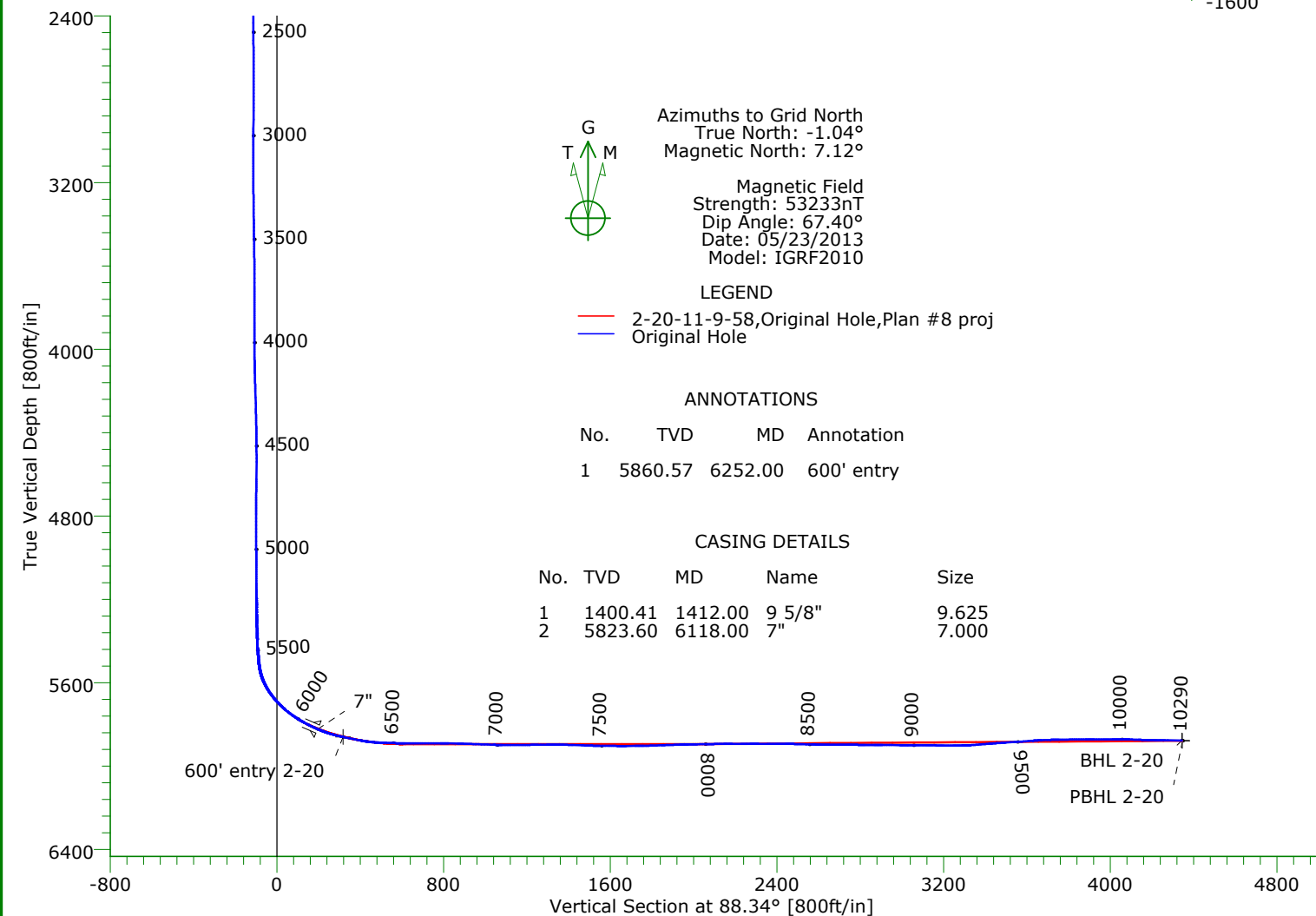
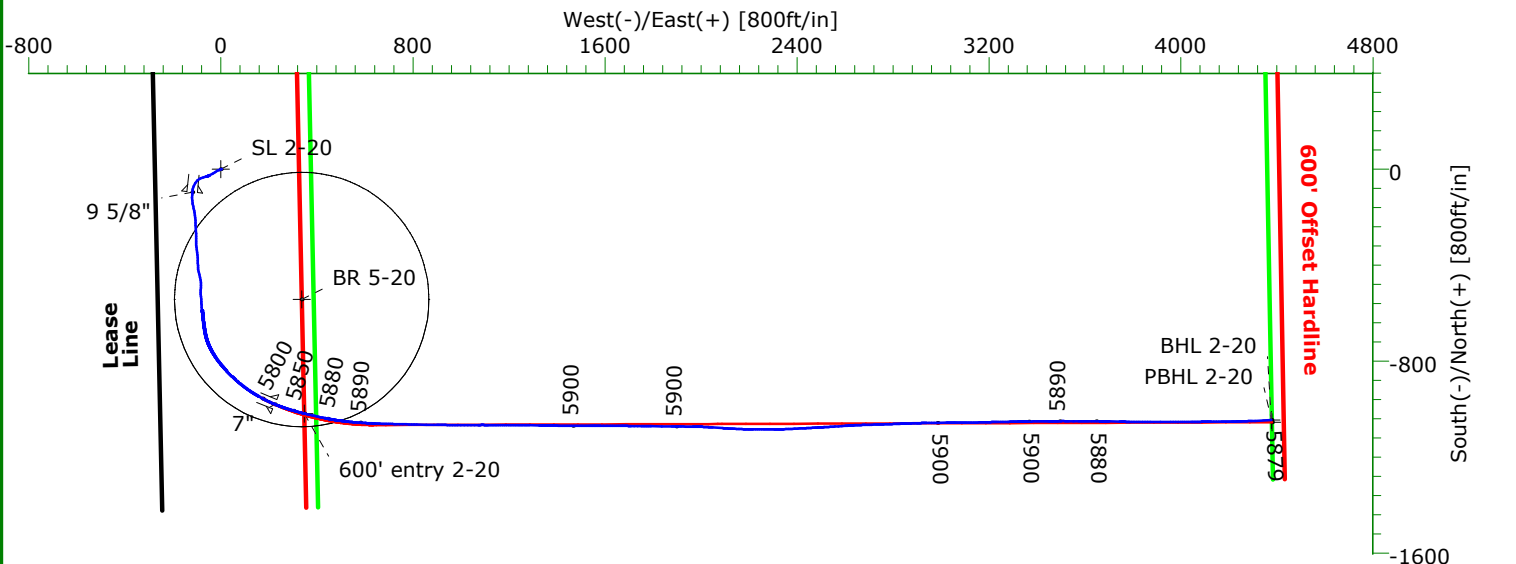




