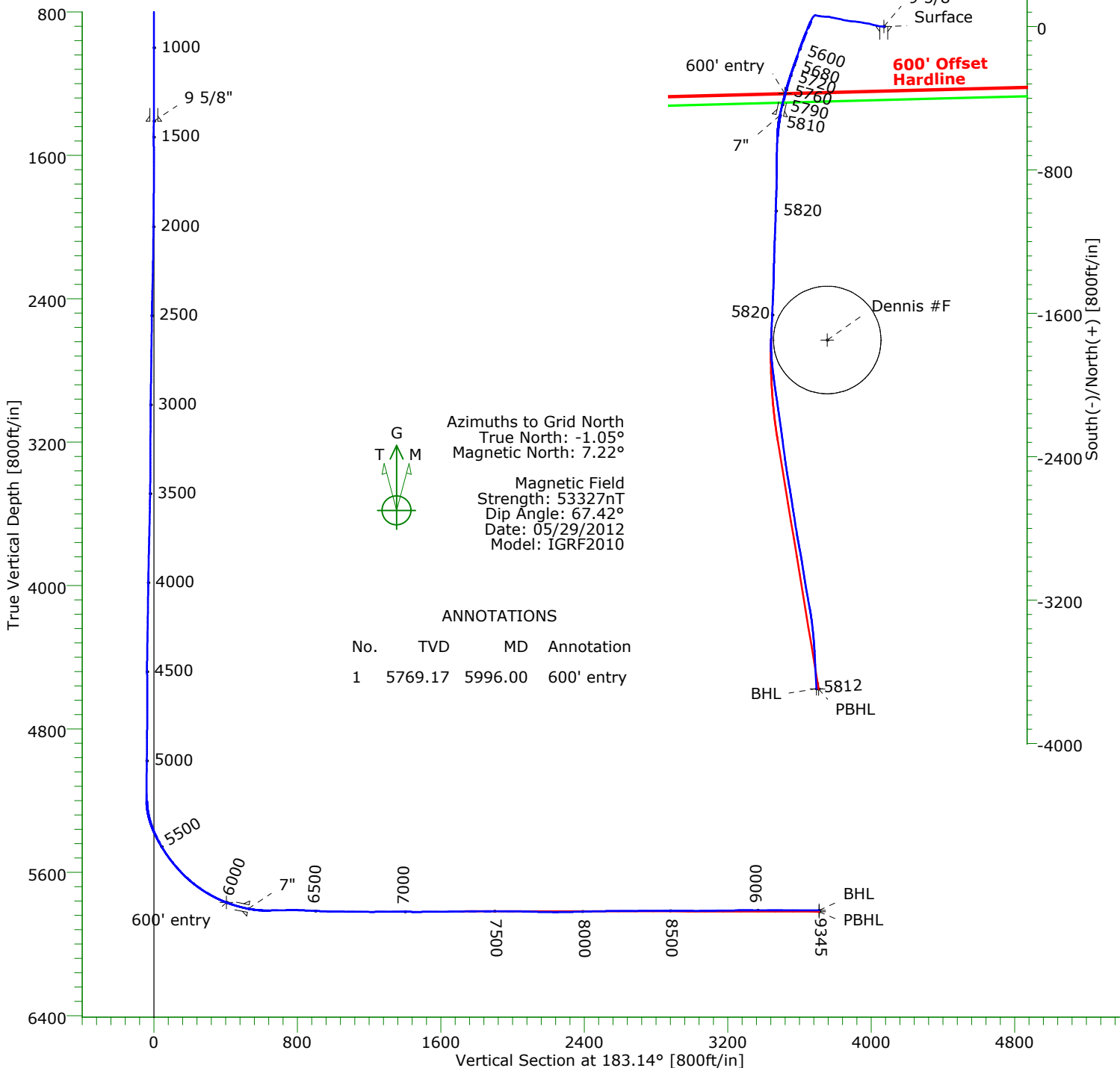


### CASING DETAILS

No.	TVD	MD	Name	Size
1	1410.00	1410.00	9 5/8"	9.625
2	5803.94	6125.00	7"	7.000



### TARGET DETAILS

Name	TVD	+N/-S	+E/-W	Northing	Easting	Latitude	Longitude	Shape
Surface	0.00	0.00	0.00	1507165.75	3451858.07	40°42'50.948N	103°52'11.889W	Point
Dennis #F	0.00	-1748.91	-316.17	1505416.84	3451541.90	40°42'33.727N	103°52'16.412W	Circle (Radius: 300)
600' entry	5769.17	-374.98	-551.39	1506790.77	3451306.68	40°42'47.344N	103°52'19.138W	Point
BHL	5812.13	-3694.55	-375.46	1503471.20	3451482.61	40°42'14.516N	103°52'17.645W	Point
PBHL	5820.00	-3695.60	-364.20	1503470.15	3451493.87	40°42'14.504N	103°52'17.499W	Point

<b>Company:</b> CARRIZO OIL & GAS, INC.	<b>Date:</b> 06/06/2012	<b>Time:</b> 09:53:03	<b>Page:</b> 1
<b>Field:</b> Niobrara CONZ'83	<b>Co-ordinate(NE) Reference:</b> Well: 33-21-9-58, Grid North		
<b>Site:</b> Bringelson Ranch 33-21-9-58	<b>Vertical (TVD) Reference:</b> 4842'GL+17"KB 4859.0		
<b>Well:</b> 33-21-9-58	<b>Section (VS) Reference:</b> Well (0.00N,0.00E,183.14Azi)		
<b>Wellpath:</b> Original Hole	<b>Survey Calculation Method:</b> Minimum Curvature	<b>Db:</b> Adapti	

**Field:** Niobrara CONZ'83

**Map System:** US State Plane Coordinate System 1983  
**Geo Datum:** GRS 1980  
**Sys Datum:** Mean Sea Level

**Map Zone:** Colorado, Northern Zone  
**Coordinate System:** Well Centre  
**Geomagnetic Model:** IGRF2010

**Site:** Bringelson Ranch 33-21-9-58

Weld County,

