



# Precision Directional Services, Inc.

## Planning Report

<b>Company:</b> CARRIZO OIL & GAS, INC.		<b>Date:</b> 05/30/2013	<b>Time:</b> 14:08:58	<b>Page:</b> 1
<b>Field:</b> Niobrara CONZ'83		<b>Co-ordinate(NE) Reference:</b> Well: 17-11-9-59, Grid North		
<b>Site:</b> Timbro Ranch 17-11-9-59		<b>Vertical (TVD) Reference:</b> 5021'GL+17'KB 5038.0		
<b>Well:</b> 17-11-9-59		<b>Section (VS) Reference:</b> Well (0.00N,0.00E,178.53Azi)		
<b>Wellpath:</b> Original Hole		<b>Plan:</b> Plan #1		

  

<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> Timbro Ranch 17-11-9-59 251'FNL,466FWL Weld County, CO	
<b>Site Position:</b>	<b>Northing:</b> 1522104.82 ft
<b>From:</b> Map	<b>Easting:</b> 3412783.97 ft
<b>Position Uncertainty:</b> 0.00 ft	<b>Latitude:</b> 40 45 25.333 N
<b>Ground Level:</b> 5021.00 ft	<b>Longitude:</b> 104 0 35.977 W
	<b>North Reference:</b> Grid
	<b>Grid Convergence:</b> 0.96 deg

  

<b>Well:</b> 17-11-9-59		<b>Slot Name:</b>	
<b>Well Position:</b> +N/-S 0.00 ft	<b>Northing:</b> 1522104.82 ft	<b>Latitude:</b> 40 45 25.333 N	
+E/-W 0.00 ft	<b>Easting :</b> 3412783.97 ft	<b>Longitude:</b> 104 0 35.977 W	
<b>Position Uncertainty:</b> 0.00 ft			

  

<b>Wellpath:</b> Original Hole		<b>Drilled From:</b> Surface	
<b>Current Datum:</b> 5021'GL+17'KB	<b>Height</b> 5038.00 ft	<b>Tie-on Depth:</b> 0.00 ft	
<b>Magnetic Data:</b> 06/30/2013		<b>Above System Datum:</b> Mean Sea Level	
<b>Field Strength:</b> 53219 nT		<b>Declination:</b> 8.21 deg	
<b>Vertical Section:</b> Depth From (TVD)	+N/-S	<b>Mag Dip Angle:</b> 67.39 deg	
ft	ft	<b>+E/-W</b>	<b>Direction</b>
		ft	deg
0.00	0.00	0.00	178.53

  

<b>Plan:</b> Plan #1	<b>Date Composed:</b> 05/30/2013
<b>Principal:</b> No	<b>Version:</b> 1
	<b>Tied-to:</b> From Surface

  

Plan Section Information										
MD ft	Incl deg	Azim deg	TVD ft	+N/-S ft	+E/-W ft	DLS deg/100ft	Build deg/100ft	Turn deg/100ft	TFO deg	Target
0.00	0.00	26.14	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
1540.00	0.00	26.14	1540.00	0.00	0.00	0.00	0.00	0.00	26.14	
1718.40	3.57	26.14	1718.28	4.98	2.45	2.00	2.00	0.00	0.00	
5663.46	3.57	26.14	5655.70	225.38	110.62	0.00	0.00	0.00	0.00	
6595.07	90.00	178.53	6260.00	-346.07	142.79	10.00	9.28	16.36	152.34	
10717.66	90.00	178.53	6260.00	-4467.29	248.79	0.00	0.00	0.00	0.00	PBHL 17-11

  

