



Final Surveys - Cimarex Crawford 27-26 Fee #16H MWD 0ft-18205ft (Surcon Corrected) Survey Geodetic Report (Def Survey)



Report Date:	December 17, 2020 - 10:35 AM	Survey / DLS Computation:	Minimum Curvature / Lubinski
Client:	Cimarex Energy	Vertical Section Azimuth:	90.158 ° (Grid North)
Field:	NM Eddy County (NAD 83)	Vertical Section Origin:	0.000 ft, 0.000 ft
Structure / Slot:	Cimarex Crawford 27-26 Fee #16H / New Slot	TVD Reference Datum:	RKB
Well:	Crawford 27-26 Fee #16H	TVD Reference Elevation:	3354.100 ft above MSL
Borehole:	Crawford 27-26 Fee #16H	Seabed / Ground Elevation:	3331.100 ft above MSL
UWI / API#:	Unknown / Unknown	Magnetic Declination:	7.228 °
Survey Name:	Final Surveys - Cimarex Crawford 27-26 Fee #16H MWD 0ft-18205ft (Surcon Corrected)	Total Gravity Field Strength:	998.4461mgn (9.80665 Based)
Survey Date:	January 20, 2020	Gravity Model:	GARM
Tort / AHD / DDI / ERD Ratio:	192.433 ° / 10405.045 ft / 6.628 / 1.213	Total Magnetic Field Strength:	47722.727 nT
Coordinate Reference System:	NAD83 New Mexico State Plane, Eastern Zone, US Feet	Magnetic Dip Angle:	59.791 °
Location Lat / Long:	N 32° 11' 17.78745", W 104° 17' 17.09164"	Declination Date:	February 19, 2020
Location Grid N/E Y/X:	N 432231.670 ftUS, E 555336.440 ftUS	Magnetic Declination Model:	HDGM 2019
CRS Grid Convergence Angle:	0.0241 °	North Reference:	Grid North
Grid Scale Factor:	0.99990932	Grid Convergence Used:	0.0241 °
Version / Patch:	2.10.824.0	Total Corr Mag North->Grid North:	7.2036 °
		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 [2681' FNL, 410' FWL]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	N/A	432231.67	555336.44	N 32 11 17.79	W 104 17 17.09	0.00	0.00
	117.00	0.79	73.60	117.00	0.77	0.23	0.77	0.68	432231.90	555337.21	N 32 11 17.79	W 104 17 17.08	73.60	0.81
	207.00	0.70	291.57	206.99	0.86	0.61	0.86	1.57	432232.27	555337.30	N 32 11 17.79	W 104 17 17.08	54.80	1.05
	306.00	0.75	278.56	305.99	-0.35	0.92	-0.35	0.17	432232.59	555336.09	N 32 11 17.80	W 104 17 17.10	339.50	0.99
	340.00	0.75	287.52	339.98	-0.78	1.02	-0.78	0.34	432232.69	555335.66	N 32 11 17.80	W 104 17 17.10	322.78	1.29
	426.00	1.04	284.98	425.97	-2.07	1.40	-2.07	0.34	432233.06	555334.37	N 32 11 17.80	W 104 17 17.12	304.00	2.49
	489.00	1.12	280.14	488.96	-3.23	1.65	-3.23	0.19	432233.32	555333.21	N 32 11 17.80	W 104 17 17.13	297.10	3.62
	583.00	1.33	283.03	582.94	-5.20	2.06	-5.19	0.23	432233.73	555331.25	N 32 11 17.81	W 104 17 17.15	291.62	5.59
	676.00	1.39	275.63	675.91	-7.37	2.41	-7.37	0.20	432234.08	555329.07	N 32 11 17.81	W 104 17 17.18	288.13	7.75
	768.00	1.50	268.55	767.88	-9.69	2.49	-9.68	0.23	432234.16	555326.76	N 32 11 17.81	W 104 17 17.20	284.43	10.00
	861.00	1.55	266.89	860.85	-12.16	2.39	-12.15	0.07	432234.06	555324.29	N 32 11 17.81	W 104 17 17.23	281.14	12.39
	954.00	1.57	267.27	953.82	-14.69	2.26	-14.68	0.02	432233.93	555321.76	N 32 11 17.81	W 104 17 17.26	278.77	14.86
	1048.00	1.13	164.95	1047.80	-15.73	1.31	-15.73	2.26	432232.98	555320.71	N 32 11 17.80	W 104 17 17.27	274.75	15.78
	1143.00	3.65	137.69	1142.71	-13.44	-1.83	-13.45	2.84	432229.84	555322.99	N 32 11 17.77	W 104 17 17.25	262.24	13.57
	1238.00	4.05	141.43	1237.50	-9.30	-6.69	-9.32	0.50	432224.98	555327.12	N 32 11 17.72	W 104 17 17.20	234.32	11.48
	1333.00	4.01	129.44	1332.26	-4.63	-11.43	-4.67	0.89	432220.24	555331.77	N 32 11 17.67	W 104 17 17.15	202.21	12.34
	1428.00	3.70	111.32	1427.05	0.80	-14.65	0.76	1.32	432217.02	555337.20	N 32 11 17.64	W 104 17 17.08	177.05	14.67
