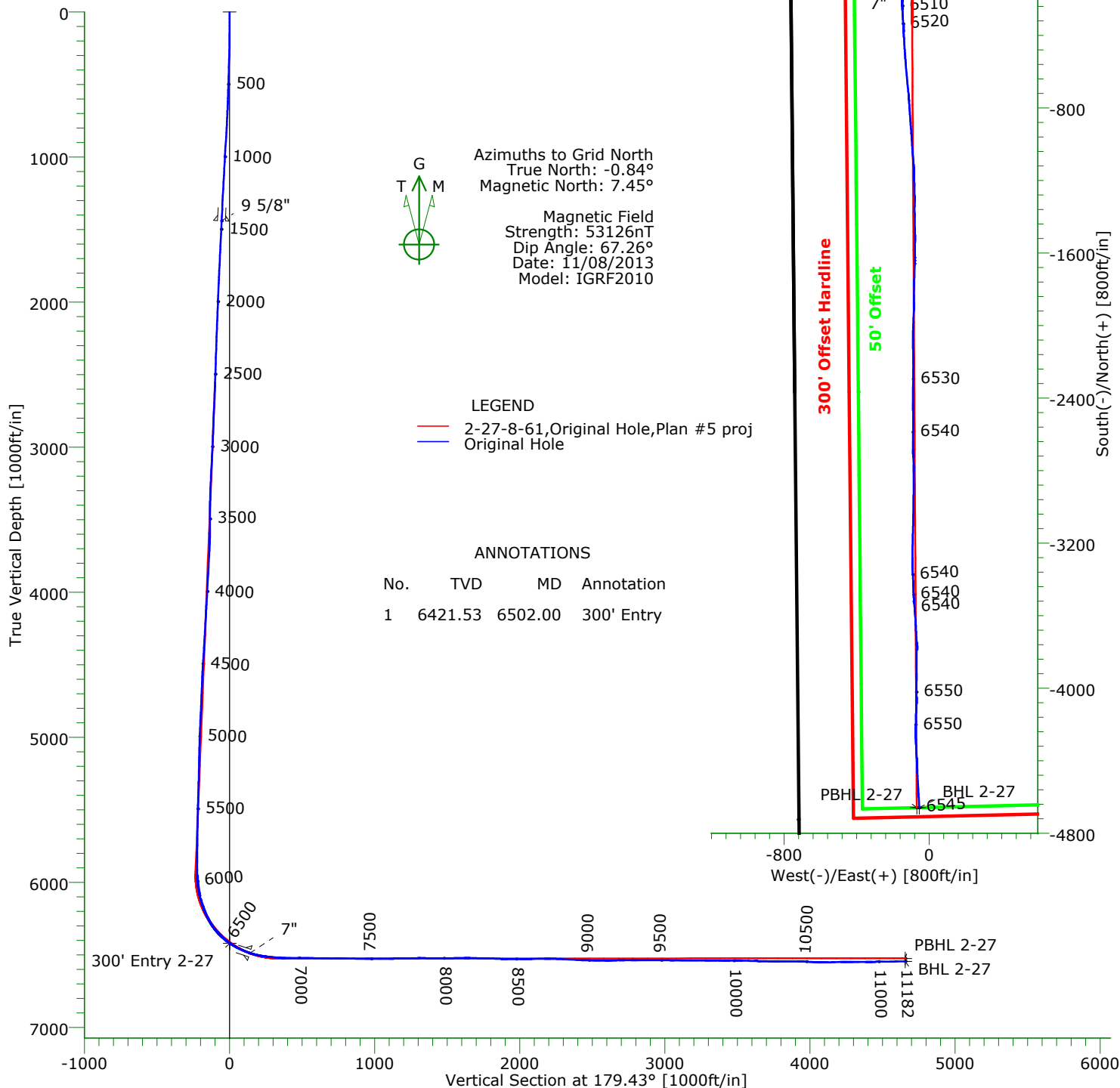


## CASING DETAILS

No.	TVD	MD	Name	Size
1	1440.59	1442.00	9 5/8"	9.625
2	6488.78	6657.70	7"	7.000



## TARGET DETAILS

Name	TVD	+N/-S	+E/-W	Northing	Easting	Latitude	Longitude	Shape
SL 2-27	0.00	0.00	0.00	1478357.26	3361082.61	40°38'21.145N	104°11'56.070W	Point
300' Entry 2-27	6421.53	-3.26	-137.34	1478354.00	3360945.27	40°38'21.133N	104°11'57.852W	Point
PBHL 2-27	6525.00	-4658.85	-68.23	1473698.41	3361014.38	40°37'35.124N	104°11'57.842W	Point
BHL 2-27	6545.38	-4658.79	-54.41	1473698.47	3361028.20	40°37'35.122N	104°11'57.662W	Point

