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30.015-45021

Schlumberger

Final Survey - Cimarex Riverbend 12-13 Federal Com #29H 0ft to 21947ft (Surcon Corrected) Survey Geodetic Report (Def Survey)



Report Date:	October 16, 2018 - 02:37 PM	Survey / DLS Computation:	Minimum Curvature / Lubinski
Client:	Cimarex	Vertical Section Azimuth:	179.781 ° (Grid North)
Field:	NM Eddy County (NAD 83)	Vertical Section Origin:	0.000 ft, 0.000 ft
Structure / Slot:	Cimarex Riverbend 12-13 Federal Com #29H / Cimarex Riverbend 12-13 Federal Com #29H	TVD Reference Datum:	RKB
Well:	Cimarex Riverbend 12-13 Federal Com #29H	TVD Reference Elevation:	2960.200 ft above MSL
Borehole:	Original Borehole	Seabed / Ground Elevation:	2937.200 ft above MSL
UWI / API#:	Unknown / Unknown	Magnetic Declination:	7.096 °
Survey Name:	Final Survey - Cimarex Riverbend 12-13 Federal Com #29H 0ft to 21947ft (Surcon Corrected)	Total Gravity Field Strength:	998.4801mgn (9.80685 Based)
Survey Date:	July 26, 2018	Gravity Model:	GARM
Tort / AHD / DDI / ERD Ratio:	322.521 ° / 12382.562 ft / 6.906 / 1.139	Total Magnetic Field Strength:	47945.605 nT
Coordinate Reference System:	NAD83 New Mexico State Plane, Eastern Zone, US Feet	Magnetic Dip Angle:	59.903 °
Location Lat / Long:	N 32° 9' 21.00689", W 104° 2' 41.77972"	Declination Date:	October 04, 2018
Location Grid N/E Y/X:	N 420547.640 NUS, E 630584.990 RUS	Magnetic Declination Model:	HDGM 2018
CRS Grid Convergence Angle:	0.1535 °	North Reference:	Grid North
Grid Scale Factor:	0.99991821	Grid Convergence Used:	0.1535 °
Version / Patch:	2.10.740.0	Total Corr Mag North->Grid North:	6.9424 °
		Local Coord Referenced To:	Structure Reference Point

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DISTRICT II-ARTESIA O.C.D.

