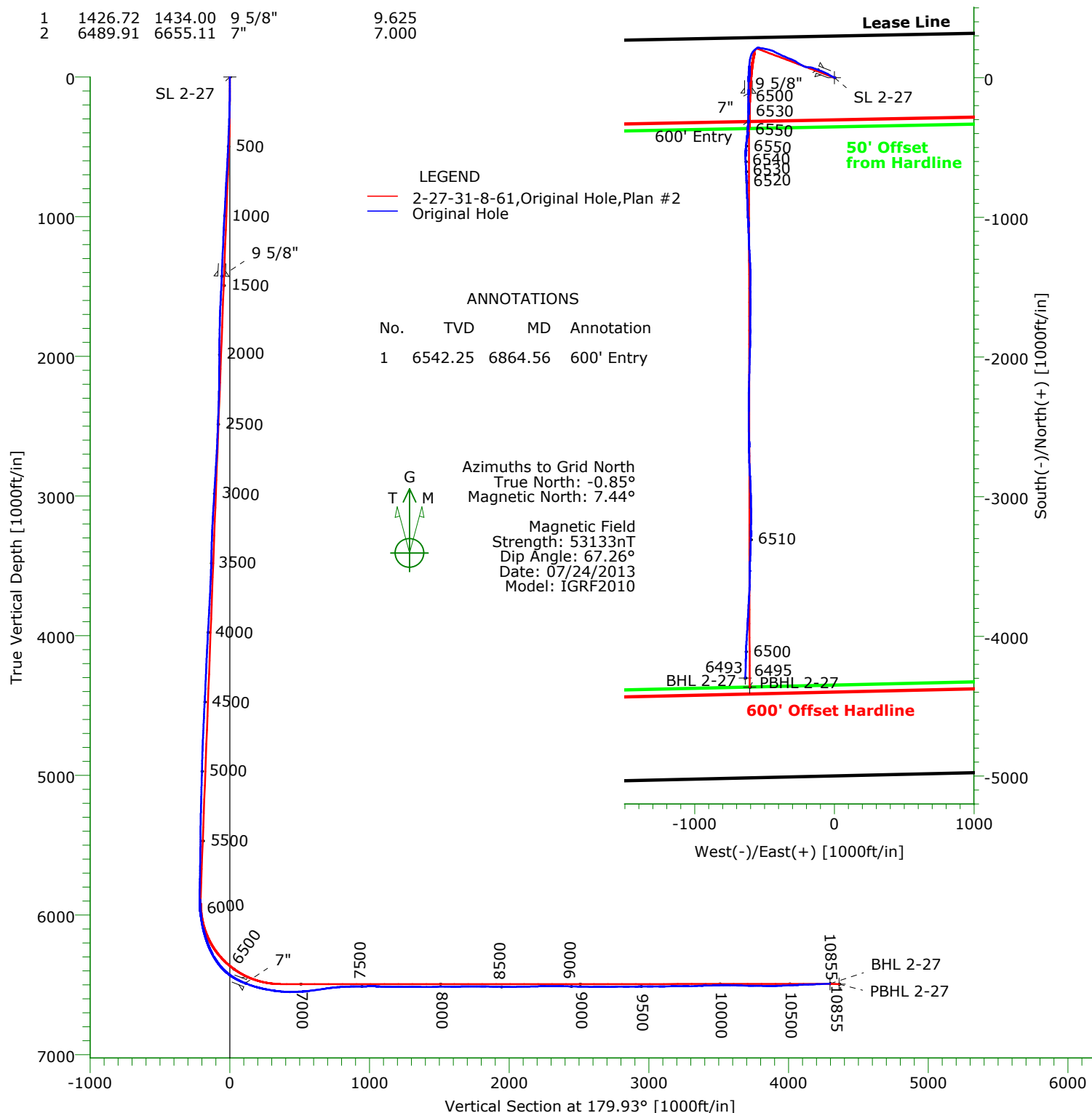


### CASING DETAILS

No.	TVD	MD	Name	Size
1	1426.72	1434.00	9 5/8"	9.625
2	6489.91	6655.11	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	1478417.98	3364100.00	40°38'21.306N	104°11'16.922W	Point
BHL 2-27	6493.25	-4298.02	-637.81	1474119.96	3363462.19	40°37'38.933N	104°11'26.018W	Point
PBHL 2-27	6495.00	-4363.10	-607.10	1474054.88	3363492.90	40°37'38.285N	104°11'25.632W	Point