Wellpath: (2-27-8-61/Original Hole)

Created By: Tony LoBicco

Date: 11/11/2013

***PRECISION DIRECTIONAL SERVICES, INC.***

**713.435.6250**

# Precision Directional Services, Inc.

## Survey Report

<b>Company:</b> CARRIZO OIL & GAS, INC.		<b>Date:</b> 11/11/2013	<b>Time:</b> 11:22:35	<b>Page:</b> 1
<b>Field:</b> Niobrara CONZ'83		<b>Co-ordinate(NE) Reference:</b> Well: 2-27-8-61, Grid North		
<b>Site:</b> Speaker 27-11-8-61 Pad		<b>Vertical (TVD) Reference:</b> 4999'GL+17"KB 5016.0		
<b>Well:</b> 2-27-8-61		<b>Section (VS) Reference:</b> Well (0.00N,0.00E,179.43Azi)		
<b>Wellpath:</b> Original Hole		<b>Survey Calculation Method:</b> Minimum Curvature	<b>Db:</b> Adapti	

<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> Speaker 27-11-8-61 Pad Centered on #1 Weld County, CO				
<b>Site Position:</b>	<b>Northing:</b> 1478356.89 ft	<b>Latitude:</b> 40 38 21.144 N		
<b>From:</b> Map	<b>Easting:</b> 3361067.22 ft	<b>Longitude:</b> 104 11 56.270 W		
<b>Position Uncertainty:</b> 0.00 ft		<b>North Reference:</b> Grid		
<b>Ground Level:</b> 4999.00 ft		<b>Grid Convergence:</b> 0.84 deg		

<b>Well:</b> 2-27-8-61				
<b>Slot Name:</b>				
<b>Well Position:</b> +N/-S 0.37 ft	<b>Northing:</b> 1478357.26 ft	<b>Latitude:</b> 40 38 21.145 N		
+E/-W 15.39 ft	<b>Easting:</b> 3361082.61 ft	<b>Longitude:</b> 104 11 56.070 W		
<b>Position Uncertainty:</b> 0.00 ft				

<b>Wellpath:</b> Original Hole				
<b>Current Datum:</b> 4999'GL+17"KB	<b>Height</b> 5016.00 ft	<b>Drilled From:</b> Surface		
<b>Magnetic Data:</b> 11/08/2013		<b>Tie-on Depth:</b> 0.00 ft		
<b>Field Strength:</b> 53126 nT		<b>Above System Datum:</b> Mean Sea Level		
<b>Vertical Section:</b> Depth From (TVD)	+N/-S	<b>Declination:</b> 8.29 deg		
ft	ft	<b>Mag Dip Angle:</b> 67.26 deg		
		<b>+E/-W</b>	<b>Direction</b>	
		ft	deg	
0.00	0.00	0.00	179.43	

