



		TARGET DETAILS						
Name	TVD	+N/-S	+E/-W	Northing	Easting	Latitude	Longitude	Shape
SL 18-14	0.00	0.00	0.00	1548396.46	3407774.29	40°49'45.910N	104°01'35.389W	Point
600' entry 18-14	6464.50	609.46	-298.98	1549005.92	3407475.31	40°49'51.980N	104°01'39.146W	Point
PBHL 18-14	6650.00	4457.30	-422.22	1552853.76	3407352.07	40°50'30.015N	104°01'39.918W	Point
BHL 18-14	6686.89	4456.79	-399.35	1552853.25	3407374.94	40°50'30.006N	104°01'39.620W	Point

Precision Directional Services, Inc.

Survey Report

Company: CARRIZO OIL & GAS, INC. Field: Niobrara CONZ'83 Site: Jones 19-11-10-59 Pad Well: 18-14-10-59 Wellpath: Original Hole	Date: 10/26/2012 Co-ordinate(NE) Reference: Vertical (TVD) Reference: Section (VS) Reference: Survey Calculation Method:	Time: 09:58:29 Well: 18-14-10-59, Grid North 5397GL+17'KB 5414.0 Well (0.00N,0.00E,359.71Azi) Minimum Curvature	Page: 1 Db: Adapti
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Field: Niobrara CONZ'83			
Map System: US State Plane Coordinate System 1983		Map Zone: Colorado, Northern Zone	
Geo Datum: GRS 1980		Coordinate System: Well Centre	
Sys Datum: Mean Sea Level		Geomagnetic Model: IGRF2010	

Site: Jones 19-11-10-59 Pad			
Weld County, CO			
Site Position:	Northing: 1548424.85 ft	Latitude: 40 49 46.158 N	
From: Map	Easting: 3407973.99 ft	Longitude: 104 1 32.785 W	
Position Uncertainty: 0.00 ft		North Reference: Grid	
Ground Level: 5384.00 ft		Grid Convergence: 0.95 deg	

Well: 18-14-10-59			
Offset from site			
Well Position:	Slot Name:		
+N/-S -28.39 ft	Northing: 1548396.46 ft	Latitude: 40 49 45.910 N	
+E/-W -199.70 ft	Easting : 3407774.29 ft	Longitude: 104 1 35.389 W	
Position Uncertainty: 0.00 ft			

Wellpath: Original Hole			
Current Datum: 5397GL+17'KB	Height 5414.00 ft	Drilled From: Surface	
Magnetic Data: 09/28/2012		Tie-on Depth: 0.00 ft	
Field Strength: 53335 nT		Above System Datum: Mean Sea Level	
Vertical Section: Depth From (TVD)	+N/-S	Declination: 8.32 deg	
ft	ft	Mag Dip Angle: 67.47 deg	
		+E/-W	Direction
		ft	deg
0.00	0.00	0.00	359.71

Survey Program for Definitive Wellpath					
Date: 10/11/2012		Validated: No		Version: 0	
Actual From	To	Survey	Toolcode	Tool Name	
ft	ft				
1455.00	10388.00	Survey #1 (1455.00-10388.00)	MWD	Std MWD	
10450.00	10450.00	Survey #2 (10450.00-10450.00)	Project	Projection	