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
1440.00	0.00	26.14	1440.00	0.00	0.00	0.00	0.00	0.00	0.00	9 5/8"
1540.00	0.00	26.14	1540.00	0.00	0.00	0.00	0.00	0.00	0.00	
1640.00	2.00	26.14	1639.98	1.57	0.77	-1.55	2.00	2.00	0.00	
1718.40	3.57	26.14	1718.28	4.98	2.45	-4.92	2.00	2.00	0.00	
1740.00	3.57	26.14	1739.84	6.19	3.04	-6.11	0.00	0.00	0.00	
1840.00	3.57	26.14	1839.65	11.78	5.78	-11.63	0.00	0.00	0.00	
1940.00	3.57	26.14	1939.46	17.36	8.52	-17.14	0.00	0.00	0.00	
2040.00	3.57	26.14	2039.26	22.95	11.26	-22.65	0.00	0.00	0.00	
2140.00	3.57	26.14	2139.07	28.54	14.01	-28.17	0.00	0.00	0.00	
2240.00	3.57	26.14	2238.87	34.12	16.75	-33.68	0.00	0.00	0.00	
2340.00	3.57	26.14	2338.68	39.71	19.49	-39.20	0.00	0.00	0.00	
2440.00	3.57	26.14	2438.49	45.30	22.23	-44.71	0.00	0.00	0.00	
2540.00	3.57	26.14	2538.29	50.88	24.97	-50.23	0.00	0.00	0.00	
2640.00	3.57	26.14	2638.10	56.47	27.72	-55.74	0.00	0.00	0.00	
2740.00	3.57	26.14	2737.90	62.06	30.46	-61.26	0.00	0.00	0.00	

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**Company:** CARRIZO OIL & GAS, INC.  
**Field:** Niobrara CONZ'83  
**Site:** Timbro Ranch 17-11-9-59  
**Well:** 17-11-9-59  
**Wellpath:** Original Hole

**Date:** 05/30/2013  
**Co-ordinate(NE) Reference:** Well: 17-11-9-59, Grid North  
**Vertical (TVD) Reference:** 5021'GL+17'KB 5038.0  
**Section (VS) Reference:** Well (0.00N,0.00E,178.53Azi)  
**Plan:** Plan #1

