



Precision Directional Services, Inc.

Survey Report

Company: CARRIZO OIL & GAS, INC.		Date: 10/11/2013		Time: 11:51:56		Page: 1	
Field: Niobrara CONZ'83		Co-ordinate(NE) Reference:		Well: 1-33-10-59, Grid North			
Site: Nelson Ranches		Vertical (TVD) Reference:		5210'GL+17'KB 5227.0			
Well: 1-33-10-59		Section (VS) Reference:		Well (0.00N,0.00E,175.70Azi)			
Wellpath: Original Hole		Survey Calculation Method:		Minimum Curvature		Db: Adapti	

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: Nelson Ranches							
Weld County, CO							
Site Position:		Northing: 1539460.70 ft		Latitude: 40 48 15.513 N			
From: Map		Easting: 3420471.06 ft		Longitude: 103 58 52.241 W			
Position Uncertainty: 0.00 ft				North Reference: Grid			
Ground Level: 5210.00 ft				Grid Convergence: 0.98 deg			

Well: 1-33-10-59				Slot Name:			
941'FSL 1727'FEL							
Well Position: +N/-S 0.00 ft		Northing: 1539460.70 ft		Latitude: 40 48 15.513 N			
+E/-W 0.00 ft		Easting : 3420471.06 ft		Longitude: 103 58 52.241 W			
Position Uncertainty: 0.00 ft							

Wellpath: Original Hole				Drilled From: Surface			
				Tie-on Depth: 0.00 ft			
Current Datum: 5210'GL+17'KB		Height 5227.00 ft		Above System Datum: Mean Sea Level			
Magnetic Data: 09/29/2013				Declination: 8.16 deg			
Field Strength: 53220 nT				Mag Dip Angle: 67.42 deg			
Vertical Section: Depth From (TVD)		+N/-S		+E/-W		Direction	
ft		ft		ft		deg	
0.00		0.00		0.00		175.70	

Survey Program for Definitive Wellpath					
Date: 10/11/2013		Validated: No		Version: 1	
Actual From ft		To ft		Toolcode	
				Tool Name	
96.00	11602.00	Survey #1 (96.00-11602.00)		MWD	Std MWD
11659.00	11659.00	Survey #2 (11659.00-11659.00)		Project	Projection

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	TIE LINE
96.00	0.40	238.50	96.00	-0.18	-0.29	0.15	0.42	0.42	0.00	MWD
140.00	0.80	142.40	140.00	-0.50	-0.23	0.48	2.12	0.91	-218.41	MWD
232.00	2.70	123.20	231.95	-2.19	1.98	2.34	2.13	2.07	-20.87	MWD
323.00	5.50	114.80	322.71	-5.20	7.73	5.76	3.14	3.08	-9.23	MWD
417.00	6.50	113.40	416.19	-9.20	16.70	10.43	1.08	1.06	-1.49	MWD
508.00	6.40	111.10	506.62	-13.07	26.16	15.00	0.30	-0.11	-2.53	MWD
600.00	6.30	111.60	598.05	-16.78	35.64	19.40	0.12	-0.11	0.54	MWD
691.00	5.80	117.70	688.55	-20.75	44.35	24.02	0.89	-0.55	6.70	MWD
782.00	7.20	119.70	778.96	-25.71	53.38	29.64	1.56	1.54	2.20	MWD
874.00	7.90	122.00	870.16	-31.92	63.75	36.61	0.83	0.76	2.50	MWD
965.00	6.60	114.10	960.43	-37.37	73.82	42.80	1.80	-1.43	-8.68	MWD
1057.00	6.60	109.10	1051.83	-41.26	83.65	47.42	0.62	0.00	-5.43	MWD
1148.00	6.70	111.10	1142.21	-44.88	93.54	51.77	0.28	0.11	2.20	MWD
1239.00	6.20	113.00	1232.64	-48.71	103.02	56.30	0.60	-0.55	2.09	MWD
1331.00	6.10	113.90	1324.11	-52.64	112.06	60.89	0.15	-0.11	0.98	MWD
1372.00	6.10	113.50	1364.88	-54.39	116.05	62.93	0.10	0.00	-0.98	MWD
1501.00	6.00	110.50	1493.16	-59.48	128.65	68.96	0.26	-0.08	-2.33	MWD
1586.00	6.30	115.10	1577.67	-63.01	137.03	73.11	0.68	0.35	5.41	MWD
1671.00	7.20	117.20	1662.08	-67.43	145.99	78.18	1.10	1.06	2.47	MWD
1757.00	7.80	117.70	1747.34	-72.60	155.96	84.09	0.70	0.70	0.58	MWD
1841.00	7.70	116.90	1830.58	-77.80	166.02	90.03	0.18	-0.12	-0.95	MWD