Survey										
MD	Incl	Azim	TVD	+N/-S	+E/-W	VS	DLS	Build	Turn	Tool/Comment
ft	deg	deg	ft	ft	ft	ft	deg/100ft	deg/100ft	deg/100ft	
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	TIE LINE
1455.00	0.00	0.00	1455.00	0.00	0.00	0.00	0.00	0.00	0.00	MWD
1515.00	0.40	53.90	1515.00	0.12	0.17	0.12	0.67	0.67	0.00	MWD
1607.00	1.90	319.40	1606.98	1.47	-0.56	1.47	2.14	1.63	-102.72	MWD
1695.00	3.90	326.20	1694.87	5.07	-3.18	5.08	2.30	2.27	7.73	MWD
1779.00	5.40	326.80	1778.59	10.75	-6.93	10.78	1.79	1.79	0.71	MWD
1865.00	7.60	327.10	1864.03	18.91	-12.24	18.97	2.56	2.56	0.35	MWD
1950.00	8.40	329.20	1948.20	28.96	-18.47	29.05	1.00	0.94	2.47	MWD
2035.00	6.90	328.90	2032.44	38.67	-24.29	38.79	1.77	-1.76	-0.35	MWD
2120.00	6.90	327.10	2116.83	47.33	-29.70	47.48	0.25	0.00	-2.12	MWD
2205.00	6.70	327.50	2201.23	55.79	-35.13	55.97	0.24	-0.24	0.47	MWD
2290.00	6.50	326.80	2285.66	64.00	-40.43	64.21	0.25	-0.24	-0.82	MWD
2375.00	5.70	323.60	2370.18	71.43	-45.57	71.66	1.02	-0.94	-3.76	MWD
2461.00	6.50	333.40	2455.70	79.22	-50.29	79.47	1.52	0.93	11.40	MWD
2546.00	5.90	333.10	2540.20	87.41	-54.42	87.69	0.71	-0.71	-0.35	MWD
2631.00	6.90	331.90	2624.67	95.81	-58.80	96.11	1.19	1.18	-1.41	MWD
2716.00	6.40	331.00	2709.10	104.46	-63.50	104.78	0.60	-0.59	-1.06	MWD
2801.00	6.30	328.00	2793.58	112.56	-68.27	112.90	0.41	-0.12	-3.53	MWD
2885.00	7.40	331.00	2876.98	121.20	-73.33	121.57	1.38	1.31	3.57	MWD
2970.00	6.80	324.60	2961.32	130.09	-78.90	130.49	1.17	-0.71	-7.53	MWD
3055.00	7.70	335.40	3045.65	139.37	-84.19	139.79	1.92	1.06	12.71	MWD
3140.00	7.20	332.90	3129.93	149.29	-88.99	149.74	0.70	-0.59	-2.94	MWD

Precision Directional Services, Inc.

Survey Report

Company: CARRIZO OIL & GAS, INC. Field: Niobrara CONZ'83 Site: Jones 19-11-10-59 Pad Well: 18-14-10-59 Wellpath: Original Hole	Date: 10/26/2012 Co-ordinate(NE) Reference: Well: 18-14-10-59, Grid North Vertical (TVD) Reference: 5397GL+17'KB 5414.0 Section (VS) Reference: Well (0.00N,0.00E,359.71Azi) Survey Calculation Method: Minimum Curvature	Time: 09:58:29 Page: 2 Db: Adapti
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Survey