# Precision Directional Services, Inc.

## Survey Report

<b>Company:</b> CARRIZO OIL & GAS, INC.		<b>Date:</b> 08/05/2013	<b>Time:</b> 11:29:36	<b>Page:</b> 1
<b>Field:</b> Niobrara CONZ'83		<b>Co-ordinate(NE) Reference:</b> Well: 2-27-31-8-61, Grid North		
<b>Site:</b> Speaker 27-31-8-61		<b>Vertical (TVD) Reference:</b> 4992'GL+17"KB 5009.0		
<b>Well:</b> 2-27-31-8-61		<b>Section (VS) Reference:</b> Well (0.00N,0.00E,179.93Azi)		
<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 27-31-8-61				
<b>Weld County, CO</b>				
<b>Site Position:</b>	<b>Northing:</b> 1478417.98 ft	<b>Latitude:</b> 40 38 21.306 N		
<b>From:</b> Map	<b>Easting:</b> 3364100.00 ft	<b>Longitude:</b> 104 11 16.922 W		
<b>Position Uncertainty:</b> 0.00 ft		<b>North Reference:</b> Grid		
<b>Ground Level:</b> 4992.00 ft		<b>Grid Convergence:</b> 0.85 deg		

<b>Well:</b> 2-27-31-8-61				
<b>Slot Name:</b>				
<b>Well Position:</b> +N/-S 0.00 ft	<b>Northing:</b> 1478417.98 ft	<b>Latitude:</b> 40 38 21.306 N		
+E/-W 0.00 ft	<b>Easting:</b> 3364100.00 ft	<b>Longitude:</b> 104 11 16.922 W		
<b>Position Uncertainty:</b> 0.00 ft				

<b>Wellpath:</b> Original Hole				
<b>Current Datum:</b> 4992'GL+17"KB	<b>Height</b> 5009.00 ft	<b>Drilled From:</b> Surface		
<b>Magnetic Data:</b> 07/24/2013		<b>Tie-on Depth:</b> 0.00 ft		
<b>Field Strength:</b> 53133 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	179.93	

<b>Survey Program for Definitive Wellpath</b>				
<b>Date:</b> 08/02/2013	<b>Validated:</b> No	<b>Version:</b> 3		
<b>Actual From</b> To	<b>Survey</b>	<b>Toolcode</b>	<b>Tool Name</b>	
83.00 10780.00	Survey #1 (83.00-10780.00)	MWD	Std MWD	
10855.00 10855.00	Survey #2 (10855.00-10855.00)	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
83.00	0.40	215.70	83.00	-0.24	-0.17	0.24	0.48	0.48	0.00	MWD
146.00	1.00	283.80	146.00	-0.28	-0.83	0.28	1.47	0.95	108.10	MWD
242.00	3.10	307.30	241.93	1.49	-3.71	-1.49	2.31	2.19	24.48	MWD
335.00	4.50	298.90	334.72	4.78	-8.90	-4.79	1.62	1.51	-9.03	MWD
429.00	4.90	297.10	428.41	8.39	-15.71	-8.41	0.45	0.43	-1.91	MWD
522.00	5.10	298.70	521.05	12.18	-22.87	-12.21	0.26	0.22	1.72	MWD
616.00	6.40	299.20	614.58	16.75	-31.11	-16.78	1.38	1.38	0.53	MWD
710.00	7.00	301.50	707.94	22.29	-40.56	-22.34	0.70	0.64	2.45	MWD
803.00	6.60	295.00	800.28	27.51	-50.24	-27.58	0.93	-0.43	-6.99	MWD
897.00	6.90	294.00	893.63	32.09	-60.29	-32.17	0.34	0.32	-1.06	MWD
990.00	7.00	295.20	985.95	36.78	-70.53	-36.86	0.19	0.11	1.29	MWD
1084.00	7.20	296.60	1079.23	41.86	-80.98	-41.95	0.28	0.21	1.49	MWD
1177.00	6.70	290.10	1171.55	46.33	-91.28	-46.44	1.00	-0.54	-6.99	MWD
1271.00	6.80	289.60	1264.89	50.08	-101.67	-50.20	0.12	0.11	-0.53	MWD
1365.00	6.90	290.60	1358.22	53.93	-112.20	-54.07	0.17	0.11	1.06	MWD
1393.00	6.90	290.10	1386.02	55.10	-115.36	-55.24	0.21	0.00	-1.79	MWD
1450.00	7.00	291.20	1442.60	57.54	-121.81	-57.69	0.29	0.18	1.93	MWD
1535.00	6.90	291.30	1526.98	61.26	-131.39	-61.42	0.12	-0.12	0.12	MWD
1620.00	7.60	293.10	1611.30	65.32	-141.32	-65.50	0.87	0.82	2.12	MWD
1706.00	6.90	286.90	1696.61	69.06	-151.50	-69.24	1.22	-0.81	-7.21	MWD
1791.00	6.00	281.70	1781.07	71.44	-160.73	-71.64	1.26	-1.06	-6.12	MWD

