



# CARRIZO OIL & GAS, INC.

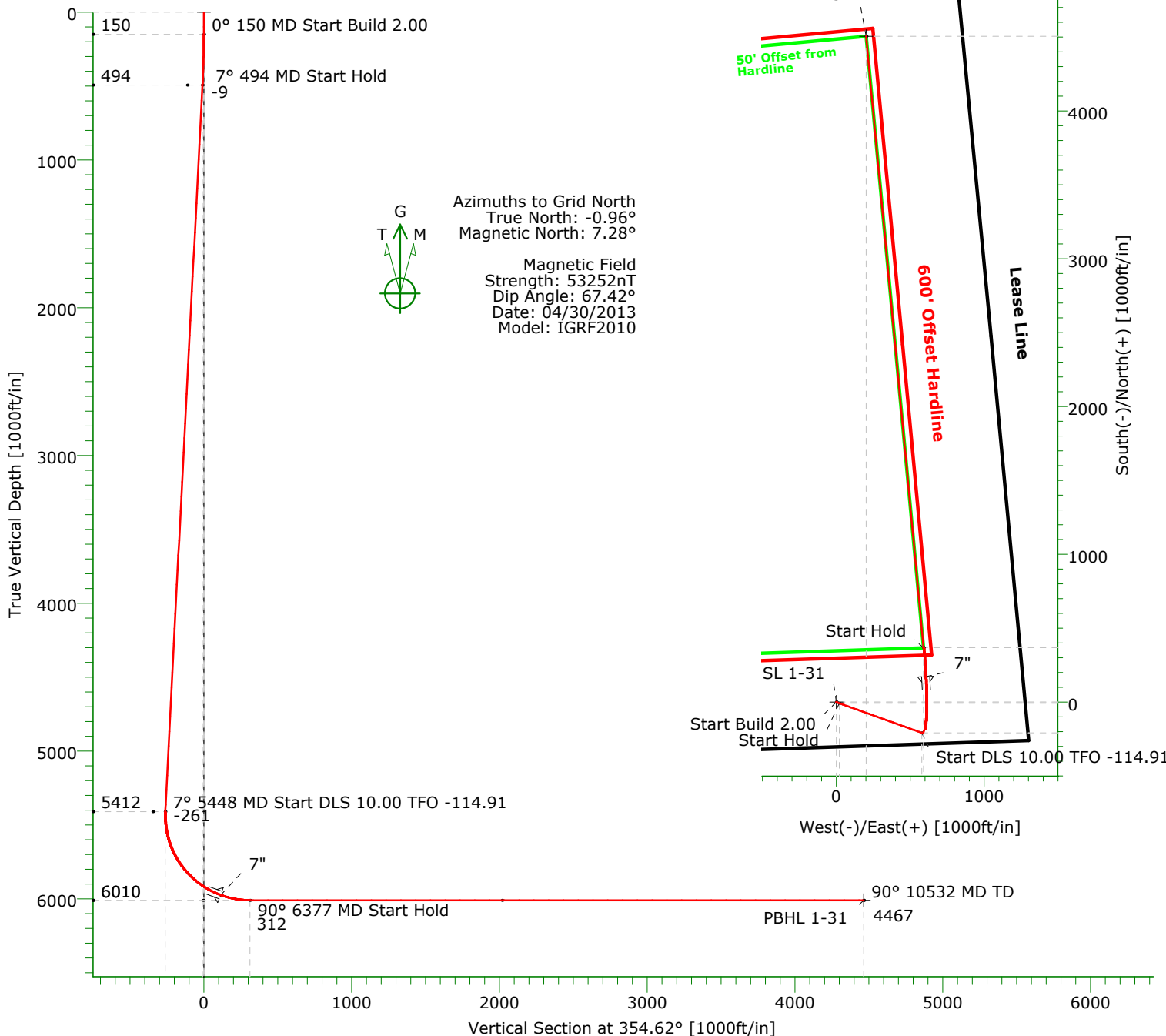
Field: Niobrara CONZ'83  
Site: Timbro Ranch 1-31-10-59 Pad  
Well: 1-31-10-59  
Wellpath: Original Hole  
Plan: Plan #2



