



Azimuths to Grid North  
 True North: -1.02°  
 Magnetic North: 7.07°  
 Magnetic Field  
 Strength: 53159nT  
 Dip Angle: 67.35°  
 Date: 12/07/2013  
 Model: IGRF2010

**LEGEND**  
 — 7-36-9-59, Original Hole, Plan #4  
 — Original Hole

**ANNOTATIONS**

No.	TVD	MD	Annotation
1	5861.53	5950.00	300' entry

**CASING DETAILS**

No.	TVD	MD	Name	Size
1	1418.56	1421.00	9 5/8"	9.625
2	5931.30	6073.00	7"	7.000

Name	TVD	+N/-S	+E/-W	Northing	Easting	Latitude	Longitude	Shape
SL 7-36	0.00	0.00	0.00	1506702.75	3438254.02	40°42'48.808N	103°55'08.632W	Point
7-36 300' entry	5861.53	29.58	-242.96	1506732.33	3438011.06	40°42'49.143N	103°55'11.779W	Point
PBHL 7-36	5992.00	-4340.01	-127.69	1502362.74	3438126.33	40°42'05.953N	103°55'11.294W	Point
BHL 7-36	6001.00	-4338.89	-127.75	1502363.86	3438126.27	40°42'05.964N	103°55'11.294W	Point

# Precision Directional Services, Inc.

## Survey Report

<b>Company:</b> CARRIZO OIL & GAS, INC.	<b>Date:</b> 12/19/2013	<b>Time:</b> 10:13:02	<b>Page:</b> 1
<b>Field:</b> Niobrara CONZ'83	<b>Co-ordinate(NE) Reference:</b> Well: 7-36-9-59, Grid North		
<b>Site:</b> Castor 4-36-9-59 Pad	<b>Vertical (TVD) Reference:</b> 4890'PE+17'KB 4907.0		
<b>Well:</b> 7-36-9-59	<b>Section (VS) Reference:</b> Well (0.00N,0.00E,178.48Azi)		
<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> Castor 4-36-9-59 Pad Weld County, CO renamed 9-9-13		
<b>Site Position:</b>	<b>Northing:</b> 1506682.42 ft	<b>Latitude:</b> 40 42 48.603 N
<b>From:</b> Map	<b>Easting:</b> 3438276.09 ft	<b>Longitude:</b> 103 55 8.350 W
<b>Position Uncertainty:</b> 0.00 ft		<b>North Reference:</b> Grid
<b>Ground Level:</b> 4890.00 ft		<b>Grid Convergence:</b> 1.02 deg

<b>Well:</b> 7-36-9-59	<b>Slot Name:</b> 7-36
<b>Well Position:</b> +N/-S 20.33 ft	<b>Northing:</b> 1506702.75 ft
+E/-W -22.07 ft	<b>Easting:</b> 3438254.02 ft
<b>Position Uncertainty:</b> 0.00 ft	<b>Latitude:</b> 40 42 48.808 N
	<b>Longitude:</b> 103 55 8.632 W

<b>Wellpath:</b> Original Hole			<b>Drilled From:</b> Surface		
<b>Current Datum:</b> 4890'PE+17'KB	<b>Height:</b> 4907.00 ft		<b>Tie-on Depth:</b> 0.00 ft		
<b>Magnetic Data:</b> 12/07/2013			<b>Above System Datum:</b> Mean Sea Level		
<b>Field Strength:</b> 53159 nT			<b>Declination:</b> 8.09 deg		
<b>Vertical Section:</b> Depth From (TVD)	+N/-S	+E/-W	<b>Mag Dip Angle:</b> 67.35 deg	<b>Direction</b>	
ft	ft	ft		deg	
0.00	0.00	0.00		178.48	

