



Name	TVD	+N/-S	+E/-W	Northing	Easting	Latitude	Longitude	Shape
SL 5-34	0.00	0.00	0.00	1507137.11	3455633.31	40°42'49.977N	103°51'22.879W	Point
600' Entry 5-34	5841.64	-246.82	-472.66	1506890.29	3455160.65	40°42'47.625N	103°51'29.076W	Point
BHL 5-34	5873.43	-4301.39	-390.38	1502835.72	3455242.93	40°42'07.553N	103°51'28.982W	Point
PBHL 5-34	5875.00	-4302.66	-391.99	1502834.45	3455241.32	40°42'07.541N	103°51'29.003W	Point

Precision Directional Services, Inc.

Survey Report

Company: CARRIZO OIL & GAS, INC. Field: Niobrara CONZ'83 Site: Bringelson Ranch 6-34-9-58 Pad Well: 5-34-9-58 Wellpath: Original Hole	Date: 08/15/2014 Co-ordinate(NE) Reference: Well: 5-34-9-58, 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	Time: 13:50:26 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: Bringelson Ranch 6-34-9-58 Pad			
Weld County, CO			
Site Position: From: Map Position Uncertainty: 0.00 ft Ground Level: 4804.90 ft	Northing: 1507137.11 ft Easting: 3455633.31 ft	Latitude: 40 42 49.977 N Longitude: 103 51 22.879 W North Reference: Grid Grid Convergence: 1.06 deg	

Well: 5-34-9-58 367' FNL 825' FWL Well Position: +N/-S 0.00 ft +E/-W 0.00 ft Position Uncertainty: 0.00 ft	Slot Name: Northing: 1507137.11 ft Easting : 3455633.31 ft Latitude: 40 42 49.977 N Longitude: 103 51 22.879 W
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Wellpath: Original Hole Current Datum: GL4805+17'KB Magnetic Data: 08/09/2014 Field Strength: 53095 nT Vertical Section: Depth From (TVD) ft	Height 4822.00 ft	Drilled From: Surface Tie-on Depth: 0.00 ft Above System Datum: Mean Sea Level Declination: 7.97 deg Mag Dip Angle: 67.34 deg +E/-W ft Direction bearing
0.00	0.00	178.64

