



TARGET DETAILS

Name	TVD	+N/-S	+E/-W	Northing	Easting	Latitude	Longitude	Shape
SL 5-36	0.00	0.00	0.00	1506692.59	3438265.05	40°42'48.706N	103°55'08.491W	Point
300' entry 5-36	5871.84	31.14	-586.47	1506723.73	3437678.58	40°42'49.116N	103°55'16.098W	Point
PBHL 5-36	5985.00	-4338.11	-463.61	1502354.48	3437801.44	40°42'05.928N	103°55'15.513W	Point
BHL 5-36	5993.02	-4338.86	-494.51	1502353.73	3437770.54	40°42'05.926N	103°55'15.915W	Point

Precision Directional Services, Inc.

Survey Report

Company: CARRIZO OIL & GAS, INC.			Date: 12/30/2013		Time: 13:16:50		Page: 1	
Field: Niobrara CONZ'83			Co-ordinate(NE) Reference: Well: 5-36-9-59, Grid North					
Site: Castor 4-36-9-59 Pad			Vertical (TVD) Reference: 4890'PE+17'KB 4907.0					
Well: 5-36-9-59			Section (VS) Reference: Well (0.00N,0.00E,178.48Azi)					
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: Castor 4-36-9-59 Pad Weld County, CO renamed 9-9-13			
Site Position:	Northing: 1506682.42 ft	Latitude: 40 42 48.603 N	
From: Map	Easting: 3438276.09 ft	Longitude: 103 55 8.350 W	
Position Uncertainty: 0.00 ft		North Reference: Grid	
Ground Level: 4890.00 ft		Grid Convergence: 1.02 deg	

Well: 5-36-9-59 adjusted from site 9-9-13			
Well Position: +N/-S 10.17 ft	Northing: 1506692.59 ft	Latitude: 40 42 48.706 N	
+E/-W -11.04 ft	Easting : 3438265.05 ft	Longitude: 103 55 8.491 W	
Position Uncertainty: 0.00 ft			

Wellpath: Original Hole		Drilled From: Surface	
Current Datum: 4890'PE+17'KB	Height 4907.00 ft	Tie-on Depth: 0.00 ft	
Magnetic Data: 11/22/2013		Above System Datum: Mean Sea Level	
Field Strength: 53163 nT		Declination: 8.10 deg	
Vertical Section: Depth From (TVD)	+N/-S	Mag Dip Angle: 67.35 deg	
ft	ft	+E/-W	Direction
		ft	deg
0.00	0.00	0.00	178.48

Survey Program for Definitive Wellpath			
Date: 12/05/2013	Validated: No	Version: 6	
Actual From	To	Survey	Toolcode Tool Name
ft	ft		
106.00	1364.00	Survey #1 (106.00-1364.00)	MWD Std MWD
1500.00	10332.00	Survey #2 (1500.00-10332.00)	MWD Std MWD
10390.00	10390.00	Survey #3 (10390.00-10390.00)	Project Projection