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 ° ' ")
SHL [1379' FSL, 1399' FWL]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	N/A	420547.64	630584.99	N 32 9 21.01	W 104 2 41.78
236.00	0.62	39.00		236.00	-0.99	0.99	0.80	0.26	420548.63	630585.79	N 32 9 21.02	W 104 2 41.77
372.00	0.62	95.50		371.99	-1.49	1.49	2.00	0.43	420549.13	630586.99	N 32 9 21.02	W 104 2 41.76
543.00	0.56	91.57		542.98	-1.37	1.38	3.76	0.04	420549.02	630588.75	N 32 9 21.02	W 104 2 41.74
664.00	0.58	87.98		663.97	-1.37	1.39	4.96	0.03	420549.03	630589.95	N 32 9 21.02	W 104 2 41.72
843.00	0.32	316.25		842.97	-1.76	1.78	5.52	0.46	420549.42	630590.51	N 32 9 21.02	W 104 2 41.72
1031.00	0.38	235.33		1030.97	-1.81	1.82	4.67	0.24	420549.46	630589.66	N 32 9 21.02	W 104 2 41.73
1221.00	0.30	276.90		1220.97	-1.53	1.54	3.68	0.13	420549.18	630588.67	N 32 9 21.02	W 104 2 41.74
1316.00	0.42	252.77		1315.96	-1.46	1.47	3.11	0.20	420549.11	630588.09	N 32 9 21.02	W 104 2 41.74
1503.00	0.76	271.60		1502.95	-1.30	1.31	1.21	0.21	420548.95	630586.20	N 32 9 21.02	W 104 2 41.77
1597.00	0.34	278.38		1596.95	-1.37	1.37	0.31	0.45	420549.01	630585.30	N 32 9 21.02	W 104 2 41.78
1691.00	0.61	315.55		1690.95	-1.77	1.77	-0.31	0.42	420549.41	630584.68	N 32 9 21.02	W 104 2 41.78
1786.00	0.62	318.37		1785.94	-2.52	2.51	-1.01	0.03	420550.15	630583.98	N 32 9 21.03	W 104 2 41.79
1881.00	0.92	341.26		1880.93	-3.63	3.62	-1.60	0.45	420551.26	630583.39	N 32 9 21.04	W 104 2 41.80
1975.00	1.20	38.07		1974.92	-5.11	5.11	-1.23	1.10	420552.75	630583.76	N 32 9 21.06	W 104 2 41.79
2070.00	2.18	63.12		2069.88	-6.71	6.71	0.99	1.27	420554.35	630585.98	N 32 9 21.07	W 104 2 41.77
2164.00	2.18	60.34		2163.81	-8.39	8.40	4.14	0.11	420556.04	630589.13	N 32 9 21.09	W 104 2 41.73
2260.00	2.73	72.05		2259.72	-9.98	10.01	7.90	0.77	420557.65	630592.89	N 32 9 21.11	W 104 2 41.69
2355.00	2.73	79.04		2354.61	-11.09	11.14	12.28	0.35	420558.78	630597.27	N 32 9 21.12	W 104 2 41.64
2535.00	1.30	72.39		2534.50	-12.50	12.57	18.43	0.80	420560.21	630603.42	N 32 9 21.13	W 104 2 41.58
2634.00	0.73	43.30		2633.48	-13.29	13.37	19.93	0.76	420561.01	630604.92	N 32 9 21.14	W 104 2 41.55
2729.00	0.97	42.74		2728.47	-14.32	14.40	20.90	0.25	420562.04	630605.88	N 32 9 21.15	W 104 2 41.54
2824.00	0.18	207.10		2823.47	-14.78	14.86	21.37	1.20	420562.50	630606.36	N 32 9 21.15	W 104 2 41.53
2919.00	0.47	228.37		2918.47	-14.39	14.47	21.01	0.33	420562.11	630606.00	N 32 9 21.15	W 104 2 41.53
3013.00	1.61	138.68		3012.45	-13.14	13.22	21.60	1.78	420560.86	630606.59	N 32 9 21.14	W 104 2 41.53
3107.00	3.37	135.48		3106.36	-10.16	10.26	24.41	1.88	420557.90	630609.39	N 32 9 21.11	W 104 2 41.50
3200.00	5.17	127.91		3199.10	-5.62	5.73	29.63	2.02	420553.37	630614.62	N 32 9 21.08	W 104 2 41.43
3295.00	7.28	127.12		3293.53	0.67	-0.53	37.81	2.22	420547.11	630622.79	N 32 9 21.00	W 104 2 41.34
3390.00	9.14	125.30		3387.56	8.71	-8.52	48.77	1.98	420539.12	630633.75	N 32 9 20.92	W 104 2 41.21
3485.00	10.35	117.83		3481.19	17.11	-16.87	62.47	1.84	420530.77	630647.46	N 32 9 20.84	W 104 2 41.05
3579.00	10.68	115.06		3573.61	24.80	-24.50	77.83	0.64	420523.14	630662.81	N 32 9 20.76	W 104 2 40.88
3673.00	12.12	111.70		3665.75	32.20	-31.84	94.89	1.69	420515.80	630679.87	N 32 9 20.69	W 104 2 40.68
3768.00	12.59	110.44		3758.55	39.58	-39.14	113.86	0.57	420508.50	630698.84	N 32 9 20.62	W 104 2 40.46
