



TARGET DETAILS

Name	TVD	+N/-S	+E/-W	Northing	Easting	Latitude	Longitude	Shape
State 1-16 (DA)	-100.00	-3940.98	69.71	1516973.66	3386643.84	40°44'38.840N	104°06'16.658W	Point
SL 4-16	0.00	0.00	0.00	1520914.64	3386574.13	40°45'17.787N	104°06'16.758W	Point
600' entry 4-16	6414.65	136.36	167.96	1521051.00	3386742.09	40°45'19.108N	104°06'14.547W	Point
BHL 4-16	6434.47	-3940.37	288.72	1516974.27	3386862.85	40°44'38.812N	104°06'13.813W	Point
PBHL 4-16	6436.00	-3940.86	289.59	1516973.78	3386863.72	40°44'38.807N	104°06'13.801W	Point

Precision Directional Services, Inc.

Survey Report

Company: CARRIZO OIL & GAS, INC. Field: Niobrara CONZ'83 Site: State 16-11-9-60 Well: 4-16-9-60 Wellpath: Original Hole	Date: 12/19/2013 Co-ordinate(NE) Reference: Well: 4-16-9-60, Grid North Vertical (TVD) Reference: 5011'GL+17"KB 5028.0 Section (VS) Reference: Well (0.00N,0.00E,178.95Azi) Survey Calculation Method: Minimum Curvature	Time: 08:39:54 Page: 1 Db: Adapti
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Field: Niobrara CONZ'83 Map System: US State Plane Coordinate System 1983 Geo Datum: GRS 1980 Sys Datum: Mean Sea Level	Map Zone: Colorado, Northern Zone Coordinate System: Well Centre Geomagnetic Model: IGRF2010
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Site: State 16-11-9-60 Weld County, CO Site Position: From: Map Position Uncertainty: 0.00 ft Ground Level: 5011.00 ft	Northing: 1520935.59 ft Easting: 3386552.65 ft Latitude: 40 45 17.998 N Longitude: 104 6 17.032 W North Reference: Grid Grid Convergence: 0.90 deg
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Well: 4-16-9-60 730'FNL,733'FWL Well Position: +N/-S -20.95 ft +E/-W 21.48 ft Position Uncertainty: 0.00 ft	Slot Name: Northing: 1520914.64 ft Easting : 3386574.13 ft Latitude: 40 45 17.787 N Longitude: 104 6 16.758 W
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Wellpath: Original Hole Current Datum: 5011'GL+17"KB Magnetic Data: 12/05/2013 Field Strength: 53162 nT Vertical Section: Depth From (TVD) ft	Height 5028.00 ft	Drilled From: Surface Tie-on Depth: 0.00 ft Above System Datum: Mean Sea Level Declination: 8.20 deg Mag Dip Angle: 67.36 deg +E/-W ft Direction deg
0.00	0.00	0.00 178.95