MD ft	Incl deg	Azim deg	TVD ft	+N/-S ft	+E/-W ft	VS ft	DLS deg/100ft	Build deg/100ft	Turn deg/100ft	Tool/Comment
3225.00	7.20	331.90	3214.26	158.73	-93.92	159.20	0.15	0.00	-1.18	MWD
3310.00	7.20	332.20	3298.59	168.14	-98.91	168.64	0.04	0.00	0.35	MWD
3394.00	7.30	332.20	3381.92	177.52	-103.86	178.04	0.12	0.12	0.00	MWD
3479.00	7.40	329.70	3466.22	187.02	-109.14	187.57	0.39	0.12	-2.94	MWD
3565.00	7.40	337.50	3551.51	196.92	-114.05	197.49	1.17	0.00	9.07	MWD
3650.00	7.30	337.80	3635.81	206.98	-118.19	207.57	0.13	-0.12	0.35	MWD
3735.00	6.50	332.60	3720.19	216.25	-122.44	216.87	1.19	-0.94	-6.12	MWD
3820.00	6.90	339.10	3804.61	225.29	-126.48	225.93	1.01	0.47	7.65	MWD
3905.00	6.10	336.90	3889.07	234.21	-130.07	234.87	0.99	-0.94	-2.59	MWD
3990.00	7.00	340.50	3973.51	243.25	-133.57	243.92	1.16	1.06	4.24	MWD
4076.00	7.80	339.60	4058.79	253.66	-137.36	254.35	0.94	0.93	-1.05	MWD
4161.00	8.20	339.10	4142.97	264.73	-141.53	265.44	0.48	0.47	-0.59	MWD
4246.00	8.70	338.70	4227.04	276.38	-146.03	277.12	0.59	0.59	-0.47	MWD
4331.00	7.80	340.10	4311.16	287.80	-150.33	288.55	1.08	-1.06	1.65	MWD
4415.00	7.70	340.10	4394.40	298.45	-154.18	299.22	0.12	-0.12	0.00	MWD
4500.00	7.20	339.10	4478.68	308.78	-158.02	309.57	0.61	-0.59	-1.18	MWD
4584.00	6.40	336.60	4562.09	317.99	-161.76	318.81	1.02	-0.95	-2.98	MWD
4669.00	5.80	334.70	4646.60	326.22	-165.47	327.06	0.74	-0.71	-2.24	MWD
4753.00	5.70	328.20	4730.18	333.60	-169.49	334.46	0.78	-0.12	-7.74	MWD
4838.00	5.50	329.90	4814.78	340.72	-173.75	341.59	0.31	-0.24	2.00	MWD
4923.00	5.90	330.10	4899.36	348.03	-177.97	348.92	0.47	0.47	0.24	MWD
5009.00	7.00	327.10	4984.81	356.26	-183.02	357.18	1.34	1.28	-3.49	MWD
5094.00	7.20	327.50	5069.16	365.10	-188.70	366.05	0.24	0.24	0.47	MWD
5179.00	7.00	329.20	5153.51	374.04	-194.21	375.02	0.34	-0.24	2.00	MWD
5264.00	6.10	328.00	5237.95	382.32	-199.26	383.33	1.07	-1.06	-1.41	MWD
5349.00	5.60	330.80	5322.51	389.77	-203.67	390.80	0.68	-0.59	3.29	MWD
5434.00	7.00	324.30	5407.00	397.60	-208.72	398.65	1.85	1.65	-7.65	MWD
5519.00	6.00	325.50	5491.45	405.47	-214.26	406.55	1.19	-1.18	1.41	MWD
5605.00	5.00	326.60	5577.05	412.30	-218.87	413.40	1.17	-1.16	1.28	MWD
5690.00	5.00	323.60	5661.73	418.37	-223.11	419.50	0.31	0.00	-3.53	MWD
5775.00	6.00	323.40	5746.34	424.92	-227.95	426.07	1.18	1.18	-0.24	MWD
5860.00	6.90	328.30	5830.80	432.83	-233.28	434.01	1.24	1.06	5.76	MWD
5946.00	7.20	335.00	5916.15	442.11	-238.28	443.31	1.02	0.35	7.79	MWD
6031.00	6.30	335.70	6000.56	451.19	-242.45	452.41	1.06	-1.06	0.82	MWD
6116.00	6.30	341.90	6085.05	459.87	-245.82	461.11	0.80	0.00	7.29	MWD
6177.00	6.50	343.50	6145.67	466.37	-247.84	467.61	0.44	0.33	2.62	MWD
6219.00	11.70	342.60	6187.12	472.71	-249.79	473.97	12.39	12.38	-2.14	MWD
6262.00	16.80	343.60	6228.79	482.84	-252.85	484.11	11.87	11.86	2.33	MWD
6304.00	21.00	339.40	6268.51	495.71	-257.21	497.01	10.51	10.00	-10.00	MWD
6347.00	25.00	339.90	6308.09	511.47	-263.05	512.79	9.31	9.30	1.16	MWD
6390.00	27.60	337.80	6346.63	529.23	-269.93	530.58	6.42	6.05	-4.88	MWD
6432.00	32.60	338.50	6382.96	548.77	-277.76	550.17	11.93	11.90	1.67	MWD
6454.00	35.10	339.58	6401.23	560.22	-282.14	561.64	11.70	11.38	4.93	600' entry
6475.00	37.50	340.50	6418.15	571.90	-286.38	573.34	11.70	11.41	4.36	MWD
6517.00	41.70	341.70	6450.51	597.23	-295.04	598.71	10.16	10.00	2.86	MWD
6560.00	45.70	343.60	6481.59	625.58	-303.88	627.11	9.79	9.30	4.42	MWD
6603.00	48.10	345.20	6510.97	655.82	-312.31	657.39	6.21	5.58	3.72	MWD
6645.00	49.80	345.20	6538.55	686.44	-320.40	688.05	4.05	4.05	0.00	MWD
6688.00	53.60	345.20	6565.20	719.06	-329.02	720.72	8.84	8.84	0.00	MWD
6727.00	58.90	349.40	6586.86	750.68	-336.11	752.37	16.27	13.59	10.77	MWD
6769.00	65.20	348.70	6606.54	787.09	-343.16	788.81	15.07	15.00	-1.67	MWD
6812.00	70.80	350.50	6622.64	826.29	-350.34	828.05	13.59	13.02	4.19	MWD
6854.00	76.60	353.10	6634.43	866.17	-356.07	867.96	15.03	13.81	6.19	MWD

Precision Directional Services, Inc.

