



# CARRIZO OIL & GAS, INC.

Field: Niobrara CONZ'83  
Site: Pergamos 8-41-7-60  
Well: 1-8-41-7-60  
Wellpath: Original Hole



## CASING DETAILS

No.	TVD	MD	Name	Size
1	1407.00	1407.00	9 5/8"	9.625
2	6223.78	6335.00	7"	7.000

## LEGEND

- 1-8-41-7-60, Original Hole, Plan #5 proj
- Original Hole

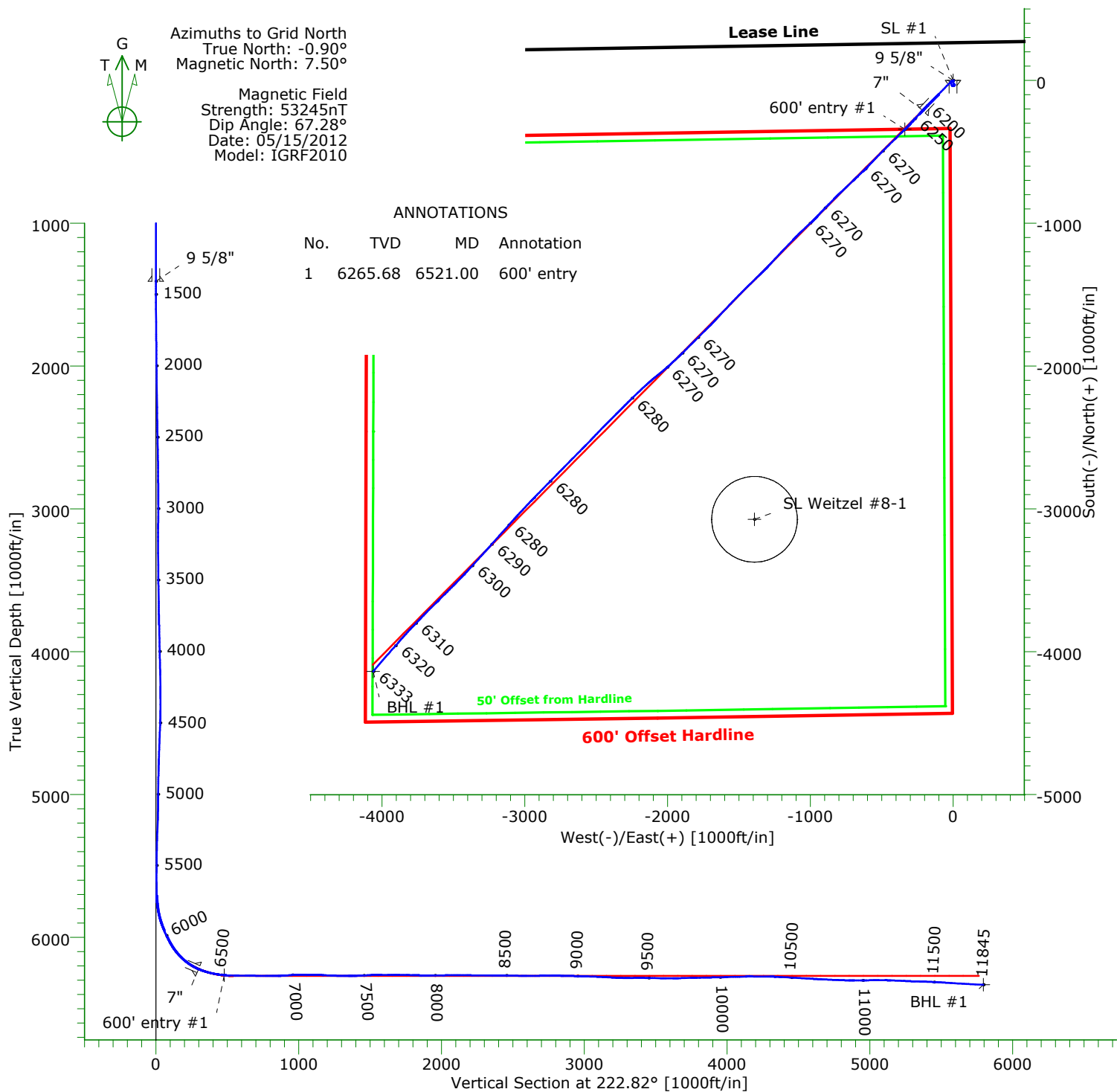


Azimuths to Grid North  
True North: -0.90°  
Magnetic North: 7.50°

Magnetic Field  
Strength: 53245nT  
Dip Angle: 67.28°  
Date: 05/15/2012  
Model: IGRF2010