3863.00	12.84	110.60		3851.22	46.98	-46.47	133.44	0.27	420501.17	630718.42	N 32 9 20.54	W 104 2 40.23
3957.00	13.06	110.67		3942.83	54.48	-53.90	153.15	0.23	420493.75	630738.13	N 32 9 20.47	W 104 2 40.00
4052.00	12.34	111.81		4035.51	62.12	-61.46	172.62	0.80	420486.19	630757.60	N 32 9 20.39	W 104 2 39.77
4146.00	12.57	112.84		4127.30	69.89	-69.16	191.37	0.34	420478.49	630776.35	N 32 9 20.32	W 104 2 39.56
4240.00	12.03	113.34		4219.14	77.81	-77.01	209.80	0.59	420470.64	630794.77	N 32 9 20.24	W 104 2 39.34
4334.00	11.20	114.74		4311.21	85.58	-84.71	227.08	0.93	420462.94	630812.05	N 32 9 20.16	W 104 2 39.14
4429.00	11.08	114.63		4404.42	93.31	-92.38	243.78	0.13	420455.27	630828.73	N 32 9 20.09	W 104 2 38.95
4524.00	11.23	113.92		4497.63	100.93	-99.93	260.51	0.21	420447.72	630845.48	N 32 9 20.01	W 104 2 38.75
4618.00	11.72	114.36		4589.75	108.64	-107.58	277.58	0.53	420440.07	630862.54	N 32 9 19.93	W 104 2 38.55
4712.00	11.84	113.44		4681.77	116.48	-115.35	295.12	0.24	420432.29	630880.09	N 32 9 19.86	W 104 2 38.35
4807.00	11.95	113.92		4774.73	124.42	-123.22	313.05	0.18	420424.43	630898.02	N 32 9 19.78	W 104 2 38.14
4903.00	11.87	113.83		4868.66	132.50	-131.24	331.17	0.09	420416.41	630916.13	N 32 9 19.70	W 104 2 37.93
4997.00	11.81	114.16		4960.66	140.41	-139.08	348.79	0.10	420408.57	630933.75	N 32 9 19.62	W 104 2 37.73
5092.00	11.74	114.06		5053.68	148.40	-147.00	366.49	0.08	420400.85	630951.45	N 32 9 19.54	W 104 2 37.52
5186.00	11.53	114.30		5145.73	156.23	-154.77	383.78	0.23	420392.89	630968.74	N 32 9 19.47	W 104 2 37.32
5282.00	10.85	113.25		5239.91	163.81	-162.28	400.83	0.74	420385.37	630985.78	N 32 9 19.39	W 104 2 37.12
5376.00	10.66	114.12		5332.25	170.92	-169.33	416.89	0.27	420378.33	631001.85	N 32 9 19.32	W 104 2 36.94
5470.00	10.59	113.67		5424.64	178.00	-176.35	432.74	0.12	420371.31	631017.69	N 32 9 19.25	W 104 2 36.75
5565.00	10.03	113.25		5518.11	184.83	-183.12	448.33	0.59	420364.54	631033.29	N 32 9 19.18	W 104 2 36.57
5659.00	10.86	114.16		5610.55	191.74	-189.97	463.93	0.90	420357.68	631048.88	N 32 9 19.11	W 104 2 36.39
5753.00	11.37	114.02		5702.79	199.20	-197.37	480.48	0.54	420350.29	631065.43	N 32 9 19.04	W 104 2 36.20
5847.00	11.49	113.38		5794.92	206.75	-204.85	497.53	0.19	420342.80	631082.48	N 32 9 18.97	W 104 2 36.00
5942.00	11.40	113.30		5888.03	214.28	-212.32	514.84	0.10	420335.34	631099.79	N 32 9 18.89	W 104 2 35.80
6037.00	11.20	112.83		5981.19	221.84	-219.61	531.97	0.23	420328.05	631116.92	N 32 9 18.82	W 104 2 35.60
6226.00	10.71	112.95		6166.75	235.74	-233.58	565.06	0.26	420314.08	631150.00	N 32 9 18.68	W 104 2 35.21
6320.00	11.73	112.72		6258.95	242.90	-240.68	581.92	1.09	420306.98	631166.86	N 32 9 18.61	W 104 2 35.02
6416.00	11.35	112.47		6353.01	250.35	-248.08	599.65	0.40	420299.80	631184.59	N 32 9 18.54	W 104 2 34.81
6508.00	10.88	113.24		6443.28	257.30	-254.94	615.99	0.54	420292.72	631200.93	N 32 9 18.47	W 104 2 34.62
6698.00	10.72	122.23		6629.93	273.92	-271.44	647.42	0.89	420276.22	631232.35	N 32 9 18.30	W 104 2 34.26
6792.00	9.58	124.54		6722.46	283.07	-280.54	661.26	1.29	420267.12	631246.19	N 32 9 18.21	W 104 2 34.10
6885.00	8.31	128.79		6814.33	291.71	-289.14	672.87	1.54	420258.52	631257.80	N 32 9 18.13	W 104 2 33.98
6980.00	7.47	124.70		6908.43	299.57	-298.96	683.30	1.08	420250.71	631268.23	N 32 9 18.05	W 104 2 33.84
7074.00	7.74	105.33		7001.62	304.76	-302.11	694.43	2.73	420245.58	631279.36	N 32 9 18.00	W 104 2 33.71

