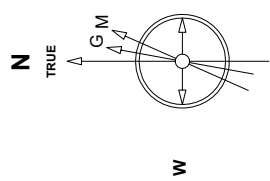
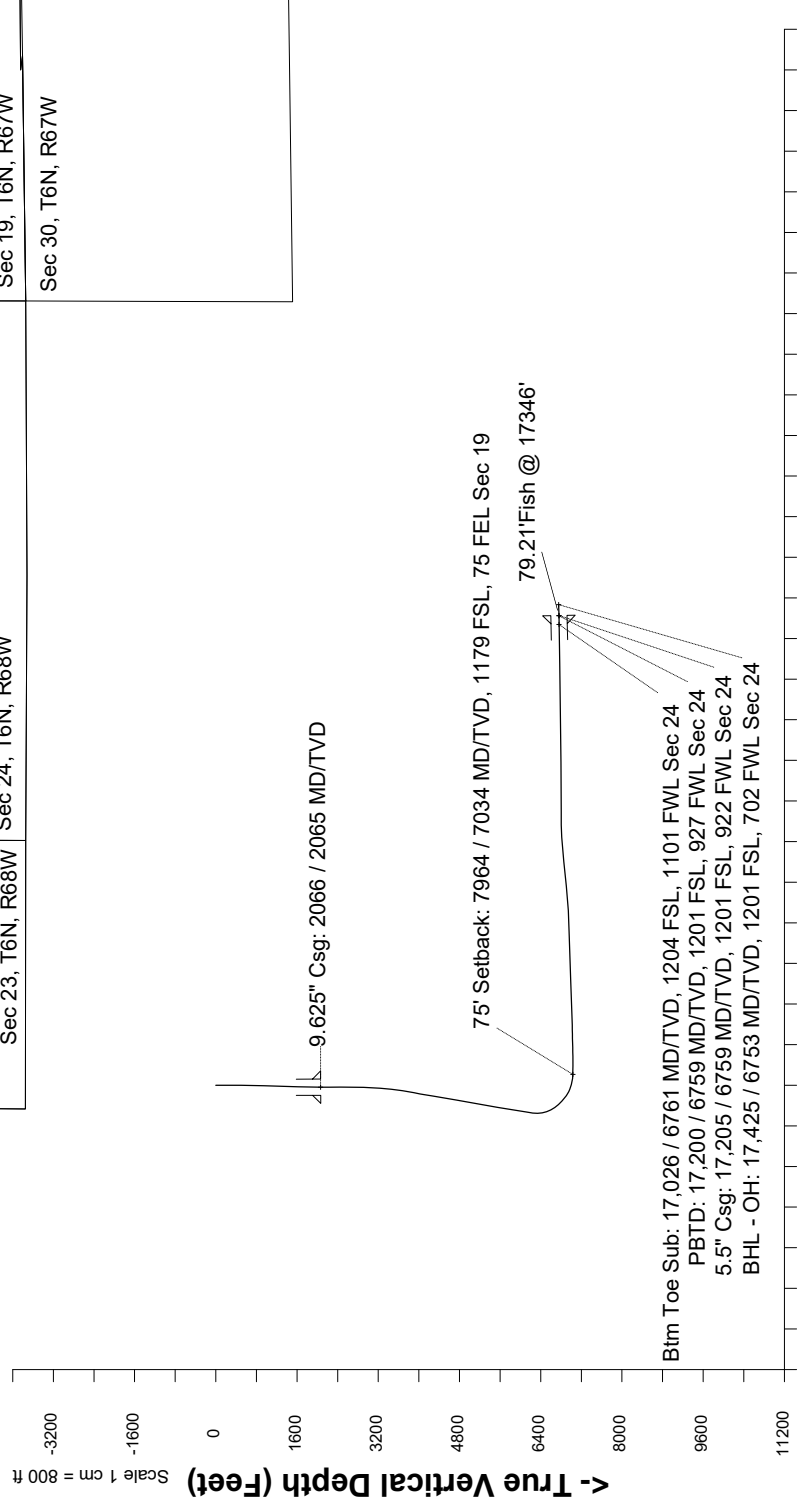