Survey										
MD	Incl	Azim	TVD	+N/-S	+E/-W	VS	DLS	Build	Turn	Tool/Comment
ft	deg	deg	ft	ft	ft	ft	deg/100ft	deg/100ft	deg/100ft	
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	TIE LINE
106.00	0.30	173.70	106.00	-0.28	0.03	0.28	0.28	0.28	0.00	MWD
137.00	0.40	225.40	137.00	-0.43	-0.04	0.43	1.03	0.32	166.77	MWD
229.00	2.00	296.90	228.98	0.07	-1.70	-0.11	2.08	1.74	77.72	MWD
322.00	4.80	311.70	321.81	3.39	-6.05	-3.55	3.13	3.01	15.91	MWD
413.00	5.60	313.60	412.43	8.99	-12.11	-9.30	0.90	0.88	2.09	MWD
504.00	5.30	318.00	503.02	15.17	-18.14	-15.65	0.57	-0.33	4.84	MWD
595.00	5.20	320.80	593.64	21.49	-23.56	-22.11	0.30	-0.11	3.08	MWD
687.00	5.20	304.90	685.27	27.11	-29.61	-27.88	1.56	0.00	-17.28	MWD
779.00	5.30	302.90	776.88	31.80	-36.60	-32.76	0.23	0.11	-2.17	MWD
870.00	5.40	289.70	867.49	35.53	-44.16	-36.69	1.35	0.11	-14.51	MWD
962.00	6.70	289.00	958.97	38.73	-53.31	-40.13	1.42	1.41	-0.76	MWD
1052.00	6.80	291.10	1048.35	42.36	-63.24	-44.02	0.30	0.11	2.33	MWD
1144.00	6.60	291.70	1139.72	46.28	-73.24	-48.20	0.23	-0.22	0.65	MWD
1235.00	6.50	292.40	1230.13	50.17	-82.86	-52.35	0.14	-0.11	0.77	MWD
1326.00	6.20	292.20	1320.57	53.99	-92.17	-56.42	0.33	-0.33	-0.22	MWD
1364.00	6.30	291.10	1358.34	55.52	-96.02	-58.05	0.41	0.26	-2.89	MWD
1500.00	6.00	297.10	1493.56	61.44	-109.30	-64.32	0.52	-0.22	4.41	MWD
1586.00	6.00	296.10	1579.09	65.47	-117.34	-68.56	0.12	0.00	-1.16	MWD
1671.00	5.90	296.90	1663.63	69.40	-125.23	-72.70	0.15	-0.12	0.94	MWD
1756.00	7.20	297.50	1748.07	73.84	-133.85	-77.36	1.53	1.53	0.71	MWD

Precision Directional Services, Inc.