<b>Survey Program for Definitive Wellpath</b>					
<b>Date:</b> 12/19/2013		<b>Validated:</b> No		<b>Version:</b> 1	
<b>Actual From</b>	<b>To</b>	<b>Survey</b>	<b>Toolcode</b>	<b>Tool Name</b>	
ft	ft				
135.00	10300.00	Survey #1 (135.00-10300.00)	MWD	Std MWD	
10358.00	10358.00	Survey #2 (10358.00-10358.00)	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
135.00	0.50	21.30	135.00	0.55	0.21	-0.54	0.37	0.37	0.00	MWD
227.00	2.40	348.40	226.97	2.81	-0.03	-2.81	2.17	2.07	-35.76	MWD
318.00	3.00	347.00	317.86	7.00	-0.95	-7.02	0.66	0.66	-1.54	MWD
412.00	3.00	346.90	411.74	11.79	-2.06	-11.84	0.01	0.00	-0.11	MWD
504.00	4.30	344.20	503.55	17.45	-3.54	-17.54	1.42	1.41	-2.93	MWD
595.00	4.30	344.20	594.29	24.02	-5.40	-24.15	0.00	0.00	0.00	MWD
687.00	4.40	316.80	686.04	29.91	-8.76	-30.13	2.24	0.11	-29.78	MWD
778.00	4.70	309.20	776.75	34.81	-14.03	-35.17	0.74	0.33	-8.35	MWD
870.00	3.90	327.90	868.49	39.84	-18.62	-40.32	1.74	-0.87	20.33	MWD
961.00	3.30	325.90	959.31	44.63	-21.73	-45.20	0.67	-0.66	-2.20	MWD
1053.00	3.30	325.10	1051.16	49.00	-24.73	-49.64	0.05	0.00	-0.87	MWD
1144.00	3.30	321.40	1142.01	53.19	-27.86	-53.91	0.23	0.00	-4.07	MWD
1236.00	3.20	322.60	1233.86	57.30	-31.07	-58.11	0.13	-0.11	1.30	MWD
1327.00	3.30	325.20	1324.72	61.47	-34.11	-62.35	0.20	0.11	2.86	MWD
1362.00	3.30	323.80	1359.66	63.11	-35.28	-64.03	0.23	0.00	-4.00	MWD
1416.00	3.40	326.10	1413.57	65.70	-37.09	-66.66	0.31	0.19	4.26	MWD
1501.00	3.20	324.20	1498.43	69.71	-39.89	-70.74	0.27	-0.24	-2.24	MWD
1586.00	5.20	324.00	1583.19	74.75	-43.54	-75.88	2.35	2.35	-0.24	MWD
1671.00	5.20	326.50	1667.84	81.08	-47.93	-82.32	0.27	0.00	2.94	MWD
1756.00	4.70	326.50	1752.53	87.20	-51.98	-88.54	0.59	-0.59	0.00	MWD
1841.00	4.50	322.60	1837.25	92.75	-55.92	-94.20	0.44	-0.24	-4.59	MWD