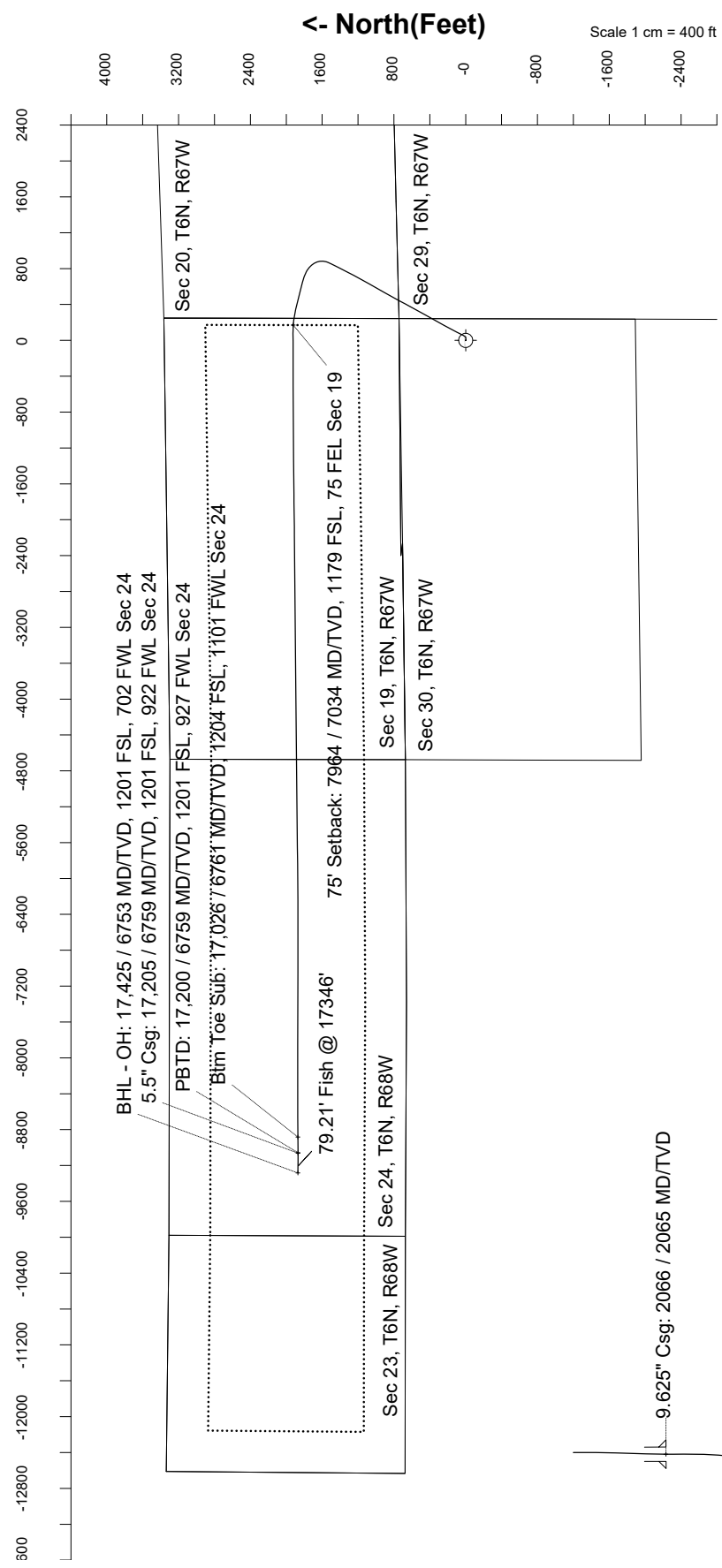
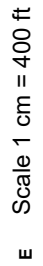