Survey Report

Company: CARRIZO OIL & GAS, INC.	Date: 12/30/2013	Time: 13:16:50	Page: 2
Field: Niobrara CONZ'83	Co-ordinate(NE) Reference: Well: 5-36-9-59, Grid North		
Site: Castor 4-36-9-59 Pad	Vertical (TVD) Reference: 4890'PE+17'KB 4907.0		
Well: 5-36-9-59	Section (VS) Reference: Well (0.00N,0.00E,178.48Azi)		
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
1841.00	6.30	294.80	1832.48	78.25	-142.81	-82.01	1.12	-1.06	-3.18	MWD
1926.00	7.40	299.10	1916.88	82.87	-151.82	-86.87	1.43	1.29	5.06	MWD
2011.00	7.10	299.40	2001.20	88.11	-161.18	-92.36	0.36	-0.35	0.35	MWD
2096.00	6.80	299.90	2085.57	93.20	-170.12	-97.68	0.36	-0.35	0.59	MWD
2181.00	8.20	298.70	2169.84	98.62	-179.80	-103.35	1.66	1.65	-1.41	MWD
2266.00	7.90	299.20	2254.01	104.38	-190.22	-109.39	0.36	-0.35	0.59	MWD
2352.00	7.20	296.90	2339.26	109.70	-200.18	-114.97	0.89	-0.81	-2.67	MWD
2437.00	8.00	301.30	2423.51	115.18	-209.99	-120.71	1.16	0.94	5.18	MWD
2522.00	8.40	300.60	2507.64	121.42	-220.39	-127.22	0.49	0.47	-0.82	MWD
2607.00	8.50	299.80	2591.72	127.70	-231.18	-133.79	0.18	0.12	-0.94	MWD
2692.00	8.40	299.10	2675.80	133.84	-242.06	-140.21	0.17	-0.12	-0.82	MWD
2777.00	7.40	303.80	2759.99	139.90	-252.03	-146.54	1.40	-1.18	5.53	MWD
2863.00	7.10	305.20	2845.30	146.05	-260.98	-152.92	0.40	-0.35	1.63	MWD
2947.00	6.20	305.20	2928.74	151.66	-268.93	-158.74	1.07	-1.07	0.00	MWD
3033.00	6.40	298.20	3014.22	156.60	-276.94	-163.89	0.92	0.23	-8.14	MWD
3118.00	5.00	299.40	3098.80	160.66	-284.35	-168.14	1.65	-1.65	1.41	MWD
3203.00	6.80	301.70	3183.34	165.12	-291.86	-172.80	2.14	2.12	2.71	MWD
3288.00	6.90	298.20	3267.74	170.18	-300.64	-178.09	0.50	0.12	-4.12	MWD
3374.00	7.00	298.30	3353.11	175.10	-309.80	-183.26	0.12	0.12	0.12	MWD
3459.00	7.60	299.20	3437.42	180.30	-319.27	-188.70	0.72	0.71	1.06	MWD
3544.00	8.10	299.40	3521.62	185.98	-329.40	-194.65	0.59	0.59	0.24	MWD
3629.00	8.50	295.00	3605.73	191.58	-340.31	-200.54	0.88	0.47	-5.18	MWD
3714.00	7.40	304.50	3689.92	197.33	-350.51	-206.56	2.01	-1.29	11.18	MWD
3799.00	7.00	305.20	3774.25	203.42	-359.25	-212.88	0.48	-0.47	0.82	MWD
3885.00	6.40	302.70	3859.66	209.03	-367.57	-218.70	0.78	-0.70	-2.91	MWD
3970.00	5.50	301.30	3944.20	213.70	-375.04	-223.58	1.07	-1.06	-1.65	MWD
4055.00	4.70	296.80	4028.86	217.39	-381.63	-227.44	1.05	-0.94	-5.29	MWD
4139.00	6.20	294.10	4112.48	220.79	-388.84	-231.03	1.81	1.79	-3.21	MWD
4224.00	6.20	293.40	4196.98	224.49	-397.24	-234.95	0.09	0.00	-0.82	MWD
4309.00	5.50	296.90	4281.54	228.16	-405.09	-238.82	0.92	-0.82	4.12	MWD
4394.00	6.30	298.90	4366.09	232.25	-412.80	-243.12	0.97	0.94	2.35	MWD
4479.00	5.50	302.90	4450.64	236.72	-420.31	-247.79	1.06	-0.94	4.71	MWD
4564.00	6.80	301.30	4535.15	241.55	-428.03	-252.82	1.54	1.53	-1.88	MWD
4649.00	7.70	295.00	4619.47	246.57	-437.49	-258.09	1.41	1.06	-7.41	MWD
4734.00	6.50	293.10	4703.82	250.86	-447.07	-262.63	1.44	-1.41	-2.24	MWD
4819.00	7.00	295.50	4788.23	254.98	-456.17	-266.99	0.68	0.59	2.82	MWD
4904.00	7.90	297.30	4872.51	259.89	-466.04	-272.16	1.09	1.06	2.12	MWD
4990.00	6.90	295.40	4957.79	264.82	-475.96	-277.35	1.20	-1.16	-2.21	MWD
5075.00	7.60	294.50	5042.11	269.34	-485.69	-282.13	0.83	0.82	-1.06	MWD
5159.00	7.40	295.00	5125.39	273.93	-495.64	-286.98	0.25	-0.24	0.60	MWD
5244.00	8.40	297.10	5209.58	279.07	-506.13	-292.40	1.22	1.18	2.47	MWD
5326.00	6.70	294.00	5290.87	283.74	-515.83	-297.33	2.13	-2.07	-3.78	MWD
5369.00	5.80	290.10	5333.62	285.51	-520.17	-299.21	2.31	-2.09	-9.07	MWD
5412.00	6.20	255.50	5376.39	285.68	-524.46	-299.49	8.33	0.93	-80.47	MWD
5454.00	8.70	226.10	5418.05	282.90	-528.94	-296.83	10.67	5.95	-70.00	MWD
5497.00	12.60	213.40	5460.31	276.73	-533.87	-290.79	10.53	9.07	-29.53	MWD
5539.00	16.80	205.50	5500.93	267.42	-539.01	-281.63	11.06	10.00	-18.81	MWD
5582.00	19.60	202.20	5541.77	255.13	-544.41	-269.48	6.94	6.51	-7.67	MWD
5624.00	22.60	198.50	5580.95	240.95	-549.63	-255.45	7.81	7.14	-8.81	MWD
5667.00	24.30	192.70	5620.41	224.48	-554.20	-239.10	6.66	3.95	-13.49	MWD
5709.00	27.50	192.40	5658.18	206.58	-558.18	-221.31	7.63	7.62	-0.71	MWD
5752.00	31.20	191.50	5695.66	185.96	-562.54	-200.82	8.67	8.60	-2.09	MWD
5794.00	35.30	190.90	5730.77	163.37	-567.00	-178.36	9.79	9.76	-1.43	MWD
5837.00	39.20	189.50	5765.00	137.76	-571.60	-152.88	9.28	9.07	-3.26	MWD

Precision Directional Services, Inc.

