



# Precision Directional Services, Inc.

## Survey Report

<b>Company:</b> CARRIZO OIL & GAS, INC.		<b>Date:</b> 03/04/2013	<b>Time:</b> 10:01:27	<b>Page:</b> 1
<b>Field:</b> Niobrara CONZ'83		<b>Co-ordinate(NE) Reference:</b> Well: 4-3-7-60, Grid North		
<b>Site:</b> Pergamos 3-7-60 Pad		<b>Vertical (TVD) Reference:</b> 4922'GL+17"KB 4939.0		
<b>Well:</b> 4-3-7-60		<b>Section (VS) Reference:</b> Well (0.00N,0.00E,179.84Azi)		
<b>Wellpath:</b> Original Hole		<b>Survey Calculation Method:</b> Minimum Curvature	<b>Db:</b> Adapti	

  

<b>Field:</b> Niobrara CONZ'83				
<b>Map System:</b> US State Plane Coordinate System 1983		<b>Map Zone:</b> Colorado, Northern Zone		
<b>Geo Datum:</b> GRS 1980		<b>Coordinate System:</b> Well Centre		
<b>Sys Datum:</b> Mean Sea Level		<b>Geomagnetic Model:</b> IGRF2010		

  

<b>Site:</b> Pergamos 3-7-60 Pad Lot 4 S:3, T:7N,R60W Weld County, Co				
<b>Site Position:</b>	<b>Northing:</b> 1468499.00 ft	<b>Latitude:</b> 40 36 38.857 N		
<b>From:</b> Map	<b>Easting:</b> 3393347.50 ft	<b>Longitude:</b> 104 4 59.637 W		
<b>Position Uncertainty:</b> 0.00 ft		<b>North Reference:</b> Grid		
<b>Ground Level:</b> 4922.00 ft		<b>Grid Convergence:</b> 0.92 deg		

  

<b>Well:</b> 4-3-7-60				
<b>Slot Name:</b>				
<b>Well Position:</b> +N/-S 0.05 ft	<b>Northing:</b> 1468499.05 ft	<b>Latitude:</b> 40 36 38.855 N		
+E/-W 15.00 ft	<b>Easting :</b> 3393362.50 ft	<b>Longitude:</b> 104 4 59.443 W		
<b>Position Uncertainty:</b> 0.00 ft				

  

<b>Wellpath:</b> Original Hole				
<b>Current Datum:</b> 4922'GL+17"KB	<b>Height</b> 4939.00 ft	<b>Drilled From:</b> Surface		
<b>Magnetic Data:</b> 02/19/2013		<b>Tie-on Depth:</b> 0.00 ft		
<b>Field Strength:</b> 53174 nT		<b>Above System Datum:</b> Mean Sea Level		
<b>Vertical Section:</b> Depth From (TVD)	+N/-S	<b>Declination:</b> 8.29 deg		
ft	ft	<b>Mag Dip Angle:</b> 67.27 deg		
		<b>+E/-W</b>	<b>Direction</b>	
		ft	deg	
0.00	0.00	0.00	179.84	

  

<b>Survey Program for Definitive Wellpath</b>				
<b>Date:</b> 03/04/2013	<b>Validated:</b> No	<b>Version:</b> 1		
<b>Actual From</b> ft	<b>To</b> ft	<b>Survey</b>	<b>Toolcode</b>	<b>Tool Name</b>
140.00	10570.00	Survey #1 (140.00-10570.00)	MWD	Std MWD
10653.00	10653.00	Survey #2 (10653.00-10653.00)	Project	Projection

  