**Great Western Operating Company, LLC**

Location	Colorado	Slot	Slot E-09 - Raindance FC 23-312HN
Field	Wattenburg	Well	Raindance FC 23-312HN
Installation	Raindance	Wellbore	API 05-123-51586 Raindance FC 23-312HN (AWB)



Nov-14-2016  
IGRF-12 Dip: 66.89 deg Field: 52476.1 nT  
Lat: N40 27 47.3832 Long: W104 55 37.9956 Elev: 4788.00 ft  
Magnetic North is 8.37 deg East of TRUE North  
To correct azimuth from Magnetic to TRUE add 8.37 deg



Vertical Section (Feet) ->

Scale 1 cm = 800 ft

Azimuth 281.39 with reference 0.00 N, 0.00 E from Slot E-09 - Raindance FC 23-312HN

Great Western Operating Co, LLC  
Directional Survey Report  
MDs and TVDs are from Rig Floor 4808.0ft above Mean Sea Level

**Wellbore Information**

Date Created	Date Revised	API #	RKB above GL	Well Name
Aug-9-2021	Aug-17-2021	05-123-51586	20.00	Raindance FC 23-312HN

**Slot Coordinates**

Latitude	Longitude
40.462956	-104.927329

**Pad Information**

Pad Name	Ground Elev.
Raindance	4788.00

**Field**

Name
Wattenburg

**Wellpath Report**

MD[ft]	Inc[deg]	Azi[deg]	TVD[ft]	North[ft]	East[ft]	DLS [deg/100ft]	Vertical Section[ft]	Lat - NAD 83	Long - NAD 83
0.00	0.00	0.00	0.00	0.00	0.00		0.00	40.462957	-104.927327
15.00	0.00	0.00	15.00	0.00	0.00	==>	0.00	40.462957	-104.927327
100.00	0.44	266.43	100.00	-0.02	-0.33	0.52	0.32	40.462957	-104.927328
191.00	0.13	231.09	191.00	-0.11	-0.75	0.38	0.72	40.462957	-104.927330
278.00	0.62	86.51	278.00	-0.14	-0.36	0.84	0.33	40.462957	-104.927328
368.00	1.23	74.91	367.98	0.14	1.06	0.71	-1.01	40.462957	-104.927323
458.00	0.22	35.19	457.98	0.53	2.09	1.19	-1.94	40.462958	-104.927319
548.00	0.18	326.19	547.98	0.79	2.11	0.25	-1.91	40.462959	-104.927319
637.00	0.83	107.34	636.97	0.72	2.65	1.10	-2.45	40.462959	-104.927317
727.00	1.23	114.55	726.96	0.12	4.15	0.47	-4.04	40.462957	-104.927312
817.00	1.14	104.71	816.94	-0.51	5.89	0.25	-5.88	40.462956	-104.927306
907.00	1.49	108.57	906.92	-1.11	7.87	0.40	-7.93	40.462954	-104.927299
997.00	2.11	97.94	996.87	-1.71	10.62	0.78	-10.75	40.462952	-104.927289
1087.00	2.29	82.30	1086.81	-1.70	14.04	0.69	-14.10	40.462952	-104.927277
1177.00	1.80	87.92	1176.75	-1.41	17.24	0.59	-17.17	40.462953	-104.927265
1267.00	1.89	97.94	1266.70	-1.56	20.12	0.37	-20.03	40.462953	-104.927255
1357.00	1.54	69.90	1356.66	-1.35	22.72	1.00	-22.54	40.462953	-104.927245
1447.00	1.85	75.97	1446.62	-0.58	25.27	0.40	-24.89	40.462955	-104.927236
1537.00	1.14	87.13	1536.59	-0.18	27.57	0.85	-27.07	40.462957	-104.927228
1627.00	1.23	88.98	1626.57	-0.12	29.43	0.11	-28.88	40.462957	-104.927221
1717.00	2.20	89.41	1716.53	-0.09	32.13	1.08	-31.51	40.462957	-104.927212
1806.00	2.07	92.31	1805.47	-0.13	35.44	0.19	-34.77	40.462957	-104.927200
1896.00	0.97	101.28	1895.44	-0.35	37.81	1.25	-37.14	40.462956	-104.927191
1986.00	0.35	82.30	1985.43	-0.46	38.83	0.72	-38.16	40.462956	-104.927187
2011.00	0.26	250.96	2010.43	-0.47	38.85	2.43	-38.18	40.462956	-104.927187
2142.00	0.12	294.67	2141.43	-0.51	38.45	0.15	-37.79	40.462956	-104.927189
