



Final Surveys - Cimarex Crawford 27-26 Fee #29H MWD 0ft-18997ft (Surcon Corrected) Survey Geodetic Report (Def Survey)



Report Date:	December 17, 2020 - 10:45 AM	Survey / DLS Computation:	Minimum Curvature / Lubinski
Client:	Cimarex Energy	Vertical Section Azimuth:	91.197 ° (Grid North)
Field:	NM Eddy County (NAD 83)	Vertical Section Origin:	0.000 ft, 0.000 ft
Structure / Slot:	Cimarex Crawford 27-26 Fee #29H / New Slot	TVD Reference Datum:	RKB
Well:	Crawford 27-26 Fee #29H	TVD Reference Elevation:	3363.800 ft above MSL
Borehole:	Crawford 27-26 Fee #29H	Seabed / Ground Elevation:	3340.800 ft above MSL
UWI / API#:	Unknown / Unknown	Magnetic Declination:	7.224 °
Survey Name:	Final Surveys - Cimarex Crawford 27-26 Fee #29H MWD 0ft-18997ft (Surcon Corrected)	Total Gravity Field Strength:	998.4457mgn (9.80665 Based)
Survey Date:	March 01, 2020	Gravity Model:	GARM
Tort / AHD / DDI / ERD Ratio:	270.956 ° / 12215.522 ft / 6.858 / 1.401	Total Magnetic Field Strength:	47714.634 nT
Coordinate Reference System:	NAD83 New Mexico State Plane, Eastern Zone, US Feet	Magnetic Dip Angle:	59.785 °
Location Lat / Long:	N 32° 11' 11.99353", W 104° 17' 32.38132"	Declination Date:	March 09, 2020
Location Grid N/E Y/X:	N 431645.670 ftUS, E 554022.800 ftUS	Magnetic Declination Model:	HDGM 2019
CRS Grid Convergence Angle:	0.0218 °	North Reference:	Grid North
Grid Scale Factor:	0.99990928	Grid Convergence Used:	0.0218 °
Version / Patch:	2.10.824.0	Total Corr Mag North->Grid North:	7.0201 °
		Local Coord Referenced To:	Well Head

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 ° ' '')	Closure Azimuth (°)	Closure (ft)
SHL [2115' FSL, 915' FEL]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	N/A	431645.67	554022.80	N 32 11 11.99	W 104 17 32.38	0.00	0.00
	219.00	0.72	234.15	218.99	-1.10	-0.81	-1.12	0.33	431644.86	554021.68	N 32 11 11.99	W 104 17 32.39	234.15	1.38
	339.00	0.37	216.47	338.99	-1.92	-1.56	-1.96	0.32	431644.11	554020.84	N 32 11 11.98	W 104 17 32.40	231.45	2.50
	404.00	0.38	198.15	403.99	-2.11	-1.93	-2.15	0.18	431643.74	554020.65	N 32 11 11.97	W 104 17 32.41	228.03	2.89
	497.00	0.37	201.08	496.99	-2.30	-2.51	-2.35	0.02	431643.16	554020.45	N 32 11 11.97	W 104 17 32.41	223.19	3.44
	591.00	0.42	192.05	590.98	-2.47	-3.13	-2.53	0.08	431642.54	554020.27	N 32 11 11.96	W 104 17 32.41	219.03	4.02
	685.00	0.38	204.40	684.98	-2.66	-3.75	-2.73	0.10	431641.92	554020.07	N 32 11 11.96	W 104 17 32.41	216.12	4.64
	779.00	0.45	200.13	778.98	-2.90	-4.38	-2.99	0.08	431641.29	554019.81	N 32 11 11.95	W 104 17 32.42	214.34	5.30
	872.00	0.44	208.04	871.98	-3.18	-5.04	-3.28	0.07	431640.64	554019.52	N 32 11 11.94	W 104 17 32.42	213.11	6.01
	965.00	1.18	135.80	964.97	-2.66	-6.04	-2.78	1.21	431639.63	554020.02	N 32 11 11.93	W 104 17 32.41	204.76	6.65
	1060.00	2.42	134.34	1059.92	-0.50	-8.14	-0.67	1.31	431637.53	554022.13	N 32 11 11.91	W 104 17 32.39	184.69	8.17
	1153.00	2.28	132.60	1152.84	2.32	-10.76	2.10	0.17	431634.91	554024.90	N 32 11 11.89	W 104 17 32.36	168.97	10.97
	1248.00	1.60	126.95	1247.79	4.82	-12.84	4.55	0.74	431632.83	554027.35	N 32 11 11.87	W 104 17 32.33	160.49	13.62
	1343.00	1.57	106.91	1342.75	7.15	-14.02	6.85	0.58	431631.65	554029.65	N 32 11 11.85	W 104 17 32.30	153.94	15.60
	1437.00	2.19	99.85	1436.70	10.16	-14.70	9.86	0.70	431630.97	554032.66	N 32 11 11.85	W 104 17 32.27	146.16	17.70
	1531.00	1.58	82.02	1530.65	13.22	-14.83	12.91	0.89	431630.85	554035.71	N 32 11 11.85	W 104 17 32.23	138.95	19.66
	1626.00	1.11	73.54	1625.62	15.39	-14.38	15.09	0.54	431631.29	554037.89	N 32 11 11.85	W 104 17 32.21	133.63	20.85
	1697.00	1.02	80.46	1696.61	16.66	-14.08	16.37	0.22	431631.59	554039.17	N 32 11 11.85	W 104 17 32.19	130.70	21.60