<b>Survey</b>										
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
140.00	0.40	163.00	140.00	-0.47	0.14	0.47	0.29	0.29	0.00	MWD
233.00	0.70	66.30	233.00	-0.55	0.76	0.55	0.91	0.32	-103.98	MWD
326.00	2.30	67.20	325.96	0.40	3.00	-0.39	1.72	1.72	0.97	MWD
424.00	3.30	79.70	423.84	1.67	7.59	-1.65	1.19	1.02	12.76	MWD
517.00	4.30	75.10	516.64	3.04	13.59	-3.01	1.12	1.08	-4.95	MWD
611.00	5.50	67.00	610.29	5.71	21.14	-5.65	1.47	1.28	-8.62	MWD
705.00	6.90	57.50	703.74	10.50	30.05	-10.42	1.84	1.49	-10.11	MWD
798.00	7.30	57.90	796.03	16.65	39.77	-16.53	0.43	0.43	0.43	MWD
892.00	7.30	54.40	889.27	23.30	49.68	-23.16	0.47	0.00	-3.72	MWD
985.00	6.30	57.70	981.61	29.46	58.80	-29.30	1.15	-1.08	3.55	MWD
1079.00	6.20	63.70	1075.06	34.47	67.71	-34.28	0.70	-0.11	6.38	MWD
1173.00	6.60	73.90	1168.47	38.21	77.45	-38.00	1.28	0.43	10.85	MWD
1266.00	6.20	75.80	1260.89	40.93	87.46	-40.68	0.49	-0.43	2.04	MWD
1360.00	6.40	77.00	1354.33	43.35	97.48	-43.08	0.25	0.21	1.28	MWD
1445.00	6.20	78.60	1438.81	45.32	106.60	-45.03	0.31	-0.24	1.88	MWD
1539.00	6.20	77.40	1532.26	47.44	116.53	-47.11	0.14	0.00	-1.28	MWD
1632.00	5.90	74.20	1624.75	49.83	126.03	-49.48	0.49	-0.32	-3.44	MWD
1726.00	5.60	71.90	1718.27	52.57	135.03	-52.20	0.40	-0.32	-2.45	MWD
1811.00	6.30	74.40	1802.81	55.12	143.47	-54.71	0.88	0.82	2.94	MWD
1896.00	6.10	74.00	1887.32	57.61	152.30	-57.19	0.24	-0.24	-0.47	MWD
1981.00	7.00	73.90	1971.76	60.30	161.62	-59.84	1.06	1.06	-0.12	MWD

