

Final Survey - Cimarex Chief 30 State #9H 0ft to 16525ft (Surcon Corrected)

Final Survey Geodetic Report

(Def Survey)

Report Date: September 05, 2018 - 02:56 PM
Client: Cimarex
Field: NM Lea County (NAD 83)
Structure / Slot: Cimarex Chief 30 State #9H / Cimarex Chief 30 State #9H
Well: Cimarex Chief 30 State #9H
Borehole: Original Borehole
UWI / API#: Unknown / Unknown
Survey Name: Final Survey - Cimarex Chief 30 State #9H 0ft to 16525ft (Surcon Corrected)
Survey Date: July 27, 2018
Tort / AHD / DDI / ERD Ratio: 209.248 ° / 5560.701 ft / 6.214 / 0.473
Coordinate Reference System: NAD83 New Mexico State Plane, Eastern Zone, US Feet
Location Lat / Long: N 32° 33' 1.67652", W 103° 29' 55.53838"
Location Grid N/E Y/X: N 564997.820 ftUS, E 798491.370 ftUS
CRS Grid Convergence Angle: 0.4491 °
Grid Scale Factor: 0.99998482
Version / Patch: 2.10.740.0

Survey / DLS Computation: Minimum Curvature / Lubinski
Vertical Section Azimuth: 179.490 ° (Grid North)
Vertical Section Origin: 0.000 ft, 0.000 ft
TVD Reference Datum: RKB
TVD Reference Elevation: 3722.500 ft above MSL
Seabed / Ground Elevation: 3696.500 ft above MSL
Magnetic Declination: 6.638 °
Total Gravity Field Strength: 998.4981mgn (9.80665 Based)
Gravity Model: GARM
Total Magnetic Field Strength: 48153.712 nT
Magnetic Dip Angle: 60.472 °
Declination Date: August 24, 2018
Magnetic Declination Model: HDGM 2018
North Reference: Grid North
Grid Convergence Used: 0.4491 °
Total Corr Mag North->Grid North: 6.1894 °
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, 1980' FWL]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	N/A	564997.82	798491.37	N 32 33 1.68	W 103 29 55.54
	207.00	0.60	196.03	207.00	1.04	-1.04	-0.30	0.29	564996.78	798491.07	N 32 33 1.67	W 103 29 55.54
	395.00	0.62	179.76	394.99	3.00	-3.00	-0.57	0.09	564994.82	798490.80	N 32 33 1.65	W 103 29 55.55
	486.00	0.84	182.64	485.98	4.16	-4.16	-0.60	0.25	564993.66	798490.77	N 32 33 1.64	W 103 29 55.55
	670.00	0.54	181.67	669.96	6.37	-6.38	-0.68	0.16	564991.44	798490.69	N 32 33 1.61	W 103 29 55.55
	853.00	0.77	187.17	852.95	8.45	-8.46	-0.86	0.13	564989.36	798490.51	N 32 33 1.59	W 103 29 55.55
	948.00	0.81	189.82	947.94	9.74	-9.75	-1.06	0.06	564988.07	798490.31	N 32 33 1.58	W 103 29 55.55
	1043.00	0.82	175.28	1042.93	11.08	-11.09	-1.11	0.22	564986.73	798490.26	N 32 33 1.57	W 103 29 55.55
	1233.00	0.86	187.43	1232.91	13.85	-13.86	-1.19	0.10	564983.96	798490.18	N 32 33 1.54	W 103 29 55.55
	1327.00	0.96	180.70	1326.90	15.34	-15.35	-1.29	0.16	564982.47	798490.08	N 32 33 1.52	W 103 29 55.55
	1422.00	0.99	186.31	1421.89	16.95	-16.96	-1.39	0.11	564980.86	798489.98	N 32 33 1.51	W 103 29 55.56
	1517.00	0.79	191.03	1516.88	18.40	-18.42	-1.60	0.22	564979.40	798489.77	N 32 33 1.49	W 103 29 55.56