<b>Site Position:</b>	<b>Northing:</b> 1507165.75 ft	<b>Latitude:</b> 40 42 50.948 N	
<b>From:</b> Map	<b>Easting:</b> 3451858.07 ft	<b>Longitude:</b> 103 52 11.889 W	
<b>Position Uncertainty:</b> 0.00 ft		<b>North Reference:</b> Grid	
<b>Ground Level:</b> 4842.00 ft		<b>Grid Convergence:</b> 1.05 deg	

**Well:** 33-21-9-58

**Slot Name:**

<b>Well Position:</b> +N/-S 0.00 ft	<b>Northing:</b> 1507165.75 ft	<b>Latitude:</b> 40 42 50.948 N	
+E/-W 0.00 ft	<b>Easting :</b> 3451858.07 ft	<b>Longitude:</b> 103 52 11.889 W	
<b>Position Uncertainty:</b> 0.00 ft			

**Wellpath:** Original Hole

**Drilled From:** Surface  
**Tie-on Depth:** 0.00 ft  
**Above System Datum:** Mean Sea Level  
**Declination:** 8.27 deg  
**Mag Dip Angle:** 67.42 deg  
**+E/-W**  
**Direction**  
deg

**Current Datum:** 4842'GL+17"KB  
**Magnetic Data:** 05/29/2012  
**Field Strength:** 53327 nT  
**Vertical Section:** Depth From (TVD) ft  
**+N/-S**  
ft

**Height** 4859.00 ft  
**+N/-S**  
ft

0.00 0.00 0.00 183.14

#### Survey Program for Definitive Wellpath

**Date:** 06/06/2012 **Validated:** No  
**Actual From** **To**  
ft ft

**Version:** 0  
**Toolcode**

**Tool Name**

1410.00 9226.00 Survey #1 (1410.00-9226.00)  
9345.00 9345.00 Survey #2 (9345.00-9345.00)