Survey Program for Definitive Wellpath					
Date: 08/15/2014	Validated: No	Version: 4			
Actual From ft	To ft	Survey	Toolcode	Tool Name	
138.00	10158.00	Survey #1 (138.00-10158.00)	MWD	Std MWD	
10218.00	10218.00	Survey #2 (10218.00-10218.00)	Project	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
138.00	0.20	211.70	138.00	-0.20	-0.13	0.20	0.14	0.14	0.00	MWD
229.00	1.90	257.30	228.98	-0.67	-1.68	0.63	1.94	1.87	50.11	MWD
321.00	3.70	270.10	320.87	-1.00	-6.14	0.86	2.06	1.96	13.91	MWD
412.00	4.80	288.60	411.62	0.22	-12.68	-0.52	1.92	1.21	20.33	MWD
503.00	5.60	290.00	502.25	2.95	-20.46	-3.44	0.89	0.88	1.54	MWD
594.00	5.10	289.10	592.85	5.79	-28.46	-6.47	0.56	-0.55	-0.99	MWD
685.00	6.10	297.40	683.42	9.34	-36.57	-10.21	1.41	1.10	9.12	MWD
776.00	6.10	300.30	773.90	14.01	-45.04	-15.07	0.34	0.00	3.19	MWD
867.00	5.50	304.00	864.43	18.88	-52.83	-20.13	0.78	-0.66	4.07	MWD
959.00	5.30	302.60	956.03	23.64	-60.07	-25.06	0.26	-0.22	-1.52	MWD
1049.00	5.10	305.60	1045.66	28.21	-66.82	-29.78	0.37	-0.22	3.33	MWD
1140.00	6.30	309.50	1136.20	33.74	-73.96	-35.48	1.38	1.32	4.29	MWD
1231.00	6.60	310.90	1226.63	40.34	-81.77	-42.27	0.37	0.33	1.54	MWD
1322.00	6.50	308.60	1317.03	46.98	-89.75	-49.09	0.31	-0.11	-2.53	MWD
1411.00	6.40	309.50	1405.47	53.27	-97.51	-55.57	0.16	-0.11	1.01	MWD
1488.00	6.20	311.80	1482.01	58.77	-103.92	-61.22	0.42	-0.26	2.99	MWD
1573.00	6.20	308.20	1566.51	64.67	-110.95	-67.29	0.46	0.00	-4.24	MWD
1658.00	5.60	304.60	1651.06	69.87	-117.97	-72.65	0.83	-0.71	-4.24	MWD
1744.00	5.50	306.70	1736.66	74.71	-124.73	-77.65	0.26	-0.12	2.44	MWD
1829.00	6.10	302.40	1821.22	79.57	-131.81	-82.67	0.87	0.71	-5.06	MWD
1914.00	5.90	304.90	1905.76	84.49	-139.20	-87.77	0.39	-0.24	2.94	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: 5-34-9-58 Wellpath: Original Hole	Date: 08/15/2014 Time: 13:50:26 Page: 2 Co-ordinate(NE) Reference: Well: 5-34-9-58, 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
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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
1998.00	6.60	306.00	1989.26	89.79	-146.65	-93.25	0.85	0.83	1.31	MWD
2083.00	6.90	306.10	2073.67	95.67	-154.73	-99.32	0.35	0.35	0.12	MWD
2168.00	6.30	303.30	2158.10	101.24	-162.75	-105.08	0.80	-0.71	-3.29	MWD
2254.00	5.80	299.10	2243.62	105.95	-170.49	-109.96	0.78	-0.58	-4.88	MWD
2339.00	6.20	299.30	2328.16	110.28	-178.25	-114.48	0.47	0.47	0.24	MWD
2424.00	6.70	301.00	2412.62	115.08	-186.50	-119.47	0.63	0.59	2.00	MWD
2509.00	6.90	301.90	2497.02	120.33	-195.09	-124.93	0.27	0.24	1.06	MWD
2594.00	7.00	297.20	2581.40	125.40	-204.03	-130.21	0.68	0.12	-5.53	MWD
2680.00	6.70	300.20	2666.78	130.32	-213.02	-135.34	0.54	-0.35	3.49	MWD
2765.00	6.80	298.20	2751.20	135.19	-221.75	-140.41	0.30	0.12	-2.35	MWD
2850.00	6.10	292.80	2835.66	139.32	-230.34	-144.75	1.09	-0.82	-6.35	MWD
2935.00	5.80	307.50	2920.20	143.68	-237.91	-149.29	1.82	-0.35	17.29	MWD