	1706.00	1.05	196.87	1705.85	21.33	-21.36	-2.35	0.15	564976.46	798489.02	N 32 33 1.47	W 103 29 55.57
	1868.00	0.85	205.94	1867.83	23.83	-23.86	-3.31	0.15	564973.96	798488.06	N 32 33 1.44	W 103 29 55.58
	2046.00	0.85	233.62	2045.81	25.78	-25.83	-4.95	0.23	564971.99	798486.42	N 32 33 1.42	W 103 29 55.60
	2085.00	0.89	76.87	2084.81	25.89	-25.93	-4.89	4.37	564971.89	798486.48	N 32 33 1.42	W 103 29 55.60
	2180.00	1.54	68.10	2179.79	25.26	-25.29	-2.99	0.71	564972.53	798488.38	N 32 33 1.43	W 103 29 55.58
	2274.00	1.45	59.27	2273.76	24.20	-24.21	-0.79	0.26	564973.61	798490.58	N 32 33 1.44	W 103 29 55.55
	2369.00	1.45	57.12	2368.73	22.95	-22.94	1.25	0.06	564974.88	798492.62	N 32 33 1.45	W 103 29 55.53
	2558.00	1.54	56.54	2557.66	20.29	-20.24	5.38	0.05	564977.58	798496.75	N 32 33 1.48	W 103 29 55.48
	2652.00	1.61	60.74	2651.63	18.97	-18.90	7.58	0.14	564978.92	798498.95	N 32 33 1.49	W 103 29 55.45
	2841.00	1.32	37.54	2840.57	15.98	-15.88	11.23	0.35	564981.94	798502.60	N 32 33 1.52	W 103 29 55.41
	2936.00	1.62	43.66	2935.53	14.15	-14.04	12.82	0.36	564983.78	798504.19	N 32 33 1.54	W 103 29 55.39
	3125.00	2.02	56.81	3124.44	10.44	-10.28	17.45	0.30	564987.54	798508.82	N 32 33 1.57	W 103 29 55.34
	3219.00	2.40	76.70	3218.37	9.11	-8.92	20.75	0.90	564988.90	798512.12	N 32 33 1.59	W 103 29 55.30
	3313.00	2.57	105.24	3312.29	9.24	-9.02	24.70	1.31	564988.80	798516.07	N 32 33 1.59	W 103 29 55.25

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 ° ' ")
	3408.00	2.66	99.67	3407.19	10.21	-9.95	28.93	0.28	564987.87	798520.30	N 32 33 1.58	W 103 29 55.20
	3502.00	3.15	95.05	3501.07	10.85	-10.55	33.65	0.58	564987.27	798525.02	N 32 33 1.57	W 103 29 55.15
	3596.00	2.72	93.62	3594.94	11.26	-10.91	38.45	0.46	564986.91	798529.82	N 32 33 1.57	W 103 29 55.09
	3691.00	0.92	110.65	3689.89	11.69	-11.33	41.42	1.96	564986.49	798532.78	N 32 33 1.56	W 103 29 55.06
	3785.00	1.21	110.73	3783.87	12.33	-11.94	43.05	0.31	564985.88	798534.42	N 32 33 1.56	W 103 29 55.04
	3879.00	1.02	93.32	3877.86	12.74	-12.34	44.81	0.41	564985.48	798536.18	N 32 33 1.55	W 103 29 55.02
	3974.00	0.09	27.00	3972.85	12.73	-12.33	45.69	1.04	564985.49	798537.06	N 32 33 1.55	W 103 29 55.01
	4163.00	1.09	145.13	4161.84	14.08	-13.67	46.79	0.60	564984.15	798538.16	N 32 33 1.54	W 103 29 54.99
	4352.00	1.26	178.90	4350.80	17.65	-17.22	47.85	0.37	564980.60	798539.22	N 32 33 1.50	W 103 29 54.98
	4446.00	1.26	179.33	4444.78	19.71	-19.29	47.89	0.01	564978.53	798539.26	N 32 33 1.48	W 103 29 54.98
	4540.00	1.25	164.20	4538.76	21.74	-21.31	48.18	0.35	564976.51	798539.55	N 32 33 1.46	W 103 29 54.98
	4730.00	1.63	159.19	4728.70	26.27	-25.83	49.70	0.21	564971.99	798541.07	N 32 33 1.42	W 103 29 54.96
	4918.00	2.40	171.40	4916.58	32.67	-32.22	51.24	0.47	564965.60	798542.61	N 32 33 1.35	W 103 29 54.94
