



# CARRIZO OIL & GAS, INC.

Field: Niobrara CONZ'83

Site: Speaker 27-8-61 Pad

Well: 1-27-8-61

Wellpath: Original Hole

Plan: Plan #3

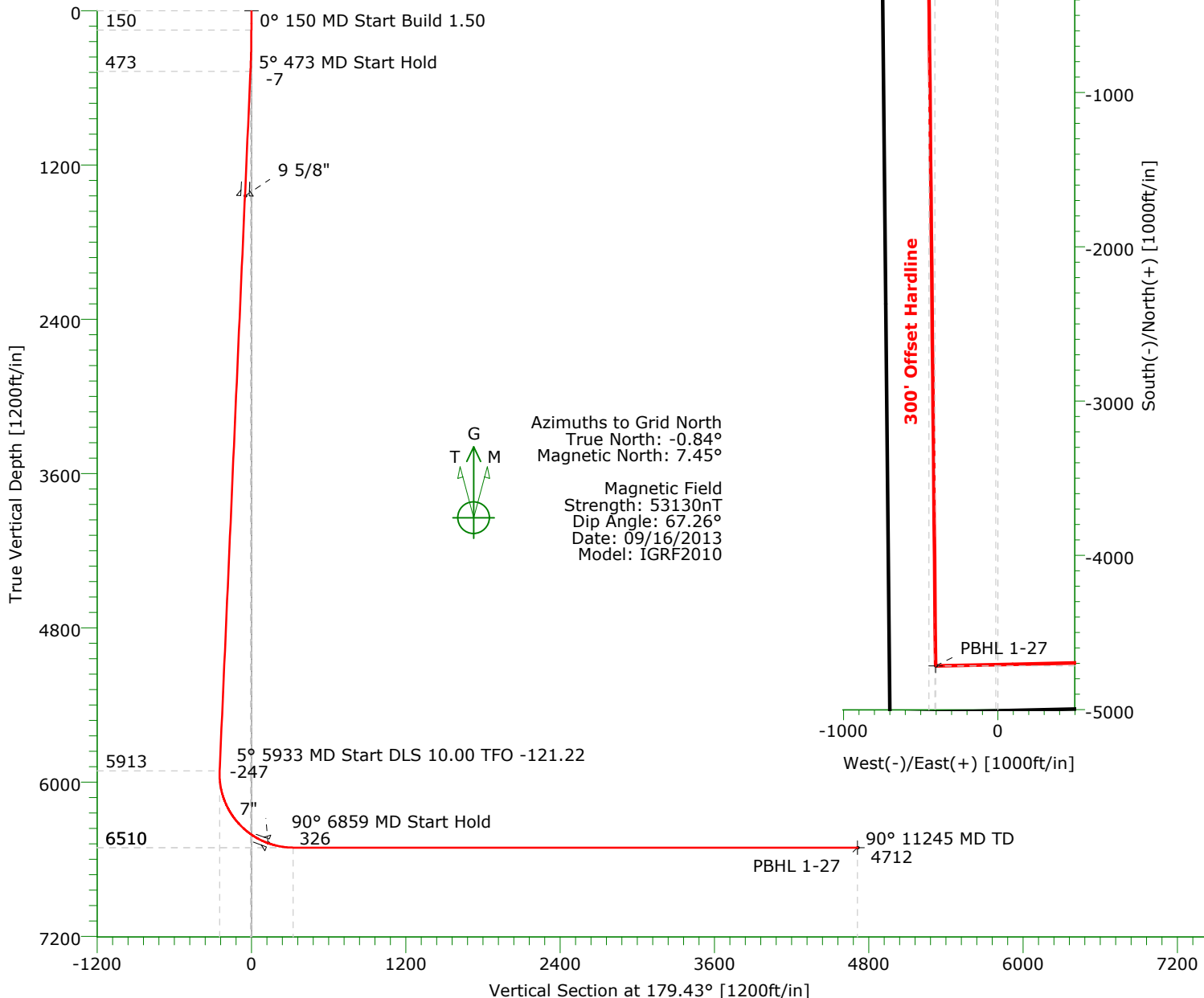


## Precision

Directional Services

### CASING DETAILS

No.	TVD	MD	Name	Size
1	1440.00	1443.86	9 5/8"	9.625
2	6475.36	6658.00	7"	7.000



### TARGET DETAILS

Name	TVD	+N/-S	+E/-W	Northing	Easting	Latitude	Longitude	Shape
SL 1-27	0.00	0.00	0.00	1478356.89	3361067.22	40°38'21.144N	104°11'56.270W	Point
PBHL 1-27	6510.00	-4716.53	-402.28	1473640.36	3360664.94	40°37'34.601N	104°12'02.384W	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	473.09	4.85	300.74	472.71	6.98	-11.74	1.50	0.00	-7.10	
4	5933.36	4.85	300.74	5913.45	242.81	-408.21	0.00	0.00	-246.85	
5	6858.52	90.00	179.43	6510.00	-330.00	-445.75	10.00	-121.22	325.55	
6	11245.27	90.00	179.43	6510.00	-4716.53	-402.28	0.00	0.00	4712.29	PBHL 1-27

Plan: Plan #3 (1-27-8-61/Original Hole)

Created By: Tony LoRicca

Date: 08/16/2013

**PRECISION DIRECTIONAL SERVICES, INC.**

**713.435.6250**

# Precision Directional Services, Inc.

## Planning 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> 1-27-11-8-61 <b>Wellpath:</b> Original Hole	<b>Date:</b> 08/16/2013 <b>Co-ordinate(NE) Reference:</b> Well: 1-27-8-61, 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>Plan:</b> Plan #3	<b>Time:</b> 08:49:07 <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

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

<b>Well:</b> 1-27-8-61	<b>Slot Name:</b>
<b>Well Position:</b> +N/-S 0.00 ft +E/-W 0.00 ft <b>Position Uncertainty:</b> 0.00 ft	<b>Latitude:</b> 40 38 21.144 N <b>Longitude:</b> 104 11 56.270 W

