

Final Survey - Cimarex Chief 30 State #8H 0ft to 16576ft (Surcon Corrected)

(Def Survey)

Report Date: October 03, 2018 - 11:07 AM
Client: Cimarex
Field: NM Lea County (NAD 83)
Structure / Slot: Cimarex Chief 30 State #8H / Cimarex Chief 30 State #8H
Well: Cimarex Chief 30 State #8H
Borehole: Original Borehole
UWI / API#: Unknown / Unknown
Survey Name: Final Survey - Cimarex Chief 30 State #8H 0ft to 16576ft (Surcon Corrected)
Survey Date: August 31, 2018
Tort / AHD / DDI / ERD Ratio: 232.495 ° / 5494.346 ft / 6.255 / 0.466
Coordinate Reference System: NAD83 New Mexico State Plane, Eastern Zone, US Feet
Location Lat / Long: N 32° 33' 1.72767", W 103° 29' 24.64645"
Location Grid N/E Y/X: N 565023.820 ftUS, E 801135.470 ftUS
CRS Grid Convergence Angle: 0.4537 °
Grid Scale Factor: 0.99998639
Version / Patch: 2.10.720.0

Survey / DLS Computation: Minimum Curvature / Lubinski
Vertical Section Azimuth: 179.541 ° (Grid North)
Vertical Section Origin: 0.000 ft, 0.000 ft
TVD Reference Datum: RKB
TVD Reference Elevation: 3731.300 ft above MSL
Seabed / Ground Elevation: 3705.300 ft above MSL
Magnetic Declination: 6.630 °
Total Gravity Field Strength: 998.4979mgn (9.80665 Based)
Gravity Model: GARM
Total Magnetic Field Strength: 48137.826 nT
Magnetic Dip Angle: 60.469 °
Declination Date: September 25, 2018
Magnetic Declination Model: HDGM 2018
North Reference: Grid North
Grid Convergence Used: 0.4537 °
Total Corr Mag North->Grid North: 6.1767 °
Local Coord Referenced To: Structure Reference Point

Comments	MD (ft)	Incl (°)	Azim Grid (°)	TVD (ft)	VSEC (ft)	NS (ft)	EW (ft)	DLS (°/100ft)	Northing (ftUS)	Easting (ftUS)	Latitude (N/S ° ' ")	Longitude (E/W ° ' ")
SHL [330' FNL, 660' FEL]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	N/A	565023.82	801135.47	N 32 33 1.73	W 103 29 24.65
	187.00	0.81	118.46	186.99	0.64	-0.63	1.16	0.43	565023.19	801136.63	N 32 33 1.72	W 103 29 24.63
	304.00	0.80	117.29	303.98	1.42	-1.40	2.61	0.02	565022.42	801138.08	N 32 33 1.71	W 103 29 24.62
	487.00	0.91	122.62	486.96	2.81	-2.77	4.97	0.07	565021.05	801140.44	N 32 33 1.70	W 103 29 24.59
	670.00	0.85	120.22	669.94	4.29	-4.23	7.37	0.04	565019.59	801142.84	N 32 33 1.69	W 103 29 24.56
	762.00	0.99	115.97	761.93	5.00	-4.93	8.68	0.17	565018.89	801144.15	N 32 33 1.68	W 103 29 24.55
	947.00	1.06	119.67	946.90	6.57	-6.47	11.60	0.05	565017.35	801147.07	N 32 33 1.66	W 103 29 24.51
	1136.00	0.94	120.83	1135.87	8.25	-8.13	14.45	0.06	565015.69	801149.92	N 32 33 1.65	W 103 29 24.48
	1231.00	1.02	117.80	1230.86	9.05	-8.93	15.87	0.10	565014.89	801151.34	N 32 33 1.64	W 103 29 24.46
	1325.00	1.17	124.46	1324.84	10.00	-9.86	17.40	0.21	565013.96	801152.87	N 32 33 1.63	W 103 29 24.44
	1514.00	0.91	121.46	1513.81	11.90	-11.73	20.27	0.14	565012.09	801155.74	N 32 33 1.61	W 103 29 24.41
	1609.00	1.00	125.31	1608.79	12.78	-12.61	21.59	0.12	565011.21	801157.06	N 32 33 1.60	W 103 29 24.40
	1703.00	0.86	127.84	1702.78	13.70	-13.51	22.82	0.16	565010.31	801158.29	N 32 33 1.59	W 103 29 24.38
	1798.00	0.81	117.55	1797.77	14.45	-14.26	23.97	0.17	565009.56	801159.44	N 32 33 1.58	W 103 29 24.37
	1840.00	0.84	122.02	1839.77	14.76	-14.56	24.50	0.17	565009.26	801159.97	N 32 33 1.58	W 103 29 24.36
	1986.00	0.85	116.29	1985.75	15.82	-15.61	26.38	0.06	565008.21	801161.85	N 32 33 1.57	W 103 29 24.34
	2081.00	0.22	102.48	2080.75	16.18	-15.96	27.19	0.67	565007.86	801162.66	N 32 33 1.57	W 103 29 24.33
	2175.00	1.25	321.78	2174.74	15.41	-15.19	26.73	1.52	565008.63	801162.20	N 32 33 1.58	W 103 29 24.34
	2270.00	1.25	312.62	2269.72	13.88	-13.68	25.32	0.21	565010.14	801160.79	N 32 33 1.59	W 103 29 24.35
	2364.00	1.24	320.05	2363.70	12.40	-12.21	23.92	0.17	565011.62	801159.39	N 32 33 1.61	W 103 29 24.37
	2459.00	1.63	316.08	2458.67	10.62	-10.44	22.32	0.42	565013.38	801157.79	N 32 33 1.62	W 103 29 24.39
	2554.00	1.53	313.10	2553.63	8.77	-8.60	20.46	0.14	565015.22	801155.93	N 32 33 1.64	W 103 29 24.41
	2744.00	1.77	321.09	2743.55	4.72	-4.59	16.76	0.17	565019.23	801152.23	N 32 33 1.68	W 103 29 24.45
	2839.00	1.57	318.07	2838.51	2.60	-2.48	14.97	0.23	565021.34	801150.44	N 32 33 1.70	W 103 29 24.47
	2934.00	1.86	326.44	2933.47	0.33	-0.22	13.25	0.40	565023.60	801148.72	N 32 33 1.72	W 103 29 24.49
	3029.00	1.75	333.69	3028.42	-2.27	2.36	11.75	0.27	565026.18	801147.22	N 32 33 1.75	W 103 29 24.51

