



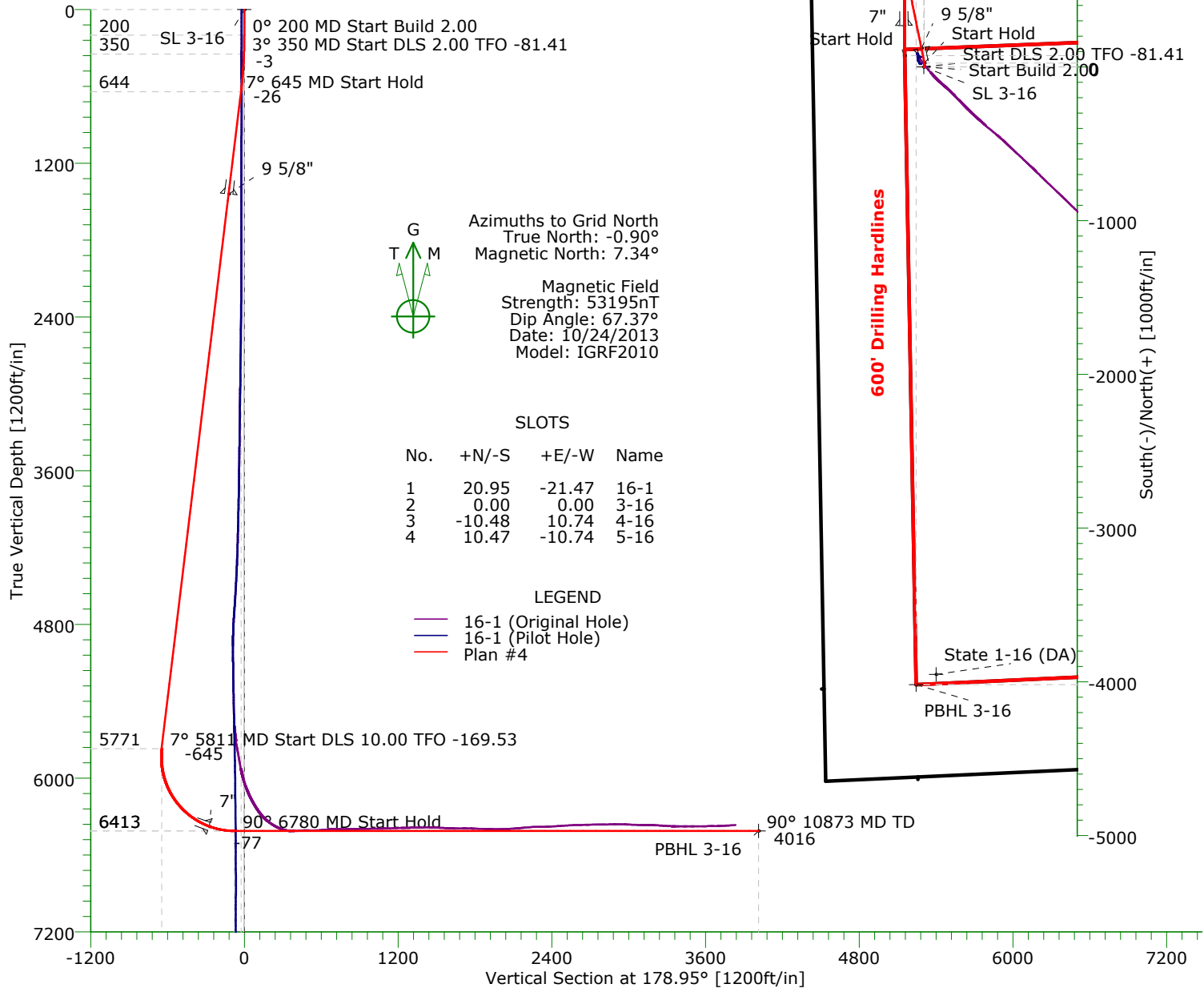
# CARRIZO OIL & GAS, INC.

