

Precision Directional Services, Inc.

Planning Report

Company: CARRIZO OIL & GAS, INC.		Date: 10/14/2013	Time: 14:30:02	Page: 1
Field: Niobrara CONZ'83		Co-ordinate(NE) Reference: Well: 1-2-8-61, Grid North		
Site: Ross 1-2-8-61 PAD		Vertical (TVD) Reference: 5023'GL+17'KB' 5040.0		
Well: 1-2-8-61		Section (VS) Reference: Well (0.00N,0.00E,179.29Azi)		
Wellpath: Original Hole		Plan: Plan #1		

Field: Niobrara CONZ'83	
Map System: US State Plane Coordinate System 1983	Map Zone: Colorado, Northern Zone
Geo Datum: GRS 1980	Coordinate System: Well Centre
Sys Datum: Mean Sea Level	Geomagnetic Model: IGRF2010

Site: Ross 1-2-8-61 PAD Weld County	
Site Position:	Northing: 1499579.14 ft
From: Map	Easting: 3367908.72 ft
Position Uncertainty: 0.00 ft	Latitude: 40 41 49.823 N
Ground Level: 5023.00 ft	Longitude: 104 10 23.415 W
	North Reference: Grid
	Grid Convergence: 0.86 deg

Well: 1-2-8-61		Slot Name:	
Well Position: +N/-S 0.00 ft	Northing: 1499579.14 ft	Latitude: 40 41 49.823 N	
+E/-W 0.00 ft	Easting: 3367908.72 ft	Longitude: 104 10 23.415 W	
Position Uncertainty: 0.00 ft			

Wellpath: Original Hole		Drilled From: Surface	
Current Datum: 5023'GL+17'KB'	Height 5040.00 ft	Tie-on Depth: 0.00 ft	
Magnetic Data: 11/30/2013		Above System Datum: Mean Sea Level	
Field Strength: 53127 nT		Declination: 8.24 deg	
Vertical Section: Depth From (TVD)	+N/-S	Mag Dip Angle: 67.30 deg	
ft	ft	+E/-W	Direction
		ft	deg
0.00	0.00	0.00	179.29

Plan: Plan #1	Date Composed: 10/11/2013
Principal: No	Version: 1
	Tied-to: 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	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
450.00	0.00	0.00	450.00	0.00	0.00	0.00	0.00	0.00	0.00	
789.24	3.39	351.02	789.04	9.92	-1.57	1.00	1.00	0.00	0.00	
6025.89	3.39	351.02	6016.51	315.99	-49.92	0.00	0.00	0.00	0.00	
6959.46	90.00	179.29	6623.00	-256.00	-48.05	10.00	9.28	-18.39	-171.71	
11279.61	90.00	179.29	6623.00	-4575.82	5.13	0.00	0.00	0.00	0.00	PBHL 1-2

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	
200.00	0.00	0.00	200.00	0.00	0.00	0.00	0.00	0.00	0.00	
300.00	0.00	0.00	300.00	0.00	0.00	0.00	0.00	0.00	0.00	
400.00	0.00	0.00	400.00	0.00	0.00	0.00	0.00	0.00	0.00	
450.00	0.00	0.00	450.00	0.00	0.00	0.00	0.00	0.00	0.00	
500.00	0.50	351.02	500.00	0.22	-0.03	-0.22	1.00	1.00	0.00	
600.00	1.50	351.02	599.98	1.94	-0.31	-1.94	1.00	1.00	0.00	
700.00	2.50	351.02	699.92	5.39	-0.85	-5.40	1.00	1.00	0.00	
789.24	3.39	351.02	789.04	9.92	-1.57	-9.94	1.00	1.00	0.00	
800.00	3.39	351.02	799.78	10.55	-1.67	-10.57	0.00	0.00	0.00	
900.00	3.39	351.02	899.61	16.39	-2.59	-16.42	0.00	0.00	0.00	
1000.00	3.39	351.02	999.43	22.24	-3.51	-22.28	0.00	0.00	0.00	
1100.00	3.39	351.02	1099.26	28.08	-4.44	-28.13	0.00	0.00	0.00	
1200.00	3.39	351.02	1199.08	33.93	-5.36	-33.99	0.00	0.00	0.00	

Precision Directional Services, Inc.

