

County Line 3107-10H MWD 0' to 17312' Definitive Survey Geodetic Report

(Def Survey)

Report Date: January 13, 2022 - 04:02 PM
Client: Verdad Resources LLC
Field: CO, Weld County (NAD 83 NZ) - 2019
Structure / Slot: Verdad Resources 31-01N-65W (County Line Pad) / County Line 3107-10H
Well: County Line 3107-10H
Borehole: Original Hole
UWI / API#: Unknown / 05-123-51175
Survey Name: County Line 3107-10H MWD 0' to 17312' Definitive
Survey Date: January 05, 2022
Tort / AHD / DDI / ERD Ratio: 311.414 ° / 10423.237 ft / 6.874 / 1.387
Coordinate Reference System: NAD83 Colorado State Plane, Northern Zone, US Feet
Location Lat / Long: N 40° 0' 5.24304", W 104° 42' 15.31404"
Location Grid N/E Y/X: N 1244377.594 ftUS, E 3222923.374 ftUS
CRS Grid Convergence Angle: 0.5142 °
Grid Scale Factor: 0.99996626
Version / Patch: 2.10.826.8

Survey / DLS Computation: Minimum Curvature / Lubinski
Vertical Section Azimuth: 180.330 ° (True North)
Vertical Section Origin: 0.000 ft, 0.000 ft
TVD Reference Datum: KB 21ft
TVD Reference Elevation: 5058.000 ft above MSL
Seabed / Ground Elevation: 5037.000 ft above MSL
Magnetic Declination: 7.872 °
Total Gravity Field Strength: 998.9824mgn (9.80665 Based)
Gravity Model: GARM
Total Magnetic Field Strength: 51627.934 nT
Magnetic Dip Angle: 66.231 °
Declination Date: January 05, 2022
Magnetic Declination Model: HDGM 2021
North Reference: True North
Grid Convergence Used: 0.0000 °
Total Corr Mag North→True North: 7.8716 °
Local Coord Referenced To: Well Head

Comments	MD (ft)	Incl (°)	Azim True (°)	TVD (ft)	VSEC (ft)	NS (ft)	EW (ft)	DLS (°/100ft)	Northing (ftUS)	Easting (ftUS)	Latitude (°)	Longitude (°)
Surface	0.00	0.00	0.00	0.00	0.00	0.00	0.00	N/A	1244377.59	3222923.37	40.001456	-104.704254
Adjusted KB	17.00	0.00	0.00	17.00	0.00	0.00	0.00	0.00	1244377.59	3222923.37	40.001456	-104.704254
First SLB_MWD Survey	252.00	0.64	187.24	252.00	1.30	-1.30	-0.17	0.27	1244376.29	3222923.22	40.001453	-104.704254
	283.00	0.44	197.78	282.99	1.59	-1.59	-0.22	0.72	1244376.01	3222923.16	40.001452	-104.704255
	313.00	0.34	159.79	312.99	1.78	-1.78	-0.23	0.90	1244375.81	3222923.16	40.001452	-104.704255
	343.00	0.46	193.26	342.99	1.98	-1.98	-0.22	0.86	1244375.61	3222923.17	40.001451	-104.704255
	373.00	0.68	189.85	372.99	2.28	-2.27	-0.28	0.74	1244375.32	3222923.11	40.001450	-104.704255
	403.00	1.02	158.72	402.99	2.70	-2.70	-0.22	1.87	1244374.89	3222923.18	40.001449	-104.704255
	433.00	1.39	155.79	432.98	3.28	-3.28	0.03	1.25	1244374.32	3222923.43	40.001447	-104.704254
	463.00	1.46	152.62	462.97	3.95	-3.95	0.35	0.35	1244373.65	3222923.76	40.001446	-104.704253
	493.00	1.61	158.08	492.96	4.68	-4.68	0.69	0.70	1244372.92	3222924.10	40.001444	-104.704251
	523.00	1.86	154.59	522.95	5.50	-5.51	1.05	0.90	1244372.09	3222924.48	40.001441	-104.704250
	553.00	2.18	154.10	552.93	6.46	-6.46	1.51	1.07	1244371.14	3222924.94	40.001439	-104.704249