# CARRIZO OIL & GAS, INC.

Field: Niobrara CONZ'83  
Site: Bringelson 20 Pad  
Well: 2-20-11-9-58  
Wellpath: Original Hole



## TARGET DETAILS

Name	TVD	+N/-S	+E/-W	Northing	Easting	Latitude	Longitude	Shape
BR 5-20	-100.00	-542.55	336.59	1516050.38	3444615.28	40°44'20.030N103°53'43.842W		Circle (Radius: 530)
SL 2-20	0.00	0.00	0.00	1516592.93	3444278.69	40°44'25.450N103°53'48.086W		Point
600' entry 2-20	5860.57	-1017.62	347.37	1515575.31	3444626.06	40°44'15.334N103°53'43.814W		Point
BHL 2-20	5878.52	-1045.16	4376.69	1515547.77	3448655.38	40°44'14.338N103°52'51.486W		Point
PBHL 2-20	5879.00	-1053.97	4378.97	1515538.96	3448657.66	40°44'14.251N103°52'51.458W		Point

Wellpath: (2-20-11-9-58/Original Hole)

Created By: Shane Nelson Date: 06/07/2013

PRECISION DIRECTIONAL SERVICES, INC.

713.435.6250

# Precision Directional Services, Inc.

## Survey Report

<b>Company:</b> CARRIZO OIL & GAS, INC. <b>Field:</b> Niobrara CONZ'83 <b>Site:</b> Bringelson 20 Pad <b>Well:</b> 2-20-11-9-58 <b>Wellpath:</b> Original Hole	<b>Date:</b> 06/07/2013 <b>Co-ordinate(NE) Reference:</b> Well: 2-20-11-9-58, Grid North <b>Vertical (TVD) Reference:</b> 4867'GL+17'KB 4884.0 <b>Section (VS) Reference:</b> Well (0.00N,0.00E,88.34Azi) <b>Survey Calculation Method:</b> Minimum Curvature	<b>Time:</b> 08:25:19 <b>Page:</b> 1 <b>Db:</b> Sybase
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<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> Bringelson 20 Pad			
<b>Weld County, CO</b>			
<b>Site Position:</b>	<b>Northing:</b> 1516573.63 ft	<b>Latitude:</b> 40 44 25.259 N	
<b>From:</b> Map	<b>Easting:</b> 3444279.10 ft	<b>Longitude:</b> 103 53 48.086 W	
<b>Position Uncertainty:</b> 0.00 ft		<b>North Reference:</b> Grid	
<b>Ground Level:</b> 4867.00 ft		<b>Grid Convergence:</b> 1.04 deg	