	1795.00	1.09	94.35	1794.59	18.45	-14.01	18.16	0.27	431631.66	554040.96	N 32 11 11.85	W 104 17 32.17	127.65	22.94
	1890.00	3.15	199.86	1889.54	18.52	-16.53	18.18	3.79	431629.14	554040.97	N 32 11 11.83	W 104 17 32.17	132.29	24.57
	1984.00	7.95	205.71	1983.08	14.99	-24.83	14.48	5.14	431620.85	554037.27	N 32 11 11.75	W 104 17 32.21	149.75	28.74
	2078.00	11.51	197.08	2075.71	9.73	-39.65	8.90	4.08	431606.02	554031.70	N 32 11 11.60	W 104 17 32.28	167.35	40.64
	2173.00	12.52	189.93	2168.64	5.57	-58.86	4.34	1.89	431586.82	554027.14	N 32 11 11.41	W 104 17 32.33	175.78	59.02
	2268.00	13.53	182.36	2261.20	3.78	-80.11	2.11	2.08	431565.57	554024.91	N 32 11 11.20	W 104 17 32.36	178.49	80.13
	2362.00	15.71	159.69	2352.22	8.23	-103.05	6.07	6.46	431542.63	554028.87	N 32 11 10.97	W 104 17 32.31	176.63	103.23
	2456.00	17.33	153.68	2442.35	19.36	-127.54	16.70	2.50	431518.15	554039.50	N 32 11 10.73	W 104 17 32.19	172.54	128.62
	2551.00	17.85	152.88	2532.91	32.80	-153.18	29.61	0.60	431492.51	554052.41	N 32 11 10.48	W 104 17 32.04	169.06	156.01
	2645.00	18.76	152.02	2622.15	47.01	-179.35	43.27	1.01	431466.34	554066.07	N 32 11 10.22	W 104 17 31.88	166.44	184.49
	2740.00	19.27	151.48	2711.96	62.23	-206.61	57.92	0.57	431439.08	554080.72	N 32 11 9.95	W 104 17 31.71	164.34	214.58
	2834.00	20.28	150.80	2800.42	78.16	-234.46	73.28	1.10	431411.23	554096.07	N 32 11 9.67	W 104 17 31.53	162.64	245.65
	2929.00	17.68	148.41	2890.25	94.30	-261.13	88.87	2.86	431384.57	554111.66	N 32 11 9.41	W 104 17 31.35	161.21	275.84

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 ° ' ")	Closure Azimuth (°)	Closure (ft)
	3024.00	16.14	145.19	2981.14	109.88	-284.26	103.96	1.90	431361.44	554126.75	N 32 11 9.18	W 104 17 31.17	159.91	302.67
	3119.00	15.60	143.65	3072.52	125.43	-305.39	119.07	0.72	431340.31	554141.86	N 32 11 8.97	W 104 17 31.00	158.70	327.78
	3213.00	14.13	146.27	3163.37	139.70	-325.11	132.94	1.72	431320.59	554155.72	N 32 11 8.78	W 104 17 30.84	157.76	351.24
	3308.00	14.05	149.14	3255.51	152.46	-344.66	145.29	0.74	431301.05	554168.08	N 32 11 8.58	W 104 17 30.69	157.14	374.03
	3403.00	14.21	151.57	3347.64	164.34	-364.81	156.76	0.65	431280.90	554179.54	N 32 11 8.38	W 104 17 30.56	156.75	397.06
	3496.00	14.24	152.38	3437.79	175.50	-384.98	167.49	0.22	431260.72	554190.28	N 32 11 8.18	W 104 17 30.43	156.49	419.84
	3590.00	13.95	152.62	3528.96	186.49	-405.29	178.06	0.31	431240.42	554200.85	N 32 11 7.98	W 104 17 30.31	156.28	442.68
	3685.00	13.07	152.61	3621.33	197.11	-424.99	188.27	0.93	431220.72	554211.05	N 32 11 7.79	W 104 17 30.19	156.11	464.83
	3780.00	12.69	152.14	3713.94	207.32	-443.76	198.09	0.41	431201.96	554220.87	N 32 11 7.60	W 104 17 30.08	155.94	485.96
	3875.00	12.35	150.51	3806.68	217.57	-461.82	207.97	0.52	431183.89	554230.75	N 32 11 7.42	W 104 17 29.96	155.76	506.49
	3970.00	12.71	149.94	3899.42	228.18	-479.71	218.20	0.40	431166.00	554240.98	N 32 11 7.25	W 104 17 29.84	155.54	527.01
	4065.00	12.81	150.90	3992.07	238.91	-497.96	228.56	0.25	431147.76	554251.34	N 32 11 7.07	W 104 17 29.72	155.35	547.91
	4159.00	12.88	150.95	4083.72	249.45	-516.22	238.72	0.08	431129.49	554261.49	N 32 11 6.88	W 104 17 29.61	155.18	568.75
	4253.00	12.63	150.29	4175.40	260.00	-534.31	248.90	0.31	431111.41	554271.67	N 32 11 6.71	W 104 17 29.49	155.02	589.44
	4348.00	12.69	150.35	4268.09	270.69	-552.40	259.21	0.06	431093.32	554281.98	N 32 11 6.53	W 104 17 29.37	154.86	610.19
	4443.00	13.39	150.71	4360.64	281.62	-571.06	269.75	0.74	431074.66	554292.52	N 32 11 6.34	W 104 17 29.25	154.72	631.56
	4536.00	13.29	151.42	4451.13	292.39	-589.84	280.13	0.21	431055.89	554302.91	N 32 11 6.16	W 104 17 29.12	154.60	652.98
	4631.00	12.76	155.54	4543.69	302.36	-608.98	289.70	1.13	431036.75	554312.47	N 32 11 5.97	W 104 17 29.01	154.56	674.37
