.73
	14200.00	90.27	178.17	10736.20	3787.63	-3788.23	-18.45	0.00	409972.39	625890.96	N 32 7 36.47	W 104 3 36.70
	14300.00	90.27	178.17	10735.73	3887.61	-3888.17	-15.26	0.00	409872.45	625894.14	N 32 7 35.48	W 104 3 36.66
	14400.00	90.27	178.17	10735.27	3987.59	-3988.12	-12.07	0.00	409772.52	625897.33	N 32 7 34.50	W 104 3 36.63
	14500.00	90.27	178.17	10734.80	4087.57	-4088.07	-8.89	0.00	409672.58	625900.51	N 32 7 33.51	W 104 3 36.59
	14600.00	90.27	178.17	10734.33	4187.55	-4188.02	-5.70	0.00	409572.64	625903.70	N 32 7 32.52	W 104 3 36.56
	14700.00	90.27	178.17	10733.87	4287.54	-4287.97	-2.52	0.00	409472.70	625906.88	N 32 7 31.53	W 104 3 36.53
	14800.00	90.27	178.17	10733.40	4387.52	-4387.92	0.67	0.00	409372.76	625910.07	N 32 7 30.54	W 104 3 36.49
	14900.00	90.27	178.17	10732.93	4487.50	-4487.86	3.86	0.00	409272.82	625913.26	N 32 7 29.55	W 104 3 36.46
	15000.00	90.27	178.17	10732.47	4587.48	-4587.81	7.04	0.00	409172.88	625916.44	N 32 7 28.56	W 104 3 36.42
	15100.00	90.27	178.17	10732.00	4687.47	-4687.76	10.23	0.00	409072.94	625919.63	N 32 7 27.57	W 104 3 36.39
	15200.00	90.27	178.17	10731.54	4787.45	-4787.71	13.41	0.00	408973.00	625922.81	N 32 7 26.58	W 104 3 36.36
	15300.00	90.27	178.17	10731.07	4887.43	-4887.66	16.60	0.00	408873.06	625926.00	N 32 7 25.59	W 104 3 36.32
Cimarex Riverbend 14 Fed #2H PBHL	15315.67	90.27	178.17	10731.00	4903.10	-4903.32	17.10	0.00	408857.40	625926.50	N 32 7 25.44	W 104 3 36.32

Comments	MD (ft)	Incl (°)	Azim Grid (°)	TVD (ft)	VSEC (ft)	NS (ft)	EW (ft)	DLS (°/100ft)	Northing (ftUS)	Easting (ftUS)	Latitude (N/S ° ' ")	Longitude (E/W ° ' ")
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Survey 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	18.000	Act Stns	30.000	30.000	SLB_MWD-POOR-Depth Only	Original Borehole / Cimarex Riverbend 14 Federal #2H XEM +
	1	18.000	10153.000	Act Stns	30.000	30.000	SLB_MWD-POOR	Original Borehole / Cimarex Riverbend 14 Federal #2H XEM +
	1	10153.000	10734.000	Act Stns	30.000	30.000	SLB_MWD-STD	Original Borehole / Cimarex Riverbend 14 Federal #2H XEM +
	1	10734.000	15315.672	1/100.000	6.000	6.000	SLB_MWD-STD	ST01 Borehole / Cimarex Riverbend 14 Federal #2H ST01



Cimarex Riverbend 14 Federal #2H ST01 Rev0 WEB 01-Feb-15 Proposal
Geodetic Report
 (Non-Def Plan)