	583.00	2.19	144.26	582.91	7.43	-7.44	2.10	1.25	1244370.17	3222925.54	40.001436	-104.704246
	613.00	2.26	142.34	612.88	8.36	-8.38	2.79	0.34	1244369.24	3222926.24	40.001433	-104.704244
	643.00	2.39	136.79	642.86	9.28	-9.30	3.58	0.87	1244368.33	3222927.04	40.001431	-104.704241
	673.00	2.31	132.75	672.83	10.14	-10.17	4.45	0.61	1244367.47	3222927.92	40.001428	-104.704238
	703.00	2.44	136.41	702.81	11.01	-11.04	5.34	0.67	1244366.60	3222928.81	40.001426	-104.704235
	733.00	2.30	143.14	732.78	11.95	-11.98	6.14	1.04	1244365.67	3222929.62	40.001424	-104.704232
	763.00	2.05	142.64	762.76	12.85	-12.89	6.83	0.84	1244364.76	3222930.32	40.001421	-104.704230
	793.00	2.07	145.46	792.74	13.72	-13.76	7.46	0.34	1244363.90	3222930.96	40.001419	-104.704227
	823.00	2.18	143.61	822.72	14.62	-14.67	8.11	0.43	1244363.00	3222931.61	40.001416	-104.704225
	853.00	2.34	145.59	852.70	15.58	-15.63	8.79	0.59	1244362.04	3222932.30	40.001413	-104.704223
	883.00	2.42	145.51	882.67	16.61	-16.66	9.49	0.27	1244361.02	3222933.02	40.001411	-104.704220
	913.00	2.21	144.78	912.65	17.60	-17.66	10.19	0.71	1244360.03	3222933.72	40.001408	-104.704218
	943.00	1.85	142.71	942.63	18.45	-18.51	10.81	1.22	1244359.18	3222934.35	40.001406	-104.704215
	973.00	1.69	143.37	972.61	19.19	-19.25	11.37	0.54	1244358.44	3222934.92	40.001404	-104.704213
	1003.00	1.41	135.07	1002.60	19.80	-19.87	11.90	1.19	1244357.83	3222935.45	40.001402	-104.704211
	1033.00	1.09	145.73	1032.60	20.30	-20.37	12.32	1.31	1244357.34	3222935.87	40.001400	-104.704210
	1063.00	0.74	129.66	1062.59	20.65	-20.73	12.63	1.44	1244356.98	3222936.19	40.001400	-104.704209
	1093.00	0.76	114.58	1092.59	20.86	-20.93	12.96	0.66	1244356.78	3222936.52	40.001399	-104.704208
	1123.00	0.75	107.03	1122.59	21.00	-21.07	13.33	0.33	1244356.64	3222936.89	40.001399	-104.704206
	1153.00	0.76	101.67	1152.58	21.09	-21.17	13.71	0.24	1244356.55	3222937.27	40.001398	-104.704205
	1183.00	0.70	88.71	1182.58	21.13	-21.21	14.09	0.58	1244356.51	3222937.65	40.001398	-104.704204
	1213.00	0.42	81.91	1212.58	21.11	-21.19	14.38	0.96	1244356.54	3222937.94	40.001398	-104.704203
	1243.00	0.16	55.53	1242.58	21.07	-21.15	14.52	0.95	1244356.58	3222938.08	40.001398	-104.704202
	1273.00	0.33	51.20	1272.58	20.99	-21.07	14.62	0.57	1244356.66	3222938.19	40.001399	-104.704202
	1303.00	0.22	42.19	1302.58	20.89	-20.97	14.73	0.39	1244356.75	3222938.29	40.001399	-104.704201
	1333.00	0.27	26.94	1332.58	20.78	-20.87	14.80	0.27	1244356.86	3222938.36	40.001399	-104.704201
	1363.00	0.25	57.11	1362.58	20.68	-20.77	14.89	0.46	1244356.96	3222938.45	40.001399	-104.704201
	1393.00	0.42	34.36	1392.58	20.56	-20.64	15.00	0.71	1244357.09	3222938.56	40.001400	-104.704200
	1423.00	0.58	34.11	1422.58	20.34	-20.43	15.15	0.53	1244357.30	3222938.71	40.001400	-104.704200
	1453.00	0.32	66.01	1452.58	20.18	-20.27	15.31	1.17	1244357.47	3222938.87	40.001401	-104.704199