Planning Report

Company: CARRIZO OIL & GAS, INC.
Field: Niobrara CONZ'83
Site: Ross 1-2-8-61 PAD
Well: 1-2-8-61
Wellpath: Original Hole

Date: 10/14/2013 **Time:** 14:30:02
Co-ordinate(NE) Reference: Well: 1-2-8-61, Grid North
Vertical (TVD) Reference: 5023'GL+17'KB' 5040.0
Section (VS) Reference: Well (0.00N,0.00E,179.29Azi)
Plan: Plan #1

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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	3.39	351.02	1298.91	39.77	-6.28	-39.85	0.00	0.00	0.00	9 5/8"
1400.00	3.39	351.02	1398.73	45.62	-7.21	-45.70	0.00	0.00	0.00	
1401.27	3.39	351.02	1400.00	45.69	-7.22	-45.78	0.00	0.00	0.00	
1500.00	3.39	351.02	1498.56	51.46	-8.13	-51.56	0.00	0.00	0.00	
1600.00	3.39	351.02	1598.38	57.31	-9.05	-57.41	0.00	0.00	0.00	
1700.00	3.39	351.02	1698.21	63.15	-9.98	-63.27	0.00	0.00	0.00	
1800.00	3.39	351.02	1798.03	69.00	-10.90	-69.12	0.00	0.00	0.00	
1900.00	3.39	351.02	1897.86	74.84	-11.82	-74.98	0.00	0.00	0.00	
2000.00	3.39	351.02	1997.68	80.69	-12.75	-80.84	0.00	0.00	0.00	
2100.00	3.39	351.02	2097.50	86.53	-13.67	-86.69	0.00	0.00	0.00	
2200.00	3.39	351.02	2197.33	92.37	-14.59	-92.55	0.00	0.00	0.00	
2300.00	3.39	351.02	2297.15	98.22	-15.52	-98.40	0.00	0.00	0.00	
2400.00	3.39	351.02	2396.98	104.06	-16.44	-104.26	0.00	0.00	0.00	
2500.00	3.39	351.02	2496.80	109.91	-17.36	-110.12	0.00	0.00	0.00	
2600.00	3.39	351.02	2596.63	115.75	-18.29	-115.97	0.00	0.00	0.00	
2700.00	3.39	351.02	2696.45	121.60	-19.21	-121.83	0.00	0.00	0.00	
2800.00	3.39	351.02	2796.28	127.44	-20.13	-127.68	0.00	0.00	0.00	
2900.00	3.39	351.02	2896.10	133.29	-21.06	-133.54	0.00	0.00	0.00	
3000.00	3.39	351.02	2995.93	139.13	-21.98	-139.40	0.00	0.00	0.00	
3100.00	3.39	351.02	3095.75	144.98	-22.90	-145.25	0.00	0.00	0.00	
3200.00	3.39	351.02	3195.58	150.82	-23.83	-151.11	0.00	0.00	0.00	
3300.00	3.39	351.02	3295.40	156.67	-24.75	-156.96	0.00	0.00	0.00	
3400.00	3.39	351.02	3395.23	162.51	-25.67	-162.82	0.00	0.00	0.00	
3500.00	3.39	351.02	3495.05	168.36	-26.60	-168.68	0.00	0.00	0.00	
3600.00	3.39	351.02	3594.88	174.20	-27.52	-174.53	0.00	0.00	0.00	
3700.00	3.39	351.02	3694.70	180.05	-28.44	-180.39	0.00	0.00	0.00	