2232.00	0.08	285.89	2231.43	-0.45	38.30	0.05	-37.64	40.462956	-104.927189
2321.00	0.08	0.85	2320.43	-0.37	38.24	0.11	-37.56	40.462956	-104.927190
2411.00	0.03	91.00	2410.43	-0.31	38.27	0.10	-37.57	40.462956	-104.927189
2501.00	0.11	173.39	2500.43	-0.40	38.30	0.12	-37.62	40.462956	-104.927189
2590.00	0.13	183.44	2589.43	-0.58	38.30	0.03	-37.66	40.462955	-104.927189
2680.00	0.08	266.79	2679.43	-0.69	38.24	0.16	-37.62	40.462955	-104.927190
2770.00	1.34	13.66	2769.42	0.33	38.42	1.52	-37.60	40.462958	-104.927189
2860.00	5.19	28.06	2859.26	4.95	40.59	4.34	-38.81	40.462971	-104.927181
2949.00	8.70	32.21	2947.59	14.20	46.07	3.98	-42.36	40.462996	-104.927161
3039.00	12.25	33.09	3036.08	27.96	54.91	3.95	-48.31	40.463034	-104.927130
3129.00	12.24	24.66	3124.04	44.63	64.11	1.98	-54.03	40.463080	-104.927097
3218.00	12.12	25.54	3211.03	61.64	72.07	0.25	-58.48	40.463126	-104.927068
3308.00	15.16	25.36	3298.49	80.80	81.19	3.38	-63.63	40.463179	-104.927035
3398.00	18.29	28.95	3384.67	103.80	93.07	3.66	-70.74	40.463242	-104.926993
3487.00	20.75	26.48	3468.55	130.13	106.86	2.91	-79.05	40.463314	-104.926943
3577.00	25.12	29.22	3551.42	161.09	123.30	5.00	-89.06	40.463399	-104.926884
3667.00	28.01	29.15	3631.91	196.23	142.92	3.21	-101.36	40.463496	-104.926813
3756.00	31.16	28.13	3709.30	234.80	163.97	3.58	-114.37	40.463601	-104.926738
3845.00	31.38	28.71	3785.37	275.43	185.95	0.42	-127.90	40.463713	-104.926659
3935.00	31.00	29.90	3862.36	316.07	208.76	0.80	-142.23	40.463825	-104.926577
4024.00	30.73	30.07	3938.75	355.62	231.58	0.32	-156.79	40.463933	-104.926495
4115.00	30.59	29.09	4017.03	395.97	254.49	0.57	-171.28	40.464044	-104.926412
4203.00	28.85	26.34	4093.46	434.57	274.80	2.51	-183.57	40.464150	-104.926339
4293.00	29.32	28.64	4172.11	473.37	294.99	1.35	-195.70	40.464256	-104.926267
4382.00	29.05	29.20	4249.81	511.36	315.98	0.43	-208.77	40.464361	-104.926191
4472.00	28.96	29.49	4328.52	549.40	337.37	0.19	-222.23	40.464465	-104.926115
4562.00	30.16	29.17	4406.81	588.11	359.11	1.34	-235.90	40.464571	-104.926036
4651.00	29.56	29.31	4483.99	626.77	380.76	0.68	-249.48	40.464677	-104.925959
4741.00	30.49	27.32	4561.92	666.42	402.10	1.51	-262.58	40.464786	-104.925882
4831.00	29.85	28.52	4639.73	706.38	423.28	0.98	-275.44	40.464896	-104.925806
4920.00	30.24	28.37	4716.77	745.57	444.50	0.45	-288.51	40.465003	-104.925730
5010.00	30.17	29.04	4794.55	785.28	466.25	0.38	-301.99	40.465112	-104.925651
5100.00	29.94	28.93	4872.45	824.71	488.09	0.26	-315.62	40.465221	-104.925573
5189.00	30.13	28.95	4949.50	863.69	509.65	0.21	-329.05	40.465328	-104.925495
5279.00	29.95	29.30	5027.41	903.05	531.58	0.28	-342.77	40.465436	-104.925417
5369.00	30.01	29.22	5105.36	942.28	553.56	0.08	-356.57	40.465543	-104.925338
5459.00	29.69	29.01	5183.42	981.42	575.35	0.37	-370.21	40.465651	-104.925259
5548.00	28.67	29.66	5261.13	1019.25	596.61	1.20	-383.58	40.465755	-104.925183
5638.00	29.28	29.97	5339.86	1057.08	618.29	0.70	-397.36	40.465859	-104.925105