Survey Report

Company: CARRIZO OIL & GAS, INC. Field: Niobrara CONZ'83 Site: Jones 19-11-10-59 Pad Well: 18-14-10-59 Wellpath: Original Hole	Date: 10/26/2012 Co-ordinate(NE) Reference: Well: 18-14-10-59, Grid North Vertical (TVD) Reference: 5397GL+17*KB 5414.0 Section (VS) Reference: Well (0.00N,0.00E,359.71Azi) Survey Calculation Method: Minimum Curvature	Page: 3 Db: Adapti
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Survey

MD ft	Incl deg	Azim deg	TVD ft	+N/-S ft	+E/-W ft	VS ft	DLS deg/100ft	Build deg/100ft	Turn deg/100ft	Tool/Comment
6897.00	83.20	355.40	6641.96	908.26	-360.30	910.07	16.23	15.35	5.35	MWD
6940.00	84.70	355.10	6646.49	950.87	-363.85	952.70	3.56	3.49	-0.70	MWD
6982.00	85.70	357.50	6650.01	992.64	-366.55	994.48	6.17	2.38	5.71	MWD
7025.00	87.90	0.50	6652.41	1035.55	-367.29	1037.40	8.64	5.12	6.98	MWD
7067.00	87.80	1.20	6653.99	1077.52	-366.67	1079.36	1.68	-0.24	1.67	MWD
7109.00	87.80	1.00	6655.60	1119.48	-365.86	1121.32	0.48	0.00	-0.48	MWD
7151.00	87.60	0.90	6657.28	1161.44	-365.17	1163.27	0.53	-0.48	-0.24	MWD
7194.00	89.30	0.70	6658.45	1204.42	-364.57	1206.25	3.98	3.95	-0.47	MWD
7236.00	89.50	0.50	6658.89	1246.42	-364.13	1248.24	0.67	0.48	-0.48	MWD
7279.00	90.00	2.30	6659.07	1289.40	-363.08	1291.22	4.34	1.16	4.19	MWD
7322.00	90.10	1.90	6659.04	1332.37	-361.50	1334.18	0.96	0.23	-0.93	MWD
7364.00	89.90	0.30	6659.04	1374.36	-360.70	1376.17	3.84	-0.48	-3.81	MWD
7407.00	90.00	358.00	6659.07	1417.35	-361.33	1419.17	5.35	0.23	-5.35	MWD
7450.00	90.00	355.20	6659.07	1460.27	-363.88	1462.10	6.51	0.00	-6.51	MWD
7492.00	90.00	352.80	6659.07	1502.04	-368.27	1503.89	5.71	0.00	-5.71	MWD
7535.00	90.00	354.20	6659.07	1544.76	-373.14	1546.63	3.26	0.00	3.26	MWD
7577.00	89.80	355.10	6659.15	1586.58	-377.06	1588.47	2.20	-0.48	2.14	MWD
7619.00	89.60	356.80	6659.37	1628.47	-380.02	1630.38	4.08	-0.48	4.05	MWD
7662.00	90.20	0.00	6659.44	1671.45	-381.22	1673.36	7.57	1.40	7.44	MWD
7704.00	89.70	1.20	6659.48	1713.45	-380.78	1715.35	3.10	-1.19	2.86	MWD
7747.00	89.80	359.80	6659.67	1756.44	-380.41	1758.35	3.26	0.23	-3.26	MWD
7790.00	89.50	357.20	6659.93	1799.43	-381.54	1801.33	6.09	-0.70	-6.05	MWD
7832.00	89.40	354.50	6660.33	1841.31	-384.57	1843.23	6.43	-0.24	-6.43	MWD