Report Date:	February 01, 2015 - 04:02 PM	Survey / DLS Computation:	Minimum Curvature / Lubinski
Client:	Cimarex	Vertical Section Azimuth:	179.221 ° (Grid North)
Field:	NM Eddy County (NAD 83)	Vertical Section Origin:	0.000 ft, 0.000 ft
Structure / Slot:	Cimarex Riverbend 14 Federal #2H / Cimarex Riverbend 14 Federal #2H	TVD Reference Datum:	RKB
Well:	Cimarex Riverbend 14 Federal #2H	TVD Reference Elevation:	2957.000 ft above MSL
Borehole:	ST01 Borehole	Seabed / Ground Elevation:	2939.000 ft above MSL
UWI / API#:	Unknown / 30-015-41589	Magnetic Declination:	7.454 °
Survey Name:	Cimarex Riverbend 14 Federal #2H ST01 Rev0 WEB 01-Feb-15	Total Gravity Field Strength:	998.4581mgn (9.80665 Based)
Survey Date:	February 01, 2015	Gravity Model:	GARM
Tort / AHD / DDI / ERD Ratio:	146.234 ° / 5035.564 ft / 6.021 / 0.468	Total Magnetic Field Strength:	48310.325 nT
Coordinate Reference System:	NAD83 New Mexico State Plane, Eastern Zone, US Feet	Magnetic Dip Angle:	59.979 °
Location Lat / Long:	N 32° 8' 13.95939", W 104° 3' 36.37088"	Declination Date:	February 01, 2015
Location Grid N/E Y/X:	N 413760.300 RUS, E 625909.400 RUS	Magnetic Declination Model:	HDGM 2014
CRS Grid Convergence Angle:	0.1453 °	North Reference:	Grid North
Grid Scale Factor:	0.99991728	Grid Convergence Used:	0.1453 °
Version / Patch:	2.7.1043.0	Total Corr Mag North->Grid	7.3090 °
		North:	
		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 ST01	10734.00	57.12	178.26	10651.88	347.13	-347.08	5.83	N/A	413413.25	625915.23	N 32 8 10.52 W 104 3 36.31	
Top of Whipstock	10766.00	61.34	178.61	10668.25	374.61	-374.56	6.58	13.22	413385.77	625915.98	N 32 8 10.25 W 104 3 36.31	
End of Slide Build to 90.27° at 12.5°/100ft DLS	10821.45	61.34	184.93	10694.86	423.19	-423.16	5.08	10.00	413337.18	625914.48	N 32 8 9.77 W 104 3 36.32	
Hold 500' to Gain Separation from OH	11052.82	90.27	185.00	10751.00	644.01	-644.26	-14.14	12.50	413116.10	625895.26	N 32 8 7.58 W 104 3 36.55	
	11552.82	90.27	185.00	10748.64	1141.46	-1142.35	-57.72	0.00	412618.05	625851.69	N 32 8 2.66 W 104 3 37.08	
Turn Parallel to OH	11886.15	90.27	180.00	10747.07	1474.13	-1475.25	-72.25	1.50	412285.17	625837.16	N 32 7 59.36 W 104 3 37.25	
Turn towards PBHL	12450.00	90.27	180.00	10744.41	2037.92	-2039.09	-72.25	0.00	411721.38	625837.16	N 32 7 53.78 W 104 3 37.27	
Hold to TD Cimarex Riverbend 14 Fed #2H PBHL	12571.67	90.27	178.17	10743.84	2159.59	-2160.74	-70.31	1.50	411599.74	625839.09	N 32 7 52.58 W 104 3 37.25	
	15315.67	90.27	178.17	10731.00	4903.10	-4903.32	17.10	0.00	408857.40	625926.50	N 32 7 25.44 W 104 3 36.32	

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	18.000	Act Stns	30.000	30.000	SLB_MWD-POOR-Depth Only	Original Borehole / Cimarex Riverbend 14 Federal #2H XEM +
	1	18.000	10153.000	Act Stns	30.000	30.000	SLB_MWD-POOR	Original Borehole / Cimarex Riverbend 14 Federal #2H XEM +
	1	10153.000	10734.000	Act Stns	30.000	30.000	SLB_MWD-STD	Original Borehole / Cimarex Riverbend 14 Federal #2H XEM +
	1	10734.000	15315.672	1/100.000	6.000	6.000	SLB_MWD-STD	ST01 Borehole / Cimarex Riverbend 14 Federal #2H ST01