Field: Niobrara CONZ'83  
 Site: State 16-11-9-60  
 Well: 3-16-9-60  
 Wellpath: Original Hole  
 Plan: Plan #4



### CASING DETAILS

No.	TVD	MD	Name	Size
1	1440.00	1447.10	9 5/8"	9.625
2	6378.44	6579.98	7"	7.000



### SLOTS

No.	+N/-S	+E/-W	Name
1	20.95	-21.47	16-1
2	0.00	0.00	3-16
3	-10.48	10.74	4-16
4	10.47	-10.74	5-16

### LEGEND

- 16-1 (Original Hole)
- 16-1 (Pilot Hole)
- Plan #4

### TARGET DETAILS

Name	TVD	+N/-S	+E/-W	Northing	Easting	Latitude	Longitude	Shape
State 1-16 (DA)	-100.00	-3951.46	80.45	1516973.66	3386643.84	40°44'38.840N	104°06'16.658W	Point
SL 3-16	0.00	0.00	0.00	1520925.12	3386563.39	40°45'17.892N	104°06'16.895W	Point
PBHL 3-16	6413.00	-4017.45	-48.52	1516907.67	3386514.87	40°44'38.208N	104°06'18.346W	Point

### SECTION DETAILS

Sec	MD	Inc	Azi	TVD	+N/-S	+E/-W	DLeg	TFace	VSec	Target
1	0.00	0.00	45.00	0.00	0.00	0.00	0.00	0.00	0.00	
2	200.00	0.00	45.00	200.00	0.00	0.00	0.00	45.00	0.00	
3	350.00	3.00	45.00	349.93	2.78	2.78	2.00	45.00	-2.72	
4	644.96	7.00	348.55	643.85	25.88	4.67	2.00	-81.41	-25.79	
5	5811.14	7.00	348.55	5771.48	643.33	-120.37	0.00	0.00	-645.42	
6	6780.03	90.00	178.94	6413.00	74.34	-124.08	10.00	-169.53	-76.60	
7	10872.52	90.00	178.94	6413.00	-4017.45	-48.52	0.00	0.00	4015.89	PBHL 3-16

# Precision Directional Services, Inc.

## Planning Report

<b>Company:</b> CARRIZO OIL & GAS, INC.	<b>Date:</b> 09/24/2013	<b>Time:</b> 11:01:42	<b>Page:</b> 1
<b>Field:</b> Niobrara CONZ'83	<b>Co-ordinate(NE) Reference:</b> Well: 3-16-9-60, Grid North		
<b>Site:</b> State 16-11-9-60	<b>Vertical (TVD) Reference:</b> 5011'GL+17'KB 5028.0		
<b>Well:</b> 3-16-9-60	<b>Section (VS) Reference:</b> Well (0.00N,0.00E,178.95Azi)		
<b>Wellpath:</b> Original Hole	<b>Plan:</b> Plan #4		

<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> State 16-11-9-60		
Weld County, CO		
<b>Site Position:</b>	<b>Northing:</b> 1520935.59 ft	<b>Latitude:</b> 40 45 17.998 N
<b>From:</b> Map	<b>Easting:</b> 3386552.65 ft	<b>Longitude:</b> 104 6 17.032 W
<b>Position Uncertainty:</b> 0.00 ft		<b>North Reference:</b> Grid
<b>Ground Level:</b> 5011.00 ft		<b>Grid Convergence:</b> 0.90 deg

<b>Well:</b> 3-16-9-60	<b>Slot Name:</b> 3-16	
719'FNL,722'FWL		
<b>Well Position:</b> +N/-S -10.47 ft	<b>Northing:</b> 1520925.12 ft	<b>Latitude:</b> 40 45 17.892 N
+E/-W 10.74 ft	<b>Easting :</b> 3386563.39 ft	<b>Longitude:</b> 104 6 16.895 W
<b>Position Uncertainty:</b> 0.00 ft		

<b>Wellpath:</b> Original Hole	<b>Drilled From:</b> Surface		
<b>Current Datum:</b> 5011'GL+17'KB	<b>Tie-on Depth:</b> 0.00 ft		
<b>Magnetic Data:</b> 10/24/2013	<b>Above System Datum:</b> Mean Sea Level		
<b>Field Strength:</b> 53195 nT	<b>Declination:</b> 8.24 deg		
<b>Vertical Section:</b> Depth From (TVD)	<b>Mag Dip Angle:</b> 67.37 deg		
ft	<b>+N/-S</b>	<b>+E/-W</b>	<b>Direction</b>
0.00	ft	ft	deg
	0.00	0.00	178.95