# Precision Directional Services, Inc.

## Survey Report

<b>Company:</b> CARRIZO OIL & GAS, INC.	<b>Date:</b> 08/05/2013	<b>Time:</b> 11:29:36	<b>Page:</b> 2
<b>Field:</b> Niobrara CONZ'83	<b>Co-ordinate(NE) Reference:</b> Well: 2-27-31-8-61, Grid North		
<b>Site:</b> Speaker 27-31-8-61	<b>Vertical (TVD) Reference:</b> 4992'GL+17"KB 5009.0		
<b>Well:</b> 2-27-31-8-61	<b>Section (VS) Reference:</b> Well (0.00N,0.00E,179.93Azi)		
<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
1876.00	5.80	279.70	1865.62	73.07	-169.32	-73.27	0.34	-0.24	-2.35	MWD
1961.00	5.30	275.30	1950.22	74.15	-177.46	-74.37	0.77	-0.59	-5.18	MWD
2047.00	4.90	272.20	2035.88	74.66	-185.08	-74.89	0.56	-0.47	-3.60	MWD
2132.00	5.40	277.30	2120.54	75.31	-192.68	-75.54	0.80	0.59	6.00	MWD
2217.00	4.90	273.20	2205.20	76.02	-200.27	-76.26	0.73	-0.59	-4.82	MWD
2303.00	4.70	288.00	2290.90	77.31	-207.29	-77.57	1.45	-0.23	17.21	MWD
2388.00	5.50	294.50	2375.56	80.08	-214.31	-80.34	1.16	0.94	7.65	MWD
2473.00	5.30	293.60	2460.18	83.34	-221.61	-83.61	0.26	-0.24	-1.06	MWD
2558.00	4.70	294.10	2544.86	86.33	-228.39	-86.61	0.71	-0.71	0.59	MWD
2644.00	5.00	300.60	2630.55	89.68	-234.83	-89.97	0.73	0.35	7.56	MWD
2729.00	5.90	302.60	2715.17	93.92	-241.70	-94.21	1.08	1.06	2.35	MWD
2814.00	6.80	302.60	2799.65	98.98	-249.62	-99.29	1.06	1.06	0.00	MWD
2900.00	6.20	301.00	2885.09	104.12	-257.89	-104.43	0.73	-0.70	-1.86	MWD
2985.00	7.10	300.10	2969.52	109.12	-266.37	-109.44	1.07	1.06	-1.06	MWD
3070.00	6.90	300.10	3053.89	114.31	-275.33	-114.65	0.24	-0.24	0.00	MWD
3156.00	6.40	299.90	3139.31	119.29	-283.95	-119.64	0.58	-0.58	-0.23	MWD
3241.00	5.80	298.50	3223.83	123.70	-291.84	-124.06	0.73	-0.71	-1.65	MWD
3326.00	4.70	296.80	3308.47	127.32	-298.72	-127.69	1.31	-1.29	-2.00	MWD
3411.00	4.10	285.90	3393.22	129.73	-304.75	-130.10	1.21	-0.71	-12.82	MWD
3497.00	4.80	287.30	3478.96	131.64	-311.14	-132.02	0.82	0.81	1.63	MWD
3582.00	6.30	292.70	3563.56	134.50	-318.84	-134.89	1.87	1.76	6.35	MWD
3667.00	6.80	292.90	3648.00	138.25	-327.78	-138.65	0.59	0.59	0.24	MWD
3752.00	7.10	292.90	3732.38	142.26	-337.25	-142.67	0.35	0.35	0.00	MWD
3838.00	7.40	293.80	3817.69	146.56	-347.22	-146.98	0.37	0.35	1.05	MWD
3923.00	7.70	292.60	3901.95	150.96	-357.48	-151.39	0.40	0.35	-1.41	MWD
4009.00	7.60	293.80	3987.19	155.47	-368.00	-155.91	0.22	-0.12	1.40	MWD
4094.00	7.10	294.70	4071.49	159.93	-377.92	-160.39	0.60	-0.59	1.06	MWD
4179.00	6.40	296.80	4155.90	164.26	-386.92	-164.73	0.87	-0.82	2.47	MWD
4264.00	5.40	294.30	4240.45	168.04	-394.79	-168.52	1.21	-1.18	-2.94	MWD
4350.00	5.90	296.10	4326.03	171.65	-402.45	-172.14	0.62	0.58	2.09	MWD
4434.00	5.70	296.60	4409.60	175.42	-410.06	-175.92	0.25	-0.24	0.60	MWD
4519.00	6.30	298.00	4494.14	179.50	-417.95	-180.01	0.73	0.71	1.65	MWD
4604.00	5.80	297.80	4578.66	183.69	-425.87	-184.21	0.59	-0.59	-0.24	MWD
4690.00	6.20	294.10	4664.19	187.61	-433.95	-188.14	0.65	0.47	-4.30	MWD
4775.00	5.80	295.20	4748.72	191.32	-442.03	-191.86	0.49	-0.47	1.29	MWD
4860.00	6.20	286.90	4833.26	194.48	-450.31	-195.03	1.12	0.47	-9.76	MWD
4945.00	5.80	287.10	4917.79	197.08	-458.80	-197.64	0.47	-0.47	0.24	MWD
5030.00	5.80	284.50	5002.36	199.42	-467.07	-199.99	0.31	0.00	-3.06	MWD
5115.00	5.40	283.90	5086.95	201.45	-475.11	-202.03	0.48	-0.47	-0.71	MWD
5200.00	5.80	283.60	5171.55	203.42	-483.16	-204.01	0.47	0.47	-0.35	MWD
5285.00	5.40	287.10	5256.14	205.61	-491.16	-206.21	0.62	-0.47	4.12	MWD
5371.00	5.70	278.50	5341.74	207.43	-499.25	-208.04	1.03	0.35	-10.00	MWD
5456.00	5.10	277.10	5426.36	208.52	-507.18	-209.14	0.72	-0.71	-1.65	MWD
5541.00	5.50	274.80	5511.00	209.33	-514.98	-209.96	0.53	0.47	-2.71	MWD
5626.00	4.80	279.40	5595.66	210.25	-522.55	-210.89	0.96	-0.82	5.41	MWD
5712.00	5.00	282.00	5681.34	211.62	-529.77	-212.26	0.35	0.23	3.02	MWD
5797.00	4.70	284.60	5766.04	213.26	-536.76	-213.92	0.44	-0.35	3.06	MWD
5882.00	4.00	286.80	5850.79	215.00	-542.97	-215.66	0.85	-0.82	2.59	MWD
5919.00	4.00	280.30	5887.70	215.60	-545.47	-216.27	1.22	0.00	-17.57	MWD
5962.00	6.50	245.60	5930.53	214.87	-549.17	-215.54	9.15	5.81	-80.70	MWD
6004.00	10.00	232.10	5972.09	211.64	-554.21	-212.32	9.47	8.33	-32.14	MWD
6047.00	13.20	229.60	6014.21	206.17	-560.90	-206.85	7.53	7.44	-5.81	MWD
6090.00	15.90	232.10	6055.83	199.36	-569.29	-200.06	6.45	6.28	5.81	MWD