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Company: CARRIZO OIL & GAS, INC. Field: Niobrara CONZ'83 Site: Nelson Ranches Well: 1-33-10-59 Wellpath: Original Hole	Date: 10/11/2013 Co-ordinate(NE) Reference: Well: 1-33-10-59, Grid North Vertical (TVD) Reference: 5210'GL+17"KB 5227.0 Section (VS) Reference: Well (0.00N,0.00E,175.70Azi) Survey Calculation Method: Minimum Curvature	Time: 11:51:56 Page: 2 Db: 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
1926.00	7.80	114.40	1914.80	-82.76	176.35	95.75	0.41	0.12	-2.94	MWD
2011.00	7.70	113.50	1999.02	-87.41	186.83	101.17	0.19	-0.12	-1.06	MWD
2096.00	7.10	113.40	2083.31	-91.77	196.87	106.27	0.71	-0.71	-0.12	MWD
2180.00	6.30	112.50	2166.74	-95.59	205.89	110.76	0.96	-0.95	-1.07	MWD
2266.00	6.40	117.00	2252.21	-99.58	214.52	115.38	0.59	0.12	5.23	MWD
2351.00	6.00	117.20	2336.72	-103.76	222.69	120.16	0.47	-0.47	0.24	MWD
2436.00	6.70	123.40	2421.20	-108.52	230.79	125.52	1.15	0.82	7.29	MWD
2522.00	6.70	122.10	2506.61	-113.95	239.22	131.56	0.18	0.00	-1.51	MWD
2607.00	6.20	123.50	2591.07	-119.11	247.25	137.32	0.62	-0.59	1.65	MWD
2692.00	6.70	117.90	2675.53	-123.97	255.46	142.77	0.94	0.59	-6.59	MWD
2776.00	6.30	118.30	2758.99	-128.45	263.85	147.87	0.48	-0.48	0.48	MWD
2861.00	7.40	114.20	2843.38	-132.90	272.95	152.99	1.42	1.29	-4.82	MWD
2947.00	7.00	111.60	2928.71	-137.10	282.87	157.92	0.60	-0.47	-3.02	MWD
3032.00	7.70	113.70	3013.01	-141.30	292.90	162.86	0.88	0.82	2.47	MWD
3117.00	7.90	111.40	3097.22	-145.72	303.56	168.07	0.44	0.24	-2.71	MWD
3202.00	7.80	108.80	3181.43	-149.71	314.46	172.86	0.43	-0.12	-3.06	MWD
3287.00	7.60	108.30	3265.66	-153.33	325.25	177.29	0.25	-0.24	-0.59	MWD
3373.00	7.00	106.70	3350.96	-156.62	335.67	181.35	0.74	-0.70	-1.86	MWD
3458.00	6.00	106.10	3435.41	-159.34	344.90	184.75	1.18	-1.18	-0.71	MWD
3543.00	5.90	114.80	3519.96	-162.41	353.13	188.43	1.07	-0.12	10.24	MWD
3628.00	7.30	123.70	3604.39	-167.24	361.59	193.88	2.04	1.65	10.47	MWD
3713.00	6.40	121.40	3688.79	-172.70	370.13	199.97	1.11	-1.06	-2.71	MWD
3798.00	7.00	120.40	3773.21	-177.79	378.64	205.68	0.72	0.71	-1.18	MWD