MD[ft]	Inc[deg]	Azi[deg]	TVD[ft]	North[ft]	East[ft]	DLS [deg/100ft]	Vertical Section[ft]	Lat - NAD 83	Long - NAD 83
5728.00	30.39	29.63	5417.93	1095.93	640.54	1.25	-411.50	40.465965	-104.925025
5818.00	30.14	29.92	5495.67	1135.30	663.06	0.32	-425.80	40.466073	-104.924944
5907.00	30.54	29.41	5572.48	1174.37	685.31	0.53	-439.90	40.466180	-104.924864
5997.00	30.55	29.17	5649.99	1214.26	707.69	0.14	-453.96	40.466290	-104.924784
6087.00	29.62	27.14	5727.87	1254.02	728.98	1.53	-466.98	40.466399	-104.924707
6176.00	28.82	25.91	5805.54	1292.89	748.39	1.12	-478.33	40.466506	-104.924637
6266.00	30.17	27.13	5883.88	1332.54	768.18	1.64	-489.90	40.466615	-104.924566
6355.00	29.76	27.87	5960.98	1371.97	788.71	0.62	-502.24	40.466723	-104.924492
6445.00	30.55	27.05	6038.80	1412.08	809.55	0.99	-514.75	40.466833	-104.924418
6535.00	30.00	26.21	6116.52	1452.64	829.89	0.77	-526.68	40.466944	-104.924344
6625.00	30.23	26.61	6194.38	1493.08	849.98	0.34	-538.38	40.467055	-104.924272
6714.00	30.53	21.37	6271.17	1534.17	868.25	3.00	-548.18	40.467168	-104.924207
6804.00	30.41	10.41	6348.80	1577.90	880.71	6.17	-551.76	40.467288	-104.924162
6894.00	30.47	352.93	6426.55	1623.04	882.02	9.81	-544.13	40.467412	-104.924157
6983.00	30.41	336.27	6503.42	1666.13	870.15	9.46	-523.99	40.467530	-104.924200
7073.00	31.06	323.06	6580.87	1705.58	847.01	7.52	-493.50	40.467639	-104.924283
7163.00	36.20	311.71	6655.85	1741.89	813.16	9.00	-453.15	40.467738	-104.924405
7253.00	42.65	299.65	6725.44	1774.73	766.70	11.10	-401.13	40.467828	-104.924571
7342.00	46.14	289.04	6789.11	1800.16	710.07	9.21	-340.59	40.467898	-104.924775
7432.00	49.15	285.12	6849.75	1819.63	646.51	4.64	-274.44	40.467952	-104.925003
7522.00	54.33	284.35	6905.47	1837.58	578.19	5.79	-203.91	40.468001	-104.925249
7611.00	63.50	283.84	6951.37	1856.11	504.34	10.31	-127.86	40.468052	-104.925514
7701.00	72.09	283.17	6985.35	1875.54	423.39	9.57	-44.67	40.468105	-104.925805
7790.00	76.12	283.19	7009.72	1895.05	340.07	4.53	40.87	40.468159	-104.926105
7880.00	81.88	278.85	7026.89	1911.89	253.40	7.96	129.15	40.468205	-104.926416
7970.00	89.43	274.10	7033.71	1921.99	164.32	9.90	218.47	40.468233	-104.926736
8059.00	90.24	269.28	7033.97	1924.61	75.39	5.49	306.17	40.468240	-104.927056
8149.00	90.07	270.00	7033.72	1924.04	-14.61	0.82	394.29	40.468238	-104.927380
8239.00	90.03	269.87	7033.65	1923.94	-104.61	0.15	482.50	40.468238	-104.927703