Survey Program for Definitive Wellpath			
Date: 12/19/2013	Validated: No	Version: 3	
Actual From ft	To ft	Survey	Toolcode Tool Name
149.00	10734.00	Survey #1 (149.00-10734.00)	MWD Std MWD
10794.00	10794.00	Survey #2 (10794.00-10794.00)	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
149.00	0.50	168.50	149.00	-0.64	0.13	0.64	0.34	0.34	0.00	MWD
245.00	2.40	60.00	244.97	-0.04	1.95	0.08	2.71	1.98	-113.02	MWD
338.00	3.20	60.40	337.86	2.21	5.90	-2.10	0.86	0.86	0.43	MWD
432.00	2.90	23.50	431.73	5.69	9.13	-5.52	2.08	-0.32	-39.26	MWD
526.00	6.90	18.40	525.37	13.23	11.86	-13.01	4.28	4.26	-5.43	MWD
620.00	7.40	15.90	618.64	24.41	15.30	-24.13	0.63	0.53	-2.66	MWD
713.00	7.20	14.50	710.89	35.81	18.40	-35.47	0.29	-0.22	-1.51	MWD
807.00	6.90	16.40	804.18	46.93	21.47	-46.53	0.40	-0.32	2.02	MWD
900.00	6.70	13.50	896.52	57.57	24.31	-57.11	0.43	-0.22	-3.12	MWD
994.00	6.30	17.80	989.92	67.81	27.17	-67.30	0.67	-0.43	4.57	MWD
1087.00	6.20	17.10	1082.37	77.47	30.21	-76.90	0.14	-0.11	-0.75	MWD
1181.00	5.50	18.90	1175.88	86.58	33.16	-85.96	0.77	-0.74	1.91	MWD
1275.00	7.90	15.90	1269.23	97.06	36.39	-96.38	2.58	2.55	-3.19	MWD
1368.00	8.40	17.80	1361.29	109.67	40.21	-108.92	0.61	0.54	2.04	MWD
1401.00	8.40	18.00	1393.93	114.26	41.70	-113.48	0.09	0.00	0.61	MWD
1448.00	8.30	20.70	1440.44	120.70	43.96	-119.87	0.86	-0.21	5.74	MWD
1534.00	8.30	21.40	1525.54	132.28	48.41	-131.38	0.12	0.00	0.81	MWD
1619.00	7.70	22.80	1609.71	143.25	52.86	-142.25	0.74	-0.71	1.65	MWD
1704.00	7.30	21.50	1693.98	153.52	57.05	-152.45	0.51	-0.47	-1.53	MWD
1789.00	7.10	24.40	1778.31	163.33	61.20	-162.18	0.49	-0.24	3.41	MWD
1874.00	7.40	15.00	1862.63	173.40	64.78	-172.18	1.44	0.35	-11.06	MWD

Precision Directional Services, Inc.