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 ° ' ")
	3124.00	1.69	0.92	3123.38	-4.97	5.06	11.13	0.85	565028.88	801146.60	N 32 33 1.78	W 103 29 24.52
	3218.00	1.96	21.11	3217.33	-7.85	7.95	11.73	0.74	565031.77	801147.20	N 32 33 1.81	W 103 29 24.51
	3313.00	2.00	33.94	3312.28	-10.85	10.95	13.04	0.18	565034.77	801148.51	N 32 33 1.84	W 103 29 24.49
	3407.00	1.36	28.97	3406.24	-13.29	13.40	14.30	0.69	565037.22	801149.77	N 32 33 1.86	W 103 29 24.48
	3502.00	0.21	64.35	3501.23	-14.35	14.47	15.00	1.26	565038.29	801150.47	N 32 33 1.87	W 103 29 24.47
	3597.00	0.23	108.28	3596.22	-14.36	14.48	15.34	0.17	565038.30	801150.81	N 32 33 1.87	W 103 29 24.47
	3691.00	0.55	214.76	3690.22	-13.93	14.05	15.26	0.70	565037.87	801150.73	N 32 33 1.87	W 103 29 24.47
	3785.00	0.48	233.87	3784.22	-13.33	13.45	14.69	0.20	565037.27	801150.16	N 32 33 1.86	W 103 29 24.47
	3974.00	0.59	241.55	3973.21	-12.41	12.52	13.19	0.07	565036.34	801148.66	N 32 33 1.85	W 103 29 24.49
	4164.00	0.83	251.24	4163.20	-11.52	11.61	11.03	0.14	565035.43	801146.50	N 32 33 1.84	W 103 29 24.52
	4259.00	1.06	263.66	4258.18	-11.21	11.29	9.51	0.32	565035.11	801144.98	N 32 33 1.84	W 103 29 24.53
	4353.00	1.18	248.48	4352.17	-10.78	10.84	7.74	0.34	565034.66	801143.21	N 32 33 1.83	W 103 29 24.56
	4543.00	1.52	243.44	4542.11	-8.97	9.00	3.67	0.19	565032.82	801139.14	N 32 33 1.82	W 103 29 24.60
	4638.00	1.58	231.62	4637.08	-7.61	7.62	1.51	0.34	565031.44	801136.98	N 32 33 1.80	W 103 29 24.63
	4733.00	1.58	232.51	4732.04	-6.01	6.01	-0.55	0.03	565029.83	801134.92	N 32 33 1.79	W 103 29 24.65
	4828.00	1.80	225.65	4827.00	-4.19	4.17	-2.66	0.31	565027.99	801132.81	N 32 33 1.77	W 103 29 24.68
	4923.00	1.52	220.12	4921.96	-2.20	2.16	-4.54	0.34	565025.98	801130.93	N 32 33 1.75	W 103 29 24.70
	5018.00	1.92	213.04	5016.92	0.09	-0.14	-6.22	0.48	565023.68	801129.25	N 32 33 1.73	W 103 29 24.72
	5208.00	1.86	224.43	5206.82	4.92	-5.01	-10.11	0.20	565018.81	801125.36	N 32 33 1.68	W 103 29 24.77
	5303.00	1.77	228.31	5301.77	6.98	-7.08	-12.29	0.16	565016.74	801123.19	N 32 33 1.66	W 103 29 24.79
	5398.00	2.16	225.09	5396.71	9.20	-9.32	-14.65	0.43	565014.50	801120.82	N 32 33 1.64	W 103 29 24.82
	5493.00	2.49	227.67	5491.63	11.83	-11.98	-17.44	0.36	565011.84	801118.03	N 32 33 1.61	W 103 29 24.85
	5587.00	2.30	230.26	5585.55	14.39	-14.56	-20.40	0.23	565009.26	801115.07	N 32 33 1.59	W 103 29 24.89
	5610.00	2.25	229.18	5608.53	14.98	-15.15	-21.10	0.29	565008.67	801114.37	N 32 33 1.58	W 103 29 24.89
	5661.00	2.50	228.56	5659.49	16.35	-16.54	-22.69	0.49	565007.28	801112.78	N 32 33 1.57	W 103 29 24.91
	5755.00	2.56	233.52	5753.40	18.93	-19.14	-25.91	0.24	565004.68	801109.56	N 32 33 1.54	W 103 29 24.95
	5850.00	1.85	276.96	5848.33	19.98	-20.22	-29.14	1.85	565003.60	801106.33	N 32 33 1.53	W 103 29 24.99
	5944.00	2.86	339.95	5942.27	17.58	-17.83	-31.45	2.77	565005.99	801104.02	N 32 33 1.55	W 103 29 25.02
	6039.00	4.12	14.66	6037.10	12.05	-12.30	-31.40	2.53	565011.52	801104.07	N 32 33 1.61	W 103 29 25.01