Comments	MD	Incl	Azim Grid	TYD	USC	NS	EW	DLS	Nothing	Eastng	Latitude	Longitude
	(h)	(°)	(°)	(h)	(h)	(h)	(h)	(°11000)	(Northg)	(RMS)	(N/S...)	(E/W...)
First Legal Take Point 230° FWL (2005 FWL)	7189.00	8.29	108.93	7095.69	308.50	-305.80	707.15	0.63	420241.87	631292.08	N 32 9 17.98 W 104 2 33.56	
	7264.00	8.11	103.76	7189.72	312.14	-309.38	720.21	0.51	420238.28	631305.14	N 32 9 17.93 W 104 2 33.61	
	7359.00	7.88	99.07	7263.80	314.81	-312.01	733.13	0.73	420233.26	631316.06	N 32 9 17.80 W 104 2 33.25	
	7548.00	9.16	100.52	7377.75	317.26	-314.41	746.98	1.39	420233.28	631331.91	N 32 9 17.88 W 104 2 33.10	
	7545.00	8.82	103.81	7470.62	320.36	-317.46	761.18	0.78	420230.21	631324.11	N 32 9 17.85 W 104 2 32.54	
	7642.00	7.22	106.37	7563.72	323.74	-320.80	773.69	1.54	420228.66	631356.61	N 32 9 17.81 W 104 2 32.69	
	7737.00	6.77	99.72	7658.02	326.43	-323.43	784.94	0.97	420224.24	631366.86	N 32 9 17.78 W 104 2 32.68	
	7830.00	3.88	102.55	7750.61	328.07	-325.04	793.40	3.14	420222.63	631378.32	N 32 9 17.77 W 104 2 32.56	
	7925.00	2.02	113.00	7845.51	327.18	-324.10	786.90	4.57	420223.57	631381.82	N 32 9 17.78 W 104 2 32.52	
	8020.00	2.93	354.96	7940.42	323.08	-320.03	797.08	1.27	420227.63	631381.98	N 32 9 17.82 W 104 2 32.52	
	8209.00	2.89	350.66	8034.30	318.33	-315.28	796.46	0.74	420233.38	631381.38	N 32 9 17.87 W 104 2 32.53	
	8208.00	2.80	4.36	8129.18	313.57	-310.53	796.25	0.73	420237.14	631381.18	N 32 9 17.91 W 104 2 32.53	
	8304.00	2.88	355.34	8224.07	308.98	-305.93	795.82	0.11	420241.73	631381.18	N 32 9 17.96 W 104 2 32.53	
	8399.00	2.66	353.22	8317.87	304.62	-301.58	795.82	0.32	420248.09	631380.75	N 32 9 18.00 W 104 2 32.53	
	8462.00	2.85	351.60	8411.86	300.12	-297.08	793.32	1.63	420250.58	631380.14	N 32 9 18.05 W 104 2 32.54	
	8565.00	3.45	325.87	8504.72	295.51	-292.48	793.32	1.63	420255.19	631378.24	N 32 9 18.09 W 104 2 32.56	
	8680.00	4.00	317.00	8599.52	280.70	-287.68	789.48	0.84	420259.98	631374.38	N 32 9 18.14 W 104 2 32.61	
	8775.00	2.46	294.20	8694.37	287.42	-284.42	785.32	2.07	420263.25	631370.25	N 32 9 18.17 W 104 2 32.65	
	8868.00	1.06	277.04	8787.33	286.48	-283.49	782.63	1.61	420264.18	631367.56	N 32 9 18.18 W 104 2 32.69	
	8954.00	0.03	242.40	8883.32	286.04	-283.39	781.73	1.08	420284.27	631398.65	N 32 9 18.18 W 104 2 32.70	
9058.00	0.54	38.48	8977.32	286.04	-283.06	781.98	0.80	420284.61	631398.91	N 32 9 18.18 W 104 2 32.69		
9153.00	0.04	1.00	9072.32	285.88	-282.67	782.28	0.54	420284.99	631397.27	N 32 9 18.19 W 104 2 32.69		