	1522.00	3.96	96.25	1520.85	6.85	-16.11	6.81	1.10	432215.56	555343.25	N 32 11 17.63	W 104 17 17.01	157.09	17.49
	1616.00	3.05	68.96	1614.68	12.41	-15.56	12.37	1.99	432216.11	555348.81	N 32 11 17.63	W 104 17 16.95	141.52	19.88
	1714.00	2.67	63.75	1712.55	16.89	-13.62	16.85	0.47	432218.05	555353.29	N 32 11 17.65	W 104 17 16.90	128.94	21.66
	1812.00	2.46	61.52	1810.45	20.78	-11.60	20.74	0.24	432220.07	555357.18	N 32 11 17.67	W 104 17 16.85	119.22	23.77
	1908.00	0.32	7.98	1906.42	22.62	-10.36	22.59	2.38	432221.31	555359.03	N 32 11 17.68	W 104 17 16.83	114.63	24.85
	2001.00	2.28	235.51	1999.40	21.13	-11.15	21.10	2.70	432220.52	555357.54	N 32 11 17.68	W 104 17 16.85	117.84	23.87
	2096.00	2.60	231.92	2094.31	17.89	-13.55	17.85	0.37	432218.13	555354.29	N 32 11 17.65	W 104 17 16.88	127.19	22.41
	2190.00	2.66	229.85	2188.21	14.55	-16.27	14.51	0.12	432215.40	555350.94	N 32 11 17.63	W 104 17 16.92	138.28	21.80
	2285.00	2.65	230.40	2283.11	11.18	-19.09	11.13	0.03	432212.58	555347.57	N 32 11 17.60	W 104 17 16.96	149.76	22.10
	2379.00	2.71	226.65	2377.01	7.90	-22.00	7.84	0.20	432209.67	555344.28	N 32 11 17.57	W 104 17 17.00	160.39	23.35
	2474.00	2.89	225.61	2471.90	4.56	-25.22	4.49	0.20	432206.46	555340.93	N 32 11 17.54	W 104 17 17.04	169.90	25.61
	2568.00	3.01	227.50	2565.77	1.06	-28.54	0.98	0.16	432203.13	555337.42	N 32 11 17.51	W 104 17 17.08	178.03	28.56
	2663.00	3.09	229.26	2660.64	-2.71	-31.90	-2.80	0.13	432199.78	555333.64	N 32 11 17.47	W 104 17 17.12	185.01	32.02
	2757.00	4.46	216.01	2754.43	-6.77	-36.51	-6.87	1.72	432195.17	555329.57	N 32 11 17.43	W 104 17 17.17	190.65	37.15

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)
	2851.00	5.75	199.06	2848.06	-10.43	-43.92	-10.55	2.10	432187.76	555325.89	N 32 11 17.35	W 104 17 17.21	193.51	45.17
	2945.00	6.73	190.33	2941.51	-12.93	-53.79	-13.08	1.45	432177.89	555323.36	N 32 11 17.26	W 104 17 17.24	193.67	55.35
	3041.00	7.06	187.21	3036.81	-14.65	-65.17	-14.83	0.52	432166.50	555321.61	N 32 11 17.14	W 104 17 17.26	192.82	66.84
	3136.00	8.04	181.04	3130.99	-15.47	-77.61	-15.68	1.34	432154.07	555320.76	N 32 11 17.02	W 104 17 17.27	191.42	79.18
	3230.00	7.86	181.47	3224.09	-15.72	-90.61	-15.97	0.20	432141.07	555320.48	N 32 11 16.89	W 104 17 17.28	189.99	92.00
	3324.00	7.77	182.02	3317.21	-16.07	-103.38	-16.36	0.12	432128.30	555320.09	N 32 11 16.76	W 104 17 17.28	188.99	104.67
	3419.00	7.70	181.16	3411.35	-16.39	-116.16	-16.71	0.14	432115.52	555319.73	N 32 11 16.64	W 104 17 17.29	188.19	117.36
	3513.00	7.32	181.06	3504.54	-16.59	-128.45	-16.95	0.40	432103.24	555319.49	N 32 11 16.52	W 104 17 17.29	187.52	129.56
	3607.00	7.22	180.79	3597.79	-16.75	-140.34	-17.14	0.11	432091.34	555319.30	N 32 11 16.40	W 104 17 17.29	186.96	141.38
	3701.00	6.96	179.48	3691.07	-16.75	-151.94	-17.17	0.33	432079.74	555319.27	N 32 11 16.28	W 104 17 17.29	186.45	152.91
	3796.00	6.79	178.79	3785.39	-16.55	-163.31	-17.00	0.20	432068.37	555319.44	N 32 11 16.17	W 104 17 17.29	185.94	164.19
	3891.00	5.56	175.72	3879.83	-16.06	-173.52	-16.54	1.34	432058.17	555319.90	N 32 11 16.07	W 104 17 17.28	185.44	174.30
	3985.00	4.48	170.88	3973.47	-15.11	-181.68	-15.62	1.23	432050.01	555320.83	N 32 11 15.99	W 104 17 17.27	184.91	182.35
	4081.00	3.17	165.53	4069.26	-13.84	-187.95	-14.36	1.41	432043.73	555322.08	N 32 11 15.93	W 104 17 17.26	184.37	188.50
	4175.00	3.28	167.36	4163.11	-12.59	-193.09	-13.12	0.16	432038.59	555323.32	N 32 11 15.88	W 104 17 17.25	183.89	193.54
	4269.00	2.65	159.49	4256.98	-11.23	-197.75	-11.77	0.80	432033.93	555324.67	N 32 11 15.83	W 104 17 17.23	183.41	198.10