# Precision Directional Services, Inc.

## Survey Report

<b>Company:</b> CARRIZO OIL & GAS, INC.	<b>Date:</b> 12/19/2013	<b>Time:</b> 10:13:02	<b>Page:</b> 2
<b>Field:</b> Niobrara CONZ'83	<b>Co-ordinate(NE) Reference:</b> Well: 7-36-9-59, Grid North		
<b>Site:</b> Castor 4-36-9-59 Pad	<b>Vertical (TVD) Reference:</b> 4890'PE+17'KB 4907.0		
<b>Well:</b> 7-36-9-59	<b>Section (VS) Reference:</b> Well (0.00N,0.00E,178.48Azi)		
<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
1926.00	4.20	328.20	1922.01	98.04	-59.59	-99.59	0.61	-0.35	6.59	MWD
2011.00	2.90	311.20	2006.84	102.11	-62.85	-103.74	1.95	-1.53	-20.00	MWD
2096.00	3.10	312.10	2091.73	105.06	-66.17	-106.78	0.24	0.24	1.06	MWD
2181.00	2.60	320.80	2176.62	108.10	-69.09	-109.89	0.78	-0.59	10.24	MWD
2266.00	3.70	325.60	2261.49	111.86	-71.86	-113.72	1.33	1.29	5.65	MWD
2351.00	3.70	312.60	2346.32	115.97	-75.43	-117.93	0.98	0.00	-15.29	MWD
2437.00	3.30	317.30	2432.16	119.67	-79.15	-121.73	0.57	-0.47	5.47	MWD
2522.00	4.10	321.00	2516.98	123.83	-82.72	-125.98	0.98	0.94	4.35	MWD
2607.00	4.60	314.70	2601.74	128.59	-87.06	-130.85	0.81	0.59	-7.41	MWD
2692.00	4.40	311.20	2686.47	133.14	-91.94	-135.53	0.40	-0.24	-4.12	MWD
2777.00	4.90	309.90	2771.19	137.61	-97.17	-140.14	0.60	0.59	-1.53	MWD
2862.00	4.80	313.60	2855.89	142.39	-102.53	-145.06	0.39	-0.12	4.35	MWD
2947.00	4.40	310.30	2940.62	146.95	-107.60	-149.76	0.56	-0.47	-3.88	MWD
3033.00	3.80	307.30	3026.40	150.82	-112.38	-153.74	0.74	-0.70	-3.49	MWD
3118.00	4.10	321.90	3111.20	154.91	-116.49	-157.95	1.23	0.35	17.18	MWD
3203.00	3.50	326.10	3196.01	159.46	-119.82	-162.58	0.78	-0.71	4.94	MWD
3288.00	4.10	327.50	3280.82	164.17	-122.90	-167.38	0.71	0.71	1.65	MWD
3373.00	4.70	325.60	3365.57	169.61	-126.50	-172.91	0.73	0.71	-2.24	MWD
3459.00	4.70	312.60	3451.28	174.90	-131.08	-178.32	1.24	0.00	-15.12	MWD
3544.00	5.20	315.20	3535.97	179.99	-136.36	-183.55	0.64	0.59	3.06	MWD
3629.00	4.60	305.40	3620.66	184.70	-141.85	-188.40	1.21	-0.71	-11.53	MWD
3714.00	3.70	292.20	3705.43	187.71	-147.17	-191.55	1.54	-1.06	-15.53	MWD
3799.00	3.30	281.60	3790.28	189.24	-152.10	-193.21	0.89	-0.47	-12.47	MWD