## ANNOTATIONS

No.	TVD	MD	Annotation
1	6265.68	6521.00	600' entry



## TARGET DETAILS

Name	TVD	+N/-S	+E/-W	Northing	Easting	Latitude	Longitude	Shape
SL #1	0.00	0.00	0.00	1463077.48	3386126.26	40°35'46.420N	104°06'34.360W	Point
SL Weitzel #8-1	0.00	-3072.29	-1391.04	1460005.19	3384735.22	40°35'16.280N	104°06'53.013W	Circle (Radius: 300)
600' entry #1	6265.88	-340.90	-337.55	1462736.58	3385788.71	40°35'43.104N	104°06'38.805W	Point
BHL #1	6332.96	-4137.32	-4062.30	1458940.16	3382063.96	40°35'06.168N	104°07'27.847W	Point

Wellpath: (1-8-41-7-60/Original Hole)

Created By: Shane Nelson Date: 05/23/2012

**PRECISION DIRECTIONAL SERVICES, INC.**

**713.435.6250**

<b>Company:</b> CARRIZO OIL & GAS, INC. <b>Field:</b> Niobrara CONZ'83 <b>Site:</b> Pergamos 8-41-7-60 <b>Well:</b> 1-8-41-7-60 <b>Wellpath:</b> Original Hole	<b>Date:</b> 05/23/2012 <b>Co-ordinate(NE) Reference:</b> Well: 1-8-41-7-60, Grid North <b>Vertical (TVD) Reference:</b> 4870'GL+17'KB 4887.0 <b>Section (VS) Reference:</b> Well (0.00N,0.00E,222.82Azi) <b>Survey Calculation Method:</b> Minimum Curvature <b>Db:</b> Adapti
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**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:** Pergamos 8-41-7-60  
 S:8,T:7N,R60W  
 Weld County

<b>Site Position:</b>	<b>Northing:</b> 1463077.48 ft	<b>Latitude:</b> 40 35 46.420 N
<b>From:</b> Map	<b>Easting:</b> 3386126.26 ft	<b>Longitude:</b> 104 6 34.360 W
<b>Position Uncertainty:</b> 0.00 ft		<b>North Reference:</b> Grid
<b>Ground Level:</b> 4870.00 ft		<b>Grid Convergence:</b> 0.90 deg

**Well:** 1-8-41-7-60

**Slot Name:**

<b>Well Position:</b> +N/-S 0.00 ft	<b>Northing:</b> 1463077.48 ft	<b>Latitude:</b> 40 35 46.420 N
+E/-W 0.00 ft	<b>Easting :</b> 3386126.26 ft	<b>Longitude:</b> 104 6 34.360 W
<b>Position Uncertainty:</b> 0.00 ft		

**Wellpath:** Original Hole

<b>Current Datum:</b> 4870'GL+17'KB	<b>Height</b> 4887.00 ft	<b>Drilled From:</b> Surface
<b>Magnetic Data:</b> 05/15/2012		<b>Tie-on Depth:</b> 0.00 ft
<b>Field Strength:</b> 53245 nT		<b>Above System Datum:</b> Mean Sea Level
<b>Vertical Section:</b> Depth From (TVD)	+N/-S	<b>Declination:</b> 8.40 deg
ft	ft	<b>Mag Dip Angle:</b> 67.28 deg
		<b>+E/-W</b>
		<b>Direction</b>
		deg
0.00	0.00	222.82