3800.00	3.39	351.02	3794.53	185.89	-29.37	-186.24	0.00	0.00	0.00	
3900.00	3.39	351.02	3894.35	191.74	-30.29	-192.10	0.00	0.00	0.00	
4000.00	3.39	351.02	3994.18	197.58	-31.21	-197.96	0.00	0.00	0.00	
4100.00	3.39	351.02	4094.00	203.43	-32.14	-203.81	0.00	0.00	0.00	
4200.00	3.39	351.02	4193.83	209.27	-33.06	-209.67	0.00	0.00	0.00	
4300.00	3.39	351.02	4293.65	215.12	-33.98	-215.52	0.00	0.00	0.00	
4400.00	3.39	351.02	4393.47	220.96	-34.91	-221.38	0.00	0.00	0.00	
4500.00	3.39	351.02	4493.30	226.81	-35.83	-227.23	0.00	0.00	0.00	
4600.00	3.39	351.02	4593.12	232.65	-36.75	-233.09	0.00	0.00	0.00	
4700.00	3.39	351.02	4692.95	238.50	-37.68	-238.95	0.00	0.00	0.00	
4800.00	3.39	351.02	4792.77	244.34	-38.60	-244.80	0.00	0.00	0.00	
4900.00	3.39	351.02	4892.60	250.19	-39.52	-250.66	0.00	0.00	0.00	
5000.00	3.39	351.02	4992.42	256.03	-40.45	-256.51	0.00	0.00	0.00	
5100.00	3.39	351.02	5092.25	261.88	-41.37	-262.37	0.00	0.00	0.00	
5200.00	3.39	351.02	5192.07	267.72	-42.29	-268.23	0.00	0.00	0.00	
5300.00	3.39	351.02	5291.90	273.57	-43.22	-274.08	0.00	0.00	0.00	
5400.00	3.39	351.02	5391.72	279.41	-44.14	-279.94	0.00	0.00	0.00	
5500.00	3.39	351.02	5491.55	285.26	-45.06	-285.79	0.00	0.00	0.00	
5600.00	3.39	351.02	5591.37	291.10	-45.99	-291.65	0.00	0.00	0.00	
5700.00	3.39	351.02	5691.20	296.95	-46.91	-297.51	0.00	0.00	0.00	
5800.00	3.39	351.02	5791.02	302.79	-47.83	-303.36	0.00	0.00	0.00	
5900.00	3.39	351.02	5890.85	308.64	-48.76	-309.22	0.00	0.00	0.00	
6000.00	3.39	351.02	5990.67	314.48	-49.68	-315.07	0.00	0.00	0.00	
6025.89	3.39	351.02	6016.51	315.99	-49.92	-316.59	0.00	0.00	0.00	
6050.00	1.06	331.98	6040.61	316.90	-50.14	-317.49	10.00	-9.65	-78.99	
6100.00	4.08	186.16	6090.57	315.54	-50.54	-316.14	10.00	6.04	-291.64	
6150.00	9.07	182.36	6140.23	309.83	-50.90	-310.43	10.00	9.97	-7.59	
6200.00	14.06	181.25	6189.19	299.81	-51.19	-300.42	10.00	9.99	-2.22	

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Site: Ross 1-2-8-61 PAD
Well: 1-2-8-61
Wellpath: Original Hole

Date: 10/14/2013
Co-ordinate(NE) Reference: Well: 1-2-8-61, Grid North
Vertical (TVD) Reference: 5023'GL+17'KB' 5040.0
Section (VS) Reference: Well (0.00N,0.00E,179.29Azi)
Plan: Plan #1