MWD Std MWD  
Project Projection

#### 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
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	TIE LINE
1410.00	0.00	0.00	1410.00	0.00	0.00	0.00	0.00	0.00	0.00	MWD
1477.00	0.20	67.70	1477.00	0.04	0.11	-0.05	0.30	0.30	0.00	MWD
1562.00	1.60	266.00	1561.99	0.02	-0.94	0.03	2.11	1.65	-190.24	MWD
1647.00	2.90	271.40	1646.92	-0.01	-4.27	0.25	1.55	1.53	6.35	MWD
1732.00	3.80	273.20	1731.78	0.20	-9.23	0.31	1.07	1.06	2.12	MWD
1817.00	4.60	278.40	1816.55	0.85	-15.42	-0.01	1.04	0.94	6.12	MWD
1903.00	5.80	275.60	1902.19	1.78	-23.15	-0.51	1.43	1.40	-3.26	MWD
1988.00	5.80	283.90	1986.76	3.23	-31.60	-1.50	0.99	0.00	9.76	MWD
2073.00	5.70	279.70	2071.33	4.97	-39.93	-2.78	0.51	-0.12	-4.94	MWD
2158.00	5.50	277.70	2155.93	6.23	-48.13	-3.59	0.33	-0.24	-2.35	MWD
2243.00	6.00	288.30	2240.50	8.17	-56.38	-5.07	1.38	0.59	12.47	MWD
2328.00	5.80	286.90	2325.05	10.82	-64.71	-7.25	0.29	-0.24	-1.65	MWD
2414.00	6.20	285.30	2410.58	13.30	-73.34	-9.27	0.50	0.47	-1.86	MWD
2499.00	7.10	279.30	2495.01	15.36	-82.96	-10.80	1.34	1.06	-7.06	MWD
2584.00	6.90	280.00	2579.37	17.10	-93.17	-11.97	0.26	-0.24	0.82	MWD
2669.00	6.70	279.80	2663.78	18.83	-103.08	-13.16	0.24	-0.24	-0.24	MWD
2754.00	6.90	280.50	2748.18	20.60	-112.99	-14.38	0.25	0.24	0.82	MWD
2839.00	6.90	279.00	2832.56	22.33	-123.05	-15.56	0.21	0.00	-1.76	MWD
2924.00	6.50	280.00	2916.98	23.97	-132.83	-16.66	0.49	-0.47	1.18	MWD
3009.00	6.00	279.70	3001.48	25.55	-141.95	-17.74	0.59	-0.59	-0.35	MWD
3094.00	6.60	275.10	3085.96	26.73	-151.20	-18.41	0.92	0.71	-5.41	MWD

**Company:** CARRIZO OIL & GAS, INC.  
**Field:** Niobrara CONZ'83  
**Site:** Bringelson Ranch 33-21-9-58  
**Well:** 33-21-9-58  
**Wellpath:** Original Hole