3883.00	8.40	120.70	3857.44	-183.58	388.45	212.19	1.65	1.65	0.35	MWD
3968.00	8.90	122.10	3941.47	-190.24	399.36	219.65	0.64	0.59	1.65	MWD
4054.00	9.20	123.40	4026.40	-197.56	410.73	227.80	0.42	0.35	1.51	MWD
4139.00	9.10	120.60	4110.32	-204.73	422.19	235.81	0.54	-0.12	-3.29	MWD
4224.00	8.10	116.70	4194.36	-210.84	433.33	242.74	1.36	-1.18	-4.59	MWD
4309.00	6.90	107.90	4278.64	-215.10	443.53	247.75	1.95	-1.41	-10.35	MWD
4394.00	6.60	100.90	4363.05	-217.59	453.19	250.96	1.03	-0.35	-8.24	MWD
4479.00	6.00	104.20	4447.54	-219.61	462.29	253.65	0.82	-0.71	3.88	MWD
4564.00	6.10	97.90	4532.06	-221.32	471.07	256.01	0.79	0.12	-7.41	MWD
4649.00	6.10	105.40	4616.58	-223.14	479.90	258.49	0.94	0.00	8.82	MWD
4734.00	6.20	111.20	4701.09	-226.00	488.54	261.99	0.74	0.12	6.82	MWD
4819.00	6.20	113.70	4785.60	-229.50	497.02	266.12	0.32	0.00	2.94	MWD
4904.00	7.20	116.20	4870.02	-233.70	506.00	270.98	1.23	1.18	2.94	MWD
4989.00	7.70	110.20	4954.30	-238.01	516.12	276.04	1.09	0.59	-7.06	MWD
5074.00	5.90	116.70	5038.70	-241.94	525.37	280.66	2.30	-2.12	7.65	MWD
5159.00	4.80	116.50	5123.33	-245.49	532.46	284.73	1.29	-1.29	-0.24	MWD
5244.00	5.30	120.20	5208.00	-249.06	539.03	288.77	0.70	0.59	4.35	MWD
5329.00	5.80	117.40	5292.60	-253.01	546.24	293.25	0.67	0.59	-3.29	MWD
5414.00	6.30	120.20	5377.13	-257.33	554.08	298.15	0.68	0.59	3.29	MWD
5499.00	6.80	118.60	5461.57	-262.08	562.53	303.52	0.63	0.59	-1.88	MWD
5584.00	7.20	122.50	5545.94	-267.36	571.44	309.45	0.73	0.47	4.59	MWD
5669.00	7.10	122.30	5630.28	-273.02	580.38	315.77	0.12	-0.12	-0.24	MWD
5754.00	6.60	119.00	5714.67	-278.20	589.09	321.59	0.75	-0.59	-3.88	MWD
5835.00	5.70	118.60	5795.20	-282.38	596.69	326.33	1.11	-1.11	-0.49	MWD
5877.00	10.20	121.80	5836.79	-285.34	601.69	329.65	10.76	10.71	7.62	MWD
5920.00	14.40	123.70	5878.79	-290.32	609.37	335.19	9.81	9.77	4.42	MWD
5962.00	18.00	123.90	5919.12	-296.84	619.11	342.42	8.57	8.57	0.48	MWD
6005.00	22.30	122.10	5959.48	-304.88	631.54	351.37	10.10	10.00	-4.19	MWD
6047.00	26.20	120.20	5997.76	-313.78	646.31	361.36	9.47	9.29	-4.52	MWD
6090.00	28.90	122.80	6035.89	-324.19	663.25	373.01	6.87	6.28	6.05	MWD