Survey Report

Company: CARRIZO OIL & GAS, INC. Field: Niobrara CONZ'83 Site: State 16-11-9-60 Well: 4-16-9-60 Wellpath: Original Hole	Date: 12/19/2013 Time: 08:39:54 Page: 2 Co-ordinate(NE) Reference: Well: 4-16-9-60, Grid North Vertical (TVD) Reference: 5011'GL+17"KB 5028.0 Section (VS) Reference: Well (0.00N,0.00E,178.95Azi) 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
1960.00	6.10	12.00	1948.04	183.22	67.17	-181.96	1.57	-1.51	-3.49	MWD
2045.00	5.50	8.40	2032.60	191.67	68.70	-190.38	0.83	-0.71	-4.24	MWD
2130.00	7.00	5.90	2117.09	200.85	69.83	-199.54	1.79	1.76	-2.94	MWD
2215.00	6.50	1.00	2201.50	210.81	70.44	-209.49	0.90	-0.59	-5.76	MWD
2301.00	5.90	358.30	2287.00	220.10	70.40	-218.77	0.78	-0.70	-3.14	MWD
2386.00	7.00	6.90	2371.46	229.61	70.89	-228.27	1.72	1.29	10.12	MWD
2471.00	6.90	5.70	2455.84	239.83	72.02	-238.47	0.21	-0.12	-1.41	MWD
2556.00	6.20	8.20	2540.28	249.45	73.18	-248.07	0.89	-0.82	2.94	MWD
2642.00	8.10	9.10	2625.61	260.03	74.80	-258.62	2.21	2.21	1.05	MWD
2727.00	7.70	6.20	2709.81	271.61	76.36	-270.16	0.66	-0.47	-3.41	MWD
2812.00	7.50	4.80	2794.06	282.80	77.44	-281.33	0.32	-0.24	-1.65	MWD
2899.00	7.30	3.80	2880.33	293.97	78.28	-292.49	0.27	-0.23	-1.15	MWD
2983.00	6.90	3.10	2963.69	304.33	78.91	-302.84	0.49	-0.48	-0.83	MWD
3068.00	6.90	3.40	3048.07	314.53	79.49	-313.02	0.04	0.00	0.35	MWD
3153.00	6.80	3.60	3132.47	324.65	80.11	-323.12	0.12	-0.12	0.24	MWD
3238.00	7.40	13.60	3216.82	334.99	81.71	-333.44	1.61	0.71	11.76	MWD
3324.00	6.70	12.90	3302.17	345.26	84.13	-343.66	0.82	-0.81	-0.81	MWD
3409.00	6.30	10.50	3386.62	354.68	86.09	-353.05	0.57	-0.47	-2.82	MWD
3494.00	7.20	16.10	3471.03	364.39	88.42	-362.70	1.31	1.06	6.59	MWD
3579.00	7.10	17.70	3555.37	374.51	91.49	-372.77	0.26	-0.12	1.88	MWD
3665.00	7.70	17.70	3640.65	385.06	94.86	-383.26	0.70	0.70	0.00	MWD
3750.00	7.70	18.40	3724.89	395.89	98.39	-394.02	0.11	0.00	0.82	MWD
3835.00	7.90	21.90	3809.10	406.71	102.37	-404.77	0.61	0.24	4.12	MWD
3920.00	8.20	21.70	3893.26	417.76	106.79	-415.74	0.35	0.35	-0.24	MWD
4006.00	8.40	20.70	3978.36	429.34	111.27	-427.23	0.29	0.23	-1.16	MWD
4091.00	8.40	19.40	4062.45	441.00	115.53	-438.81	0.22	0.00	-1.53	MWD
4176.00	8.30	21.20	4146.55	452.58	119.81	-450.31	0.33	-0.12	2.12	MWD
4262.00	7.60	23.60	4231.72	463.58	124.33	-461.22	0.90	-0.81	2.79	MWD
4347.00	7.60	25.10	4315.98	473.82	128.97	-471.37	0.23	0.00	1.76	MWD
4432.00	7.70	31.20	4400.22	483.78	134.30	-481.24	0.96	0.12	7.18	MWD
4517.00	7.50	32.10	4484.48	493.35	140.20	-490.70	0.27	-0.24	1.06	MWD
4602.00	7.40	19.10	4568.76	503.22	144.94	-500.48	1.98	-0.12	-15.29	MWD
4687.00	7.00	12.60	4653.10	513.45	147.86	-510.65	1.07	-0.47	-7.65	MWD
4773.00	7.00	16.40	4738.45	523.59	150.48	-520.74	0.54	0.00	4.42	MWD
4858.00	6.00	14.70	4822.91	532.86	153.07	-529.96	1.20	-1.18	-2.00	MWD
4943.00	5.40	19.60	4907.49	540.92	155.54	-537.98	0.91	-0.71	5.76	MWD
5029.00	3.30	44.40	4993.24	546.50	158.63	-543.50	3.22	-2.44	28.84	MWD
5114.00	4.00	43.30	5078.07	550.41	162.38	-547.34	0.83	0.82	-1.29	MWD
5199.00	3.70	44.40	5162.88	554.53	166.33	-551.38	0.36	-0.35	1.29	MWD
5284.00	3.70	19.80	5247.71	559.07	169.18	-555.87	1.85	0.00	-28.94	MWD
5369.00	5.10	359.40	5332.46	565.42	170.07	-562.21	2.45	1.65	-24.00	MWD
5455.00	3.90	3.40	5418.19	572.17	170.20	-568.95	1.44	-1.40	4.65	MWD
5540.00	5.30	6.80	5502.92	578.95	170.84	-575.72	1.68	1.65	4.00	MWD
5625.00	5.20	8.90	5587.56	586.65	171.90	-583.41	0.25	-0.12	2.47	MWD
5710.00	3.50	8.00	5672.31	593.03	172.85	-589.76	2.00	-2.00	-1.06	MWD
5789.00	2.90	12.00	5751.19	597.37	173.60	-594.09	0.81	-0.76	5.06	MWD
5832.00	2.20	9.40	5794.14	599.25	173.97	-595.96	1.65	-1.63	-6.05	MWD
5875.00	0.50	207.50	5837.14	599.90	174.01	-596.61	6.23	-3.95	-376.51	MWD
5917.00	4.70	175.90	5879.08	598.02	174.05	-594.73	10.20	10.00	-75.24	MWD
5961.00	4.60	178.30	5922.94	594.46	174.23	-591.16	0.50	-0.23	5.45	MWD
6003.00	7.20	188.20	5964.71	590.17	173.91	-586.88	6.63	6.19	23.57	MWD
6045.00	10.50	185.90	6006.21	583.75	173.14	-580.48	7.90	7.86	-5.48	MWD
6088.00	14.10	184.10	6048.21	574.63	172.36	-571.37	8.42	8.37	-4.19	MWD