<b>Plan:</b> Plan #4	<b>Date Composed:</b> 09/24/2013
<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	45.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
200.00	0.00	45.00	200.00	0.00	0.00	0.00	0.00	0.00	45.00	
350.00	3.00	45.00	349.93	2.78	2.78	2.00	2.00	0.00	45.00	
644.96	7.00	348.55	643.85	25.88	4.67	2.00	1.36	-19.14	-81.41	
5811.14	7.00	348.55	5771.48	643.33	-120.37	0.00	0.00	0.00	0.00	
6780.03	90.00	178.94	6413.00	74.34	-124.08	10.00	8.57	-17.51	-169.53	
10872.52	90.00	178.94	6413.00	-4017.45	-48.52	0.00	0.00	0.00	0.00	PBHL 3-16

**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	45.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
100.00	0.00	45.00	100.00	0.00	0.00	0.00	0.00	0.00	0.00	
200.00	0.00	45.00	200.00	0.00	0.00	0.00	0.00	0.00	0.00	
300.00	2.00	45.00	299.98	1.23	1.23	-1.21	2.00	2.00	0.00	
350.00	3.00	45.00	349.93	2.78	2.78	-2.72	2.00	2.00	0.00	
400.00	3.30	27.56	399.86	4.98	4.37	-4.90	2.00	0.60	-34.88	
500.00	4.55	4.26	499.63	11.48	5.99	-11.37	2.00	1.25	-23.30	
600.00	6.20	352.09	599.19	20.79	5.54	-20.68	2.00	1.65	-12.17	
644.96	7.00	348.55	643.85	25.88	4.67	-25.79	2.00	1.78	-7.86	
700.00	7.00	348.55	698.48	32.46	3.33	-32.39	0.00	0.00	0.00	
800.00	7.00	348.55	797.73	44.41	0.91	-44.39	0.00	0.00	0.00	
900.00	7.00	348.55	896.99	56.36	-1.51	-56.38	0.00	0.00	0.00	
1000.00	7.00	348.55	996.24	68.31	-3.93	-68.37	0.00	0.00	0.00	
1100.00	7.00	348.55	1095.49	80.27	-6.35	-80.37	0.00	0.00	0.00	
1200.00	7.00	348.55	1194.75	92.22	-8.77	-92.36	0.00	0.00	0.00	

# Precision Directional Services, Inc.

## Planning Report

<b>Company:</b> CARRIZO OIL & GAS, INC.	<b>Date:</b> 09/24/2013	<b>Time:</b> 11:01:42	<b>Page:</b> 2
<b>Field:</b> Niobrara CONZ'83	<b>Co-ordinate(NE) Reference:</b> Well: 3-16-9-60, Grid North		
<b>Site:</b> State 16-11-9-60	<b>Vertical (TVD) Reference:</b> 5011'GL+17'KB 5028.0		
<b>Well:</b> 3-16-9-60	<b>Section (VS) Reference:</b> Well (0.00N,0.00E,178.95Azi)		
<b>Wellpath:</b> Original Hole	<b>Plan:</b> Plan #4		