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<b>Well:</b> 4-3-7-60	<b>Section (VS) Reference:</b> Well (0.00N,0.00E,179.84Azi)		
<b>Wellpath:</b> Original Hole	<b>Survey Calculation Method:</b> Minimum Curvature		<b>Db:</b> 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
2067.00	6.80	70.30	2057.14	63.47	171.45	-62.99	0.55	-0.23	-4.19	MWD
2152.00	6.20	66.70	2141.59	66.98	180.40	-66.47	0.85	-0.71	-4.24	MWD
2237.00	7.20	72.50	2226.01	70.39	189.70	-69.86	1.42	1.18	6.82	MWD
2323.00	7.10	72.10	2311.34	73.65	199.90	-73.09	0.13	-0.12	-0.47	MWD
2408.00	6.70	69.60	2395.73	76.99	209.54	-76.41	0.59	-0.47	-2.94	MWD
2493.00	6.10	63.30	2480.20	80.75	218.22	-80.14	1.09	-0.71	-7.41	MWD
2579.00	7.10	76.90	2565.63	84.01	227.48	-83.37	2.15	1.16	15.81	MWD
2664.00	7.20	79.00	2649.97	86.21	237.83	-85.55	0.33	0.12	2.47	MWD
2749.00	6.80	77.00	2734.34	88.36	247.96	-87.67	0.55	-0.47	-2.35	MWD
2835.00	6.60	76.30	2819.75	90.68	257.72	-89.96	0.25	-0.23	-0.81	MWD
2920.00	7.50	81.10	2904.11	92.69	267.95	-91.95	1.26	1.06	5.65	MWD
3005.00	7.10	78.30	2988.42	94.62	278.57	-93.84	0.63	-0.47	-3.29	MWD
3091.00	6.50	76.00	3073.81	96.87	288.50	-96.07	0.77	-0.70	-2.67	MWD
3176.00	5.50	78.30	3158.35	98.86	297.16	-98.03	1.21	-1.18	2.71	MWD
3261.00	4.70	80.70	3243.01	100.25	304.59	-99.40	0.97	-0.94	2.82	MWD
3347.00	4.40	84.90	3328.74	101.11	311.35	-100.24	0.52	-0.35	4.88	MWD
3432.00	4.60	84.40	3413.48	101.74	317.99	-100.85	0.24	0.24	-0.59	MWD
3517.00	5.20	82.80	3498.17	102.55	325.20	-101.64	0.72	0.71	-1.88	MWD
3603.00	5.40	85.30	3583.80	103.37	333.10	-102.44	0.36	0.23	2.91	MWD
3688.00	5.70	83.00	3668.40	104.21	341.28	-103.26	0.44	0.35	-2.71	MWD
3773.00	6.20	80.50	3752.94	105.49	349.99	-104.51	0.66	0.59	-2.94	MWD
3859.00	5.90	80.90	3838.46	106.95	358.94	-105.95	0.35	-0.35	0.47	MWD
3944.00	6.90	72.10	3922.93	109.21	368.11	-108.18	1.64	1.18	-10.35	MWD
4029.00	6.60	68.60	4007.35	112.56	377.52	-111.51	0.60	-0.35	-4.12	MWD
4115.00	5.50	70.20	4092.87	115.76	386.00	-114.69	1.29	-1.28	1.86	MWD
4200.00	5.60	75.60	4177.47	118.17	393.85	-117.07	0.63	0.12	6.35	MWD
4285.00	7.20	73.20	4261.94	120.75	402.96	-119.62	1.91	1.88	-2.82	MWD
4371.00	6.80	75.40	4347.29	123.59	413.05	-122.43	0.56	-0.47	2.56	MWD
4456.00	7.60	71.10	4431.62	126.68	423.24	-125.49	1.13	0.94	-5.06	MWD
4541.00	7.10	69.10	4515.93	130.37	433.46	-129.16	0.66	-0.59	-2.35	MWD
4626.00	5.90	71.60	4600.38	133.62	442.52	-132.39	1.45	-1.41	2.94	MWD
4712.00	6.90	77.40	4685.84	136.15	451.75	-134.88	1.38	1.16	6.74	MWD
4797.00	6.70	76.70	4770.24	138.40	461.56	-137.11	0.25	-0.24	-0.82	MWD
4882.00	5.50	79.80	4854.76	140.26	470.40	-138.95	1.46	-1.41	3.65	MWD
4968.00	5.50	84.80	4940.37	141.37	478.56	-140.03	0.56	0.00	5.81	MWD
5053.00	6.90	81.10	5024.87	142.53	487.66	-141.16	1.71	1.65	-4.35	MWD
5138.00	5.50	76.00	5109.37	144.30	496.66	-142.91	1.77	-1.65	-6.00	MWD
5224.00	4.90	75.60	5195.01	146.21	504.21	-144.80	0.70	-0.70	-0.47	MWD
5309.00	5.70	82.10	5279.65	147.69	511.91	-146.26	1.18	0.94	7.65	MWD
5394.00	6.90	73.00	5364.14	149.77	520.97	-148.31	1.83	1.41	-10.71	MWD
5479.00	6.40	68.40	5448.57	153.00	530.26	-151.52	0.86	-0.59	-5.41	MWD
5565.00	6.90	64.00	5533.99	157.03	539.36	-155.53	0.83	0.58	-5.12	MWD
5650.00	5.90	61.40	5618.46	161.36	547.79	-159.83	1.22	-1.18	-3.06	MWD
5708.00	5.10	63.70	5676.19	163.93	552.71	-162.39	1.43	-1.38	3.97	MWD
5750.00	7.60	86.20	5717.93	164.94	557.16	-163.39	8.29	5.95	53.57	MWD
5793.00	10.40	107.60	5760.41	163.96	563.70	-162.38	10.04	6.51	49.77	MWD
5836.00	12.80	116.40	5802.53	160.67	571.67	-159.07	6.92	5.58	20.47	MWD
5878.00	15.70	127.00	5843.25	155.18	580.38	-153.55	9.26	6.90	25.24	MWD
5921.00	19.30	134.90	5884.25	146.65	590.06	-145.01	10.01	8.37	18.37	MWD
5964.00	22.40	142.60	5924.44	135.12	600.08	-133.45	9.61	7.21	17.91	MWD
6006.00	24.80	152.30	5962.94	120.96	609.04	-119.26	10.85	5.71	23.10	MWD
6049.00	26.60	162.60	6001.70	103.78	616.11	-102.06	11.18	4.19	23.95	MWD
6091.00	29.70	169.50	6038.74	84.57	620.82	-82.83	10.69	7.38	16.43	MWD