Precision  
Directional Services

## CASING DETAILS

No.	TVD	MD	Name	Size
1	5975.23	6175.96	7"	7.000



## TARGET DETAILS

Name	TVD	+N/-S	+E/-W	Northing	Easting	Latitude	Longitude	Shape
SL 1-31	0.00	0.00	0.00	1533133.39	3410916.85	40°47'14.600N	104°00'57.838W	Point
PBHL 1-31	6010.00	4505.37	201.16	1537638.76	3411118.01	40°47'59.078N	104°00'54.242W	Point

## SECTION DETAILS

Sec	MD	Inc	Azi	TVD	+N/-S	+E/-W	DLeg	TFace	VSec	Target
1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
2	150.00	0.00	0.00	150.00	0.00	0.00	0.00	0.00	0.00	
3	494.39	6.89	109.69	493.56	-6.97	19.47	2.00	0.00	-8.76	
4	5448.08	6.89	109.69	5411.50	-207.17	578.80	0.00	0.00	-260.52	
5	6377.21	90.00	354.62	6010.00	368.67	590.39	10.00	-114.91	311.69	
6	10532.18	90.00	354.62	6010.00	4505.37	201.16	0.00	0.00	4466.66	PBHL 1-31

# Precision Directional Services, Inc.

## Planning Report

<b>Company:</b> CARRIZO OIL & GAS, INC. <b>Field:</b> Niobrara CONZ'83 <b>Site:</b> Timbro Ranch 1-31-10-59 Pad <b>Well:</b> 1-31-10-59 <b>Wellpath:</b> Original Hole	<b>Date:</b> 03/18/2013 <b>Co-ordinate(NE) Reference:</b> Well: 1-31-10-59, Grid North <b>Vertical (TVD) Reference:</b> 5161'GL+17'KB 5178.0 <b>Section (VS) Reference:</b> Well (0.00N,0.00E,354.62Azi) <b>Plan:</b> Plan #2	<b>Time:</b> 10:58:30 <b>Page:</b> 1
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<b>Field:</b> Niobrara CONZ'83  <b>Map System:</b> US State Plane Coordinate System 1983 <b>Geo Datum:</b> GRS 1980 <b>Sys Datum:</b> Mean Sea Level	<b>Map Zone:</b> Colorado, Northern Zone <b>Coordinate System:</b> Well Centre <b>Geomagnetic Model:</b> IGRF2010
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<b>Site:</b> Timbro Ranch 1-31-10-59 Pad  Weld County, CO <b>Site Position:</b> <b>From:</b> Geographic <b>Position Uncertainty:</b> 0.00 ft <b>Ground Level:</b> 5161.00 ft	<b>Northing:</b> 1533081.37 ft <b>Easting:</b> 3410894.46 ft  <b>Latitude:</b> 40 47 14.090 N <b>Longitude:</b> 104 0 58.140 W <b>North Reference:</b> Grid <b>Grid Convergence:</b> 0.96 deg
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<b>Well:</b> 1-31-10-59 renamed 3-18/adjusted from site <b>Well Position:</b> +N/-S 52.02 ft +E/-W 22.39 ft <b>Position Uncertainty:</b> 0.00 ft	<b>Slot Name:</b>  <b>Latitude:</b> 40 47 14.600 N <b>Longitude:</b> 104 0 57.838 W
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<b>Wellpath:</b> Original Hole  <b>Current Datum:</b> 5161'GL+17'KB <b>Magnetic Data:</b> 04/30/2013 <b>Field Strength:</b> 53252 nT <b>Vertical Section:</b> Depth From (TVD) ft	<b>Height</b> 5178.00 ft	<b>Drilled From:</b> Surface <b>Tie-on Depth:</b> 0.00 ft <b>Above System Datum:</b> Mean Sea Level <b>Declination:</b> 8.23 deg <b>Mag Dip Angle:</b> 67.42 deg <b>+E/-W</b> ft <b>Direction</b> deg
0.00	0.00	0.00 354.62