# Precision Directional Services, Inc.

## Survey Report

<b>Company:</b> CARRIZO OIL & GAS, INC.	<b>Date:</b> 08/05/2013	<b>Time:</b> 11:29:36	<b>Page:</b> 3
<b>Field:</b> Niobrara CONZ'83	<b>Co-ordinate(NE) Reference:</b> Well: 2-27-31-8-61, Grid North		
<b>Site:</b> Speaker 27-31-8-61	<b>Vertical (TVD) Reference:</b> 4992'GL+17"KB 5009.0		
<b>Well:</b> 2-27-31-8-61	<b>Section (VS) Reference:</b> Well (0.00N,0.00E,179.93Azi)		
<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
6132.00	17.10	224.50	6096.10	191.42	-578.16	-192.13	5.87	2.86	-18.10	MWD
6175.00	18.80	214.70	6137.02	181.22	-586.53	-181.93	8.05	3.95	-22.79	MWD
6217.00	19.80	205.00	6176.66	169.20	-593.39	-169.93	7.99	2.38	-23.10	MWD
6260.00	22.20	197.60	6216.81	154.85	-598.93	-155.58	8.31	5.58	-17.21	MWD
6294.00	25.20	191.30	6247.95	141.63	-602.29	-142.36	11.54	8.82	-18.53	MWD
6324.00	28.00	188.10	6274.77	128.39	-604.54	-129.13	10.48	9.33	-10.67	MWD
6354.00	30.40	187.80	6300.96	113.89	-606.56	-114.64	8.01	8.00	-1.00	MWD
6384.00	33.30	186.00	6326.44	98.18	-608.45	-98.92	10.17	9.67	-6.00	MWD
6414.00	37.30	185.00	6350.92	80.93	-610.10	-81.67	13.47	13.33	-3.33	MWD
6444.00	41.30	183.90	6374.13	61.99	-611.57	-62.73	13.53	13.33	-3.67	MWD
6472.00	45.10	183.20	6394.53	42.86	-612.75	-43.61	13.68	13.57	-2.50	MWD
6502.00	50.10	182.20	6414.76	20.74	-613.79	-21.49	16.85	16.67	-3.33	MWD
6532.00	54.70	180.90	6433.06	-3.01	-614.42	2.26	15.71	15.33	-4.33	MWD
6562.00	58.70	179.90	6449.52	-28.08	-614.59	27.33	13.62	13.33	-3.33	MWD
6626.00	66.70	179.90	6478.85	-84.91	-614.49	84.16	12.50	12.50	0.00	MWD
6669.00	69.60	180.20	6494.86	-124.81	-614.53	124.06	6.78	6.74	0.70	MWD
6684.00	70.70	180.10	6499.95	-138.92	-614.57	138.17	7.36	7.33	-0.67	MWD
6728.00	73.00	179.90	6513.66	-180.73	-614.57	179.98	5.25	5.23	-0.45	MWD
6771.00	76.60	180.90	6524.93	-222.22	-614.86	221.47	8.67	8.37	2.33	MWD
6814.00	80.00	181.50	6533.65	-264.31	-615.74	263.56	8.02	7.91	1.40	MWD
6856.00	80.20	182.50	6540.87	-305.66	-617.19	304.90	2.39	0.48	2.38	MWD
6864.56	81.18	182.70	6542.25	-314.10	-617.57	313.34	11.67	11.43	2.39	600' Entry
6877.00	82.60	183.00	6544.01	-326.40	-618.18	325.64	11.67	11.43	2.37	MWD
6899.00	83.80	183.40	6546.61	-348.21	-619.40	347.45	5.75	5.45	1.82	MWD