Precision Directional Services, Inc.

Survey Report

Company: CARRIZO OIL & GAS, INC.	Date: 10/11/2013	Time: 11:51:56	Page: 3
Field: Niobrara CONZ'83	Co-ordinate(NE) Reference: Well: 1-33-10-59, Grid North		
Site: Nelson Ranches	Vertical (TVD) Reference: 5210'GL+17"KB 5227.0		
Well: 1-33-10-59	Section (VS) Reference: Well (0.00N,0.00E,175.70Azi)		
Wellpath: Original Hole	Survey Calculation Method: Minimum Curvature	Db: 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	32.20	128.50	6072.06	-336.66	680.55	386.74	10.45	7.86	13.57	MWD
6175.00	36.10	133.70	6107.65	-352.55	698.68	403.95	11.32	9.07	12.09	MWD
6217.00	40.60	138.10	6140.58	-371.29	716.77	423.98	12.53	10.71	10.48	MWD
6260.00	45.60	140.10	6171.97	-393.50	735.98	447.57	12.05	11.63	4.65	MWD
6302.00	49.30	142.40	6200.37	-417.63	755.32	473.09	9.69	8.81	5.48	MWD
6344.00	52.80	144.80	6226.77	-443.93	774.69	500.76	9.44	8.33	5.71	MWD
6388.00	55.70	146.90	6252.48	-473.48	794.72	531.73	7.64	6.59	4.77	MWD
6441.00	59.40	149.00	6280.91	-511.39	818.43	571.31	7.74	6.98	3.96	MWD
6471.00	62.10	151.30	6295.57	-534.09	831.45	594.93	11.21	9.00	7.67	MWD
6502.00	64.90	153.30	6309.40	-558.65	844.34	620.38	10.72	9.03	6.45	MWD
6532.00	67.70	155.00	6321.46	-583.37	856.31	645.93	10.68	9.33	5.67	MWD
6563.00	69.90	156.20	6332.67	-609.69	868.25	673.07	7.96	7.10	3.87	MWD
6593.00	72.90	157.30	6342.24	-635.81	879.47	699.96	10.59	10.00	3.67	MWD
6624.00	75.30	158.40	6350.73	-663.42	890.71	728.34	8.46	7.74	3.55	MWD
6654.00	78.10	158.90	6357.63	-690.61	901.34	756.25	9.47	9.33	1.67	MWD
6685.00	81.50	159.90	6363.12	-719.17	912.07	785.53	11.42	10.97	3.23	MWD
6715.00	84.90	159.90	6366.67	-747.14	922.30	814.19	11.33	11.33	0.00	MWD
6746.00	87.90	160.10	6368.62	-776.21	932.88	843.97	9.70	9.68	0.65	MWD
6776.00	88.50	160.50	6369.56	-804.44	942.99	872.88	2.40	2.00	1.33	MWD
6807.00	88.90	161.30	6370.26	-833.72	953.13	902.84	2.88	1.29	2.58	MWD
6837.00	89.70	162.40	6370.63	-862.23	962.48	931.96	4.53	2.67	3.67	MWD
6868.00	91.10	164.50	6370.41	-891.94	971.31	962.26	8.14	4.52	6.77	MWD
6898.00	91.80	164.70	6369.65	-920.85	979.27	991.69	2.43	2.33	0.67	MWD
6929.00	90.70	165.00	6368.98	-950.77	987.37	1022.12	3.68	-3.55	0.97	MWD
