

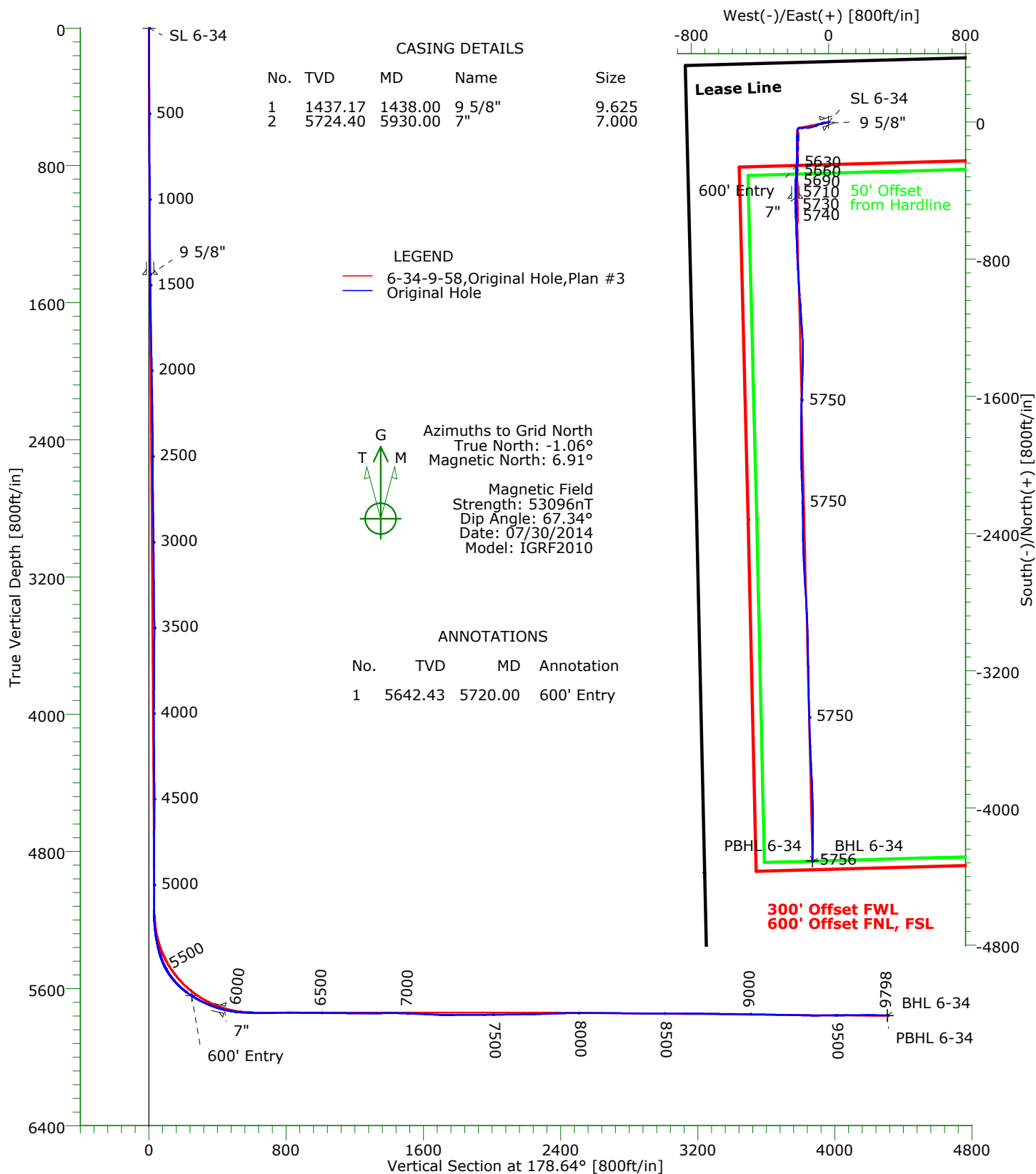


# CARRIZO

**CARRIZO OIL & GAS, INC.**  
Field: Niobrara CONZ'83  
Site: Bringelson Ranch 6-34-9-58 Pad  
Well: 6-34-9-58  
Wellpath: Original Hole