### 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	7.00	348.55	1294.00	104.17	-11.19	-104.36	0.00	0.00	0.00	
1400.00	7.00	348.55	1393.25	116.12	-13.61	-116.35	0.00	0.00	0.00	
1447.10	7.00	348.55	1440.00	121.75	-14.75	-122.00	0.00	0.00	0.00	9 5/8"
1500.00	7.00	348.55	1492.51	128.07	-16.03	-128.34	0.00	0.00	0.00	
1600.00	7.00	348.55	1591.76	140.02	-18.45	-140.34	0.00	0.00	0.00	
1700.00	7.00	348.55	1691.01	151.98	-20.87	-152.33	0.00	0.00	0.00	
1800.00	7.00	348.55	1790.27	163.93	-23.29	-164.33	0.00	0.00	0.00	
1900.00	7.00	348.55	1889.52	175.88	-25.71	-176.32	0.00	0.00	0.00	
2000.00	7.00	348.55	1988.78	187.83	-28.13	-188.31	0.00	0.00	0.00	
2100.00	7.00	348.55	2088.03	199.78	-30.55	-200.31	0.00	0.00	0.00	
2200.00	7.00	348.55	2187.28	211.73	-32.97	-212.30	0.00	0.00	0.00	
2300.00	7.00	348.55	2286.54	223.69	-35.39	-224.30	0.00	0.00	0.00	
2400.00	7.00	348.55	2385.79	235.64	-37.81	-236.29	0.00	0.00	0.00	
2500.00	7.00	348.55	2485.04	247.59	-40.23	-248.28	0.00	0.00	0.00	
2600.00	7.00	348.55	2584.30	259.54	-42.65	-260.28	0.00	0.00	0.00	
2700.00	7.00	348.55	2683.55	271.49	-45.07	-272.27	0.00	0.00	0.00	
2800.00	7.00	348.55	2782.81	283.44	-47.49	-284.27	0.00	0.00	0.00	
2900.00	7.00	348.55	2882.06	295.40	-49.91	-296.26	0.00	0.00	0.00	
3000.00	7.00	348.55	2981.31	307.35	-52.33	-308.26	0.00	0.00	0.00	
3100.00	7.00	348.55	3080.57	319.30	-54.75	-320.25	0.00	0.00	0.00	
3200.00	7.00	348.55	3179.82	331.25	-57.17	-332.24	0.00	0.00	0.00	
3300.00	7.00	348.55	3279.07	343.20	-59.59	-344.24	0.00	0.00	0.00	
3400.00	7.00	348.55	3378.33	355.15	-62.01	-356.23	0.00	0.00	0.00	
3500.00	7.00	348.55	3477.58	367.11	-64.43	-368.23	0.00	0.00	0.00	
3600.00	7.00	348.55	3576.84	379.06	-66.85	-380.22	0.00	0.00	0.00	
3700.00	7.00	348.55	3676.09	391.01	-69.27	-392.21	0.00	0.00	0.00	
3800.00	7.00	348.55	3775.34	402.96	-71.69	-404.21	0.00	0.00	0.00	
3900.00	7.00	348.55	3874.60	414.91	-74.11	-416.20	0.00	0.00	0.00	
4000.00	7.00	348.55	3973.85	426.86	-76.54	-428.20	0.00	0.00	0.00	
4100.00	7.00	348.55	4073.10	438.82	-78.96	-440.19	0.00	0.00	0.00	
4200.00	7.00	348.55	4172.36	450.77	-81.38	-452.18	0.00	0.00	0.00	
4300.00	7.00	348.55	4271.61	462.72	-83.80	-464.18	0.00	0.00	0.00	
4400.00	7.00	348.55	4370.87	474.67	-86.22	-476.17	0.00	0.00	0.00	
4500.00	7.00	348.55	4470.12	486.62	-88.64	-488.17	0.00	0.00	0.00	
4600.00	7.00	348.55	4569.37	498.57	-91.06	-500.16	0.00	0.00	0.00	
4700.00	7.00	348.55	4668.63	510.53	-93.48	-512.15	0.00	0.00	0.00	
4800.00	7.00	348.55	4767.88	522.48	-95.90	-524.15	0.00	0.00	0.00	
4900.00	7.00	348.55	4867.13	534.43	-98.32	-536.14	0.00	0.00	0.00	
5000.00	7.00	348.55	4966.39	546.38	-100.74	-548.14	0.00	0.00	0.00	
5100.00	7.00	348.55	5065.64	558.33	-103.16	-560.13	0.00	0.00	0.00	
5200.00	7.00	348.55	5164.89	570.28	-105.58	-572.12	0.00	0.00	0.00	
5300.00	7.00	348.55	5264.15	582.24	-108.00	-584.12	0.00	0.00	0.00	
5400.00	7.00	348.55	5363.40	594.19	-110.42	-596.11	0.00	0.00	0.00	
5500.00	7.00	348.55	5462.66	606.14	-112.84	-608.11	0.00	0.00	0.00	
5600.00	7.00	348.55	5561.91	618.09	-115.26	-620.10	0.00	0.00	0.00	
5700.00	7.00	348.55	5661.16	630.04	-117.68	-632.09	0.00	0.00	0.00	
5800.00	7.00	348.55	5760.42	642.00	-120.10	-644.09	0.00	0.00	0.00	
5811.14	7.00	348.55	5771.48	643.33	-120.37	-645.42	0.00	0.00	0.00	
5850.00	3.26	336.05	5810.17	646.66	-121.29	-648.77	10.00	-9.64	-32.17	
5900.00	2.37	211.37	5860.14	647.08	-122.40	-649.21	10.00	-1.79	-249.36	
5950.00	7.11	189.17	5909.96	643.14	-123.44	-645.29	10.00	9.49	-44.40	
6000.00	12.06	184.89	5959.25	634.87	-124.38	-637.05	10.00	9.90	-8.56	
6050.00	17.04	183.09	6007.63	622.34	-125.22	-624.53	10.00	9.96	-3.61	