<b>Wellpath:</b> Original Hole  <b>Current Datum:</b> 4999'GL+17'KB <b>Magnetic Data:</b> 09/16/2013 <b>Field Strength:</b> 53130 nT <b>Vertical Section:</b> Depth From (TVD) ft	<b>Height</b> 5016.00 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> 8.29 deg <b>Mag Dip Angle:</b> 67.26 deg <b>+E/-W</b> Direction deg
0.00	0.00	0.00 179.43

<b>Plan:</b> Plan #3 adjusted landing TVD <b>Principal:</b> No	<b>Date Composed:</b> 08/16/2013 <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	
473.09	4.85	300.74	472.71	6.98	-11.74	1.50	1.50	0.00	0.00	
5933.36	4.85	300.74	5913.45	242.81	-408.21	0.00	0.00	0.00	0.00	
6858.52	90.00	179.43	6510.00	-330.00	-445.75	10.00	9.20	-13.11	-121.22	
11245.27	90.00	179.43	6510.00	-4716.53	-402.28	0.00	0.00	0.00	0.00	PBHL 1-27

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	300.74	200.00	0.17	-0.28	-0.17	1.50	1.50	0.00	
300.00	2.25	300.74	299.96	1.51	-2.53	-1.53	1.50	1.50	0.00	
400.00	3.75	300.74	399.82	4.18	-7.03	-4.25	1.50	1.50	0.00	
473.09	4.85	300.74	472.71	6.98	-11.74	-7.10	1.50	1.50	0.00	
500.00	4.85	300.74	499.52	8.14	-13.69	-8.28	0.00	0.00	0.00	
600.00	4.85	300.74	599.16	12.46	-20.95	-12.67	0.00	0.00	0.00	
700.00	4.85	300.74	698.80	16.78	-28.21	-17.06	0.00	0.00	0.00	
800.00	4.85	300.74	798.45	21.10	-35.47	-21.45	0.00	0.00	0.00	
900.00	4.85	300.74	898.09	25.42	-42.74	-25.84	0.00	0.00	0.00	
1000.00	4.85	300.74	997.73	29.74	-50.00	-30.23	0.00	0.00	0.00	
1100.00	4.85	300.74	1097.37	34.06	-57.26	-34.62	0.00	0.00	0.00	
1200.00	4.85	300.74	1197.02	38.38	-64.52	-39.02	0.00	0.00	0.00	