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## Survey Report

<b>Company:</b> CARRIZO OIL & GAS, INC. <b>Field:</b> Niobrara CONZ'83 <b>Site:</b> Pergamos 3-7-60 Pad <b>Well:</b> 4-3-7-60 <b>Wellpath:</b> Original Hole	<b>Date:</b> 03/04/2013 <b>Time:</b> 10:01:27 <b>Page:</b> 3 <b>Co-ordinate(NE) Reference:</b> Well: 4-3-7-60, Grid North <b>Vertical (TVD) Reference:</b> 4922'GL+17"KB 4939.0 <b>Section (VS) Reference:</b> Well (0.00N,0.00E,179.84Azi) <b>Survey Calculation Method:</b> Minimum Curvature <b>Db:</b> 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
6134.00	33.90	172.70	6075.28	62.19	624.29	-60.44	10.52	9.77	7.44	MWD
6176.00	38.50	175.30	6109.17	37.53	626.85	-35.77	11.54	10.95	6.19	MWD
6219.00	43.50	175.30	6141.61	9.42	629.16	-7.66	11.63	11.63	0.00	MWD
6262.00	47.90	177.60	6171.64	-21.29	631.04	23.05	10.92	10.23	5.35	MWD
6304.00	52.80	178.10	6198.43	-53.59	632.25	55.36	11.70	11.67	1.19	MWD
6400.00	66.40	177.50	6246.89	-136.14	635.45	137.91	14.18	14.17	-0.62	MWD
6442.00	71.30	177.50	6262.04	-175.26	637.16	177.04	11.67	11.67	0.00	MWD
6485.00	73.60	177.20	6275.01	-216.21	639.05	217.99	5.39	5.35	-0.70	MWD
6528.00	77.00	177.50	6285.92	-257.75	640.98	259.54	7.94	7.91	0.70	MWD
6570.00	84.00	177.70	6292.85	-299.11	642.71	300.91	16.67	16.67	0.48	MWD
6605.00	86.77	177.29	6295.66	-333.96	644.23	335.76	7.99	7.91	-1.16	600' entry
6613.00	87.40	177.20	6296.07	-341.94	644.62	343.74	7.99	7.91	-1.16	MWD
6646.00	89.50	177.20	6296.96	-374.89	646.23	376.69	6.36	6.36	0.00	MWD
6689.00	89.20	177.40	6297.45	-417.84	648.25	419.65	0.84	-0.70	0.47	MWD
6732.00	88.90	177.40	6298.16	-460.79	650.20	462.60	0.70	-0.70	0.00	MWD
6774.00	88.70	177.20	6299.04	-502.73	652.18	504.55	0.67	-0.48	-0.48	MWD
6817.00	88.80	177.20	6299.98	-545.67	654.28	547.50	0.23	0.23	0.00	MWD
6860.00	89.30	178.20	6300.69	-588.63	656.01	590.46	2.60	1.16	2.33	MWD
6902.00	89.20	178.20	6301.24	-630.61	657.33	632.44	0.24	-0.24	0.00	MWD
6945.00	89.30	178.20	6301.81	-673.58	658.68	675.42	0.23	0.23	0.00	MWD
6988.00	89.40	178.40	6302.29	-716.56	659.95	718.40	0.52	0.23	0.47	MWD
7020.00	89.40	178.40	6302.63	-748.55	660.85	750.39	0.00	0.00	0.00	MWD
7073.00	89.50	178.10	6303.14	-801.52	662.46	803.37	0.60	0.19	-0.57	MWD