	4364.00	2.39	156.49	4351.89	-9.66	-201.63	-10.21	0.31	432030.06	555326.23	N 32 11 15.79	W 104 17 17.21	182.90	201.89
	4459.00	2.34	158.89	4446.81	-8.16	-205.25	-8.72	0.12	432026.44	555327.72	N 32 11 15.76	W 104 17 17.19	182.43	205.44
	4554.00	2.32	156.68	4541.73	-6.69	-208.83	-7.26	0.10	432022.86	555329.18	N 32 11 15.72	W 104 17 17.18	181.99	208.95
	4648.00	1.29	149.48	4635.68	-5.39	-211.49	-5.97	1.12	432020.20	555330.47	N 32 11 15.69	W 104 17 17.16	181.62	211.57
	4742.00	0.73	123.94	4729.67	-4.35	-212.73	-4.94	0.75	432018.96	555331.50	N 32 11 15.68	W 104 17 17.15	181.33	212.79
	4835.00	0.87	124.03	4822.66	-3.27	-213.46	-3.86	0.15	432018.23	555332.58	N 32 11 15.68	W 104 17 17.14	181.04	213.49
	4930.00	0.85	126.91	4917.65	-2.11	-214.28	-2.70	0.05	432017.41	555333.74	N 32 11 15.67	W 104 17 17.12	180.72	214.30
	5024.00	0.93	127.77	5011.64	-0.95	-215.17	-1.54	0.09	432016.52	555334.90	N 32 11 15.66	W 104 17 17.11	180.41	215.18
	5118.00	0.81	104.07	5105.63	0.30	-215.80	-0.29	0.40	432015.89	555336.15	N 32 11 15.65	W 104 17 17.10	180.08	215.80
	5213.00	0.75	98.94	5200.62	1.57	-216.06	0.97	0.10	432015.63	555337.41	N 32 11 15.65	W 104 17 17.08	179.74	216.06
	5308.00	0.82	107.87	5295.61	2.83	-216.36	2.23	0.15	432015.33	555338.67	N 32 11 15.65	W 104 17 17.07	179.41	216.38
	5403.00	0.74	101.51	5390.60	4.08	-216.70	3.48	0.12	432014.99	555339.92	N 32 11 15.64	W 104 17 17.05	179.08	216.72
	5498.00	0.77	87.80	5485.59	5.32	-216.79	4.72	0.19	432014.90	555341.16	N 32 11 15.64	W 104 17 17.04	178.75	216.84
	5593.00	1.33	342.61	5580.58	5.62	-215.72	5.03	1.79	432015.97	555341.47	N 32 11 15.65	W 104 17 17.03	178.66	215.78
	5688.00	1.17	321.33	5675.56	4.68	-213.91	4.09	0.51	432017.78	555340.53	N 32 11 15.67	W 104 17 17.05	178.90	213.95
	5782.00	1.13	298.47	5769.54	3.27	-212.72	2.68	0.49	432018.97	555339.12	N 32 11 15.68	W 104 17 17.06	179.28	212.73
	5876.00	0.74	317.82	5863.53	2.04	-211.82	1.46	0.53	432019.87	555337.90	N 32 11 15.69	W 104 17 17.08	179.61	211.83
	5971.00	0.06	223.25	5958.52	1.59	-211.41	1.01	0.79	432020.28	555337.45	N 32 11 15.70	W 104 17 17.08	179.73	211.41
	6066.00	0.88	225.99	6053.52	1.04	-211.95	0.45	0.86	432019.74	555336.89	N 32 11 15.69	W 104 17 17.09	179.88	211.95
	6161.00	1.57	208.37	6148.50	-0.10	-213.60	-0.69	0.82	432018.09	555335.75	N 32 11 15.67	W 104 17 17.10	180.19	213.60
	6255.00	1.65	193.41	6242.46	-1.02	-216.05	-1.62	0.45	432015.64	555334.82	N 32 11 15.65	W 104 17 17.11	180.43	216.06
	6349.00	1.63	184.47	6336.42	-1.43	-218.70	-2.03	0.27	432012.99	555334.41	N 32 11 15.62	W 104 17 17.12	180.53	218.71
	6443.00	1.75	197.31	6430.38	-1.95	-221.40	-2.57	0.42	432010.29	555333.87	N 32 11 15.60	W 104 17 17.12	180.66	221.42
	6538.00	0.78	258.63	6525.36	-3.02	-222.92	-3.63	1.62	432008.78	555332.81	N 32 11 15.58	W 104 17 17.13	180.93	222.95
	6632.00	0.92	307.22	6619.35	-4.25	-222.59	-4.86	0.76	432009.11	555331.58	N 32 11 15.58	W 104 17 17.15	181.25	222.64
	6727.00	0.41	312.97	6714.35	-5.10	-221.89	-5.72	0.54	432009.80	555330.73	N 32 11 15.59	W 104 17 17.16	181.48	221.97
	6822.00	0.44	267.78	6809.34	-5.72	-221.67	-6.33	0.35	432010.02	555330.11	N 32 11 15.59	W 104 17 17.17	181.64	221.77
	6917.00	0.31	266.25	6904.34	-6.34	-221.71	-6.95	0.14	432009.98	555329.49	N 32 11 15.59	W 104 17 17.17	181.80	221.81
	7012.00	0.39	246.24	6999.34	-6.89	-221.85	-7.50	0.15	432009.84	555328.94	N 32 11 15.59	W 104 17 17.18	181.94	221.98
	7106.00	0.98	214.87	7093.33	-7.64	-222.64	-8.25	0.72	432009.05	555328.19	N 32 11 15.58	W 104 17 17.19	182.12	222.79
