



Name	TVD	+N/-S	+E/-W	Northing	Easting	Latitude	Longitude	Shape
SL 3-35	0.00	0.00	0.00	1505937.28	3400763.17	40°42'47.567N	104°03'15.583W	Point
300' Entry 3-35	6150.14	-37.92	377.82	1505899.36	3401140.99	40°42'47.131N	104°03'10.686W	Point
BHL 3-35	6212.55	-4458.51	529.82	1501478.77	3401292.99	40°42'03.432N	104°03'09.649W	Point
PBHL 3-35	6230.00	-4458.76	523.30	1501478.52	3401286.47	40°42'03.431N	104°03'09.734W	Point

# Precision Directional Services, Inc.

## Survey Report

<b>Company:</b> CARRIZO OIL & GAS, INC. <b>Field:</b> Niobrara CONZ'83 <b>Site:</b> Shull 1-35-9-60 Pad <b>Well:</b> 3-35-9-60 <b>Wellpath:</b> Original Hole	<b>Date:</b> 09/03/2014 <b>Co-ordinate(NE) Reference:</b> Well: 3-35-9-60, Grid North <b>Vertical (TVD) Reference:</b> 4923'GL+17'KB 4940.0 <b>Section (VS) Reference:</b> Well (0.00N,0.00E,178.28Azi) <b>Survey Calculation Method:</b> Minimum Curvature	<b>Time:</b> 13:05:18 <b>Page:</b> 1 <b>Db:</b> Adapti
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<b>Field:</b> Niobrara CONZ'83  <b>Map System:</b> US State Plane Coordinate System 1983 <b>Geo Datum:</b> GRS 1980 <b>Sys Datum:</b> Mean Sea Level	<b>Map Zone:</b> Colorado, Northern Zone <b>Coordinate System:</b> Well Centre <b>Geomagnetic Model:</b> IGRF2010
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<b>Site:</b> Shull 1-35-9-60 Pad			
Weld County, CO			
<b>Site Position:</b>	<b>Northing:</b> 1505922.29 ft	<b>Latitude:</b> 40 42 47.419 N	
<b>From:</b> Map	<b>Easting:</b> 3400763.64 ft	<b>Longitude:</b> 104 3 15.581 W	
<b>Position Uncertainty:</b> 0.00 ft		<b>North Reference:</b> Grid	
<b>Ground Level:</b> 4923.00 ft		<b>Grid Convergence:</b> 0.93 deg	

  

<b>Well:</b> 3-35-9-60	<b>Slot Name:</b>
<b>Well Position:</b> +N/-S 14.99 ft	<b>Latitude:</b> 40 42 47.567 N
+E/-W -0.47 ft	<b>Longitude:</b> 104 3 15.583 W
<b>Position Uncertainty:</b> 0.00 ft	

  

<b>Wellpath:</b> Original Hole	<b>Drilled From:</b> Surface
<b>Current Datum:</b> 4923'GL+17'KB	<b>Tie-on Depth:</b> 0.00 ft
<b>Magnetic Data:</b> 08/18/2014	<b>Above System Datum:</b> Mean Sea Level
<b>Field Strength:</b> 53082 nT	<b>Declination:</b> 8.09 deg
<b>Vertical Section:</b> Depth From (TVD)	<b>Mag Dip Angle:</b> 67.31 deg
ft	+N/-S ft
	+E/-W ft
0.00	0.00
	Direction bearing
	178.28

  

<b>Survey Program for Definitive Wellpath</b>			
<b>Date:</b> 08/27/2014	<b>Validated:</b> No	<b>Version:</b> 1	
<b>Actual From</b> ft	<b>To</b> ft	<b>Survey</b>	<b>Toolcode</b>
			<b>Tool Name</b>
140.00	10629.00	Survey #1 (140.00-10629.00)	MWD
10688.00	10688.00	Survey #2 (10688.00-10688.00)	Project
			Std MWD Projection

  