	1483.00	0.16	27.80	1482.58	20.11	-20.20	15.41	0.73	1244357.54	3222938.96	40.001401	-104.704199
	1513.00	0.30	308.97	1512.58	20.02	-20.11	15.37	1.04	1244357.62	3222938.92	40.001401	-104.704199
	1543.00	0.24	277.00	1542.58	19.97	-20.05	15.24	0.53	1244357.68	3222938.80	40.001401	-104.704199
	1573.00	0.17	7.92	1572.58	19.91	-20.00	15.19	0.99	1244357.73	3222938.74	40.001401	-104.704200
	1603.00	0.11	156.55	1602.58	19.90	-19.98	15.21	0.90	1244357.75	3222938.76	40.001402	-104.704200
	1633.00	0.14	62.43	1632.58	19.91	-19.99	15.25	0.61	1244357.74	3222938.80	40.001402	-104.704199
	1663.00	0.03	280.12	1662.58	19.89	-19.97	15.27	0.55	1244357.76	3222938.83	40.001402	-104.704199
	1685.00	0.26	225.51	1684.58	19.92	-20.01	15.23	1.11	1244357.72	3222938.79	40.001401	-104.704200
9 5/8" Casing	1750.00	0.15	213.93	1749.58	20.10	-20.18	15.08	0.18	1244357.55	3222938.63	40.001401	-104.704200
	1873.00	0.11	98.25	1872.57	20.25	-20.33	15.11	0.18	1244357.40	3222938.66	40.001401	-104.704200
	1963.00	0.02	125.48	1962.57	20.27	-20.35	15.20	0.10	1244357.38	3222938.76	40.001401	-104.704200
	2052.00	0.08	146.64	2051.57	20.33	-20.41	15.25	0.07	1244357.32	3222938.80	40.001400	-104.704199
	2141.00	0.12	191.01	2140.57	20.46	-20.55	15.26	0.09	1244357.18	3222938.82	40.001400	-104.704199
	2230.00	0.10	277.05	2229.57	20.54	-20.63	15.17	0.17	1244357.10	3222938.73	40.001400	-104.704200
	2320.00	0.02	247.62	2319.57	20.54	-20.63	15.08	0.09	1244357.10	3222938.64	40.001400	-104.704200
	2409.00	0.06	82.36	2408.57	20.54	-20.63	15.11	0.08	1244357.10	3222938.67	40.001400	-104.704200
	2499.00	0.13	145.32	2498.57	20.62	-20.71	15.22	0.13	1244357.03	3222938.78	40.001400	-104.704200
	2588.00	0.03	241.56	2587.57	20.71	-20.80	15.26	0.15	1244356.93	3222938.82	40.001399	-104.704199
	2678.00	0.08	298.03	2677.57	20.69	-20.78	15.19	0.07	1244356.95	3222938.75	40.001399	-104.704200
	2768.00	0.02	296.24	2767.57	20.66	-20.74	15.12	0.06	1244356.99	3222938.68	40.001399	-104.704200
	2857.00	0.12	181.24	2856.57	20.75	-20.83	15.10	0.15	1244356.90	3222938.66	40.001399	-104.704200
	2947.00	0.04	231.17	2946.57	20.86	-20.95	15.08	0.11	1244356.78	3222938.64	40.001399	-104.704200
	3036.00	0.01	46.81	3035.57	20.88	-20.97	15.05	0.05	1244356.77	3222938.62	40.001399	-104.704200
	3126.00	0.02	85.79	3125.57	20.87	-20.96	15.07	0.02	1244356.77	3222938.64	40.001399	-104.704200
	3215.00	0.04	173.21	3214.57	20.90	-20.99	15.09	0.05	1244356.74	3222938.65	40.001399	-104.704200
	3305.00	0.07	315.68	3304.57	20.90	-20.99	15.06	0.11	1244356.74	3222938.62	40.001399	-104.704200
	3394.00	0.04	245.63	3393.57	20.88	-20.96	15.00	0.07	1244356.77	3222938.56	40.001399	-104.704200
	3484.00	0.07	29.01	3483.57	20.84	-20.93	14.99	0.11	1244356.80	3222938.55	40.001399	-104.704200
	3573.00	0.05	1.39	3572.57	20.76	-20.85	15.02	0.03	1244356.89	3222938.58	40.001399	-104.704200