Survey Report

Company: CARRIZO OIL & GAS, INC.
Field: Niobrara CONZ'83
Site: Castor 4-36-9-59 Pad
Well: 5-36-9-59
Wellpath: Original Hole

Date: 12/30/2013 **Time:** 13:16:50 **Page:** 3
Co-ordinate(NE) Reference: Well: 5-36-9-59, Grid North
Vertical (TVD) Reference: 4890'PE+17"KB 4907.0
Section (VS) Reference: Well (0.00N,0.00E,178.48Azi)
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
5880.00	43.00	190.20	5797.39	109.92	-576.44	-125.17	8.90	8.84	1.63	MWD
5922.00	45.50	188.80	5827.48	81.02	-581.27	-96.41	6.39	5.95	-3.33	MWD
5964.00	49.20	185.30	5855.93	50.37	-585.03	-65.87	10.73	8.81	-8.33	MWD
5989.00	51.75	183.33	5871.84	31.14	-586.47	-46.69	11.86	10.19	-7.87	300' entry
6007.00	53.60	182.00	5882.76	16.85	-587.14	-32.41	11.86	10.29	-7.40	MWD
6035.00	56.30	179.70	5898.84	-6.07	-587.47	-9.52	11.76	9.64	-8.21	MWD
6090.00	61.90	177.90	5927.07	-53.23	-586.46	37.66	10.56	10.18	-3.27	MWD
6120.00	65.10	178.10	5940.46	-80.06	-585.52	64.50	10.68	10.67	0.67	MWD
6151.00	68.00	179.30	5952.79	-108.49	-584.88	92.93	10.01	9.35	3.87	MWD
6181.00	71.50	180.00	5963.17	-136.63	-584.71	121.07	11.87	11.67	2.33	MWD
6212.00	75.20	180.80	5972.05	-166.32	-584.92	150.75	12.19	11.94	2.58	MWD
6242.00	78.80	181.30	5978.80	-195.54	-585.46	179.94	12.11	12.00	1.67	MWD
6273.00	82.70	181.30	5983.78	-226.13	-586.15	210.50	12.58	12.58	0.00	MWD
6303.00	86.00	178.80	5986.74	-255.97	-586.18	240.33	13.78	11.00	-8.33	MWD
6334.00	88.60	177.90	5988.20	-286.92	-585.28	271.30	8.87	8.39	-2.90	MWD
6364.00	88.90	177.60	5988.85	-316.89	-584.11	301.29	1.41	1.00	-1.00	MWD
6395.00	90.00	177.10	5989.15	-347.86	-582.67	332.28	3.90	3.55	-1.61	MWD
6425.00	90.70	177.20	5988.97	-377.82	-581.18	362.27	2.36	2.33	0.33	MWD
6456.00	90.80	176.70	5988.56	-408.77	-579.53	393.26	1.64	0.32	-1.61	MWD
6486.00	90.30	176.40	5988.27	-438.72	-577.73	423.24	1.94	-1.67	-1.00	MWD
6517.00	90.10	175.50	5988.16	-469.64	-575.54	454.21	2.97	-0.65	-2.90	MWD
6559.00	91.00	176.70	5987.76	-511.54	-572.68	496.17	3.57	2.14	2.86	MWD
6602.00	91.50	176.70	5986.82	-554.46	-570.21	539.14	1.16	1.16	0.00	MWD
6645.00	90.70	177.10	5986.00	-597.39	-567.88	582.11	2.08	-1.86	0.93	MWD
6687.00	89.80	176.90	5985.82	-639.33	-565.68	624.10	2.20	-2.14	-0.48	MWD
6730.00	89.00	176.70	5986.27	-682.26	-563.28	667.08	1.92	-1.86	-0.47	MWD
6772.00	88.50	177.80	5987.18	-724.20	-561.27	709.06	2.88	-1.19	2.62	MWD
6815.00	88.20	177.60	5988.42	-767.15	-559.54	752.03	0.84	-0.70	-0.47	MWD
6857.00	88.60	178.30	5989.59	-809.10	-558.04	794.02	1.92	0.95	1.67	MWD
6900.00	88.00	178.10	5990.87	-852.06	-556.69	837.00	1.47	-1.40	-0.47	MWD
6943.00	87.90	177.80	5992.41	-895.01	-555.16	879.97	0.73	-0.23	-0.70	MWD
6985.00	88.80	178.50	5993.62	-936.97	-553.80	921.95	2.71	2.14	1.67	MWD
7028.00	88.70	178.30	5994.55	-979.94	-552.60	964.94	0.52	-0.23	-0.47	MWD
7070.00	90.60	179.20	5994.81	-1021.93	-551.68	1006.93	5.01	4.52	2.14	MWD
7113.00	90.70	178.60	5994.32	-1064.92	-550.86	1049.93	1.41	0.23	-1.40	MWD
7156.00	90.10	177.60	5994.02	-1107.89	-549.43	1092.93	2.71	-1.40	-2.33	MWD
7198.00	90.90	177.60	5993.66	-1149.85	-547.67	1134.92	1.90	1.90	0.00	MWD
7240.00	91.60	179.00	5992.74	-1191.82	-546.43	1176.91	3.73	1.67	3.33	MWD
7283.00	91.10	178.30	5991.73	-1234.80	-545.42	1219.90	2.00	-1.16	-1.63	MWD
7325.00	89.90	178.10	5991.36	-1276.78	-544.10	1261.89	2.90	-2.86	-0.48	MWD
7368.00	90.10	176.40	5991.36	-1319.72	-542.03	1304.88	3.98	0.47	-3.95	MWD
7410.00	90.00	174.60	5991.32	-1361.59	-538.74	1346.82	4.29	-0.24	-4.29	MWD
7453.00	90.00	176.50	5991.32	-1404.46	-535.40	1389.77	4.42	0.00	4.42	MWD
7496.00	90.30	179.70	5991.21	-1447.43	-533.98	1432.76	7.47	0.70	7.44	MWD
7538.00	90.10	178.60	5991.06	-1489.43	-533.35	1474.75	2.66	-0.48	-2.62	MWD
7581.00	90.10	177.90	5990.99	-1532.41	-532.04	1517.75	1.63	0.00	-1.63	MWD
7623.00	89.30	179.30	5991.21	-1574.39	-531.01	1559.75	3.84	-1.90	3.33	MWD
7666.00	88.70	179.50	5991.96	-1617.38	-530.56	1602.74	1.47	-1.40	0.47	MWD
7708.00	89.20	180.00	5992.73	-1659.37	-530.38	1644.72	1.68	1.19	1.19	MWD
7751.00	90.30	180.40	5992.92	-1702.37	-530.53	1687.70	2.72	2.56	0.93	MWD
7794.00	90.40	180.40	5992.65	-1745.37	-530.83	1730.68	0.23	0.23	0.00	MWD
7836.00	89.70	179.00	5992.62	-1787.37	-530.61	1772.67	3.73	-1.67	-3.33	MWD
7879.00	90.30	181.30	5992.62	-1830.37	-530.72	1815.64	5.53	1.40	5.35	MWD

Precision Directional Services, Inc.