<b>Well:</b> 2-20-11-9-58		<b>Slot Name:</b> 2-20	
Updated SL 4-3 1249' FNL 275' FWL			
<b>Well Position:</b> +N/-S 19.30 ft	<b>Northing:</b> 1516592.93 ft	<b>Latitude:</b> 40 44 25.450 N	
+E/-W -0.41 ft	<b>Easting:</b> 3444278.69 ft	<b>Longitude:</b> 103 53 48.086 W	
<b>Position Uncertainty:</b> 0.00 ft			

<b>Wellpath:</b> Original Hole		<b>Drilled From:</b> Surface	
<b>Current Datum:</b> 4867'GL+17'KB		<b>Tie-on Depth:</b> 0.00 ft	
<b>Magnetic Data:</b> 05/23/2013		<b>Above System Datum:</b> Mean Sea Level	
<b>Field Strength:</b> 53233 nT		<b>Declination:</b> 8.16 deg	
<b>Vertical Section:</b> Depth From (TVD)		<b>Mag Dip Angle:</b> 67.40 deg	
ft	+N/-S ft	+E/-W ft	<b>Direction</b> deg
0.00	0.00	0.00	88.34

<b>Survey Program for Definitive Wellpath</b>				
<b>Date:</b> 06/07/2013		<b>Validated:</b> No		<b>Version:</b> 2
<b>Actual From</b> ft	<b>To</b> ft	<b>Survey</b>	<b>Toolcode</b>	<b>Tool Name</b>
110.00	10222.00	Survey #1 (110.00-10222.00)	MWD	Std MWD
10290.00	10290.00	Survey #2 (10290.00-10290.00)	Project	Projection

<b>Survey</b>										
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	TIE LINE
110.00	0.50	315.10	110.00	0.34	-0.34	-0.33	0.45	0.45	0.00	MWD
141.00	0.60	279.90	141.00	0.46	-0.59	-0.58	1.12	0.32	-113.55	MWD
233.00	2.50	247.20	232.96	-0.23	-2.92	-2.92	2.20	2.07	-35.54	MWD
325.00	4.40	241.10	324.79	-2.71	-7.86	-7.93	2.10	2.07	-6.63	MWD
418.00	5.40	241.60	417.45	-6.52	-14.83	-15.01	1.08	1.08	0.54	MWD
510.00	6.90	239.70	508.92	-11.37	-23.41	-23.73	1.65	1.63	-2.07	MWD
600.00	9.30	241.40	598.01	-17.58	-34.47	-34.96	2.68	2.67	1.89	MWD
691.00	9.90	242.90	687.74	-24.66	-47.88	-48.58	0.71	0.66	1.65	MWD
783.00	8.80	252.70	778.52	-30.36	-61.65	-62.50	2.10	-1.20	10.65	MWD
874.00	8.00	255.20	868.54	-34.04	-74.41	-75.37	0.97	-0.88	2.75	MWD
966.00	8.00	244.80	959.65	-38.41	-86.40	-87.47	1.57	0.00	-11.30	MWD
1057.00	9.80	226.30	1049.57	-46.45	-97.73	-99.03	3.69	1.98	-20.33	MWD
1149.00	9.50	213.30	1140.28	-58.21	-107.56	-109.20	2.39	-0.33	-14.13	MWD
1240.00	8.40	201.40	1230.18	-70.68	-114.11	-116.11	2.36	-1.21	-13.08	MWD
1331.00	8.20	187.50	1320.24	-83.30	-117.38	-119.74	2.21	-0.22	-15.27	MWD
1371.00	8.20	186.10	1359.83	-88.97	-118.06	-120.58	0.50	0.00	-3.50	MWD
1443.00	8.20	185.90	1431.09	-99.18	-119.13	-121.95	0.04	0.00	-0.28	MWD
1486.00	8.50	185.50	1473.63	-105.39	-119.75	-122.75	0.71	0.70	-0.93	MWD
1571.00	8.10	181.00	1557.74	-117.63	-120.46	-123.81	0.90	-0.47	-5.29	MWD
1657.00	7.80	173.80	1642.92	-129.49	-119.93	-123.63	1.21	-0.35	-8.37	MWD
1742.00	7.00	171.50	1727.21	-140.35	-118.54	-122.56	1.00	-0.94	-2.71	MWD