6920.00	85.20	183.60	6548.63	-369.07	-620.68	368.31	6.73	6.67	0.95	MWD
6942.00	86.30	184.30	6550.26	-390.96	-622.19	390.20	5.92	5.00	3.18	MWD
6963.00	87.80	185.70	6551.34	-411.85	-624.02	411.09	9.76	7.14	6.67	MWD
6984.00	90.20	186.00	6551.70	-432.73	-626.16	431.97	11.52	11.43	1.43	MWD
7027.00	92.50	186.90	6550.69	-475.45	-630.99	474.68	5.74	5.35	2.09	MWD
7070.00	93.10	184.80	6548.59	-518.17	-635.36	517.39	5.07	1.40	-4.88	MWD
7112.00	96.60	178.70	6545.04	-559.97	-636.65	559.19	16.70	8.33	-14.52	MWD
7155.00	97.30	177.60	6539.83	-602.63	-635.27	601.86	3.02	1.63	-2.56	MWD
7197.00	98.00	177.10	6534.24	-644.21	-633.34	643.44	2.04	1.67	-1.19	MWD
7240.00	98.80	177.20	6527.96	-686.70	-631.23	685.93	1.87	1.86	0.23	MWD
7283.00	96.80	178.50	6522.12	-729.27	-629.63	728.50	5.53	-4.65	3.02	MWD
7326.00	94.40	177.60	6517.93	-772.04	-628.18	771.27	5.96	-5.58	-2.09	MWD
7368.00	92.10	177.80	6515.55	-813.93	-626.49	813.17	5.50	-5.48	0.48	MWD
7411.00	93.10	177.20	6513.60	-856.85	-624.62	856.08	2.71	2.33	-1.40	MWD
7454.00	90.90	177.60	6512.10	-899.77	-622.67	899.01	5.20	-5.12	0.93	MWD
7496.00	89.60	178.10	6511.91	-941.74	-621.09	940.98	3.32	-3.10	1.19	MWD
7539.00	91.10	178.70	6511.65	-984.72	-619.89	983.96	3.76	3.49	1.40	MWD
7581.00	89.80	176.50	6511.32	-1026.68	-618.14	1025.93	6.08	-3.10	-5.24	MWD
7624.00	86.40	177.60	6512.75	-1069.59	-615.92	1068.84	8.31	-7.91	2.56	MWD
7667.00	87.60	177.80	6515.00	-1112.50	-614.20	1111.75	2.83	2.79	0.47	MWD
7709.00	89.70	178.30	6515.99	-1154.46	-612.77	1153.71	5.14	5.00	1.19	MWD
7752.00	90.20	177.40	6516.02	-1197.43	-611.16	1196.68	2.39	1.16	-2.09	MWD
7795.00	89.90	176.00	6515.99	-1240.36	-608.68	1239.61	3.33	-0.70	-3.26	MWD
7837.00	90.00	176.70	6516.02	-1282.27	-606.01	1281.53	1.68	0.24	1.67	MWD
7880.00	89.70	178.30	6516.13	-1325.23	-604.13	1324.49	3.79	-0.70	3.72	MWD
7923.00	90.50	177.60	6516.06	-1368.20	-602.60	1367.46	2.47	1.86	-1.63	MWD
7965.00	90.50	179.50	6515.69	-1410.18	-601.53	1409.45	4.52	0.00	4.52	MWD
8008.00	90.50	181.30	6515.32	-1453.18	-601.83	1452.44	4.19	0.00	4.19	MWD
8051.00	90.60	180.60	6514.90	-1496.17	-602.55	1495.43	1.64	0.23	-1.63	MWD
8093.00	90.60	178.80	6514.46	-1538.17	-602.33	1537.43	4.29	0.00	-4.29	MWD

