

Precision Directional Services, Inc.

H HEADER INFORMATION -----

H COMPANY : CARRIZO OIL & GAS, INC.

H FIELD : Niobrara CONZ'83

H SITE : Speaker 27-31-8-61

H WELL : 2-27-31-8-61

H WELLPATH: Original Hole

H DEPTHUNT: ft

H SURVDATE: 2013-07-18

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H WELL INFORMATION

H WELL EW MAP : 3364100.00

H WELL NS MAP : 1478417.98

H DATUM ELEVN : 5009.00

H VSECT ANGLE : 179.93

H VSECT NORTH : 0.00

H VSECT EAST : 0.00

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H SURVEY TYPE INFORMATION

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H SURVEY LIST

H MD	INC	AZI	TVD	NS	EW	VS	X(easting)	Y(northing)
0.00	0.00	0.00	0.00	0.00	0.00	0.00	3364100.00	1478417.98
100.00	0.00	0.00	100.00	0.00	0.00	0.00	3364100.00	1478417.98
200.00	0.00	0.00	200.00	0.00	0.00	0.00	3364100.00	1478417.98
300.00	2.00	290.64	299.98	0.62	-1.63	-0.62	3364098.37	1478418.60
400.00	4.00	290.64	399.84	2.46	-6.53	-2.47	3364093.47	1478420.44
504.25	6.09	290.64	503.68	5.69	-15.11	-5.71	3364084.89	1478423.67
600.00	6.09	290.64	598.89	9.27	-24.60	-9.30	3364075.40	1478427.25
700.00	6.09	290.64	698.33	13.00	-34.52	-13.05	3364065.48	1478430.98
800.00	6.09	290.64	797.76	16.74	-44.44	-16.80	3364055.56	1478434.72
900.00	6.09	290.64	897.20	20.48	-54.36	-20.55	3364045.64	1478438.46
1000.00	6.09	290.64	996.64	24.22	-64.28	-24.29	3364035.72	1478442.20
1100.00	6.09	290.64	1096.07	27.95	-74.20	-28.04	3364025.80	1478445.93
1200.00	6.09	290.64	1195.51	31.69	-84.12	-31.79	3364015.88	1478449.67
1300.00	6.09	290.64	1294.94	35.43	-94.04	-35.54	3364005.96	1478453.41
1400.00	6.09	290.64	1394.38	39.16	-103.96	-39.29	3363996.04	1478457.14
1500.00	6.09	290.64	1493.82	42.90	-113.88	-43.04	3363986.12	1478460.88
1600.00	6.09	290.64	1593.25	46.64	-123.80	-46.79	3363976.20	1478464.62
1700.00	6.09	290.64	1692.69	50.37	-133.72	-50.54	3363966.28	1478468.35
1800.00	6.09	290.64	1792.13	54.11	-143.64	-54.29	3363956.36	1478472.09
1900.00	6.09	290.64	1891.56	57.85	-153.56	-58.04	3363946.44	1478475.83
2000.00	6.09	290.64	1991.00	61.58	-163.48	-61.78	3363936.52	1478479.56
2100.00	6.09	290.64	2090.44	65.32	-173.40	-65.53	3363926.60	1478483.30
2200.00	6.09	290.64	2189.87	69.06	-183.32	-69.28	3363916.68	1478487.04
2300.00	6.09	290.64	2289.31	72.79	-193.24	-73.03	3363906.76	1478490.77
2400.00	6.09	290.64	2388.75	76.53	-203.16	-76.78	3363896.84	1478494.51
2500.00	6.09	290.64	2488.18	80.27	-213.08	-80.53	3363886.92	1478498.25
2600.00	6.09	290.64	2587.62	84.01	-223.00	-84.28	3363877.00	1478501.99
2700.00	6.09	290.64	2687.06	87.74	-232.92	-88.03	3363867.08	1478505.72
2800.00	6.09	290.64	2786.49	91.48	-242.84	-91.78	3363857.16	1478509.46
2900.00	6.09	290.64	2885.93	95.22	-252.76	-95.52	3363847.24	1478513.20
3000.00	6.09	290.64	2985.37	98.95	-262.68	-99.27	3363837.32	1478516.93

