



**CARRIZO**

**CARRIZO OIL & GAS, INC.**

**Field: Niobrara CONZ'83**

**Site: Bringleson Ranch 5-20-9-58 Pad**

**Well: 5-20-9-58**

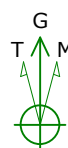
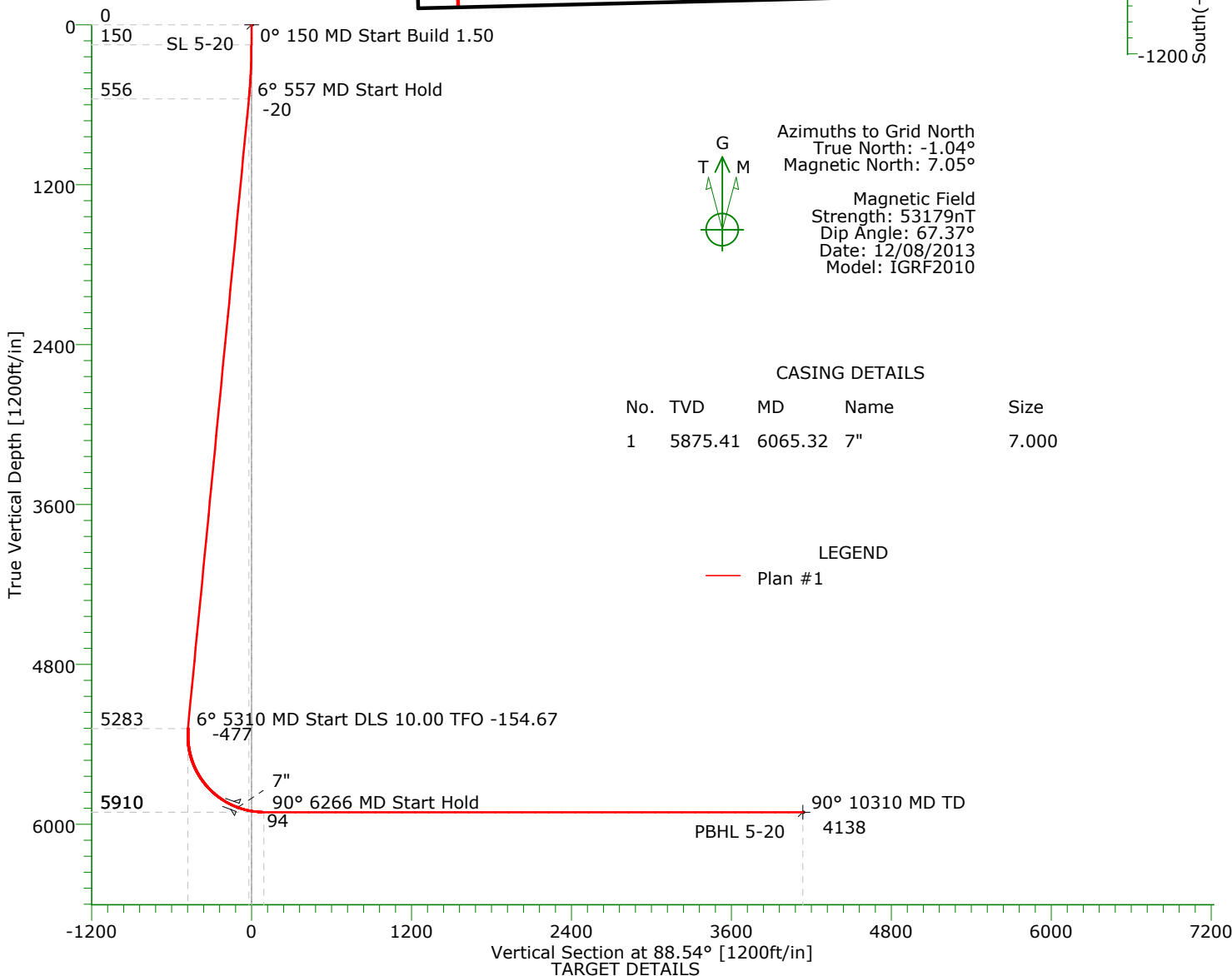
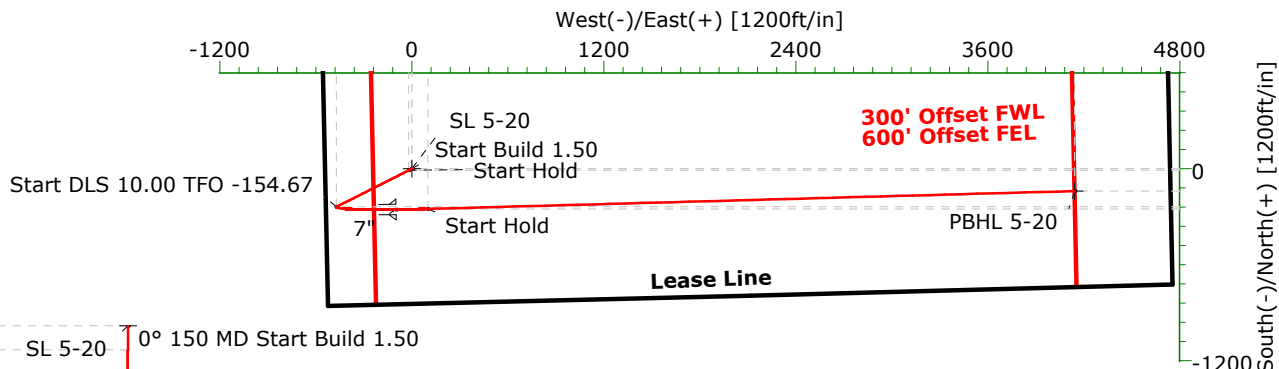
**Wellpath: Original Hole**