7873.00	88.80	357.30	6660.98	1882.19	-387.50	1884.13	6.98	-1.46	6.83	MWD
7916.00	89.40	1.60	6661.65	1925.18	-387.92	1927.12	10.10	1.40	10.00	MWD
7958.00	90.00	4.90	6661.87	1967.10	-385.54	1969.03	7.99	1.43	7.86	MWD
8001.00	90.30	4.70	6661.76	2009.95	-381.94	2011.86	0.84	0.70	-0.47	MWD
8044.00	90.80	4.90	6661.35	2052.80	-378.34	2054.69	1.25	1.16	0.47	MWD
8086.00	90.20	6.50	6660.98	2094.59	-374.17	2096.46	4.07	-1.43	3.81	MWD
8129.00	88.60	5.80	6661.43	2137.34	-369.56	2139.18	4.06	-3.72	-1.63	MWD
8171.00	88.90	4.40	6662.35	2179.16	-365.83	2180.98	3.41	0.71	-3.33	MWD
8214.00	89.50	1.70	6662.95	2222.09	-363.54	2223.90	6.43	1.40	-6.28	MWD
8257.00	89.30	0.70	6663.40	2265.08	-362.64	2266.88	2.37	-0.47	-2.33	MWD
8299.00	88.70	358.60	6664.13	2307.07	-362.90	2308.88	5.20	-1.43	-5.00	MWD
8342.00	88.50	357.70	6665.18	2350.03	-364.29	2351.85	2.14	-0.47	-2.09	MWD
8385.00	88.90	357.20	6666.16	2392.98	-366.20	2394.80	1.49	0.93	-1.16	MWD
8427.00	89.40	355.90	6666.78	2434.90	-368.73	2436.73	3.32	1.19	-3.10	MWD
8470.00	90.70	356.30	6666.74	2477.80	-371.65	2479.65	3.16	3.02	0.93	MWD
8512.00	91.20	357.20	6666.05	2519.72	-374.03	2521.58	2.45	1.19	2.14	MWD
8554.00	91.40	356.80	6665.09	2561.65	-376.23	2563.53	1.06	0.48	-0.95	MWD
8596.00	91.80	358.20	6663.92	2603.60	-378.06	2605.48	3.47	0.95	3.33	MWD
8639.00	91.80	359.60	6662.57	2646.57	-378.89	2648.45	3.25	0.00	3.26	MWD
8680.00	92.10	359.10	6661.18	2687.54	-379.35	2689.43	1.42	0.73	-1.22	MWD
8722.00	90.10	0.70	6660.37	2729.53	-379.42	2731.41	6.10	-4.76	3.81	MWD
8765.00	89.90	0.20	6660.37	2772.53	-379.09	2774.41	1.25	-0.47	-1.16	MWD
8807.00	88.40	0.70	6660.99	2814.52	-378.76	2816.40	3.76	-3.57	1.19	MWD
8850.00	87.80	0.30	6662.42	2857.49	-378.38	2859.37	1.68	-1.40	-0.93	MWD
8893.00	87.90	0.50	6664.03	2900.46	-378.08	2902.34	0.52	0.23	0.47	MWD
8935.00	88.50	359.80	6665.35	2942.44	-377.97	2944.32	2.19	1.43	-1.67	MWD
8978.00	88.20	359.60	6666.59	2985.42	-378.20	2987.30	0.84	-0.70	-0.47	MWD
9020.00	88.50	359.60	6667.80	3027.40	-378.49	3029.28	0.71	0.71	0.00	MWD
9063.00	90.90	358.90	6668.02	3070.40	-379.05	3072.28	5.81	5.58	-1.63	MWD
9106.00	91.10	358.80	6667.27	3113.38	-379.92	3115.26	0.52	0.47	-0.23	MWD
9148.00	91.00	358.40	6666.50	3155.36	-380.94	3157.25	0.98	-0.24	-0.95	MWD

Precision Directional Services, Inc.