Survey										
MD	Incl	Azim	TVD	+N/-S	+E/-W	VS	DLS	Build	Turn	Tool/Comment
ft	deg	bearing	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
140.00	0.70	178.50	140.00	-0.85	0.02	0.86	0.50	0.50	0.00	MWD
233.00	1.70	86.40	232.98	-1.34	1.41	1.38	2.00	1.08	-99.03	MWD
324.00	3.60	57.40	323.88	0.29	5.17	-0.13	2.49	2.09	-31.87	MWD
414.00	5.30	57.20	413.61	4.06	11.04	-3.73	1.89	1.89	-0.22	MWD
506.00	5.70	57.60	505.18	8.81	18.47	-8.25	0.44	0.43	0.43	MWD
597.00	4.80	57.60	595.80	13.27	25.50	-12.50	0.99	-0.99	0.00	MWD
687.00	3.50	61.10	685.56	16.62	31.09	-15.68	1.47	-1.44	3.89	MWD
778.00	3.40	59.20	776.40	19.34	35.84	-18.26	0.17	-0.11	-2.09	MWD
870.00	3.30	63.40	868.24	21.93	40.55	-20.70	0.29	-0.11	4.57	MWD
961.00	4.00	56.00	959.06	24.87	45.52	-23.50	0.93	0.77	-8.13	MWD
1052.00	4.30	54.80	1049.82	28.61	50.94	-27.07	0.34	0.33	-1.32	MWD
1142.00	4.00	56.70	1139.58	32.28	56.32	-30.58	0.37	-0.33	2.11	MWD
1233.00	4.10	55.80	1230.36	35.85	61.66	-33.99	0.13	0.11	-0.99	MWD
1324.00	4.00	58.70	1321.13	39.33	67.07	-37.30	0.25	-0.11	3.19	MWD
1416.00	3.60	62.00	1412.93	42.35	72.36	-40.16	0.50	-0.43	3.59	MWD
1486.00	3.80	65.00	1482.78	44.37	76.40	-42.05	0.40	0.29	4.29	MWD
1571.00	4.70	61.60	1567.55	47.21	82.02	-44.73	1.10	1.06	-4.00	MWD
1654.00	4.70	52.70	1650.27	50.89	87.71	-48.24	0.88	0.00	-10.72	MWD
1739.00	5.20	49.50	1734.95	55.50	93.41	-52.67	0.67	0.59	-3.76	MWD
1824.00	5.30	50.20	1819.59	60.52	99.36	-57.51	0.14	0.12	0.82	MWD
1909.00	5.00	48.60	1904.25	65.48	105.15	-62.29	0.39	-0.35	-1.88	MWD

# Precision Directional Services, Inc.

## Survey Report

<b>Company:</b> CARRIZO OIL & GAS, INC.	<b>Date:</b> 09/03/2014	<b>Time:</b> 13:05:18	<b>Page:</b> 2
<b>Field:</b> Niobrara CONZ'83	<b>Co-ordinate(NE) Reference:</b> Well: 3-35-9-60, Grid North		
<b>Site:</b> Shull 1-35-9-60 Pad	<b>Vertical (TVD) Reference:</b> 4923'GL+17"KB 4940.0		
<b>Well:</b> 3-35-9-60	<b>Section (VS) Reference:</b> Well (0.00N,0.00E,178.28Azi)		
<b>Wellpath:</b> Original Hole	<b>Survey Calculation Method:</b> Minimum Curvature		<b>Db:</b> Adapti