	5108.00	2.50	158.00	5106.41	40.47	-39.99	53.39	0.31	564957.83	798544.76	N 32 33 1.28	W 103 29 54.92
	5296.00	2.81	146.99	5294.21	48.17	-47.66	57.43	0.32	564950.16	798548.80	N 32 33 1.20	W 103 29 54.87
	5388.00	2.97	142.43	5386.09	51.97	-51.44	60.12	0.30	564946.38	798551.48	N 32 33 1.16	W 103 29 54.84
	5485.00	2.95	145.87	5482.96	56.06	-55.50	63.05	0.18	564942.32	798554.42	N 32 33 1.12	W 103 29 54.81
	5622.00	3.07	151.19	5619.77	62.22	-61.63	66.79	0.22	564936.19	798558.16	N 32 33 1.06	W 103 29 54.76
	5751.00	2.35	134.52	5748.63	67.14	-66.51	70.34	0.82	564931.31	798561.71	N 32 33 1.01	W 103 29 54.72
	5845.00	1.28	58.88	5842.59	67.97	-67.32	72.62	2.53	564930.50	798563.99	N 32 33 1.00	W 103 29 54.70
	5940.00	2.12	328.46	5937.56	65.92	-65.28	72.61	2.62	564932.55	798563.98	N 32 33 1.03	W 103 29 54.70
	6034.00	4.53	327.89	6031.40	61.27	-60.65	69.72	2.56	564937.17	798561.09	N 32 33 1.07	W 103 29 54.73
	6129.00	7.50	336.10	6125.87	52.38	-51.80	65.22	3.25	564946.02	798556.59	N 32 33 1.16	W 103 29 54.78
	6223.00	8.28	336.80	6218.98	40.50	-39.97	60.07	0.84	564957.85	798551.43	N 32 33 1.28	W 103 29 54.84
	6318.00	8.49	335.91	6312.96	27.77	-27.28	54.51	0.26	564970.54	798545.88	N 32 33 1.40	W 103 29 54.90
	6412.00	8.71	335.26	6405.90	14.92	-14.48	48.70	0.26	564983.34	798540.07	N 32 33 1.53	W 103 29 54.97
	6507.00	8.98	333.76	6499.77	1.68	-1.30	42.41	0.37	564996.52	798533.78	N 32 33 1.66	W 103 29 55.04
	6601.00	9.24	333.45	6592.59	-11.71	12.03	35.79	0.28	565009.85	798527.16	N 32 33 1.79	W 103 29 55.12
	6695.00	9.21	331.12	6685.37	-25.11	25.37	28.79	0.40	565023.19	798520.15	N 32 33 1.93	W 103 29 55.20
	6790.00	7.86	331.36	6779.32	-37.53	37.73	22.00	1.42	565035.55	798513.37	N 32 33 2.05	W 103 29 55.28
	6979.00	7.09	335.00	6966.71	-59.54	59.64	10.88	0.48	565057.46	798502.25	N 32 33 2.27	W 103 29 55.41
	7073.00	6.73	342.86	7060.03	-70.10	70.16	6.80	1.08	565067.98	798498.17	N 32 33 2.37	W 103 29 55.45
	7168.00	6.89	341.51	7154.36	-80.85	80.89	3.35	0.24	565078.71	798494.72	N 32 33 2.48	W 103 29 55.49
	7262.00	6.47	341.32	7247.72	-91.25	91.25	-0.13	0.45	565089.07	798491.24	N 32 33 2.58	W 103 29 55.53
	7451.00	6.40	357.74	7435.55	-111.90	111.87	-3.96	0.97	565109.68	798487.41	N 32 33 2.78	W 103 29 55.57
	7546.00	6.33	356.74	7529.96	-122.42	122.39	-4.46	0.14	565120.20	798486.91	N 32 33 2.89	W 103 29 55.58
	7640.00	6.48	355.46	7623.37	-132.89	132.85	-5.18	0.22	565130.66	798486.19	N 32 33 2.99	W 103 29 55.59
	7735.00	6.52	353.64	7717.76	-143.60	143.55	-6.20	0.22	565141.37	798485.17	N 32 33 3.10	W 103 29 55.60
	7829.00	6.58	352.53	7811.15	-154.26	154.20	-7.49	0.15	565152.01	798483.88	N 32 33 3.20	W 103 29 55.61
	7924.00	6.58	350.55	7905.52	-165.04	164.96	-9.09	0.24	565162.78	798482.28	N 32 33 3.31	W 103 29 55.63