Survey Report

Company: CARRIZO OIL & GAS, INC. Field: Niobrara CONZ'83 Site: Castor 4-36-9-59 Pad Well: 5-36-9-59 Wellpath: Original Hole	Date: 12/30/2013 Time: 13:16:50 Page: 4 Co-ordinate(NE) Reference: Well: 5-36-9-59, Grid North Vertical (TVD) Reference: 4890'PE+17'KB 4907.0 Section (VS) Reference: Well (0.00N,0.00E,178.48Azi) 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
7921.00	90.70	181.60	5992.25	-1872.35	-531.79	1857.59	1.19	0.95	0.71	MWD
7964.00	90.10	179.30	5991.95	-1915.35	-532.12	1900.56	5.53	-1.40	-5.35	MWD
8007.00	90.10	176.90	5991.88	-1958.32	-530.70	1943.55	5.58	0.00	-5.58	MWD
8049.00	90.30	175.00	5991.73	-2000.21	-527.73	1985.51	4.55	0.48	-4.52	MWD
8092.00	89.60	175.00	5991.77	-2043.05	-523.98	2028.43	1.63	-1.63	0.00	MWD
8134.00	90.20	176.90	5991.84	-2084.94	-521.02	2070.39	4.74	1.43	4.52	MWD
8177.00	90.50	178.30	5991.58	-2127.90	-519.22	2113.38	3.33	0.70	3.26	MWD
8219.00	90.00	176.20	5991.39	-2169.85	-517.20	2155.37	5.14	-1.19	-5.00	MWD
8262.00	90.10	177.90	5991.36	-2212.79	-514.99	2198.35	3.96	0.23	3.95	MWD
8305.00	90.80	179.20	5991.02	-2255.77	-513.90	2241.35	3.43	1.63	3.02	MWD
8347.00	89.60	178.10	5990.87	-2297.76	-512.91	2283.35	3.88	-2.86	-2.62	MWD
8390.00	88.80	178.60	5991.47	-2340.74	-511.67	2326.34	2.19	-1.86	1.16	MWD
8432.00	89.00	178.10	5992.28	-2382.71	-510.47	2368.33	1.28	0.48	-1.19	MWD
8475.00	88.60	178.60	5993.18	-2425.69	-509.23	2411.33	1.49	-0.93	1.16	MWD
8518.00	89.00	177.90	5994.08	-2468.66	-507.91	2454.31	1.87	0.93	-1.63	MWD
8560.00	88.80	177.90	5994.89	-2510.62	-506.38	2496.30	0.48	-0.48	0.00	MWD
8603.00	88.70	177.90	5995.82	-2553.58	-504.80	2539.29	0.23	-0.23	0.00	MWD
8645.00	89.60	179.00	5996.45	-2595.56	-503.66	2581.29	3.38	2.14	2.62	MWD
8688.00	89.30	178.60	5996.86	-2638.55	-502.76	2624.28	1.16	-0.70	-0.93	MWD
8730.00	89.20	178.80	5997.41	-2680.53	-501.81	2666.28	0.53	-0.24	0.48	MWD
8773.00	89.10	179.10	5998.05	-2723.52	-501.02	2709.27	0.74	-0.23	0.70	MWD
8816.00	88.90	180.20	5998.80	-2766.51	-500.76	2752.26	2.60	-0.47	2.56	MWD
8858.00	89.70	180.20	5999.31	-2808.51	-500.91	2794.24	1.90	1.90	0.00	MWD
8901.00	89.10	180.20	5999.76	-2851.51	-501.06	2837.21	1.40	-1.40	0.00	MWD