<b>Plan:</b> Plan #2  <b>Principal:</b> No	<b>Date Composed:</b> 03/18/2013 <b>Version:</b> 1 <b>Tied-to:</b> From Surface
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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	
494.39	6.89	109.69	493.56	-6.97	19.47	2.00	2.00	0.00	0.00	
5448.08	6.89	109.69	5411.50	-207.17	578.80	0.00	0.00	0.00	0.00	
6377.21	90.00	354.62	6010.00	368.67	590.39	10.00	8.95	-12.38	-114.91	
10532.18	90.00	354.62	6010.00	4505.37	201.16	0.00	0.00	0.00	0.00	PBHL 1-31

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	1.00	109.69	200.00	-0.15	0.41	-0.18	2.00	2.00	0.00	
300.00	3.00	109.69	299.93	-1.32	3.70	-1.66	2.00	2.00	0.00	
400.00	5.00	109.69	399.68	-3.67	10.26	-4.62	2.00	2.00	0.00	
494.39	6.89	109.69	493.56	-6.97	19.47	-8.76	2.00	2.00	0.00	
500.00	6.89	109.69	499.13	-7.19	20.10	-9.05	0.00	0.00	0.00	
600.00	6.89	109.69	598.41	-11.24	31.39	-14.13	0.00	0.00	0.00	
700.00	6.89	109.69	697.69	-15.28	42.68	-19.21	0.00	0.00	0.00	
800.00	6.89	109.69	796.97	-19.32	53.97	-24.29	0.00	0.00	0.00	
900.00	6.89	109.69	896.24	-23.36	65.26	-29.38	0.00	0.00	0.00	
1000.00	6.89	109.69	995.52	-27.40	76.56	-34.46	0.00	0.00	0.00	
1100.00	6.89	109.69	1094.80	-31.44	87.85	-39.54	0.00	0.00	0.00	
1200.00	6.89	109.69	1194.08	-35.48	99.14	-44.62	0.00	0.00	0.00	

# Precision Directional Services, Inc.

## Planning Report

**Company:** CARRIZO OIL & GAS, INC.  
**Field:** Niobrara CONZ'83  
**Site:** Timbro Ranch 1-31-10-59 Pad  
**Well:** 1-31-10-59  
**Wellpath:** Original Hole

**Date:** 03/18/2013  
**Co-ordinate(NE) Reference:** Well: 1-31-10-59, Grid North  
**Vertical (TVD) Reference:** 5161'GL+17'KB 5178.0  
**Section (VS) Reference:** Well (0.00N,0.00E,354.62Azi)  
**Plan:** Plan #2