# Precision Directional Services, Inc.

## Planning 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> 1-27-11-8-61 <b>Wellpath:</b> Original Hole	<b>Date:</b> 08/16/2013 <b>Time:</b> 08:49:07 <b>Page:</b> 2 <b>Co-ordinate(NE) Reference:</b> Well: 1-27-8-61, 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>Plan:</b> Plan #3
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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
1300.00	4.85	300.74	1296.66	42.69	-71.78	-43.41	0.00	0.00	0.00	
1400.00	4.85	300.74	1396.30	47.01	-79.04	-47.80	0.00	0.00	0.00	
1443.86	4.85	300.74	1440.00	48.91	-82.22	-49.72	0.00	0.00	0.00	9 5/8"
1500.00	4.85	300.74	1495.94	51.33	-86.30	-52.19	0.00	0.00	0.00	
1600.00	4.85	300.74	1595.59	55.65	-93.56	-56.58	0.00	0.00	0.00	
1700.00	4.85	300.74	1695.23	59.97	-100.82	-60.97	0.00	0.00	0.00	
1800.00	4.85	300.74	1794.87	64.29	-108.08	-65.36	0.00	0.00	0.00	
1900.00	4.85	300.74	1894.51	68.61	-115.35	-69.75	0.00	0.00	0.00	
2000.00	4.85	300.74	1994.16	72.93	-122.61	-74.14	0.00	0.00	0.00	
2100.00	4.85	300.74	2093.80	77.25	-129.87	-78.53	0.00	0.00	0.00	
2200.00	4.85	300.74	2193.44	81.56	-137.13	-82.93	0.00	0.00	0.00	
2300.00	4.85	300.74	2293.08	85.88	-144.39	-87.32	0.00	0.00	0.00	
2400.00	4.85	300.74	2392.73	90.20	-151.65	-91.71	0.00	0.00	0.00	
2500.00	4.85	300.74	2492.37	94.52	-158.91	-96.10	0.00	0.00	0.00	
2600.00	4.85	300.74	2592.01	98.84	-166.17	-100.49	0.00	0.00	0.00	
2700.00	4.85	300.74	2691.65	103.16	-173.43	-104.88	0.00	0.00	0.00	
2800.00	4.85	300.74	2791.30	107.48	-180.70	-109.27	0.00	0.00	0.00	
2900.00	4.85	300.74	2890.94	111.80	-187.96	-113.66	0.00	0.00	0.00	
3000.00	4.85	300.74	2990.58	116.12	-195.22	-118.05	0.00	0.00	0.00	
3100.00	4.85	300.74	3090.22	120.44	-202.48	-122.44	0.00	0.00	0.00	
3200.00	4.85	300.74	3189.87	124.75	-209.74	-126.83	0.00	0.00	0.00	
3300.00	4.85	300.74	3289.51	129.07	-217.00	-131.23	0.00	0.00	0.00	
3400.00	4.85	300.74	3389.15	133.39	-224.26	-135.62	0.00	0.00	0.00	
3500.00	4.85	300.74	3488.79	137.71	-231.52	-140.01	0.00	0.00	0.00	
3600.00	4.85	300.74	3588.44	142.03	-238.78	-144.40	0.00	0.00	0.00	
3700.00	4.85	300.74	3688.08	146.35	-246.05	-148.79	0.00	0.00	0.00	
3800.00	4.85	300.74	3787.72	150.67	-253.31	-153.18	0.00	0.00	0.00	
3900.00	4.85	300.74	3887.36	154.99	-260.57	-157.57	0.00	0.00	0.00	
4000.00	4.85	300.74	3987.01	159.31	-267.83	-161.96	0.00	0.00	0.00	
4100.00	4.85	300.74	4086.65	163.62	-275.09	-166.35	0.00	0.00	0.00	
4200.00	4.85	300.74	4186.29	167.94	-282.35	-170.74	0.00	0.00	0.00	
4300.00	4.85	300.74	4285.93	172.26	-289.61	-175.13	0.00	0.00	0.00	
4400.00	4.85	300.74	4385.58	176.58	-296.87	-179.53	0.00	0.00	0.00	
4500.00	4.85	300.74	4485.22	180.90	-304.13	-183.92	0.00	0.00	0.00	
4600.00	4.85	300.74	4584.86	185.22	-311.40	-188.31	0.00	0.00	0.00	
4700.00	4.85	300.74	4684.50	189.54	-318.66	-192.70	0.00	0.00	0.00	
4800.00	4.85	300.74	4784.15	193.86	-325.92	-197.09	0.00	0.00	0.00	
4900.00	4.85	300.74	4883.79	198.18	-333.18	-201.48	0.00	0.00	0.00	
5000.00	4.85	300.74	4983.43	202.49	-340.44	-205.87	0.00	0.00	0.00	
5100.00	4.85	300.74	5083.07	206.81	-347.70	-210.26	0.00	0.00	0.00	
5200.00	4.85	300.74	5182.72	211.13	-354.96	-214.65	0.00	0.00	0.00	
5300.00	4.85	300.74	5282.36	215.45	-362.22	-219.04	0.00	0.00	0.00	
5400.00	4.85	300.74	5382.00	219.77	-369.48	-223.44	0.00	0.00	0.00	
5500.00	4.85	300.74	5481.64	224.09	-376.75	-227.83	0.00	0.00	0.00	
5600.00	4.85	300.74	5581.29	228.41	-384.01	-232.22	0.00	0.00	0.00	
5700.00	4.85	300.74	5680.93	232.73	-391.27	-236.61	0.00	0.00	0.00	
5800.00	4.85	300.74	5780.57	237.05	-398.53	-241.00	0.00	0.00	0.00	
5900.00	4.85	300.74	5880.21	241.36	-405.79	-245.39	0.00	0.00	0.00	
5933.36	4.85	300.74	5913.45	242.81	-408.21	-246.85	0.00	0.00	0.00	
5950.00	4.23	281.06	5930.04	243.28	-409.42	-247.34	10.00	-3.70	-118.24	
6000.00	5.86	224.32	5979.87	241.81	-413.01	-245.91	10.00	3.26	-113.48	
6050.00	10.04	203.60	6029.39	235.99	-416.54	-240.12	10.00	8.35	-41.46	
6100.00	14.73	195.43	6078.22	225.86	-419.98	-230.03	10.00	9.39	-16.34	
6150.00	19.57	191.19	6125.98	211.51	-423.30	-215.71	10.00	9.69	-8.48	