8944.00	90.10	180.20	6000.06	-2894.51	-501.21	2880.19	2.33	2.33	0.00	MWD
8986.00	90.70	180.60	5999.77	-2936.50	-501.50	2922.17	1.72	1.43	0.95	MWD
9029.00	90.70	180.00	5999.24	-2979.50	-501.73	2965.14	1.40	0.00	-1.40	MWD
9071.00	90.80	179.90	5998.69	-3021.50	-501.69	3007.12	0.34	0.24	-0.24	MWD
9114.00	91.30	179.70	5997.91	-3064.49	-501.54	3050.11	1.25	1.16	-0.47	MWD
9157.00	91.10	179.70	5997.00	-3107.48	-501.31	3093.09	0.47	-0.47	0.00	MWD
9198.00	90.80	180.20	5996.32	-3148.47	-501.28	3134.07	1.42	-0.73	1.22	MWD
9240.00	90.70	180.20	5995.78	-3190.47	-501.43	3176.05	0.24	-0.24	0.00	MWD
9283.00	90.20	179.50	5995.44	-3233.47	-501.31	3219.03	2.00	-1.16	-1.63	MWD
9326.00	89.50	177.40	5995.55	-3276.45	-500.15	3262.03	5.15	-1.63	-4.88	MWD
9368.00	90.40	177.60	5995.59	-3318.41	-498.32	3304.02	2.20	2.14	0.48	MWD
9411.00	89.80	173.50	5995.51	-3361.27	-494.98	3346.96	9.64	-1.40	-9.53	MWD
9453.00	89.20	172.70	5995.88	-3402.96	-489.94	3388.77	2.38	-1.43	-1.90	MWD
9496.00	88.60	174.20	5996.70	-3445.67	-485.03	3431.59	3.76	-1.40	3.49	MWD
9538.00	89.90	176.70	5997.25	-3487.53	-481.70	3473.53	6.71	3.10	5.95	MWD
9581.00	90.20	177.60	5997.22	-3530.48	-479.56	3516.52	2.21	0.70	2.09	MWD
9623.00	89.70	178.60	5997.25	-3572.45	-478.17	3558.51	2.66	-1.19	2.38	MWD
9666.00	89.80	178.30	5997.44	-3615.44	-477.01	3601.51	0.74	0.23	-0.70	MWD
9708.00	89.40	178.10	5997.73	-3657.42	-475.69	3643.51	1.06	-0.95	-0.48	MWD
9751.00	90.40	179.50	5997.81	-3700.41	-474.79	3686.51	4.00	2.33	3.26	MWD
9793.00	90.70	181.10	5997.41	-3742.40	-475.01	3728.48	3.88	0.71	3.81	MWD
9836.00	90.50	180.80	5996.95	-3785.39	-475.72	3771.44	0.84	-0.47	-0.70	MWD
9878.00	89.80	180.60	5996.84	-3827.39	-476.23	3813.41	1.73	-1.67	-0.48	MWD
9921.00	89.40	180.80	5997.15	-3870.39	-476.76	3856.38	1.04	-0.93	0.47	MWD
9963.00	89.10	180.80	5997.69	-3912.38	-477.35	3898.34	0.71	-0.71	0.00	MWD
10006.00	90.20	183.40	5997.96	-3955.34	-478.92	3941.25	6.57	2.56	6.05	MWD
10048.00	91.70	184.30	5997.26	-3997.24	-481.74	3983.06	4.16	3.57	2.14	MWD
10091.00	91.60	183.60	5996.02	-4040.12	-484.70	4025.84	1.64	-0.23	-1.63	MWD
10134.00	91.40	183.40	5994.90	-4083.03	-487.33	4068.66	0.66	-0.47	-0.47	MWD