3885.00	3.40	303.40	3876.13	191.14	-156.66	-195.23	1.48	0.12	25.35	MWD
3970.00	3.70	323.10	3960.97	194.72	-160.41	-198.91	1.47	0.35	23.18	MWD
4055.00	3.30	318.40	4045.81	198.75	-163.68	-203.02	0.58	-0.47	-5.53	MWD
4139.00	3.00	318.00	4129.69	202.19	-166.76	-206.54	0.36	-0.36	-0.48	MWD
4224.00	4.10	330.90	4214.52	206.50	-169.72	-210.92	1.59	1.29	15.18	MWD
4309.00	3.90	325.80	4299.32	211.54	-172.83	-216.05	0.48	-0.24	-6.00	MWD
4394.00	3.60	329.50	4384.14	216.23	-175.80	-220.82	0.45	-0.35	4.35	MWD
4479.00	3.20	330.90	4468.99	220.60	-178.31	-225.26	0.48	-0.47	1.65	MWD
4564.00	4.30	328.00	4553.80	225.38	-181.16	-230.10	1.31	1.29	-3.41	MWD
4649.00	3.50	323.30	4638.61	230.16	-184.39	-234.97	1.01	-0.94	-5.53	MWD
4734.00	4.90	323.50	4723.38	235.16	-188.11	-240.07	1.65	1.65	0.24	MWD
4819.00	4.00	322.20	4808.12	240.42	-192.08	-245.43	1.07	-1.06	-1.53	MWD
4904.00	4.70	309.90	4892.87	245.00	-196.57	-250.13	1.37	0.82	-14.47	MWD
4989.00	3.90	306.10	4977.63	248.93	-201.58	-254.19	1.00	-0.94	-4.47	MWD
5074.00	3.40	315.90	5062.46	252.45	-205.67	-257.81	0.94	-0.59	11.53	MWD
5159.00	4.60	321.50	5147.25	256.93	-209.54	-262.39	1.48	1.41	6.59	MWD
5244.00	4.50	322.20	5231.99	262.23	-213.71	-267.80	0.13	-0.12	0.82	MWD
5329.00	3.20	319.40	5316.79	266.66	-217.30	-272.33	1.54	-1.53	-3.29	MWD
5370.00	3.00	316.80	5357.73	268.32	-218.78	-274.02	0.60	-0.49	-6.34	MWD
5412.00	3.60	259.80	5399.67	268.88	-220.83	-274.65	7.60	1.43	-135.71	MWD
5455.00	6.90	213.30	5442.50	266.48	-223.58	-272.32	11.94	7.67	-108.14	MWD
5497.00	11.00	201.10	5483.99	260.63	-226.40	-266.55	10.70	9.76	-29.05	MWD
5540.00	14.50	195.70	5525.92	251.62	-229.34	-257.62	8.59	8.14	-12.56	MWD
5582.00	18.40	190.60	5566.20	240.04	-231.98	-246.11	9.89	9.29	-12.14	MWD
5625.00	22.20	187.80	5606.52	225.31	-234.33	-231.45	9.12	8.84	-6.51	MWD
5668.00	26.70	186.20	5645.65	207.65	-236.48	-213.85	10.58	10.47	-3.72	MWD
5710.00	31.40	185.10	5682.36	187.36	-238.47	-193.62	11.26	11.19	-2.62	MWD
5753.00	35.30	183.70	5718.27	163.80	-240.27	-170.11	9.24	9.07	-3.26	MWD
5795.00	38.40	182.30	5751.88	138.65	-241.58	-145.01	7.65	7.38	-3.33	MWD
5838.00	41.90	181.40	5784.74	110.94	-242.47	-117.33	8.25	8.14	-2.09	MWD

