



# Precision Directional Services, Inc.

## Planning Report

<b>Company:</b> CARRIZO OIL & GAS, INC.		<b>Date:</b> 10/06/2014	<b>Time:</b> 17:44:39	<b>Page:</b> 1
<b>Field:</b> Niobrara CONZ'83		<b>Co-ordinate(NE) Reference:</b> Well: 1-3-9-59, Grid North		
<b>Site:</b> Timbro Ranch 1-34-10-59		<b>Vertical (TVD) Reference:</b> 5065'GL+17'KB 5082.0		
<b>Well:</b> 1-3-9-59		<b>Section (VS) Reference:</b> Well (0.00N,0.00E,179.16Azi)		
<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 1-34-10-59	
Weld County, CO	
<b>Site Position:</b>	<b>Northing:</b> 1532959.63 ft
<b>From:</b> Map	<b>Easting:</b> 3425521.39 ft
<b>Position Uncertainty:</b> 0.00 ft	<b>Latitude:</b> 40 47 10.426 N
<b>Ground Level:</b> 5065.00 ft	<b>Longitude:</b> 103 57 48.044 W
	<b>North Reference:</b> Grid
	<b>Grid Convergence:</b> 0.99 deg

  

<b>Well:</b> 1-3-9-59		<b>Slot Name:</b>	
centered on 1-34			
<b>Well Position:</b> +N/-S 3.07 ft	<b>Northing:</b> 1532962.70 ft	<b>Latitude:</b> 40 47 10.454 N	
+E/-W 14.68 ft	<b>Easting :</b> 3425536.07 ft	<b>Longitude:</b> 103 57 47.852 W	
<b>Position Uncertainty:</b> 0.00 ft			

  

<b>Wellpath:</b> Original hole		<b>Drilled From:</b> Surface	
<b>Current Datum:</b> 5065'GL+17'KB	<b>Height</b> 5082.00 ft	<b>Tie-on Depth:</b> 0.00 ft	
<b>Magnetic Data:</b> 10/22/2014		<b>Above System Datum:</b> Mean Sea Level	
<b>Field Strength:</b> 53099 nT		<b>Declination:</b> 8.00 deg	
<b>Vertical Section:</b> Depth From (TVD)	+N/-S	<b>Mag Dip Angle:</b> 67.37 deg	
ft	ft	<b>+E/-W</b>	<b>Direction</b>
		ft	deg
0.00	0.00	0.00	179.16

  

<b>Plan:</b> Plan #1	<b>Date Composed:</b> 10/06/2014
<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	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
150.00	0.00	0.00	150.00	0.00	0.00	0.00	0.00	0.00	0.00	
488.53	3.39	24.30	488.34	9.11	4.11	1.00	1.00	0.00	0.00	
5655.82	3.39	24.30	5646.60	287.22	129.67	0.00	0.00	0.00	0.00	
6586.46	90.00	179.16	6250.00	-284.64	153.18	10.00	9.31	16.64	154.83	
10621.89	90.00	179.16	6250.00	-4319.64	212.08	0.00	0.00	0.00	0.00	PBHL 1-3

  

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	
100.00	0.00	0.00	100.00	0.00	0.00	0.00	0.00	0.00	0.00	
150.00	0.00	0.00	150.00	0.00	0.00	0.00	0.00	0.00	0.00	
200.00	0.50	24.30	200.00	0.20	0.09	-0.20	1.00	1.00	0.00	
300.00	1.50	24.30	299.98	1.79	0.81	-1.78	1.00	1.00	0.00	
400.00	2.50	24.30	399.92	4.97	2.24	-4.94	1.00	1.00	0.00	
488.53	3.39	24.30	488.34	9.11	4.11	-9.05	1.00	1.00	0.00	
500.00	3.39	24.30	499.78	9.73	4.39	-9.66	0.00	0.00	0.00	
600.00	3.39	24.30	599.61	15.11	6.82	-15.01	0.00	0.00	0.00	
700.00	3.39	24.30	699.43	20.49	9.25	-20.36	0.00	0.00	0.00	
800.00	3.39	24.30	799.26	25.88	11.68	-25.70	0.00	0.00	0.00	
900.00	3.39	24.30	899.09	31.26	14.11	-31.05	0.00	0.00	0.00	
1000.00	3.39	24.30	998.91	36.64	16.54	-36.39	0.00	0.00	0.00	
1100.00	3.39	24.30	1098.74	42.02	18.97	-41.74	0.00	0.00	0.00	
1200.00	3.39	24.30	1198.56	47.40	21.40	-47.08	0.00	0.00	0.00	