**Survey Program for Definitive Wellpath**

<b>Date:</b> 05/23/2012	<b>Validated:</b> No	<b>Version:</b> 0	
<b>Actual From</b>	<b>To</b>	<b>Survey</b>	<b>Toolcode</b> <b>Tool Name</b>
ft	ft		
1425.00	11788.00	Survey #1 (1425.00-11788.00)	MWD
11845.00	11845.00	Survey #2 (11845.00-11845.00)	Std MWD
			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
1425.00	0.00	0.00	1425.00	0.00	0.00	0.00	0.00	0.00	0.00	MWD
1510.00	0.50	198.60	1510.00	-0.35	-0.12	0.34	0.59	0.59	0.00	MWD
1602.00	0.60	210.90	1601.99	-1.15	-0.49	1.18	0.17	0.11	13.37	MWD
1693.00	0.60	198.60	1692.99	-2.01	-0.89	2.08	0.14	0.00	-13.52	MWD
1779.00	0.60	192.20	1778.99	-2.87	-1.13	2.87	0.08	0.00	-7.44	MWD
1864.00	1.00	161.30	1863.98	-4.01	-0.99	3.61	0.68	0.47	-36.35	MWD
1948.00	1.20	167.60	1947.96	-5.56	-0.56	4.46	0.28	0.24	7.50	MWD
2033.00	1.10	173.30	2032.94	-7.24	-0.28	5.50	0.18	-0.12	6.71	MWD
2118.00	1.40	167.10	2117.92	-9.07	0.05	6.61	0.39	0.35	-7.29	MWD
2204.00	1.40	170.10	2203.90	-11.12	0.47	7.84	0.09	0.00	3.49	MWD
2289.00	1.40	163.40	2288.87	-13.14	0.94	9.00	0.19	0.00	-7.88	MWD
2374.00	1.50	156.90	2373.85	-15.16	1.68	9.98	0.23	0.12	-7.65	MWD
2459.00	1.70	176.80	2458.81	-17.44	2.18	11.31	0.69	0.24	23.41	MWD
2544.00	1.60	171.90	2543.78	-19.88	2.42	12.93	0.20	-0.12	-5.76	MWD
2629.00	1.70	167.10	2628.74	-22.28	2.87	14.39	0.20	0.12	-5.65	MWD
2714.00	2.00	153.60	2713.70	-24.84	3.81	15.63	0.62	0.35	-15.88	MWD
2799.00	2.10	146.20	2798.64	-27.46	5.34	16.52	0.33	0.12	-8.71	MWD
2885.00	0.80	175.50	2884.62	-29.37	6.26	17.29	1.69	-1.51	34.07	MWD
2970.00	0.60	0.60	2969.61	-29.52	6.31	17.36	1.65	-0.24	-205.76	MWD
3055.00	0.50	338.70	3054.61	-28.72	6.18	16.87	0.27	-0.12	-25.76	MWD
3140.00	0.60	107.20	3139.61	-28.51	6.47	16.51	1.17	0.12	151.18	MWD

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**Site:** Pergamos 8-41-7-60  
**Well:** 1-8-41-7-60  
**Wellpath:** Original Hole