# Precision Directional Services, Inc.

## Survey Report

<b>Company:</b> CARRIZO OIL & GAS, INC. <b>Field:</b> Niobrara CONZ'83 <b>Site:</b> Bringelson 20 Pad <b>Well:</b> 2-20-11-9-58 <b>Wellpath:</b> Original Hole	<b>Date:</b> 06/07/2013 <b>Time:</b> 08:25:19 <b>Page:</b> 2 <b>Co-ordinate(NE) Reference:</b> Well: 2-20-11-9-58, Grid North <b>Vertical (TVD) Reference:</b> 4867'GL+17'KB 4884.0 <b>Section (VS) Reference:</b> Well (0.00N,0.00E,88.34Azi) <b>Survey Calculation Method:</b> Minimum Curvature <b>Db:</b> Sybase
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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
1774.00	7.40	168.30	1758.96	-144.30	-117.84	-121.97	1.77	1.25	-10.00	MWD
1858.00	6.30	170.60	1842.36	-154.14	-115.99	-120.40	1.35	-1.31	2.74	MWD
1943.00	6.10	162.70	1926.86	-163.05	-113.88	-118.56	1.03	-0.24	-9.29	MWD
2029.00	6.40	169.90	2012.35	-172.14	-111.68	-116.62	0.98	0.35	8.37	MWD
2114.00	6.20	167.80	2096.84	-181.29	-109.88	-115.09	0.36	-0.24	-2.47	MWD
2200.00	7.20	173.80	2182.25	-191.18	-108.32	-113.81	1.42	1.16	6.98	MWD
2285.00	7.40	173.90	2266.56	-201.92	-107.16	-112.97	0.24	0.24	0.12	MWD
2370.00	7.20	177.80	2350.88	-212.69	-106.38	-112.49	0.63	-0.24	4.59	MWD
2454.00	7.10	176.90	2434.22	-223.13	-105.89	-112.31	0.18	-0.12	-1.07	MWD
2538.00	7.20	177.10	2517.57	-233.57	-105.35	-112.07	0.12	0.12	0.24	MWD
2623.00	7.70	176.90	2601.85	-244.58	-104.77	-111.81	0.59	0.59	-0.24	MWD
2707.00	8.10	178.00	2685.05	-256.11	-104.26	-111.63	0.51	0.48	1.31	MWD
2794.00	7.50	178.20	2771.25	-267.91	-103.87	-111.58	0.69	-0.69	0.23	MWD
2879.00	7.10	180.40	2855.56	-278.71	-103.73	-111.76	0.57	-0.47	2.59	MWD
2964.00	7.20	180.30	2939.90	-289.29	-103.79	-112.13	0.12	0.12	-0.12	MWD
3050.00	6.20	177.30	3025.31	-299.32	-103.60	-112.23	1.23	-1.16	-3.49	MWD
3135.00	5.50	181.70	3109.87	-307.97	-103.51	-112.38	0.98	-0.82	5.18	MWD
3220.00	5.70	175.50	3194.46	-316.25	-103.30	-112.41	0.75	0.24	-7.29	MWD
3305.00	6.50	173.20	3278.98	-325.24	-102.40	-111.77	0.98	0.94	-2.71	MWD
3390.00	6.90	171.50	3363.40	-335.07	-101.07	-110.73	0.53	0.47	-2.00	MWD
3475.00	7.30	172.20	3447.75	-345.47	-99.58	-109.55	0.48	0.47	0.82	MWD
3560.00	7.90	172.50	3532.00	-356.61	-98.09	-108.38	0.71	0.71	0.35	MWD
3646.00	8.10	176.70	3617.16	-368.52	-96.97	-107.60	0.72	0.23	4.88	MWD
3731.00	7.80	178.50	3701.35	-380.26	-96.47	-107.45	0.46	-0.35	2.12	MWD
3816.00	7.00	177.10	3785.64	-391.20	-96.06	-107.35	0.96	-0.94	-1.65	MWD
3901.00	6.30	178.00	3870.07	-401.03	-95.63	-107.21	0.83	-0.82	1.06	MWD
3985.00	5.10	177.80	3953.65	-409.37	-95.33	-107.15	1.43	-1.43	-0.24	MWD
4068.00	5.90	174.30	4036.27	-417.30	-94.76	-106.81	1.04	0.96	-4.22	MWD
4152.00	7.30	165.50	4119.71	-426.77	-93.00	-105.32	2.05	1.67	-10.48	MWD
4236.00	8.40	166.70	4202.92	-437.90	-90.25	-102.90	1.32	1.31	1.43	MWD
4321.00	8.60	168.00	4286.99	-450.16	-87.50	-100.51	0.33	0.24	1.53	MWD
4407.00	7.80	169.70	4372.11	-462.19	-85.12	-98.47	0.97	-0.93	1.98	MWD
4492.00	7.30	176.70	4456.37	-473.26	-83.78	-97.45	1.23	-0.59	8.24	MWD
4577.00	6.90	177.50	4540.72	-483.75	-83.25	-97.22	0.48	-0.47	0.94	MWD
4662.00	6.90	184.70	4625.11	-493.94	-83.44	-97.72	1.02	0.00	8.47	MWD
4747.00	6.20	188.90	4709.55	-503.57	-84.57	-99.12	1.00	-0.82	4.94	MWD
4832.00	5.80	176.40	4794.09	-512.39	-85.01	-99.82	1.60	-0.47	-14.71	MWD
4917.00	6.10	173.80	4878.63	-521.16	-84.25	-99.31	0.47	0.35	-3.06	MWD
5002.00	6.40	175.00	4963.13	-530.37	-83.35	-98.68	0.38	0.35	1.41	MWD
5087.00	7.50	175.50	5047.50	-540.62	-82.50	-98.13	1.30	1.29	0.59	MWD
5162.00	6.90	177.10	5121.91	-550.00	-81.89	-97.79	0.84	-0.80	2.13	MWD
5190.00	6.30	177.30	5149.72	-553.22	-81.73	-97.73	2.14	-2.14	0.71	MWD
5232.00	7.60	174.60	5191.42	-558.28	-81.36	-97.50	3.19	3.10	-6.43	MWD
5275.00	11.10	177.60	5233.84	-565.25	-80.92	-97.26	8.22	8.14	6.98	MWD
5318.00	14.40	173.60	5275.77	-574.70	-80.15	-96.77	7.94	7.67	-9.30	MWD
5360.00	18.00	176.90	5316.10	-586.38	-79.22	-96.17	8.84	8.57	7.86	MWD
5403.00	21.50	176.00	5356.56	-600.88	-78.31	-95.69	8.17	8.14	-2.09	MWD
5445.00	25.10	171.80	5395.13	-617.38	-76.50	-94.36	9.44	8.57	-10.00	MWD
5488.00	27.20	173.60	5433.73	-636.17	-74.11	-92.50	5.22	4.88	4.19	MWD
5530.00	31.10	172.20	5470.41	-656.47	-71.56	-90.55	9.43	9.29	-3.33	MWD
5573.00	35.50	169.70	5506.34	-679.77	-67.82	-87.49	10.72	10.23	-5.81	MWD
5615.00	39.50	164.40	5539.66	-704.65	-62.05	-82.43	12.23	9.52	-12.62	MWD
5658.00	42.60	156.90	5572.10	-731.23	-52.65	-73.81	13.52	7.21	-17.44	MWD