# Precision Directional Services, Inc.

## Survey Report

<b>Company:</b> CARRIZO OIL & GAS, INC. <b>Field:</b> Niobrara CONZ'83 <b>Site:</b> Speaker 27-31-8-61 <b>Well:</b> 2-27-31-8-61 <b>Wellpath:</b> Original Hole	<b>Date:</b> 08/05/2013 <b>Co-ordinate(NE) Reference:</b> Well: 2-27-31-8-61, Grid North <b>Vertical (TVD) Reference:</b> 4992'GL+17"KB 5009.0 <b>Section (VS) Reference:</b> Well (0.00N,0.00E,179.93Azi) <b>Survey Calculation Method:</b> Minimum Curvature	<b>Time:</b> 11:29:36 <b>Page:</b> 4 <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
8136.00	90.80	178.50	6513.94	-1581.15	-601.31	1580.42	0.84	0.47	-0.70	MWD
8179.00	90.10	180.60	6513.60	-1624.15	-600.98	1623.41	5.15	-1.63	4.88	MWD
8222.00	91.30	181.50	6513.08	-1667.14	-601.76	1666.40	3.49	2.79	2.09	MWD
8264.00	90.20	180.90	6512.53	-1709.12	-602.64	1708.38	2.98	-2.62	-1.43	MWD
8307.00	90.60	179.90	6512.23	-1752.12	-602.94	1751.38	2.50	0.93	-2.33	MWD
8350.00	89.70	179.20	6512.11	-1795.12	-602.61	1794.38	2.65	-2.09	-1.63	MWD
8392.00	88.60	180.90	6512.74	-1837.11	-602.64	1836.37	4.82	-2.62	4.05	MWD
8435.00	88.20	180.40	6513.94	-1880.09	-603.13	1879.35	1.49	-0.93	-1.16	MWD
8478.00	89.30	181.60	6514.88	-1923.07	-603.88	1922.33	3.79	2.56	2.79	MWD
8520.00	89.60	181.30	6515.28	-1965.06	-604.94	1964.32	1.01	0.71	-0.71	MWD
8563.00	90.30	181.80	6515.32	-2008.04	-606.11	2007.30	2.00	1.63	1.16	MWD
8606.00	90.50	181.60	6515.02	-2051.02	-607.38	2050.28	0.66	0.47	-0.47	MWD
8648.00	90.90	181.50	6514.50	-2093.00	-608.52	2092.26	0.98	0.95	-0.24	MWD
8690.00	91.20	181.60	6513.73	-2134.98	-609.65	2134.23	0.75	0.71	0.24	MWD
8734.00	91.50	181.50	6512.70	-2178.95	-610.84	2178.20	0.72	0.68	-0.23	MWD
8776.00	92.10	181.50	6511.38	-2220.92	-611.94	2220.17	1.43	1.43	0.00	MWD
8819.00	90.00	180.40	6510.59	-2263.90	-612.65	2263.15	5.51	-4.88	-2.56	MWD
8862.00	90.60	181.60	6510.36	-2306.89	-613.41	2306.14	3.12	1.40	2.79	MWD
8904.00	90.10	180.20	6510.11	-2348.88	-614.06	2348.13	3.54	-1.19	-3.33	MWD
8947.00	88.30	179.50	6510.71	-2391.88	-613.95	2391.13	4.49	-4.19	-1.63	MWD
8990.00	88.50	179.40	6511.91	-2434.86	-613.54	2434.11	0.52	0.47	-0.23	MWD
9032.00	88.50	179.70	6513.01	-2476.84	-613.21	2476.09	0.71	0.00	0.71	MWD
9075.00	88.70	179.20	6514.06	-2519.83	-612.80	2519.08	1.25	0.47	-1.16	MWD