	4726.00	12.10	158.09	4636.46	310.81	-627.77	297.76	0.90	431017.96	554320.53	N 32 11 5.78	W 104 17 28.92	154.62	694.80
	4820.00	11.39	156.99	4728.49	318.48	-645.45	305.06	0.79	431000.28	554327.84	N 32 11 5.61	W 104 17 28.83	154.70	713.91
	4914.00	11.22	157.50	4820.67	325.96	-662.44	312.19	0.21	430983.29	554334.96	N 32 11 5.44	W 104 17 28.75	154.77	732.32
	5009.00	11.04	157.42	4913.88	333.34	-679.38	319.22	0.19	430966.35	554341.99	N 32 11 5.27	W 104 17 28.67	154.83	750.64
	5104.00	10.40	159.93	5007.22	340.12	-695.83	325.66	0.83	430949.90	554348.43	N 32 11 5.11	W 104 17 28.60	154.92	768.27
	5199.00	10.31	161.44	5100.68	346.10	-711.95	331.30	0.30	430933.79	554354.07	N 32 11 4.95	W 104 17 28.53	155.05	785.26
	5294.00	9.58	161.46	5194.25	351.65	-727.50	336.52	0.77	430918.24	554359.29	N 32 11 4.79	W 104 17 28.47	155.18	801.56
	5388.00	9.17	159.28	5286.99	357.09	-741.92	341.66	0.58	430903.82	554364.43	N 32 11 4.65	W 104 17 28.41	155.27	816.81
	5483.00	9.44	154.29	5380.75	363.44	-756.02	347.72	0.90	430889.72	554370.49	N 32 11 4.51	W 104 17 28.34	155.30	832.15
	5574.00	9.38	151.33	5470.52	370.51	-769.25	354.51	0.54	430876.49	554377.28	N 32 11 4.38	W 104 17 28.26	155.26	847.01
	5668.00	11.05	150.08	5563.03	378.98	-783.78	362.68	1.79	430861.96	554385.45	N 32 11 4.24	W 104 17 28.16	155.17	863.63
	5762.00	11.49	149.27	5655.22	388.58	-799.64	371.96	0.50	430846.11	554394.73	N 32 11 4.08	W 104 17 28.06	155.05	881.91
	5857.00	13.07	152.91	5748.04	398.68	-817.33	381.69	1.85	430828.41	554404.45	N 32 11 3.90	W 104 17 27.94	154.97	902.07
	5950.00	13.95	155.59	5838.47	408.51	-836.90	391.11	1.16	430808.84	554413.87	N 32 11 3.71	W 104 17 27.83	154.95	923.78
	6043.00	15.12	152.93	5928.49	419.10	-857.91	401.26	1.45	430787.84	554424.03	N 32 11 3.50	W 104 17 27.72	154.93	947.12
	6138.00	16.86	152.00	6019.81	431.69	-881.11	413.37	1.85	430764.64	554436.13	N 32 11 3.27	W 104 17 27.58	154.87	973.26
	6231.00	18.52	155.70	6108.41	444.62	-906.48	425.78	2.15	430739.27	554448.54	N 32 11 3.02	W 104 17 27.43	154.84	1001.50
	6326.00	18.90	157.29	6198.39	457.35	-934.43	437.93	0.67	430711.33	554460.69	N 32 11 2.75	W 104 17 27.29	154.89	1031.96
	6420.00	20.67	153.38	6286.84	471.27	-963.31	451.24	2.35	430682.45	554474.00	N 32 11 2.46	W 104 17 27.14	154.90	1063.76
	6514.00	20.18	151.73	6374.94	486.99	-992.42	466.36	0.80	430653.34	554489.11	N 32 11 2.17	W 104 17 26.96	154.83	1096.53
	6609.00	19.69	153.35	6464.24	502.52	-1021.16	481.30	0.78	430624.61	554504.05	N 32 11 1.89	W 104 17 26.79	154.76	1128.90
	6703.00	22.23	158.24	6552.02	516.86	-1051.83	494.99	3.28	430593.94	554517.75	N 32 11 1.58	W 104 17 26.63	154.80	1162.48
	6797.00	22.74	162.96	6638.88	529.48	-1085.72	506.91	1.99	430560.05	554529.66	N 32 11 1.25	W 104 17 26.49	154.97	1198.23
	6892.00	21.20	163.08	6726.98	540.57	-1119.71	517.29	1.62	430526.06	554540.04	N 32 11 0.91	W 104 17 26.37	155.20	1233.43
	6987.00	19.20	162.79	6816.13	550.84	-1151.07	526.91	2.11	430494.71	554549.66	N 32 11 0.60	W 104 17 26.26	155.40	1265.94
	7081.00	19.49	158.84	6904.83	561.69	-1180.46	537.15	1.43	430465.32	554559.90	N 32 11 0.31	W 104 17 26.14	155.53	1296.92
	7176.00	19.17	156.47	6994.48	574.24	-1209.54	549.09	0.89	430436.24	554571.84	N 32 11 0.02	W 104 17 26.00	155.58	1328.34
	7271.00	16.80	157.37	7084.83	586.31	-1236.52	560.61	2.51	430409.27	554583.35	N 32 10 59.76	W 104 17 25.86	155.61	1357.66
	7365.00	15.15	156.21	7175.20	596.99	-1260.30	570.79	1.79	430385.49	554593.54	N 32 10 59.52	W 104 17 25.75	155.63	1383.53
	7458.00	15.31	154.03	7264.93	607.73	-1282.45	581.07	0.64	430363.34	554603.81	N 32 10 59.30	W 104 17 25.63	155.63	1407.95