**Precision**  
Directional Services



# Precision Directional Services, Inc.

## Survey Report

<b>Company:</b> CARRIZO OIL & GAS, INC. <b>Field:</b> Niobrara CONZ'83 <b>Site:</b> Bringelson Ranch 6-34-9-58 Pad <b>Well:</b> 6-34-9-58 <b>Wellpath:</b> Original Hole	<b>Date:</b> 08/07/2014 <b>Co-ordinate(NE) Reference:</b> Well: 6-34-9-58, Grid North <b>Vertical (TVD) Reference:</b> GL4805+17'KB 4822.0 <b>Section (VS) Reference:</b> Well (0.00N,0.00E,178.64Azi) <b>Survey Calculation Method:</b> Minimum Curvature	<b>Time:</b> 09:57:35 <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> Bringelson Ranch 6-34-9-58 Pad			
Weld County, CO			
<b>Site Position:</b> <b>From:</b> Map <b>Position Uncertainty:</b> 0.00 ft <b>Ground Level:</b> 4804.90 ft	<b>Northing:</b> 1507137.11 ft <b>Easting:</b> 3455633.31 ft	<b>Latitude:</b> 40 42 49.977 N <b>Longitude:</b> 103 51 22.879 W <b>North Reference:</b> Grid <b>Grid Convergence:</b> 1.06 deg	

<b>Well:</b> 6-34-9-58  <b>Well Position:</b> +N/-S 14.90 ft +E/-W 1.76 ft <b>Position Uncertainty:</b> 0.00 ft	<b>Slot Name:</b> 6-34  <b>Northing:</b> 1507152.01 ft <b>Easting :</b> 3455635.07 ft <b>Latitude:</b> 40 42 50.124 N <b>Longitude:</b> 103 51 22.853 W
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<b>Wellpath:</b> Original Hole  <b>Current Datum:</b> GL4805+17'KB <b>Magnetic Data:</b> 07/30/2014 <b>Field Strength:</b> 53096 nT <b>Vertical Section:</b> Depth From (TVD) ft	<b>Height</b> 4822.00 ft	<b>Drilled From:</b> Surface <b>Tie-on Depth:</b> 0.00 ft <b>Above System Datum:</b> Mean Sea Level <b>Declination:</b> 7.97 deg <b>Mag Dip Angle:</b> 67.34 deg <b>+N/-S</b> ft <b>+E/-W</b> ft <b>Direction</b> bearing
0.00	0.00	0.00 178.64

<b>Survey Program for Definitive Wellpath</b>					
<b>Date:</b> 08/06/2014 <b>Actual From</b> ft 136.00 9798.00	<b>To</b> ft 9732.00 9798.00	<b>Validated:</b> No <b>Survey</b> Survey #1 (136.00-9732.00) Survey #2 (9798.00-9798.00)	<b>Version:</b> 4 <b>Toolcode</b> MWD Project	<b>Tool Name</b> Std MWD Projection	

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
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	TIE LINE
136.00	0.40	222.90	136.00	-0.35	-0.32	0.34	0.29	0.29	0.00	MWD
229.00	0.40	216.60	229.00	-0.85	-0.74	0.83	0.05	0.00	-6.77	MWD
320.00	0.40	242.30	319.99	-1.25	-1.21	1.22	0.20	0.00	28.24	MWD
411.00	0.50	245.10	410.99	-1.56	-1.85	1.52	0.11	0.11	3.08	MWD
502.00	0.30	226.10	501.99	-1.90	-2.38	1.84	0.26	-0.22	-20.88	MWD
593.00	2.40	266.90	592.96	-2.16	-4.46	2.06	2.40	2.31	44.84	MWD
684.00	3.40	270.20	683.84	-2.26	-9.06	2.04	1.11	1.10	3.63	MWD
776.00	2.50	254.60	775.72	-2.78	-13.72	2.45	1.30	-0.98	-16.96	MWD
866.00	2.00	234.50	865.65	-4.21	-16.89	3.81	1.03	-0.56	-22.33	MWD
957.00	2.10	275.30	956.60	-4.98	-19.84	4.51	1.57	0.11	44.84	MWD
1049.00	2.10	290.30	1048.54	-4.24	-23.10	3.69	0.60	0.00	16.30	MWD
1140.00	2.30	262.70	1139.47	-3.90	-26.48	3.27	1.17	0.22	-30.33	MWD
1231.00	2.60	250.00	1230.39	-4.83	-30.23	4.11	0.68	0.33	-13.96	MWD
1321.00	2.60	249.80	1320.30	-6.24	-34.06	5.43	0.01	0.00	-0.22	MWD
1401.00	2.70	249.80	1400.21	-7.51	-37.53	6.62	0.12	0.12	0.00	MWD
1492.00	2.70	252.70	1491.11	-8.89	-41.59	7.90	0.15	0.00	3.19	MWD
1577.00	2.60	254.40	1576.02	-10.01	-45.36	8.93	0.15	-0.12	2.00	MWD
1662.00	2.60	248.80	1660.93	-11.22	-49.01	10.05	0.30	0.00	-6.59	MWD
1747.00	2.60	246.50	1745.85	-12.69	-52.58	11.44	0.12	0.00	-2.71	MWD
1832.00	2.60	243.90	1830.76	-14.30	-56.08	12.97	0.14	0.00	-3.06	MWD
1917.00	2.60	247.90	1915.67	-15.88	-59.60	14.46	0.21	0.00	4.71	MWD