**Plan: Plan #1**



**Precision**

Directional Services



Azimuths to Grid North  
True North: -1.04°  
Magnetic North: 7.05°

Magnetic Field  
Strength: 53179nT  
Dip Angle: 67.37°  
Date: 12/08/2013  
Model: IGRF2010

#### CASING DETAILS

No.	TVD	MD	Name	Size
1	5875.41	6065.32	7"	7.000

#### LEGEND

— Plan #1

Name	TVD	+N/-S	+E/-W	Northing	Easting	Latitude	Longitude	Shape
SL 5-20	0.00	0.00	0.00	1513377.83	3444613.89	40°43'53.626N	103°53'44.488W	Point
PBHL 5-20	5910.00	-139.15	4142.65	1513238.68	3448756.54	40°43'51.508N	103°52'50.719W	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	557.21	6.11	243.22	556.44	-9.77	-19.36	1.50	0.00	-19.60	
4	5310.29	6.11	243.22	5282.53	-237.64	-470.87	0.00	0.00	-476.77	
5	6265.53	90.00	88.42	5910.00	-250.52	100.00	10.00	-154.67	93.58	
6	10309.72	90.00	88.42	5910.00	-139.15	4142.65	0.00	0.00	4137.76	PBHL 5-20

# Precision Directional Services, Inc.

## Planning Report

<b>Company:</b> CARRIZO OIL & GAS, INC.		<b>Date:</b> 11/08/2013	<b>Time:</b> 12:21:50	<b>Page:</b> 1
<b>Field:</b> Niobrara CONZ'83		<b>Co-ordinate(NE) Reference:</b> Well: 5-20-9-58, Grid North		
<b>Site:</b> Bringleson Ranch 5-20-9-58 Pad		<b>Vertical (TVD) Reference:</b> 4856'GL+25'KB 4881.0		
<b>Well:</b> 5-20-9-58		<b>Section (VS) Reference:</b> Well (0.00N,0.00E,88.54Azi)		
<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> Bringleson Ranch 5-20-9-58 Pad	
<b>Site Position:</b>	<b>Northing:</b> 1513377.83 ft
<b>From:</b> Map	<b>Easting:</b> 3444613.89 ft
<b>Position Uncertainty:</b> 0.00 ft	<b>Latitude:</b> 40 43 53.626 N
<b>Ground Level:</b> 4856.00 ft	<b>Longitude:</b> 103 53 44.488 W
	<b>North Reference:</b> Grid
	<b>Grid Convergence:</b> 1.04 deg

<b>Well:</b> 5-20-9-58	<b>Slot Name:</b> 5-20
<b>Well Position:</b> +N/-S 0.00 ft	<b>Latitude:</b> 40 43 53.626 N
+E/-W 0.00 ft	<b>Longitude:</b> 103 53 44.488 W
<b>Position Uncertainty:</b> 0.00 ft	