	7553.00	15.70	150.59	7356.48	620.00	-1304.93	592.87	1.05	430340.86	554615.62	N 32 10 59.08	W 104 17 25.49	155.57	1433.29
	7647.00	18.30	152.77	7446.36	633.51	-1329.13	605.87	2.85	430316.66	554628.62	N 32 10 58.84	W 104 17 25.34	155.49	1460.71
	7743.00	20.27	153.82	7536.97	648.33	-1357.46	620.11	2.08	430288.34	554642.85	N 32 10 58.56	W 104 17 25.17	155.45	1492.39
	7838.00	20.34	153.17	7626.07	663.65	-1386.96	634.82	0.25	430258.84	554657.56	N 32 10 58.27	W 104 17 25.00	155.41	1525.34
	7934.00	18.81	152.53	7716.52	678.92	-1415.58	649.49	1.61	430230.22	554672.23	N 32 10 57.98	W 104 17 24.83	155.35	1557.47
	8028.00	16.43	154.37	7806.10	692.19	-1441.02	662.23	2.60	430204.79	554684.97	N 32 10 57.73	W 104 17 24.68	155.32	1585.90
	8123.00	15.64	158.63	7897.41	703.17	-1465.06	672.71	1.49	430180.75	554695.45	N 32 10 57.49	W 104 17 24.56	155.34	1612.12
	8218.00	14.05	162.01	7989.23	711.87	-1487.95	680.94	1.91	430157.86	554703.68	N 32 10 57.27	W 104 17 24.46	155.41	1636.36
First SLB - Survey	8263.00	13.81	162.23	8032.91	715.41	-1498.26	684.26	0.55	430147.55	554707.00	N 32 10 57.17	W 104 17 24.43	155.45	1647.12
KOP [258' FEL, 623' FSL]	8282.00	15.74	155.59	8051.28	717.27	-1502.77	686.02	13.49	430143.04	554708.76	N 32 10 57.12	W 104 17 24.41	155.46	1651.95
	8358.00	24.61	140.30	8122.60	732.12	-1524.39	700.43	13.49	430121.42	554723.16	N 32 10 56.91	W 104 17 24.24	155.32	1677.61
	8390.00	30.51	133.32	8150.96	742.52	-1535.10	710.61	20.99	430110.71	554733.34	N 32 10 56.80	W 104 17 24.12	155.16	1691.59

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 ° ' '')	Closure Azimuth (°)	Closure (ft)
	8421.00	34.16	130.67	8177.15	755.08	-1546.18	722.94	12.63	430099.64	554745.67	N 32 10 56.69	W 104 17 23.98	154.94	1706.84
	8453.00	37.42	126.88	8203.11	769.92	-1557.87	737.53	12.32	430087.94	554760.27	N 32 10 56.58	W 104 17 23.81	154.67	1723.63
	8485.00	41.38	120.39	8227.84	787.06	-1569.06	754.45	17.84	430076.75	554777.18	N 32 10 56.46	W 104 17 23.61	154.32	1741.02
	8517.00	43.25	114.96	8251.51	806.34	-1579.05	773.52	12.83	430066.77	554796.25	N 32 10 56.37	W 104 17 23.39	153.90	1758.33
	8548.00	45.55	108.87	8273.67	826.61	-1587.11	793.63	15.61	430058.71	554816.36	N 32 10 56.29	W 104 17 23.15	153.43	1774.48
	8580.00	48.86	104.05	8295.41	849.25	-1593.73	816.14	15.13	430052.08	554838.86	N 32 10 56.22	W 104 17 22.89	152.88	1790.55
	8611.00	52.37	99.44	8315.09	872.80	-1598.58	839.59	16.13	430047.23	554862.31	N 32 10 56.17	W 104 17 22.62	152.29	1805.65
	8642.00	54.20	98.90	8333.62	897.41	-1602.54	864.12	6.07	430043.28	554886.84	N 32 10 56.13	W 104 17 22.33	151.67	1820.67
	8689.00	55.56	99.35	8360.66	935.48	-1608.64	902.08	3.00	430037.18	554924.79	N 32 10 56.07	W 104 17 21.89	150.72	1844.31
	8736.00	61.14	100.27	8385.31	975.02	-1615.46	941.48	11.99	430030.36	554964.19	N 32 10 56.00	W 104 17 21.43	149.77	1869.79
Section 28-27 Line Crossing [516' FSL]	8741.40	61.94	100.43	8387.88	979.71	-1616.32	946.15	14.96	430029.50	554968.86	N 32 10 56.00	W 104 17 21.38	149.66	1872.88
	8783.00	68.07	101.59	8405.45	1016.84	-1623.52	983.14	14.96	430022.30	555005.85	N 32 10 55.92	W 104 17 20.95	148.80	1898.00
	8831.00	68.30	101.44	8423.29	1060.68	-1632.42	1026.81	0.56	430013.40	555049.51	N 32 10 55.84	W 104 17 20.44	147.83	1928.50
	8878.00	68.86	96.03	8440.47	1104.04	-1639.06	1070.03	10.78	430006.77	555092.73	N 32 10 55.77	W 104 17 19.94	146.86	1957.42
	8926.00	71.31	92.70	8456.82	1149.09	-1642.48	1115.02	8.28	430003.34	555137.72	N 32 10 55.74	W 104 17 19.41	145.83	1985.20
	9021.00	84.50	87.72	8476.69	1241.73	-1642.72	1207.68	14.80	430003.10	555230.36	N 32 10 55.73	W 104 17 18.34	143.68	2038.87
	9084.00	90.83	87.18	8479.26	1304.51	-1639.92	1270.53	10.08	430005.90	555293.21	N 32 10 55.76	W 104 17 17.61	142.23	2074.51