	7202.00	0.73	215.92	7189.32	-8.46	-223.81	-9.08	0.26	432007.88	555327.36	N 32 11 15.57	W 104 17 17.20	182.32	223.99
	7296.00	0.77	204.42	7283.31	-9.07	-224.87	-9.69	0.17	432006.82	555326.75	N 32 11 15.56	W 104 17 17.21	182.47	225.08
	7391.00	1.24	169.62	7378.30	-9.15	-226.46	-9.77	0.79	432005.23	555326.67	N 32 11 15.55	W 104 17 17.21	182.47	226.67
	7486.00	0.88	129.72	7473.29	-8.40	-227.94	-9.03	0.84	432003.75	555327.41	N 32 11 15.53	W 104 17 17.20	182.27	228.12
	7581.00	2.01	107.05	7568.25	-6.24	-228.89	-6.87	1.31	432002.80	555329.57	N 32 11 15.52	W 104 17 17.17	181.72	229.00
	7676.00	0.82	96.80	7663.22	-3.97	-229.46	-4.61	1.28	432002.23	555331.84	N 32 11 15.52	W 104 17 17.15	181.15	229.51
	7770.00	0.75	44.31	7757.22	-2.88	-229.10	-3.51	0.74	432002.59	555332.93	N 32 11 15.52	W 104 17 17.13	180.88	229.13
	7783.00	0.62	55.55	7770.22	-2.76	-229.00	-3.39	1.43	432002.69	555333.05	N 32 11 15.52	W 104 17 17.13	180.85	229.03
First SLB Survey	7823.00	0.56	49.90	7810.21	-2.43	-228.75	-3.06	0.21	432002.94	555333.38	N 32 11 15.52	W 104 17 17.13	180.77	228.77
	7855.00	1.88	68.69	7842.21	-1.82	-228.46	-2.45	4.26	432003.23	555333.99	N 32 11 15.53	W 104 17 17.12	180.62	228.48
KOP [2909' FNL, 403' FWL]	7863.00	2.93	73.17	7850.20	-1.51	-228.36	-2.14	13.35	432003.34	555334.30	N 32 11 15.53	W 104 17 17.12	180.54	228.37
	7887.00	6.12	77.30	7874.12	0.33	-227.90	-0.30	13.35	432003.79	555336.14	N 32 11 15.53	W 104 17 17.10	180.08	227.90
	7918.00	10.29	82.53	7904.80	4.69	-227.17	4.06	13.65	432004.52	555340.50	N 32 11 15.54	W 104 17 17.05	178.98	227.21

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)
	7949.00	12.73	87.88	7935.17	10.84	-226.69	10.22	8.58	432005.00	555346.66	N 32 11 15.54	W 104 17 16.97	177.42	226.92
	7981.00	15.90	92.97	7966.18	18.75	-226.78	18.12	10.65	432004.91	555354.56	N 32 11 15.54	W 104 17 16.88	175.43	227.51
	8013.00	20.10	96.39	7996.60	28.60	-227.62	27.97	13.53	432004.07	555364.41	N 32 11 15.53	W 104 17 16.77	172.99	229.33
	8044.00	24.21	95.59	8025.31	40.22	-228.83	39.59	13.29	432002.86	555376.03	N 32 11 15.52	W 104 17 16.63	170.18	232.24
	8076.00	28.25	91.77	8054.01	54.33	-229.71	53.70	13.68	432001.98	555390.14	N 32 11 15.51	W 104 17 16.47	166.84	235.90
	8123.00	31.16	86.07	8094.84	77.59	-229.22	76.96	8.62	432002.47	555413.39	N 32 11 15.52	W 104 17 16.20	161.44	241.79
	8170.00	35.28	83.39	8134.15	103.21	-226.82	102.58	9.30	432004.87	555439.02	N 32 11 15.54	W 104 17 15.90	155.66	248.94
	8217.00	41.37	83.47	8171.00	132.14	-223.49	131.53	12.96	432008.20	555467.95	N 32 11 15.58	W 104 17 15.56	149.52	259.32
	8265.00	48.54	85.13	8204.95	165.86	-220.15	165.25	15.13	432011.54	555501.68	N 32 11 15.61	W 104 17 15.17	143.11	275.27
	8312.00	53.69	87.82	8234.45	202.35	-217.94	201.75	11.83	432013.75	555538.17	N 32 11 15.63	W 104 17 14.75	137.21	296.98
First Take Point [2900' FNL, 646' FWL]	8359.00	58.15	90.55	8260.78	241.26	-217.41	240.66	10.64	432014.28	555577.08	N 32 11 15.64	W 104 17 14.29	132.09	324.32
	8407.00	63.53	91.07	8284.16	283.16	-218.01	282.56	11.25	432013.68	555618.97	N 32 11 15.63	W 104 17 13.80	127.65	356.88
	8455.00	67.43	90.25	8304.08	326.82	-218.50	326.22	8.27	432013.19	555662.63	N 32 11 15.62	W 104 17 13.30	123.81	392.63
	8502.00	71.88	88.59	8320.42	370.87	-218.05	370.27	10.03	432013.64	555706.67	N 32 11 15.63	W 104 17 12.78	120.49	429.70
	8549.00	77.89	87.57	8332.67	416.19	-216.52	415.60	12.96	432015.17	555752.00	N 32 11 15.64	W 104 17 12.26	117.52	468.62