**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	6.89	109.69	1293.36	-39.53	110.43	-49.71	0.00	0.00	0.00	
1400.00	6.89	109.69	1392.64	-43.57	121.72	-54.79	0.00	0.00	0.00	
1500.00	6.89	109.69	1491.91	-47.61	133.01	-59.87	0.00	0.00	0.00	
1600.00	6.89	109.69	1591.19	-51.65	144.30	-64.95	0.00	0.00	0.00	
1700.00	6.89	109.69	1690.47	-55.69	155.59	-70.03	0.00	0.00	0.00	
1800.00	6.89	109.69	1789.75	-59.73	166.88	-75.12	0.00	0.00	0.00	
1900.00	6.89	109.69	1889.03	-63.77	178.18	-80.20	0.00	0.00	0.00	
2000.00	6.89	109.69	1988.30	-67.82	189.47	-85.28	0.00	0.00	0.00	
2100.00	6.89	109.69	2087.58	-71.86	200.76	-90.36	0.00	0.00	0.00	
2200.00	6.89	109.69	2186.86	-75.90	212.05	-95.45	0.00	0.00	0.00	
2300.00	6.89	109.69	2286.14	-79.94	223.34	-100.53	0.00	0.00	0.00	
2400.00	6.89	109.69	2385.42	-83.98	234.63	-105.61	0.00	0.00	0.00	
2500.00	6.89	109.69	2484.70	-88.02	245.92	-110.69	0.00	0.00	0.00	
2600.00	6.89	109.69	2583.97	-92.06	257.21	-115.77	0.00	0.00	0.00	
2700.00	6.89	109.69	2683.25	-96.11	268.50	-120.86	0.00	0.00	0.00	
2800.00	6.89	109.69	2782.53	-100.15	279.80	-125.94	0.00	0.00	0.00	
2900.00	6.89	109.69	2881.81	-104.19	291.09	-131.02	0.00	0.00	0.00	
3000.00	6.89	109.69	2981.09	-108.23	302.38	-136.10	0.00	0.00	0.00	
3100.00	6.89	109.69	3080.37	-112.27	313.67	-141.19	0.00	0.00	0.00	
3200.00	6.89	109.69	3179.64	-116.31	324.96	-146.27	0.00	0.00	0.00	
3300.00	6.89	109.69	3278.92	-120.35	336.25	-151.35	0.00	0.00	0.00	
3400.00	6.89	109.69	3378.20	-124.39	347.54	-156.43	0.00	0.00	0.00	
3500.00	6.89	109.69	3477.48	-128.44	358.83	-161.52	0.00	0.00	0.00	
3600.00	6.89	109.69	3576.76	-132.48	370.13	-166.60	0.00	0.00	0.00	
3700.00	6.89	109.69	3676.04	-136.52	381.42	-171.68	0.00	0.00	0.00	
3800.00	6.89	109.69	3775.31	-140.56	392.71	-176.76	0.00	0.00	0.00	
3900.00	6.89	109.69	3874.59	-144.60	404.00	-181.84	0.00	0.00	0.00	
4000.00	6.89	109.69	3973.87	-148.64	415.29	-186.93	0.00	0.00	0.00	
4100.00	6.89	109.69	4073.15	-152.68	426.58	-192.01	0.00	0.00	0.00	
4200.00	6.89	109.69	4172.43	-156.73	437.87	-197.09	0.00	0.00	0.00	
4300.00	6.89	109.69	4271.71	-160.77	449.16	-202.17	0.00	0.00	0.00	
4400.00	6.89	109.69	4370.98	-164.81	460.45	-207.26	0.00	0.00	0.00	
4500.00	6.89	109.69	4470.26	-168.85	471.75	-212.34	0.00	0.00	0.00	
4600.00	6.89	109.69	4569.54	-172.89	483.04	-217.42	0.00	0.00	0.00	
4700.00	6.89	109.69	4668.82	-176.93	494.33	-222.50	0.00	0.00	0.00	
4800.00	6.89	109.69	4768.10	-180.97	505.62	-227.58	0.00	0.00	0.00	
4900.00	6.89	109.69	4867.37	-185.02	516.91	-232.67	0.00	0.00	0.00	
5000.00	6.89	109.69	4966.65	-189.06	528.20	-237.75	0.00	0.00	0.00	
5100.00	6.89	109.69	5065.93	-193.10	539.49	-242.83	0.00	0.00	0.00	
5200.00	6.89	109.69	5165.21	-197.14	550.78	-247.91	0.00	0.00	0.00	
5300.00	6.89	109.69	5264.49	-201.18	562.08	-253.00	0.00	0.00	0.00	
5400.00	6.89	109.69	5363.77	-205.22	573.37	-258.08	0.00	0.00	0.00	
5448.08	6.89	109.69	5411.50	-207.17	578.80	-260.52	0.00	0.00	0.00	
5500.00	6.65	64.53	5463.09	-206.92	584.44	-260.81	10.00	-0.47	-87.00	
5600.00	13.75	21.18	5561.57	-193.31	593.99	-248.16	10.00	7.11	-43.35	
5700.00	23.09	9.49	5656.37	-162.81	601.53	-218.49	10.00	9.34	-11.68	
5800.00	32.81	4.39	5744.61	-116.33	606.86	-172.72	10.00	9.72	-5.10	
5900.00	42.65	1.45	5823.61	-55.29	609.80	-112.22	10.00	9.84	-2.95	
6000.00	52.54	359.43	5890.96	18.45	610.26	-38.85	10.00	9.89	-2.01	
6100.00	62.46	357.90	5944.63	102.65	608.24	45.17	10.00	9.92	-1.54	
6175.96	70.00	356.91	5975.23	172.05	605.07	114.56	10.00	9.93	-1.30	7"
6200.00	72.39	356.62	5982.98	194.76	603.78	137.29	10.00	9.93	-1.21	
6300.00	82.33	355.47	6004.84	291.98	597.04	234.72	10.00	9.94	-1.15	
6377.21	90.00	354.62	6010.00	368.67	590.39	311.69	10.00	9.94	-1.09	