# Precision Directional Services, Inc.

## Survey Report

<b>Company:</b> CARRIZO OIL & GAS, INC.	<b>Date:</b> 06/07/2013	<b>Time:</b> 08:25:19	<b>Page:</b> 3
<b>Field:</b> Niobrara CONZ'83	<b>Co-ordinate(NE) Reference:</b> Well: 2-20-11-9-58, Grid North		
<b>Site:</b> Bringelson 20 Pad	<b>Vertical (TVD) Reference:</b> 4867'GL+17'KB 4884.0		
<b>Well:</b> 2-20-11-9-58	<b>Section (VS) Reference:</b> Well (0.00N,0.00E,88.34Azi)		
<b>Wellpath:</b> Original Hole	<b>Survey Calculation Method:</b> Minimum Curvature		<b>Db:</b> Sybase

### 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
5699.00	45.70	150.70	5601.53	-756.81	-40.02	-61.92	12.96	7.56	-15.12	MWD
5742.00	48.40	145.60	5630.84	-783.50	-23.39	-46.08	10.71	6.28	-11.86	MWD
5784.00	51.00	141.80	5658.01	-809.30	-4.42	-27.86	9.27	6.19	-9.05	MWD
5827.00	53.20	137.20	5684.43	-835.07	17.62	-6.58	9.87	5.12	-10.70	MWD
5870.00	56.10	134.20	5709.31	-860.15	42.12	17.18	8.82	6.74	-6.98	MWD
5912.00	58.40	130.70	5732.03	-883.98	68.18	42.55	8.89	5.48	-8.33	MWD
5955.00	60.40	127.40	5753.93	-907.28	96.92	70.60	8.08	4.65	-7.67	MWD
5997.00	62.30	123.10	5774.07	-928.53	127.02	100.07	10.06	4.52	-10.24	MWD
6039.00	65.30	119.10	5792.62	-947.98	159.28	131.76	11.14	7.14	-9.52	MWD
6050.00	66.00	118.20	5797.15	-952.78	168.08	140.41	9.80	6.36	-8.18	MWD
6128.00	68.60	111.40	5827.28	-982.90	233.36	204.79	8.70	3.33	-8.72	MWD
6170.00	73.10	108.00	5841.06	-996.26	270.70	241.73	13.16	10.71	-8.10	MWD
6213.00	76.70	105.40	5852.26	-1008.17	310.46	281.13	10.21	8.37	-6.05	MWD
6252.00	78.69	103.31	5860.57	-1017.62	347.37	317.75	7.31	5.11	-5.35	600' entry
6256.00	78.90	103.10	5861.35	-1018.52	351.19	321.54	7.31	5.14	-5.31	MWD
6298.00	78.60	102.60	5869.54	-1027.68	391.35	361.42	1.37	-0.71	-1.19	MWD
6341.00	79.20	102.20	5877.82	-1036.74	432.56	402.35	1.67	1.40	-0.93	MWD
6384.00	83.40	98.50	5884.32	-1044.36	474.36	443.91	12.95	9.77	-8.60	MWD
6426.00	87.20	96.80	5887.77	-1049.93	515.84	485.21	9.91	9.05	-4.05	MWD
6469.00	88.50	94.50	5889.38	-1054.16	558.60	527.83	6.14	3.02	-5.35	MWD
6511.00	88.10	93.40	5890.62	-1057.05	600.48	569.60	2.79	-0.95	-2.62	MWD
6556.00	90.00	92.20	5891.37	-1059.25	645.42	614.46	4.99	4.22	-2.67	MWD
6599.00	89.90	91.50	5891.41	-1060.64	688.39	657.38	1.64	-0.23	-1.63	MWD