7116.00	89.70	178.10	6303.44	-844.49	663.89	846.35	0.47	0.47	0.00	MWD
7158.00	89.30	178.10	6303.80	-886.47	665.28	888.32	0.95	-0.95	0.00	MWD
7201.00	89.40	177.90	6304.29	-929.44	666.78	931.30	0.52	0.23	-0.47	MWD
7244.00	90.30	179.10	6304.40	-972.42	667.91	974.29	3.49	2.09	2.79	MWD
7286.00	89.90	178.90	6304.33	-1014.42	668.64	1016.28	1.06	-0.95	-0.48	MWD
7329.00	90.00	178.90	6304.37	-1057.41	669.47	1059.28	0.23	0.23	0.00	MWD
7372.00	91.00	180.30	6303.99	-1100.41	669.77	1102.27	4.00	2.33	3.26	MWD
7414.00	90.80	180.00	6303.33	-1142.40	669.66	1144.27	0.86	-0.48	-0.71	MWD
7457.00	90.70	180.00	6302.77	-1185.40	669.66	1187.26	0.23	-0.23	0.00	MWD
7500.00	90.70	179.80	6302.25	-1228.39	669.73	1230.26	0.47	0.00	-0.47	MWD
7542.00	90.50	179.60	6301.81	-1270.39	669.95	1272.26	0.67	-0.48	-0.48	MWD
7585.00	90.70	179.10	6301.36	-1313.39	670.44	1315.25	1.25	0.47	-1.16	MWD
7628.00	91.20	178.90	6300.64	-1356.37	671.19	1358.24	1.25	1.16	-0.47	MWD
7670.00	91.30	178.90	6299.73	-1398.35	672.00	1400.23	0.24	0.24	0.00	MWD
7713.00	90.50	179.80	6299.05	-1441.35	672.48	1443.22	2.80	-1.86	2.09	MWD
7755.00	90.80	180.00	6298.57	-1483.34	672.56	1485.22	0.86	0.71	0.48	MWD
7798.00	90.90	179.80	6297.94	-1526.34	672.63	1528.21	0.52	0.23	-0.47	MWD
7841.00	91.10	179.80	6297.19	-1569.33	672.78	1571.20	0.47	0.47	0.00	MWD
7884.00	91.30	180.00	6296.29	-1612.32	672.86	1614.19	0.66	0.47	0.47	MWD
7926.00	91.50	180.20	6295.26	-1654.31	672.78	1656.18	0.67	0.48	0.48	MWD
7969.00	91.50	180.30	6294.13	-1697.29	672.60	1699.17	0.23	0.00	0.23	MWD
8012.00	91.40	180.50	6293.05	-1740.28	672.30	1742.15	0.52	-0.23	0.47	MWD
8054.00	91.60	180.70	6291.95	-1782.26	671.86	1784.13	0.67	0.48	0.48	MWD
8097.00	91.80	180.20	6290.67	-1825.24	671.52	1827.11	1.25	0.47	-1.16	MWD
8140.00	90.30	180.20	6289.88	-1868.23	671.37	1870.10	3.49	-3.49	0.00	MWD
8182.00	90.20	180.20	6289.70	-1910.23	671.22	1912.10	0.24	-0.24	0.00	MWD
8225.00	90.40	179.80	6289.47	-1953.23	671.22	1955.10	1.04	0.47	-0.93	MWD
8268.00	90.60	179.80	6289.10	-1996.23	671.37	1998.10	0.47	0.47	0.00	MWD
8310.00	90.70	179.50	6288.62	-2038.23	671.63	2040.09	0.75	0.24	-0.71	MWD
8353.00	90.80	179.50	6288.06	-2081.22	672.01	2083.09	0.23	0.23	0.00	MWD
8395.00	91.00	180.70	6287.40	-2123.22	671.93	2125.08	2.90	0.48	2.86	MWD