	8596.00	82.19	88.88	8340.79	462.44	-215.09	461.85	9.55	432016.60	555798.25	N 32 11 15.66	W 104 17 11.72	114.97	509.48
	8643.00	85.68	90.19	8345.76	509.17	-214.72	508.58	7.93	432016.97	555844.97	N 32 11 15.66	W 104 17 11.17	112.89	552.05
	8706.00	87.71	91.60	8349.39	572.06	-215.70	571.46	3.92	432015.99	555907.85	N 32 11 15.65	W 104 17 10.44	110.68	610.82
	8804.00	89.29	89.90	8351.96	670.01	-216.98	669.41	2.37	432014.71	556005.79	N 32 11 15.64	W 104 17 9.30	107.96	703.70
	8898.00	88.26	87.94	8353.97	763.96	-215.21	763.37	2.36	432016.48	556099.74	N 32 11 15.65	W 104 17 8.21	105.74	793.13
	8993.00	88.89	88.43	8356.33	858.87	-212.20	858.29	0.84	432019.49	556194.65	N 32 11 15.68	W 104 17 7.11	103.89	884.13
	9088.00	89.02	88.38	8358.06	953.81	-209.56	953.24	0.15	432022.13	556289.59	N 32 11 15.71	W 104 17 6.00	102.40	976.00
	9182.00	89.34	88.24	8359.41	1047.75	-206.79	1047.19	0.37	432024.90	556383.53	N 32 11 15.74	W 104 17 4.91	101.17	1067.41
	9277.00	88.79	88.45	8360.96	1142.69	-204.04	1142.14	0.62	432027.65	556478.47	N 32 11 15.76	W 104 17 3.80	100.13	1160.22
	9371.00	88.71	88.46	8363.01	1236.63	-201.51	1236.08	0.09	432030.18	556572.40	N 32 11 15.79	W 104 17 2.71	99.26	1252.40
	9466.00	88.47	88.46	8365.34	1331.56	-198.96	1331.02	0.25	432032.73	556667.33	N 32 11 15.81	W 104 17 1.60	98.50	1345.80
	9560.00	88.74	90.70	8367.63	1425.52	-198.27	1424.98	2.40	432033.42	556761.29	N 32 11 15.82	W 104 17 0.51	97.92	1438.71
	9655.00	88.58	90.54	8369.86	1520.49	-199.30	1519.95	0.24	432032.39	556856.25	N 32 11 15.81	W 104 16 59.41	97.47	1532.96
	9749.00	88.74	90.61	8372.05	1614.46	-200.24	1613.92	0.19	432031.45	556950.21	N 32 11 15.80	W 104 16 58.31	97.07	1626.29
	9843.00	89.00	90.54	8373.91	1708.44	-201.18	1707.89	0.29	432030.51	557044.18	N 32 11 15.79	W 104 16 57.22	96.72	1719.70
	9937.00	88.97	90.62	8375.57	1802.43	-202.13	1801.88	0.09	432029.56	557138.15	N 32 11 15.78	W 104 16 56.13	96.40	1813.18
	10031.00	89.62	90.55	8376.73	1896.42	-203.09	1895.86	0.70	432028.60	557232.13	N 32 11 15.77	W 104 16 55.03	96.11	1906.71
	10126.00	89.57	90.69	8377.40	1991.41	-204.12	1990.85	0.16	432027.57	557327.11	N 32 11 15.76	W 104 16 53.93	95.85	2001.29
	10219.00	89.18	90.51	8378.41	2084.40	-205.09	2083.84	0.46	432026.59	557420.09	N 32 11 15.75	W 104 16 52.84	95.62	2093.91
	10314.00	89.21	90.54	8379.75	2179.39	-205.96	2178.83	0.04	432025.72	557515.07	N 32 11 15.74	W 104 16 51.74	95.40	2188.54
	10409.00	89.12	90.51	8381.13	2274.38	-206.84	2273.82	0.10	432024.85	557610.05	N 32 11 15.73	W 104 16 50.63	95.20	2283.20
	10504.00	89.19	90.71	8382.54	2369.36	-207.85	2368.80	0.22	432023.84	557705.02	N 32 11 15.72	W 104 16 49.53	95.01	2377.90
	10599.00	89.15	90.68	8383.91	2464.35	-209.00	2463.78	0.05	432022.69	557800.00	N 32 11 15.71	W 104 16 48.42	94.85	2472.63
	10694.00	89.08	90.62	8385.38	2559.34	-210.08	2558.77	0.10	432021.61	557894.97	N 32 11 15.70	W 104 16 47.32	94.69	2567.38
	10788.00	89.24	90.64	8386.76	2653.32	-211.11	2652.75	0.17	432020.58	557988.94	N 32 11 15.69	W 104 16 46.23	94.55	2661.14
	10882.00	89.26	90.55	8387.99	2747.31	-212.09	2746.74	0.10	432019.60	558082.92	N 32 11 15.68	W 104 16 45.13	94.42	2754.91
	10976.00	89.26	90.50	8389.20	2841.30	-212.95	2840.73	0.05	432018.74	558176.90	N 32 11 15.67	W 104 16 44.04	94.29	2848.70
	11071.00	89.64	90.25	8390.11	2936.30	-213.57	2935.72	0.48	432018.12	558271.89	N 32 11 15.66	W 104 16 42.93	94.16	2943.48
	11166.00	88.91	90.15	8391.31	3031.29	-213.90	3030.71	0.78	432017.79	558366.87	N 32 11 15.66	W 104 16 41.83	94.04	3038.25