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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
5880.00	45.50	180.60	5815.10	81.93	-242.97	-88.35	8.67	8.57	-1.90	MWD
5923.00	49.20	180.00	5844.23	50.31	-243.13	-56.74	8.67	8.60	-1.40	MWD
5950.00	51.13	179.09	5861.53	29.58	-242.96	-36.02	7.59	7.14	-3.38	300' entry
5965.00	52.20	178.60	5870.83	17.82	-242.72	-24.25	7.59	7.16	-3.24	MWD
6008.00	55.50	177.10	5896.19	-16.87	-241.41	10.46	8.17	7.67	-3.49	MWD
6071.00	59.00	175.10	5930.27	-69.72	-237.79	63.39	6.16	5.56	-3.17	MWD
6103.00	63.50	175.50	5945.66	-97.67	-235.49	91.39	14.11	14.06	1.25	MWD
6146.00	69.40	176.90	5962.83	-136.99	-232.89	130.76	14.04	13.72	3.26	MWD
6196.00	77.00	179.20	5977.28	-184.79	-231.28	178.59	15.82	15.20	4.60	MWD
6239.00	83.10	179.00	5984.70	-227.12	-230.62	220.92	14.19	14.19	-0.47	MWD
6285.00	84.20	178.60	5989.79	-272.82	-229.66	266.64	2.54	2.39	-0.87	MWD
6330.00	89.00	177.80	5992.46	-317.71	-228.25	311.54	10.81	10.67	-1.78	MWD
6375.00	91.00	177.60	5992.46	-362.67	-226.44	356.54	4.47	4.44	-0.44	MWD
6421.00	91.30	177.10	5991.53	-408.61	-224.32	402.52	1.27	0.65	-1.09	MWD
6466.00	89.40	176.50	5991.26	-453.54	-221.80	447.49	4.43	-4.22	-1.33	MWD
6511.00	90.10	177.80	5991.46	-498.48	-219.57	492.48	3.28	1.56	2.89	MWD
6560.00	90.60	181.30	5991.16	-547.47	-219.18	541.46	7.22	1.02	7.14	MWD
6602.00	89.40	183.00	5991.16	-589.44	-220.76	583.38	4.95	-2.86	4.05	MWD
6645.00	90.70	184.80	5991.12	-632.34	-223.68	626.18	5.16	3.02	4.19	MWD
6687.00	90.00	185.10	5990.86	-674.18	-227.31	667.91	1.81	-1.67	0.71	MWD
6730.00	89.90	185.30	5990.90	-717.00	-231.20	710.62	0.52	-0.23	0.47	MWD
6773.00	89.80	185.70	5991.01	-759.80	-235.32	753.29	0.96	-0.23	0.93	MWD
6815.00	89.40	181.10	5991.31	-801.72	-237.81	795.13	10.99	-0.95	-10.95	MWD
6858.00	90.40	178.60	5991.38	-844.71	-237.70	838.11	6.26	2.33	-5.81	MWD
6900.00	89.60	180.40	5991.38	-886.71	-237.34	880.10	4.69	-1.90	4.29	MWD
6943.00	90.20	179.70	5991.46	-929.71	-237.37	923.09	2.14	1.40	-1.63	MWD
6986.00	89.80	179.00	5991.46	-972.71	-236.89	966.08	1.87	-0.93	-1.63	MWD
7028.00	89.80	179.20	5991.60	-1014.70	-236.23	1008.08	0.48	0.00	0.48	MWD
7071.00	89.90	178.50	5991.72	-1057.69	-235.36	1051.08	1.64	0.23	-1.63	MWD
7113.00	89.70	177.90	5991.86	-1099.67	-234.04	1093.07	1.51	-0.48	-1.43	MWD
7156.00	89.60	177.20	5992.12	-1142.63	-232.21	1136.07	1.64	-0.23	-1.63	MWD
7198.00	89.80	178.60	5992.34	-1184.60	-230.67	1178.06	3.37	0.48	3.33	MWD
7241.00	90.00	178.80	5992.42	-1227.59	-229.69	1221.06	0.66	0.47	0.47	MWD
7284.00	89.60	178.80	5992.57	-1270.58	-228.79	1264.06	0.93	-0.93	0.00	MWD
7326.00	89.80	177.60	5992.79	-1312.56	-227.47	1306.06	2.90	0.48	-2.86	MWD
7369.00	89.50	177.60	5993.05	-1355.52	-225.67	1349.05	0.70	-0.70	0.00	MWD
7411.00	89.60	179.00	5993.38	-1397.50	-224.42	1391.05	3.34	0.24	3.33	MWD
7454.00	90.00	179.00	5993.53	-1440.49	-223.67	1434.05	0.93	0.93	0.00	MWD
7496.00	90.10	178.50	5993.50	-1482.48	-222.76	1476.05	1.21	0.24	-1.19	MWD
7539.00	89.60	177.40	5993.61	-1525.45	-221.22	1519.05	2.81	-1.16	-2.56	MWD
7582.00	89.50	175.80	5993.95	-1568.37	-218.67	1562.02	3.73	-0.23	-3.72	MWD
7624.00	89.40	173.90	5994.35	-1610.20	-214.90	1603.93	4.53	-0.24	-4.52	MWD
7667.00	90.00	175.30	5994.57	-1653.01	-210.85	1646.83	3.54	1.40	3.26	MWD
7710.00	90.50	175.50	5994.39	-1695.87	-207.41	1689.77	1.25	1.16	0.47	MWD
7752.00	90.20	173.90	5994.13	-1737.69	-203.53	1731.68	3.88	-0.71	-3.81	MWD
7795.00	90.00	174.90	5994.05	-1780.48	-199.33	1774.57	2.37	-0.47	2.33	MWD
7837.00	89.60	176.20	5994.20	-1822.35	-196.07	1816.51	3.24	-0.95	3.10	MWD
7880.00	90.00	176.90	5994.35	-1865.27	-193.48	1859.49	1.87	0.93	1.63	MWD
7922.00	90.50	177.80	5994.17	-1907.23	-191.54	1901.48	2.45	1.19	2.14	MWD
7965.00	90.00	175.60	5993.98	-1950.15	-189.07	1944.45	5.25	-1.16	-5.12	MWD
8008.00	89.90	171.80	5994.02	-1992.89	-184.35	1987.29	8.84	-0.23	-8.84	MWD
8050.00	90.30	169.00	5993.94	-2034.29	-177.35	2028.87	6.73	0.95	-6.67	MWD
8093.00	89.80	170.00	5993.91	-2076.57	-169.51	2071.35	2.60	-1.16	2.33	MWD
8135.00	91.50	170.20	5993.43	-2117.94	-162.29	2112.89	4.08	4.05	0.48	MWD