9247.00	0.15	39.88	9166.32	285.53	-282.54	782.34	0.13	420285.12	631397.27	N 32 9 18.19 W 104 2 32.69		
9341.00	0.43	42.57	9280.32	285.18	-282.19	782.68	0.30	420285.47	631397.58	N 32 9 18.19 W 104 2 32.68		
9436.00	0.38	14.57	9355.31	284.61	-281.62	782.98	0.21	420286.04	631397.50	N 32 9 18.20 W 104 2 32.68		
9531.00	0.20	287.22	9450.31	284.26	-281.27	782.90	0.44	420286.39	631397.83	N 32 9 18.20 W 104 2 32.68		
9625.00	0.21	278.61	9544.31	284.38	-281.39	782.74	0.35	420286.67	631397.67	N 32 9 18.20 W 104 2 32.68		
9720.00	0.28	176.94	9639.31	284.76	-281.77	782.63	0.15	420286.89	631397.56	N 32 9 18.20 W 104 2 32.69		
9814.00	0.35	120.10	9733.31	285.11	-282.12	782.77	0.47	420286.55	631397.70	N 32 9 18.19 W 104 2 32.68		
9909.00	0.48	169.28	9828.31	285.64	-282.65	783.10	0.38	420286.51	631398.02	N 32 9 18.19 W 104 2 32.68		
10003.00	1.29	203.02	9922.30	287.00	-284.01	782.78	0.89	420283.65	631397.88	N 32 9 18.18 W 104 2 32.88		
10097.00	1.89	202.84	10016.26	289.43	-286.45	781.73	0.88	420281.22	631396.65	N 32 9 18.15 W 104 2 32.70		
10191.00	2.28	214.72	10110.20	282.43	-288.45	780.04	0.60	420256.22	631394.67	N 32 9 18.12 W 104 2 32.72		
10252.00	4.73	200.56	10171.15	284.82	-291.65	778.90	0.86	420256.02	631393.83	N 32 9 18.10 W 104 2 32.73		
10283.00	2.40	160.09	10202.09	286.43	-293.46	779.11	10.63	420254.21	631394.03	N 32 9 18.08 W 104 2 32.73		
10315.00	8.63	155.88	10233.89	289.87	-296.89	780.54	12.28	420250.78	631395.46	N 32 9 18.05 W 104 2 32.71		
10346.00	13.23	158.53	10264.29	305.31	-302.32	782.79	14.62	420245.35	631397.71	N 32 9 17.99 W 104 2 32.68		
10377.00	17.20	163.05	10284.20	313.01	-310.01	785.43	13.36	420237.66	631370.35	N 32 9 17.82 W 104 2 32.65		
10409.00	21.11	167.21	10324.43	323.16	-320.16	788.08	12.83	420227.51	631372.01	N 32 9 17.70 W 104 2 32.60		
10440.00	24.79	170.08	10352.87	335.02	-332.01	790.44	12.40	420215.66	631375.36	N 32 9 17.70 W 104 2 32.60		
10472.00	28.18	171.07	10381.61	346.11	-346.08	782.77	10.88	420201.59	631377.69	N 32 9 17.56 W 104 2 32.57		
10503.00	30.78	171.33	10408.59	354.19	-351.16	795.10	8.40	420186.51	631380.02	N 32 9 17.41 W 104 2 32.54		
10535.00	33.80	170.24	10435.67	381.03	-377.88	797.84	9.00	420169.69	631382.76	N 32 9 17.25 W 104 2 32.51		
10567.00	36.81	169.82	10461.61	389.21	-386.15	801.03	10.66	420151.53	631385.56	N 32 9 17.07 W 104 2 32.47		
10599.00	40.17	170.34	10488.86	418.84	-415.78	804.46	10.55	420131.81	631389.38	N 32 9 16.87 W 104 2 32.44		