# Precision Directional Services, Inc.

## Planning Report

<b>Company:</b> CARRIZO OIL & GAS, INC.	<b>Date:</b> 09/24/2013	<b>Time:</b> 11:01:42	<b>Page:</b> 3
<b>Field:</b> Niobrara CONZ'83	<b>Co-ordinate(NE) Reference:</b> Well: 3-16-9-60, Grid North		
<b>Site:</b> State 16-11-9-60	<b>Vertical (TVD) Reference:</b> 5011'GL+17'KB 5028.0		
<b>Well:</b> 3-16-9-60	<b>Section (VS) Reference:</b> Well (0.00N,0.00E,178.95Azi)		
<b>Wellpath:</b> Original Hole	<b>Plan:</b> Plan #4		

**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
6100.00	22.03	182.08	6054.73	605.65	-125.95	-607.85	10.00	9.98	-2.01	
6150.00	27.02	181.43	6100.21	584.90	-126.58	-587.13	10.00	9.99	-1.30	
6200.00	32.02	180.97	6143.70	560.28	-127.09	-562.51	10.00	9.99	-0.92	
6250.00	37.02	180.63	6184.89	531.96	-127.48	-534.21	10.00	9.99	-0.69	
6300.00	42.01	180.35	6223.45	500.16	-127.74	-502.41	10.00	9.99	-0.55	
6350.00	47.01	180.13	6259.09	465.12	-127.89	-467.38	10.00	9.99	-0.45	
6400.00	52.01	179.93	6291.55	427.10	-127.90	-429.37	10.00	10.00	-0.38	
6450.00	57.01	179.77	6320.57	386.41	-127.79	-388.68	10.00	10.00	-0.33	
6500.00	62.00	179.62	6345.94	343.34	-127.56	-345.62	10.00	10.00	-0.30	
6550.00	67.00	179.48	6367.45	298.22	-127.20	-300.50	10.00	10.00	-0.27	
6579.98	70.00	179.40	6378.44	270.33	-126.93	-272.61	10.00	10.00	-0.26	7"
6600.00	72.00	179.35	6384.95	251.41	-126.73	-253.69	10.00	10.00	-0.25	
6650.00	77.00	179.24	6398.31	203.24	-126.13	-205.52	10.00	10.00	-0.24	
6700.00	82.00	179.12	6407.42	154.10	-125.43	-156.37	10.00	10.00	-0.23	
6750.00	87.00	179.01	6412.21	104.35	-124.62	-106.62	10.00	10.00	-0.22	
6780.03	90.00	178.94	6413.00	74.34	-124.08	-76.60	10.00	10.00	-0.22	
6800.00	90.00	178.94	6413.00	54.38	-123.71	-56.63	0.00	0.00	0.00	
6900.00	90.00	178.94	6413.00	-45.61	-121.87	43.37	0.00	0.00	0.00	
7000.00	90.00	178.94	6413.00	-145.59	-120.02	143.37	0.00	0.00	0.00	
7100.00	90.00	178.94	6413.00	-245.57	-118.17	243.37	0.00	0.00	0.00	
7200.00	90.00	178.94	6413.00	-345.56	-116.33	343.37	0.00	0.00	0.00	
7300.00	90.00	178.94	6413.00	-445.54	-114.48	443.37	0.00	0.00	0.00	
7400.00	90.00	178.94	6413.00	-545.52	-112.63	543.37	0.00	0.00	0.00	
7500.00	90.00	178.94	6413.00	-645.51	-110.79	643.37	0.00	0.00	0.00	
7600.00	90.00	178.94	6413.00	-745.49	-108.94	743.37	0.00	0.00	0.00	
7700.00	90.00	178.94	6413.00	-845.47	-107.09	843.37	0.00	0.00	0.00	
7800.00	90.00	178.94	6413.00	-945.45	-105.25	943.37	0.00	0.00	0.00	
7900.00	90.00	178.94	6413.00	-1045.44	-103.40	1043.37	0.00	0.00	0.00	
8000.00	90.00	178.94	6413.00	-1145.42	-101.56	1143.37	0.00	0.00	0.00	
8100.00	90.00	178.94	6413.00	-1245.40	-99.71	1243.37	0.00	0.00	0.00	
8200.00	90.00	178.94	6413.00	-1345.39	-97.86	1343.37	0.00	0.00	0.00	
8300.00	90.00	178.94	6413.00	-1445.37	-96.02	1443.37	0.00	0.00	0.00	
8400.00	90.00	178.94	6413.00	-1545.35	-94.17	1543.37	0.00	0.00	0.00	
8500.00	90.00	178.94	6413.00	-1645.34	-92.32	1643.37	0.00	0.00	0.00	
8600.00	90.00	178.94	6413.00	-1745.32	-90.48	1743.37	0.00	0.00	0.00	
8700.00	90.00	178.94	6413.00	-1845.30	-88.63	1843.37	0.00	0.00	0.00	
8800.00	90.00	178.94	6413.00	-1945.28	-86.79	1943.37	0.00	0.00	0.00	
8900.00	90.00	178.94	6413.00	-2045.27	-84.94	2043.37	0.00	0.00	0.00	
9000.00	90.00	178.94	6413.00	-2145.25	-83.09	2143.37	0.00	0.00	0.00	
9100.00	90.00	178.94	6413.00	-2245.23	-81.25	2243.37	0.00	0.00	0.00	
9200.00	90.00	178.94	6413.00	-2345.22	-79.40	2343.37	0.00	0.00	0.00	
9300.00	90.00	178.94	6413.00	-2445.20	-77.55	2443.37	0.00	0.00	0.00	
9400.00	90.00	178.94	6413.00	-2545.18	-75.71	2543.37	0.00	0.00	0.00	
9500.00	90.00	178.94	6413.00	-2645.16	-73.86	2643.37	0.00	0.00	0.00	
9600.00	90.00	178.94	6413.00	-2745.15	-72.01	2743.37	0.00	0.00	0.00	
9700.00	90.00	178.94	6413.00	-2845.13	-70.17	2843.37	0.00	0.00	0.00	
9800.00	90.00	178.94	6413.00	-2945.11	-68.32	2943.37	0.00	0.00	0.00	
9900.00	90.00	178.94	6413.00	-3045.10	-66.48	3043.37	0.00	0.00	0.00	
10000.00	90.00	178.94	6413.00	-3145.08	-64.63	3143.37	0.00	0.00	0.00	
10100.00	90.00	178.94	6413.00	-3245.06	-62.78	3243.37	0.00	0.00	0.00	
10200.00	90.00	178.94	6413.00	-3345.05	-60.94	3343.37	0.00	0.00	0.00	
10300.00	90.00	178.94	6413.00	-3445.03	-59.09	3443.37	0.00	0.00	0.00	
10400.00	90.00	178.94	6413.00	-3545.01	-57.24	3543.37	0.00	0.00	0.00	