	3662.00	0.02	198.86	3661.57	20.73	-20.82	15.02	0.08	1244356.91	3222938.58	40.001399	-104.704200
	3752.00	0.10	251.67	3751.57	20.77	-20.85	14.94	0.10	1244356.88	3222938.50	40.001399	-104.704201
	3842.00	0.02	178.26	3841.57	20.80	-20.89	14.87	0.11	1244356.84	3222938.43	40.001399	-104.704201
	3931.00	0.02	33.95	3930.57	20.81	-20.89	14.87	0.04	1244356.84	3222938.44	40.001399	-104.704201

Comments	MD (ft)	Incl (°)	Azim True (°)	TVD (ft)	VSEC (ft)	NS (ft)	EW (ft)	DLS (°/100ft)	Northing (ftUS)	Easting (ftUS)	Latitude (°)	Longitude (°)
	4021.00	0.06	280.60	4020.57	20.78	-20.87	14.84	0.08	1244356.86	3222938.40	40.001399	-104.704201
	4110.00	0.05	96.63	4109.57	20.78	-20.87	14.83	0.12	1244356.86	3222938.39	40.001399	-104.704201
	4200.00	0.06	164.60	4199.57	20.83	-20.92	14.88	0.07	1244356.81	3222938.44	40.001399	-104.704201
	4289.00	0.05	346.30	4288.57	20.84	-20.93	14.89	0.13	1244356.80	3222938.45	40.001399	-104.704201
	4379.00	0.04	117.12	4378.57	20.81	-20.90	14.90	0.09	1244356.83	3222938.46	40.001399	-104.704201
	4468.00	0.05	334.85	4467.57	20.79	-20.88	14.91	0.09	1244356.85	3222938.47	40.001399	-104.704201
	4558.00	0.04	307.88	4557.57	20.74	-20.82	14.87	0.02	1244356.91	3222938.43	40.001399	-104.704201
	4647.00	0.04	62.76	4646.57	20.70	-20.79	14.87	0.07	1244356.94	3222938.43	40.001399	-104.704201
	4737.00	0.03	117.90	4736.57	20.70	-20.79	14.91	0.03	1244356.94	3222938.47	40.001399	-104.704201
	4826.00	0.03	171.30	4825.57	20.73	-20.82	14.93	0.03	1244356.91	3222938.49	40.001399	-104.704201
	4916.00	0.03	280.68	4915.57	20.75	-20.84	14.91	0.05	1244356.89	3222938.48	40.001399	-104.704201
	5005.00	0.02	49.20	5004.57	20.74	-20.82	14.90	0.04	1244356.91	3222938.46	40.001399	-104.704201
	5094.00	0.04	230.18	5093.57	20.75	-20.83	14.89	0.06	1244356.90	3222938.45	40.001399	-104.704201
	5184.00	0.14	275.72	5183.57	20.76	-20.84	14.76	0.13	1244356.89	3222938.32	40.001399	-104.704201
	5273.00	5.42	117.46	5272.44	22.66	-22.77	18.38	6.24	1244354.99	3222941.96	40.001394	-104.704188
	5363.00	5.76	115.44	5362.02	26.52	-26.67	26.24	0.44	1244351.16	3222949.85	40.001383	-104.704160
	5452.00	7.44	106.76	5450.42	30.05	-30.26	35.79	2.19	1244347.66	3222959.44	40.001373	-104.704126
	5542.00	5.32	99.02	5539.86	32.33	-32.59	45.49	2.54	1244345.42	3222969.16	40.001367	-104.704092
	5631.00	8.17	93.15	5628.24	33.26	-33.58	55.88	3.30	1244344.52	3222979.56	40.001364	-104.704054
	5720.00	11.35	90.79	5715.94	33.64	-34.05	70.96	3.60	1244344.18	3222994.63	40.001363	-104.704001
	5810.00	11.28	94.82	5804.19	34.40	-34.91	88.58	0.88	1244343.48	3223012.26	40.001361	-104.703938
	5899.00	6.88	96.72	5892.06	35.68	-36.27	102.55	4.96	1244342.25	3223026.25	40.001357	-104.703888
	5989.00	10.87	103.56	5980.96	38.22	-38.89	116.16	4.58	1244339.75	3223039.87	40.001350	-104.703839
	6078.00	10.64	109.95	6068.41	42.90	-43.66	132.04	1.36	1244335.12	3223055.79	40.001337	-104.703783