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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
6250.00	19.06	180.71	6237.11	285.56	-51.43	-286.18	10.00	10.00	-1.07	
6300.00	24.06	180.39	6283.59	267.20	-51.60	-267.82	10.00	10.00	-0.64	
6350.00	29.06	180.17	6328.30	244.85	-51.70	-245.47	10.00	10.00	-0.43	
6400.00	34.06	180.02	6370.89	218.69	-51.74	-219.32	10.00	10.00	-0.31	
6450.00	39.06	179.90	6411.05	188.92	-51.72	-189.55	10.00	10.00	-0.24	
6500.00	44.06	179.80	6448.45	155.76	-51.63	-156.39	10.00	10.00	-0.19	
6550.00	49.06	179.72	6482.82	119.47	-51.48	-120.10	10.00	10.00	-0.16	
6600.00	54.06	179.65	6513.90	80.32	-51.26	-80.95	10.00	10.00	-0.14	
6650.00	59.06	179.59	6541.44	38.62	-50.98	-39.25	10.00	10.00	-0.12	
6700.00	64.06	179.53	6565.25	-5.33	-50.64	4.70	10.00	10.00	-0.11	
6750.00	69.06	179.48	6585.14	-51.19	-50.25	50.56	10.00	10.00	-0.10	
6759.45	70.00	179.47	6588.44	-60.04	-50.17	59.41	10.00	10.00	-0.10	7"
6800.00	74.05	179.43	6600.95	-98.60	-49.80	97.98	10.00	10.00	-0.09	
6850.00	79.05	179.39	6612.58	-147.21	-49.30	146.59	10.00	10.00	-0.09	
6900.00	84.05	179.35	6619.92	-196.65	-48.75	196.03	10.00	10.00	-0.09	
6950.00	89.05	179.30	6622.92	-246.54	-48.17	245.93	10.00	10.00	-0.09	
6959.46	90.00	179.29	6623.00	-256.00	-48.05	255.38	10.00	10.00	-0.09	
7000.00	90.00	179.29	6623.00	-296.54	-47.55	295.93	0.00	0.00	0.00	
7100.00	90.00	179.29	6623.00	-396.53	-46.32	395.93	0.00	0.00	0.00	
7200.00	90.00	179.29	6623.00	-496.52	-45.09	495.93	0.00	0.00	0.00	
7300.00	90.00	179.29	6623.00	-596.52	-43.86	595.93	0.00	0.00	0.00	
7400.00	90.00	179.29	6623.00	-696.51	-42.63	695.93	0.00	0.00	0.00	
7500.00	90.00	179.29	6623.00	-796.50	-41.40	795.93	0.00	0.00	0.00	
7600.00	90.00	179.29	6623.00	-896.49	-40.17	895.93	0.00	0.00	0.00	
7700.00	90.00	179.29	6623.00	-996.49	-38.93	995.93	0.00	0.00	0.00	
7800.00	90.00	179.29	6623.00	-1096.48	-37.70	1095.93	0.00	0.00	0.00	
7900.00	90.00	179.29	6623.00	-1196.47	-36.47	1195.93	0.00	0.00	0.00	
8000.00	90.00	179.29	6623.00	-1296.46	-35.24	1295.93	0.00	0.00	0.00	
8100.00	90.00	179.29	6623.00	-1396.46	-34.01	1395.93	0.00	0.00	0.00	
8200.00	90.00	179.29	6623.00	-1496.45	-32.78	1495.93	0.00	0.00	0.00	
8300.00	90.00	179.29	6623.00	-1596.44	-31.55	1595.93	0.00	0.00	0.00	
8400.00	90.00	179.29	6623.00	-1696.43	-30.32	1695.93	0.00	0.00	0.00	
8500.00	90.00	179.29	6623.00	-1796.43	-29.09	1795.93	0.00	0.00	0.00	
8600.00	90.00	179.29	6623.00	-1896.42	-27.86	1895.93	0.00	0.00	0.00	
8700.00	90.00	179.29	6623.00	-1996.41	-26.62	1995.93	0.00	0.00	0.00	
8800.00	90.00	179.29	6623.00	-2096.40	-25.39	2095.93	0.00	0.00	0.00	
8900.00	90.00	179.29	6623.00	-2196.40	-24.16	2195.93	0.00	0.00	0.00	
9000.00	90.00	179.29	6623.00	-2296.39	-22.93	2295.93	0.00	0.00	0.00	
9100.00	90.00	179.29	6623.00	-2396.38	-21.70	2395.93	0.00	0.00	0.00	
9200.00	90.00	179.29	6623.00	-2496.37	-20.47	2495.93	0.00	0.00	0.00	
9300.00	90.00	179.29	6623.00	-2596.36	-19.24	2595.93	0.00	0.00	0.00	
9400.00	90.00	179.29	6623.00	-2696.36	-18.01	2695.93	0.00	0.00	0.00	
9500.00	90.00	179.29	6623.00	-2796.35	-16.78	2795.93	0.00	0.00	0.00	
9600.00	90.00	179.29	6623.00	-2896.34	-15.55	2895.93	0.00	0.00	0.00	
9700.00	90.00	179.29	6623.00	-2996.33	-14.31	2995.93	0.00	0.00	0.00	
9800.00	90.00	179.29	6623.00	-3096.33	-13.08	3095.93	0.00	0.00	0.00	
9900.00	90.00	179.29	6623.00	-3196.32	-11.85	3195.93	0.00	0.00	0.00	
10000.00	90.00	179.29	6623.00	-3296.31	-10.62	3295.93	0.00	0.00	0.00	
10100.00	90.00	179.29	6623.00	-3396.30	-9.39	3395.93	0.00	0.00	0.00	
10200.00	90.00	179.29	6623.00	-3496.30	-8.16	3495.93	0.00	0.00	0.00	
10300.00	90.00	179.29	6623.00	-3596.29	-6.93	3595.93	0.00	0.00	0.00	
10400.00	90.00	179.29	6623.00	-3696.28	-5.70	3695.93	0.00	0.00	0.00	
10500.00	90.00	179.29	6623.00	-3796.27	-4.47	3795.93	0.00	0.00	0.00	