	11261.00	88.92	90.67	8393.11	3126.27	-214.58	3125.69	0.55	432017.11	558461.84	N 32 11 15.65	W 104 16 40.72	93.93	3133.05
	11355.00	88.60	90.78	8395.15	3220.24	-215.77	3219.66	0.36	432015.92	558555.80	N 32 11 15.64	W 104 16 39.63	93.83	3226.88
	11450.00	88.78	90.36	8397.32	3315.22	-216.71	3314.63	0.48	432014.98	558650.76	N 32 11 15.63	W 104 16 38.52	93.74	3321.71
	11545.00	88.42	90.27	8399.64	3410.19	-217.24	3409.60	0.39	432014.45	558745.72	N 32 11 15.62	W 104 16 37.42	93.65	3416.51
	11639.00	88.67	90.52	8402.03	3504.16	-217.88	3503.57	0.38	432013.81	558839.68	N 32 11 15.62	W 104 16 36.33	93.56	3510.34
	11734.00	88.65	90.50	8404.25	3599.13	-218.73	3598.54	0.03	432012.96	558934.64	N 32 11 15.61	W 104 16 35.22	93.48	3605.18
	11829.00	88.79	90.58	8406.37	3694.10	-219.62	3693.51	0.17	432012.07	559029.61	N 32 11 15.60	W 104 16 34.11	93.40	3700.03
	11924.00	88.94	90.37	8408.25	3789.08	-220.41	3788.49	0.27	432011.28	559124.58	N 32 11 15.59	W 104 16 33.01	93.33	3794.89
	12019.00	88.62	90.52	8410.28	3884.06	-221.15	3883.46	0.37	432010.54	559219.54	N 32 11 15.58	W 104 16 31.90	93.26	3889.76
	12114.00	88.65	90.61	8412.54	3979.03	-222.09	3978.43	0.10	432009.60	559314.50	N 32 11 15.57	W 104 16 30.80	93.20	3984.63
	12207.00	88.80	90.24	8414.61	4072.01	-222.78	4071.41	0.43	432008.91	559407.47	N 32 11 15.56	W 104 16 29.72	93.13	4077.50
	12302.00	88.63	90.53	8416.74	4166.98	-223.41	4166.38	0.35	432008.28	559502.43	N 32 11 15.56	W 104 16 28.61	93.07	4172.37
	12398.00	88.80	90.41	8418.89	4262.95	-224.20	4262.35	0.22	432007.49	559598.40	N 32 11 15.55	W 104 16 27.50	93.01	4268.25
	12493.00	88.77	90.49	8420.91	4357.93	-224.95	4357.33	0.09	432006.74	559693.36	N 32 11 15.54	W 104 16 26.39	92.96	4363.13
	12588.00	88.66	90.58	8423.04	4452.91	-225.83	4452.30	0.15	432005.86	559788.33	N 32 11 15.53	W 104 16 25.29	92.90	4458.02
	12683.00	88.67	90.62	8425.25	4547.88	-226.83	4547.27	0.04	432004.86	559883.29	N 32 11 15.52	W 104 16 24.18	92.86	4552.92

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)
Section Line Crossing [2951' FNL]	12778.00	88.98	90.54	8427.20	4642.85	-227.79	4642.24	0.34	432003.90	559978.25	N	32 11 15.51	W 104 16 23.08	92.81	4647.83
	12872.00	88.87	90.14	8428.96	4736.84	-228.35	4736.23	0.44	432003.34	560072.23	N	32 11 15.50	W 104 16 21.98	92.76	4741.73
	12968.00	89.16	88.15	8430.61	4832.80	-226.92	4832.20	2.09	432004.78	560168.19	N	32 11 15.52	W 104 16 20.87	92.69	4837.52
	13034.20	89.12	88.18	8431.61	4898.96	-224.79	4898.35	0.08	432006.90	560234.34	N	32 11 15.54	W 104 16 20.10	92.63	4903.51
	13062.00	89.10	88.19	8432.04	4926.74	-223.91	4926.14	0.08	432007.78	560262.12	N	32 11 15.55	W 104 16 19.77	92.60	4931.22
	13156.00	89.60	88.23	8433.11	5020.68	-220.98	5020.09	0.53	432010.71	560356.06	N	32 11 15.58	W 104 16 18.68	92.52	5024.95
	13250.00	89.21	88.17	8434.08	5114.62	-218.03	5114.03	0.42	432013.66	560450.00	N	32 11 15.60	W 104 16 17.59	92.44	5118.68
	13344.00	89.27	88.29	8435.33	5208.55	-215.12	5207.98	0.14	432016.57	560543.94	N	32 11 15.63	W 104 16 16.49	92.37	5212.42
	13439.00	89.54	88.23	8436.32	5303.50	-212.24	5302.93	0.29	432019.45	560638.88	N	32 11 15.66	W 104 16 15.39	92.29	5307.18
	13533.00	89.14	88.30	8437.40	5397.44	-209.39	5396.88	0.43	432022.30	560732.82	N	32 11 15.69	W 104 16 14.29	92.22	5400.94
	13627.00	89.32	88.32	8438.66	5491.38	-206.62	5490.83	0.19	432025.07	560826.76	N	32 11 15.72	W 104 16 13.20	92.16	5494.72
	13720.00	89.34	88.25	8439.75	5584.33	-203.84	5583.78	0.08	432027.85	560919.71	N	32 11 15.74	W 104 16 12.12	92.09	5587.50