Precision Directional Services, Inc.

Survey Report

Company: CARRIZO OIL & GAS, INC.	Date: 12/19/2013	Time: 08:39:54	Page: 3
Field: Niobrara CONZ'83	Co-ordinate(NE) Reference: Well: 4-16-9-60, Grid North		
Site: State 16-11-9-60	Vertical (TVD) Reference: 5011'GL+17'KB 5028.0		
Well: 4-16-9-60	Section (VS) Reference: Well (0.00N,0.00E,178.95Azi)		
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
6130.00	16.70	186.80	6088.70	563.53	171.28	-560.30	6.42	6.19	6.43	MWD
6173.00	19.50	186.90	6129.57	550.27	169.69	-547.07	6.51	6.51	0.23	MWD
6216.00	24.30	186.60	6169.46	534.35	167.81	-531.18	11.17	11.16	-0.70	MWD
6258.00	30.10	186.80	6206.80	515.29	165.56	-512.17	13.81	13.81	0.48	MWD
6301.00	36.20	187.80	6242.78	491.98	162.56	-488.92	14.24	14.19	2.33	MWD
6343.00	42.20	186.20	6275.32	465.64	159.35	-462.64	14.49	14.29	-3.81	MWD
6386.00	47.50	183.80	6305.79	435.45	156.74	-432.50	12.94	12.33	-5.58	MWD
6428.00	53.50	180.60	6332.50	403.08	155.54	-400.16	15.44	14.29	-7.62	MWD
6471.00	60.00	177.10	6356.07	367.16	156.30	-364.23	16.57	15.12	-8.14	MWD
6514.00	66.90	176.40	6375.28	328.78	158.48	-325.82	16.11	16.05	-1.63	MWD
6592.00	75.60	177.10	6400.32	255.11	162.66	-252.08	11.19	11.15	0.90	MWD
6634.00	81.40	177.50	6408.69	214.01	164.59	-210.96	13.84	13.81	0.95	MWD
6677.00	86.90	177.50	6413.08	171.29	166.46	-168.22	12.79	12.79	0.00	MWD
6712.00	87.96	177.58	6414.65	136.36	167.96	-133.26	3.03	3.02	0.23	600' entry
6720.00	88.20	177.60	6414.91	128.37	168.29	-125.27	3.03	3.02	0.23	MWD
6771.00	90.80	177.60	6415.36	77.43	170.43	-74.29	5.10	5.10	0.00	MWD
6813.00	91.30	176.80	6414.59	35.48	172.48	-32.32	2.25	1.19	-1.90	MWD
6856.00	91.20	176.10	6413.65	-7.42	175.14	10.63	1.64	-0.23	-1.63	MWD
6899.00	89.90	177.80	6413.24	-50.36	177.43	53.60	4.98	-3.02	3.95	MWD
6941.00	91.20	179.20	6412.84	-92.34	178.53	95.60	4.55	3.10	3.33	MWD
6984.00	91.10	178.20	6411.97	-135.32	179.50	138.59	2.34	-0.23	-2.33	MWD
7027.00	89.00	177.50	6411.93	-178.29	181.12	181.58	5.15	-4.88	-1.63	MWD
7069.00	89.40	178.00	6412.52	-220.25	182.77	223.56	1.52	0.95	1.19	MWD
7112.00	89.10	177.30	6413.08	-263.21	184.53	266.55	1.77	-0.70	-1.63	MWD
7154.00	88.90	176.90	6413.82	-305.15	186.65	308.52	1.06	-0.48	-0.95	MWD