8329.00	90.81	269.50	7032.99	1923.45	-194.61	0.96	570.62	40.468237	-104.928026
8418.00	91.20	270.01	7031.42	1923.07	-283.59	0.72	657.78	40.468236	-104.928346
8508.00	90.93	269.87	7029.75	1922.97	-373.58	0.34	745.97	40.468235	-104.928670
8598.00	91.01	270.08	7028.23	1922.93	-463.56	0.25	834.18	40.468235	-104.928993
8687.00	91.33	269.63	7026.41	1922.71	-552.54	0.62	921.36	40.468235	-104.929313
8777.00	91.17	270.18	7024.45	1922.56	-642.52	0.64	1009.54	40.468234	-104.929636
8867.00	91.06	269.93	7022.70	1922.65	-732.51	0.30	1097.77	40.468234	-104.929960
8956.00	90.95	269.73	7021.14	1922.38	-821.49	0.26	1184.95	40.468234	-104.930279
9046.00	91.16	269.74	7019.48	1921.96	-911.47	0.23	1273.08	40.468232	-104.930603
9135.00	92.00	269.76	7017.02	1921.58	-1000.44	0.94	1360.21	40.468231	-104.930923
9225.00	92.04	269.65	7013.85	1921.11	-1090.38	0.13	1448.29	40.468230	-104.931246
9315.00	91.99	269.14	7010.69	1920.16	-1180.32	0.57	1536.27	40.468228	-104.931569
9404.00	92.23	269.26	7007.41	1918.92	-1269.25	0.30	1623.21	40.468224	-104.931889
9494.00	92.20	269.09	7003.93	1917.63	-1359.18	0.19	1711.11	40.468221	-104.932212
9584.00	92.13	269.24	7000.53	1916.32	-1449.10	0.18	1799.00	40.468217	-104.932535
9673.00	92.16	269.47	6997.20	1915.32	-1538.03	0.26	1885.98	40.468214	-104.932855
9763.00	92.08	269.87	6993.87	1914.80	-1627.97	0.45	1974.05	40.468213	-104.933178
9853.00	91.94	269.46	6990.72	1914.27	-1717.91	0.48	2062.12	40.468211	-104.933501
9942.00	91.78	269.39	6987.83	1913.38	-1806.86	0.20	2149.14	40.468209	-104.933821
10032.00	91.77	269.11	6985.04	1912.20	-1896.81	0.31	2237.08	40.468206	-104.934144
10122.00	91.79	269.33	6982.24	1910.98	-1986.76	0.25	2325.02	40.468202	-104.934467
10212.00	91.80	269.36	6979.42	1909.95	-2076.71	0.04	2412.99	40.468199	-104.934791
10301.00	91.91	269.38	6976.54	1908.97	-2165.66	0.13	2499.99	40.468197	-104.935110
10391.00	92.29	269.31	6973.25	1907.94	-2255.59	0.43	2587.95	40.468194	-104.935434
10481.00	91.66	269.32	6970.14	1906.87	-2345.53	0.70	2675.91	40.468191	-104.935757
10571.00	91.91	269.64	6967.34	1906.05	-2435.48	0.45	2763.93	40.468189	-104.936080
10660.00	91.93	269.78	6964.36	1905.60	-2524.43	0.16	2851.04	40.468187	-104.936400
10750.00	91.78	269.77	6961.44	1905.25	-2614.38	0.17	2939.15	40.468186	-104.936723
10840.00	91.73	269.54	6958.69	1904.71	-2704.34	0.26	3027.23	40.468185	-104.937046