First Take Point [335' FEL, 484' FSL]	9095.00	90.85	87.18	8479.10	1315.48	-1639.38	1281.51	0.15	430006.44	555304.20	N 32 10 55.77	W 104 17 17.48	141.99	2080.83
	9180.00	90.97	87.15	8477.75	1400.26	-1635.17	1366.40	0.15	430010.65	555389.07	N 32 10 55.81	W 104 17 16.49	140.12	2130.92
	9274.00	87.91	88.06	8478.67	1494.06	-1631.25	1460.30	3.40	430014.58	555482.97	N 32 10 55.85	W 104 17 15.40	138.16	2189.39
	9368.00	88.78	90.65	8481.38	1587.96	-1630.19	1554.25	2.91	430015.63	555576.90	N 32 10 55.86	W 104 17 14.30	136.37	2252.38
	9463.00	88.53	92.14	8483.61	1682.93	-1632.50	1649.19	1.59	430013.32	555671.84	N 32 10 55.83	W 104 17 13.20	134.71	2320.53
	9558.00	88.57	91.86	8486.02	1777.89	-1635.81	1744.10	0.30	430010.01	555766.74	N 32 10 55.80	W 104 17 12.10	133.16	2391.19
	9653.00	88.57	91.64	8488.39	1872.86	-1638.71	1839.03	0.23	430007.11	555861.66	N 32 10 55.77	W 104 17 10.99	131.70	2463.21
	9747.00	89.38	91.51	8490.07	1966.84	-1641.30	1932.98	0.87	430004.52	555955.60	N 32 10 55.74	W 104 17 9.90	130.33	2535.79
	9841.00	88.96	90.11	8491.43	2060.83	-1642.63	2026.95	1.55	430003.20	556049.57	N 32 10 55.73	W 104 17 8.80	129.02	2608.98
	9936.00	87.90	88.94	8494.03	2155.75	-1641.84	2121.91	1.66	430003.98	556144.52	N 32 10 55.74	W 104 17 7.70	127.73	2682.94
	10031.00	90.08	90.29	8495.71	2250.69	-1641.20	2216.89	2.70	430004.62	556239.48	N 32 10 55.74	W 104 17 6.59	126.51	2758.28
	10124.00	88.64	89.83	8496.75	2343.66	-1641.30	2309.88	1.63	430004.52	556332.46	N 32 10 55.74	W 104 17 5.51	125.40	2833.62
	10217.00	89.70	90.16	8498.10	2436.63	-1641.29	2402.87	1.19	430004.53	556425.44	N 32 10 55.74	W 104 17 4.43	124.34	2909.92
	10312.00	89.15	89.62	8499.05	2531.60	-1641.11	2497.86	0.81	430004.71	556520.43	N 32 10 55.74	W 104 17 3.33	123.31	2988.74
	10406.00	89.68	89.35	8500.01	2625.55	-1640.26	2591.85	0.63	430005.56	556614.41	N 32 10 55.75	W 104 17 2.23	122.33	3067.27
	10501.00	90.27	89.68	8500.05	2720.51	-1639.46	2686.85	0.71	430006.36	556709.40	N 32 10 55.76	W 104 17 1.13	121.39	3147.54
	10596.00	87.06	89.38	8502.26	2815.43	-1638.68	2781.81	3.39	430007.14	556804.35	N 32 10 55.77	W 104 17 0.02	120.50	3228.58
	10690.00	88.60	89.55	8505.82	2909.32	-1637.80	2875.73	1.65	430008.02	556898.27	N 32 10 55.78	W 104 16 58.93	119.66	3309.42
	10784.00	89.74	90.06	8507.18	3003.28	-1637.48	2969.72	1.33	430008.34	556992.25	N 32 10 55.78	W 104 16 57.83	118.87	3391.25
	10879.00	89.00	90.36	8508.23	3098.26	-1637.83	3064.71	0.84	430007.99	557087.23	N 32 10 55.77	W 104 16 56.73	118.12	3474.90
	10974.00	89.92	89.58	8509.12	3193.23	-1637.78	3159.71	1.27	430008.04	557182.21	N 32 10 55.77	W 104 16 55.62	117.40	3558.94
	11068.00	88.14	89.61	8510.71	3287.18	-1637.12	3253.69	1.89	430008.70	557276.19	N 32 10 55.78	W 104 16 54.53	116.71	3642.34
	11162.00	87.88	90.17	8513.98	3381.10	-1636.94	3347.63	0.66	430008.88	557370.12	N 32 10 55.78	W 104 16 53.44	116.06	3726.42
	11256.00	87.89	89.91	8517.45	3475.01	-1637.00	3441.57	0.28	430008.82	557464.05	N 32 10 55.78	W 104 16 52.34	115.44	3811.06
	11351.00	88.61	89.97	8520.35	3569.94	-1636.90	3536.52	0.76	430008.92	557558.99	N 32 10 55.78	W 104 16 51.24	114.84	3896.98
	11445.00	90.11	89.81	8521.40	3663.91	-1636.72	3630.51	1.60	430009.10	557652.98	N 32 10 55.78	W 104 16 50.15	114.27	3982.40
	11539.00	89.28	89.51	8521.90	3757.88	-1636.17	3724.51	0.94	430009.66	557746.96	N 32 10 55.79	W 104 16 49.05	113.72	4068.05
	11634.00	88.32	90.33	8523.89	3852.83	-1636.03	3819.49	1.33	430009.79	557841.93	N 32 10 55.79	W 104 16 47.95	113.19	4155.13
	11728.00	88.42	89.86	8526.56	3946.77	-1636.19	3913.45	0.51	430009.63	557935.88	N 32 10 55.79	W 104 16 46.85	112.69	4241.72