	8113.00	6.90	347.68	8093.22	-186.85	186.73	-13.29	0.25	565184.55	798478.08	N 32 33 3.53	W 103 29 55.68
	8207.00	5.33	341.63	8186.68	-196.53	196.40	-15.87	1.80	565194.21	798475.50	N 32 33 3.62	W 103 29 55.71
	8302.00	2.47	341.50	8281.45	-202.68	202.53	-17.91	3.01	565200.34	798473.46	N 32 33 3.68	W 103 29 55.73
	8397.00	0.68	7.98	8376.41	-205.18	205.02	-18.49	1.99	565202.84	798472.88	N 32 33 3.71	W 103 29 55.74
	8491.00	0.38	50.86	8470.41	-205.93	205.77	-18.17	0.51	565203.59	798473.20	N 32 33 3.71	W 103 29 55.73
	8585.00	0.42	25.04	8564.41	-206.43	206.28	-17.78	0.19	565204.10	798473.59	N 32 33 3.72	W 103 29 55.73
	8681.00	0.44	342.16	8660.40	-207.10	206.95	-17.74	0.33	565204.77	798473.63	N 32 33 3.73	W 103 29 55.73
	8774.00	0.68	336.15	8753.40	-207.95	207.80	-18.08	0.27	565205.61	798473.29	N 32 33 3.73	W 103 29 55.73
	8869.00	0.89	310.84	8848.39	-208.96	208.80	-18.86	0.42	565206.61	798472.51	N 32 33 3.74	W 103 29 55.74
	8964.00	1.19	313.64	8943.38	-210.13	209.96	-20.13	0.32	565207.78	798471.24	N 32 33 3.76	W 103 29 55.75
	9058.00	0.39	246.53	9037.37	-210.68	210.50	-21.13	1.17	565208.32	798470.24	N 32 33 3.76	W 103 29 55.77
	9153.00	0.62	233.90	9132.36	-210.26	210.07	-21.85	0.27	565207.89	798469.52	N 32 33 3.76	W 103 29 55.77
	9248.00	0.93	236.51	9227.36	-209.54	209.35	-22.90	0.33	565207.16	798468.47	N 32 33 3.75	W 103 29 55.79
	9343.00	0.94	248.08	9322.34	-208.84	208.63	-24.27	0.20	565206.45	798467.10	N 32 33 3.74	W 103 29 55.80
	9437.00	0.84	238.95	9416.33	-208.20	207.99	-25.58	0.18	565205.80	798465.79	N 32 33 3.74	W 103 29 55.82
	9532.00	1.02	238.33	9511.32	-207.41	207.18	-26.89	0.19	565205.00	798464.48	N 32 33 3.73	W 103 29 55.83
	9626.00	1.12	238.71	9605.30	-206.51	206.27	-28.39	0.11	565204.08	798462.98	N 32 33 3.72	W 103 29 55.85
	9727.00	0.40	87.11	9706.30	-206.02	205.77	-28.88	1.47	565203.59	798462.49	N 32 33 3.71	W 103 29 55.86

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 ° ' ")
	9916.00	1.15	229.77	9895.29	-204.84	204.58	-29.67	0.79	565202.40	798461.70	N 32 33 3.70	W 103 29 55.87
	10010.00	1.51	217.25	9989.26	-203.25	202.98	-31.14	0.49	565200.80	798460.23	N 32 33 3.69	W 103 29 55.88
	10105.00	1.19	237.91	10084.24	-201.75	201.46	-32.73	0.61	565199.28	798458.64	N 32 33 3.67	W 103 29 55.90
	10200.00	1.01	250.10	10179.22	-200.95	200.65	-34.36	0.31	565198.47	798457.01	N 32 33 3.66	W 103 29 55.92
	10295.00	1.05	279.48	10274.20	-200.83	200.51	-36.00	0.55	565198.33	798455.37	N 32 33 3.66	W 103 29 55.94
	10389.00	1.04	265.23	10368.19	-200.91	200.58	-37.70	0.28	565198.40	798453.67	N 32 33 3.66	W 103 29 55.96
	10484.00	0.89	268.78	10463.17	-200.84	200.50	-39.30	0.17	565198.31	798452.07	N 32 33 3.66	W 103 29 55.98
	10578.00	1.82	278.30	10557.15	-201.06	200.70	-41.51	1.01	565198.51	798449.87	N 32 33 3.67	W 103 29 56.00