# Precision Directional Services, Inc.

## Survey Report

<b>Company:</b> CARRIZO OIL & GAS, INC.	<b>Date:</b> 12/19/2013	<b>Time:</b> 10:13:02	<b>Page:</b> 4
<b>Field:</b> Niobrara CONZ'83	<b>Co-ordinate(NE) Reference:</b> Well: 7-36-9-59, Grid North		
<b>Site:</b> Castor 4-36-9-59 Pad	<b>Vertical (TVD) Reference:</b> 4890'PE+17'KB 4907.0		
<b>Well:</b> 7-36-9-59	<b>Section (VS) Reference:</b> Well (0.00N,0.00E,178.48Azi)		
<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
8178.00	91.60	174.20	5992.27	-2160.52	-156.46	2155.61	9.30	0.23	9.30	MWD
8221.00	91.00	174.80	5991.29	-2203.31	-152.34	2198.50	1.97	-1.40	1.40	MWD
8263.00	89.30	177.80	5991.18	-2245.22	-149.63	2240.46	8.21	-4.05	7.14	MWD
8306.00	88.20	181.10	5992.12	-2288.20	-149.21	2283.44	8.09	-2.56	7.67	MWD
8347.00	88.50	180.90	5993.30	-2329.18	-149.93	2324.38	0.88	0.73	-0.49	MWD
8390.00	88.80	180.90	5994.31	-2372.16	-150.60	2367.33	0.70	0.70	0.00	MWD
8432.00	88.60	180.40	5995.27	-2414.14	-151.08	2409.29	1.28	-0.48	-1.19	MWD
8475.00	90.50	180.90	5995.60	-2457.14	-151.57	2452.25	4.57	4.42	1.16	MWD
8518.00	91.40	180.40	5994.89	-2500.13	-152.06	2495.22	2.39	2.09	-1.16	MWD
8560.00	91.70	179.90	5993.76	-2542.11	-152.17	2537.18	1.39	0.71	-1.19	MWD
8603.00	92.00	179.30	5992.37	-2585.09	-151.87	2580.15	1.56	0.70	-1.40	MWD
8645.00	92.30	178.60	5990.79	-2627.05	-151.10	2622.12	1.81	0.71	-1.67	MWD
8687.00	90.10	178.60	5989.91	-2669.03	-150.07	2664.11	5.24	-5.24	0.00	MWD
8730.00	89.60	177.40	5990.02	-2712.00	-148.57	2707.11	3.02	-1.16	-2.79	MWD
8772.00	89.60	179.70	5990.32	-2753.98	-147.51	2749.10	5.48	0.00	5.48	MWD
8815.00	89.50	179.20	5990.66	-2796.98	-147.09	2792.09	1.19	-0.23	-1.16	MWD
8857.00	88.40	180.40	5991.43	-2838.97	-146.95	2834.08	3.88	-2.62	2.86	MWD
8900.00	88.20	180.20	5992.70	-2881.95	-147.17	2877.03	0.66	-0.47	-0.47	MWD
8942.00	87.80	179.30	5994.17	-2923.93	-146.99	2919.00	2.34	-0.95	-2.14	MWD
8985.00	87.70	179.20	5995.85	-2966.89	-146.43	2961.96	0.33	-0.23	-0.23	MWD
9027.00	88.40	180.70	5997.28	-3008.86	-146.39	3003.92	3.94	1.67	3.57	MWD
9070.00	88.30	180.60	5998.52	-3051.84	-146.88	3046.87	0.33	-0.23	-0.23	MWD
9112.00	89.80	180.90	5999.22	-3093.83	-147.43	3088.83	3.64	3.57	0.71	MWD
9155.00	89.40	180.70	5999.52	-3136.83	-148.03	3131.80	1.04	-0.93	-0.47	MWD
9198.00	89.60	181.30	5999.89	-3179.82	-148.78	3174.75	1.47	0.47	1.40	MWD
9240.00	90.00	181.40	6000.04	-3221.81	-149.77	3216.70	0.98	0.95	0.24	MWD