Precision Directional Services, Inc.

Planning Report

Company: CARRIZO OIL & GAS, INC.
Field: Niobrara CONZ'83
Site: Ross 1-2-8-61 PAD
Well: 1-2-8-61
Wellpath: Original Hole

Date: 10/14/2013
Co-ordinate(NE) Reference: Well: 1-2-8-61, Grid North
Vertical (TVD) Reference: 5023'GL+17'KB' 5040.0
Section (VS) Reference: Well (0.00N,0.00E,179.29Azi)
Plan: Plan #1

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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	179.29	6623.00	-3896.27	-3.24	3895.93	0.00	0.00	0.00	
10700.00	90.00	179.29	6623.00	-3996.26	-2.01	3995.93	0.00	0.00	0.00	
10800.00	90.00	179.29	6623.00	-4096.25	-0.77	4095.93	0.00	0.00	0.00	
10900.00	90.00	179.29	6623.00	-4196.24	0.46	4195.93	0.00	0.00	0.00	
11000.00	90.00	179.29	6623.00	-4296.24	1.69	4295.93	0.00	0.00	0.00	
11100.00	90.00	179.29	6623.00	-4396.23	2.92	4395.93	0.00	0.00	0.00	
11200.00	90.00	179.29	6623.00	-4496.22	4.15	4495.93	0.00	0.00	0.00	
11279.61	90.00	179.29	6623.00	-4575.82	5.13	4575.53	0.00	0.00	0.00	PBHL 1-2

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 1-2		0.00	0.00	0.00	1499579.14	3367908.72	40	41	49.823 N	104	10	23.415 W
PBHL 1-2		6623.00	-4575.82	5.13	1495003.32	3367913.85	40	41	4.613 N	104	10	24.237 W

Casing Points

MD ft	TVD ft	Diameter in	Hole Size in	Name
1401.27	1400.00	9.625	12.250	9 5/8"
6759.45	6588.44	7.000	8.500	7"