	6134.00	5.60	11.60	6131.75	4.22	-4.46	-29.61	1.58	565019.36	801105.86	N 32 33 1.69	W 103 29 24.99
	6228.00	6.03	9.13	6225.27	-5.13	4.91	-27.90	0.53	565028.73	801107.57	N 32 33 1.78	W 103 29 24.97
	6323.00	6.17	9.35	6319.73	-15.08	14.87	-26.28	0.15	565038.69	801109.19	N 32 33 1.88	W 103 29 24.95
	6417.00	6.43	8.37	6413.17	-25.26	25.06	-24.69	0.30	565048.88	801110.78	N 32 33 1.98	W 103 29 24.93
	6511.00	6.89	8.87	6506.53	-36.03	35.84	-23.06	0.49	565059.66	801112.41	N 32 33 2.08	W 103 29 24.91
	6606.00	6.55	12.92	6600.88	-46.92	46.75	-20.97	0.61	565070.57	801114.50	N 32 33 2.19	W 103 29 24.89
	6700.00	5.85	17.15	6694.33	-56.70	56.56	-18.36	0.89	565080.38	801117.11	N 32 33 2.29	W 103 29 24.86
	6795.00	5.44	16.63	6788.87	-65.62	65.50	-15.64	0.43	565089.32	801119.83	N 32 33 2.38	W 103 29 24.82
	6890.00	5.21	17.55	6883.46	-74.03	73.93	-13.05	0.26	565097.74	801122.42	N 32 33 2.46	W 103 29 24.79
	6984.00	5.16	17.79	6977.07	-82.10	82.02	-10.47	0.06	565105.84	801125.00	N 32 33 2.54	W 103 29 24.76
	7078.00	4.80	4.28	7070.72	-90.04	89.97	-8.89	1.30	565113.79	801126.58	N 32 33 2.62	W 103 29 24.74
	7173.00	5.99	1.65	7165.30	-98.95	98.89	-8.45	1.28	565122.70	801127.02	N 32 33 2.71	W 103 29 24.74
	7267.00	5.83	0.33	7258.80	-108.63	108.56	-8.28	0.22	565132.38	801127.19	N 32 33 2.80	W 103 29 24.73
	7362.00	5.89	1.22	7353.30	-118.32	118.26	-8.15	0.11	565142.08	801127.32	N 32 33 2.90	W 103 29 24.73
	7457.00	5.66	359.74	7447.82	-127.88	127.82	-8.06	0.29	565151.64	801127.41	N 32 33 2.99	W 103 29 24.73
	7551.00	5.64	2.56	7541.36	-137.13	137.07	-7.88	0.30	565160.89	801127.59	N 32 33 3.08	W 103 29 24.73
	7646.00	5.44	5.23	7635.92	-146.27	146.22	-7.26	0.34	565170.03	801128.21	N 32 33 3.17	W 103 29 24.72
	7740.00	5.26	1.94	7729.51	-155.01	154.96	-6.71	0.38	565178.78	801128.76	N 32 33 3.26	W 103 29 24.71
	7835.00	5.40	1.30	7824.10	-163.83	163.78	-6.46	0.16	565187.60	801129.01	N 32 33 3.35	W 103 29 24.71
	7929.00	5.31	1.47	7917.69	-172.60	172.55	-6.25	0.10	565196.37	801129.22	N 32 33 3.44	W 103 29 24.70
	8024.00	5.27	1.71	8012.29	-181.35	181.31	-6.00	0.05	565205.12	801129.47	N 32 33 3.52	W 103 29 24.70
	8119.00	5.38	1.79	8106.88	-190.16	190.12	-5.74	0.12	565213.94	801129.73	N 32 33 3.61	W 103 29 24.70
	8213.00	5.57	0.98	8200.45	-199.12	199.08	-5.52	0.22	565222.90	801129.95	N 32 33 3.70	W 103 29 24.69
	8308.00	5.20	358.10	8295.03	-208.04	208.00	-5.58	0.48	565231.81	801129.89	N 32 33 3.79	W 103 29 24.69
	8402.00	3.99	0.79	8388.72	-215.56	215.52	-5.68	1.31	565239.34	801129.79	N 32 33 3.86	W 103 29 24.69
	8497.00	2.39	359.49	8483.57	-220.85	220.81	-5.65	1.69	565244.63	801129.82	N 32 33 3.91	W 103 29 24.69
	8591.00	1.15	169.78	8577.55	-221.88	221.84	-5.50	3.75	565245.66	801129.97	N 32 33 3.92	W 103 29 24.69
	8686.00	1.24	159.58	8672.53	-219.97	219.94	-4.97	0.24	565243.76	801130.50	N 32 33 3.90	W 103 29 24.68
	8781.00	0.83	149.83	8767.52	-218.41	218.38	-4.27	0.47	565242.20	801131.20	N 32 33 3.89	W 103 29 24.68