**Date:** 06/06/2012      **Time:** 09:53:03      **Page:** 2  
**Co-ordinate(NE) Reference:** Well: 33-21-9-58, Grid North  
**Vertical (TVD) Reference:** 4842'GL+17"KB 4859.0  
**Section (VS) Reference:** Well (0.00N,0.00E,183.14Azi)  
**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
3179.00	6.80	274.40	3170.38	27.56	-161.08	-18.69	0.25	0.24	-0.82	MWD
3263.00	6.90	274.00	3253.78	28.29	-171.07	-18.88	0.13	0.12	-0.48	MWD
3348.00	7.10	276.00	3338.15	29.19	-181.39	-19.21	0.37	0.24	2.35	MWD
3431.00	7.50	277.90	3420.48	30.47	-191.85	-19.92	0.56	0.48	2.29	MWD
3517.00	7.70	280.20	3505.72	32.27	-203.08	-21.09	0.42	0.23	2.67	MWD
3602.00	8.00	280.00	3589.92	34.30	-214.51	-22.50	0.35	0.35	-0.24	MWD
3687.00	8.20	281.60	3674.08	36.55	-226.28	-24.10	0.35	0.24	1.88	MWD
3773.00	7.70	286.40	3759.25	39.41	-237.81	-26.32	0.97	-0.58	5.58	MWD
3858.00	7.80	280.90	3843.48	42.11	-248.94	-28.41	0.88	0.12	-6.47	MWD
3942.00	7.70	280.50	3926.71	44.21	-260.07	-29.90	0.14	-0.12	-0.48	MWD
4026.00	6.20	282.00	4010.09	46.18	-270.04	-31.32	1.80	-1.79	1.79	MWD
4110.00	5.70	280.70	4093.64	47.90	-278.58	-32.56	0.62	-0.60	-1.55	MWD
4196.00	5.50	281.10	4179.23	49.48	-286.82	-33.70	0.24	-0.23	0.47	MWD
4280.00	5.30	283.20	4262.85	51.14	-294.54	-34.93	0.33	-0.24	2.50	MWD
4365.00	4.60	286.90	4347.54	53.03	-301.63	-36.43	0.90	-0.82	4.35	MWD
4450.00	5.20	275.60	4432.23	54.40	-308.72	-37.41	1.33	0.71	-13.29	MWD
4535.00	6.30	268.40	4516.80	54.64	-317.22	-37.19	1.55	1.29	-8.47	MWD
4621.00	7.50	274.90	4602.18	54.99	-327.53	-36.97	1.66	1.40	7.56	MWD
4706.00	6.00	273.30	4686.58	55.72	-337.49	-37.15	1.78	-1.76	-1.88	MWD
4791.00	4.80	274.20	4771.21	56.24	-345.47	-37.23	1.42	-1.41	1.06	MWD
4876.00	5.80	277.00	4855.84	57.02	-353.28	-37.58	1.21	1.18	3.29	MWD
4962.00	5.70	282.10	4941.41	58.45	-361.77	-38.54	0.61	-0.12	5.93	MWD
5047.00	5.50	281.10	5026.00	60.11	-369.90	-39.76	0.26	-0.24	-1.18	MWD
5132.00	4.90	278.80	5110.65	61.45	-377.48	-40.68	0.75	-0.71	-2.71	MWD
5184.00	4.50	281.60	5162.48	62.20	-381.67	-41.20	0.89	-0.77	5.38	MWD