	6167.00	11.34	109.40	6155.77	48.52	-49.37	148.01	0.80	1244329.56	3223071.82	40.001321	-104.703726
	6257.00	10.83	106.85	6244.09	53.81	-54.76	164.45	0.79	1244324.32	3223088.30	40.001306	-104.703667
	6346.00	11.26	105.82	6331.45	58.51	-59.55	180.80	0.53	1244319.67	3223104.70	40.001293	-104.703609
	6436.00	10.53	109.30	6419.83	63.52	-64.66	197.01	1.09	1244314.71	3223120.95	40.001279	-104.703551
	6525.00	11.66	107.00	6507.16	68.75	-69.98	213.29	1.37	1244309.54	3223137.28	40.001264	-104.703493
	6615.00	11.37	105.71	6595.35	73.71	-75.04	230.53	0.43	1244304.63	3223154.56	40.001250	-104.703431
	6703.00	11.69	106.55	6681.57	78.50	-79.92	247.42	0.41	1244299.90	3223171.50	40.001237	-104.703371
	6793.00	11.21	107.35	6769.78	83.61	-85.13	264.52	0.56	1244294.84	3223188.63	40.001223	-104.703310
	6882.00	12.20	132.84	6865.99	92.50	-94.11	279.68	5.86	1244286.00	3223203.88	40.001198	-104.703256
	6971.00	16.71	170.22	6943.33	111.50	-113.16	288.77	11.38	1244267.03	3223213.14	40.001146	-104.703223
	7061.00	23.05	172.26	7027.92	141.71	-143.40	293.35	7.08	1244236.84	3223217.98	40.001063	-104.703207
	7150.00	31.09	174.21	7107.11	181.87	-183.59	298.02	9.08	1244196.69	3223223.02	40.000952	-104.703190
	7240.00	34.52	168.42	7182.77	229.95	-231.71	305.48	5.16	1244148.64	3223230.91	40.000820	-104.703164
	7329.00	42.86	166.53	7252.18	284.12	-285.95	317.62	9.47	1244094.52	3223243.53	40.000671	-104.703120
	7418.00	48.52	171.40	7314.35	346.52	-348.42	329.67	7.46	1244032.16	3223256.14	40.000500	-104.703077
	7508.00	57.34	178.27	7368.59	417.88	-419.82	335.87	11.54	1243960.82	3223262.98	40.000304	-104.703055
	7597.00	65.30	182.84	7411.28	495.86	-497.80	334.99	10.00	1243882.84	3223262.81	40.000090	-104.703058
	7687.00	74.49	187.85	7442.21	579.92	-581.81	327.02	11.47	1243798.76	3223255.59	39.999859	-104.703087
	7776.00	78.90	188.38	7462.68	665.71	-667.53	314.79	4.99	1243712.94	3223244.13	39.999624	-104.703130
	7865.00	80.17	187.06	7478.85	752.50	-754.26	303.04	2.04	1243626.11	3223233.16	39.999386	-104.703172
Cross Setback Heel (460' FNL, 1701' FEL)	7911.35	81.91	185.00	7486.07	798.05	-799.78	298.23	5.77	1243580.55	3223228.76	39.999261	-104.703189
	7955.00	83.56	183.08	7491.59	841.26	-842.97	295.18	5.77	1243537.33	3223226.10	39.999142	-104.703200
	8044.00	88.59	180.17	7497.68	929.99	-931.69	292.68	6.53	1243448.60	3223224.39	39.998899	-104.703209
	8133.00	89.49	186.80	7499.17	1018.79	-1020.46	287.27	7.52	1243359.79	3223219.78	39.998655	-104.703229
	8222.00	90.04	177.88	7499.54	1107.65	-1109.30	283.64	10.04	1243270.93	3223216.95	39.998411	-104.703242
	8312.00	89.54	175.08	7499.87	1197.43	-1199.12	289.17	3.16	1243181.16	3223223.28	39.998165	-104.703222
	8401.00	89.34	187.59	7500.74	1286.24	-1287.91	287.10	14.06	1243092.36	3223222.01	39.997921	-104.703229