# Precision Directional Services, Inc.

## Planning Report

<b>Company:</b> CARRIZO OIL & GAS, INC. <b>Field:</b> Niobrara CONZ'83 <b>Site:</b> Timbro Ranch 1-31-10-59 Pad <b>Well:</b> 1-31-10-59 <b>Wellpath:</b> Original Hole	<b>Date:</b> 03/18/2013 <b>Time:</b> 10:58:30 <b>Page:</b> 3 <b>Co-ordinate(NE) Reference:</b> Well: 1-31-10-59, Grid North <b>Vertical (TVD) Reference:</b> 5161'GL+17'KB 5178.0 <b>Section (VS) Reference:</b> Well (0.00N,0.00E,354.62Azi) <b>Plan:</b> Plan #2
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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
6400.00	90.00	354.62	6010.00	391.36	588.25	334.48	0.00	0.00	0.00	
6500.00	90.00	354.62	6010.00	490.92	578.89	434.48	0.00	0.00	0.00	
6600.00	90.00	354.62	6010.00	590.48	569.52	534.48	0.00	0.00	0.00	
6700.00	90.00	354.62	6010.00	690.04	560.15	634.48	0.00	0.00	0.00	
6800.00	90.00	354.62	6010.00	789.60	550.78	734.48	0.00	0.00	0.00	
6900.00	90.00	354.62	6010.00	889.16	541.42	834.48	0.00	0.00	0.00	
7000.00	90.00	354.62	6010.00	988.72	532.05	934.48	0.00	0.00	0.00	
7100.00	90.00	354.62	6010.00	1088.28	522.68	1034.48	0.00	0.00	0.00	
7200.00	90.00	354.62	6010.00	1187.84	513.31	1134.48	0.00	0.00	0.00	
7300.00	90.00	354.62	6010.00	1287.40	503.94	1234.48	0.00	0.00	0.00	
7400.00	90.00	354.62	6010.00	1386.96	494.58	1334.48	0.00	0.00	0.00	
7500.00	90.00	354.62	6010.00	1486.53	485.21	1434.48	0.00	0.00	0.00	
7600.00	90.00	354.62	6010.00	1586.09	475.84	1534.48	0.00	0.00	0.00	
7700.00	90.00	354.62	6010.00	1685.65	466.47	1634.48	0.00	0.00	0.00	
7800.00	90.00	354.62	6010.00	1785.21	457.11	1734.48	0.00	0.00	0.00	
7900.00	90.00	354.62	6010.00	1884.77	447.74	1834.48	0.00	0.00	0.00	
8000.00	90.00	354.62	6010.00	1984.33	438.37	1934.48	0.00	0.00	0.00	
8100.00	90.00	354.62	6010.00	2083.89	429.00	2034.48	0.00	0.00	0.00	
8200.00	90.00	354.62	6010.00	2183.45	419.63	2134.48	0.00	0.00	0.00	
8300.00	90.00	354.62	6010.00	2283.01	410.27	2234.48	0.00	0.00	0.00	
8400.00	90.00	354.62	6010.00	2382.57	400.90	2334.48	0.00	0.00	0.00	
8500.00	90.00	354.62	6010.00	2482.13	391.53	2434.48	0.00	0.00	0.00	
8600.00	90.00	354.62	6010.00	2581.69	382.16	2534.48	0.00	0.00	0.00	
8700.00	90.00	354.62	6010.00	2681.25	372.80	2634.48	0.00	0.00	0.00	