9118.00	88.90	178.80	6514.96	-2562.81	-612.05	2562.06	1.04	0.47	-0.93	MWD
9160.00	89.10	178.50	6515.69	-2604.79	-611.06	2604.05	0.86	0.48	-0.71	MWD
9203.00	91.00	180.80	6515.65	-2647.79	-610.79	2647.04	6.94	4.42	5.35	MWD
9246.00	89.90	179.00	6515.32	-2690.78	-610.72	2690.04	4.91	-2.56	-4.19	MWD
9288.00	90.40	178.70	6515.21	-2732.78	-609.88	2732.03	1.39	1.19	-0.71	MWD
9331.00	90.50	177.80	6514.87	-2775.75	-608.56	2775.01	2.11	0.23	-2.09	MWD
9374.00	90.50	175.70	6514.49	-2818.68	-606.13	2817.94	4.88	0.00	-4.88	MWD
9416.00	90.70	177.40	6514.05	-2860.60	-603.60	2859.86	4.08	0.48	4.05	MWD
9459.00	90.70	176.70	6513.53	-2903.54	-601.39	2902.80	1.63	0.00	-1.63	MWD
9501.00	90.10	178.80	6513.24	-2945.50	-599.74	2944.77	5.20	-1.43	5.00	MWD
9544.00	90.00	178.50	6513.20	-2988.49	-598.72	2987.76	0.74	-0.23	-0.70	MWD
9587.00	90.20	180.20	6513.12	-3031.49	-598.24	3030.75	3.98	0.47	3.95	MWD
9629.00	90.20	178.50	6512.98	-3073.48	-597.76	3072.75	4.05	0.00	-4.05	MWD
9672.00	91.50	180.40	6512.34	-3116.47	-597.35	3115.74	5.35	3.02	4.42	MWD
9715.00	91.50	179.70	6511.21	-3159.46	-597.38	3158.73	1.63	0.00	-1.63	MWD
9757.00	89.30	180.80	6510.92	-3201.45	-597.57	3200.72	5.86	-5.24	2.62	MWD
9800.00	89.50	179.90	6511.37	-3244.45	-597.83	3243.72	2.14	0.47	-2.09	MWD
9842.00	92.00	181.50	6510.82	-3286.44	-598.34	3285.71	7.07	5.95	3.81	MWD
9885.00	92.20	181.50	6509.24	-3329.40	-599.47	3328.66	0.47	0.47	0.00	MWD
9928.00	92.60	181.60	6507.44	-3372.34	-600.63	3371.61	0.96	0.93	0.23	MWD
9970.00	91.30	182.70	6506.01	-3414.29	-602.21	3413.55	4.05	-3.10	2.62	MWD
10013.00	91.30	182.00	6505.04	-3457.24	-603.97	3456.50	1.63	0.00	-1.63	MWD
10056.00	92.50	180.80	6503.61	-3500.20	-605.02	3499.46	3.95	2.79	-2.79	MWD
10098.00	90.00	180.10	6502.70	-3542.19	-605.35	3541.44	6.18	-5.95	-1.67	MWD
10141.00	88.10	181.30	6503.41	-3585.17	-605.87	3584.43	5.23	-4.42	2.79	MWD
10183.00	88.20	181.50	6504.77	-3627.14	-606.90	3626.40	0.53	0.24	0.48	MWD
10226.00	88.60	183.00	6505.97	-3670.09	-608.59	3669.34	3.61	0.93	3.49	MWD
10269.00	88.50	183.00	6507.06	-3713.02	-610.84	3712.27	0.23	-0.23	0.00	MWD
10311.00	89.60	183.60	6507.75	-3754.94	-613.25	3754.19	2.98	2.62	1.43	MWD
10354.00	89.30	183.00	6508.16	-3797.87	-615.73	3797.11	1.56	-0.70	-1.40	MWD