# Precision Directional Services, Inc.

## Planning Report

<b>Company:</b> CARRIZO OIL & GAS, INC.	<b>Date:</b> 08/16/2013	<b>Time:</b> 08:49:07	<b>Page:</b> 3
<b>Field:</b> Niobrara CONZ'83	<b>Co-ordinate(NE) Reference:</b> Well: 1-27-8-61, 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> 1-27-11-8-61	<b>Section (VS) Reference:</b> Well (0.00N,0.00E,179.43Azi)		
<b>Wellpath:</b> Original Hole	<b>Plan:</b> Plan #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
6200.00	24.48	188.59	6172.32	193.04	-426.47	-197.27	10.00	9.81	-5.20	
6250.00	29.42	186.81	6216.88	170.59	-429.48	-174.85	10.00	9.87	-3.55	
6300.00	34.37	185.51	6259.32	144.33	-432.29	-148.62	10.00	9.91	-2.60	
6350.00	39.33	184.50	6299.32	114.47	-434.89	-118.79	10.00	9.93	-2.02	
6400.00	44.30	183.69	6336.57	81.23	-437.26	-85.57	10.00	9.94	-1.63	
6450.00	49.28	183.01	6370.79	44.86	-439.38	-49.23	10.00	9.95	-1.36	
6500.00	54.26	182.42	6401.73	5.64	-441.23	-10.03	10.00	9.96	-1.17	
6550.00	59.24	181.90	6429.14	-36.13	-442.80	31.72	10.00	9.96	-1.03	
6600.00	64.22	181.44	6452.81	-80.13	-444.08	75.71	10.00	9.97	-0.93	
6650.00	69.21	181.01	6472.57	-126.04	-445.06	121.60	10.00	9.97	-0.86	
6658.00	70.00	180.94	6475.36	-133.53	-445.19	129.10	10.00	9.97	-0.82	7"
6700.00	74.19	180.61	6488.27	-173.49	-445.73	169.04	10.00	9.97	-0.80	
6750.00	79.18	180.23	6499.78	-222.13	-446.08	217.68	10.00	9.97	-0.76	
6800.00	84.16	179.86	6507.02	-271.58	-446.11	267.13	10.00	9.97	-0.74	
6850.00	89.15	179.49	6509.94	-321.48	-445.83	317.03	10.00	9.97	-0.73	
6858.52	90.00	179.43	6510.00	-330.00	-445.75	325.55	10.00	9.97	-0.72	
6900.00	90.00	179.43	6510.00	-371.48	-445.34	367.03	0.00	0.00	0.00	
7000.00	90.00	179.43	6510.00	-471.47	-444.35	467.03	0.00	0.00	0.00	
7100.00	90.00	179.43	6510.00	-571.47	-443.36	567.03	0.00	0.00	0.00	
7200.00	90.00	179.43	6510.00	-671.46	-442.37	667.03	0.00	0.00	0.00	
7300.00	90.00	179.43	6510.00	-771.46	-441.37	767.03	0.00	0.00	0.00	
7400.00	90.00	179.43	6510.00	-871.45	-440.38	867.03	0.00	0.00	0.00	
7500.00	90.00	179.43	6510.00	-971.45	-439.39	967.03	0.00	0.00	0.00	