### Survey

MD ft	Incl deg	Azim bearing	TVD ft	+N/-S ft	+E/-W ft	VS ft	DLS deg/100ft	Build deg/100ft	Turn deg/100ft	Tool/Comment
1994.00	5.10	48.80	1988.92	70.42	110.77	-67.06	0.12	0.12	0.24	MWD
2079.00	4.70	63.00	2073.61	74.49	116.72	-70.95	1.50	-0.47	16.71	MWD
2164.00	4.00	65.70	2158.37	77.29	122.53	-73.58	0.86	-0.82	3.18	MWD
2249.00	3.90	54.30	2243.17	80.20	127.57	-76.33	0.93	-0.12	-13.41	MWD
2334.00	4.30	55.80	2327.95	83.67	132.56	-79.66	0.49	0.47	1.76	MWD
2419.00	4.00	58.70	2412.73	87.01	137.73	-82.83	0.43	-0.35	3.41	MWD
2504.00	4.00	52.20	2497.52	90.36	142.60	-86.04	0.53	0.00	-7.65	MWD
2588.00	4.00	49.70	2581.32	94.05	147.15	-89.59	0.21	0.00	-2.98	MWD
2672.00	4.60	48.30	2665.08	98.19	151.90	-93.59	0.73	0.71	-1.67	MWD
2757.00	5.00	58.00	2749.78	102.42	157.59	-97.64	1.06	0.47	11.41	MWD
2843.00	5.60	60.80	2835.41	106.45	164.43	-101.47	0.76	0.70	3.26	MWD
2927.00	6.50	59.40	2918.95	110.87	172.10	-105.66	1.09	1.07	-1.67	MWD
3012.00	6.00	67.30	3003.44	115.04	180.34	-109.57	1.17	-0.59	9.29	MWD
3098.00	4.60	64.30	3089.07	118.27	187.59	-112.58	1.66	-1.63	-3.49	MWD
3182.00	3.60	59.00	3172.86	121.09	192.89	-115.24	1.27	-1.19	-6.31	MWD
3267.00	2.80	47.60	3257.72	123.86	196.71	-117.90	1.20	-0.94	-13.41	MWD
3352.00	4.00	49.00	3342.57	127.20	200.48	-121.13	1.42	1.41	1.65	MWD
3437.00	4.70	48.60	3427.33	131.45	205.33	-125.23	0.82	0.82	-0.47	MWD
3521.00	5.10	54.80	3511.02	135.88	210.96	-129.49	0.79	0.48	7.38	MWD
3606.00	3.70	59.50	3595.77	139.45	216.41	-132.89	1.70	-1.65	5.53	MWD
3692.00	6.40	55.70	3681.43	143.56	222.76	-136.81	3.16	3.14	-4.42	MWD
3777.00	6.20	59.50	3765.91	148.56	230.63	-141.57	0.54	-0.24	4.47	MWD
3862.00	5.40	65.90	3850.48	152.52	238.24	-145.30	1.21	-0.94	7.53	MWD
3947.00	4.70	71.00	3935.15	155.29	245.18	-147.86	0.98	-0.82	6.00	MWD
4032.00	4.80	67.40	4019.86	157.79	251.76	-150.16	0.37	0.12	-4.24	MWD
4116.00	3.30	61.50	4103.65	160.29	257.13	-152.50	1.85	-1.79	-7.02	MWD
4202.00	3.00	61.30	4189.52	162.56	261.28	-154.64	0.35	-0.35	-0.23	MWD
4287.00	4.00	58.30	4274.36	165.18	265.75	-157.13	1.20	1.18	-3.53	MWD
4370.00	4.40	63.20	4357.13	168.14	271.06	-159.93	0.65	0.48	5.90	MWD
4455.00	4.00	70.60	4441.90	170.59	276.76	-162.21	0.79	-0.47	8.71	MWD
4541.00	3.90	82.60	4527.70	171.97	282.49	-163.41	0.97	-0.12	13.95	MWD
4626.00	3.30	74.70	4612.53	172.99	287.72	-164.27	0.91	-0.71	-9.29	MWD
4711.00	3.20	63.40	4697.40	174.69	292.20	-165.84	0.76	-0.12	-13.29	MWD
4796.00	3.80	59.90	4782.24	177.17	296.76	-168.18	0.75	0.71	-4.12	MWD
4881.00	4.00	53.00	4867.04	180.36	301.56	-171.23	0.60	0.24	-8.12	MWD
4966.00	3.70	49.90	4951.85	183.92	306.03	-174.65	0.43	-0.35	-3.65	MWD
5052.00	3.50	51.30	5037.68	187.34	310.20	-177.95	0.25	-0.23	1.63	MWD
5137.00	3.10	51.30	5122.54	190.40	314.02	-180.89	0.47	-0.47	0.00	MWD
5221.00	2.60	49.70	5206.44	193.06	317.24	-183.45	0.60	-0.60	-1.90	MWD
5306.00	2.80	51.10	5291.34	195.61	320.33	-185.90	0.25	0.24	1.65	MWD
5391.00	3.30	55.70	5376.22	198.29	323.97	-188.48	0.65	0.59	5.41	MWD
5477.00	3.50	55.70	5462.07	201.16	328.18	-191.22	0.23	0.23	0.00	MWD
5562.00	3.70	52.50	5546.90	204.29	332.50	-194.22	0.33	0.24	-3.76	MWD
5604.00	3.60	57.80	5588.82	205.82	334.69	-195.68	0.84	-0.24	12.62	MWD
5647.00	3.20	62.70	5631.74	207.09	336.90	-196.89	1.15	-0.93	11.40	MWD
5689.00	3.50	117.70	5673.68	207.03	339.08	-196.76	7.39	0.71	130.95	MWD
5732.00	6.20	153.90	5716.53	204.34	341.26	-194.00	9.20	6.28	84.19	MWD
5775.00	10.50	164.10	5759.07	198.48	343.36	-188.09	10.54	10.00	23.72	MWD
5817.00	15.10	167.10	5800.01	189.46	345.63	-179.00	11.06	10.95	7.14	MWD
5859.00	18.90	168.00	5840.17	177.47	348.26	-166.94	9.07	9.05	2.14	MWD
5902.00	22.10	168.70	5880.44	162.72	351.30	-152.11	7.46	7.44	1.63	MWD
5944.00	24.50	168.90	5919.01	146.43	354.52	-135.72	5.72	5.71	0.48	MWD
5987.00	28.10	169.60	5957.56	127.71	358.07	-116.91	8.40	8.37	1.63	MWD