# Precision Directional Services, Inc.

## Planning Report

**Company:** CARRIZO OIL & GAS, INC.  
**Field:** Niobrara CONZ'83  
**Site:** Timbro Ranch 1-34-10-59  
**Well:** 1-3-9-59  
**Wellpath:** Original hole

**Date:** 10/06/2014 **Time:** 17:44:39  
**Co-ordinate(NE) Reference:** Well: 1-3-9-59, Grid North  
**Vertical (TVD) Reference:** 5065'GL+17'KB 5082.0  
**Section (VS) Reference:** Well (0.00N,0.00E,179.16Azi)  
**Plan:** Plan #1

**Page:** 2

### 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
1300.00	3.39	24.30	1298.39	52.79	23.83	-52.43	0.00	0.00	0.00	9 5/8"
1400.00	3.39	24.30	1398.21	58.17	26.26	-57.78	0.00	0.00	0.00	
1401.79	3.39	24.30	1400.00	58.26	26.30	-57.87	0.00	0.00	0.00	
1500.00	3.39	24.30	1498.04	63.55	28.69	-63.12	0.00	0.00	0.00	
1600.00	3.39	24.30	1597.86	68.93	31.12	-68.47	0.00	0.00	0.00	
1700.00	3.39	24.30	1697.69	74.31	33.55	-73.81	0.00	0.00	0.00	
1800.00	3.39	24.30	1797.51	79.70	35.98	-79.16	0.00	0.00	0.00	
1900.00	3.39	24.30	1897.34	85.08	38.41	-84.51	0.00	0.00	0.00	
2000.00	3.39	24.30	1997.17	90.46	40.84	-89.85	0.00	0.00	0.00	
2100.00	3.39	24.30	2096.99	95.84	43.27	-95.20	0.00	0.00	0.00	
2200.00	3.39	24.30	2196.82	101.22	45.70	-100.54	0.00	0.00	0.00	
2300.00	3.39	24.30	2296.64	106.61	48.13	-105.89	0.00	0.00	0.00	
2400.00	3.39	24.30	2396.47	111.99	50.56	-111.23	0.00	0.00	0.00	
2500.00	3.39	24.30	2496.29	117.37	52.99	-116.58	0.00	0.00	0.00	
2600.00	3.39	24.30	2596.12	122.75	55.42	-121.93	0.00	0.00	0.00	
2700.00	3.39	24.30	2695.94	128.13	57.85	-127.27	0.00	0.00	0.00	
2800.00	3.39	24.30	2795.77	133.52	60.28	-132.62	0.00	0.00	0.00	
2900.00	3.39	24.30	2895.59	138.90	62.71	-137.96	0.00	0.00	0.00	
3000.00	3.39	24.30	2995.42	144.28	65.14	-143.31	0.00	0.00	0.00	
3100.00	3.39	24.30	3095.25	149.66	67.57	-148.66	0.00	0.00	0.00	
3200.00	3.39	24.30	3195.07	155.04	70.00	-154.00	0.00	0.00	0.00	
3300.00	3.39	24.30	3294.90	160.43	72.43	-159.35	0.00	0.00	0.00	
3400.00	3.39	24.30	3394.72	165.81	74.86	-164.69	0.00	0.00	0.00	
3500.00	3.39	24.30	3494.55	171.19	77.29	-170.04	0.00	0.00	0.00	
3600.00	3.39	24.30	3594.37	176.57	79.72	-175.38	0.00	0.00	0.00	
3700.00	3.39	24.30	3694.20	181.95	82.15	-180.73	0.00	0.00	0.00	
3800.00	3.39	24.30	3794.02	187.34	84.58	-186.08	0.00	0.00	0.00	
3900.00	3.39	24.30	3893.85	192.72	87.01	-191.42	0.00	0.00	0.00	
4000.00	3.39	24.30	3993.68	198.10	89.44	-196.77	0.00	0.00	0.00	
4100.00	3.39	24.30	4093.50	203.48	91.87	-202.11	0.00	0.00	0.00	
4200.00	3.39	24.30	4193.33	208.86	94.30	-207.46	0.00	0.00	0.00	
4300.00	3.39	24.30	4293.15	214.25	96.73	-212.81	0.00	0.00	0.00	
4400.00	3.39	24.30	4392.98	219.63	99.16	-218.15	0.00	0.00	0.00	
4500.00	3.39	24.30	4492.80	225.01	101.59	-223.50	0.00	0.00	0.00	
4600.00	3.39	24.30	4592.63	230.39	104.02	-228.84	0.00	0.00	0.00	
4700.00	3.39	24.30	4692.45	235.77	106.45	-234.19	0.00	0.00	0.00	
4800.00	3.39	24.30	4792.28	241.16	108.88	-239.53	0.00	0.00	0.00	
4900.00	3.39	24.30	4892.10	246.54	111.31	-244.88	0.00	0.00	0.00	
5000.00	3.39	24.30	4991.93	251.92	113.74	-250.23	0.00	0.00	0.00	
5100.00	3.39	24.30	5091.76	257.30	116.16	-255.57	0.00	0.00	0.00	
5200.00	3.39	24.30	5191.58	262.68	118.59	-260.92	0.00	0.00	0.00	
5300.00	3.39	24.30	5291.41	268.07	121.02	-266.26	0.00	0.00	0.00	
5400.00	3.39	24.30	5391.23	273.45	123.45	-271.61	0.00	0.00	0.00	
5500.00	3.39	24.30	5491.06	278.83	125.88	-276.95	0.00	0.00	0.00	
5600.00	3.39	24.30	5590.88	284.21	128.31	-282.30	0.00	0.00	0.00	
5655.82	3.39	24.30	5646.60	287.22	129.67	-285.28	0.00	0.00	0.00	
5700.00	1.98	132.42	5690.76	287.89	130.77	-285.94	10.00	-3.19	244.71	
5800.00	11.44	172.03	5789.98	276.88	133.42	-274.89	10.00	9.47	39.61	
5900.00	21.40	175.49	5885.79	248.79	136.24	-246.77	10.00	9.96	3.45	
6000.00	31.38	176.80	5975.25	204.50	139.14	-202.43	10.00	9.98	1.32	
6100.00	41.37	177.53	6055.66	145.33	142.02	-143.23	10.00	9.99	0.73	
6200.00	51.37	178.01	6124.57	73.09	144.81	-70.96	10.00	9.99	0.48	
6300.00	61.36	178.38	6179.89	-10.02	147.41	12.18	10.00	10.00	0.36	
6386.40	70.00	178.64	6215.44	-88.65	149.45	90.83	10.00	10.00	0.30	7"