5226.00	4.80	260.20	5204.34	62.24	-385.02	-41.05	4.17	0.71	-50.95	MWD
5269.00	10.40	225.90	5246.97	59.23	-389.58	-37.80	16.22	13.02	-79.77	MWD
5312.00	15.70	215.00	5288.85	51.75	-395.71	-30.00	13.54	12.33	-25.35	MWD
5354.00	20.20	207.10	5328.80	40.63	-402.28	-18.54	12.16	10.71	-18.81	MWD
5396.00	24.80	204.60	5367.59	26.16	-409.25	-3.71	11.18	10.95	-5.95	MWD
5438.00	28.40	203.20	5405.14	8.97	-416.86	13.88	8.70	8.57	-3.33	MWD
5481.00	31.70	202.70	5442.36	-10.86	-425.25	34.14	7.70	7.67	-1.16	MWD
5524.00	34.30	202.70	5478.42	-32.46	-434.29	56.20	6.05	6.05	0.00	MWD
5566.00	36.90	201.60	5512.56	-55.11	-443.50	79.32	6.38	6.19	-2.62	MWD
5609.00	40.00	200.70	5546.24	-80.04	-453.14	104.75	7.33	7.21	-2.09	MWD
5652.00	42.60	200.00	5578.54	-106.65	-463.00	131.85	6.14	6.05	-1.63	MWD
5694.00	45.50	199.30	5608.72	-134.15	-472.81	159.85	7.00	6.90	-1.67	MWD
5737.00	49.40	199.30	5637.79	-164.04	-483.28	190.27	9.07	9.07	0.00	MWD
5779.00	52.80	199.50	5664.16	-194.87	-494.14	221.64	8.10	8.10	0.48	MWD
5822.00	56.10	199.30	5689.16	-227.86	-505.76	255.23	7.68	7.67	-0.47	MWD
5865.00	59.10	198.50	5712.20	-262.21	-517.51	290.16	7.15	6.98	-1.86	MWD
5907.00	62.40	197.60	5732.72	-297.05	-528.86	325.57	8.08	7.86	-2.14	MWD
5950.00	65.70	196.20	5751.53	-334.04	-540.09	363.12	8.21	7.67	-3.26	MWD
5992.00	68.90	194.80	5767.74	-371.37	-550.44	400.96	8.22	7.62	-3.33	MWD
6035.00	72.70	193.90	5781.88	-410.70	-560.50	440.79	9.06	8.84	-2.09	MWD
6122.00	78.70	192.30	5803.36	-492.78	-579.58	523.79	7.12	6.90	-1.84	MWD
6152.00	81.30	189.30	5808.57	-521.79	-585.11	553.06	13.12	8.67	-10.00	MWD
6183.00	85.40	187.20	5812.16	-552.26	-589.53	583.72	14.84	13.23	-6.77	MWD
6214.00	88.80	184.00	5813.73	-583.06	-592.55	614.64	15.05	10.97	-10.32	MWD
6244.00	91.80	181.90	5813.57	-613.02	-594.09	644.64	12.21	10.00	-7.00	MWD
6290.00	90.70	181.80	5812.57	-658.98	-595.58	690.62	2.40	-2.39	-0.22	MWD
6336.00	90.70	181.20	5812.00	-704.96	-596.78	736.59	1.30	0.00	-1.30	MWD
6379.00	90.00	179.80	5811.74	-747.96	-597.15	779.55	3.64	-1.63	-3.26	MWD