# Precision Directional Services, Inc.

## Survey Report

<b>Company:</b> CARRIZO OIL & GAS, INC. <b>Field:</b> Niobrara CONZ'83 <b>Site:</b> Shull 1-35-9-60 Pad <b>Well:</b> 3-35-9-60 <b>Wellpath:</b> Original Hole	<b>Date:</b> 09/03/2014 <b>Time:</b> 13:05:18 <b>Co-ordinate(NE) Reference:</b> Well: 3-35-9-60, Grid North <b>Vertical (TVD) Reference:</b> 4923'GL+17"KB 4940.0 <b>Section (VS) Reference:</b> Well (0.00N,0.00E,178.28Azi) <b>Survey Calculation Method:</b> Minimum Curvature <b>Db:</b> Adapti
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### Survey

MD ft	Incl deg	Azim bearing	TVD ft	+N/-S ft	+E/-W ft	VS ft	DLS deg/100ft	Build deg/100ft	Turn deg/100ft	Tool/Comment
6029.00	31.60	170.30	5993.98	107.13	361.71	-96.23	8.37	8.33	1.67	MWD
6072.00	36.80	172.40	6029.53	83.24	365.31	-72.24	12.40	12.09	4.88	MWD
6114.00	41.30	173.80	6062.14	56.98	368.48	-45.90	10.92	10.71	3.33	MWD
6157.00	45.30	174.00	6093.43	27.66	371.61	-16.50	9.31	9.30	0.47	MWD
6199.00	48.90	174.80	6122.02	-2.95	374.60	14.19	8.68	8.57	1.90	MWD
6242.00	53.50	174.70	6148.95	-36.31	377.67	47.63	10.70	10.70	-0.23	MWD
6244.00	53.80	174.73	6150.14	-37.92	377.82	49.24	15.15	15.11	1.25	300' Entry
6285.00	60.00	175.20	6172.52	-72.11	380.83	83.51	15.15	15.12	1.16	MWD
6327.00	65.30	175.40	6191.81	-109.28	383.88	120.75	12.63	12.62	0.48	MWD
6355.00	68.40	176.60	6202.81	-134.96	385.67	146.48	11.75	11.07	4.29	MWD
6409.00	73.10	179.60	6220.61	-185.89	387.34	197.43	10.16	8.70	5.56	MWD
6454.00	76.70	179.40	6232.34	-229.33	387.72	240.86	8.01	8.00	-0.44	MWD
6500.00	81.70	178.90	6240.95	-274.50	388.40	286.03	10.92	10.87	-1.09	MWD
6542.00	84.60	178.40	6245.96	-316.18	389.38	327.72	7.01	6.90	-1.19	MWD
6585.00	87.50	178.20	6248.92	-359.05	390.65	370.62	6.76	6.74	-0.47	MWD
6627.00	90.90	178.50	6249.51	-401.03	391.86	412.61	8.13	8.10	0.71	MWD
6669.00	91.50	179.40	6248.63	-443.01	392.63	454.59	2.57	1.43	2.14	MWD
6754.00	90.20	177.70	6247.37	-527.97	394.78	539.58	2.52	-1.53	-2.00	MWD
6839.00	89.50	176.60	6247.59	-612.86	399.01	624.56	1.53	-0.82	-1.29	MWD
6924.00	91.10	176.30	6247.15	-697.69	404.27	709.51	1.92	1.88	-0.35	MWD
7009.00	92.30	177.70	6244.62	-782.54	408.72	794.45	2.17	1.41	1.65	MWD
7094.00	91.30	177.70	6241.95	-867.42	412.13	879.40	1.18	-1.18	0.00	MWD
7179.00	91.70	177.70	6239.73	-952.33	415.54	964.37	0.47	0.47	0.00	MWD