**Date:** 05/23/2012 **Time:** 15:15:54 **Page:** 2  
**Co-ordinate(Ne) Reference:** Well: 1-8-41-7-60, Grid North  
**Vertical (TVD) Reference:** 4870'GL+17'KB 4887.0  
**Section (VS) Reference:** Well (0.00N,0.00E,222.82Azi)  
**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
3226.00	0.70	132.20	3225.60	-29.00	7.29	16.31	0.35	0.12	29.07	MWD
3311.00	0.70	141.10	3310.60	-29.75	8.00	16.38	0.13	0.00	10.47	MWD
3395.00	0.70	182.20	3394.59	-30.66	8.30	16.85	0.59	0.00	48.93	MWD
3480.00	0.80	173.30	3479.58	-31.77	8.35	17.63	0.18	0.12	-10.47	MWD
3565.00	1.10	188.20	3564.57	-33.17	8.31	18.68	0.45	0.35	17.53	MWD
3651.00	1.10	186.40	3650.56	-34.80	8.10	20.03	0.04	0.00	-2.09	MWD
3736.00	1.60	179.60	3735.53	-36.80	8.01	21.55	0.62	0.59	-8.00	MWD
3821.00	1.80	259.60	3820.51	-38.23	6.71	23.48	2.58	0.24	94.12	MWD
3906.00	1.40	259.40	3905.47	-38.66	4.37	25.38	0.47	-0.47	-0.24	MWD
3992.00	1.50	267.50	3991.44	-38.90	2.22	27.03	0.26	0.12	9.42	MWD
4076.00	1.80	257.10	4075.41	-39.25	-0.17	28.90	0.50	0.36	-12.38	MWD
4161.00	1.70	281.40	4160.37	-39.30	-2.70	30.66	0.87	-0.12	28.59	MWD
4245.00	1.70	272.40	4244.33	-39.00	-5.17	32.12	0.32	0.00	-10.71	MWD
4330.00	2.50	313.70	4329.28	-37.66	-7.77	32.91	1.95	0.94	48.59	MWD
4414.00	2.60	317.40	4413.20	-35.00	-10.39	32.73	0.23	0.12	4.40	MWD
4499.00	3.90	349.20	4498.07	-30.74	-12.23	30.86	2.56	1.53	37.41	MWD
4585.00	4.10	344.10	4583.86	-24.91	-13.62	27.53	0.47	0.23	-5.93	MWD
4670.00	3.70	348.90	4668.66	-19.29	-14.98	24.33	0.61	-0.47	5.65	MWD
4755.00	3.30	349.70	4753.50	-14.19	-15.95	21.25	0.47	-0.47	0.94	MWD
4840.00	1.60	359.90	4838.42	-10.60	-16.39	18.91	2.06	-2.00	12.00	MWD
4926.00	1.00	359.10	4924.40	-8.65	-16.40	17.49	0.70	-0.70	-0.93	MWD
5011.00	1.00	355.50	5009.39	-7.17	-16.47	16.45	0.07	0.00	-4.24	MWD
5096.00	0.80	68.80	5094.38	-6.21	-15.98	15.42	1.28	-0.24	86.24	MWD
5181.00	2.20	62.70	5179.35	-5.25	-13.97	13.35	1.66	1.65	-7.18	MWD
5265.00	2.20	64.60	5263.28	-3.82	-11.08	10.34	0.09	0.00	2.26	MWD
5351.00	1.70	71.70	5349.23	-2.71	-8.38	7.69	0.64	-0.58	8.26	MWD
5436.00	1.10	88.00	5434.21	-2.29	-6.37	6.01	0.84	-0.71	19.18	MWD
5521.00	0.70	99.30	5519.20	-2.34	-5.04	5.15	0.51	-0.47	13.29	MWD
5607.00	1.00	141.10	5605.19	-3.01	-4.05	4.96	0.78	0.35	48.60	MWD
5666.00	0.70	157.80	5664.18	-3.75	-3.59	5.19	0.65	-0.51	28.31	MWD
5708.00	0.80	196.60	5706.18	-4.26	-3.58	5.56	1.21	0.24	92.38	MWD
5750.00	4.20	227.90	5748.13	-5.58	-4.80	7.36	8.43	8.10	74.52	MWD
5793.00	8.50	233.20	5790.86	-8.54	-8.52	12.05	10.08	10.00	12.33	MWD
5835.00	12.10	240.90	5832.18	-12.54	-14.85	19.29	9.16	8.57	18.33	MWD
5878.00	15.90	233.60	5873.90	-18.23	-23.54	29.37	9.73	8.84	-16.98	MWD
5921.00	20.10	227.10	5914.79	-26.76	-33.70	42.53	10.81	9.77	-15.12	MWD
5963.00	23.90	223.00	5953.72	-37.90	-44.79	58.24	9.75	9.05	-9.76	MWD
6006.00	25.00	221.60	5992.87	-51.06	-56.76	76.04	2.89	2.56	-3.26	MWD
6047.00	27.80	225.30	6029.59	-64.27	-69.31	94.26	7.92	6.83	9.02	MWD
6089.00	32.50	225.50	6065.90	-79.08	-84.33	115.32	11.19	11.19	0.48	MWD
6132.00	38.30	226.00	6100.93	-96.45	-102.17	140.19	13.51	13.49	1.16	MWD
6174.00	44.00	225.10	6132.55	-115.80	-121.88	167.78	13.64	13.57	-2.14	MWD
6217.00	49.60	224.80	6161.97	-137.98	-144.02	199.09	13.03	13.02	-0.70	MWD
6259.00	56.00	224.40	6187.35	-161.79	-167.49	232.52	15.26	15.24	-0.95	MWD
6347.00	68.30	223.40	6228.38	-217.77	-221.31	310.16	14.01	13.98	-1.14	MWD
6378.00	72.50	223.20	6238.78	-239.02	-241.33	339.35	13.56	13.55	-0.65	MWD
6408.00	75.60	223.20	6247.02	-260.05	-261.08	368.20	10.33	10.33	0.00	MWD
6439.00	78.20	222.70	6254.05	-282.14	-281.65	398.39	8.53	8.39	-1.61	MWD
6470.00	80.70	223.20	6259.72	-304.45	-302.41	428.86	8.22	8.06	1.61	MWD
6500.00	83.80	224.10	6263.77	-325.95	-322.93	458.58	10.75	10.33	3.00	MWD
6521.00	85.76	224.64	6265.68	-340.90	-337.55	479.48	9.70	9.35	2.58	600' entry
6531.00	86.70	224.90	6266.34	-347.99	-344.58	489.46	9.70	9.36	2.57	MWD
6562.00	88.20	225.10	6267.72	-369.88	-366.48	520.40	4.88	4.84	0.65	MWD