Survey Report

Company: CARRIZO OIL & GAS, INC.	Date: 10/26/2012	Time: 09:58:29	Page: 4
Field: Niobrara CONZ'83	Co-ordinate(NE) Reference:	Well: 18-14-10-59, Grid North	
Site: Jones 19-11-10-59 Pad	Vertical (TVD) Reference:	5397GL+17'KB 5414.0	
Well: 18-14-10-59	Section (VS) Reference:	Well (0.00N,0.00E,359.71Azi)	
Wellpath: Original Hole	Survey Calculation Method:	Minimum Curvature	Db: Adapti

Survey

MD ft	Incl deg	Azim deg	TVD ft	+N/-S ft	+E/-W ft	VS ft	DLS deg/100ft	Build deg/100ft	Turn deg/100ft	Tool/Comment
9191.00	89.80	358.60	6666.20	3198.35	-382.07	3200.24	2.83	-2.79	0.47	MWD
9233.00	89.60	358.20	6666.42	3240.33	-383.24	3242.23	1.06	-0.48	-0.95	MWD
9276.00	89.30	358.40	6666.84	3283.31	-384.52	3285.21	0.84	-0.70	0.47	MWD
9319.00	89.30	358.40	6667.36	3326.29	-385.72	3328.20	0.00	0.00	0.00	MWD
9362.00	89.20	358.20	6667.92	3369.26	-386.99	3371.18	0.52	-0.23	-0.47	MWD
9404.00	88.70	358.10	6668.69	3411.24	-388.35	3413.16	1.21	-1.19	-0.24	MWD
9447.00	88.40	357.90	6669.78	3454.20	-389.85	3456.12	0.84	-0.70	-0.47	MWD
9490.00	88.50	358.10	6670.94	3497.15	-391.35	3499.09	0.52	0.23	0.47	MWD
9532.00	88.50	358.90	6672.04	3539.12	-392.45	3541.07	1.90	0.00	1.90	MWD
9575.00	88.40	358.80	6673.21	3582.10	-393.31	3584.04	0.33	-0.23	-0.23	MWD
9617.00	87.80	358.60	6674.60	3624.07	-394.26	3626.02	1.51	-1.43	-0.48	MWD
9659.00	87.80	358.40	6676.21	3666.02	-395.36	3667.97	0.48	0.00	-0.48	MWD
9701.00	88.80	0.30	6677.46	3708.00	-395.84	3709.95	5.11	2.38	4.52	MWD
9744.00	89.60	0.50	6678.06	3750.99	-395.54	3752.95	1.92	1.86	0.47	MWD
9787.00	91.40	0.20	6677.68	3793.99	-395.27	3795.94	4.24	4.19	-0.70	MWD
9829.00	91.30	0.00	6676.69	3835.98	-395.20	3837.93	0.53	-0.24	-0.48	MWD
9872.00	90.50	0.00	6676.02	3878.97	-395.20	3880.92	1.86	-1.86	0.00	MWD
9914.00	89.80	359.80	6675.91	3920.97	-395.27	3922.92	1.73	-1.67	-0.48	MWD
9957.00	89.40	359.50	6676.21	3963.97	-395.54	3965.92	1.16	-0.93	-0.70	MWD
10000.00	89.60	359.80	6676.58	4006.96	-395.80	4008.92	0.84	0.47	0.70	MWD
10042.00	89.80	0.30	6676.80	4048.96	-395.76	4050.92	1.28	0.48	1.19	MWD
10085.00	89.30	0.30	6677.14	4091.96	-395.54	4093.91	1.16	-1.16	0.00	MWD
10127.00	88.90	359.80	6677.80	4133.96	-395.50	4135.91	1.52	-0.95	-1.19	MWD
10169.00	89.10	359.80	6678.53	4175.95	-395.65	4177.90	0.48	0.48	0.00	MWD
10212.00	88.90	359.30	6679.28	4218.94	-395.98	4220.89	1.25	-0.47	-1.16	MWD
10254.00	88.50	359.30	6680.24	4260.93	-396.50	4262.88	0.95	-0.95	0.00	MWD
10297.00	88.30	359.30	6681.44	4303.91	-397.02	4305.86	0.47	-0.47	0.00	MWD
10339.00	88.10	359.10	6682.76	4345.88	-397.61	4347.84	0.67	-0.48	-0.48	MWD
10388.00	87.80	359.10	6684.51	4394.85	-398.38	4396.81	0.61	-0.61	0.00	MWD
10450.00	87.80	359.10	6686.89	4456.79	-399.35	4458.76	0.00	0.00	0.00	Project

Annotation

MD ft	TVD ft	
6454.00	6401.23	600' entry