	13816.00	88.62	90.61	8441.46	5680.30	-202.88	5679.76	2.57	432028.81	561015.67	N	32 11 15.75	W 104 16 11.00	92.05	5683.38
	13910.00	88.78	90.52	8443.59	5774.27	-203.81	5773.73	0.20	432027.88	561109.63	N	32 11 15.74	W 104 16 9.91	92.02	5777.32
	14004.00	88.84	90.47	8445.54	5868.25	-204.62	5867.70	0.08	432027.07	561203.60	N	32 11 15.73	W 104 16 8.82	92.00	5871.27
	14099.00	88.81	90.49	8447.49	5963.23	-205.42	5962.68	0.04	432026.27	561298.57	N	32 11 15.72	W 104 16 7.71	91.97	5966.22
	14194.00	87.26	90.85	8450.75	6058.16	-206.53	6057.62	1.67	432025.16	561393.49	N	32 11 15.71	W 104 16 6.61	91.95	6061.14
	14288.00	87.30	90.88	8455.21	6152.05	-207.94	6151.50	0.05	432023.75	561487.37	N	32 11 15.70	W 104 16 5.51	91.94	6155.01
	14383.00	87.25	90.63	8459.73	6246.94	-209.19	6246.38	0.27	432022.50	561582.24	N	32 11 15.69	W 104 16 4.41	91.92	6249.89
	14477.00	87.18	90.68	8464.29	6340.82	-210.27	6340.27	0.09	432021.42	561676.12	N	32 11 15.67	W 104 16 3.32	91.90	6343.75
	14572.00	87.49	90.45	8468.71	6435.72	-211.20	6435.16	0.41	432020.49	561771.00	N	32 11 15.66	W 104 16 2.21	91.88	6438.62
	14667.00	87.47	90.83	8472.89	6530.62	-212.26	6530.06	0.40	432019.43	561865.90	N	32 11 15.65	W 104 16 1.11	91.86	6533.51
	14761.00	87.43	90.58	8477.07	6624.52	-213.42	6623.96	0.27	432018.27	561959.79	N	32 11 15.64	W 104 16 0.02	91.85	6627.40
	14856.00	88.53	91.02	8480.42	6719.46	-214.74	6718.89	1.25	432016.95	562054.71	N	32 11 15.63	W 104 15 58.91	91.83	6722.32
	14950.00	88.49	90.77	8482.86	6813.42	-216.21	6812.85	0.27	432015.48	562148.66	N	32 11 15.61	W 104 15 57.82	91.82	6816.28
	15043.00	88.95	90.17	8484.94	6906.39	-216.97	6905.82	0.81	432014.72	562241.62	N	32 11 15.60	W 104 15 56.74	91.80	6909.23
	15137.00	88.88	90.75	8486.72	7000.37	-217.73	6999.80	0.62	432013.96	562335.59	N	32 11 15.60	W 104 15 55.64	91.78	7003.19
	15231.00	88.65	90.71	8488.75	7094.35	-218.93	7093.77	0.25	432012.76	562429.55	N	32 11 15.58	W 104 15 54.55	91.77	7097.15
	15326.00	88.72	90.44	8490.93	7189.32	-219.88	7188.74	0.29	432011.81	562524.51	N	32 11 15.57	W 104 15 53.44	91.75	7192.10
	15421.00	87.97	90.13	8493.67	7284.28	-220.35	7283.70	0.85	432011.34	562619.46	N	32 11 15.57	W 104 15 52.34	91.73	7287.03
	15516.00	88.10	90.89	8496.93	7379.22	-221.20	7378.64	0.81	432010.49	562714.39	N	32 11 15.56	W 104 15 51.23	91.72	7381.95
	15610.00	88.20	90.40	8499.96	7473.17	-222.25	7472.58	0.53	432009.44	562808.33	N	32 11 15.55	W 104 15 50.14	91.70	7475.89
	15706.00	88.36	90.51	8502.84	7569.12	-223.02	7568.54	0.20	432008.67	562904.28	N	32 11 15.54	W 104 15 49.03	91.69	7571.82
	15801.00	88.69	90.57	8505.29	7664.09	-223.91	7663.50	0.35	432007.78	562999.23	N	32 11 15.53	W 104 15 47.92	91.67	7666.77
	15895.00	88.65	90.48	8507.47	7758.06	-224.77	7757.47	0.10	432006.92	563093.19	N	32 11 15.52	W 104 15 46.83	91.66	7760.73
	15990.00	88.84	90.36	8509.55	7853.04	-225.47	7852.45	0.24	432006.22	563188.16	N	32 11 15.51	W 104 15 45.72	91.64	7855.68
	16085.00	88.84	90.61	8511.47	7948.02	-226.27	7947.42	0.26	432005.42	563283.13	N	32 11 15.51	W 104 15 44.62	91.63	7950.64
	16179.00	88.15	90.50	8513.94	8041.98	-227.18	8041.39	0.74	432004.51	563377.08	N	32 11 15.50	W 104 15 43.52	91.62	8044.59
	16274.00	88.27	90.68	8516.91	8136.93	-228.16	8136.33	0.23	432003.53	563472.02	N	32 11 15.49	W 104 15 42.42	91.61	8139.53
	16369.00	88.37	90.69	8519.70	8231.89	-229.30	8231.29	0.11	432002.39	563566.96	N	32 11 15.47	W 104 15 41.31	91.60	8234.48
	16464.00	88.35	90.34	8522.41	8326.85	-230.15	8326.24	0.37	432001.54	563661.91	N	32 11 15.47	W 104 15 40.21	91.58	8329.42