# Precision Directional Services, Inc.

## Planning Report

**Company:** CARRIZO OIL & GAS, INC.  
**Field:** Niobrara CONZ'83  
**Site:** Timbro Ranch 1-34-10-59  
**Well:** 1-3-9-59  
**Wellpath:** Original hole

**Date:** 10/06/2014  
**Co-ordinate(NE) Reference:** Well: 1-3-9-59, Grid North  
**Vertical (TVD) Reference:** 5065'GL+17'KB 5082.0  
**Section (VS) Reference:** Well (0.00N,0.00E,179.16Azi)  
**Plan:** Plan #1

**Page:** 3

### 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
6400.00	71.36	178.68	6219.94	-101.48	149.75	103.67	10.00	10.00	0.28	
6500.00	81.36	178.94	6243.49	-198.52	151.76	200.72	10.00	10.00	0.27	
6586.46	90.00	179.16	6250.00	-284.64	153.18	286.86	10.00	10.00	0.25	
6600.00	90.00	179.16	6250.00	-298.18	153.38	300.39	0.00	0.00	0.00	
6700.00	90.00	179.16	6250.00	-398.17	154.84	400.39	0.00	0.00	0.00	
6800.00	90.00	179.16	6250.00	-498.16	156.30	500.39	0.00	0.00	0.00	
6900.00	90.00	179.16	6250.00	-598.15	157.76	600.39	0.00	0.00	0.00	
7000.00	90.00	179.16	6250.00	-698.13	159.22	700.39	0.00	0.00	0.00	
7100.00	90.00	179.16	6250.00	-798.12	160.68	800.39	0.00	0.00	0.00	
7200.00	90.00	179.16	6250.00	-898.11	162.14	900.39	0.00	0.00	0.00	
7300.00	90.00	179.16	6250.00	-998.10	163.59	1000.39	0.00	0.00	0.00	
7400.00	90.00	179.16	6250.00	-1098.09	165.05	1100.39	0.00	0.00	0.00	
7500.00	90.00	179.16	6250.00	-1198.08	166.51	1200.39	0.00	0.00	0.00	
7600.00	90.00	179.16	6250.00	-1298.07	167.97	1300.39	0.00	0.00	0.00	
7700.00	90.00	179.16	6250.00	-1398.06	169.43	1400.39	0.00	0.00	0.00	
7800.00	90.00	179.16	6250.00	-1498.05	170.89	1500.39	0.00	0.00	0.00	
7900.00	90.00	179.16	6250.00	-1598.04	172.35	1600.39	0.00	0.00	0.00	
8000.00	90.00	179.16	6250.00	-1698.03	173.81	1700.39	0.00	0.00	0.00	
8100.00	90.00	179.16	6250.00	-1798.02	175.27	1800.39	0.00	0.00	0.00	
8200.00	90.00	179.16	6250.00	-1898.01	176.73	1900.39	0.00	0.00	0.00	
8300.00	90.00	179.16	6250.00	-1998.00	178.19	2000.39	0.00	0.00	0.00	
8400.00	90.00	179.16	6250.00	-2097.99	179.65	2100.39	0.00	0.00	0.00	
8500.00	90.00	179.16	6250.00	-2197.97	181.11	2200.39	0.00	0.00	0.00	
8600.00	90.00	179.16	6250.00	-2297.96	182.57	2300.39	0.00	0.00	0.00	
8700.00	90.00	179.16	6250.00	-2397.95	184.03	2400.39	0.00	0.00	0.00	
8800.00	90.00	179.16	6250.00	-2497.94	185.49	2500.39	0.00	0.00	0.00	