9283.00	91.60	180.70	5999.44	-3264.79	-150.56	3259.65	4.06	3.72	-1.63	MWD
9325.00	92.00	180.70	5998.12	-3306.77	-151.07	3301.60	0.95	0.95	0.00	MWD
9368.00	92.20	180.60	5996.55	-3349.74	-151.56	3344.54	0.52	0.47	-0.23	MWD
9410.00	92.60	180.20	5994.79	-3391.70	-151.85	3386.48	1.35	0.95	-0.95	MWD
9453.00	91.60	178.60	5993.21	-3434.67	-151.40	3429.44	4.39	-2.33	-3.72	MWD
9495.00	90.40	177.80	5992.48	-3476.64	-150.08	3471.43	3.43	-2.86	-1.90	MWD
9538.00	90.40	177.40	5992.18	-3519.60	-148.28	3514.43	0.93	0.00	-0.93	MWD
9580.00	90.30	176.90	5991.92	-3561.55	-146.19	3556.42	1.21	-0.24	-1.19	MWD
9623.00	89.90	176.00	5991.85	-3604.46	-143.53	3599.39	2.29	-0.93	-2.09	MWD
9666.00	88.80	177.90	5992.33	-3647.40	-141.24	3642.37	5.11	-2.56	4.42	MWD
9708.00	88.50	177.60	5993.32	-3689.35	-139.59	3684.35	1.01	-0.71	-0.71	MWD
9751.00	88.50	177.40	5994.45	-3732.30	-137.72	3727.33	0.46	0.00	-0.47	MWD
9793.00	89.80	176.90	5995.07	-3774.24	-135.63	3769.31	3.32	3.10	-1.19	MWD
9836.00	90.10	176.70	5995.11	-3817.17	-133.23	3812.30	0.84	0.70	-0.47	MWD
9879.00	89.50	178.10	5995.26	-3860.13	-131.28	3855.29	3.54	-1.40	3.26	MWD
9921.00	89.20	177.10	5995.74	-3902.09	-129.52	3897.28	2.49	-0.71	-2.38	MWD
9964.00	89.10	176.50	5996.37	-3945.01	-127.12	3940.25	1.41	-0.23	-1.40	MWD
10006.00	88.40	177.90	5997.29	-3986.95	-125.07	3982.23	3.73	-1.67	3.33	MWD
10049.00	88.80	180.40	5998.34	-4029.93	-124.43	4025.21	5.89	0.93	5.81	MWD
10091.00	89.00	179.90	5999.15	-4071.92	-124.54	4067.19	1.28	0.48	-1.19	MWD
10134.00	89.30	180.40	5999.79	-4114.92	-124.65	4110.16	1.36	0.70	1.16	MWD
10176.00	89.50	181.10	6000.22	-4156.91	-125.20	4152.13	1.73	0.48	1.67	MWD
10219.00	89.30	180.20	6000.68	-4199.91	-125.69	4195.10	2.14	-0.47	-2.09	MWD
10261.00	89.90	180.70	6000.97	-4241.90	-126.02	4237.07	1.86	1.43	1.19	MWD
10300.00	90.00	181.10	6001.00	-4280.90	-126.63	4276.03	1.06	0.26	1.03	MWD
10358.00	90.00	181.10	6001.00	-4338.89	-127.75	4333.97	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:** Castor 4-36-9-59 Pad  
**Well:** 7-36-9-59  
**Wellpath:** Original Hole

**Date:** 12/19/2013      **Time:** 10:13:02      **Page:** 5  
**Co-ordinate(NE) Reference:** Well: 7-36-9-59, Grid North  
**Vertical (TVD) Reference:** 4890'PE+17'KB 4907.0  
**Section (VS) Reference:** Well (0.00N,0.00E,178.48Azi)  
**Survey Calculation Method:** Minimum Curvature      **Db:** Adapti

### Annotation

MD ft	TVD ft	
5950.00	5861.53	300' entry