6641.00	90.10	91.10	5891.41	-1061.59	730.38	699.32	1.06	0.48	-0.95	MWD
6683.00	90.20	91.30	5891.30	-1062.47	772.37	741.27	0.53	0.24	0.48	MWD
6726.00	90.40	91.00	5891.07	-1063.34	815.36	784.22	0.84	0.47	-0.70	MWD
6766.00	88.60	91.00	5891.42	-1064.03	855.35	824.17	4.50	-4.50	0.00	MWD
6811.00	88.50	91.00	5892.56	-1064.82	900.33	869.11	0.22	-0.22	0.00	MWD
6854.00	88.20	90.40	5893.80	-1065.34	943.31	912.05	1.56	-0.70	-1.40	MWD
6896.00	88.10	90.10	5895.16	-1065.53	985.29	954.01	0.75	-0.24	-0.71	MWD
6939.00	87.90	89.90	5896.66	-1065.53	1028.26	996.96	0.66	-0.47	-0.47	MWD
6982.00	87.70	89.70	5898.31	-1065.38	1071.23	1039.92	0.66	-0.47	-0.47	MWD
7025.00	89.50	90.40	5899.36	-1065.41	1114.22	1082.88	4.49	4.19	1.63	MWD
7067.00	90.10	90.60	5899.50	-1065.78	1156.21	1124.85	1.51	1.43	0.48	MWD
7110.00	90.50	90.30	5899.28	-1066.12	1199.21	1167.82	1.16	0.93	-0.70	MWD
7152.00	90.90	89.90	5898.77	-1066.19	1241.21	1209.80	1.35	0.95	-0.95	MWD
7195.00	90.60	90.60	5898.20	-1066.38	1284.20	1252.77	1.77	-0.70	1.63	MWD
7237.00	90.90	90.60	5897.65	-1066.82	1326.20	1294.74	0.71	0.71	0.00	MWD
7279.00	89.60	91.00	5897.47	-1067.41	1368.19	1336.70	3.24	-3.10	0.95	MWD
7321.00	88.40	91.10	5898.20	-1068.18	1410.18	1378.64	2.87	-2.86	0.24	MWD
7363.00	88.10	90.60	5899.49	-1068.80	1452.15	1420.58	1.39	-0.71	-1.19	MWD
7406.00	88.10	90.10	5900.91	-1069.06	1495.13	1463.53	1.16	0.00	-1.16	MWD
7448.00	88.00	89.60	5902.34	-1068.95	1537.10	1505.49	1.21	-0.24	-1.19	MWD
7491.00	89.40	90.40	5903.32	-1068.95	1580.09	1548.46	3.75	3.26	1.86	MWD
7534.00	89.60	90.30	5903.69	-1069.21	1623.09	1591.43	0.52	0.47	-0.23	MWD
7576.00	89.40	89.90	5904.06	-1069.29	1665.09	1633.41	1.06	-0.48	-0.95	MWD
7619.00	90.40	90.40	5904.13	-1069.40	1708.09	1676.39	2.60	2.33	1.16	MWD
7662.00	90.40	90.10	5903.83	-1069.59	1751.09	1719.37	0.70	0.00	-0.70	MWD
7704.00	91.10	91.00	5903.28	-1069.99	1793.08	1761.33	2.71	1.67	2.14	MWD
7747.00	91.80	91.00	5902.19	-1070.74	1836.06	1804.27	1.63	1.63	0.00	MWD
7789.00	92.20	91.00	5900.73	-1071.47	1878.03	1846.20	0.95	0.95	0.00	MWD
7832.00	92.00	90.30	5899.15	-1071.96	1920.99	1889.14	1.69	-0.47	-1.63	MWD
7875.00	91.50	90.10	5897.84	-1072.11	1963.97	1932.09	1.25	-1.16	-0.47	MWD
7917.00	90.90	93.10	5896.96	-1073.28	2005.94	1974.01	7.28	-1.43	7.14	MWD