7264.00	89.60	177.10	6238.77	-1037.23	419.39	1049.35	2.57	-2.47	-0.71	MWD
7349.00	89.80	177.10	6239.21	-1122.12	423.69	1134.33	0.24	0.24	0.00	MWD
7434.00	91.00	180.10	6238.62	-1207.08	425.77	1219.32	3.80	1.41	3.53	MWD
7519.00	90.40	178.90	6237.58	-1292.07	426.51	1304.29	1.58	-0.71	-1.41	MWD
7604.00	89.30	178.20	6237.80	-1377.04	428.66	1389.28	1.53	-1.29	-0.82	MWD
7689.00	88.80	177.30	6239.21	-1461.96	432.00	1474.27	1.21	-0.59	-1.06	MWD
7775.00	89.30	176.10	6240.64	-1547.80	436.95	1560.22	1.51	0.58	-1.40	MWD
7860.00	91.00	176.30	6240.41	-1632.61	442.58	1645.16	2.01	2.00	0.24	MWD
7944.00	90.50	178.70	6239.31	-1716.52	446.24	1729.14	2.92	-0.60	2.86	MWD
8029.00	89.50	178.40	6239.31	-1801.49	448.39	1814.14	1.23	-1.18	-0.35	MWD
8114.00	89.50	177.50	6240.06	-1886.43	451.43	1899.13	1.06	0.00	-1.06	MWD
8199.00	88.20	178.40	6241.76	-1971.36	454.47	1984.11	1.86	-1.53	1.06	MWD
8284.00	90.20	179.10	6242.95	-2056.33	456.33	2069.10	2.49	2.35	0.82	MWD
8369.00	91.80	178.20	6241.47	-2141.29	458.33	2154.08	2.16	1.88	-1.06	MWD
8455.00	91.30	176.80	6239.14	-2227.17	462.08	2240.04	1.73	-0.58	-1.63	MWD
8540.00	92.30	180.10	6236.47	-2312.08	464.38	2324.98	4.05	1.18	3.88	MWD
8625.00	92.60	179.10	6232.83	-2397.00	464.97	2409.88	1.23	0.35	-1.18	MWD
8710.00	90.20	178.20	6230.76	-2481.95	466.97	2494.84	3.02	-2.82	-1.06	MWD
8795.00	90.60	178.20	6230.16	-2566.90	469.64	2579.84	0.47	0.47	0.00	MWD
8880.00	91.20	177.50	6228.83	-2651.83	472.83	2664.83	1.08	0.71	-0.82	MWD
8965.00	90.50	179.80	6227.57	-2736.79	474.83	2749.81	2.83	-0.82	2.71	MWD
9051.00	89.60	178.50	6227.49	-2822.78	476.11	2835.80	1.84	-1.05	-1.51	MWD
9136.00	88.60	177.10	6228.83	-2907.70	479.37	2920.78	2.02	-1.18	-1.65	MWD
9221.00	91.60	178.90	6228.68	-2992.64	482.34	3005.77	4.12	3.53	2.12	MWD
9306.00	92.30	178.50	6225.79	-3077.57	484.27	3090.72	0.95	0.82	-0.47	MWD
9391.00	90.70	178.90	6223.56	-3162.51	486.19	3175.68	1.94	-1.88	0.47	MWD
9476.00	91.40	178.20	6222.01	-3247.47	488.34	3260.66	1.16	0.82	-0.82	MWD
9561.00	88.80	178.00	6221.86	-3332.42	491.16	3345.66	3.07	-3.06	-0.24	MWD
9646.00	89.90	178.50	6222.82	-3417.37	493.76	3430.65	1.42	1.29	0.59	MWD
9731.00	90.50	177.80	6222.52	-3502.32	496.50	3515.65	1.08	0.71	-0.82	MWD
9815.00	90.70	177.10	6221.64	-3586.24	500.24	3599.63	0.87	0.24	-0.83	MWD