6959.00	89.70	165.70	6368.87	-979.79	994.96	1051.63	4.07	-3.33	2.33	MWD
6990.00	89.30	164.50	6369.14	-1009.75	1002.93	1082.10	4.08	-1.29	-3.87	MWD
7020.00	89.00	163.80	6369.59	-1038.60	1011.12	1111.49	2.54	-1.00	-2.33	MWD
7051.00	89.90	165.40	6369.89	-1068.49	1019.35	1141.91	5.92	2.90	5.16	MWD
7081.00	89.70	165.40	6369.99	-1097.52	1026.91	1171.43	0.67	-0.67	0.00	MWD
7112.00	89.70	165.00	6370.15	-1127.49	1034.83	1201.91	1.29	0.00	-1.29	MWD
7154.00	89.90	163.80	6370.30	-1167.94	1046.13	1243.09	2.90	0.48	-2.86	MWD
7197.00	89.90	163.60	6370.38	-1209.21	1058.19	1285.15	0.47	0.00	-0.47	MWD
7238.00	90.70	164.90	6370.16	-1248.67	1069.32	1325.33	3.72	1.95	3.17	MWD
7281.00	90.00	162.70	6369.90	-1289.96	1081.32	1367.41	5.37	-1.63	-5.12	MWD
7323.00	89.30	163.30	6370.15	-1330.12	1093.60	1408.38	2.20	-1.67	1.43	MWD
7366.00	89.40	163.10	6370.64	-1371.29	1106.03	1450.36	0.52	0.23	-0.47	MWD
7408.00	89.80	164.90	6370.94	-1411.66	1117.60	1491.48	4.39	0.95	4.29	MWD
7451.00	90.30	166.30	6370.90	-1453.31	1128.30	1533.81	3.46	1.16	3.26	MWD
7493.00	90.70	167.30	6370.53	-1494.19	1137.89	1575.30	2.56	0.95	2.38	MWD
7518.00	91.05	167.94	6370.15	-1518.61	1143.24	1600.05	2.91	1.40	2.56	600' entry
7536.00	91.30	168.40	6369.78	-1536.22	1146.93	1617.89	2.91	1.40	2.56	MWD
7578.00	91.40	170.30	6368.79	-1577.49	1154.69	1659.62	4.53	0.24	4.52	MWD
7621.00	91.10	172.90	6367.85	-1620.01	1160.97	1702.50	6.09	-0.70	6.05	MWD
7663.00	91.50	174.90	6366.90	-1661.76	1165.44	1744.47	4.85	0.95	4.76	MWD
7706.00	90.30	176.50	6366.22	-1704.63	1168.66	1787.46	4.65	-2.79	3.72	MWD
7748.00	88.70	177.90	6366.59	-1746.58	1170.71	1829.44	5.06	-3.81	3.33	MWD
7791.00	88.40	177.20	6367.68	-1789.52	1172.55	1872.40	1.77	-0.70	-1.63	MWD
7833.00	88.30	177.00	6368.89	-1831.45	1174.67	1914.37	0.53	-0.24	-0.48	MWD
7876.00	87.80	175.90	6370.35	-1874.34	1177.33	1957.34	2.81	-1.16	-2.56	MWD
7918.00	89.00	178.70	6371.52	-1916.28	1179.31	1999.31	7.25	2.86	6.67	MWD
7961.00	90.80	179.30	6371.60	-1959.27	1180.06	2042.23	4.41	4.19	1.40	MWD
8003.00	91.00	179.10	6370.94	-2001.26	1180.65	2084.15	0.67	0.48	-0.48	MWD
8045.00	91.30	177.90	6370.10	-2043.24	1181.75	2126.09	2.94	0.71	-2.86	MWD
8086.00	91.90	178.60	6368.95	-2084.20	1183.00	2167.03	2.25	1.46	1.71	MWD