8800.00	90.00	354.62	6010.00	2780.81	363.43	2734.48	0.00	0.00	0.00	
8900.00	90.00	354.62	6010.00	2880.37	354.06	2834.48	0.00	0.00	0.00	
9000.00	90.00	354.62	6010.00	2979.93	344.69	2934.48	0.00	0.00	0.00	
9100.00	90.00	354.62	6010.00	3079.49	335.32	3034.48	0.00	0.00	0.00	
9200.00	90.00	354.62	6010.00	3179.05	325.96	3134.48	0.00	0.00	0.00	
9300.00	90.00	354.62	6010.00	3278.61	316.59	3234.48	0.00	0.00	0.00	
9400.00	90.00	354.62	6010.00	3378.17	307.22	3334.48	0.00	0.00	0.00	
9500.00	90.00	354.62	6010.00	3477.73	297.85	3434.48	0.00	0.00	0.00	
9600.00	90.00	354.62	6010.00	3577.29	288.48	3534.48	0.00	0.00	0.00	
9700.00	90.00	354.62	6010.00	3676.85	279.12	3634.48	0.00	0.00	0.00	
9800.00	90.00	354.62	6010.00	3776.41	269.75	3734.48	0.00	0.00	0.00	
9900.00	90.00	354.62	6010.00	3875.97	260.38	3834.48	0.00	0.00	0.00	
10000.00	90.00	354.62	6010.00	3975.53	251.01	3934.48	0.00	0.00	0.00	
10100.00	90.00	354.62	6010.00	4075.09	241.65	4034.48	0.00	0.00	0.00	
10200.00	90.00	354.62	6010.00	4174.65	232.28	4134.48	0.00	0.00	0.00	
10300.00	90.00	354.62	6010.00	4274.21	222.91	4234.48	0.00	0.00	0.00	
10400.00	90.00	354.62	6010.00	4373.77	213.54	4334.48	0.00	0.00	0.00	
10500.00	90.00	354.62	6010.00	4473.33	204.17	4434.48	0.00	0.00	0.00	
10532.18	90.00	354.62	6010.00	4505.37	201.16	4466.66	0.00	0.00	0.00	PBHL 1-31

### Targets

Name	Description Dip.	Dir.	TVD ft	+N/-S ft	+E/-W ft	Map Northing ft	Map Easting ft	<---- Latitude ---->			<--- Longitude --->		
SL 1-31			0.00	0.00	0.00	1533133.39	3410916.85	40	47	14.600 N	104	0	57.838 W
PBHL 1-31			6010.00	4505.37	201.16	1537638.76	3411118.01	40	47	59.078 N	104	0	54.242 W

# Precision Directional Services, Inc.

## Planning Report

**Company:** CARRIZO OIL & GAS, INC.  
**Field:** Niobrara CONZ'83  
**Site:** Timbro Ranch 1-31-10-59 Pad  
**Well:** 1-31-10-59  
**Wellpath:** Original Hole

**Date:** 03/18/2013  
**Co-ordinate(NE) Reference:** Well: 1-31-10-59, Grid North  
**Vertical (TVD) Reference:** 5161'GL+17'KB 5178.0  
**Section (VS) Reference:** Well (0.00N,0.00E,354.62Azi)  
**Plan:** Plan #2

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### Casing Points

MD ft	TVD ft	Diameter in	Hole Size in	Name
6175.96	5975.23	7.000	8.500	7"