# Precision Directional Services, Inc.

## Survey Report

<b>Company:</b> CARRIZO OIL & GAS, INC. <b>Field:</b> Niobrara CONZ'83 <b>Site:</b> Shull 1-35-9-60 Pad <b>Well:</b> 3-35-9-60 <b>Wellpath:</b> Original Hole	<b>Date:</b> 09/03/2014 <b>Time:</b> 13:05:18 <b>Page:</b> 4 <b>Co-ordinate(NE) Reference:</b> Well: 3-35-9-60, Grid North <b>Vertical (TVD) Reference:</b> 4923'GL+17'KB 4940.0 <b>Section (VS) Reference:</b> Well (0.00N,0.00E,178.28Azi) <b>Survey Calculation Method:</b> Minimum Curvature <b>Db:</b> Adapti
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### Survey

MD ft	Incl deg	Azim bearing	TVD ft	+N/-S ft	+E/-W ft	VS ft	DLS deg/100ft	Build deg/100ft	Turn deg/100ft	Tool/Comment
9900.00	90.00	178.20	6221.13	-3671.16	503.72	3684.63	1.53	-0.82	1.29	MWD
9985.00	89.70	176.80	6221.35	-3756.08	507.43	3769.62	1.68	-0.35	-1.65	MWD
10070.00	91.90	178.20	6220.16	-3840.98	511.14	3854.59	3.07	2.59	1.65	MWD
10155.00	91.80	180.30	6217.42	-3925.92	512.25	3939.53	2.47	-0.12	2.47	MWD
10240.00	90.00	179.20	6216.08	-4010.91	512.62	4024.49	2.48	-2.12	-1.29	MWD
10325.00	90.00	178.40	6216.08	-4095.89	514.40	4109.48	0.94	0.00	-0.94	MWD
10411.00	90.00	178.20	6216.08	-4181.85	516.95	4195.48	0.23	0.00	-0.23	MWD
10496.00	90.50	177.70	6215.71	-4266.80	519.99	4280.48	0.83	0.59	-0.59	MWD
10580.00	90.90	177.00	6214.68	-4350.70	523.88	4364.46	0.96	0.48	-0.83	MWD
10629.00	91.20	176.80	6213.79	-4399.62	526.53	4413.44	0.74	0.61	-0.41	MWD
10688.00	91.20	176.80	6212.55	-4458.51	529.82	4472.41	0.00	0.00	0.00	Project

### Annotation

MD ft	TVD ft	
6244.00	6150.14	300' Entry