# Precision Directional Services, Inc.

## Survey Report

**Company:** CARRIZO OIL & GAS, INC.  
**Field:** Niobrara CONZ'83  
**Site:** Bringelson Ranch 6-34-9-58 Pad  
**Well:** 6-34-9-58  
**Wellpath:** Original Hole

**Date:** 08/07/2014 **Time:** 09:57:35 **Page:** 2  
**Co-ordinate(NE) Reference:** Well: 6-34-9-58, Grid North  
**Vertical (TVD) Reference:** GL4805+17'KB 4822.0  
**Section (VS) Reference:** Well (0.00N,0.00E,178.64Azi)  
**Survey Calculation Method:** Minimum Curvature **Db:** 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
2002.00	2.10	243.90	2000.60	-17.29	-62.78	15.79	0.62	-0.59	-4.71	MWD
2088.00	2.00	245.10	2086.54	-18.61	-65.56	17.05	0.13	-0.12	1.40	MWD
2171.00	1.80	243.00	2169.50	-19.81	-68.03	18.19	0.26	-0.24	-2.53	MWD
2255.00	1.70	238.40	2253.46	-21.07	-70.27	19.39	0.21	-0.12	-5.48	MWD
2341.00	1.90	227.30	2339.42	-22.70	-72.40	20.98	0.47	0.23	-12.91	MWD
2426.00	1.30	254.20	2424.38	-23.92	-74.37	22.15	1.11	-0.71	31.65	MWD
2511.00	1.30	282.20	2509.36	-23.98	-76.24	22.16	0.74	0.00	32.94	MWD
2596.00	2.90	265.50	2594.30	-23.94	-79.32	22.05	2.00	1.88	-19.65	MWD
2681.00	3.20	259.70	2679.18	-24.54	-83.80	22.54	0.51	0.35	-6.82	MWD
2765.00	3.30	259.00	2763.05	-25.42	-88.48	23.31	0.13	0.12	-0.83	MWD
2850.00	3.40	252.10	2847.90	-26.66	-93.28	24.44	0.49	0.12	-8.12	MWD
2935.00	1.80	249.70	2932.81	-27.90	-96.93	25.59	1.89	-1.88	-2.82	MWD
3020.00	2.10	256.50	3017.76	-28.72	-99.70	26.35	0.45	0.35	8.00	MWD
3105.00	1.80	247.40	3102.72	-29.60	-102.45	27.16	0.51	-0.35	-10.71	MWD
3190.00	1.80	260.40	3187.67	-30.34	-104.99	27.83	0.48	0.00	15.29	MWD
3275.00	2.20	256.00	3272.62	-30.95	-107.89	28.38	0.50	0.47	-5.18	MWD
3360.00	2.60	254.10	3357.55	-31.88	-111.33	29.22	0.48	0.47	-2.24	MWD
3445.00	2.60	248.60	3442.46	-33.11	-114.98	30.37	0.29	0.00	-6.47	MWD
3530.00	3.10	273.40	3527.36	-33.67	-119.07	30.84	1.55	0.59	29.18	MWD
3615.00	2.80	276.70	3612.25	-33.30	-123.43	30.36	0.41	-0.35	3.88	MWD
3700.00	2.90	271.80	3697.14	-32.99	-127.64	29.95	0.31	0.12	-5.76	MWD
3786.00	3.20	268.30	3783.02	-32.99	-132.21	29.84	0.41	0.35	-4.07	MWD
3871.00	2.60	287.60	3867.91	-32.48	-136.42	29.23	1.34	-0.71	22.71	MWD