8900.00	90.00	179.16	6250.00	-2597.93	186.95	2600.39	0.00	0.00	0.00	
9000.00	90.00	179.16	6250.00	-2697.92	188.41	2700.39	0.00	0.00	0.00	
9100.00	90.00	179.16	6250.00	-2797.91	189.87	2800.39	0.00	0.00	0.00	
9200.00	90.00	179.16	6250.00	-2897.90	191.33	2900.39	0.00	0.00	0.00	
9300.00	90.00	179.16	6250.00	-2997.89	192.79	3000.39	0.00	0.00	0.00	
9400.00	90.00	179.16	6250.00	-3097.88	194.25	3100.39	0.00	0.00	0.00	
9500.00	90.00	179.16	6250.00	-3197.87	195.71	3200.39	0.00	0.00	0.00	
9600.00	90.00	179.16	6250.00	-3297.86	197.16	3300.39	0.00	0.00	0.00	
9700.00	90.00	179.16	6250.00	-3397.85	198.62	3400.39	0.00	0.00	0.00	
9800.00	90.00	179.16	6250.00	-3497.84	200.08	3500.39	0.00	0.00	0.00	
9900.00	90.00	179.16	6250.00	-3597.83	201.54	3600.39	0.00	0.00	0.00	
10000.00	90.00	179.16	6250.00	-3697.82	203.00	3700.39	0.00	0.00	0.00	
10100.00	90.00	179.16	6250.00	-3797.80	204.46	3800.39	0.00	0.00	0.00	
10200.00	90.00	179.16	6250.00	-3897.79	205.92	3900.39	0.00	0.00	0.00	
10300.00	90.00	179.16	6250.00	-3997.78	207.38	4000.39	0.00	0.00	0.00	
10400.00	90.00	179.16	6250.00	-4097.77	208.84	4100.39	0.00	0.00	0.00	
10500.00	90.00	179.16	6250.00	-4197.76	210.30	4200.39	0.00	0.00	0.00	
10600.00	90.00	179.16	6250.00	-4297.75	211.76	4300.39	0.00	0.00	0.00	
10621.89	90.00	179.16	6250.00	-4319.64	212.08	4322.28	0.00	0.00	0.00	PBHL 1-3

### Targets

Name	Description	Dir.	TVD ft	+N/-S ft	+E/-W ft	Map Northing ft	Map Easting ft	<--- Latitude --->			<--- Longitude --->				
								Deg	Min	Sec	Deg	Min	Sec		
SL 1-3			0.00	0.00	0.00	1532962.70	3425536.07	40	47	10.454	N	103	57	47.852	W
PBHL 1-3			6250.00	-4319.64	212.08	1528643.06	3425748.15	40	46	27.741	N	103	57	46.069	W

# Precision Directional Services, Inc.

## Planning Report

**Company:** CARRIZO OIL & GAS, INC.

**Field:** Niobrara CONZ'83

**Site:** Timbro Ranch 1-34-10-59

**Well:** 1-3-9-59

**Wellpath:** Original hole

**Date:** 10/06/2014

**Time:** 17:44:39

**Page:** 4

**Co-ordinate(NE) Reference:** Well: 1-3-9-59, Grid North

**Vertical (TVD) Reference:** 5065'GL+17'KB 5082.0

**Section (VS) Reference:** Well (0.00N,0.00E,179.16Azi)

**Plan:** Plan #1

### Casing Points

MD ft	TVD ft	Diameter in	Hole Size in	Name
1401.79	1400.00	9.625	12.250	9 5/8"
6386.40	6215.44	7.000	8.500	7"