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 ° ' ")	
	8875.00	0.43	289.76	8861.51	-217.94	217.91	-4.26	1.27	565241.73	801131.21	N 32 33	3.88	W 103 29	24.68
	8970.00	0.29	305.82	8956.51	-218.21	218.17	-4.79	0.18	565241.99	801130.68	N 32 33	3.89	W 103 29	24.68
	9065.00	0.51	324.02	9051.51	-218.69	218.66	-5.23	0.26	565242.47	801130.24	N 32 33	3.89	W 103 29	24.69
	9159.00	0.42	307.64	9145.51	-219.25	219.21	-5.75	0.17	565243.02	801129.72	N 32 33	3.90	W 103 29	24.69
	9254.00	0.69	355.32	9240.50	-220.03	219.99	-6.07	0.54	565243.81	801129.40	N 32 33	3.90	W 103 29	24.70
	9348.00	1.07	7.15	9334.49	-221.47	221.42	-6.01	0.45	565245.24	801129.46	N 32 33	3.92	W 103 29	24.70
	9443.00	0.37	51.40	9429.48	-222.53	222.50	-5.66	0.89	565246.31	801129.81	N 32 33	3.93	W 103 29	24.69
	9538.00	1.01	69.20	9524.48	-223.01	222.98	-4.64	0.70	565246.80	801130.83	N 32 33	3.93	W 103 29	24.68
	9632.00	0.34	113.38	9618.47	-223.19	223.17	-3.61	0.85	565246.98	801131.86	N 32 33	3.94	W 103 29	24.67
	9727.00	0.29	85.51	9713.47	-223.09	223.07	-3.11	0.17	565246.89	801132.36	N 32 33	3.94	W 103 29	24.66
	9822.00	0.64	124.37	9808.47	-222.81	222.79	-2.43	0.48	565246.61	801133.04	N 32 33	3.93	W 103 29	24.65
	9917.00	0.89	127.23	9903.46	-222.05	222.05	-1.41	0.27	565245.86	801134.06	N 32 33	3.92	W 103 29	24.64
	10011.00	0.79	143.63	9997.45	-221.08	221.08	-0.44	0.28	565244.90	801135.03	N 32 33	3.92	W 103 29	24.63
	10105.00	0.81	146.37	10091.44	-220.00	220.01	0.31	0.05	565243.83	801135.78	N 32 33	3.90	W 103 29	24.62
	10200.00	1.31	153.04	10186.42	-218.47	218.48	1.18	0.54	565242.30	801136.65	N 32 33	3.89	W 103 29	24.61
	10295.00	1.43	193.07	10281.40	-216.34	216.36	1.40	0.99	565240.18	801136.87	N 32 33	3.87	W 103 29	24.61
	10389.00	1.74	279.47	10375.37	-215.45	215.45	-0.27	2.32	565239.27	801135.20	N 32 33	3.86	W 103 29	24.63
	10484.00	1.75	304.07	10470.33	-216.52	216.50	-2.90	0.78	565240.32	801132.57	N 32 33	3.87	W 103 29	24.66
	10579.00	2.35	36.02	10565.29	-218.91	218.89	-2.95	3.13	565242.71	801132.52	N 32 33	3.89	W 103 29	24.66
	10673.00	1.70	343.76	10659.24	-221.80	221.79	-2.21	2.00	565245.60	801133.26	N 32 33	3.92	W 103 29	24.65
	10768.00	2.07	314.08	10754.19	-224.36	224.33	-3.84	1.08	565248.15	801131.63	N 32 33	3.95	W 103 29	24.67
	10863.00	0.56	201.90	10849.17	-225.13	225.10	-5.24	2.46	565248.91	801130.23	N 32 33	3.96	W 103 29	24.69
	10957.00	1.91	141.72	10943.14	-223.47	223.44	-4.44	1.81	565247.26	801131.03	N 32 33	3.94	W 103 29	24.68
	11052.00	1.64	148.69	11038.10	-221.05	221.04	-2.76	0.36	565244.85	801132.71	N 32 33	3.91	W 103 29	24.66
	11116.00	1.13	131.03	11102.08	-219.85	219.84	-1.80	1.03	565243.66	801133.67	N 32 33	3.90	W 103 29	24.65
	11179.00	1.16	103.39	11165.07	-219.28	219.29	-0.72	0.87	565243.10	801134.75	N 32 33	3.90	W 103 29	24.63
	11210.00	0.92	99.37	11196.06	-219.17	219.17	-0.16	0.81	565242.99	801135.31	N 32 33	3.90	W 103 29	24.63
	11241.00	1.99	161.05	11227.05	-218.61	218.62	0.26	5.65	565242.44	801135.73	N 32 33	3.89	W 103 29	24.62
	11273.00	6.36	180.89	11258.96	-216.31	216.32	0.41	14.18	565240.14	801135.88	N 32 33	3.87	W 103 29	24.62