3956.00	1.60	291.50	3952.85	-31.46	-139.36	28.14	1.19	-1.18	4.59	MWD
4041.00	2.00	255.10	4037.81	-31.40	-141.90	28.03	1.40	0.47	-42.82	MWD
4126.00	1.70	252.10	4122.77	-32.17	-144.53	28.73	0.37	-0.35	-3.53	MWD
4211.00	1.80	249.80	4207.73	-33.02	-146.99	29.52	0.14	0.12	-2.71	MWD
4296.00	1.40	260.90	4292.70	-33.65	-149.26	30.10	0.59	-0.47	13.06	MWD
4382.00	1.20	251.10	4378.67	-34.11	-151.15	30.51	0.35	-0.23	-11.40	MWD
4467.00	0.40	212.00	4463.67	-34.65	-152.15	31.02	1.09	-0.94	-46.00	MWD
4552.00	1.90	270.60	4548.65	-34.88	-153.72	31.22	2.03	1.76	68.94	MWD
4636.00	1.40	284.50	4632.61	-34.61	-156.10	30.90	0.76	-0.60	16.55	MWD
4720.00	1.20	281.30	4716.59	-34.18	-157.96	30.42	0.25	-0.24	-3.81	MWD
4805.00	0.40	277.30	4801.58	-33.97	-159.13	30.18	0.94	-0.94	-4.71	MWD
4890.00	3.10	266.70	4886.54	-34.06	-161.72	30.22	3.19	3.18	-12.47	MWD
4975.00	2.90	269.40	4971.42	-34.22	-166.16	30.27	0.29	-0.24	3.18	MWD
5061.00	2.50	272.70	5057.32	-34.15	-170.21	30.10	0.50	-0.47	3.84	MWD
5103.00	2.10	284.80	5099.29	-33.91	-171.87	29.82	1.49	-0.95	28.81	MWD
5140.00	2.00	288.20	5136.27	-33.54	-173.14	29.42	0.43	-0.27	9.19	MWD
5183.00	3.00	246.00	5179.23	-33.76	-174.88	29.60	4.71	2.33	-98.14	MWD
5226.00	5.30	223.10	5222.11	-35.67	-177.26	31.45	6.49	5.35	-53.26	MWD
5267.00	7.10	203.40	5262.88	-39.38	-179.57	35.11	6.74	4.39	-48.05	MWD
5309.00	9.80	192.20	5304.42	-45.26	-181.35	40.94	7.50	6.43	-26.67	MWD
5352.00	11.90	184.60	5346.65	-53.25	-182.48	48.91	5.90	4.88	-17.67	MWD
5395.00	15.00	179.00	5388.47	-63.24	-182.74	58.88	7.81	7.21	-13.02	MWD
5437.00	20.20	178.30	5428.49	-75.93	-182.43	71.58	12.39	12.38	-1.67	MWD
5480.00	25.80	179.50	5468.06	-92.72	-182.13	88.37	13.07	13.02	2.79	MWD
5522.00	32.10	180.20	5504.79	-113.04	-182.09	108.69	15.02	15.00	1.67	MWD
5565.00	38.30	180.20	5539.91	-137.81	-182.17	133.45	14.42	14.42	0.00	MWD
5607.00	43.40	181.10	5571.67	-165.27	-182.50	160.90	12.22	12.14	2.14	MWD
5650.00	49.40	181.10	5601.31	-196.39	-183.09	191.99	13.95	13.95	0.00	MWD
5691.00	55.40	181.60	5626.31	-228.85	-183.86	224.43	14.67	14.63	1.22	MWD
5720.00	57.08	182.83	5642.43	-252.94	-184.80	248.49	6.78	5.80	4.22	600' Entry