	11822.00	88.83	90.11	8528.82	4040.73	-1636.16	4007.42	0.51	430009.66	558029.85	N 32 10 55.79	W 104 16 45.76	112.21	4328.56
	11917.00	88.57	90.42	8530.97	4135.69	-1636.60	4102.39	0.43	430009.22	558124.81	N 32 10 55.78	W 104 16 44.66	111.75	4416.80
	12012.00	89.06	89.92	8532.94	4230.65	-1636.89	4197.37	0.74	430008.94	558219.78	N 32 10 55.78	W 104 16 43.55	111.30	4505.26
	12106.00	88.12	89.84	8535.25	4324.60	-1636.69	4291.34	1.00	430009.13	558313.75	N 32 10 55.78	W 104 16 42.46	110.88	4592.86
	12201.00	88.62	90.29	8537.95	4419.54	-1636.80	4386.30	0.71	430009.03	558408.70	N 32 10 55.78	W 104 16 41.35	110.46	4681.75
	12295.00	88.31	90.17	8540.47	4513.49	-1637.17	4480.27	0.35	430008.65	558502.65	N 32 10 55.77	W 104 16 40.26	110.07	4770.03
	12389.00	88.51	89.99	8543.08	4607.44	-1637.30	4574.23	0.29	430008.52	558596.61	N 32 10 55.77	W 104 16 39.17	109.69	4858.43
	12484.00	88.35	90.03	8545.68	4702.38	-1637.32	4669.20	0.17	430008.50	558691.56	N 32 10 55.77	W 104 16 38.06	109.32	4947.95
	12579.00	86.96	89.88	8549.57	4797.28	-1637.25	4764.12	1.47	430008.58	558786.47	N 32 10 55.77	W 104 16 36.96	108.97	5037.60
	12672.00	88.23	90.16	8553.47	4890.17	-1637.28	4857.03	1.40	430008.54	558879.38	N 32 10 55.77	W 104 16 35.88	108.63	5125.57
	12767.00	88.58	90.02	8556.12	4985.12	-1637.43	4951.99	0.40	430008.39	558974.34	N 32 10 55.77	W 104 16 34.77	108.30	5215.69
	12862.00	88.52	90.11	8558.52	5080.07	-1637.54	5046.96	0.11	430008.29	559069.30	N 32 10 55.77	W 104 16 33.67	107.98	5305.98

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 ° ' ")	Closure Azimuth (°)	Closure (ft)
	12957.00	88.55	90.09	8560.95	5175.02	-1637.70	5141.93	0.04	430008.12	559164.26	N 32 10 55.76	W 104 16 32.56	107.67	5396.44
	13051.00	88.54	90.11	8563.34	5268.97	-1637.87	5235.90	0.02	430007.96	559258.22	N 32 10 55.76	W 104 16 31.47	107.37	5486.10
	13146.00	88.56	89.90	8565.74	5363.92	-1637.87	5330.87	0.22	430007.95	559353.18	N 32 10 55.76	W 104 16 30.36	107.08	5576.81
	13241.00	88.59	89.78	8568.10	5458.87	-1637.61	5425.84	0.13	430008.21	559448.14	N 32 10 55.76	W 104 16 29.26	106.79	5667.59
	13335.00	88.42	89.85	8570.56	5552.81	-1637.31	5519.81	0.20	430008.52	559542.10	N 32 10 55.77	W 104 16 28.16	106.52	5757.52
	13430.00	88.40	90.18	8573.19	5647.75	-1637.33	5614.77	0.35	430008.49	559637.05	N 32 10 55.77	W 104 16 27.06	106.26	5848.63
	13525.00	88.15	89.58	8576.05	5742.68	-1637.13	5709.73	0.68	430008.69	559732.00	N 32 10 55.77	W 104 16 25.95	106.00	5939.80
	13619.00	88.27	88.08	8578.99	5836.55	-1635.21	5803.66	1.60	430010.61	559825.92	N 32 10 55.79	W 104 16 24.86	105.74	6029.63
	13714.00	88.35	88.14	8581.79	5931.38	-1632.08	5898.57	0.11	430013.74	559920.82	N 32 10 55.82	W 104 16 23.76	105.47	6120.20
	13809.00	88.20	88.22	8584.65	6026.20	-1629.07	5993.48	0.18	430016.76	560015.72	N 32 10 55.85	W 104 16 22.65	105.21	6210.93
	13904.00	88.12	91.02	8587.70	6121.11	-1628.44	6088.42	2.95	430017.39	560110.65	N 32 10 55.85	W 104 16 21.55	104.97	6302.43
	13999.00	88.50	92.47	8590.50	6216.06	-1631.33	6183.33	1.58	430014.49	560205.56	N 32 10 55.82	W 104 16 20.44	104.78	6394.90
Section 27-28 Line Crossing [350' FSL]	14071.70	87.90	92.47	8592.79	6288.70	-1634.46	6255.92	0.83	430011.36	560278.14	N 32 10 55.79	W 104 16 19.60	104.64	6465.91
	14093.00	87.72	92.47	8593.60	6309.98	-1635.38	6277.19	0.83	430010.45	560299.41	N 32 10 55.78	W 104 16 19.35	104.60	6486.72
	14187.00	87.82	92.11	8597.26	6403.89	-1639.13	6371.04	0.40	430006.69	560393.25	N 32 10 55.74	W 104 16 18.26	104.43	6578.52
	14281.00	87.68	90.55	8600.95	6497.82	-1641.31	6464.94	1.66	430004.51	560487.14	N 32 10 55.72	W 104 16 17.17	104.25	6670.04
	14376.00	87.89	90.21	8604.62	6592.74	-1641.94	6559.87	0.42	430003.88	560582.06	N 32 10 55.72	W 104 16 16.06	104.05	6762.24