	11305.00	10.45	187.92	11290.61	-211.67	211.68	-0.02	13.15	565235.49	801135.45	N 32 33	3.82	W 103 29	24.63
	11336.00	15.55	188.32	11320.81	-204.78	204.77	-1.01	16.45	565228.59	801134.46	N 32 33	3.75	W 103 29	24.64
	11367.00	20.13	190.08	11350.31	-195.42	195.41	-2.54	14.87	565219.22	801132.93	N 32 33	3.66	W 103 29	24.66
	11399.00	23.86	188.47	11379.98	-183.61	183.58	-4.46	11.81	565207.40	801131.01	N 32 33	3.54	W 103 29	24.68
	11430.00	27.70	186.12	11407.89	-170.25	170.21	-6.15	12.82	565194.03	801129.32	N 32 33	3.41	W 103 29	24.70
	11462.00	31.37	184.03	11435.72	-154.55	154.50	-7.53	11.91	565178.32	801127.94	N 32 33	3.26	W 103 29	24.72
	11494.00	34.61	182.16	11462.56	-137.17	137.10	-8.46	10.61	565160.92	801127.01	N 32 33	3.08	W 103 29	24.73
	11525.00	36.56	179.32	11487.77	-119.14	119.07	-8.68	8.24	565142.89	801126.79	N 32 33	2.91	W 103 29	24.74
	11557.00	40.22	177.88	11512.85	-99.27	99.21	-8.19	11.77	565123.03	801127.28	N 32 33	2.71	W 103 29	24.73
	11588.00	43.10	177.87	11536.01	-78.68	78.62	-7.42	9.29	565102.44	801128.05	N 32 33	2.51	W 103 29	24.73
	11620.00	43.83	177.53	11559.23	-56.68	56.62	-6.54	2.40	565080.44	801128.93	N 32 33	2.29	W 103 29	24.72
	11651.00	46.25	178.19	11581.14	-34.75	34.71	-5.72	7.95	565058.53	801129.75	N 32 33	2.07	W 103 29	24.71
	11684.00	49.95	179.07	11603.17	-10.20	10.16	-5.14	11.39	565033.98	801130.33	N 32 33	1.83	W 103 29	24.71
	11715.00	53.17	180.15	11622.44	14.08	-14.12	-4.98	10.74	565009.70	801130.49	N 32 33	1.59	W 103 29	24.71
	11747.00	55.71	180.34	11641.05	40.11	-40.15	-5.09	7.95	564983.67	801130.38	N 32 33	1.33	W 103 29	24.71
	11778.00	61.17	179.55	11657.27	66.51	-66.56	-5.06	17.75	564957.27	801130.41	N 32 33	1.07	W 103 29	24.71
	11810.00	67.21	178.96	11671.20	95.31	-95.35	-4.68	18.95	564928.47	801130.79	N 32 33	0.78	W 103 29	24.71
	11841.00	72.23	178.72	11681.94	124.37	-124.41	-4.10	16.21	564899.41	801131.37	N 32 33	0.50	W 103 29	24.71
	11873.00	77.86	178.73	11690.19	155.27	-155.31	-3.41	17.59	564868.52	801132.06	N 32 33	0.19	W 103 29	24.70
	11904.00	81.79	178.76	11695.67	185.78	-185.81	-2.74	12.68	564838.02	801132.73	N 32 32	59.89	W 103 29	24.70
	11936.00	84.78	179.55	11699.41	217.55	-217.58	-2.27	9.66	564806.24	801133.20	N 32 32	59.58	W 103 29	24.69
	11967.00	88.54	179.73	11701.21	248.50	-248.52	-2.08	12.14	564775.30	801133.39	N 32 32	59.27	W 103 29	24.69
	12011.00	91.23	179.64	11701.30	292.49	-292.52	-1.84	6.12	564731.31	801133.63	N 32 32	58.83	W 103 29	24.69
	12097.00	88.77	179.56	11701.30	378.48	-378.51	-1.24	2.86	564645.32	801134.23	N 32 32	57.98	W 103 29	24.70
	12192.00	89.16	179.96	11703.02	473.47	-473.49	-0.84	0.59	564550.34	801134.63	N 32 32	57.04	W 103 29	24.70
	12286.00	87.14	178.90	11706.05	567.41	-567.43	0.10	2.43	564456.40	801135.57	N 32 32	56.11	W 103 29	24.70
	12381.00	87.42	178.72	11710.56	662.30	-662.30	2.07	0.35	564361.53	801137.54	N 32 32	55.17	W 103 29	24.68
	12475.00	87.76	178.94	11714.51	756.21	-756.20	3.99	0.43	564267.63	801139.46	N 32 32	54.25	W 103 29	24.67
	12569.00	88.54	178.76	11717.55	850.15	-850.13	5.87	0.85	564173.70	801141.34	N 32 32	53.32	W 103 29	24.66