<b>Wellpath:</b> Original Hole	<b>Drilled From:</b> Surface
<b>Current Datum:</b> 4856'GL+25'KB	<b>Tie-on Depth:</b> 0.00 ft
<b>Magnetic Data:</b> 12/08/2013	<b>Above System Datum:</b> Mean Sea Level
<b>Field Strength:</b> 53179 nT	<b>Declination:</b> 8.09 deg
<b>Vertical Section:</b> Depth From (TVD)	<b>Mag Dip Angle:</b> 67.37 deg
ft	+N/-S ft
0.00	+E/-W ft
	<b>Direction</b> deg
	88.54

<b>Plan:</b> Plan #1	<b>Date Composed:</b> 11/08/2013
<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	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	
557.21	6.11	243.22	556.44	-9.77	-19.36	1.50	1.50	0.00	0.00	
5310.29	6.11	243.22	5282.53	-237.64	-470.87	0.00	0.00	0.00	0.00	
6265.53	90.00	88.42	5910.00	-250.52	100.00	10.00	8.78	-16.21	-154.67	
10309.72	90.00	88.42	5910.00	-139.15	4142.65	0.00	0.00	0.00	0.00	PBHL 5-20

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	0.75	243.22	200.00	-0.15	-0.29	-0.30	1.50	1.50	0.00	
300.00	2.25	243.22	299.96	-1.33	-2.63	-2.66	1.50	1.50	0.00	
400.00	3.75	243.22	399.82	-3.68	-7.30	-7.39	1.50	1.50	0.00	
500.00	5.25	243.22	499.51	-7.22	-14.31	-14.48	1.50	1.50	0.00	
557.21	6.11	243.22	556.44	-9.77	-19.36	-19.60	1.50	1.50	0.00	
600.00	6.11	243.22	598.99	-11.82	-23.42	-23.72	0.00	0.00	0.00	
700.00	6.11	243.22	698.42	-16.62	-32.92	-33.34	0.00	0.00	0.00	
800.00	6.11	243.22	797.85	-21.41	-42.42	-42.95	0.00	0.00	0.00	
900.00	6.11	243.22	897.28	-26.20	-51.92	-52.57	0.00	0.00	0.00	
1000.00	6.11	243.22	996.72	-31.00	-61.42	-62.19	0.00	0.00	0.00	
1100.00	6.11	243.22	1096.15	-35.79	-70.92	-71.81	0.00	0.00	0.00	
1200.00	6.11	243.22	1195.58	-40.59	-80.42	-81.43	0.00	0.00	0.00	

# Precision Directional Services, Inc.

## Planning Report

**Company:** CARRIZO OIL & GAS, INC.  
**Field:** Niobrara CONZ'83  
**Site:** Bringleon Ranch 5-20-9-58 Pad  
**Well:** 5-20-9-58  
**Wellpath:** Original Hole