	10673.00	2.33	290.40	10652.08	-201.98	201.59	-44.81	0.70	565199.40	798446.56	N 32 33 3.67	W 103 29 56.04
	10768.00	2.74	295.30	10746.99	-203.66	203.23	-48.67	0.49	565201.05	798442.70	N 32 33 3.69	W 103 29 56.09
	10862.00	2.52	310.63	10840.89	-205.99	205.54	-52.27	0.78	565203.35	798439.10	N 32 33 3.71	W 103 29 56.13
	10957.00	1.95	317.33	10935.82	-208.57	208.09	-54.95	0.66	565205.90	798436.42	N 32 33 3.74	W 103 29 56.16
	11051.00	0.60	297.38	11029.80	-209.98	209.49	-56.47	1.49	565207.30	798434.90	N 32 33 3.75	W 103 29 56.18
	11120.00	1.23	281.49	11098.79	-210.30	209.80	-57.52	0.98	565207.62	798433.85	N 32 33 3.76	W 103 29 56.19
	11154.00	1.83	285.25	11132.77	-210.53	210.02	-58.40	1.79	565207.83	798432.97	N 32 33 3.76	W 103 29 56.20
	11185.00	1.98	246.43	11163.76	-210.45	209.93	-59.37	4.11	565207.75	798432.00	N 32 33 3.76	W 103 29 56.21
	11197.00	2.60	214.54	11175.75	-210.15	209.63	-59.71	11.60	565207.44	798431.66	N 32 33 3.76	W 103 29 56.22
	11228.00	6.70	176.95	11206.65	-207.77	207.24	-60.02	15.81	565205.06	798431.36	N 32 33 3.73	W 103 29 56.22
	11260.00	11.84	170.78	11238.22	-202.65	202.13	-59.39	16.34	565199.95	798431.98	N 32 33 3.68	W 103 29 56.21
	11292.00	16.07	170.16	11269.27	-195.03	194.52	-58.11	13.23	565192.34	798433.26	N 32 33 3.61	W 103 29 56.20
	11323.00	19.36	173.53	11298.79	-185.69	185.19	-56.79	11.11	565183.00	798434.58	N 32 33 3.51	W 103 29 56.18
	11354.00	23.02	173.49	11327.69	-174.54	174.06	-55.53	11.81	565171.87	798435.84	N 32 33 3.40	W 103 29 56.17
	11386.00	26.64	165.88	11356.74	-161.34	160.87	-53.07	15.07	565158.69	798438.31	N 32 33 3.27	W 103 29 56.14
	11418.00	31.29	157.26	11384.74	-146.66	146.24	-48.10	19.50	565144.06	798443.27	N 32 33 3.13	W 103 29 56.09
	11449.00	34.83	153.82	11410.72	-131.22	130.86	-41.08	12.92	565128.68	798450.29	N 32 33 2.97	W 103 29 56.01
	11481.00	36.82	157.41	11436.67	-114.10	113.81	-33.36	9.04	565111.62	798458.01	N 32 33 2.81	W 103 29 55.92
	11512.00	38.74	162.70	11461.17	-96.20	95.96	-26.91	12.15	565093.78	798464.46	N 32 33 2.63	W 103 29 55.84
	11544.00	41.47	168.22	11485.65	-76.21	76.02	-21.76	14.00	565073.84	798469.61	N 32 33 2.43	W 103 29 55.79
	11576.00	44.14	172.08	11509.13	-54.76	54.60	-18.06	11.69	565052.42	798473.31	N 32 33 2.22	W 103 29 55.74
	11607.00	47.98	174.92	11530.64	-32.57	32.43	-15.56	14.03	565030.25	798475.82	N 32 33 2.00	W 103 29 55.72
	11639.00	52.99	175.63	11551.00	-7.96	7.84	-13.53	15.75	565005.66	798477.84	N 32 33 1.76	W 103 29 55.70
	11670.00	58.51	175.87	11568.44	17.60	-17.71	-11.63	17.82	564980.11	798479.74	N 32 33 1.50	W 103 29 55.68
	11702.00	64.31	175.93	11583.74	45.63	-45.72	-9.62	18.13	564952.10	798481.75	N 32 33 1.22	W 103 29 55.65
	11733.00	67.75	176.15	11596.34	73.91	-73.98	-7.67	11.12	564923.84	798483.70	N 32 33 0.95	W 103 29 55.63