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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
8129.00	92.00	178.20	6367.49	-2127.16	1184.20	2209.96	0.96	0.23	-0.93	MWD
8171.00	89.40	177.20	6366.98	-2169.12	1185.88	2251.93	6.63	-6.19	-2.38	MWD
8214.00	89.20	176.50	6367.50	-2212.05	1188.25	2294.92	1.69	-0.47	-1.63	MWD
8256.00	89.70	176.60	6367.90	-2253.97	1190.77	2336.91	1.21	1.19	0.24	MWD
8299.00	90.60	176.80	6367.79	-2296.90	1193.25	2379.90	2.14	2.09	0.47	MWD
8342.00	90.10	175.80	6367.53	-2339.81	1196.02	2422.90	2.60	-1.16	-2.33	MWD
8384.00	89.60	175.20	6367.64	-2381.68	1199.32	2464.90	1.86	-1.19	-1.43	MWD
8427.00	90.90	175.40	6367.45	-2424.53	1202.84	2507.89	3.06	3.02	0.47	MWD
8469.00	91.30	176.30	6366.65	-2466.41	1205.88	2549.89	2.34	0.95	2.14	MWD
8512.00	91.90	175.60	6365.44	-2509.29	1208.92	2592.87	2.14	1.40	-1.63	MWD
8554.00	92.00	175.20	6364.02	-2551.13	1212.28	2634.84	0.98	0.24	-0.95	MWD
8597.00	92.20	174.30	6362.44	-2593.92	1216.21	2677.81	2.14	0.47	-2.09	MWD
8638.00	92.30	173.10	6360.83	-2634.64	1220.71	2718.75	2.93	0.24	-2.93	MWD
8681.00	92.10	175.20	6359.18	-2677.38	1225.09	2761.70	4.90	-0.47	4.88	MWD
8723.00	92.30	175.20	6357.57	-2719.20	1228.60	2803.67	0.48	0.48	0.00	MWD
8766.00	90.80	175.90	6356.40	-2762.06	1231.94	2846.65	3.85	-3.49	1.63	MWD
8808.00	89.70	176.50	6356.22	-2803.96	1234.72	2888.65	2.98	-2.62	1.43	MWD
8851.00	89.80	176.10	6356.41	-2846.87	1237.49	2931.65	0.96	0.23	-0.93	MWD
8894.00	88.50	177.20	6357.05	-2889.79	1240.01	2974.63	3.96	-3.02	2.56	MWD
8936.00	88.40	176.10	6358.18	-2931.71	1242.46	3016.61	2.63	-0.24	-2.62	MWD
8979.00	88.60	175.20	6359.31	-2974.57	1245.72	3059.60	2.14	0.47	-2.09	MWD
9021.00	88.20	174.90	6360.48	-3016.39	1249.34	3101.58	1.19	-0.95	-0.71	MWD
9063.00	88.50	176.30	6361.69	-3058.25	1252.56	3143.56	3.41	0.71	3.33	MWD
9105.00	89.10	175.90	6362.57	-3100.14	1255.42	3185.55	1.72	1.43	-0.95	MWD
9146.00	89.20	175.40	6363.18	-3141.02	1258.53	3226.54	1.24	0.24	-1.22	MWD
9189.00	87.60	175.90	6364.38	-3183.88	1261.79	3269.52	3.90	-3.72	1.16	MWD
9231.00	87.70	175.10	6366.10	-3225.71	1265.08	3311.49	1.92	0.24	-1.90	MWD
9274.00	87.80	174.70	6367.79	-3268.51	1268.90	3354.45	0.96	0.23	-0.93	MWD
9316.00	87.80	174.20	6369.40	-3310.28	1272.96	3396.41	1.19	0.00	-1.19	MWD
9359.00	88.50	175.10	6370.79	-3353.07	1276.97	3439.38	2.65	1.63	2.09	MWD
9402.00	88.70	174.00	6371.84	-3395.87	1281.05	3482.36	2.60	0.47	-2.56	MWD
9444.00	90.00	174.90	6372.32	-3437.66	1285.11	3524.34	3.76	3.10	2.14	MWD
9487.00	89.90	176.60	6372.35	-3480.54	1288.30	3567.34	3.96	-0.23	3.95	MWD
9530.00	89.90	176.10	6372.43	-3523.46	1291.04	3610.34	1.16	0.00	-1.16	MWD
9572.00	88.10	176.60	6373.16	-3565.36	1293.71	3652.33	4.45	-4.29	1.19	MWD
9614.00	88.80	175.90	6374.30	-3607.26	1296.45	3694.31	2.36	1.67	-1.67	MWD
9657.00	88.50	175.20	6375.31	-3650.12	1299.79	3737.30	1.77	-0.70	-1.63	MWD
9700.00	89.10	175.10	6376.21	-3692.95	1303.42	3780.29	1.41	1.40	-0.23	MWD
9742.00	89.90	174.20	6376.58	-3734.77	1307.34	3822.28	2.87	1.90	-2.14	MWD
9785.00	90.10	174.20	6376.58	-3777.55	1311.69	3865.26	0.47	0.47	0.00	MWD
9827.00	89.30	175.10	6376.80	-3819.36	1315.60	3907.25	2.87	-1.90	2.14	MWD
9870.00	89.70	174.70	6377.17	-3862.19	1319.42	3950.25	1.32	0.93	-0.93	MWD
9912.00	87.80	175.40	6378.09	-3904.02	1323.05	3992.23	4.82	-4.52	1.67	MWD
9955.00	88.50	175.10	6379.48	-3946.85	1326.61	4035.21	1.77	1.63	-0.70	MWD
9998.00	89.60	175.20	6380.19	-3989.69	1330.24	4078.20	2.57	2.56	0.23	MWD
10040.00	88.30	176.10	6380.96	-4031.56	1333.43	4120.19	3.76	-3.10	2.14	MWD
10083.00	88.50	175.90	6382.16	-4074.44	1336.42	4163.17	0.66	0.47	-0.47	MWD
10125.00	89.20	175.40	6383.00	-4116.31	1339.61	4205.17	2.05	1.67	-1.19	MWD
10168.00	89.70	175.10	6383.42	-4159.16	1343.17	4248.16	1.36	1.16	-0.70	MWD
10210.00	90.70	174.70	6383.27	-4200.99	1346.90	4290.16	2.56	2.38	-0.95	MWD
10253.00	89.30	176.10	6383.27	-4243.85	1350.35	4333.15	4.60	-3.26	3.26	MWD
10296.00	88.30	176.80	6384.17	-4286.76	1353.01	4376.14	2.84	-2.33	1.63	MWD
10338.00	88.70	177.50	6385.27	-4328.69	1355.10	4418.11	1.92	0.95	1.67	MWD