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 ° ' ")
	12664.00	89.05	178.95	11719.55	945.12	-945.09	7.77	0.57	564078.74	801143.24	N 32 32 52.38	W 103 29 24.64
	12758.00	86.53	179.39	11723.17	1039.04	-1039.00	9.13	2.72	563984.83	801144.60	N 32 32 51.45	W 103 29 24.64
	12853.00	86.69	179.97	11728.79	1133.88	-1133.83	9.66	0.63	563890.00	801145.13	N 32 32 50.51	W 103 29 24.64
	12947.00	88.66	180.28	11732.60	1227.79	-1227.75	9.45	2.12	563796.09	801144.92	N 32 32 49.58	W 103 29 24.65
	13042.00	89.66	180.65	11734.00	1322.76	-1322.74	8.68	1.12	563701.10	801144.15	N 32 32 48.64	W 103 29 24.67
	13136.00	90.06	180.99	11734.22	1416.74	-1416.73	7.34	0.56	563607.11	801142.81	N 32 32 47.71	W 103 29 24.69
	13231.00	88.49	180.65	11735.43	1511.71	-1511.71	5.98	1.69	563512.14	801141.45	N 32 32 46.77	W 103 29 24.72
	13326.00	88.88	180.89	11737.61	1606.66	-1606.67	4.70	0.48	563417.17	801140.17	N 32 32 45.83	W 103 29 24.74
	13420.00	87.76	178.94	11740.36	1700.61	-1700.63	4.84	2.39	563323.22	801140.31	N 32 32 44.90	W 103 29 24.75
	13514.00	88.49	178.93	11743.44	1794.55	-1794.56	6.59	0.78	563229.29	801142.06	N 32 32 43.97	W 103 29 24.74
	13609.00	88.88	179.32	11745.62	1889.53	-1889.52	8.04	0.58	563134.33	801143.51	N 32 32 43.03	W 103 29 24.73
	13700.00	89.33	179.40	11747.04	1980.51	-1980.51	9.05	0.50	563043.35	801144.52	N 32 32 42.13	W 103 29 24.72
	13795.00	90.95	179.76	11746.81	2075.51	-2075.50	9.75	1.75	562948.35	801145.22	N 32 32 41.19	W 103 29 24.72
	13889.00	90.50	179.07	11745.62	2169.50	-2169.49	10.71	0.88	562854.37	801146.18	N 32 32 40.26	W 103 29 24.72
	13984.00	88.94	177.98	11746.08	2264.48	-2264.45	13.16	2.00	562759.41	801148.62	N 32 32 39.32	W 103 29 24.70
	14078.00	91.01	177.85	11746.12	2358.44	-2358.38	16.57	2.21	562665.47	801152.04	N 32 32 38.39	W 103 29 24.67
	14172.00	89.27	179.71	11745.89	2452.42	-2452.35	18.58	2.71	562571.51	801154.05	N 32 32 37.46	W 103 29 24.66
	14267.00	86.69	181.55	11749.24	2547.33	-2547.28	17.53	3.33	562476.58	801153.00	N 32 32 36.52	W 103 29 24.68
	14362.00	87.82	182.80	11753.79	2642.12	-2642.09	13.93	1.77	562381.77	801149.40	N 32 32 35.58	W 103 29 24.73
	14457.00	88.21	180.75	11757.08	2736.99	-2736.99	10.99	2.20	562286.88	801146.46	N 32 32 34.65	W 103 29 24.77
	14551.00	88.88	177.69	11759.47	2830.94	-2830.94	12.27	3.33	562192.93	801147.74	N 32 32 33.72	W 103 29 24.76