**Date:** 11/08/2013  
**Co-ordinate(NE) Reference:** Well: 5-20-9-58, Grid North  
**Vertical (TVD) Reference:** 4856'GL+25'KB 4881.0  
**Section (VS) Reference:** Well (0.00N,0.00E,88.54Azi)  
**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	6.11	243.22	1295.01	-45.38	-89.92	-91.05	0.00	0.00	0.00	
1400.00	6.11	243.22	1394.44	-50.18	-99.42	-100.66	0.00	0.00	0.00	
1500.00	6.11	243.22	1493.88	-54.97	-108.92	-110.28	0.00	0.00	0.00	
1600.00	6.11	243.22	1593.31	-59.76	-118.42	-119.90	0.00	0.00	0.00	
1700.00	6.11	243.22	1692.74	-64.56	-127.92	-129.52	0.00	0.00	0.00	
1800.00	6.11	243.22	1792.17	-69.35	-137.42	-139.14	0.00	0.00	0.00	
1900.00	6.11	243.22	1891.61	-74.15	-146.91	-148.76	0.00	0.00	0.00	
2000.00	6.11	243.22	1991.04	-78.94	-156.41	-158.37	0.00	0.00	0.00	
2100.00	6.11	243.22	2090.47	-83.74	-165.91	-167.99	0.00	0.00	0.00	
2200.00	6.11	243.22	2189.90	-88.53	-175.41	-177.61	0.00	0.00	0.00	
2300.00	6.11	243.22	2289.34	-93.32	-184.91	-187.23	0.00	0.00	0.00	
2400.00	6.11	243.22	2388.77	-98.12	-194.41	-196.85	0.00	0.00	0.00	
2500.00	6.11	243.22	2488.20	-102.91	-203.91	-206.47	0.00	0.00	0.00	
2600.00	6.11	243.22	2587.63	-107.71	-213.41	-216.08	0.00	0.00	0.00	
2700.00	6.11	243.22	2687.06	-112.50	-222.91	-225.70	0.00	0.00	0.00	
2800.00	6.11	243.22	2786.50	-117.30	-232.41	-235.32	0.00	0.00	0.00	
2900.00	6.11	243.22	2885.93	-122.09	-241.91	-244.94	0.00	0.00	0.00	
3000.00	6.11	243.22	2985.36	-126.88	-251.41	-254.56	0.00	0.00	0.00	
3100.00	6.11	243.22	3084.79	-131.68	-260.91	-264.18	0.00	0.00	0.00	
3200.00	6.11	243.22	3184.23	-136.47	-270.41	-273.79	0.00	0.00	0.00	
3300.00	6.11	243.22	3283.66	-141.27	-279.90	-283.41	0.00	0.00	0.00	
3400.00	6.11	243.22	3383.09	-146.06	-289.40	-293.03	0.00	0.00	0.00	
3500.00	6.11	243.22	3482.52	-150.85	-298.90	-302.65	0.00	0.00	0.00	
3600.00	6.11	243.22	3581.95	-155.65	-308.40	-312.27	0.00	0.00	0.00	
3700.00	6.11	243.22	3681.39	-160.44	-317.90	-321.89	0.00	0.00	0.00	
3800.00	6.11	243.22	3780.82	-165.24	-327.40	-331.50	0.00	0.00	0.00	
3900.00	6.11	243.22	3880.25	-170.03	-336.90	-341.12	0.00	0.00	0.00	
4000.00	6.11	243.22	3979.68	-174.83	-346.40	-350.74	0.00	0.00	0.00	
4100.00	6.11	243.22	4079.12	-179.62	-355.90	-360.36	0.00	0.00	0.00	
4200.00	6.11	243.22	4178.55	-184.41	-365.40	-369.98	0.00	0.00	0.00	
4300.00	6.11	243.22	4277.98	-189.21	-374.90	-379.60	0.00	0.00	0.00	
4400.00	6.11	243.22	4377.41	-194.00	-384.40	-389.21	0.00	0.00	0.00	
4500.00	6.11	243.22	4476.85	-198.80	-393.90	-398.83	0.00	0.00	0.00	
4600.00	6.11	243.22	4576.28	-203.59	-403.40	-408.45	0.00	0.00	0.00	
4700.00	6.11	243.22	4675.71	-208.39	-412.89	-418.07	0.00	0.00	0.00	
4800.00	6.11	243.22	4775.14	-213.18	-422.39	-427.69	0.00	0.00	0.00	
4900.00	6.11	243.22	4874.57	-217.97	-431.89	-437.31	0.00	0.00	0.00	
5000.00	6.11	243.22	4974.01	-222.77	-441.39	-446.92	0.00	0.00	0.00	
5100.00	6.11	243.22	5073.44	-227.56	-450.89	-456.54	0.00	0.00	0.00	
5200.00	6.11	243.22	5172.87	-232.36	-460.39	-466.16	0.00	0.00	0.00	
5300.00	6.11	243.22	5272.30	-237.15	-469.89	-475.78	0.00	0.00	0.00	
5310.29	6.11	243.22	5282.53	-237.64	-470.87	-476.77	0.00	0.00	0.00	
5350.00	3.04	209.21	5322.12	-239.51	-473.27	-479.22	10.00	-7.74	-85.65	
5400.00	4.32	125.50	5372.05	-241.77	-472.38	-478.39	10.00	2.57	-167.40	
5450.00	8.84	105.46	5421.71	-243.89	-467.14	-473.20	10.00	9.03	-40.08	
5500.00	13.69	99.20	5470.73	-245.86	-457.59	-463.71	10.00	9.71	-12.53	
5550.00	18.62	96.19	5518.74	-247.67	-443.80	-449.97	10.00	9.86	-6.02	
5600.00	23.58	94.41	5565.38	-249.30	-425.88	-432.10	10.00	9.92	-3.56	
5650.00	28.56	93.22	5610.28	-250.74	-403.96	-410.22	10.00	9.95	-2.38	
5700.00	33.54	92.36	5653.10	-251.98	-378.22	-384.51	10.00	9.96	-1.72	
5750.00	38.52	91.70	5693.52	-253.02	-348.83	-355.17	10.00	9.97	-1.32	
5800.00	43.51	91.17	5731.24	-253.83	-316.04	-322.41	10.00	9.98	-1.06	
5850.00	48.50	90.73	5765.96	-254.42	-280.09	-286.48	10.00	9.98	-0.88	
5900.00	53.49	90.35	5797.42	-254.79	-241.25	-247.66	10.00	9.98	-0.76	