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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
6592.00	88.30	225.10	6268.63	-391.05	-387.72	550.36	0.33	0.33	0.00	MWD
6623.00	89.80	226.00	6269.15	-412.76	-409.84	581.32	5.64	4.84	2.90	MWD
6669.00	89.80	225.80	6269.31	-444.77	-442.88	627.26	0.43	0.00	-0.43	MWD
6715.00	89.30	225.30	6269.67	-476.98	-475.71	673.20	1.54	-1.09	-1.09	MWD
6761.00	88.90	224.60	6270.39	-509.53	-508.21	719.16	1.75	-0.87	-1.52	MWD
6807.00	89.00	224.10	6271.23	-542.42	-540.36	765.14	1.11	0.22	-1.09	MWD
6853.00	90.20	223.70	6271.55	-575.56	-572.25	811.13	2.75	2.61	-0.87	MWD
6899.00	91.70	224.60	6270.79	-608.56	-604.29	857.11	3.80	3.26	1.96	MWD
6945.00	94.00	226.70	6268.50	-640.67	-637.14	902.99	6.77	5.00	4.57	MWD
6991.00	94.10	226.00	6265.26	-672.35	-670.34	948.79	1.53	0.22	-1.52	MWD
7036.00	91.10	226.20	6263.21	-703.51	-702.73	993.66	6.68	-6.67	0.44	MWD
7082.00	89.10	226.20	6263.13	-735.35	-735.93	1039.58	4.35	-4.35	0.00	MWD
7128.00	90.00	227.40	6263.50	-766.84	-769.46	1085.47	3.26	1.96	2.61	MWD
7174.00	88.90	226.00	6263.94	-798.38	-802.93	1131.36	3.87	-2.39	-3.04	MWD
7220.00	86.90	224.40	6265.62	-830.77	-835.55	1177.28	5.57	-4.35	-3.48	MWD
7266.00	86.60	224.20	6268.23	-863.64	-867.62	1223.19	0.78	-0.65	-0.43	MWD
7297.00	88.00	224.60	6269.69	-885.76	-889.29	1254.15	4.70	4.52	1.29	MWD
7327.00	88.90	224.40	6270.50	-907.15	-910.31	1284.12	3.07	3.00	-0.67	MWD
7358.00	88.70	223.50	6271.15	-929.47	-931.82	1315.11	2.97	-0.65	-2.90	MWD
7389.00	89.80	223.40	6271.56	-951.97	-953.13	1346.10	3.56	3.55	-0.32	MWD
7419.00	91.20	225.10	6271.30	-973.46	-974.06	1376.09	7.34	4.67	5.67	MWD
7450.00	92.40	226.70	6270.32	-995.02	-996.31	1407.03	6.45	3.87	5.16	MWD
7480.00	93.10	226.90	6268.88	-1015.53	-1018.16	1436.92	2.43	2.33	0.67	MWD
7511.00	93.20	226.50	6267.18	-1036.76	-1040.69	1467.81	1.33	0.32	-1.29	MWD
7541.00	92.90	226.20	6265.58	-1057.44	-1062.36	1497.71	1.41	-1.00	-1.00	MWD
7583.00	91.90	224.90	6263.82	-1086.82	-1092.32	1539.62	3.90	-2.38	-3.10	MWD
7626.00	89.40	223.90	6263.34	-1117.54	-1122.40	1582.60	6.26	-5.81	-2.33	MWD
7668.00	89.30	223.90	6263.81	-1147.80	-1151.52	1624.59	0.24	-0.24	0.00	MWD
7710.00	90.00	223.90	6264.07	-1178.06	-1180.64	1666.58	1.67	1.67	0.00	MWD
7753.00	89.30	223.20	6264.33	-1209.23	-1210.27	1709.57	2.30	-1.63	-1.63	MWD
7796.00	89.50	223.00	6264.78	-1240.62	-1239.64	1752.57	0.66	0.47	-0.47	MWD
7838.00	89.20	222.50	6265.26	-1271.46	-1268.15	1794.57	1.39	-0.71	-1.19	MWD
7880.00	87.90	223.40	6266.32	-1302.19	-1296.76	1836.55	3.76	-3.10	2.14	MWD
7921.00	88.90	225.30	6267.47	-1331.50	-1325.41	1877.52	5.24	2.44	4.63	MWD
7964.00	90.60	226.50	6267.65	-1361.42	-1356.28	1920.46	4.84	3.95	2.79	MWD
8007.00	90.50	225.80	6267.24	-1391.21	-1387.29	1963.38	1.64	-0.23	-1.63	MWD
8049.00	90.60	226.00	6266.84	-1420.44	-1417.45	2005.32	0.53	0.24	0.48	MWD
8092.00	90.30	225.10	6266.50	-1450.55	-1448.15	2048.27	2.21	-0.70	-2.09	MWD
8134.00	90.00	224.80	6266.39	-1480.27	-1477.82	2090.24	1.01	-0.71	-0.71	MWD
8177.00	89.80	224.20	6266.46	-1510.94	-1507.96	2133.22	1.47	-0.47	-1.40	MWD
8220.00	89.90	223.90	6266.58	-1541.85	-1537.86	2176.21	0.74	0.23	-0.70	MWD
8261.00	89.80	223.20	6266.68	-1571.56	-1566.10	2217.21	1.72	-0.24	-1.71	MWD
8304.00	89.90	223.40	6266.80	-1602.86	-1595.59	2260.20	0.52	0.23	0.47	MWD
8346.00	89.80	223.20	6266.91	-1633.42	-1624.40	2302.20	0.53	-0.24	-0.48	MWD
8389.00	89.50	222.70	6267.17	-1664.89	-1653.70	2345.20	1.36	-0.70	-1.16	MWD
8432.00	89.10	224.10	6267.70	-1696.13	-1683.24	2388.19	3.39	-0.93	3.26	MWD
8474.00	89.90	225.60	6268.06	-1725.91	-1712.86	2430.17	4.05	1.90	3.57	MWD
8517.00	88.50	225.10	6268.66	-1756.12	-1743.44	2473.12	3.46	-3.26	-1.16	MWD
8559.00	88.80	225.10	6269.65	-1785.76	-1773.19	2515.07	0.71	0.71	0.00	MWD
8602.00	89.30	225.10	6270.36	-1816.11	-1803.64	2558.03	1.16	1.16	0.00	MWD
8645.00	90.30	225.50	6270.51	-1846.36	-1834.20	2600.99	2.50	2.33	0.93	MWD
8687.00	90.20	225.10	6270.33	-1875.90	-1864.06	2642.95	0.98	-0.24	-0.95	MWD
8730.00	90.60	224.80	6270.03	-1906.33	-1894.43	2685.92	1.16	0.93	-0.70	MWD
8773.00	90.40	227.10	6269.66	-1936.22	-1925.34	2728.85	5.37	-0.47	5.35	MWD