<b>Survey Program for Definitive Wellpath</b>				
<b>Date:</b> 11/11/2013	<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>
144.00	11125.00	Survey #1 (144.00-11125.00)	MWD	Std MWD
11182.00	11182.00	Survey #2 (11182.00-11182.00)	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
144.00	0.60	159.50	144.00	-0.71	0.26	0.71	0.42	0.42	0.00	MWD
240.00	1.10	358.80	239.99	-0.26	0.42	0.26	1.75	0.52	-167.40	MWD
334.00	1.80	353.70	333.96	2.11	0.24	-2.11	0.76	0.74	-5.43	MWD
427.00	1.70	358.50	426.92	4.94	0.04	-4.94	0.19	-0.11	5.16	MWD
521.00	1.90	346.40	520.87	7.85	-0.36	-7.86	0.46	0.21	-12.87	MWD
614.00	1.80	359.40	613.82	10.81	-0.74	-10.82	0.46	-0.11	13.98	MWD
708.00	3.00	342.50	707.74	14.63	-1.49	-14.65	1.47	1.28	-17.98	MWD
802.00	3.30	341.80	801.60	19.55	-3.08	-19.58	0.32	0.32	-0.74	MWD
895.00	3.50	344.20	894.44	24.82	-4.69	-24.87	0.26	0.22	2.58	MWD
989.00	3.30	343.50	988.27	30.18	-6.24	-30.24	0.22	-0.21	-0.74	MWD
1082.00	3.10	343.40	1081.13	35.16	-7.71	-35.23	0.22	-0.22	-0.11	MWD
1176.00	3.30	339.00	1174.98	40.12	-9.41	-40.21	0.34	0.21	-4.68	MWD
1269.00	3.20	341.80	1267.83	45.08	-11.18	-45.19	0.20	-0.11	3.01	MWD
1363.00	2.90	342.10	1361.70	49.84	-12.73	-49.96	0.32	-0.32	0.32	MWD
1412.00	2.90	336.00	1410.63	52.15	-13.62	-52.28	0.63	0.00	-12.45	MWD
1533.00	2.90	346.00	1531.48	57.92	-15.60	-58.07	0.42	0.00	8.26	MWD
1618.00	2.90	347.40	1616.37	62.10	-16.59	-62.26	0.08	0.00	1.65	MWD
1703.00	2.60	346.90	1701.27	66.08	-17.50	-66.25	0.35	-0.35	-0.59	MWD
1788.00	2.70	345.00	1786.18	69.89	-18.45	-70.07	0.16	0.12	-2.24	MWD
1873.00	2.40	349.00	1871.10	73.57	-19.31	-73.76	0.41	-0.35	4.71	MWD
1959.00	2.40	343.70	1957.02	77.06	-20.16	-77.26	0.26	0.00	-6.16	MWD

# Precision Directional Services, Inc.

## Survey Report

<b>Company:</b> CARRIZO OIL & GAS, INC.	<b>Date:</b> 11/11/2013	<b>Time:</b> 11:22:35	<b>Page:</b> 2
<b>Field:</b> Niobrara CONZ'83	<b>Co-ordinate(NE) Reference:</b> Well: 2-27-8-61, Grid North		
<b>Site:</b> Speaker 27-11-8-61 Pad	<b>Vertical (TVD) Reference:</b> 4999'GL+17"KB 5016.0		
<b>Well:</b> 2-27-8-61	<b>Section (VS) Reference:</b> Well (0.00N,0.00E,179.43Azi)		
<b>Wellpath:</b> Original Hole	<b>Survey Calculation Method:</b> Minimum Curvature		<b>Db:</b> Adapti