# Precision Directional Services, Inc.

## Survey Report

<b>Company:</b> CARRIZO OIL & GAS, INC.	<b>Date:</b> 08/07/2014	<b>Time:</b> 09:57:35	<b>Page:</b> 3
<b>Field:</b> Niobrara CONZ'83	<b>Co-ordinate(NE) Reference:</b> Well: 6-34-9-58, Grid North		
<b>Site:</b> Bringelson Ranch 6-34-9-58 Pad	<b>Vertical (TVD) Reference:</b> GL4805+17'KB 4822.0		
<b>Well:</b> 6-34-9-58	<b>Section (VS) Reference:</b> Well (0.00N,0.00E,178.64Azi)		
<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
5734.00	57.90	183.40	5649.95	-264.73	-185.44	260.26	6.78	5.83	4.11	MWD
5777.00	63.20	184.10	5671.09	-302.08	-187.89	297.54	12.41	12.33	1.63	MWD
5819.00	66.30	182.90	5689.00	-339.99	-190.21	335.38	7.82	7.38	-2.86	MWD
5861.00	69.70	182.70	5704.73	-378.88	-192.11	374.22	8.11	8.10	-0.48	MWD
5894.00	73.50	180.60	5715.15	-410.18	-193.00	405.48	13.00	11.52	-6.36	MWD
5986.00	81.70	177.90	5734.89	-499.94	-191.79	495.24	9.36	8.91	-2.93	MWD
6031.00	86.50	178.30	5739.51	-544.66	-190.31	539.99	10.70	10.67	0.89	MWD
6077.00	87.50	177.90	5741.92	-590.57	-188.79	585.92	2.34	2.17	-0.87	MWD
6162.00	90.40	178.10	5743.48	-675.50	-185.82	670.89	3.42	3.41	0.24	MWD
6247.00	91.40	177.80	5742.14	-760.43	-182.78	755.88	1.23	1.18	-0.35	MWD
6290.00	91.60	177.60	5741.02	-803.38	-181.06	798.86	0.66	0.47	-0.47	MWD
6332.00	89.50	176.40	5740.62	-845.32	-178.86	840.83	5.76	-5.00	-2.86	MWD
6374.00	88.00	176.00	5741.53	-887.21	-176.08	882.78	3.70	-3.57	-0.95	MWD
6417.00	90.20	177.20	5742.21	-930.13	-173.53	925.75	5.83	5.12	2.79	MWD
6460.00	89.90	176.40	5742.17	-973.06	-171.13	968.73	1.99	-0.70	-1.86	MWD
6502.00	89.20	175.30	5742.50	-1014.95	-168.09	1010.67	3.10	-1.67	-2.62	MWD
6545.00	88.90	175.30	5743.21	-1057.80	-164.56	1053.60	0.70	-0.70	0.00	MWD
6587.00	90.00	177.60	5743.62	-1099.71	-161.96	1095.56	6.07	2.62	5.48	MWD
6671.00	89.00	175.70	5744.35	-1183.56	-157.06	1179.50	2.56	-1.19	-2.26	MWD
6757.00	89.90	177.10	5745.17	-1269.38	-151.66	1265.43	1.94	1.05	1.63	MWD
6842.00	91.40	180.10	5744.21	-1354.34	-149.58	1350.41	3.95	1.76	3.53	MWD
6927.00	89.30	181.80	5743.69	-1439.32	-150.99	1435.33	3.18	-2.47	2.00	MWD
7012.00	87.80	181.60	5745.84	-1524.25	-153.51	1520.18	1.78	-1.76	-0.24	MWD
7098.00	87.30	182.20	5749.52	-1610.13	-156.36	1605.96	0.91	-0.58	0.70	MWD
7183.00	87.50	180.60	5753.37	-1695.01	-158.43	1690.77	1.90	0.24	-1.88	MWD
7268.00	90.70	180.40	5754.71	-1779.99	-159.17	1775.71	3.77	3.76	-0.24	MWD
7353.00	90.40	179.90	5753.89	-1864.98	-159.40	1860.67	0.69	-0.35	-0.59	MWD
7438.00	90.20	179.50	5753.45	-1949.98	-158.95	1945.66	0.53	-0.24	-0.47	MWD
7524.00	91.00	178.10	5752.55	-2035.95	-157.15	2031.65	1.87	0.93	-1.63	MWD