10630.00	43.28	172.79	10509.99	439.25	-436.17	807.47	11.33	420111.51	631392.39	N 32 9 16.67 W 104 2 32.40		
10662.00	46.22	175.58	10532.72	461.67	-458.58	809.74	11.05	420088.10	631394.66	N 32 9 16.45 W 104 2 32.38		
10693.00	49.61	178.76	10553.49	484.63	-481.53	811.27	11.31	420066.15	631396.59	N 32 9 16.22 W 104 2 32.36		
10724.00	53.94	178.60	10572.80	508.84	-505.74	812.67	12.04	420041.95	631397.59	N 32 9 15.98 W 104 2 32.34		
10756.00	58.73	178.51	10591.13	535.02	-531.81	814.24	10.60	420015.78	631399.16	N 32 9 15.72 W 104 2 32.33		
10787.00	59.38	178.87	10607.54	561.28	-558.17	815.74	8.58	419989.58	631400.66	N 32 9 15.46 W 104 2 32.32		
10819.00	62.71	178.55	10623.03	589.25	-586.14	816.82	11.32	419961.55	631401.75	N 32 9 15.18 W 104 2 32.30		
10850.00	66.89	178.55	10638.23	617.30	-614.18	817.43	13.78	419933.52	631402.21	N 32 9 14.91 W 104 2 32.29		
10881.00	69.12	178.59	10654.35	634.91	-631.79	817.43	11.74	419915.18	631402.35	N 32 9 14.73 W 104 2 32.29		
10913.00	76.82	181.51	10674.57	737.15	-734.04	817.43	7.49	419891.68	631401.33	N 32 9 13.72 W 104 2 32.31		
11008.00	78.61	181.87	10681.35	768.41	-765.28	815.46	5.46	419872.41	631400.38	N 32 9 13.41 W 104 2 32.32		
11039.00	78.81	182.03	10687.48	788.77	-765.67	814.40	0.19	419872.04	631399.32	N 32 9 13.11 W 104 2 32.33		
11070.00	78.37	182.23	10693.66	829.12	-826.02	813.27	0.80	419826.69	631398.18	N 32 9 12.81 W 104 2 32.35		
11184.00	78.28	181.37	10712.70	921.42	-918.03	810.38	0.90	419826.69	631395.30	N 32 9 11.90 W 104 2 32.38		
11258.00	79.86	180.87	10730.44	1013.40	-1010.32	808.74	1.97	419837.41	631393.68	N 32 9 11.09 W 104 2 32.40		
11346.00	82.02	180.49	10743.93	1106.38	-1103.50	808.56	4.01	419844.43	631391.51	N 32 9 10.07 W 104 2 32.43		
11466.00	83.57	180.49	10755.72	1189.60	-1186.54	804.58	2.20	419851.21	631389.51	N 32 9 9.15 W 104 2 32.46		
11539.00	81.12	177.89	10789.31	1281.59	-1288.51	808.04	3.15	419829.23	631380.87	N 32 9 8.24 W 104 2 32.44		
11633.00	83.24	178.78	10782.51	1384.64	-1381.61	808.09	3.16	419766.15	631393.01	N 32 9 7.31 W 104 2 32.42		
11727.00	88.86	184.02	10788.58	1478.34	-1475.27	804.96	7.48	419072.48	631386.88	N 32 9 6.39 W 104 2 32.46		
11820.00	90.48	183.33	10789.12	1571.12	-1568.08	799.00	1.89	418978.70	631383.92	N 32 9 5.47 W 104 2 32.54		
11914.00	90.21	176.08	10788.55	1665.05	-1662.01	799.50	7.74	418865.77	631384.42	N 32 9 4.54 W 104 2 32.53		
	11973.84	90.06	176.32	10788.41	1724.78	-1721.72	803.48	0.50	418826.07	631398.40	N 32 9 3.95 W 104 2 32.49	