	14646.00	90.50	177.37	11759.98	2925.88	-2925.84	16.36	1.74	562098.02	801151.83	N 32 32 32.78	W 103 29 24.73
	14741.00	89.50	177.51	11759.98	3020.82	-3020.75	20.61	1.06	562003.12	801156.08	N 32 32 31.84	W 103 29 24.69
	14836.00	91.12	178.54	11759.47	3115.78	-3115.69	23.88	2.02	561908.18	801159.35	N 32 32 30.90	W 103 29 24.66
	14931.00	89.33	178.70	11759.10	3210.76	-3210.65	26.17	1.89	561813.22	801161.64	N 32 32 29.96	W 103 29 24.64
	15026.00	85.63	178.26	11763.27	3305.63	-3305.51	28.69	3.92	561718.36	801164.16	N 32 32 29.02	W 103 29 24.62
	15120.00	86.41	178.49	11769.80	3399.39	-3399.25	31.35	0.86	561624.63	801166.81	N 32 32 28.09	W 103 29 24.59
	15215.00	90.39	178.04	11772.45	3494.31	-3494.15	34.22	4.22	561529.73	801169.69	N 32 32 27.15	W 103 29 24.57
	15309.00	89.22	178.41	11772.77	3588.28	-3588.10	37.13	1.31	561435.78	801172.60	N 32 32 26.22	W 103 29 24.54
	15402.00	90.62	178.85	11772.90	3681.27	-3681.07	39.36	1.58	561342.81	801174.82	N 32 32 25.30	W 103 29 24.53
	15497.00	89.22	180.93	11773.03	3776.26	-3776.06	39.54	2.64	561247.82	801175.01	N 32 32 24.36	W 103 29 24.53
	15591.00	90.50	181.69	11773.26	3870.21	-3870.03	37.39	1.58	561153.85	801172.86	N 32 32 23.43	W 103 29 24.57
	15686.00	90.62	182.95	11772.33	3965.09	-3964.95	33.54	1.33	561058.93	801169.01	N 32 32 22.49	W 103 29 24.62
	15780.00	90.50	182.95	11771.42	4058.92	-4058.82	28.71	0.13	560965.06	801164.18	N 32 32 21.57	W 103 29 24.69
	15875.00	89.10	181.60	11771.75	4153.81	-4153.74	24.93	2.05	560870.14	801160.40	N 32 32 20.63	W 103 29 24.74
	15969.00	87.65	178.80	11774.41	4247.75	-4247.69	24.61	3.35	560776.20	801160.08	N 32 32 19.70	W 103 29 24.75
	16064.00	88.71	177.82	11777.43	4342.68	-4342.60	27.41	1.52	560681.29	801162.88	N 32 32 18.76	W 103 29 24.73
	16158.00	90.56	178.35	11778.03	4436.64	-4436.54	30.55	2.05	560587.35	801166.02	N 32 32 17.83	W 103 29 24.70
	16252.00	92.30	178.81	11775.68	4530.60	-4530.48	32.88	1.91	560493.41	801168.35	N 32 32 16.90	W 103 29 24.68
	16347.00	90.56	179.33	11773.31	4625.56	-4625.43	34.42	1.91	560398.46	801169.89	N 32 32 15.96	W 103 29 24.67
	16441.00	89.10	179.53	11773.59	4719.56	-4719.42	35.35	1.57	560304.47	801170.82	N 32 32 15.03	W 103 29 24.67
	16516.00	89.94	179.70	11774.22	4794.55	-4794.42	35.86	1.14	560229.48	801171.33	N 32 32 14.29	W 103 29 24.67
TD, Projection to Bit	16576.00	90.61	179.70	11773.93	4854.55	-4854.42	36.17	1.12	560169.48	801171.64	N 32 32 13.69	W 103 29 24.67