	8491.00	89.00	182.57	7502.05	1375.89	-1377.52	279.14	5.60	1243002.68	3223214.85	39.997675	-104.703258
	8580.00	89.29	179.09	7503.37	1464.86	-1466.49	277.85	3.92	1242913.71	3223214.36	39.997431	-104.703262
	8670.00	89.77	178.62	7504.11	1554.83	-1556.47	279.65	0.75	1242823.76	3223216.97	39.997184	-104.703256
	8759.00	89.75	178.26	7504.48	1643.78	-1645.43	282.08	0.41	1242734.82	3223220.20	39.996940	-104.703247
	8848.00	89.98	178.26	7504.69	1732.72	-1734.39	284.79	0.26	1242645.89	3223223.70	39.996695	-104.703237
	8938.00	89.69	178.35	7504.95	1822.67	-1824.35	287.45	0.34	1242555.96	3223227.17	39.996448	-104.703228
	9027.00	89.60	177.88	7505.50	1911.60	-1913.30	290.38	0.54	1242467.04	3223230.90	39.996204	-104.703217
	9116.00	89.56	177.22	7506.16	2000.49	-2002.22	294.19	0.75	1242378.17	3223235.51	39.995960	-104.703204
	9206.00	89.85	177.34	7506.63	2090.36	-2092.11	298.46	0.36	1242288.32	3223240.59	39.995713	-104.703189
	9295.00	87.08	176.96	7509.01	2179.18	-2180.96	302.89	3.14	1242199.52	3223245.81	39.995469	-104.703173
	9384.00	90.06	176.73	7511.23	2267.98	-2269.79	307.78	3.35	1242110.74	3223251.50	39.995226	-104.703155
	9473.00	90.12	176.81	7511.09	2356.81	-2358.65	312.79	0.11	1242021.93	3223257.31	39.994982	-104.703138
	9563.00	89.85	176.31	7511.12	2446.61	-2448.49	318.19	0.63	1241932.15	3223263.51	39.994735	-104.703118
	9652.00	90.06	175.69	7511.19	2535.36	-2537.27	324.39	0.74	1241843.43	3223270.51	39.994491	-104.703096
	9741.00	89.81	175.96	7511.29	2624.08	-2626.03	330.87	0.41	1241754.73	3223277.78	39.994248	-104.703073
	9831.00	90.04	175.40	7511.41	2713.79	-2715.78	337.65	0.67	1241665.05	3223285.37	39.994001	-104.703049
	9920.00	89.86	175.32	7511.48	2802.45	-2804.49	344.84	0.22	1241576.42	3223293.36	39.993758	-104.703023
	10010.00	90.27	175.39	7511.38	2892.11	-2894.19	352.13	0.45	1241486.78	3223301.45	39.993512	-104.702997
	10099.00	89.97	176.57	7511.20	2980.86	-2982.97	358.37	1.37	1241398.07	3223308.48	39.993268	-104.702975
	10189.00	89.62	176.01	7511.52	3070.63	-3072.78	364.19	0.73	1241308.32	3223315.11	39.993021	-104.702954
	10278.00	90.28	177.29	7511.59	3159.45	-3161.63	369.39	1.62	1241219.52	3223321.11	39.992777	-104.702936
	10368.00	90.92	178.68	7510.65	3249.36	-3251.56	372.55	1.70	1241129.62	3223325.08	39.992531	-104.702924
	10457.00	90.01	179.78	7509.93	3338.34	-3340.55	373.75	1.60	1241040.65	3223327.07	39.992286	-104.702920
	10547.00	90.41	178.92	7509.60	3428.33	-3430.54	374.76	1.05	1240950.68	3223328.89	39.992039	-104.702916
	10636.00	90.03	179.27	7509.26	3517.30	-3519.53	376.17	0.58	1240861.71	3223331.10	39.991795	-104.702911
	10726.00	90.43	178.25	7508.89	3607.27	-3609.51	378.12	1.22	1240771.76	3223333.86	39.991548	-104.702904
	10815.00	90.40	178.00	7508.25	3696.20	-3698.46	381.04	0.28	1240682.84	3223337.57	39.991304	-104.702894
	10904.00	90.25	178.28	7507.74	3785.13	-3787.41	383.94	0.35	1240593.92	3223341.27	39.991060</	