	11764.00	68.30	175.96	11607.94	102.60	-102.66	-5.69	1.86	564895.17	798485.68	N 32 33 0.66	W 103 29 55.61
	11796.00	69.69	175.97	11619.41	132.42	-132.46	-3.59	4.34	564865.37	798487.78	N 32 33 0.37	W 103 29 55.59
	11828.00	71.94	176.25	11629.92	162.59	-162.61	-1.54	7.08	564835.22	798489.83	N 32 33 0.07	W 103 29 55.57
	11859.00	74.33	177.07	11638.92	192.21	-192.22	0.19	8.11	564805.60	798491.56	N 32 32 59.77	W 103 29 55.55
	11891.00	79.29	177.74	11646.22	223.34	-223.33	1.60	15.63	564774.49	798492.97	N 32 32 59.47	W 103 29 55.54
	11922.00	80.48	178.00	11651.66	253.85	-253.83	2.73	3.93	564743.99	798494.10	N 32 32 59.16	W 103 29 55.53
	11956.00	81.97	178.11	11656.85	287.44	-287.41	3.87	4.39	564710.41	798495.24	N 32 32 58.83	W 103 29 55.52
	11987.00	82.64	178.55	11661.00	318.15	-318.12	4.77	2.58	564679.71	798496.14	N 32 32 58.53	W 103 29 55.51
	12019.00	82.53	178.46	11665.13	349.88	-349.84	5.59	0.44	564647.98	798496.96	N 32 32 58.21	W 103 29 55.51
	12050.00	82.19	178.72	11669.25	380.60	-380.56	6.35	1.38	564617.27	798497.72	N 32 32 57.91	W 103 29 55.50
	12082.00	82.42	179.03	11673.53	412.31	-412.26	6.97	1.20	564585.56	798498.34	N 32 32 57.60	W 103 29 55.49
	12113.00	83.32	179.12	11677.38	443.07	-443.02	7.47	2.92	564554.81	798498.84	N 32 32 57.29	W 103 29 55.49
	12145.00	83.26	179.50	11681.12	474.85	-474.80	7.85	1.19	564523.03	798499.22	N 32 32 56.98	W 103 29 55.49
	12176.00	83.94	179.07	11684.58	505.65	-505.60	8.24	2.59	564492.23	798499.61	N 32 32 56.67	W 103 29 55.49
	12208.00	84.84	178.70	11687.70	537.50	-537.44	8.86	3.04	564460.39	798500.23	N 32 32 56.36	W 103 29 55.48
	12240.00	86.13	178.38	11690.22	569.40	-569.33	9.67	4.15	564428.50	798501.04	N 32 32 56.04	W 103 29 55.48
	12271.00	86.81	178.43	11692.13	600.33	-600.26	10.53	2.20	564397.57	798501.90	N 32 32 55.74	W 103 29 55.47
	12366.00	87.25	178.74	11697.05	695.19	-695.10	12.87	0.57	564302.73	798504.24	N 32 32 54.80	W 103 29 55.45
	12461.00	88.32	179.69	11700.73	790.12	-790.02	14.17	1.51	564207.81	798505.54	N 32 32 53.86	W 103 29 55.45
	12556.00	89.50	181.23	11702.53	885.08	-885.00	13.41	2.04	564112.84	798504.78	N 32 32 52.92	W 103 29 55.46
	12650.00	89.44	181.62	11703.40	979.02	-978.96	11.07	0.42	564018.87	798502.44	N 32 32 51.99	W 103 29 55.50
	12745.00	88.88	181.73	11704.79	1073.94	-1073.91	8.30	0.60	563923.93	798499.67	N 32 32 51.05	W 103 29 55.54
	12840.00	88.32	182.48	11707.12	1168.82	-1168.82	4.81	0.99	563829.02	798496.18	N 32 32 50.11	W 103 29 55.59
	12937.00	87.65	181.51	11710.53	1265.66	-1265.70	1.43	1.21	563732.14	798492.80	N 32 32 49.15	W 103 29 55.64

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 ° ' ")
	13032.00	89.78	180.89	11712.66	1360.59	-1360.65	-0.56	2.34	563637.20	798490.81	N 32 32 48.21	W 103 29 55.67
	13127.00	90.78	180.14	11712.19	1455.57	-1455.64	-1.41	1.32	563542.20	798489.96	N 32 32 47.27	W 103 29 55.69