3020.00	6.30	315.50	3004.73	149.62	-244.59	-155.39	1.15	0.59	9.41	MWD
3106.00	5.80	312.50	3090.25	155.92	-251.10	-161.84	0.69	-0.58	-3.49	MWD
3190.00	7.40	313.90	3173.69	162.54	-258.13	-168.62	1.91	1.90	1.67	MWD
3276.00	8.30	314.00	3258.89	170.70	-266.59	-176.97	1.05	1.05	0.12	MWD
3360.00	9.10	316.00	3341.92	179.69	-275.56	-186.18	1.02	0.95	2.38	MWD
3445.00	9.30	310.70	3425.83	189.00	-285.44	-195.72	1.02	0.24	-6.24	MWD
3530.00	8.70	299.30	3509.79	196.63	-296.25	-203.60	2.21	-0.71	-13.41	MWD
3616.00	8.50	292.80	3594.82	202.27	-307.78	-209.52	1.15	-0.23	-7.56	MWD
3701.00	8.60	291.50	3678.88	207.04	-319.49	-214.56	0.26	0.12	-1.53	MWD
3785.00	8.20	286.60	3761.98	211.05	-331.07	-218.85	0.98	-0.48	-5.83	MWD
3870.00	7.20	278.70	3846.21	213.59	-342.15	-221.65	1.71	-1.18	-9.29	MWD
3955.00	5.90	289.40	3930.66	215.84	-351.53	-224.13	2.09	-1.53	12.59	MWD
4040.00	4.90	300.20	4015.28	219.12	-358.79	-227.57	1.67	-1.18	12.71	MWD
4126.00	3.60	303.30	4101.05	222.45	-364.22	-231.03	1.53	-1.51	3.60	MWD
4211.00	4.00	313.50	4185.86	225.96	-368.61	-234.64	0.92	0.47	12.00	MWD
4296.00	3.10	316.70	4270.70	229.67	-372.33	-238.44	1.08	-1.06	3.76	MWD
4381.00	3.70	330.20	4355.55	233.72	-375.27	-242.56	1.17	0.71	15.88	MWD
4466.00	4.50	326.70	4440.33	238.89	-378.46	-247.80	0.99	0.94	-4.12	MWD
4552.00	4.80	323.50	4526.05	244.60	-382.46	-253.61	0.46	0.35	-3.72	MWD
4635.00	5.60	317.70	4608.70	250.39	-387.25	-259.51	1.15	0.96	-6.99	MWD
4720.00	6.10	317.60	4693.26	256.79	-393.09	-266.05	0.59	0.59	-0.12	MWD
4805.00	5.80	321.30	4777.80	263.48	-398.82	-272.87	0.57	-0.35	4.35	MWD
4890.00	6.30	320.00	4862.33	270.40	-404.50	-279.93	0.61	0.59	-1.53	MWD
4975.00	6.90	317.20	4946.77	277.72	-410.97	-287.40	0.80	0.71	-3.29	MWD
5059.00	7.50	305.80	5030.11	284.63	-418.84	-294.49	1.84	0.71	-13.57	MWD
5145.00	6.00	300.50	5115.51	290.20	-427.27	-300.26	1.89	-1.74	-6.16	MWD
5187.00	5.10	306.10	5157.31	292.41	-430.67	-302.55	2.50	-2.14	13.33	MWD
5230.00	5.40	304.20	5200.13	294.67	-433.88	-304.89	0.81	0.70	-4.42	MWD
5273.00	3.00	262.40	5243.02	295.66	-436.67	-305.94	8.70	-5.58	-97.21	MWD
5314.00	6.50	191.90	5283.90	293.25	-438.22	-303.57	15.07	8.54	-171.95	MWD
5357.00	11.20	180.10	5326.38	286.69	-438.73	-297.02	11.66	10.93	-27.44	MWD
5400.00	14.60	181.50	5368.29	277.09	-438.88	-287.43	7.94	7.91	3.26	MWD
5441.00	17.30	181.20	5407.71	265.83	-439.14	-276.17	6.59	6.59	-0.73	MWD
5482.00	20.80	180.60	5446.46	252.45	-439.34	-262.80	8.55	8.54	-1.46	MWD
5525.00	23.80	179.90	5486.24	236.13	-439.41	-246.50	7.00	6.98	-1.63	MWD
5567.00	26.90	181.30	5524.19	218.16	-439.61	-228.53	7.52	7.38	3.33	MWD
5610.00	30.20	183.60	5561.96	197.63	-440.51	-208.03	8.09	7.67	5.35	MWD
5652.00	31.10	183.40	5598.09	176.26	-441.82	-186.70	2.16	2.14	-0.48	MWD
5695.00	36.00	183.10	5633.91	152.54	-443.16	-163.02	11.40	11.40	-0.70	MWD
5737.00	41.60	183.80	5666.63	126.28	-444.75	-136.80	13.37	13.33	1.67	MWD
5780.00	48.30	182.70	5697.05	95.97	-446.46	-106.54	15.69	15.58	-2.56	MWD