# Precision Directional Services, Inc.

## Survey Report

<b>Company:</b> CARRIZO OIL & GAS, INC. <b>Field:</b> Niobrara CONZ'83 <b>Site:</b> Bringelson 20 Pad <b>Well:</b> 2-20-11-9-58 <b>Wellpath:</b> Original Hole	<b>Date:</b> 06/07/2013 <b>Co-ordinate(NE) Reference:</b> Well: 2-20-11-9-58, Grid North <b>Vertical (TVD) Reference:</b> 4867'GL+17'KB 4884.0 <b>Section (VS) Reference:</b> Well (0.00N,0.00E,88.34Azi) <b>Survey Calculation Method:</b> Minimum Curvature <b>Db:</b> Sybase
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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
7960.00	91.00	93.80	5896.25	-1075.87	2048.86	2016.83	1.64	0.23	1.63	MWD
8002.00	91.30	93.80	5895.40	-1078.65	2090.76	2058.63	0.71	0.71	0.00	MWD
8045.00	90.70	92.50	5894.65	-1081.02	2133.69	2101.48	3.33	-1.40	-3.02	MWD
8088.00	90.40	92.00	5894.24	-1082.70	2176.65	2144.37	1.36	-0.70	-1.16	MWD
8130.00	90.10	90.60	5894.06	-1083.66	2218.64	2186.32	3.41	-0.71	-3.33	MWD
8172.00	90.10	90.10	5893.98	-1083.91	2260.64	2228.29	1.19	0.00	-1.19	MWD
8215.00	90.60	89.60	5893.72	-1083.80	2303.64	2271.27	1.64	1.16	-1.16	MWD
8257.00	89.30	87.80	5893.76	-1082.85	2345.62	2313.27	5.29	-3.10	-4.29	MWD
8300.00	89.30	87.30	5894.28	-1081.01	2388.58	2356.26	1.16	0.00	-1.16	MWD
8343.00	89.80	87.10	5894.62	-1078.91	2431.53	2399.25	1.25	1.16	-0.47	MWD
8385.00	90.60	86.90	5894.47	-1076.71	2473.47	2441.24	1.96	1.90	-0.48	MWD
8428.00	88.80	86.70	5894.70	-1074.31	2516.40	2484.22	4.21	-4.19	-0.47	MWD
8470.00	88.30	86.20	5895.76	-1071.71	2558.31	2526.19	1.68	-1.19	-1.19	MWD
8513.00	88.50	86.00	5896.96	-1068.79	2601.19	2569.14	0.66	0.47	-0.47	MWD
8556.00	89.10	87.50	5897.86	-1066.35	2644.11	2612.11	3.76	1.40	3.49	MWD
8598.00	89.90	88.30	5898.23	-1064.81	2686.08	2654.11	2.69	1.90	1.90	MWD
8641.00	90.00	88.70	5898.27	-1063.69	2729.06	2697.10	0.96	0.23	0.93	MWD
8684.00	89.90	88.00	5898.31	-1062.45	2772.05	2740.10	1.64	-0.23	-1.63	MWD
8726.00	89.30	87.30	5898.60	-1060.73	2814.01	2782.10	2.20	-1.43	-1.67	MWD
8768.00	90.00	88.70	5898.86	-1059.26	2855.98	2824.10	3.73	1.67	3.33	MWD
8810.00	89.70	87.80	5898.96	-1057.98	2897.96	2866.10	2.26	-0.71	-2.14	MWD
8852.00	89.10	89.40	5899.40	-1056.95	2939.94	2908.09	4.07	-1.43	3.81	MWD
8893.00	89.40	89.20	5899.94	-1056.45	2980.94	2949.08	0.88	0.73	-0.49	MWD
8935.00	89.30	89.20	5900.42	-1055.86	3022.93	2991.08	0.24	-0.24	0.00	MWD
8977.00	89.90	90.10	5900.71	-1055.61	3064.93	3033.06	2.58	1.43	2.14	MWD
9019.00	90.00	89.40	5900.75	-1055.42	3106.93	3075.05	1.68	0.24	-1.67	MWD
9061.00	89.70	88.90	5900.86	-1054.80	3148.92	3117.05	1.39	-0.71	-1.19	MWD
9104.00	89.20	88.30	5901.27	-1053.75	3191.91	3160.04	1.82	-1.16	-1.40	MWD
9146.00	89.80	89.20	5901.64	-1052.83	3233.90	3202.04	2.58	1.43	2.14	MWD
9189.00	89.30	89.00	5901.97	-1052.16	3276.89	3245.03	1.25	-1.16	-0.47	MWD
9232.00	90.50	88.90	5902.05	-1051.37	3319.88	3288.03	2.80	2.79	-0.23	MWD
9274.00	94.10	89.60	5900.36	-1050.82	3361.84	3329.98	8.73	8.57	1.67	MWD
9317.00	94.60	89.40	5897.10	-1050.45	3404.71	3372.85	1.25	1.16	-0.47	MWD
9359.00	95.00	89.00	5893.59	-1049.86	3446.56	3414.70	1.34	0.95	-0.95	MWD
9402.00	93.60	89.70	5890.36	-1049.38	3489.43	3457.57	3.64	-3.26	1.63	MWD
9445.00	93.50	90.40	5887.70	-1049.41	3532.35	3500.47	1.64	-0.23	1.63	MWD
9487.00	93.60	90.30	5885.10	-1049.67	3574.27	3542.36	0.34	0.24	-0.24	MWD
9529.00	94.10	89.90	5882.28	-1049.74	3616.17	3584.25	1.52	1.19	-0.95	MWD
9572.00	94.40	89.70	5879.09	-1049.59	3659.06	3627.12	0.84	0.70	-0.47	MWD
9615.00	92.50	91.70	5876.51	-1050.12	3701.97	3670.00	6.41	-4.42	4.65	MWD
9657.00	92.20	91.70	5874.78	-1051.36	3743.92	3711.89	0.71	-0.71	0.00	MWD
9700.00	90.70	90.60	5873.70	-1052.23	3786.89	3754.82	4.33	-3.49	-2.56	MWD
9742.00	90.20	90.40	5873.37	-1052.59	3828.89	3796.79	1.28	-1.19	-0.48	MWD
9785.00	90.30	90.10	5873.18	-1052.78	3871.89	3839.77	0.74	0.23	-0.70	MWD
9827.00	90.70	90.10	5872.81	-1052.85	3913.89	3881.74	0.95	0.95	0.00	MWD
9870.00	89.80	90.10	5872.62	-1052.93	3956.89	3924.72	2.09	-2.09	0.00	MWD
9912.00	90.10	89.90	5872.66	-1052.93	3998.89	3966.71	0.86	0.71	-0.48	MWD
9954.00	90.40	89.60	5872.48	-1052.75	4040.88	4008.69	1.01	0.71	-0.71	MWD
9996.00	89.80	88.50	5872.41	-1052.05	4082.88	4050.69	2.98	-1.43	-2.62	MWD
10039.00	88.50	89.60	5873.04	-1051.34	4125.87	4093.68	3.96	-3.02	2.56	MWD
10081.00	88.20	89.40	5874.25	-1050.97	4167.85	4135.65	0.86	-0.71	-0.48	MWD
10124.00	89.00	90.10	5875.30	-1050.78	4210.83	4178.63	2.47	1.86	1.63	MWD
10167.00	88.70	88.30	5876.17	-1050.18	4253.82	4221.61	4.24	-0.70	-4.19	MWD