Precision Directional Services, Inc.

Survey Report

Company: CARRIZO OIL & GAS, INC. Field: Niobrara CONZ'83 Site: Castor 4-36-9-59 Pad Well: 5-36-9-59 Wellpath: Original Hole	Date: 12/30/2013 Time: 13:16:50 Page: 5 Co-ordinate(NE) Reference: Well: 5-36-9-59, Grid North Vertical (TVD) Reference: 4890'PE+17'KB 4907.0 Section (VS) Reference: Well (0.00N,0.00E,178.48Azi) 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
10176.00	91.30	183.40	5993.91	-4124.94	-489.82	4110.50	0.24	-0.24	0.00	MWD
10218.00	90.30	181.80	5993.32	-4166.89	-491.72	4152.38	4.49	-2.38	-3.81	MWD
10261.00	90.00	181.50	5993.21	-4209.87	-492.96	4195.32	0.99	-0.70	-0.70	MWD
10303.00	89.90	180.80	5993.25	-4251.86	-493.80	4237.27	1.68	-0.24	-1.67	MWD
10332.00	90.20	180.40	5993.22	-4280.86	-494.11	4266.25	1.72	1.03	-1.38	MWD
10390.00	90.20	180.40	5993.02	-4338.86	-494.51	4324.22	0.00	0.00	0.00	Project

Annotation

MD ft	TVD ft	
5989.00	5871.84	300' entry