### 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
2044.00	2.60	343.40	2041.94	80.62	-21.21	-80.83	0.24	0.24	-0.35	MWD
2129.00	2.40	341.10	2126.86	84.15	-22.34	-84.37	0.26	-0.24	-2.71	MWD
2215.00	2.20	342.00	2212.79	87.43	-23.43	-87.65	0.24	-0.23	1.05	MWD
2300.00	2.00	340.20	2297.73	90.37	-24.44	-90.61	0.25	-0.24	-2.12	MWD
2385.00	2.10	334.20	2382.68	93.17	-25.62	-93.42	0.28	0.12	-7.06	MWD
2470.00	2.00	333.90	2467.62	95.90	-26.95	-96.17	0.12	-0.12	-0.35	MWD
2556.00	2.10	334.80	2553.57	98.68	-28.28	-98.95	0.12	0.12	1.05	MWD
2641.00	2.30	333.20	2638.51	101.61	-29.71	-101.90	0.25	0.24	-1.88	MWD
2726.00	2.50	337.20	2723.43	104.84	-31.20	-105.15	0.31	0.24	4.71	MWD
2811.00	2.60	334.20	2808.35	108.29	-32.75	-108.61	0.20	0.12	-3.53	MWD
2896.00	2.70	332.60	2893.26	111.80	-34.51	-112.14	0.15	0.12	-1.88	MWD
2982.00	3.20	330.90	2979.14	115.69	-36.61	-116.05	0.59	0.58	-1.98	MWD
3067.00	3.10	331.90	3064.01	119.79	-38.85	-120.18	0.13	-0.12	1.18	MWD
3152.00	3.20	328.10	3148.89	123.84	-41.19	-124.24	0.27	0.12	-4.47	MWD
3237.00	3.00	335.30	3233.76	127.87	-43.37	-128.30	0.51	-0.24	8.47	MWD
3323.00	2.30	327.20	3319.67	131.37	-45.25	-131.81	0.92	-0.81	-9.42	MWD
3408.00	1.60	305.40	3404.62	133.49	-47.14	-133.95	1.19	-0.82	-25.65	MWD
3493.00	1.30	254.10	3489.60	133.91	-49.03	-134.39	1.51	-0.35	-60.35	MWD
3578.00	1.60	274.10	3574.57	133.73	-51.14	-134.23	0.69	0.35	23.53	MWD
3664.00	2.90	319.50	3660.51	135.47	-53.75	-136.00	2.45	1.51	52.79	MWD
3749.00	3.50	326.50	3745.38	139.27	-56.58	-139.83	0.84	0.71	8.24	MWD
3834.00	3.60	326.30	3830.21	143.65	-59.49	-144.24	0.12	0.12	-0.24	MWD
3920.00	3.70	325.30	3916.04	148.18	-62.57	-148.80	0.14	0.12	-1.16	MWD
4005.00	3.70	325.30	4000.86	152.69	-65.69	-153.34	0.00	0.00	0.00	MWD
4090.00	3.60	330.40	4085.69	157.27	-68.57	-157.94	0.40	-0.12	6.00	MWD
4175.00	3.50	341.80	4170.53	162.05	-70.70	-162.75	0.84	-0.12	13.41	MWD
4261.00	3.30	347.10	4256.38	166.96	-72.07	-167.67	0.43	-0.23	6.16	MWD
4346.00	3.50	356.70	4341.23	171.93	-72.77	-172.65	0.71	0.24	11.29	MWD
4431.00	3.80	352.70	4426.05	177.32	-73.28	-178.04	0.46	0.35	-4.71	MWD
4516.00	3.30	355.00	4510.89	182.55	-73.85	-183.27	0.61	-0.59	2.71	MWD
4602.00	2.50	4.50	4596.78	186.88	-73.92	-187.61	1.08	-0.93	11.05	MWD
4687.00	2.00	8.00	4681.72	190.20	-73.57	-190.92	0.61	-0.59	4.12	MWD
4772.00	2.60	350.60	4766.65	193.57	-73.67	-194.30	1.08	0.71	-20.47	MWD
4858.00	2.90	348.60	4852.55	197.63	-74.42	-198.36	0.37	0.35	-2.33	MWD
4943.00	2.50	351.60	4937.45	201.57	-75.12	-202.31	0.50	-0.47	3.53	MWD
5028.00	1.80	350.80	5022.39	204.72	-75.60	-205.46	0.82	-0.82	-0.94	MWD
5113.00	1.40	349.00	5107.36	207.06	-76.01	-207.81	0.47	-0.47	-2.12	MWD
5198.00	1.10	1.30	5192.34	208.89	-76.19	-209.64	0.47	-0.35	14.47	MWD
5284.00	1.00	8.20	5278.33	210.46	-76.07	-211.21	0.19	-0.12	8.02	MWD
5368.00	2.20	336.20	5362.29	212.66	-76.61	-213.42	1.73	1.43	-38.10	MWD
5454.00	1.70	336.90	5448.24	215.35	-77.78	-216.11	0.58	-0.58	0.81	MWD
5539.00	1.40	334.10	5533.21	217.44	-78.73	-218.21	0.36	-0.35	-3.29	MWD
5624.00	1.10	327.20	5618.19	219.06	-79.62	-219.84	0.39	-0.35	-8.12	MWD
5709.00	0.90	324.40	5703.18	220.29	-80.46	-221.08	0.24	-0.24	-3.29	MWD
5795.00	0.80	327.50	5789.17	221.34	-81.17	-222.14	0.13	-0.12	3.60	MWD
5831.00	1.50	248.30	5825.16	221.38	-81.74	-222.18	4.34	1.94	-220.00	MWD
5873.00	1.00	345.10	5867.16	221.53	-82.35	-222.34	4.52	-1.19	230.48	MWD
5916.00	1.10	352.30	5910.15	222.31	-82.50	-223.12	0.38	0.23	16.74	MWD
5959.00	1.20	217.00	5953.15	222.35	-82.83	-223.17	4.95	0.23	-314.65	MWD
6002.00	5.80	201.90	5996.05	219.98	-83.91	-220.80	10.82	10.70	-35.12	MWD
6044.00	9.20	198.20	6037.69	214.82	-85.75	-215.66	8.17	8.10	-8.81	MWD
6087.00	12.50	195.70	6079.91	207.07	-88.08	-207.94	7.75	7.67	-5.81	MWD
6130.00	15.60	195.50	6121.62	197.02	-90.89	-197.91	7.21	7.21	-0.47	MWD