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<b>Well:</b> 4-3-7-60	<b>Section (VS) Reference:</b> Well (0.00N,0.00E,179.84Azi)		
<b>Wellpath:</b> Original Hole	<b>Survey Calculation Method:</b> Minimum Curvature	<b>Db:</b> 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
8438.00	91.10	180.30	6286.61	-2166.21	671.56	2168.07	0.96	0.23	-0.93	MWD
8481.00	91.00	180.00	6285.82	-2209.20	671.44	2211.07	0.74	-0.23	-0.70	MWD
8523.00	91.00	179.80	6285.09	-2251.19	671.52	2253.06	0.48	0.00	-0.48	MWD
8566.00	90.90	179.60	6284.38	-2294.19	671.74	2296.05	0.52	-0.23	-0.47	MWD
8609.00	90.60	179.10	6283.82	-2337.18	672.23	2339.05	1.36	-0.70	-1.16	MWD
8651.00	90.50	178.90	6283.41	-2379.17	672.96	2381.04	0.53	-0.24	-0.48	MWD
8694.00	90.60	178.90	6283.00	-2422.16	673.79	2424.03	0.23	0.23	0.00	MWD
8737.00	90.70	178.60	6282.51	-2465.15	674.73	2467.02	0.74	0.23	-0.70	MWD
8779.00	90.90	178.20	6281.93	-2507.13	675.90	2509.01	1.06	0.48	-0.95	MWD
8822.00	90.50	180.20	6281.40	-2550.12	676.50	2552.00	4.74	-0.93	4.65	MWD
8865.00	90.70	180.00	6280.95	-2593.12	676.42	2594.99	0.66	0.47	-0.47	MWD
8907.00	90.20	179.80	6280.62	-2635.11	676.50	2636.99	1.28	-1.19	-0.48	MWD
8950.00	90.50	179.30	6280.36	-2678.11	676.84	2679.99	1.36	0.70	-1.16	MWD
8993.00	91.10	180.50	6279.76	-2721.11	676.91	2722.99	3.12	1.40	2.79	MWD
9035.00	91.30	180.30	6278.88	-2763.10	676.62	2764.97	0.67	0.48	-0.48	MWD
9078.00	90.70	181.70	6278.13	-2806.08	675.87	2807.96	3.54	-1.40	3.26	MWD
9121.00	90.80	181.70	6277.56	-2849.06	674.59	2850.93	0.23	0.23	0.00	MWD
9163.00	90.70	181.40	6277.01	-2891.04	673.46	2892.91	0.75	-0.24	-0.71	MWD
9206.00	90.90	181.60	6276.41	-2934.02	672.33	2935.89	0.66	0.47	0.47	MWD
9248.00	91.50	181.70	6275.53	-2975.99	671.12	2977.86	1.45	1.43	0.24	MWD
9291.00	91.60	181.60	6274.37	-3018.96	669.88	3020.82	0.33	0.23	-0.23	MWD
9334.00	90.70	181.70	6273.51	-3061.93	668.65	3063.79	2.11	-2.09	0.23	MWD
9376.00	90.70	181.20	6272.99	-3103.92	667.58	3105.77	1.19	0.00	-1.19	MWD
9418.00	90.80	180.90	6272.44	-3145.91	666.81	3147.76	0.75	0.24	-0.71	MWD
9462.00	90.80	180.50	6271.83	-3189.90	666.28	3191.75	0.91	0.00	-0.91	MWD
9504.00	90.00	180.00	6271.54	-3231.90	666.09	3233.74	2.25	-1.90	-1.19	MWD
9547.00	89.80	180.00	6271.61	-3274.90	666.09	3276.74	0.47	-0.47	0.00	MWD
9589.00	89.80	179.80	6271.76	-3316.90	666.17	3318.74	0.48	0.00	-0.48	MWD