Precision Directional Services, Inc.

Survey Report

Company: CARRIZO OIL & GAS, INC. Field: Niobrara CONZ'83 Site: Nelson Ranches Well: 1-33-10-59 Wellpath: Original Hole	Date: 10/11/2013 Time: 11:51:56 Page: 5 Co-ordinate(NE) Reference: Well: 1-33-10-59, Grid North Vertical (TVD) Reference: 5210'GL+17'KB 5227.0 Section (VS) Reference: Well (0.00N,0.00E,175.70Azi) Survey Calculation Method: Minimum Curvature Db: 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
10381.00	88.90	176.80	6386.17	-4371.63	1357.24	4461.09	1.69	0.47	-1.63	MWD
10422.00	89.40	177.00	6386.78	-4412.57	1359.46	4502.08	1.31	1.22	0.49	MWD
10465.00	90.30	177.70	6386.89	-4455.52	1361.44	4545.06	2.65	2.09	1.63	MWD
10507.00	89.30	177.90	6387.04	-4497.49	1363.06	4587.03	2.43	-2.38	0.48	MWD
10550.00	89.10	177.30	6387.64	-4540.44	1364.86	4630.00	1.47	-0.47	-1.40	MWD
10593.00	89.00	176.30	6388.35	-4583.37	1367.26	4672.98	2.34	-0.23	-2.33	MWD
10636.00	90.20	179.10	6388.65	-4626.33	1368.98	4715.95	7.08	2.79	6.51	MWD
10678.00	90.70	182.10	6388.32	-4668.32	1368.54	4757.79	7.24	1.19	7.14	MWD
10721.00	91.40	183.30	6387.53	-4711.27	1366.52	4800.46	3.23	1.63	2.79	MWD
10763.00	90.00	180.90	6387.02	-4753.23	1364.98	4842.20	6.61	-3.33	-5.71	MWD
10806.00	89.00	178.40	6387.40	-4796.22	1365.24	4885.09	6.26	-2.33	-5.81	MWD
10848.00	88.80	178.20	6388.20	-4838.20	1366.49	4927.04	0.67	-0.48	-0.48	MWD
10891.00	88.80	177.50	6389.10	-4881.16	1368.10	4970.00	1.63	0.00	-1.63	MWD
10933.00	88.60	177.00	6390.06	-4923.10	1370.11	5011.97	1.28	-0.48	-1.19	MWD
10976.00	88.50	177.00	6391.14	-4966.03	1372.36	5054.95	0.23	-0.23	0.00	MWD
11018.00	89.20	175.20	6391.99	-5007.92	1375.22	5096.93	4.60	1.67	-4.29	MWD
11061.00	89.40	174.50	6392.51	-5050.74	1379.08	5139.93	1.69	0.47	-1.63	MWD
11103.00	90.00	173.80	6392.73	-5092.52	1383.36	5181.91	2.20	1.43	-1.67	MWD
11146.00	90.70	172.80	6392.47	-5135.23	1388.38	5224.87	2.84	1.63	-2.33	MWD
11188.00	90.80	172.20	6391.92	-5176.86	1393.86	5266.80	1.45	0.24	-1.43	MWD
11231.00	91.80	172.80	6390.94	-5219.48	1399.47	5309.72	2.71	2.33	1.40	MWD
11274.00	92.60	172.10	6389.29	-5262.08	1405.11	5352.62	2.47	1.86	-1.63	MWD
11316.00	92.00	173.10	6387.61	-5303.69	1410.52	5394.52	2.77	-1.43	2.38	MWD
11359.00	90.90	172.90	6386.52	-5346.36	1415.76	5437.46	2.60	-2.56	-0.47	MWD
11401.00	90.50	172.90	6386.01	-5388.03	1420.95	5479.41	0.95	-0.95	0.00	MWD
11444.00	91.00	173.10	6385.44	-5430.71	1426.19	5522.36	1.25	1.16	0.47	MWD
11486.00	90.50	174.50	6384.89	-5472.46	1430.72	5564.33	3.54	-1.19	3.33	MWD
11529.00	90.30	174.90	6384.59	-5515.27	1434.70	5607.32	1.04	-0.47	0.93	MWD
11572.00	90.70	174.30	6384.22	-5558.08	1438.74	5650.31	1.68	0.93	-1.40	MWD
11602.00	91.10	174.20	6383.75	-5587.93	1441.75	5680.30	1.37	1.33	-0.33	MWD
11659.00	91.10	174.20	6382.65	-5644.63	1447.51	5737.27	0.00	0.00	0.00	PROJECTED to TD

Annotation

MD ft	TVD ft	
7518.00	6370.15	600' entry