	13221.00	89.72	179.64	11711.78	1549.57	-1549.64	-1.23	1.25	563448.21	798490.14	N 32 32 46.34	W 103 29 55.69
	13316.00	90.00	178.59	11712.01	1644.56	-1644.62	0.24	1.14	563353.22	798491.61	N 32 32 45.40	W 103 29 55.69
	13410.00	90.34	178.29	11711.74	1738.55	-1738.59	2.80	0.48	563259.26	798494.17	N 32 32 44.47	W 103 29 55.66
	13505.00	91.79	179.26	11709.97	1833.52	-1833.55	4.83	1.84	563164.30	798496.20	N 32 32 43.53	W 103 29 55.65
	13600.00	90.45	179.70	11708.11	1928.50	-1928.52	5.69	1.48	563069.33	798497.06	N 32 32 42.59	W 103 29 55.65
	13695.00	88.38	179.01	11709.08	2023.49	-2023.51	6.76	2.30	562974.35	798498.13	N 32 32 41.65	W 103 29 55.64
	13790.00	88.54	179.49	11711.64	2118.45	-2118.46	8.00	0.53	562879.39	798499.37	N 32 32 40.72	W 103 29 55.64
	13885.00	86.69	178.49	11715.59	2213.36	-2213.36	9.68	2.21	562784.50	798501.04	N 32 32 39.78	W 103 29 55.63
	13979.00	86.24	178.79	11721.39	2307.17	-2307.16	11.90	0.58	562690.70	798503.27	N 32 32 38.85	W 103 29 55.61
	14074.00	87.48	178.51	11726.59	2402.02	-2401.98	14.14	1.34	562595.88	798505.51	N 32 32 37.91	W 103 29 55.59
	14168.00	89.22	178.43	11729.30	2495.96	-2495.91	16.65	1.85	562501.95	798508.02	N 32 32 36.98	W 103 29 55.57
	14263.00	90.45	178.96	11729.57	2590.95	-2590.88	18.81	1.41	562406.98	798510.18	N 32 32 36.04	W 103 29 55.56
	14357.00	90.45	178.77	11728.83	2684.94	-2684.86	20.67	0.20	562313.01	798512.04	N 32 32 35.11	W 103 29 55.54
	14452.00	90.22	179.27	11728.28	2779.93	-2779.84	22.30	0.58	562218.02	798513.67	N 32 32 34.17	W 103 29 55.53
	14546.00	89.89	179.68	11728.18	2873.93	-2873.84	23.16	0.56	562124.03	798514.53	N 32 32 33.24	W 103 29 55.53
	14641.00	89.61	180.06	11728.60	2968.93	-2968.84	23.37	0.50	562029.03	798514.74	N 32 32 32.30	W 103 29 55.54
	14735.00	89.16	180.34	11729.61	3062.92	-3062.83	23.04	0.56	561935.04	798514.41	N 32 32 31.37	W 103 29 55.55
	14829.00	89.50	180.54	11730.71	3156.90	-3156.82	22.32	0.42	561841.05	798513.69	N 32 32 30.44	W 103 29 55.57
	14924.00	87.14	180.91	11733.49	3251.83	-3251.77	21.12	2.51	561746.11	798512.49	N 32 32 29.50	W 103 29 55.59
	15019.00	87.20	180.10	11738.18	3346.70	-3346.65	20.29	0.85	561651.23	798511.65	N 32 32 28.56	W 103 29 55.61
	15113.00	87.48	179.32	11742.55	3440.59	-3440.54	20.76	0.88	561557.34	798512.13	N 32 32 27.63	W 103 29 55.61
	15205.00	88.88	178.93	11745.47	3532.54	-3532.48	22.16	1.58	561465.40	798513.53	N 32 32 26.72	W 103 29 55.60
	15300.00	90.28	179.30	11746.16	3627.53	-3627.47	23.63	1.52	561370.41	798515.00	N 32 32 25.78	W 103 29 55.59
	15394.00	91.12	179.91	11745.02	3721.53	-3721.46	24.28	1.10	561276.43	798515.65	N 32 32 24.85	W 103 29 55.60
	15489.00	90.11	178.70	11744.00	3816.52	-3816.44	25.43	1.66	561181.44	798516.80	N 32 32 23.91	W 103 29 55.59