10929.00	91.80	269.77	6955.95	1904.17	-2793.30	0.27	3114.33	40.468183	-104.937366
11019.00	91.96	269.47	6952.99	1903.57	-2883.25	0.38	3202.39	40.468182	-104.937689
11109.00	91.98	269.29	6949.90	1902.60	-2973.19	0.20	3290.36	40.468179	-104.938013
11199.00	91.57	269.27	6947.11	1901.47	-3063.14	0.46	3378.32	40.468176	-104.938336
11288.00	92.80	269.59	6943.72	1900.58	-3152.07	1.43	3465.32	40.468173	-104.938656
11378.00	94.23	269.43	6938.20	1899.82	-3241.89	1.60	3553.23	40.468171	-104.938978
11468.00	95.35	269.22	6930.69	1898.76	-3331.57	1.27	3640.93	40.468168	-104.939301
11558.00	95.37	269.39	6922.28	1897.67	-3421.17	0.19	3728.55	40.468165	-104.939623
11647.00	95.45	269.08	6913.89	1896.49	-3509.76	0.36	3815.17	40.468162	-104.939941
11737.00	95.58	269.66	6905.24	1895.50	-3599.34	0.66	3902.79	40.468159	-104.940263
11826.00	95.65	269.65	6896.53	1894.97	-3687.91	0.08	3989.51	40.468158	-104.940581
11916.00	95.53	269.46	6887.76	1894.28	-3777.48	0.25	4077.18	40.468156	-104.940903
12006.00	95.24	269.68	6879.32	1893.60	-3867.08	0.40	4164.88	40.468154	-104.941225
12095.00	95.32	269.44	6871.13	1892.92	-3955.70	0.28	4251.62	40.468152	-104.941544
12185.00	95.51	269.33	6862.63	1891.96	-4045.29	0.24	4339.26	40.468149	-104.941866
12275.00	95.36	269.70	6854.11	1891.20	-4134.89	0.44	4426.93	40.468147	-104.942188
12364.00	95.34	269.66	6845.81	1890.71	-4223.50	0.05	4513.70	40.468146	-104.942506
12454.00	95.38	269.57	6837.40	1890.11	-4313.10	0.11	4601.42	40.468144	-104.942828
12544.00	95.33	269.22	6829.01	1889.16	-4402.70	0.39	4689.07	40.468141	-104.943150
12633.00	95.56	269.48	6820.56	1888.15	-4491.30	0.39	4775.72	40.468139	-104.943469
12723.00	93.46	268.94	6813.48	1886.92	-4581.00	2.41	4863.42	40.468135	-104.943791
12813.00	91.54	269.27	6809.56	1885.51	-4670.90	2.16	4951.27	40.468131	-104.944114
12903.00	91.38	269.54	6807.26	1884.58	-4760.87	0.35	5039.28	40.468129	-104.944438
12992.00	91.37	269.24	6805.13	1883.63	-4849.84	0.34	5126.31	40.468126	-104.944757
13082.00	90.07	269.41	6804.00	1882.57	-4939.82	1.46	5214.31	40.468123	-104.945081
13172.00	90.49	269.74	6803.56	1881.90	-5029.82	0.59	5302.41	40.468121	-104.945404
13261.00	90.44	270.04	6802.84	1881.73	-5118.82	0.34	5389.62	40.468121	-104.945724
13351.00	90.23	269.38	6802.31	1881.28	-5208.81	0.77	5477.75	40.468119	-104.946048
13441.00	90.14	269.22	6802.02	1880.18	-5298.81	0.20	5565.75	40.468116	-104.946371