Survey Type: Def Survey

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	26.000	1/98.425	17.500	13.375	NAL_MWD_IFR1+MS-Depth Only	Original Borehole / Final Survey - Cimarex Chief 30 State #8H 0ft to 16576ft (Surcon Corrected)

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	26.000	26.000	Act Stns	17.500	13.375	NAL_MWD_IFR1+MS-Depth Only	Original Borehole / Final Survey - Cimarex Chief 30 State #8H 0ft to 16576ft (Surcon Corrected)			
		1	26.000	1931.000	Act Stns	17.500	13.375	NAL_MWD_IFR1+MS	Original Borehole / Final Survey - Cimarex Chief 30 State #8H 0ft to			
		1	1931.000	5700.000	Act Stns	12.250	9.625	NAL_MWD_IFR1+MS	Original Borehole / Final Survey - Cimarex Chief 30 State #8H 0ft to			
		1	5700.000	16576.000	Act Stns	8.750	7.000	NAL_MWD_IFR1+MS	Original Borehole / Final Survey - Cimarex Chief 30 State #8H 0ft to			

Borehole:	Well:	Field:	Structure:
Original Borehole	Cimarex Chief 30 State #8H	NM Lea County (NAD 83)	Cimarex Chief 30 State #8H

Gravity & Magnetic Parameters	Surface Location	NAD83 New Mexico State Plane, Eastern Zone, US Feet	Miscellaneous
Model: HDGM 2010	Lat: N 32 33 1.73	Northings: 565933.822US	Stret: Cimarex Chief 30 State
MagDec: 6.63°	Long: W 103 29 24.65	Easting: 891135.478US	Plan: 884 Final Survey - Cimarex Chief 30 State #8H 0H to 16576R (Survey Corrected)
Dip: 60.469°	Date: 25-Sep-2010	Grid Conv: 0.4537°	TVD Ref: RKB(2731.3R above MSL)
FB: 48137.826mT	Gravity FB: 998.498mgm (9.80665 Based)	Scale Fact: 0.99998639	

Critical Points								
Critical Point	MD	INCL	AZIM	TVD	VSEC	N(+)S(-)	E(+)W(-)	DLS
SHL [330° FNL, 660° FEL]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
TD, Projection to BH	16576.00	90.61	179.70	11773.93	4854.55	-4854.42	36.17	1.12



Grid
True
Mag

Grid North
Tot Corr (M→G 6.177°)
Mag Dec (6.630°)
Grid Conv (0.454°)

CONTROLLED	
Plan ref	884
Survey ref	Final Survey - Cimarex Chief 30 State #8H 0H to 16576R (Survey Corrected)
Copy number	1 of 1
Date	10-Sep-2010
1. Client	
2. Client	
3. Office	
4. Office	
Copy number	1 of 1