# Precision Directional Services, Inc.

## Survey Report

<b>Company:</b> CARRIZO OIL & GAS, INC. <b>Field:</b> Niobrara CONZ'83 <b>Site:</b> Speaker 27-31-8-61 <b>Well:</b> 2-27-31-8-61 <b>Wellpath:</b> Original Hole	<b>Date:</b> 08/05/2013 <b>Co-ordinate(NE) Reference:</b> <b>Vertical (TVD) Reference:</b> <b>Section (VS) Reference:</b> <b>Survey Calculation Method:</b>	<b>Time:</b> 11:29:36 Well: 2-27-31-8-61, Grid North 4992'GL+17'KB 5009.0 Well (0.00N,0.00E,179.93Azi) Minimum Curvature	<b>Page:</b> 5 <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
10396.00	89.40	182.70	6508.64	-3839.81	-617.82	3839.05	0.75	0.24	-0.71	MWD
10439.00	90.30	183.00	6508.75	-3882.76	-619.95	3882.00	2.21	2.09	0.70	MWD
10482.00	92.10	183.40	6507.85	-3925.68	-622.35	3924.92	4.29	4.19	0.93	MWD
10524.00	92.30	183.90	6506.24	-3967.56	-625.03	3966.80	1.28	0.48	1.19	MWD
10567.00	92.30	183.70	6504.51	-4010.43	-627.87	4009.66	0.46	0.00	-0.47	MWD
10610.00	92.70	183.00	6502.64	-4053.32	-630.38	4052.55	1.87	0.93	-1.63	MWD
10652.00	92.60	181.60	6500.70	-4095.24	-632.07	4094.46	3.34	-0.24	-3.33	MWD
10695.00	92.90	182.00	6498.63	-4138.17	-633.42	4137.39	1.16	0.70	0.93	MWD
10738.00	91.50	181.30	6496.98	-4181.12	-634.65	4180.34	3.64	-3.26	-1.63	MWD
10780.00	91.90	181.60	6495.74	-4223.09	-635.72	4222.31	1.19	0.95	0.71	MWD
10855.00	91.90	181.60	6493.25	-4298.02	-637.81	4297.23	0.00	0.00	0.00	Project

### Annotation

MD ft	TVD ft	
6864.56	6542.25	600' Entry