**Company:** CARRIZO OIL & GAS, INC.  
**Field:** Niobrara CONZ'83  
**Site:** Pergamos 8-41-7-60  
**Well:** 1-8-41-7-60  
**Wellpath:** Original Hole

**Date:** 05/23/2012 **Time:** 15:15:54 **Page:** 4  
**Co-ordinate(NE) Reference:** Well: 1-8-41-7-60, Grid North  
**Vertical (TVD) Reference:** 4870'GL+17'KB 4887.0  
**Section (VS) Reference:** Well (0.00N,0.00E,222.82Azi)  
**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
8815.00	90.20	226.30	6269.44	-1965.03	-1955.90	2770.75	1.96	-0.48	-1.90	MWD
8858.00	89.10	227.60	6269.70	-1994.38	-1987.32	2813.64	3.96	-2.56	3.02	MWD
8901.00	89.30	229.90	6270.30	-2022.73	-2019.65	2856.40	5.37	0.47	5.35	MWD
8943.00	89.10	231.30	6270.89	-2049.38	-2052.10	2898.01	3.37	-0.48	3.33	MWD
8986.00	87.80	231.10	6272.05	-2076.31	-2085.60	2940.54	3.06	-3.02	-0.47	MWD
9029.00	88.60	229.20	6273.40	-2103.85	-2118.59	2983.16	4.79	1.86	-4.42	MWD
9071.00	88.20	227.40	6274.57	-2131.78	-2149.94	3024.95	4.39	-0.95	-4.29	MWD
9114.00	87.90	226.90	6276.04	-2161.01	-2181.44	3067.80	1.36	-0.70	-1.16	MWD
9156.00	87.70	226.20	6277.65	-2189.87	-2211.91	3109.68	1.73	-0.48	-1.67	MWD
9199.00	87.00	226.20	6279.64	-2219.60	-2242.91	3152.56	1.63	-1.63	0.00	MWD
9242.00	86.60	225.50	6282.04	-2249.50	-2273.72	3195.44	1.87	-0.93	-1.63	MWD
9284.00	87.80	224.80	6284.09	-2279.09	-2303.46	3237.35	3.31	2.86	-1.67	MWD
9326.00	89.10	224.90	6285.22	-2308.85	-2333.07	3279.31	3.10	3.10	0.24	MWD
9368.00	90.70	225.30	6285.30	-2338.50	-2362.82	3321.27	3.93	3.81	0.95	MWD
9411.00	90.40	224.80	6284.88	-2368.88	-2393.25	3364.24	1.36	-0.70	-1.16	MWD
9454.00	89.70	224.40	6284.85	-2399.49	-2423.44	3407.22	1.87	-1.63	-0.93	MWD
9496.00	88.90	224.10	6285.36	-2429.58	-2452.74	3449.20	2.03	-1.90	-0.71	MWD
9539.00	89.10	224.20	6286.11	-2460.42	-2482.69	3492.18	0.52	0.47	0.23	MWD
9581.00	89.10	223.40	6286.77	-2490.73	-2511.76	3534.17	1.90	0.00	-1.90	MWD
9624.00	89.50	224.40	6287.30	-2521.72	-2541.57	3577.16	2.50	0.93	2.33	MWD
9667.00	90.00	224.40	6287.48	-2552.44	-2571.66	3620.14	1.16	1.16	0.00	MWD
9708.00	91.50	225.10	6286.95	-2581.55	-2600.52	3661.11	4.04	3.66	1.71	MWD
9751.00	91.40	224.80	6285.86	-2611.97	-2630.89	3704.07	0.74	-0.23	-0.70	MWD
9793.00	91.40	224.90	6284.83	-2641.74	-2660.50	3746.03	0.24	0.00	0.24	MWD