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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
2840.00	3.57	26.14	2837.71	67.64	33.20	-66.77	0.00	0.00	0.00	
2940.00	3.57	26.14	2937.52	73.23	35.94	-72.28	0.00	0.00	0.00	
3040.00	3.57	26.14	3037.32	78.82	38.68	-77.80	0.00	0.00	0.00	
3140.00	3.57	26.14	3137.13	84.40	41.43	-83.31	0.00	0.00	0.00	
3240.00	3.57	26.14	3236.94	89.99	44.17	-88.83	0.00	0.00	0.00	
3340.00	3.57	26.14	3336.74	95.58	46.91	-94.34	0.00	0.00	0.00	
3440.00	3.57	26.14	3436.55	101.16	49.65	-99.86	0.00	0.00	0.00	
3540.00	3.57	26.14	3536.35	106.75	52.39	-105.37	0.00	0.00	0.00	
3640.00	3.57	26.14	3636.16	112.34	55.14	-110.88	0.00	0.00	0.00	
3740.00	3.57	26.14	3735.97	117.92	57.88	-116.40	0.00	0.00	0.00	
3840.00	3.57	26.14	3835.77	123.51	60.62	-121.91	0.00	0.00	0.00	
3940.00	3.57	26.14	3935.58	129.10	63.36	-127.43	0.00	0.00	0.00	
4040.00	3.57	26.14	4035.38	134.68	66.10	-132.94	0.00	0.00	0.00	
4140.00	3.57	26.14	4135.19	140.27	68.85	-138.46	0.00	0.00	0.00	
4240.00	3.57	26.14	4235.00	145.86	71.59	-143.97	0.00	0.00	0.00	
4340.00	3.57	26.14	4334.80	151.44	74.33	-149.49	0.00	0.00	0.00	
4440.00	3.57	26.14	4434.61	157.03	77.07	-155.00	0.00	0.00	0.00	
4540.00	3.57	26.14	4534.42	162.62	79.81	-160.51	0.00	0.00	0.00	
4640.00	3.57	26.14	4634.22	168.20	82.56	-166.03	0.00	0.00	0.00	
4740.00	3.57	26.14	4734.03	173.79	85.30	-171.54	0.00	0.00	0.00	
4840.00	3.57	26.14	4833.83	179.37	88.04	-177.06	0.00	0.00	0.00	
4940.00	3.57	26.14	4933.64	184.96	90.78	-182.57	0.00	0.00	0.00	
5040.00	3.57	26.14	5033.45	190.55	93.52	-188.09	0.00	0.00	0.00	
5140.00	3.57	26.14	5133.25	196.13	96.27	-193.60	0.00	0.00	0.00	
5240.00	3.57	26.14	5233.06	201.72	99.01	-199.11	0.00	0.00	0.00	
5340.00	3.57	26.14	5332.87	207.31	101.75	-204.63	0.00	0.00	0.00	
5440.00	3.57	26.14	5432.67	212.89	104.49	-210.14	0.00	0.00	0.00	
5540.00	3.57	26.14	5532.48	218.48	107.23	-215.66	0.00	0.00	0.00	
5640.00	3.57	26.14	5632.28	224.07	109.98	-221.17	0.00	0.00	0.00	
5663.46	3.57	26.14	5655.70	225.38	110.62	-222.47	0.00	0.00	0.00	
5740.00	4.79	158.34	5732.14	224.55	112.85	-221.58	10.00	1.59	172.72	
5840.00	14.58	172.15	5830.61	208.15	116.12	-205.11	10.00	9.80	13.81	
5940.00	24.55	174.90	5924.72	174.91	119.70	-171.78	10.00	9.96	2.75	
6040.00	34.53	176.12	6011.61	125.82	123.47	-122.61	10.00	9.98	1.22	
6140.00	44.52	176.84	6088.65	62.38	127.33	-59.09	10.00	9.99	0.72	
6240.00	54.51	177.35	6153.50	-13.48	131.16	16.84	10.00	9.99	0.50	
6340.00	64.50	177.74	6204.18	-99.46	134.83	102.89	10.00	9.99	0.39	
6440.00	74.50	178.07	6239.15	-192.95	138.25	196.43	10.00	10.00	0.33	
6495.03	80.00	178.23	6251.29	-246.57	139.98	250.08	10.00	10.00	0.30	7"
6540.00	84.50	178.37	6257.36	-291.10	141.30	294.63	10.00	10.00	0.29	
6595.07	90.00	178.53	6260.00	-346.07	142.79	349.62	10.00	10.00	0.29	
6640.00	90.00	178.53	6260.00	-390.98	143.95	394.55	0.00	0.00	0.00	
6740.00	90.00	178.53	6260.00	-490.95	146.52	494.55	0.00	0.00	0.00	
6840.00	90.00	178.53	6260.00	-590.92	149.09	594.55	0.00	0.00	0.00	
6940.00	90.00	178.53	6260.00	-690.88	151.66	694.55	0.00	0.00	0.00	
7040.00	90.00	178.53	6260.00	-790.85	154.23	794.55	0.00	0.00	0.00	
7140.00	90.00	178.53	6260.00	-890.82	156.80	894.55	0.00	0.00	0.00	
7240.00	90.00	178.53	6260.00	-990.78	159.37	994.55	0.00	0.00	0.00	
7340.00	90.00	178.53	6260.00	-1090.75	161.94	1094.55	0.00	0.00	0.00	
7440.00	90.00	178.53	6260.00	-1190.72	164.51	1194.55	0.00	0.00	0.00	
7540.00	90.00	178.53	6260.00	-1290.69	167.09	1294.55	0.00	0.00	0.00	
7640.00	90.00	178.53	6260.00	-1390.65	169.66	1394.55	0.00	0.00	0.00	
7740.00	90.00	178.53	6260.00	-1490.62	172.23	1494.55	0.00	0.00	0.00	
7840.00	90.00	178.53	6260.00	-1590.59	174.80	1594.55	0.00	0.00	0.00	

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**Well:** 17-11-9-59  
**Wellpath:** Original Hole

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**Section (VS) Reference:** Well (0.00N,0.00E,178.53Azi)  
**Plan:** Plan #1