7609.00	90.80	177.90	5751.21	-2120.89	-154.19	2116.63	0.33	-0.24	-0.24	MWD
7694.00	90.50	178.10	5750.25	-2205.83	-151.22	2201.62	0.42	-0.35	0.24	MWD
7779.00	91.80	179.70	5748.54	-2290.80	-149.59	2286.60	2.43	1.53	1.88	MWD
7864.00	92.00	179.70	5745.72	-2375.75	-149.14	2371.54	0.24	0.24	0.00	MWD
7949.00	91.00	178.30	5743.50	-2460.70	-147.66	2456.50	2.02	-1.18	-1.65	MWD
8034.00	89.90	177.60	5742.83	-2545.64	-144.62	2541.49	1.53	-1.29	-0.82	MWD
8119.00	89.80	176.90	5743.05	-2630.55	-140.54	2626.47	0.83	-0.12	-0.82	MWD
8204.00	89.40	176.40	5743.65	-2715.40	-135.57	2711.41	0.75	-0.47	-0.59	MWD
8289.00	89.30	176.20	5744.61	-2800.21	-130.09	2796.34	0.26	-0.12	-0.24	MWD
8374.00	89.30	177.60	5745.65	-2885.08	-125.49	2881.29	1.65	0.00	1.65	MWD
8459.00	90.10	178.10	5746.09	-2970.02	-122.30	2966.28	1.11	0.94	0.59	MWD
8544.00	89.90	179.20	5746.09	-3054.99	-120.30	3051.28	1.32	-0.24	1.29	MWD
8629.00	90.50	179.20	5745.80	-3139.99	-119.11	3136.27	0.71	0.71	0.00	MWD
8714.00	88.70	178.60	5746.39	-3224.96	-117.48	3221.27	2.23	-2.12	-0.71	MWD
8799.00	89.40	179.20	5747.80	-3309.94	-115.85	3306.25	1.08	0.82	0.71	MWD
8884.00	89.10	178.30	5748.91	-3394.91	-114.00	3391.25	1.12	-0.35	-1.06	MWD
8969.00	89.30	178.60	5750.10	-3479.87	-111.70	3476.24	0.42	0.24	0.35	MWD
9054.00	89.00	178.10	5751.36	-3564.82	-109.25	3561.23	0.69	-0.35	-0.59	MWD
9140.00	88.60	177.60	5753.16	-3650.74	-106.03	3647.20	0.74	-0.47	-0.58	MWD
9224.00	89.40	177.80	5754.63	-3734.66	-102.66	3731.17	0.98	0.95	0.24	MWD
9309.00	88.20	176.50	5756.41	-3819.53	-98.43	3816.12	2.08	-1.41	-1.53	MWD
9393.00	90.40	178.50	5757.43	-3903.44	-94.77	3900.09	3.54	2.62	2.38	MWD
9477.00	90.50	177.80	5756.77	-3987.39	-92.06	3984.08	0.84	0.12	-0.83	MWD
9562.00	90.70	180.90	5755.88	-4072.37	-91.09	4069.06	3.65	0.24	3.65	MWD
9647.00	90.70	180.10	5754.85	-4157.36	-91.83	4154.01	0.94	0.00	-0.94	MWD

# Precision Directional Services, Inc.

## Survey Report

<b>Company:</b> CARRIZO OIL & GAS, INC. <b>Field:</b> Niobrara CONZ'83 <b>Site:</b> Bringelson Ranch 6-34-9-58 Pad <b>Well:</b> 6-34-9-58 <b>Wellpath:</b> Original Hole	<b>Date:</b> 08/07/2014 <b>Time:</b> 09:57:35 <b>Page:</b> 4 <b>Co-ordinate(NE) Reference:</b> Well: 6-34-9-58, Grid North <b>Vertical (TVD) Reference:</b> GL4805+17'KB 4822.0 <b>Section (VS) Reference:</b> Well (0.00N,0.00E,178.64Azi) <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
9732.00	89.00	180.10	5755.07	-4242.36	-91.98	4238.98	2.00	-2.00	0.00	MWD
9798.00	89.00	180.10	5756.22	-4308.35	-92.10	4304.95	0.00	0.00	0.00	Project

### Annotation

MD ft	TVD ft	
5720.00	5642.43	600' Entry