Comments	MD (ft)	Incl (°)	Azim True (°)	TVD (ft)	VSEC (ft)	NS (ft)	EW (ft)	DLS (°/100ft)	Northing (ftUS)	Easting (ftUS)	Latitude (°)	Longitude (°)
	13500.00	89.43	178.31	7505.43	6372.60	-6374.90	380.16	0.93	1238006.59	3223360.71	39.983957	-104.702897
	13589.00	89.10	176.84	7506.58	6461.49	-6463.81	383.93	1.70	1237917.72	3223365.27	39.983713	-104.702884
	13678.00	90.43	176.86	7506.94	6550.32	-6552.67	388.82	1.50	1237828.91	3223370.96	39.983469	-104.702866
	13768.00	90.22	179.37	7506.43	6640.25	-6642.61	391.78	2.80	1237739.00	3223374.73	39.983222	-104.702856
	13857.00	90.12	180.39	7506.17	6729.24	-6731.61	391.97	1.16	1237650.01	3223375.71	39.982978	-104.702855
	13947.00	90.16	180.36	7505.95	6819.24	-6821.61	391.38	0.06	1237560.02	3223375.93	39.982730	-104.702857
	14036.00	89.99	180.43	7505.83	6908.24	-6910.61	390.77	0.21	1237471.02	3223376.12	39.982486	-104.702859
	14126.00	90.09	181.02	7505.76	6998.24	-7000.60	389.62	0.67	1237381.02	3223375.78	39.982239	-104.702864
	14215.00	90.27	181.51	7505.48	7087.23	-7089.58	387.65	0.58	1237292.03	3223374.61	39.981995	-104.702871
	14305.00	89.89	182.01	7505.35	7177.20	-7179.53	384.89	0.70	1237202.06	3223372.66	39.981748	-104.702880
	14394.00	89.87	181.71	7505.53	7266.17	-7268.49	382.00	0.34	1237113.09	3223370.57	39.981504	-104.702891
	14484.00	89.72	180.88	7505.85	7356.15	-7358.46	379.96	0.93	1237023.10	3223369.34	39.981257	-104.702898
	14574.00	90.07	181.90	7506.02	7446.14	-7448.43	377.77	1.20	1236933.12	3223367.96	39.981010	-104.702906
	14663.00	90.01	181.64	7505.96	7535.11	-7537.39	375.02	0.30	1236844.14	3223366.00	39.980766	-104.702916
	14753.00	88.97	178.52	7506.77	7625.09	-7627.38	374.88	3.65	1236754.16	3223366.67	39.980519	-104.702916
	14842.00	89.67	178.72	7507.82	7714.04	-7716.34	377.03	0.82	1236665.22	3223369.61	39.980274	-104.702909
	14932.00	89.82	179.14	7508.22	7804.02	-7806.33	378.71	0.50	1236575.26	3223372.10	39.980027	-104.702903
	15021.00	90.14	179.10	7508.24	7893.00	-7895.32	380.08	0.36	1236486.29	3223374.27	39.979783	-104.702898
	15111.00	89.47	179.82	7508.55	7982.98	-7985.31	380.93	1.09	1236396.31	3223375.93	39.979536	-104.702895
	15200.00	89.98	179.45	7508.98	8071.98	-8074.31	381.50	0.71	1236307.32	3223377.30	39.979292	-104.702893
	15290.00	89.69	179.52	7509.24	8161.97	-8164.30	382.31	0.33	1236217.34	3223378.92	39.979045	-104.702890
	15379.00	89.76	179.83	7509.68	8250.96	-8253.30	382.81	0.35	1236128.36	3223380.22	39.978800	-104.702888
	15469.00	89.57	179.41	7510.20	8340.95	-8343.30	383.41	0.51	1236038.37	3223381.63	39.978553	-104.702886
	15558.00	90.06	179.11	7510.48	8429.93	-8432.29	384.57	0.64	1235949.40	3223383.58	39.978309	-104.702882
	15647.00	90.00	180.69	7510.44	8518.93	-8521.28	384.72	1.78	1235860.41	3223384.53	39.978065	-104.702881
	15737.00	89.73	180.23	7510.65	8608.93	-8611.28	384.00	0.59	1235770.41	3223384.61	39.977818	-104.702884