[illegible]

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	23.000	23.000	Act Stns	17.500	13.375	NAL_MWD_IFR1+MS-Depth Only			Original Borehole / Final Survey - Cimarex Riverbend 12-13 Federal Com #29H 0ft to 21947ft (Surcon	
		1	23.000	461.000	Act Stns	17.500	13.375	NAL_MWD_IFR1+MS			Original Borehole / Final Survey - Cimarex Riverbend 12-13 Federal	
		1	461.000	2630.000	Act Stns	12.250	9.625	NAL_MWD_IFR1+MS			Original Borehole / Final Survey - Cimarex Riverbend 12-13 Federal	
		1	2830.000	10920.000	Act Stns	8.750	7.000	NAL_MWD_IFR1+MS			Original Borehole / Final Survey - Cimarex Riverbend 12-13 Federal	
		1	10920.000	21947.000	Act Stns	6.000	4.500	NAL_MWD_IFR1+MS			Original Borehole / Final Survey - Cimarex Riverbend 12-13 Federal	

Borehole:	Well:	Field:	Structure:
Original Borehole	Cimarex Riverbend 12-13 Federal Com #29H	NM Eddy County (NAD 83)	Cimarex Riverbend 12-13 Federal Com #29H

Gravity & Magnetic Parameters	Surface Location	NAD83 New Mexico State Plane, Eastern Zone, US Feet	MicroBathymetry
Model: HDGM 2018	Lat: N 32 9 21.01	Northings: 420647.64NUS	Slut: Cimarex Riverbend 12-13 Federal Com #29H
MagDec: 7.086°	Lon: W 104 2 41.79	Eastings: 830634.88NUS	Plan: Final Survey - Cimarex Riverbend 12-13 Federal Com #29H (Burton Corrected)
Dip: 69.803°		Grid Conv: 0.1538°	TVD Ref: RKB(2865.2ft above MSL)
FB: 47845.85mT		Scale Fact: 0.99991821	
Date: 04-Oct-2018			
Gravity FB: 986.46mgm (J.B0855 Based)			

Critical Points

Critical Point	MD	INCL	AZIM	TVD	VSEC	N(+)/S(-)	E(+)/W(-)	DLB
SHL (1379 FSL, 1395 FWL)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
North Lease Line Crossing (0° FNL, 2212 FWL)	11643.30	83.85	180.28	10783.28	1394.92	-1391.84	808.08	7.48
First Legal Take Point (330° FNL, 2205° FWL)	11873.84	80.06	178.32	10788.41	1724.78	-1721.72	803.48	0.50
TD, PTB (330, FSL, 2195° FWL)	21947.00	91.00	181.18	10850.77	11594.00	-11590.84	849.13	0.00