7197.00	88.10	176.10	6414.94	-348.05	189.28	351.46	2.63	-1.86	-1.86	MWD
7240.00	88.10	176.10	6416.37	-390.93	192.20	394.39	0.00	0.00	0.00	MWD
7282.00	90.20	177.30	6416.99	-432.85	194.62	436.35	5.76	5.00	2.86	MWD
7325.00	89.80	176.20	6416.99	-475.78	197.06	479.32	2.72	-0.93	-2.56	MWD
7367.00	90.00	175.50	6417.06	-517.67	200.10	521.25	1.73	0.48	-1.67	MWD
7410.00	90.60	177.80	6416.84	-560.60	202.61	564.22	5.53	1.40	5.35	MWD
7453.00	90.70	176.90	6416.35	-603.55	204.60	607.20	2.11	0.23	-2.09	MWD
7495.00	91.30	176.40	6415.62	-645.47	207.05	649.15	1.86	1.43	-1.19	MWD
7538.00	88.60	177.10	6415.66	-688.40	209.49	692.12	6.49	-6.28	1.63	MWD
7581.00	89.10	178.20	6416.52	-731.35	211.25	735.10	2.81	1.16	2.56	MWD
7623.00	90.20	179.00	6416.78	-773.34	212.28	777.10	3.24	2.62	1.90	MWD
7666.00	91.50	179.60	6416.14	-816.33	212.80	820.09	3.33	3.02	1.40	MWD
7709.00	89.90	181.90	6415.61	-859.32	212.24	863.06	6.52	-3.72	5.35	MWD
7751.00	90.70	182.00	6415.39	-901.29	210.81	905.00	1.92	1.90	0.24	MWD
7794.00	89.90	182.70	6415.17	-944.25	209.05	947.92	2.47	-1.86	1.63	MWD
7836.00	90.30	183.40	6415.09	-986.19	206.81	989.82	1.92	0.95	1.67	MWD
7879.00	89.60	182.90	6415.13	-1029.13	204.45	1032.70	2.00	-1.63	-1.16	MWD
7922.00	88.10	180.40	6415.99	-1072.10	203.21	1075.64	6.78	-3.49	-5.81	MWD
7964.00	87.50	178.00	6417.61	-1114.06	203.80	1117.61	5.89	-1.43	-5.71	MWD
8007.00	87.10	178.00	6419.63	-1156.98	205.30	1160.55	0.93	-0.93	0.00	MWD
8050.00	86.50	177.30	6422.03	-1199.88	207.06	1203.47	2.14	-1.40	-1.63	MWD
8092.00	88.90	177.50	6423.72	-1241.80	208.96	1245.42	5.73	5.71	0.48	MWD
8135.00	88.60	176.60	6424.66	-1284.73	211.17	1288.39	2.21	-0.70	-2.09	MWD
8177.00	89.40	177.50	6425.39	-1326.67	213.33	1330.36	2.87	1.90	2.14	MWD
8220.00	89.00	176.60	6425.99	-1369.61	215.55	1373.33	2.29	-0.93	-2.09	MWD
8263.00	90.80	175.70	6426.07	-1412.51	218.43	1416.27	4.68	4.19	-2.09	MWD
8305.00	90.70	175.30	6425.52	-1454.38	221.73	1458.19	0.98	-0.24	-0.95	MWD
8348.00	91.10	175.30	6424.84	-1497.23	225.25	1501.10	0.93	0.93	0.00	MWD
8391.00	90.90	175.30	6424.09	-1540.07	228.77	1544.01	0.47	-0.47	0.00	MWD

Precision Directional Services, Inc.