	14470.00	88.19	90.23	8607.84	6686.67	-1642.30	6653.81	0.32	430003.52	560676.00	N 32 10 55.71	W 104 16 14.97	103.86	6853.49
	14561.00	87.91	90.64	8610.93	6777.61	-1642.99	6744.76	0.55	430002.83	560766.93	N 32 10 55.70	W 104 16 13.91	103.69	6941.99
	14656.00	87.73	90.26	8614.55	6872.53	-1643.74	6839.69	0.44	430002.09	560861.85	N 32 10 55.70	W 104 16 12.81	103.51	7034.43
	14751.00	87.63	90.52	8618.39	6967.44	-1644.38	6934.61	0.29	430001.44	560956.76	N 32 10 55.69	W 104 16 11.70	103.34	7126.90
	14846.00	87.88	90.29	8622.11	7062.36	-1645.05	7029.53	0.36	430000.77	561051.68	N 32 10 55.68	W 104 16 10.60	103.17	7219.45
	14940.00	87.72	90.42	8625.72	7156.28	-1645.63	7123.46	0.22	430000.19	561145.60	N 32 10 55.68	W 104 16 9.50	103.01	7311.07
	15035.00	87.89	89.95	8629.36	7251.20	-1645.94	7218.39	0.53	429999.88	561240.52	N 32 10 55.67	W 104 16 8.40	102.85	7403.66
	15130.00	87.16	90.17	8633.46	7346.09	-1646.04	7313.30	0.80	429999.78	561335.42	N 32 10 55.67	W 104 16 7.30	102.68	7496.25
	15225.00	87.95	90.23	8637.52	7440.99	-1646.37	7408.21	0.83	429999.45	561430.32	N 32 10 55.67	W 104 16 6.19	102.53	7588.95
	15319.00	88.38	90.08	8640.53	7534.92	-1646.63	7502.16	0.48	429999.20	561524.27	N 32 10 55.66	W 104 16 5.10	102.38	7680.74
	15414.00	87.93	90.28	8643.58	7629.86	-1646.92	7597.11	0.52	429998.90	561619.21	N 32 10 55.66	W 104 16 3.99	102.23	7773.58
	15508.00	88.03	89.84	8646.90	7723.78	-1647.02	7691.05	0.48	429998.80	561713.14	N 32 10 55.66	W 104 16 2.90	102.09	7865.43
	15603.00	88.63	90.21	8649.67	7818.72	-1647.06	7786.01	0.74	429998.76	561808.09	N 32 10 55.66	W 104 16 1.80	101.94	7958.32
	15697.00	88.21	89.81	8652.26	7912.66	-1647.08	7879.98	0.62	429998.74	561902.05	N 32 10 55.66	W 104 16 0.70	101.81	8050.27
	15791.00	87.87	91.49	8655.47	8006.60	-1648.15	7973.91	1.82	429997.68	561995.97	N 32 10 55.65	W 104 15 59.61	101.68	8142.46
	15886.00	88.00	92.39	8658.90	8101.53	-1651.36	8068.79	0.96	429994.46	562090.85	N 32 10 55.61	W 104 15 58.51	101.57	8236.05
	15981.00	88.50	92.35	8661.80	8196.47	-1655.29	8163.67	0.53	429990.54	562185.71	N 32 10 55.57	W 104 15 57.40	101.46	8329.79
	16075.00	88.77	92.34	8664.04	8290.42	-1659.13	8257.56	0.29	429986.69	562279.60	N 32 10 55.53	W 104 15 56.31	101.36	8422.59
	16170.00	88.49	92.15	8666.31	8385.38	-1662.85	8352.46	0.36	429982.97	562374.49	N 32 10 55.50	W 104 15 55.21	101.26	8516.38
	16264.00	88.63	90.29	8668.67	8479.34	-1664.85	8446.41	1.98	429980.97	562468.43	N 32 10 55.48	W 104 15 54.11	101.15	8608.92
	16358.00	88.22	90.35	8671.25	8573.30	-1665.38	8540.37	0.44	429980.45	562562.38	N 32 10 55.47	W 104 15 53.02	101.03	8701.23
	16451.00	88.41	90.16	8673.99	8666.24	-1665.79	8633.33	0.29	429980.03	562655.33	N 32 10 55.47	W 104 15 51.94	100.92	8792.57
	16546.00	88.76	90.10	8676.34	8761.20	-1666.01	8728.30	0.37	429979.82	562750.29	N 32 10 55.46	W 104 15 50.83	100.81	8885.88
	16641.00	89.21	90.27	8678.02	8856.17	-1666.31	8823.28	0.51	429979.51	562845.27	N 32 10 55.46	W 104 15 49.73	100.69	8979.25
	16735.00	89.31	89.91	8679.23	8950.14	-1666.46	8917.28	0.40	429979.36	562939.25	N 32 10 55.46	W 104 15 48.63	100.59	9071.65
	16829.00	89.23	90.13	8680.43	9044.12	-1666.49	9011.27	0.25	429979.33	563033.23	N 32 10 55.46	W 104 15 47.54	100.48	9164.07
	16923.00	88.99	90.15	8681.89	9138.09	-1666.72	9105.26	0.26	429979.10	563127.21	N 32 10 55.45	W 104 15 46.45	100.37	9256.55
	17017.00	88.96	89.71	8683.57	9232.05	-1666.61	9199.24	0.47	429979.22	563221.19	N 32 10 55.45	W 104 15 45.35	100.27	9348.99
	17112.00	89.76	90.00	8684.63	9327.02	-1666.37	9294.23	0.90	429979.46	563316.17	N 32 10 55.46	W 104 15 44.25	100.16	9442.44
	17206.00	88.92	90.03	8685.72	9420.99	-1666.39	9388.23	0.89	429979.43	563410.16	N 32 10 55.46	W 104 15 43.15	100.07	9534.97