# Precision Directional Services, Inc.

## Survey Report

<b>Company:</b> CARRIZO OIL & GAS, INC.	<b>Date:</b> 11/11/2013	<b>Time:</b> 11:22:35	<b>Page:</b> 3
<b>Field:</b> Niobrara CONZ'83	<b>Co-ordinate(NE) Reference:</b> Well: 2-27-8-61, Grid North		
<b>Site:</b> Speaker 27-11-8-61 Pad	<b>Vertical (TVD) Reference:</b> 4999'GL+17"KB 5016.0		
<b>Well:</b> 2-27-8-61	<b>Section (VS) Reference:</b> Well (0.00N,0.00E,179.43Azi)		
<b>Wellpath:</b> Original Hole	<b>Survey Calculation Method:</b> Minimum Curvature		<b>Db:</b> Adapti

### 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
6172.00	18.70	196.90	6161.75	185.13	-94.36	-186.06	7.45	7.38	3.33	MWD
6214.00	22.90	197.80	6201.01	170.90	-98.81	-171.88	10.03	10.00	2.14	MWD
6257.00	27.10	195.90	6239.97	153.51	-104.06	-154.53	9.94	9.77	-4.42	MWD
6300.00	31.60	195.00	6277.44	133.20	-109.66	-134.28	10.52	10.47	-2.09	MWD
6342.00	36.80	194.10	6312.17	110.35	-115.57	-111.49	12.44	12.38	-2.14	MWD
6385.00	42.10	192.90	6345.36	83.79	-121.93	-85.00	12.45	12.33	-2.79	MWD
6427.00	47.50	190.80	6375.15	54.83	-127.98	-56.10	13.33	12.86	-5.00	MWD
6470.00	52.30	189.20	6402.84	22.45	-133.68	-23.78	11.52	11.16	-3.72	MWD
6502.00	56.24	187.08	6421.53	-3.26	-137.34	1.89	13.43	12.31	-6.62	300' Entry
6513.00	57.60	186.40	6427.53	-12.41	-138.42	11.03	13.43	12.38	-6.20	MWD
6555.00	62.30	185.20	6448.56	-48.57	-142.09	47.15	11.46	11.19	-2.86	MWD
6603.00	66.30	184.10	6469.37	-91.67	-145.59	90.22	8.59	8.33	-2.29	MWD
6684.00	74.90	181.30	6496.25	-167.91	-149.13	166.42	11.11	10.62	-3.46	MWD
6731.00	80.40	179.00	6506.30	-213.80	-149.24	212.30	12.64	11.70	-4.89	MWD
6774.00	83.50	177.10	6512.32	-256.34	-147.79	254.86	8.43	7.21	-4.42	MWD
6816.00	84.80	176.70	6516.60	-298.06	-145.53	296.60	3.24	3.10	-0.95	MWD
6859.00	85.00	177.30	6520.43	-340.83	-143.29	339.39	1.47	0.47	1.40	MWD
6901.00	88.60	176.60	6522.77	-382.70	-141.06	381.28	8.73	8.57	-1.67	MWD
6944.00	90.30	176.20	6523.18	-425.61	-138.36	424.21	4.06	3.95	-0.93	MWD
6987.00	90.60	176.60	6522.85	-468.53	-135.66	467.15	1.16	0.70	0.93	MWD
7029.00	90.30	175.80	6522.52	-510.43	-132.88	509.08	2.03	-0.71	-1.90	MWD
7072.00	89.00	175.50	6522.78	-553.31	-129.62	551.99	3.10	-3.02	-0.70	MWD
7115.00	89.10	175.10	6523.49	-596.16	-126.09	594.87	0.96	0.23	-0.93	MWD
7157.00	89.10	174.60	6524.15	-637.98	-122.32	636.73	1.19	0.00	-1.19	MWD
7200.00	88.80	174.10	6524.94	-680.76	-118.09	679.56	1.36	-0.70	-1.16	MWD
7243.00	88.50	174.40	6525.95	-723.54	-113.78	722.37	0.99	-0.70	0.70	MWD
7285.00	89.80	177.10	6526.58	-765.41	-110.67	764.27	7.13	3.10	6.43	MWD
7328.00	90.00	176.40	6526.65	-808.34	-108.23	807.23	1.69	0.47	-1.63	MWD
7370.00	90.00	175.80	6526.65	-850.24	-105.38	849.15	1.43	0.00	-1.43	MWD
7413.00	89.80	175.50	6526.73	-893.12	-102.12	892.06	0.84	-0.47	-0.70	MWD
7456.00	90.00	175.10	6526.80	-935.98	-98.59	934.95	1.04	0.47	-0.93	MWD
7498.00	89.90	176.90	6526.84	-977.87	-95.66	976.87	4.29	-0.24	4.29	MWD
7541.00	90.00	176.40	6526.87	-1020.80	-93.15	1019.82	1.19	0.23	-1.16	MWD
7583.00	89.90	175.30	6526.91	-1062.69	-90.11	1061.74	2.63	-0.24	-2.62	MWD
7626.00	90.30	174.60	6526.84	-1105.52	-86.33	1104.61	1.87	0.93	-1.63	MWD
7669.00	90.40	177.10	6526.57	-1148.40	-83.21	1147.52	5.82	0.23	5.81	MWD
7711.00	90.70	179.90	6526.17	-1190.38	-82.11	1189.51	6.70	0.71	6.67	MWD
7754.00	91.60	179.00	6525.31	-1233.37	-81.70	1232.50	2.96	2.09	-2.09	MWD
7797.00	92.10	178.70	6523.92	-1276.34	-80.84	1275.47	1.36	1.16	-0.70	MWD
7839.00	90.00	180.40	6523.15	-1318.33	-80.51	1317.46	6.43	-5.00	4.05	MWD
7882.00	89.30	180.10	6523.41	-1361.33	-80.70	1360.46	1.77	-1.63	-0.70	MWD
7924.00	89.50	179.00	6523.85	-1403.32	-80.37	1402.45	2.66	0.48	-2.62	MWD
7967.00	90.20	178.70	6523.96	-1446.31	-79.50	1445.45	1.77	1.63	-0.70	MWD
8010.00	90.50	178.00	6523.70	-1489.29	-78.27	1488.44	1.77	0.70	-1.63	MWD
8052.00	90.20	180.80	6523.45	-1531.29	-77.83	1530.44	6.70	-0.71	6.67	MWD
8095.00	90.90	180.40	6523.03	-1574.28	-78.28	1573.42	1.87	1.63	-0.93	MWD
8138.00	91.50	180.10	6522.13	-1617.27	-78.46	1616.41	1.56	1.40	-0.70	MWD
8180.00	88.70	182.00	6522.06	-1659.26	-79.23	1658.39	8.06	-6.67	4.52	MWD
8223.00	88.50	182.00	6523.11	-1702.22	-80.73	1701.33	0.47	-0.47	0.00	MWD
8266.00	88.40	181.60	6524.27	-1745.18	-82.08	1744.28	0.96	-0.23	-0.93	MWD
8308.00	88.60	180.60	6525.37	-1787.16	-82.89	1786.25	2.43	0.48	-2.38	MWD
8351.00	87.80	180.60	6526.72	-1830.14	-83.34	1829.22	1.86	-1.86	0.00	MWD
8394.00	87.40	180.10	6528.52	-1873.10	-83.60	1872.17	1.49	-0.93	-1.16	MWD
8436.00	89.30	182.20	6529.73	-1915.07	-84.45	1914.13	6.74	4.52	5.00	MWD