Precision Directional Services, Inc.

Survey Report

Company: CARRIZO OIL & GAS, INC.	Date: 08/15/2014	Time: 13:50:26	Page: 3
Field: Niobrara CONZ'83	Co-ordinate(NE) Reference: Well: 5-34-9-58, Grid North		
Site: Bringelson Ranch 6-34-9-58 Pad	Vertical (TVD) Reference: GL4805+17'KB 4822.0		
Well: 5-34-9-58	Section (VS) Reference: Well (0.00N,0.00E,178.64Azi)		
Wellpath: Original Hole	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
5822.00	52.30	183.80	5723.87	63.71	-448.30	-74.34	9.73	9.52	2.62	MWD
5864.00	55.80	186.10	5748.53	29.85	-451.24	-40.55	9.44	8.33	5.48	MWD
5906.00	59.60	188.00	5770.97	-5.37	-455.61	-5.44	9.82	9.05	4.52	MWD
5949.00	64.00	186.80	5791.28	-42.94	-460.48	32.00	10.52	10.23	-2.79	MWD
5966.00	65.60	185.60	5798.52	-58.23	-462.14	47.25	11.37	9.41	-7.06	MWD
6049.00	75.60	183.60	5826.06	-136.17	-468.37	125.01	12.26	12.05	-2.41	MWD
6094.00	81.70	182.50	5834.91	-180.20	-470.71	168.98	13.77	13.56	-2.44	MWD
6140.00	85.40	181.30	5840.08	-225.88	-472.23	214.61	8.45	8.04	-2.61	MWD
6161.00	86.05	181.07	5841.64	-246.82	-472.66	235.53	3.30	3.11	-1.11	600' Entry
6185.00	86.80	180.80	5843.14	-270.77	-473.05	259.46	3.30	3.11	-1.11	MWD
6231.00	88.00	180.20	5845.22	-316.72	-473.45	305.39	2.92	2.61	-1.30	MWD
6276.00	89.50	179.90	5846.21	-361.70	-473.49	350.36	3.40	3.33	-0.67	MWD
6322.00	90.50	179.40	5846.21	-407.70	-473.21	396.36	2.43	2.17	-1.09	MWD
6413.00	90.40	178.50	5845.49	-498.68	-471.54	487.35	1.00	-0.11	-0.99	MWD
6504.00	90.30	177.90	5844.93	-589.64	-468.68	578.35	0.67	-0.11	-0.66	MWD
6590.00	90.60	179.00	5844.26	-675.60	-466.36	664.34	1.33	0.35	1.28	MWD
6675.00	90.10	178.50	5843.74	-760.58	-464.50	749.34	0.83	-0.59	-0.59	MWD
6760.00	89.90	177.40	5843.74	-845.52	-461.46	834.33	1.32	-0.24	-1.29	MWD
6845.00	90.00	178.50	5843.81	-930.47	-458.42	919.32	1.30	0.12	1.29	MWD
6930.00	90.00	178.80	5843.81	-1015.44	-456.42	1004.32	0.35	0.00	0.35	MWD
7015.00	89.60	179.40	5844.11	-1100.43	-455.08	1089.32	0.85	-0.47	0.71	MWD
7101.00	89.50	176.40	5844.79	-1186.36	-451.93	1175.30	3.49	-0.12	-3.49	MWD
7186.00	89.20	177.80	5845.75	-1271.24	-447.63	1260.26	1.68	-0.35	1.65	MWD
7271.00	90.50	179.70	5845.97	-1356.22	-445.78	1345.26	2.71	1.53	2.24	MWD
7356.00	91.50	181.60	5844.49	-1441.19	-446.74	1430.19	2.53	1.18	2.24	MWD
7441.00	91.60	181.60	5842.19	-1526.13	-449.12	1515.04	0.12	0.12	0.00	MWD
7526.00	90.30	181.10	5840.78	-1611.09	-451.12	1599.93	1.64	-1.53	-0.59	MWD
7611.00	88.90	180.90	5841.37	-1696.08	-452.60	1684.86	1.66	-1.65	-0.24	MWD
7696.00	88.80	180.60	5843.08	-1781.05	-453.71	1769.78	0.37	-0.12	-0.35	MWD