7600.00	90.00	179.43	6510.00	-1071.44	-438.40	1067.03	0.00	0.00	0.00	
7700.00	90.00	179.43	6510.00	-1171.44	-437.41	1167.03	0.00	0.00	0.00	
7800.00	90.00	179.43	6510.00	-1271.43	-436.42	1267.03	0.00	0.00	0.00	
7900.00	90.00	179.43	6510.00	-1371.43	-435.43	1367.03	0.00	0.00	0.00	
8000.00	90.00	179.43	6510.00	-1471.42	-434.44	1467.03	0.00	0.00	0.00	
8100.00	90.00	179.43	6510.00	-1571.42	-433.45	1567.03	0.00	0.00	0.00	
8200.00	90.00	179.43	6510.00	-1671.41	-432.46	1667.03	0.00	0.00	0.00	
8300.00	90.00	179.43	6510.00	-1771.41	-431.46	1767.03	0.00	0.00	0.00	
8400.00	90.00	179.43	6510.00	-1871.40	-430.47	1867.03	0.00	0.00	0.00	
8500.00	90.00	179.43	6510.00	-1971.40	-429.48	1967.03	0.00	0.00	0.00	
8600.00	90.00	179.43	6510.00	-2071.39	-428.49	2067.03	0.00	0.00	0.00	
8700.00	90.00	179.43	6510.00	-2171.39	-427.50	2167.03	0.00	0.00	0.00	
8800.00	90.00	179.43	6510.00	-2271.38	-426.51	2267.03	0.00	0.00	0.00	
8900.00	90.00	179.43	6510.00	-2371.38	-425.52	2367.03	0.00	0.00	0.00	
9000.00	90.00	179.43	6510.00	-2471.37	-424.53	2467.03	0.00	0.00	0.00	
9100.00	90.00	179.43	6510.00	-2571.37	-423.54	2567.03	0.00	0.00	0.00	
9200.00	90.00	179.43	6510.00	-2671.36	-422.55	2667.03	0.00	0.00	0.00	
9300.00	90.00	179.43	6510.00	-2771.36	-421.55	2767.03	0.00	0.00	0.00	
9400.00	90.00	179.43	6510.00	-2871.36	-420.56	2867.03	0.00	0.00	0.00	
9500.00	90.00	179.43	6510.00	-2971.35	-419.57	2967.03	0.00	0.00	0.00	
9600.00	90.00	179.43	6510.00	-3071.35	-418.58	3067.03	0.00	0.00	0.00	
9700.00	90.00	179.43	6510.00	-3171.34	-417.59	3167.03	0.00	0.00	0.00	
9800.00	90.00	179.43	6510.00	-3271.34	-416.60	3267.03	0.00	0.00	0.00	
9900.00	90.00	179.43	6510.00	-3371.33	-415.61	3367.03	0.00	0.00	0.00	
10000.00	90.00	179.43	6510.00	-3471.33	-414.62	3467.03	0.00	0.00	0.00	
10100.00	90.00	179.43	6510.00	-3571.32	-413.63	3567.03	0.00	0.00	0.00	
10200.00	90.00	179.43	6510.00	-3671.32	-412.64	3667.03	0.00	0.00	0.00	
10300.00	90.00	179.43	6510.00	-3771.31	-411.64	3767.03	0.00	0.00	0.00	
10400.00	90.00	179.43	6510.00	-3871.31	-410.65	3867.03	0.00	0.00	0.00	
10500.00	90.00	179.43	6510.00	-3971.30	-409.66	3967.03	0.00	0.00	0.00	