9836.00	91.20	224.20	6283.86	-2672.38	-2690.66	3789.00	1.69	-0.47	-1.63	MWD
9879.00	91.00	224.20	6283.03	-2703.20	-2720.63	3831.98	0.47	-0.47	0.00	MWD
9921.00	91.50	224.60	6282.12	-2733.20	-2750.01	3873.95	1.52	1.19	0.95	MWD
9964.00	90.90	224.20	6281.21	-2763.91	-2780.09	3916.93	1.68	-1.40	-0.93	MWD
10006.00	91.20	224.20	6280.44	-2794.02	-2809.36	3958.91	0.71	0.71	0.00	MWD
10049.00	91.70	224.60	6279.36	-2824.73	-2839.44	4001.88	1.49	1.16	0.93	MWD
10092.00	91.70	224.60	6278.08	-2855.33	-2869.62	4044.84	0.00	0.00	0.00	MWD
10134.00	91.90	224.40	6276.76	-2885.28	-2899.04	4086.80	0.67	0.48	-0.48	MWD
10177.00	91.90	223.90	6275.34	-2916.11	-2928.97	4129.76	1.16	0.00	-1.16	MWD
10219.00	89.40	223.70	6274.86	-2946.42	-2958.04	4171.75	5.97	-5.95	-0.48	MWD
10262.00	89.50	223.20	6275.27	-2977.64	-2987.61	4214.75	1.19	0.23	-1.16	MWD
10305.00	89.80	223.00	6275.54	-3009.03	-3016.99	4257.75	0.84	0.70	-0.47	MWD
10347.00	89.30	222.70	6275.87	-3039.82	-3045.55	4299.74	1.39	-1.19	-0.71	MWD
10390.00	87.30	222.30	6277.14	-3071.51	-3074.59	4342.72	4.74	-4.65	-0.93	MWD
10432.00	86.90	222.00	6279.27	-3102.61	-3102.74	4384.67	1.19	-0.95	-0.71	MWD
10474.00	86.90	222.00	6281.54	-3133.78	-3130.80	4426.60	0.00	0.00	0.00	MWD
10517.00	87.00	221.80	6283.82	-3165.74	-3159.48	4469.53	0.52	0.23	-0.47	MWD
10559.00	86.80	221.60	6286.10	-3197.05	-3187.38	4511.46	0.67	-0.48	-0.48	MWD
10602.00	86.70	221.40	6288.53	-3229.20	-3215.82	4554.38	0.52	-0.23	-0.47	MWD
10644.00	86.40	221.60	6291.06	-3260.60	-3243.60	4596.30	0.86	-0.71	0.48	MWD
10687.00	86.90	222.70	6293.57	-3292.43	-3272.41	4639.22	2.81	1.16	2.56	MWD
10730.00	87.60	222.30	6295.64	-3324.09	-3301.43	4682.17	1.87	1.63	-0.93	MWD
10772.00	87.20	222.10	6297.54	-3355.17	-3329.61	4724.12	1.06	-0.95	-0.48	MWD
10815.00	87.70	222.10	6299.46	-3387.05	-3358.41	4767.08	1.16	1.16	0.00	MWD
10857.00	87.80	222.70	6301.10	-3418.04	-3386.71	4809.04	1.45	0.24	1.43	MWD
10900.00	88.60	223.20	6302.46	-3449.50	-3415.99	4852.02	2.19	1.86	1.16	MWD
10943.00	90.80	224.10	6302.68	-3480.61	-3445.67	4895.01	5.53	5.12	2.09	MWD
10985.00	90.70	223.90	6302.13	-3510.82	-3474.84	4937.00	0.53	-0.24	-0.48	MWD
11028.00	90.30	225.10	6301.76	-3541.49	-3504.98	4979.98	2.94	-0.93	2.79	MWD