	17301.00	89.23	89.76	8687.25	9515.95	-1666.22	9483.22	0.43	429979.61	563505.14	N 32 10 55.46	W 104 15 42.05	99.97	9628.48
	17395.00	89.27	90.15	8688.48	9609.92	-1666.15	9577.21	0.42	429979.68	563599.12	N 32 10 55.46	W 104 15 40.95	99.87	9721.06
	17490.00	89.50	89.99	8689.50	9704.90	-1666.26	9672.20	0.29	429979.56	563694.10	N 32 10 55.46	W 104 15 39.85	99.77	9814.68
	17584.00	89.52	90.53	8690.30	9798.88	-1666.69	9766.20	0.57	429979.14	563788.09	N 32 10 55.45	W 104 15 38.76	99.68	9907.39
	17679.00	89.28	89.92	8691.30	9893.86	-1667.06	9861.19	0.69	429978.76	563883.08	N 32 10 55.45	W 104 15 37.65	99.60	10001.11
	17774.00	89.40	90.26	8692.39	9988.84	-1667.21	9956.18	0.38	429978.61	563978.06	N 32 10 55.44	W 104 15 36.55	99.51	10094.81
	17868.00	89.54	90.28	8693.26	10082.82	-1667.65	10050.18	0.15	429978.17	564072.05	N 32 10 55.44	W 104 15 35.45	99.42	10187.60
	17962.00	88.93	90.00	8694.52	10176.80	-1667.88	10144.17	0.71	429977.94	564166.03	N 32 10 55.44	W 104 15 34.36	99.34	10280.37
	18057.00	88.17	89.96	8696.92	10271.75	-1667.85	10239.14	0.80	429977.98	564260.99	N 32 10 55.44	W 104 15 33.25	99.25	10374.09
	18151.00	88.63	90.08	8699.55	10365.69	-1667.88	10333.10	0.51	429977.94	564354.94	N 32 10 55.43	W 104 15 32.16	99.17	10466.84
	18245.00	88.66	90.16	8701.77	10459.65	-1668.08	10427.07	0.09	429977.75	564448.91	N 32 10 55.43	W 104 15 31.07	99.09	10559.66
	18340.00	88.80	90.34	8703.87	10554.61	-1668.49	10522.05	0.24	429977.33	564543.87	N 32 10 55.43	W 104 15 29.96	99.01	10653.52
	18434.00	88.85	90.05	8705.80	10648.57	-1668.81	10616.03	0.31	429977.01	564637.85	N 32 10 55.42	W 104 15 28.87	98.93	10746.40

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 ° ' '')	Closure Azimuth (°)	Closure (ft)
	18529.00	89.05	90.23	8707.54	10743.54	-1669.05	10711.01	0.28	429976.78	564732.82	N 32 10 55.42	W 104 15 27.76	98.86	10840.27
	18623.00	88.82	90.25	8709.29	10837.51	-1669.44	10805.00	0.25	429976.39	564826.79	N 32 10 55.42	W 104 15 26.67	98.78	10933.21
	18717.00	88.65	90.03	8711.36	10931.47	-1669.67	10898.97	0.30	429976.16	564920.76	N 32 10 55.41	W 104 15 25.58	98.71	11026.12
	18812.00	88.71	90.16	8713.55	11026.43	-1669.83	10993.95	0.15	429976.00	565015.73	N 32 10 55.41	W 104 15 24.47	98.64	11120.04
	18906.00	88.79	90.22	8715.60	11120.39	-1670.14	11087.92	0.11	429975.69	565109.70	N 32 10 55.41	W 104 15 23.38	98.57	11213.00
Last Take Point [418' FEL, 412' FSL]	18910.00	88.79	90.22	8715.69	11124.39	-1670.15	11091.92	0.06	429975.67	565113.70	N 32 10 55.41	W 104 15 23.33	98.56	11216.96
Final Surveys TD, PTB [331' FEL, 413' FSL]	18963.00	88.76	90.21	8716.82	11177.37	-1670.35	11144.91	0.06	429975.47	565166.68	N 32 10 55.40	W 104 15 22.71	98.52	11269.39
	18997.00	88.76	90.21	8717.56	11211.36	-1670.48	11178.90	0.00	429975.35	565200.67	N 32 10 55.40	W 104 15 22.32	98.50	11303.02

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	23.000	1/98.425	17.500	13.375	NAL_MWD_IFR1+MS-Depth Only	Crawford 27-26 Fee #29H / Final Surveys - Cimarex Crawford 27-26 Fee #29H MWD 0ft-18997ft
	1	23.000	23.000	Act Stns	17.500	13.375	NAL_MWD_IFR1+MS-Depth Only	Crawford 27-26 Fee #29H / Final Surveys - Cimarex Crawford 27-26 Fee #29H MWD 0ft-18997ft
	1	23.000	409.000	Act Stns	17.500	13.375	NAL_MWD_IFR1+MS	Crawford 27-26 Fee #29H / Final Surveys - Cimarex Crawford 27-26
	1	409.000	1775.000	Act Stns	12.250	9.625	NAL_MWD_IFR1+MS	Crawford 27-26 Fee #29H / Final Surveys - Cimarex Crawford 27-26
	1	1775.000	9144.000	Act Stns	8.750	7.000	NAL_MWD_IFR1+MS	Crawford 27-26 Fee #29H / Final Surveys - Cimarex Crawford 27-26
	1	9144.000	18997.000	Act Stns	8.500	7.000	NAL_MWD_IFR1+MS	Crawford 27-26 Fee #29H / Final Surveys - Cimarex Crawford 27-26