# Precision Directional Services, Inc.

## Survey Report

<b>Company:</b> CARRIZO OIL & GAS, INC. <b>Field:</b> Niobrara CONZ'83 <b>Site:</b> Speaker 27-11-8-61 Pad <b>Well:</b> 2-27-8-61 <b>Wellpath:</b> Original Hole	<b>Date:</b> 11/11/2013 <b>Time:</b> 11:22:35 <b>Page:</b> 4 <b>Co-ordinate(NE) Reference:</b> Well: 2-27-8-61, Grid North <b>Vertical (TVD) Reference:</b> 4999'GL+17"KB 5016.0 <b>Section (VS) Reference:</b> Well (0.00N,0.00E,179.43Azi) <b>Survey Calculation Method:</b> Minimum Curvature <b>Db:</b> Adapti
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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
8479.00	90.10	182.20	6529.96	-1958.03	-86.10	1957.08	1.86	1.86	0.00	MWD
8521.00	90.60	182.40	6529.70	-2000.00	-87.78	1999.03	1.28	1.19	0.48	MWD
8564.00	90.80	181.10	6529.18	-2042.97	-89.10	2041.99	3.06	0.47	-3.02	MWD
8607.00	91.00	179.90	6528.50	-2085.97	-89.47	2084.97	2.83	0.47	-2.79	MWD
8649.00	91.00	178.30	6527.77	-2127.95	-88.81	2126.97	3.81	0.00	-3.81	MWD
8692.00	90.60	178.10	6527.17	-2170.93	-87.46	2169.95	1.04	-0.93	-0.47	MWD
8735.00	89.20	180.60	6527.24	-2213.92	-86.97	2212.95	6.66	-3.26	5.81	MWD
8777.00	87.80	181.30	6528.34	-2255.90	-87.67	2254.92	3.73	-3.33	1.67	MWD
8820.00	87.20	180.80	6530.22	-2298.85	-88.46	2297.86	1.82	-1.40	-1.16	MWD
8862.00	87.10	180.80	6532.31	-2340.80	-89.04	2339.79	0.24	-0.24	0.00	MWD
8905.00	87.10	180.10	6534.48	-2383.74	-89.38	2382.73	1.63	0.00	-1.63	MWD
8948.00	86.90	179.20	6536.73	-2426.68	-89.12	2425.67	2.14	-0.47	-2.09	MWD
8990.00	89.30	179.70	6538.12	-2468.65	-88.71	2467.65	5.84	5.71	1.19	MWD
9033.00	89.00	179.40	6538.76	-2511.64	-88.38	2510.64	0.99	-0.70	-0.70	MWD
9076.00	88.90	180.60	6539.55	-2554.64	-88.38	2553.63	2.80	-0.23	2.79	MWD
9118.00	89.70	180.40	6540.06	-2596.63	-88.74	2595.62	1.96	1.90	-0.48	MWD
9161.00	91.80	180.40	6539.50	-2639.62	-89.04	2638.61	4.88	4.88	0.00	MWD
9204.00	92.20	179.90	6538.00	-2682.60	-89.16	2681.58	1.49	0.93	-1.16	MWD
9246.00	90.00	177.10	6537.19	-2724.57	-88.06	2723.56	8.48	-5.24	-6.67	MWD
9289.00	90.00	177.10	6537.19	-2767.51	-85.88	2766.52	0.00	0.00	0.00	MWD
9332.00	90.30	179.90	6537.08	-2810.49	-84.75	2809.51	6.55	0.70	6.51	MWD
9374.00	90.10	180.80	6536.93	-2852.49	-85.01	2851.51	2.20	-0.48	2.14	MWD