Survey Report

Company: CARRIZO OIL & GAS, INC. Field: Niobrara CONZ'83 Site: State 16-11-9-60 Well: 4-16-9-60 Wellpath: Original Hole	Date: 12/19/2013 Time: 08:39:54 Page: 4 Co-ordinate(NE) Reference: Well: 4-16-9-60, Grid North Vertical (TVD) Reference: 5011'GL+17"KB 5028.0 Section (VS) Reference: Well (0.00N,0.00E,178.95Azi) 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
8433.00	89.30	175.20	6424.02	-1581.93	232.25	1585.92	3.82	-3.81	-0.24	MWD
8476.00	91.10	178.70	6423.87	-1624.86	234.54	1628.88	9.15	4.19	8.14	MWD
8519.00	92.20	178.30	6422.63	-1667.83	235.66	1671.86	2.72	2.56	-0.93	MWD
8561.00	91.80	178.00	6421.16	-1709.78	237.02	1713.83	1.19	-0.95	-0.71	MWD
8604.00	92.00	177.60	6419.74	-1752.72	238.67	1756.80	1.04	0.47	-0.93	MWD
8646.00	89.20	176.80	6419.30	-1794.67	240.72	1798.78	6.93	-6.67	-1.90	MWD
8689.00	89.20	177.60	6419.90	-1837.61	242.82	1841.75	1.86	0.00	1.86	MWD
8732.00	88.60	177.10	6420.72	-1880.56	244.81	1884.73	1.82	-1.40	-1.16	MWD
8774.00	88.50	177.80	6421.79	-1922.50	246.68	1926.70	1.68	-0.24	1.67	MWD
8817.00	88.50	177.10	6422.91	-1965.44	248.59	1969.67	1.63	0.00	-1.63	MWD
8859.00	89.80	175.90	6423.53	-2007.36	251.15	2011.62	4.21	3.10	-2.86	MWD
8902.00	89.70	175.70	6423.72	-2050.24	254.30	2054.56	0.52	-0.23	-0.47	MWD
8944.00	89.20	175.20	6424.13	-2092.11	257.63	2096.48	1.68	-1.19	-1.19	MWD
8987.00	89.70	174.60	6424.54	-2134.94	261.46	2139.37	1.82	1.16	-1.40	MWD
9030.00	89.90	174.30	6424.69	-2177.73	265.61	2182.24	0.84	0.47	-0.70	MWD
9072.00	89.90	176.40	6424.76	-2219.59	269.02	2224.15	5.00	0.00	5.00	MWD
9115.00	90.00	176.10	6424.80	-2262.50	271.83	2267.10	0.74	0.23	-0.70	MWD
9158.00	90.50	176.60	6424.61	-2305.41	274.57	2310.06	1.64	1.16	1.16	MWD
9200.00	89.70	175.50	6424.54	-2347.31	277.46	2352.00	3.24	-1.90	-2.62	MWD
9243.00	88.70	178.30	6425.14	-2390.24	279.79	2394.97	6.91	-2.33	6.51	MWD
9286.00	87.50	181.00	6426.56	-2433.21	280.05	2437.93	6.87	-2.79	6.28	MWD
9328.00	87.60	181.00	6428.36	-2475.17	279.32	2479.87	0.24	0.24	0.00	MWD
9371.00	88.20	180.10	6429.94	-2518.13	278.91	2522.82	2.51	1.40	-2.09	MWD
9413.00	87.40	179.60	6431.55	-2560.10	279.01	2564.79	2.25	-1.90	-1.19	MWD
9456.00	87.10	178.70	6433.61	-2603.05	279.65	2607.74	2.20	-0.70	-2.09	MWD
9499.00	89.00	180.30	6435.07	-2646.02	280.03	2650.71	5.78	4.42	3.72	MWD
9541.00	88.90	179.70	6435.84	-2688.01	280.03	2692.69	1.45	-0.24	-1.43	MWD
9584.00	88.90	179.70	6436.67	-2731.00	280.25	2735.68	0.00	0.00	0.00	MWD
9626.00	89.50	181.10	6437.26	-2773.00	279.96	2777.66	3.63	1.43	3.33	MWD