7781.00	88.50	180.40	5845.08	-1866.02	-454.45	1854.71	0.42	-0.35	-0.24	MWD
7866.00	90.80	178.80	5845.60	-1951.01	-453.86	1939.69	3.30	2.71	-1.88	MWD
7952.00	90.50	178.30	5844.63	-2036.98	-451.69	2025.68	0.68	-0.35	-0.58	MWD
8036.00	90.20	177.80	5844.11	-2120.93	-448.83	2109.68	0.69	-0.36	-0.60	MWD
8121.00	89.80	176.40	5844.11	-2205.82	-444.53	2194.65	1.71	-0.47	-1.65	MWD
8206.00	89.30	176.00	5844.78	-2290.63	-438.89	2279.57	0.75	-0.59	-0.47	MWD
8291.00	90.70	177.80	5844.78	-2375.50	-434.30	2364.52	2.68	1.65	2.12	MWD
8376.00	90.70	177.60	5843.74	-2460.42	-430.89	2449.50	0.24	0.00	-0.24	MWD
8461.00	89.60	179.70	5843.52	-2545.39	-428.88	2534.50	2.79	-1.29	2.47	MWD
8546.00	89.40	179.00	5844.26	-2630.38	-427.92	2619.49	0.86	-0.24	-0.82	MWD
8632.00	88.40	180.60	5845.91	-2716.36	-427.62	2705.45	2.19	-1.16	1.86	MWD
8717.00	88.20	180.80	5848.44	-2801.32	-428.66	2790.36	0.33	-0.24	0.24	MWD
8802.00	88.70	179.20	5850.73	-2886.29	-428.66	2875.30	1.97	0.59	-1.88	MWD
8886.00	89.40	177.60	5852.13	-2970.24	-426.31	2959.28	2.08	0.83	-1.90	MWD
8970.00	89.20	177.20	5853.15	-3054.14	-422.50	3043.26	0.53	-0.24	-0.48	MWD
9055.00	90.30	178.50	5853.52	-3139.08	-419.31	3128.24	2.00	1.29	1.53	MWD
9140.00	89.30	178.10	5853.82	-3224.04	-416.79	3213.24	1.27	-1.18	-0.47	MWD
9225.00	89.30	177.90	5854.86	-3308.98	-413.83	3298.23	0.24	0.00	-0.24	MWD
9310.00	89.30	177.20	5855.90	-3393.90	-410.19	3383.21	0.82	0.00	-0.82	MWD
9395.00	88.50	178.60	5857.53	-3478.82	-407.08	3468.18	1.90	-0.94	1.65	MWD
9481.00	88.40	177.90	5859.86	-3564.75	-404.45	3554.15	0.82	-0.12	-0.81	MWD
9565.00	88.00	177.60	5862.49	-3648.64	-401.16	3638.10	0.60	-0.48	-0.36	MWD
9650.00	88.50	178.60	5865.09	-3733.56	-398.34	3723.05	1.31	0.59	1.18	MWD
9734.00	88.20	179.70	5867.51	-3817.51	-397.09	3807.01	1.36	-0.36	1.31	MWD
9819.00	89.80	179.90	5868.99	-3902.50	-396.80	3891.98	1.90	1.88	0.24	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: 5-34-9-58 Wellpath: Original Hole	Date: 08/15/2014 Time: 13:50:26 Page: 4 Co-ordinate(NE) Reference: Well: 5-34-9-58, 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
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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
9904.00	90.00	179.40	5869.14	-3987.49	-396.28	3976.96	0.63	0.24	-0.59	MWD
9989.00	90.00	179.00	5869.14	-4072.49	-395.09	4061.96	0.47	0.00	-0.47	MWD
10074.00	88.90	179.00	5869.96	-4157.47	-393.61	4146.95	1.29	-1.29	0.00	MWD
10158.00	88.50	178.60	5871.86	-4241.43	-391.85	4230.93	0.67	-0.48	-0.48	MWD
10218.00	88.50	178.60	5873.43	-4301.39	-390.38	4290.91	0.00	0.00	0.00	Project

Annotation

MD ft	TVD ft	
6161.00	5841.64	600' Entry