9417.00	89.30	180.60	6537.16	-2895.49	-85.54	2894.49	1.92	-1.86	-0.47	MWD
9459.00	89.70	180.80	6537.53	-2937.48	-86.05	2936.48	1.06	0.95	0.48	MWD
9502.00	89.50	180.40	6537.83	-2980.48	-86.50	2979.47	1.04	-0.47	-0.93	MWD
9545.00	89.40	180.90	6538.24	-3023.48	-86.99	3022.46	1.19	-0.23	1.16	MWD
9587.00	90.10	181.10	6538.42	-3065.47	-87.72	3064.44	1.73	1.67	0.48	MWD
9630.00	90.10	181.80	6538.35	-3108.45	-88.81	3107.42	1.63	0.00	1.63	MWD
9672.00	89.80	181.50	6538.38	-3150.44	-90.02	3149.39	1.01	-0.71	-0.71	MWD
9715.00	89.40	181.10	6538.68	-3193.42	-90.99	3192.36	1.32	-0.93	-0.93	MWD
9757.00	89.90	180.90	6538.94	-3235.42	-91.73	3234.34	1.28	1.19	-0.48	MWD
9800.00	89.80	180.60	6539.05	-3278.41	-92.29	3277.33	0.74	-0.23	-0.70	MWD
9842.00	89.40	178.80	6539.35	-3320.41	-92.07	3319.33	4.39	-0.95	-4.29	MWD
9885.00	89.20	177.40	6539.87	-3363.38	-90.64	3362.31	3.29	-0.47	-3.26	MWD
9928.00	89.30	176.90	6540.43	-3406.32	-88.51	3405.28	1.19	0.23	-1.16	MWD
9970.00	90.70	178.50	6540.43	-3448.29	-86.82	3447.25	5.06	3.33	3.81	MWD
10013.00	90.70	177.30	6539.91	-3491.26	-85.25	3490.23	2.79	0.00	-2.79	MWD
10055.00	88.30	175.80	6540.28	-3533.17	-82.72	3532.18	6.74	-5.71	-3.57	MWD
10098.00	88.30	175.50	6541.55	-3576.03	-79.46	3575.06	0.70	0.00	-0.70	MWD
10141.00	88.50	175.30	6542.75	-3618.88	-76.01	3617.94	0.66	0.47	-0.47	MWD
10183.00	88.60	178.10	6543.81	-3660.79	-73.59	3659.87	6.67	0.24	6.67	MWD
10226.00	88.70	176.70	6544.83	-3703.73	-71.64	3702.83	3.26	0.23	-3.26	MWD
10268.00	89.30	177.10	6545.56	-3745.66	-69.37	3744.79	1.72	1.43	0.95	MWD
10311.00	90.20	181.10	6545.75	-3788.65	-68.70	3787.78	9.53	2.09	9.30	MWD
10354.00	90.30	180.60	6545.56	-3831.64	-69.34	3830.76	1.19	0.23	-1.16	MWD
10396.00	90.00	180.20	6545.45	-3873.64	-69.63	3872.76	1.19	-0.71	-0.95	MWD
10439.00	89.90	179.90	6545.49	-3916.64	-69.67	3915.75	0.74	-0.23	-0.70	MWD
10482.00	87.20	180.90	6546.58	-3959.62	-69.97	3958.73	6.70	-6.28	2.33	MWD
10524.00	86.70	180.60	6548.81	-4001.56	-70.52	4000.66	1.39	-1.19	-0.71	MWD
10567.00	86.40	179.70	6551.40	-4044.48	-70.63	4043.58	2.20	-0.70	-2.09	MWD
10609.00	89.80	181.50	6552.79	-4086.45	-71.07	4085.54	9.16	8.10	4.29	MWD
10652.00	91.80	181.80	6552.19	-4129.42	-72.31	4128.50	4.70	4.65	0.70	MWD
10694.00	91.70	181.30	6550.91	-4171.39	-73.44	4170.45	1.21	-0.24	-1.19	MWD