9669.00	89.10	180.40	6437.78	-2815.99	279.40	2820.64	1.87	-0.93	-1.63	MWD
9712.00	88.20	179.90	6438.79	-2858.98	279.28	2863.61	2.39	-2.09	-1.16	MWD
9754.00	89.30	179.00	6439.71	-2900.96	279.69	2905.60	3.38	2.62	-2.14	MWD
9797.00	89.60	178.30	6440.12	-2943.95	280.70	2948.60	1.77	0.70	-1.63	MWD
9839.00	90.00	178.50	6440.27	-2985.93	281.87	2990.60	1.06	0.95	0.48	MWD
9882.00	90.10	179.90	6440.23	-3028.93	282.47	3033.59	3.26	0.23	3.26	MWD
9925.00	90.00	179.70	6440.19	-3071.93	282.62	3076.59	0.52	-0.23	-0.47	MWD
9967.00	88.80	178.90	6440.63	-3113.92	283.14	3118.59	3.43	-2.86	-1.90	MWD
10010.00	88.50	178.70	6441.65	-3156.90	284.04	3161.57	0.84	-0.70	-0.47	MWD
10052.00	88.90	179.40	6442.60	-3198.88	284.73	3203.56	1.92	0.95	1.67	MWD
10095.00	88.80	180.30	6443.46	-3241.87	284.84	3246.55	2.11	-0.23	2.09	MWD
10138.00	91.40	181.50	6443.39	-3284.86	284.17	3289.52	6.66	6.05	2.79	MWD
10180.00	91.50	180.60	6442.33	-3326.84	283.40	3331.48	2.16	0.24	-2.14	MWD
10223.00	91.50	180.60	6441.20	-3369.82	282.95	3374.44	0.00	0.00	0.00	MWD
10266.00	91.50	179.90	6440.07	-3412.81	282.76	3417.42	1.63	0.00	-1.63	MWD
10308.00	91.40	179.40	6439.01	-3454.79	283.02	3459.40	1.21	-0.24	-1.19	MWD
10351.00	91.60	179.00	6437.89	-3497.78	283.62	3502.39	1.04	0.47	-0.93	MWD
10393.00	91.90	178.70	6436.60	-3539.75	284.46	3544.37	1.01	0.71	-0.71	MWD
10436.00	91.80	181.00	6435.21	-3582.72	284.57	3587.34	5.35	-0.23	5.35	MWD
10479.00	91.70	180.60	6433.90	-3625.70	283.97	3630.29	0.96	-0.23	-0.93	MWD
10521.00	90.70	181.90	6433.02	-3667.68	283.06	3672.25	3.90	-2.38	3.10	MWD
10564.00	91.00	181.70	6432.38	-3710.65	281.71	3715.19	0.84	0.70	-0.47	MWD
10606.00	90.70	181.00	6431.76	-3752.63	280.72	3757.15	1.81	-0.71	-1.67	MWD
10649.00	88.00	178.00	6432.25	-3795.62	281.09	3800.13	9.39	-6.28	-6.98	MWD

Precision Directional Services, Inc.

Survey Report

Company: CARRIZO OIL & GAS, INC. Field: Niobrara CONZ'83 Site: State 16-11-9-60 Well: 4-16-9-60 Wellpath: Original Hole	Date: 12/19/2013 Time: 08:39:54 Page: 5 Co-ordinate(NE) Reference: Well: 4-16-9-60, Grid North Vertical (TVD) Reference: 5011'GL+17'KB 5028.0 Section (VS) Reference: Well (0.00N,0.00E,178.95Azi) 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
10691.00	87.80	177.60	6433.79	-3837.56	282.70	3842.10	1.06	-0.48	-0.95	MWD
10734.00	90.10	176.40	6434.58	-3880.49	284.95	3885.06	6.03	5.35	-2.79	MWD
10794.00	90.10	176.40	6434.47	-3940.37	288.72	3945.00	0.00	0.00	0.00	Project

Annotation

MD ft	TVD ft	
6712.00	6414.65	600' entry