# Precision Directional Services, Inc.

## Planning Report

<b>Company:</b> CARRIZO OIL & GAS, INC.	<b>Date:</b> 09/24/2013	<b>Time:</b> 11:01:42	<b>Page:</b> 4
<b>Field:</b> Niobrara CONZ'83	<b>Co-ordinate(NE) Reference:</b> Well: 3-16-9-60, Grid North		
<b>Site:</b> State 16-11-9-60	<b>Vertical (TVD) Reference:</b> 5011'GL+17'KB 5028.0		
<b>Well:</b> 3-16-9-60	<b>Section (VS) Reference:</b> Well (0.00N,0.00E,178.95Azi)		
<b>Wellpath:</b> Original Hole	<b>Plan:</b> Plan #4		

### 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
10500.00	90.00	178.94	6413.00	-3644.99	-55.40	3643.37	0.00	0.00	0.00	
10600.00	90.00	178.94	6413.00	-3744.98	-53.55	3743.37	0.00	0.00	0.00	
10700.00	90.00	178.94	6413.00	-3844.96	-51.71	3843.37	0.00	0.00	0.00	
10800.00	90.00	178.94	6413.00	-3944.94	-49.86	3943.37	0.00	0.00	0.00	
10872.52	90.00	178.94	6413.00	-4017.45	-48.52	4015.89	0.00	0.00	0.00	PBHL 3-16

### 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		
State 1-16 (DA)			-100.00	-3951.46	80.45	1516973.66	3386643.84	40	44	38.840	N	104	6	16.658	W
SL 3-16			0.00	0.00	0.00	1520925.12	3386563.39	40	45	17.892	N	104	6	16.895	W
PBHL 3-16			6413.00	-4017.45	-48.52	1516907.67	3386514.87	40	44	38.208	N	104	6	18.346	W

### Casing Points

MD ft	TVD ft	Diameter in	Hole Size in	Name
1447.10	1440.00	9.625	12.250	9 5/8"
6579.98	6378.44	7.000	8.500	7"