	16558.00	88.38	90.36	8525.10	8420.81	-230.72	8420.20	0.04	432000.97	563755.86	N	32 11 15.46	W 104 15 39.12	91.57	8423.36
	16652.00	88.38	90.80	8527.75	8514.77	-231.68	8514.16	0.47	432000.02	563849.81	N	32 11 15.45	W 104 15 38.02	91.56	8517.31
	16747.00	88.41	90.57	8530.41	8609.73	-232.81	8609.12	0.24	431998.88	563944.76	N	32 11 15.44	W 104 15 36.92	91.55	8612.26
	16842.00	88.78	90.61	8532.74	8704.70	-233.79	8704.08	0.39	431997.90	564039.72	N	32 11 15.43	W 104 15 35.81	91.54	8707.22
	16936.00	88.10	90.85	8535.30	8798.66	-234.99	8798.04	0.77	431996.71	564133.67	N	32 11 15.41	W 104 15 34.72	91.53	8801.18
	17030.00	89.23	90.43	8537.49	8892.62	-236.04	8892.01	1.28	431995.66	564227.62	N	32 11 15.40	W 104 15 33.63	91.52	8895.14
	17124.00	88.20	90.48	8539.60	8986.60	-236.78	8985.98	1.10	431994.91	564321.59	N	32 11 15.40	W 104 15 32.53	91.51	8989.10
	17219.00	88.77	90.26	8542.11	9081.56	-237.39	9080.94	0.64	431994.30	564416.54	N	32 11 15.39	W 104 15 31.43	91.50	9084.05
	17314.00	88.14	90.22	8544.67	9176.53	-237.79	9175.91	0.66	431993.90	564511.50	N	32 11 15.38	W 104 15 30.32	91.48	9178.99
	17409.00	87.63	90.99	8548.18	9271.46	-238.79	9270.84	0.97	431992.90	564606.42	N	32 11 15.37	W 104 15 29.22	91.48	9273.91
	17503.00	87.65	91.18	8552.05	9365.37	-240.57	9364.74	0.20	431991.12	564700.31	N	32 11 15.35	W 104 15 28.12	91.47	9367.83
	17598.00	88.10	89.35	8555.57	9460.30	-241.01	9459.67	1.98	431990.68	564795.23	N	32 11 15.35	W 104 15 27.02	91.46	9462.74
	17693.00	87.81	88.71	8558.96	9555.22	-239.40	9554.60	0.74	431992.29	564890.15	N	32 11 15.37	W 104 15 25.92	91.44	9557.59
	17787.00	87.87	88.69	8562.51	9649.12	-237.27	9648.50	0.07	431994.42	564984.05	N	32 11 15.39	W 104 15 24.82	91.41	9651.42
	17882.00	87.63	88.41	8566.24	9744.01	-234.87	9743.40	0.39	431996.82	565078.94	N	32 11 15.41	W 104 15 23.72	91.38	9746.23
	17976.00	87.82	88.64	8569.97	9837.90	-232.45	9837.29	0.32	431999.24	565172.82	N	32 11 15.43	W 104 15 22.63	91.35	9840.04
	18069.00	87.85	90.35	8573.48	9930.82	-231.63	9930.22	1.84	432000.06	565265.74	N	32 11 15.44	W 104 15 21.54	91.34	9932.92
	18164.00	88.23	90.81	8576.73	10025.76	-232.60	10025.16	0.63	431999.10	565360.67	N	32 11 15.43	W 104 15 20.44	91.33	10027.86

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 ° ' ")	Closure Azimuth (°)	Closure (ft)
Last Take Point [2881' FNL, 140' FEL]	18166.00	88.26	90.82	8576.79	10027.76	-232.62	10027.16	1.45	431999.07	565362.67	N 32 11 15.43	W 104 15 20.42	91.33	10029.86
Final Survey	18177.00	88.40	90.89	8577.11	10038.76	-232.79	10038.15	1.45	431998.90	565373.66	N 32 11 15.43	W 104 15 20.29	91.33	10040.85
TD, PTB [2882' FNL, 101' FEL]	18205.00	88.40	90.89	8577.89	10066.74	-233.22	10066.14	0.00	431998.47	565401.65	N 32 11 15.42	W 104 15 19.96	91.33	10068.84

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 #16H / Final Surveys - Cimarex Crawford 27-26 Fee #16H MWD 0ft-18205ft
	1	23.000	23.000	Act Stns	17.500	13.375	NAL_MWD_IFR1+MS-Depth Only	Crawford 27-26 Fee #16H / Final Surveys - Cimarex Crawford 27-26 Fee #16H MWD 0ft-18205ft
	1	23.000	410.000	Act Stns	17.500	13.375	NAL_MWD_IFR1+MS	Crawford 27-26 Fee #16H / Final Surveys - Cimarex Crawford 27-26
	1	410.000	1795.000	Act Stns	12.250	9.625	NAL_MWD_IFR1+MS	Crawford 27-26 Fee #16H / Final Surveys - Cimarex Crawford 27-26
	1	1795.000	8766.000	Act Stns	8.750	7.000	NAL_MWD_IFR1+MS	Crawford 27-26 Fee #16H / Final Surveys - Cimarex Crawford 27-26
	1	8766.000	18205.000	Act Stns	8.500	7.000	NAL_MWD_IFR1+MS	Crawford 27-26 Fee #16H / Final Surveys - Cimarex Crawford 27-26