# Precision Directional Services, Inc.

## Survey Report

<b>Company:</b> CARRIZO OIL & GAS, INC. <b>Field:</b> Niobrara CONZ'83 <b>Site:</b> Bringelson 20 Pad <b>Well:</b> 2-20-11-9-58 <b>Wellpath:</b> Original Hole	<b>Date:</b> 06/07/2013 <b>Time:</b> 08:25:19 <b>Page:</b> 5 <b>Co-ordinate(NE) Reference:</b> Well: 2-20-11-9-58, Grid North <b>Vertical (TVD) Reference:</b> 4867'GL+17'KB 4884.0 <b>Section (VS) Reference:</b> Well (0.00N,0.00E,88.34Azi) <b>Survey Calculation Method:</b> Minimum Curvature <b>Db:</b> Sybase
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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
10209.00	88.80	87.60	5877.08	-1048.68	4295.78	4263.60	1.68	0.24	-1.67	MWD
10222.00	89.00	87.50	5877.33	-1048.12	4308.77	4276.60	1.72	1.54	-0.77	MWD
10290.00	89.00	87.50	5878.52	-1045.16	4376.69	4344.58	0.00	0.00	0.00	PROJECTED to TD

### Annotation

MD ft	TVD ft	
6252.00	5860.57	600' entry