# Precision Directional Services, Inc.

## Planning 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> 1-27-11-8-61 <b>Wellpath:</b> Original Hole	<b>Date:</b> 08/16/2013 <b>Co-ordinate(NE) Reference:</b> Well: 1-27-8-61, 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>Plan:</b> Plan #3	<b>Time:</b> 08:49:07 <b>Page:</b> 4
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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
10600.00	90.00	179.43	6510.00	-4071.30	-408.67	4067.03	0.00	0.00	0.00	
10700.00	90.00	179.43	6510.00	-4171.29	-407.68	4167.03	0.00	0.00	0.00	
10800.00	90.00	179.43	6510.00	-4271.29	-406.69	4267.03	0.00	0.00	0.00	
10900.00	90.00	179.43	6510.00	-4371.28	-405.70	4367.03	0.00	0.00	0.00	
11000.00	90.00	179.43	6510.00	-4471.28	-404.71	4467.03	0.00	0.00	0.00	
11100.00	90.00	179.43	6510.00	-4571.27	-403.72	4567.03	0.00	0.00	0.00	
11200.00	90.00	179.43	6510.00	-4671.27	-402.73	4667.03	0.00	0.00	0.00	
11245.27	90.00	179.43	6510.00	-4716.53	-402.28	4712.29	0.00	0.00	0.00	PBHL 1-27

### Targets

Name	Description Dip.	Dir.	TVD ft	+N/-S ft	+E/-W ft	Map Northing ft	Map Easting ft	<--- Latitude ---> Deg Min Sec			<--- Longitude ---> Deg Min Sec		
SL 1-27			0.00	0.00	0.00	1478356.89	3361067.22	40	38	21.144 N	104	11	56.270 W
PBHL 1-27			6510.00	-4716.53	-402.28	1473640.36	3360664.94	40	37	34.601 N	104	12	2.384 W

### Casing Points

MD ft	TVD ft	Diameter in	Hole Size in	Name
1443.86	1440.00	9.625	12.250	9 5/8"
6658.00	6475.36	7.000	8.500	7"