MD[ft]	Inc[deg]	Azi[deg]	TVD[ft]	North[ft]	East[ft]	DLS [deg/100ft]	Vertical Section[ft]	Lat - NAD 83	Long - NAD 83
13531.00	90.19	269.64	6801.76	1879.28	-5388.80	0.47	5653.80	40.468114	-104.946694
13620.00	90.16	268.90	6801.49	1878.15	-5477.79	0.83	5740.82	40.468111	-104.947014
13710.00	90.34	269.36	6801.10	1876.78	-5567.78	0.55	5828.76	40.468107	-104.947338
13799.00	90.46	269.19	6800.47	1875.66	-5656.77	0.23	5915.78	40.468104	-104.947657
13889.00	90.32	269.11	6799.86	1874.32	-5746.76	0.18	6003.73	40.468100	-104.947981
13979.00	90.47	269.20	6799.24	1872.99	-5836.75	0.19	6091.68	40.468096	-104.948304
14069.00	90.49	269.47	6798.49	1871.95	-5926.74	0.30	6179.70	40.468093	-104.948628
14158.00	89.91	269.59	6798.18	1871.22	-6015.73	0.67	6266.80	40.468091	-104.948948
14248.00	90.56	269.61	6797.81	1870.59	-6105.73	0.72	6354.90	40.468089	-104.949271
14337.00	90.53	269.75	6796.96	1870.09	-6194.73	0.16	6442.04	40.468088	-104.949591
14427.00	90.10	269.18	6796.47	1869.25	-6284.72	0.79	6530.10	40.468086	-104.949914
14517.00	90.51	269.88	6795.99	1868.51	-6374.71	0.90	6618.17	40.468084	-104.950238
14607.00	90.06	270.56	6795.54	1868.86	-6464.71	0.91	6706.47	40.468084	-104.950561
14696.00	90.25	270.30	6795.30	1869.53	-6553.71	0.36	6793.84	40.468086	-104.950881
14786.00	90.44	269.85	6794.76	1869.65	-6643.71	0.54	6882.09	40.468086	-104.951205
14876.00	91.00	270.40	6793.63	1869.84	-6733.70	0.87	6970.35	40.468087	-104.951528
14966.00	90.72	269.56	6792.27	1869.81	-6823.69	0.98	7058.56	40.468087	-104.951851
15055.00	90.89	270.31	6791.02	1869.71	-6912.68	0.86	7145.78	40.468086	-104.952171
15145.00	90.70	270.07	6789.78	1870.01	-7002.67	0.34	7234.05	40.468087	-104.952495
15235.00	90.89	270.40	6788.53	1870.38	-7092.66	0.42	7322.35	40.468088	-104.952818
15325.00	90.71	269.99	6787.27	1870.68	-7182.65	0.50	7410.62	40.468089	-104.953141
15415.00	90.68	270.20	6786.18	1870.83	-7272.64	0.24	7498.88	40.468089	-104.953465
15504.00	90.76	270.22	6785.06	1871.16	-7361.64	0.09	7586.18	40.468090	-104.953785
15594.00	90.90	270.29	6783.76	1871.56	-7451.62	0.17	7674.48	40.468091	-104.954108
15684.00	91.02	270.18	6782.25	1871.93	-7541.61	0.18	7762.76	40.468092	-104.954432
15774.00	90.94	269.67	6780.71	1871.81	-7631.60	0.57	7850.95	40.468092	-104.954755
15863.00	90.59	269.70	6779.52	1871.32	-7720.59	0.39	7938.10	40.468090	-104.955075
15953.00	90.52	270.36	6778.65	1871.37	-7810.58	0.74	8026.33	40.468090	-104.955398
16042.00	90.51	270.40	6777.85	1871.96	-7899.58	0.05	8113.69	40.468092	-104.955718
16132.00	90.63	270.14	6776.95	1872.38	-7989.57	0.32	8201.99	40.468093	-104.956042
16222.00	90.80	270.37	6775.83	1872.78	-8079.56	0.32	8290.29	40.468094	-104.956365
16311.00	91.40	270.19	6774.12	1873.22	-8168.55	0.70	8377.61	40.468095	-104.956685
16401.00	91.06	269.44	6772.19	1872.93	-8258.52	0.91	8465.76	40.468094	-104.957008
16491.00	91.34	269.40	6770.31	1872.02	-8348.50	0.31	8553.78	40.468092	-104.957332
16581.00	91.23	270.06	6768.29	1871.59	-8438.48	0.74	8641.90	40.468090	-104.957655
16670.00	91.29	269.68	6766.33	1871.39	-8527.45	0.43	8729.09	40.468090	-104.957975
16760.00	91.19	270.17	6764.38	1871.27	-8617.43	0.56	8817.27	40.468089	-104.958298
16850.00	90.54	269.74	6763.02	1871.20	-8707.42	0.87	8905.47	40.468089	-104.958622
16939.00	90.58	269.84	6762.15	1870.88	-8796.42	0.12	8992.65	40.468088	-104.958941
17029.00	90.52	269.65	6761.29	1870.48	-8886.41	0.22	9080.79	40.468087	-104.959265
17119.00	90.72	269.08	6760.32	1869.48	-8976.40	0.67	9168.81	40.468084	-104.959588
17208.00	91.36	270.21	6758.70	1868.93	-9065.38	1.46	9255.93	40.468082	-104.959908
17298.00	91.56	270.13	6756.41	1869.19	-9155.35	0.24	9344.18	40.468083	-104.960231
17388.00	91.67	270.43	6753.87	1869.63	-9245.32	0.35	9432.46	40.468084	-104.960555
17425.00	91.67	270.43	6752.79	1869.91	-9282.30	==>	9468.77	40.468085	-104.960688