# Precision Directional Services, Inc.

## Planning Report

**Company:** CARRIZO OIL & GAS, INC.  
**Field:** Niobrara CONZ'83  
**Site:** Bringleson Ranch 5-20-9-58 Pad  
**Well:** 5-20-9-58  
**Wellpath:** Original Hole

**Date:** 11/08/2013  
**Co-ordinate(NE) Reference:** Well: 5-20-9-58, Grid North  
**Vertical (TVD) Reference:** 4856'GL+25'KB 4881.0  
**Section (VS) Reference:** Well (0.00N,0.00E,88.54Azi)  
**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
5950.00	58.48	90.02	5825.38	-254.92	-199.82	-206.25	10.00	9.98	-0.66	
6000.00	63.48	89.73	5849.63	-254.82	-156.11	-162.55	10.00	9.99	-0.60	
6050.00	68.47	89.45	5869.98	-254.49	-110.46	-116.91	10.00	9.99	-0.55	
6065.32	70.00	89.37	5875.41	-254.35	-96.13	-102.58	10.00	9.99	-0.52	7"
6100.00	73.46	89.20	5886.28	-253.93	-63.21	-69.66	10.00	9.99	-0.50	
6150.00	78.46	88.96	5898.40	-253.15	-14.72	-21.17	10.00	9.99	-0.48	
6200.00	83.45	88.72	5906.26	-252.15	34.63	28.19	10.00	9.99	-0.47	
6250.00	88.45	88.49	5909.79	-250.94	84.47	78.05	10.00	9.99	-0.46	
6265.53	90.00	88.42	5910.00	-250.52	100.00	93.58	10.00	9.99	-0.46	
6300.00	90.00	88.42	5910.00	-249.57	134.45	128.05	0.00	0.00	0.00	
6400.00	90.00	88.42	5910.00	-246.82	234.42	228.05	0.00	0.00	0.00	
6500.00	90.00	88.42	5910.00	-244.06	334.38	328.05	0.00	0.00	0.00	
6600.00	90.00	88.42	5910.00	-241.31	434.34	428.05	0.00	0.00	0.00	
6700.00	90.00	88.42	5910.00	-238.56	534.30	528.05	0.00	0.00	0.00	
6800.00	90.00	88.42	5910.00	-235.80	634.26	628.05	0.00	0.00	0.00	
6900.00	90.00	88.42	5910.00	-233.05	734.23	728.05	0.00	0.00	0.00	
7000.00	90.00	88.42	5910.00	-230.29	834.19	828.05	0.00	0.00	0.00	
7100.00	90.00	88.42	5910.00	-227.54	934.15	928.05	0.00	0.00	0.00	
7200.00	90.00	88.42	5910.00	-224.79	1034.11	1028.05	0.00	0.00	0.00	
7300.00	90.00	88.42	5910.00	-222.03	1134.07	1128.05	0.00	0.00	0.00	
7400.00	90.00	88.42	5910.00	-219.28	1234.04	1228.05	0.00	0.00	0.00	
7500.00	90.00	88.42	5910.00	-216.52	1334.00	1328.05	0.00	0.00	0.00	
7600.00	90.00	88.42	5910.00	-213.77	1433.96	1428.05	0.00	0.00	0.00	
7700.00	90.00	88.42	5910.00	-211.02	1533.92	1528.05	0.00	0.00	0.00	
7800.00	90.00	88.42	5910.00	-208.26	1633.88	1628.05	0.00	0.00	0.00	
7900.00	90.00	88.42	5910.00	-205.51	1733.85	1728.05	0.00	0.00	0.00	
8000.00	90.00	88.42	5910.00	-202.76	1833.81	1828.05	0.00	0.00	0.00	
8100.00	90.00	88.42	5910.00	-200.00	1933.77	1928.05	0.00	0.00	0.00	
8200.00	90.00	88.42	5910.00	-197.25	2033.73	2028.05	0.00	0.00	0.00	
8300.00	90.00	88.42	5910.00	-194.49	2133.69	2128.05	0.00	0.00	0.00	
8400.00	90.00	88.42	5910.00	-191.74	2233.66	2228.05	0.00	0.00	0.00	
8500.00	90.00	88.42	5910.00	-188.99	2333.62	2328.05	0.00	0.00	0.00	
8600.00	90.00	88.42	5910.00	-186.23	2433.58	2428.05	0.00	0.00	0.00	
8700.00	90.00	88.42	5910.00	-183.48	2533.54	2528.05	0.00	0.00	0.00	
8800.00	90.00	88.42	5910.00	-180.73	2633.51	2628.05	0.00	0.00	0.00	
8900.00	90.00	88.42	5910.00	-177.97	2733.47	2728.05	0.00	0.00	0.00	
9000.00	90.00	88.42	5910.00	-175.22	2833.43	2828.04	0.00	0.00	0.00	
9100.00	90.00	88.42	5910.00	-172.46	2933.39	2928.04	0.00	0.00	0.00	
9200.00	90.00	88.42	5910.00	-169.71	3033.35	3028.04	0.00	0.00	0.00	
9300.00	90.00	88.42	5910.00	-166.96	3133.32	3128.04	0.00	0.00	0.00	
9400.00	90.00	88.42	5910.00	-164.20	3233.28	3228.04	0.00	0.00	0.00	
9500.00	90.00	88.42	5910.00	-161.45	3333.24	3328.04	0.00	0.00	0.00	
9600.00	90.00	88.42	5910.00	-158.69	3433.20	3428.04	0.00	0.00	0.00	
9700.00	90.00	88.42	5910.00	-155.94	3533.16	3528.04	0.00	0.00	0.00	
9800.00	90.00	88.42	5910.00	-153.19	3633.13	3628.04	0.00	0.00	0.00	
9900.00	90.00	88.42	5910.00	-150.43	3733.09	3728.04	0.00	0.00	0.00	
10000.00	90.00	88.42	5910.00	-147.68	3833.05	3828.04	0.00	0.00	0.00	
10100.00	90.00	88.42	5910.00	-144.93	3933.01	3928.04	0.00	0.00	0.00	
10200.00	90.00	88.42	5910.00	-142.17	4032.97	4028.04	0.00	0.00	0.00	
10309.72	90.00	88.42	5910.00	-139.15	4142.65	4137.76	0.00	0.00	0.00	PBHL 5-20