# Precision Directional Services, Inc.

## Survey Report

<b>Company:</b> CARRIZO OIL & GAS, INC. <b>Field:</b> Niobrara CONZ'83 <b>Site:</b> Speaker 27-11-8-61 Pad <b>Well:</b> 2-27-8-61 <b>Wellpath:</b> Original Hole	<b>Date:</b> 11/11/2013 <b>Time:</b> 11:22:35 <b>Page:</b> 5 <b>Co-ordinate(NE) Reference:</b> Well: 2-27-8-61, Grid North <b>Vertical (TVD) Reference:</b> 4999'GL+17'KB 5016.0 <b>Section (VS) Reference:</b> Well (0.00N,0.00E,179.43Azi) <b>Survey Calculation Method:</b> Minimum Curvature <b>Db:</b> Adapti
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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
10737.00	91.70	180.90	6549.63	-4214.36	-74.27	4213.41	0.93	0.00	-0.93	MWD
10780.00	89.80	179.40	6549.07	-4257.35	-74.38	4256.40	5.63	-4.42	-3.49	MWD
10822.00	89.30	177.60	6549.40	-4299.34	-73.28	4298.39	4.45	-1.19	-4.29	MWD
10865.00	90.00	177.10	6549.66	-4342.29	-71.29	4341.36	2.00	1.63	-1.16	MWD
10907.00	90.00	175.80	6549.66	-4384.21	-68.69	4383.31	3.10	0.00	-3.10	MWD
10950.00	91.70	178.30	6549.02	-4427.14	-66.48	4426.26	7.03	3.95	5.81	MWD
10993.00	90.60	177.30	6548.16	-4470.10	-64.83	4469.23	3.46	-2.56	-2.33	MWD
11035.00	90.70	177.10	6547.68	-4512.05	-62.78	4511.20	0.53	0.24	-0.48	MWD
11078.00	90.80	177.10	6547.12	-4554.99	-60.60	4554.16	0.23	0.23	0.00	MWD
11120.00	91.00	176.60	6546.46	-4596.92	-58.29	4596.11	1.28	0.48	-1.19	MWD
11125.00	91.00	176.40	6546.38	-4601.91	-57.99	4601.10	4.00	0.00	-4.00	MWD
11182.00	91.00	176.40	6545.38	-4658.79	-54.41	4658.02	0.00	0.00	0.00	PROJECTED to TD

### Annotation

MD ft	TVD ft	
6502.00	6421.53	300' Entry