	15583.00	90.39	178.89	11743.59	3910.51	-3910.42	27.41	0.36	561087.47	798518.78	N 32 32 22.98	W 103 29 55.58
	15678.00	91.18	179.56	11742.28	4005.50	-4005.40	28.69	1.09	560992.49	798520.06	N 32 32 22.04	W 103 29 55.57
	15772.00	90.34	178.74	11741.04	4099.49	-4099.38	30.09	1.25	560898.51	798521.46	N 32 32 21.11	W 103 29 55.56
	15867.00	89.22	178.04	11741.40	4194.47	-4194.34	32.76	1.39	560803.55	798524.13	N 32 32 20.17	W 103 29 55.54
	15961.00	87.87	177.48	11743.79	4288.39	-4288.24	36.43	1.55	560709.66	798527.80	N 32 32 19.24	W 103 29 55.51
	16056.00	88.21	177.80	11747.04	4383.28	-4383.10	40.34	0.49	560614.80	798531.71	N 32 32 18.31	W 103 29 55.47
	16151.00	88.60	178.62	11749.68	4478.22	-4478.02	43.31	0.96	560519.88	798534.68	N 32 32 17.37	W 103 29 55.44
	16246.00	88.99	179.29	11751.68	4573.20	-4572.98	45.04	0.82	560424.92	798536.41	N 32 32 16.43	W 103 29 55.43
	16340.00	89.22	179.89	11753.15	4667.19	-4666.96	45.71	0.68	560330.94	798537.08	N 32 32 15.50	W 103 29 55.43
	16435.00	89.22	180.13	11754.44	4762.17	-4761.95	45.69	0.25	560235.95	798537.06	N 32 32 14.56	W 103 29 55.44
	16467.00	89.05	180.06	11754.92	4794.17	-4793.95	45.64	0.57	560203.95	798537.01	N 32 32 14.24	W 103 29 55.44
TD, PTB [100' FSL, 1982' FWL]	16525.00	89.05	180.06	11755.89	4852.16	-4851.94	45.58	0.00	560145.96	798536.95	N 32 32 13.67	W 103 29 55.45

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 #9H 0ft to 16525ft (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 #9H 0ft to 16525ft (Surcon Corrected)	
		1	26.000	1957.000	Act Stns	17.500	13.375	NAL_MWD_IFR1+MS			Original Borehole / Final Survey - Cimarex Chief 30 State #9H 0ft to	
		1	1957.000	5708.000	Act Stns	12.250	9.625	NAL_MWD_IFR1+MS			Original Borehole / Final Survey - Cimarex Chief 30 State #9H 0ft to	
		1	5708.000	16525.000	Act Stns	8.750	7.000	NAL_MWD_IFR1+MS			Original Borehole / Final Survey - Cimarex Chief 30 State #9H 0ft to	

Borehole:		Well:		Field:		Structure:	
Original Borehole		Cimarex Chief 30 State #9H		NM Lea County (NAD 83)		Cimarex Chief 30 State #9H	
Gravity & Magnetic Parameters		Surface Location		NAD83 New Mexico State Plane, Eastern Zone, US Feet		Miscellaneous	
Model: HGM2018	Dip: 60.472°	Date: 24-Aug-2018	Lat: N 32 33 1.68	Northing: 864997.872158	Grid Cont: 0.64991°	Cimarex Chief 30 State	TVD Ref: RVC617722.8R above MSL
MagDec: A.530°	Gravty PR: 988.49dynes / R 86665.8msec		Long: W 123 29 55.54	Easting: 728491.272158	0.88991482	99H	
						Flag: Final Survey - Cimarex Chief 30 State 9H on to 163201 (Sharon Corcoran)	

Critical Points								
Critical Point	MD	INCL	AZIM	TYD	VSEC	N(+)/S(-)	E(+)/W(-)	DLS
SHL [330° FNL, 1980° FWL]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
TD, PTB [100° FSL, 1982° FWL]	16525.00	89.05	180.06	11755.89	4852.18	-4851.94	45.58	0.00