# Precision Directional Services, Inc.

## Planning Report

**Company:** CARRIZO OIL & GAS, INC.  
**Field:** Niobrara CONZ'83  
**Site:** Bringleson Ranch 5-20-9-58 Pad  
**Well:** 5-20-9-58  
**Wellpath:** Original Hole

**Date:** 11/08/2013  
**Co-ordinate(NE) Reference:** Well: 5-20-9-58, Grid North  
**Vertical (TVD) Reference:** 4856'GL+25'KB 4881.0  
**Section (VS) Reference:** Well (0.00N,0.00E,88.54Azi)  
**Plan:** Plan #1

**Page:** 4

### Targets

Name	Description Dip.	Dir.	TVD ft	+N/-S ft	+E/-W ft	Map Northing ft	Map Easting ft	<---- Latitude ---->			<--- Longitude --->		
								Deg	Min	Sec	Deg	Min	Sec
SL 5-20			0.00	0.00	0.00	1513377.83	3444613.89	40	43	53.626	N	103	53 44.488 W
PBHL 5-20			5910.00	-139.15	4142.65	1513238.68	3448756.54	40	43	51.508	N	103	52 50.719 W

### Casing Points

MD ft	TVD ft	Diameter in	Hole Size in	Name
6065.32	5875.41	7.000	8.500	7"