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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
7940.00	90.00	178.53	6260.00	-1690.55	177.37	1694.55	0.00	0.00	0.00	
8040.00	90.00	178.53	6260.00	-1790.52	179.94	1794.55	0.00	0.00	0.00	
8140.00	90.00	178.53	6260.00	-1890.49	182.51	1894.55	0.00	0.00	0.00	
8240.00	90.00	178.53	6260.00	-1990.45	185.08	1994.55	0.00	0.00	0.00	
8340.00	90.00	178.53	6260.00	-2090.42	187.66	2094.55	0.00	0.00	0.00	
8440.00	90.00	178.53	6260.00	-2190.39	190.23	2194.55	0.00	0.00	0.00	
8540.00	90.00	178.53	6260.00	-2290.35	192.80	2294.55	0.00	0.00	0.00	
8640.00	90.00	178.53	6260.00	-2390.32	195.37	2394.55	0.00	0.00	0.00	
8740.00	90.00	178.53	6260.00	-2490.29	197.94	2494.55	0.00	0.00	0.00	
8840.00	90.00	178.53	6260.00	-2590.26	200.51	2594.55	0.00	0.00	0.00	
8940.00	90.00	178.53	6260.00	-2690.22	203.08	2694.55	0.00	0.00	0.00	
9040.00	90.00	178.53	6260.00	-2790.19	205.65	2794.55	0.00	0.00	0.00	
9140.00	90.00	178.53	6260.00	-2890.16	208.23	2894.55	0.00	0.00	0.00	
9240.00	90.00	178.53	6260.00	-2990.12	210.80	2994.55	0.00	0.00	0.00	
9340.00	90.00	178.53	6260.00	-3090.09	213.37	3094.55	0.00	0.00	0.00	
9440.00	90.00	178.53	6260.00	-3190.06	215.94	3194.55	0.00	0.00	0.00	
9540.00	90.00	178.53	6260.00	-3290.02	218.51	3294.55	0.00	0.00	0.00	
9640.00	90.00	178.53	6260.00	-3389.99	221.08	3394.55	0.00	0.00	0.00	
9740.00	90.00	178.53	6260.00	-3489.96	223.65	3494.55	0.00	0.00	0.00	
9840.00	90.00	178.53	6260.00	-3589.92	226.22	3594.55	0.00	0.00	0.00	
9940.00	90.00	178.53	6260.00	-3689.89	228.79	3694.55	0.00	0.00	0.00	
10040.00	90.00	178.53	6260.00	-3789.86	231.37	3794.55	0.00	0.00	0.00	
10140.00	90.00	178.53	6260.00	-3889.83	233.94	3894.55	0.00	0.00	0.00	
10240.00	90.00	178.53	6260.00	-3989.79	236.51	3994.55	0.00	0.00	0.00	
10340.00	90.00	178.53	6260.00	-4089.76	239.08	4094.55	0.00	0.00	0.00	
10440.00	90.00	178.53	6260.00	-4189.73	241.65	4194.55	0.00	0.00	0.00	
10540.00	90.00	178.53	6260.00	-4289.69	244.22	4294.55	0.00	0.00	0.00	
10640.00	90.00	178.53	6260.00	-4389.66	246.79	4394.55	0.00	0.00	0.00	
10717.66	90.00	178.53	6260.00	-4467.29	248.79	4472.20	0.00	0.00	0.00	PBHL 17-11

### Targets

Name	Description Dip.	Dir.	TVD ft	+N/-S ft	+E/-W ft	Map Northing ft	Map Easting ft	<---- Latitude ---->			<--- Longitude --->		
SL 17-11			0.00	0.00	0.00	1522104.82	3412783.97	40	45	25.333 N	104	0	35.977 W
PBHL 17-11			6260.00	-4467.29	248.79	1517637.53	3413032.76	40	44	41.156 N	104	0	33.721 W

### Casing Points

MD ft	TVD ft	Diameter in	Hole Size in	Name
1440.00	1440.00	9.625	12.250	9 5/8"
6495.03	6251.29	7.000	8.500	7"