**Company:** CARRIZO OIL & GAS, INC.  
**Field:** Niobrara CONZ'83  
**Site:** Bringelson Ranch 33-21-9-58  
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**Date:** 06/06/2012 **Time:** 09:53:03 **Page:** 3  
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**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
6421.00	87.80	179.70	5812.55	-789.95	-596.97	821.46	5.24	-5.24	-0.24	MWD
6464.00	87.40	181.60	5814.35	-832.91	-597.46	864.38	4.51	-0.93	4.42	MWD
6506.00	87.00	181.10	5816.40	-874.84	-598.45	906.31	1.52	-0.95	-1.19	MWD
6549.00	88.10	181.60	5818.24	-917.79	-599.46	949.25	2.81	2.56	1.16	MWD
6592.00	89.50	182.30	5819.14	-960.76	-600.92	992.23	3.64	3.26	1.63	MWD
6634.00	89.30	181.60	5819.58	-1002.73	-602.35	1034.22	1.73	-0.48	-1.67	MWD
6677.00	88.70	181.20	5820.33	-1045.71	-603.40	1077.19	1.68	-1.40	-0.93	MWD
6720.00	89.40	182.10	5821.04	-1088.68	-604.64	1120.17	2.65	1.63	2.09	MWD
6762.00	90.00	182.30	5821.26	-1130.65	-606.25	1162.16	1.51	1.43	0.48	MWD
6805.00	89.70	182.10	5821.38	-1173.62	-607.90	1205.16	0.84	-0.70	-0.47	MWD
6847.00	90.90	182.60	5821.16	-1215.58	-609.62	1247.15	3.10	2.86	1.19	MWD
6893.00	89.90	181.60	5820.83	-1261.55	-611.31	1293.14	3.07	-2.17	-2.17	MWD
6933.00	89.40	181.10	5821.08	-1301.54	-612.25	1333.12	1.77	-1.25	-1.25	MWD
6973.00	90.70	181.80	5821.04	-1341.52	-613.26	1373.10	3.69	3.25	1.75	MWD
7015.00	89.20	180.40	5821.08	-1383.51	-614.07	1415.07	4.89	-3.57	-3.33	MWD
7057.00	89.70	182.10	5821.48	-1425.50	-614.99	1457.05	4.22	1.19	4.05	MWD
7100.00	90.90	182.50	5821.26	-1468.47	-616.71	1500.04	2.94	2.79	0.93	MWD
7142.00	90.00	182.30	5820.93	-1510.43	-618.47	1542.04	2.20	-2.14	-0.48	MWD
7185.00	90.80	182.60	5820.63	-1553.39	-620.31	1585.03	1.99	1.86	0.70	MWD
7228.00	90.40	182.50	5820.18	-1596.34	-622.22	1628.03	0.96	-0.93	-0.23	MWD
7270.00	91.10	183.00	5819.63	-1638.29	-624.24	1670.02	2.05	1.67	1.19	MWD
7313.00	90.80	182.50	5818.92	-1681.23	-626.30	1713.01	1.36	-0.70	-1.16	MWD
7356.00	90.60	182.30	5818.39	-1724.19	-628.10	1756.01	0.66	-0.47	-0.47	MWD
7398.00	89.70	180.90	5818.28	-1766.17	-629.27	1797.99	3.96	-2.14	-3.33	MWD
7441.00	89.70	178.10	5818.51	-1809.17	-628.90	1840.90	6.51	0.00	-6.51	MWD
7483.00	90.70	175.40	5818.36	-1851.10	-626.52	1882.63	6.86	2.38	-6.43	MWD
7525.00	90.70	173.50	5817.85	-1892.89	-622.46	1924.15	4.52	0.00	-4.52	MWD
7568.00	90.20	173.10	5817.51	-1935.60	-617.44	1966.51	1.49	-1.16	-0.93	MWD
7611.00	89.10	172.60	5817.77	-1978.26	-612.09	2008.82	2.81	-2.56	-1.16	MWD
7696.00	88.10	171.20	5819.85	-2062.39	-600.11	2092.16	2.02	-1.18	-1.65	MWD
7781.00	88.90	172.10	5822.07	-2146.45	-587.78	2175.43	1.42	0.94	1.06	MWD
7866.00	90.30	171.70	5822.67	-2230.60	-575.80	2258.79	1.71	1.65	-0.47	MWD
7951.00	91.60	172.80	5821.26	-2314.81	-564.34	2342.25	2.00	1.53	1.29	MWD
8036.00	91.30	172.30	5819.11	-2399.07	-553.32	2425.77	0.69	-0.35	-0.59	MWD
8121.00	90.90	171.20	5817.47	-2483.17	-541.13	2509.08	1.38	-0.47	-1.29	MWD
8206.00	89.70	169.80	5817.03	-2567.00	-527.10	2592.02	2.17	-1.41	-1.65	MWD
8291.00	91.10	171.60	5816.44	-2650.87	-513.36	2675.01	2.68	1.65	2.12	MWD
8376.00	89.90	170.90	5815.69	-2734.88	-500.43	2758.19	1.63	-1.41	-0.82	MWD
8461.00	90.70	171.00	5815.25	-2818.82	-487.06	2841.27	0.95	0.94	0.12	MWD
8546.00	89.30	168.90	5815.25	-2902.51	-472.23	2924.02	2.97	-1.65	-2.47	MWD
8632.00	89.70	171.00	5816.00	-2987.18	-457.23	3007.74	2.49	0.47	2.44	MWD
8717.00	91.10	171.40	5815.41	-3071.18	-444.22	3090.90	1.71	1.65	0.47	MWD
8802.00	90.80	169.80	5814.00	-3155.02	-430.34	3173.86	1.91	-0.35	-1.88	MWD
8887.00	90.20	169.30	5813.25	-3238.61	-414.93	3256.47	0.92	-0.71	-0.59	MWD
8972.00	90.00	173.00	5813.11	-3322.58	-401.85	3339.60	4.36	-0.24	4.35	MWD
9056.00	90.00	174.70	5813.11	-3406.09	-392.85	3422.50	2.02	0.00	2.02	MWD
9141.00	89.90	177.00	5813.18	-3490.86	-386.70	3506.81	2.71	-0.12	2.71	MWD
9226.00	90.40	176.80	5812.96	-3575.74	-382.10	3591.30	0.63	0.59	-0.24	MWD
9345.00	90.40	176.80	5812.13	-3694.55	-375.46	3709.57	0.00	0.00	0.00	PROJECTED to TD