	15826.00	89.88	180.17	7510.95	8697.93	-8700.28	383.68	0.18	1235681.42	3223385.10	39.977573	-104.702885
	15916.00	88.15	179.88	7512.49	8787.91	-8790.26	383.65	1.96	1235591.44	3223385.87	39.977326	-104.702885
	16005.00	88.90	177.46	7514.78	8876.83	-8879.20	385.71	2.84	1235502.53	3223388.73	39.977082	-104.702878
	16095.00	88.60	175.09	7516.75	8966.58	-8968.98	391.56	2.66	1235412.81	3223395.38	39.976836	-104.702857
	16184.00	90.39	178.66	7517.54	9055.40	-9057.83	396.41	4.49	1235324.01	3223401.03	39.976592	-104.702839
	16274.00	90.45	179.01	7516.87	9145.36	-9147.81	398.23	0.39	1235234.05	3223403.66	39.976345	-104.702833
	16363.00	90.55	179.60	7516.10	9234.35	-9236.80	399.31	0.67	1235145.08	3223405.54	39.976101	-104.702829
	16453.00	90.40	180.04	7515.35	9324.34	-9326.80	399.59	0.51	1235055.09	3223406.62	39.975853	-104.702828
	16543.00	90.49	180.33	7514.65	9414.34	-9416.79	399.29	0.34	1234965.10	3223407.14	39.975606	-104.702829
	16632.00	90.50	179.74	7513.89	9503.33	-9505.79	399.24	0.67	1234876.11	3223407.88	39.975362	-104.702829
	16722.00	90.53	180.26	7513.08	9593.33	-9595.78	399.24	0.58	1234786.12	3223408.69	39.975115	-104.702829
	16811.00	90.39	178.99	7512.36	9682.31	-9684.78	399.83	1.43	1234697.14	3223410.07	39.974871	-104.702827
	16901.00	90.02	180.14	7512.04	9772.30	-9774.77	400.51	1.34	1234607.16	3223411.56	39.974624	-104.702825
	16990.00	90.57	182.76	7511.58	9861.28	-9863.74	398.25	3.01	1234518.18	3223410.10	39.974380	-104.702833
	17079.00	90.38	183.78	7510.84	9950.16	-9952.59	393.17	1.16	1234429.29	3223405.82	39.974136	-104.702851
	17169.00	90.53	183.44	7510.12	10040.01	-10042.40	387.51	0.41	1234339.43	3223400.96	39.973889	-104.702871
Cross Setback Toe (460' FSL, 1543' FEL)	17220.70	90.38	183.19	7509.71	10091.64	-10094.02	384.52	0.58	1234287.79	3223398.44	39.973747	-104.702882
Last SLB_MWD Survey	17258.00	90.28	183.00	7509.49	10128.89	-10131.26	382.51	0.58	1234250.54	3223396.76	39.973645	-104.702889
Projection to TD (369' FSL, 1547' FEL)	17312.00	90.28	183.00	7509.23	10182.83	-10185.19	379.68	0.01	1234196.59	3223394.42	39.973497	-104.702899

Survey Type: Def Survey

Survey Error Model: ISCWSA Rev 3 *** 3-D 97.071% Confidence 3.0000 sigma
Survey Program:

Description	Part	MD From (ft)	MD To (ft)	EOU Freq (ft)	Hole Size Casing Diameter (in)	Survey Tool Type	Borehole / Survey
	1	0.000	17.000	1/98.425	13.500	9.625 B001Mb_MWD+HRGM-Depth Only	Original Hole / County Line 3107- 10H MWD 0' to 17312' Definitive
	1	17.000	21.000	Act Stns	13.500	9.625 B001Mb_MWD+HRGM-Depth Only	Original Hole / County Line 3107- 10H MWD 0' to 17312' Definitive
	1	21.000	1685.000	Act Stns	13.500	9.625 B001Mb_MWD+HRGM	Original Hole / County Line 3107- 10H MWD 0' to 17312' Definitive
	1	1685.000	17312.000	Act Stns	8.500	5.500 B001Mb_MWD+HRGM	Original Hole / County Line 3107- 10H MWD 0' to 17312' Definitive