9632.00	89.90	179.30	6271.87	-3359.89	666.50	3361.74	1.19	0.23	-1.16	MWD
9675.00	89.50	179.10	6272.10	-3402.89	667.10	3404.74	1.04	-0.93	-0.47	MWD
9717.00	89.70	178.80	6272.39	-3444.88	667.87	3446.73	0.86	0.48	-0.71	MWD
9760.00	90.10	180.20	6272.47	-3487.88	668.25	3489.73	3.39	0.93	3.26	MWD
9803.00	90.40	180.20	6272.28	-3530.88	668.10	3532.73	0.70	0.70	0.00	MWD
9845.00	90.30	179.80	6272.02	-3572.88	668.10	3574.73	0.98	-0.24	-0.95	MWD
9888.00	90.40	179.60	6271.76	-3615.88	668.32	3617.73	0.52	0.23	-0.47	MWD
9930.00	90.70	179.60	6271.36	-3657.87	668.62	3659.73	0.71	0.71	0.00	MWD
9973.00	90.70	179.50	6270.83	-3700.87	668.95	3702.72	0.23	0.00	-0.23	MWD
10016.00	90.90	179.10	6270.23	-3743.86	669.48	3745.72	1.04	0.47	-0.93	MWD
10058.00	90.70	178.60	6269.64	-3785.85	670.32	3787.71	1.28	-0.48	-1.19	MWD
10101.00	89.60	180.20	6269.53	-3828.84	670.77	3830.70	4.52	-2.56	3.72	MWD
10144.00	89.50	180.00	6269.87	-3871.84	670.70	3873.70	0.52	-0.23	-0.47	MWD
10186.00	89.80	179.80	6270.12	-3913.84	670.77	3915.70	0.86	0.71	-0.48	MWD
10229.00	89.70	179.80	6270.31	-3956.84	670.92	3958.70	0.23	-0.23	0.00	MWD
10271.00	90.10	179.60	6270.39	-3998.84	671.14	4000.70	1.06	0.95	-0.48	MWD
10314.00	90.40	179.60	6270.20	-4041.84	671.44	4043.70	0.70	0.70	0.00	MWD
10356.00	90.70	179.60	6269.79	-4083.84	671.73	4085.70	0.71	0.71	0.00	MWD
10399.00	90.70	179.80	6269.27	-4126.83	671.96	4128.69	0.47	0.00	0.47	MWD
10442.00	90.70	179.10	6268.74	-4169.83	672.37	4171.69	1.63	0.00	-1.63	MWD
10484.00	90.80	178.90	6268.19	-4211.82	673.11	4213.68	0.53	0.24	-0.48	MWD
10570.00	91.00	178.40	6266.84	-4297.78	675.13	4299.65	0.63	0.23	-0.58	MWD
10653.00	91.00	178.40	6265.39	-4380.74	677.45	4382.61	0.00	0.00	0.00	PROJECTED to TD

# Precision Directional Services, Inc.

## Survey Report

**Company:** CARRIZO OIL & GAS, INC.  
**Field:** Niobrara CONZ'83  
**Site:** Pergamos 3-7-60 Pad  
**Well:** 4-3-7-60  
**Wellpath:** Original Hole

**Date:** 03/04/2013 **Time:** 10:01:27 **Page:** 5  
**Co-ordinate(NE) Reference:** Well: 4-3-7-60, Grid North  
**Vertical (TVD) Reference:** 4922'GL+17'KB 4939.0  
**Section (VS) Reference:** Well (0.00N,0.00E,179.84Azi)  
**Survey Calculation Method:** Minimum Curvature **Db:** Adapti

### Annotation

MD ft	TVD ft	
6605.00	6295.66	600' entry