**Company:** CARRIZO OIL & GAS, INC.  
**Field:** Niobrara CONZ'83  
**Site:** Pergamos 8-41-7-60  
**Well:** 1-8-41-7-60  
**Wellpath:** Original Hole

**Date:** 05/23/2012  
**Co-ordinate(NE) Reference:** Well: 1-8-41-7-60, Grid North  
**Vertical (TVD) Reference:** 4870'GL+17'KB 4887.0  
**Section (VS) Reference:** Well (0.00N,0.00E,222.82Azi)  
**Survey Calculation Method:** Minimum Curvature  
**Page:** 5  
**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
11070.00	90.20	224.80	6301.57	-3571.21	-3534.65	5021.95	0.75	-0.24	-0.71	MWD
11112.00	89.90	225.50	6301.54	-3600.83	-3564.43	5063.91	1.81	-0.71	1.67	MWD
11155.00	90.00	225.50	6301.57	-3630.97	-3595.10	5106.87	0.23	0.23	0.00	MWD
11197.00	87.90	225.10	6302.34	-3660.50	-3624.94	5148.82	5.09	-5.00	-0.95	MWD
11240.00	87.50	225.10	6304.07	-3690.83	-3655.38	5191.75	0.93	-0.93	0.00	MWD
11282.00	87.40	224.80	6305.94	-3720.53	-3685.02	5233.68	0.75	-0.24	-0.71	MWD
11325.00	87.50	223.90	6307.85	-3751.25	-3715.05	5276.62	2.10	0.23	-2.09	MWD
11368.00	88.60	224.20	6309.31	-3782.13	-3744.93	5319.59	2.65	2.56	0.70	MWD
11410.00	88.40	223.50	6310.41	-3812.41	-3774.02	5361.56	1.73	-0.48	-1.67	MWD
11453.00	87.80	222.80	6311.84	-3843.76	-3803.41	5404.54	2.14	-1.40	-1.63	MWD
11496.00	87.40	222.30	6313.64	-3875.41	-3832.46	5447.50	1.49	-0.93	-1.16	MWD
11538.00	86.70	222.00	6315.80	-3906.51	-3860.61	5489.44	1.81	-1.67	-0.71	MWD
11581.00	86.30	221.40	6318.43	-3938.56	-3889.16	5532.35	1.67	-0.93	-1.40	MWD
11623.00	86.70	221.40	6320.99	-3970.00	-3916.88	5574.26	0.95	0.95	0.00	MWD
11666.00	86.60	221.30	6323.50	-4002.23	-3945.24	5617.17	0.33	-0.23	-0.23	MWD
11709.00	86.90	221.10	6325.94	-4034.53	-3973.52	5660.09	0.84	0.70	-0.47	MWD
11788.00	87.10	220.70	6330.07	-4094.16	-4025.17	5738.93	0.57	0.25	-0.51	MWD
11845.00	87.10	220.70	6332.96	-4137.32	-4062.30	5795.82	0.00	0.00	0.00	PROJECTED to TD

**Annotation**

MD ft	TVD ft	
6521.00	6265.68	600' entry