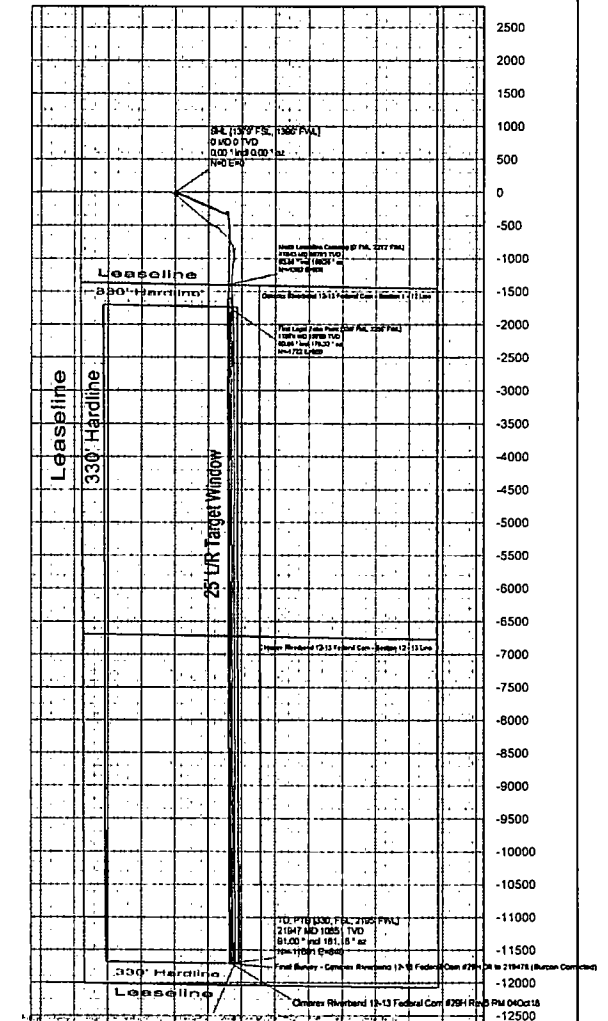
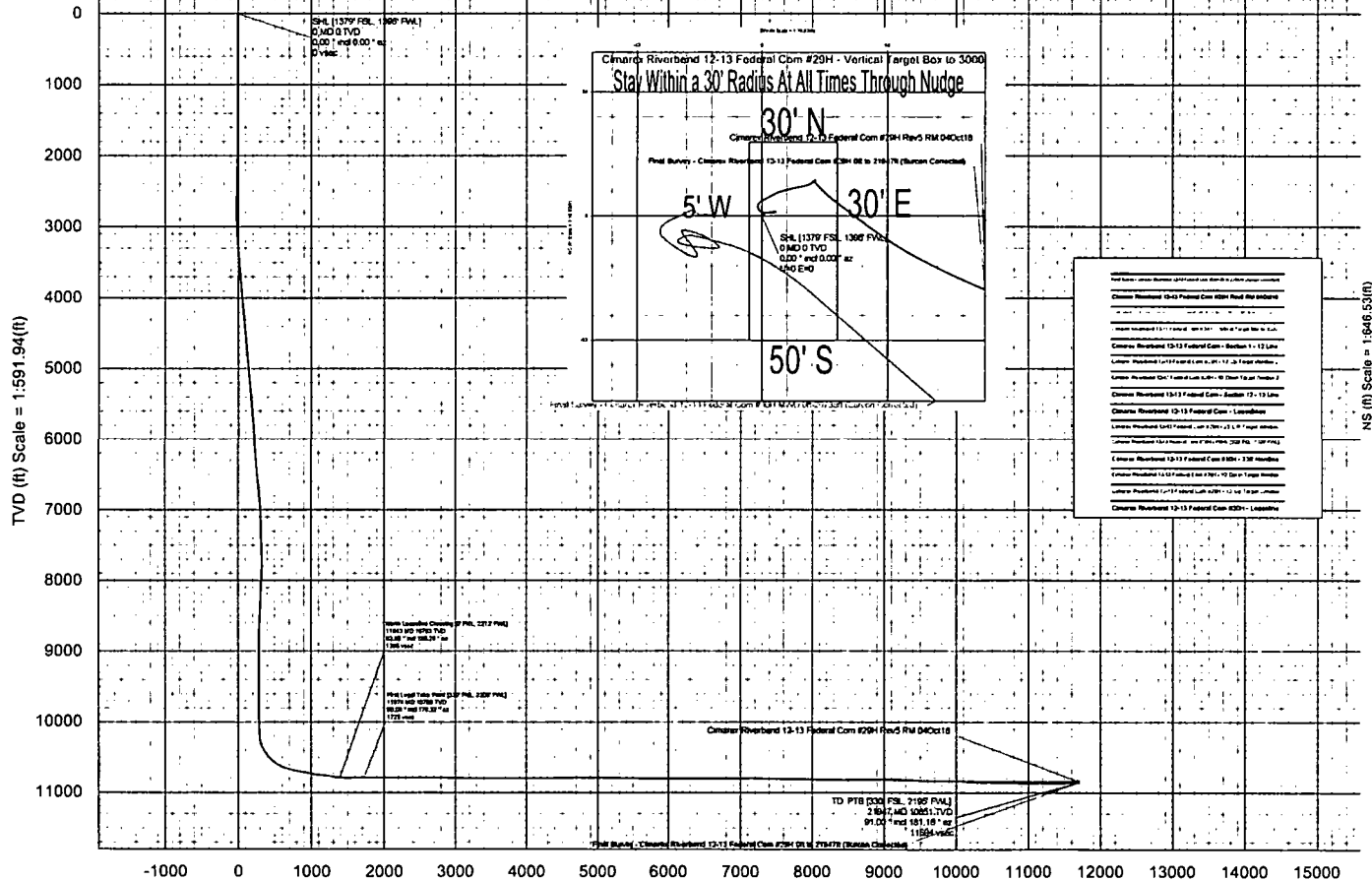


Grid
True
Mag

Grid North
Tot Corr (M+G 8.942°)
Mag Dec (7.086°)
Grid Conv (0.153°)

CONTROLLED

Plan ref	Plan ref
Drawing ref	Drawing ref
Field number	Field number
Date	Date
Drawn by	Drawn by
Checked by	Checked by
Field number	Field number



EW (ft) Scale = 1:646.53(ft)