3100.00	6.09	290.64	3084.80	102.69	-272.60	-103.02	3363827.40	1478520.67
3200.00	6.09	290.64	3184.24	106.43	-282.52	-106.77	3363817.48	1478524.41
3300.00	6.09	290.64	3283.68	110.16	-292.44	-110.52	3363807.56	1478528.14
3400.00	6.09	290.64	3383.11	113.90	-302.36	-114.27	3363797.64	1478531.88
3500.00	6.09	290.64	3482.55	117.64	-312.28	-118.02	3363787.72	1478535.62
3600.00	6.09	290.64	3581.99	121.37	-322.20	-121.77	3363777.80	1478539.35
3700.00	6.09	290.64	3681.42	125.11	-332.12	-125.52	3363767.88	1478543.09
3800.00	6.09	290.64	3780.86	128.85	-342.04	-129.27	3363757.96	1478546.83
3900.00	6.09	290.64	3880.30	132.58	-351.96	-133.01	3363748.04	1478550.56
4000.00	6.09	290.64	3979.73	136.32	-361.88	-136.76	3363738.12	1478554.30
4100.00	6.09	290.64	4079.17	140.06	-371.80	-140.51	3363728.20	1478558.04
4200.00	6.09	290.64	4178.61	143.80	-381.72	-144.26	3363718.28	1478561.78
4300.00	6.09	290.64	4278.04	147.53	-391.64	-148.01	3363708.36	1478565.51
4400.00	6.09	290.64	4377.48	151.27	-401.56	-151.76	3363698.44	1478569.25
4500.00	6.09	290.64	4476.91	155.01	-411.48	-155.51	3363688.52	1478572.99
4600.00	6.09	290.64	4576.35	158.74	-421.40	-159.26	3363678.60	1478576.72
4700.00	6.09	290.64	4675.79	162.48	-431.32	-163.01	3363668.68	1478580.46
4800.00	6.09	290.64	4775.22	166.22	-441.24	-166.76	3363658.76	1478584.20
4900.00	6.09	290.64	4874.66	169.95	-451.16	-170.50	3363648.84	1478587.93
5000.00	6.09	290.64	4974.10	173.69	-461.08	-174.25	3363638.92	1478591.67
5100.00	6.09	290.64	5073.53	177.43	-471.00	-178.00	3363629.00	1478595.41
5200.00	6.09	290.64	5172.97	181.16	-480.92	-181.75	3363619.08	1478599.14
5300.00	6.09	290.64	5272.41	184.90	-490.84	-185.50	3363609.16	1478602.88
5400.00	6.09	290.64	5371.84	188.64	-500.76	-189.25	3363599.24	1478606.62
5500.00	6.09	290.64	5471.28	192.38	-510.68	-193.00	3363589.32	1478610.36
5600.00	6.09	290.64	5570.72	196.11	-520.60	-196.75	3363579.40	1478614.09
5700.00	6.09	290.64	5670.15	199.85	-530.52	-200.50	3363569.48	1478617.83
5800.00	6.09	290.64	5769.59	203.59	-540.44	-204.25	3363559.56	1478621.57
5900.00	6.09	290.64	5869.03	207.32	-550.36	-207.99	3363549.64	1478625.30
5934.66	6.09	290.64	5903.49	208.62	-553.80	-209.29	3363546.20	1478626.60
5950.00	5.73	276.10	5918.75	208.99	-555.32	-209.66	3363544.68	1478626.97
6000.00	7.18	232.23	5968.46	207.34	-560.28	-208.02	3363539.72	1478625.32
6050.00	10.96	210.91	6017.84	201.34	-565.19	-202.03	3363534.81	1478619.32
6100.00	15.45	201.08	6066.51	191.04	-570.03	-191.73	3363529.97	1478609.02
6150.00	20.17	195.68	6114.10	176.51	-574.76	-177.22	3363525.24	1478594.49
6200.00	25.00	192.28	6160.26	157.88	-579.34	-158.58	3363520.66	1478575.86
6250.00	29.88	189.92	6204.62	135.27	-583.74	-135.98	3363516.26	1478553.25
6300.00	34.80	188.18	6246.85	108.86	-587.91	-109.58	3363512.09	1478526.84
6350.00	39.73	186.82	6286.63	78.85	-591.84	-79.58	3363508.16	1478496.83
6400.00	44.67	185.72	6323.66	45.48	-595.49	-46.21	3363504.51	1478463.46
6450.00	49.63	184.79	6357.66	8.99	-598.84	-9.72	3363501.16	1478426.97
6500.00	54.59	183.99	6388.36	-30.34	-601.85	29.61	3363498.15	1478387.64
6550.00	59.55	183.29	6415.53	-72.21	-604.51	71.47	3363495.49	1478345.77
6600.00	64.52	182.65	6438.97	-116.30	-606.79	115.56	3363493.21	1478301.68
6650.00	69.49	182.07	6458.49	-162.28	-608.68	161.53	3363491.32	1478255.70
6700.00	74.46	181.52	6473.96	-209.78	-610.16	209.04	3363489.84	1478208.20
6750.00	79.44	180.99	6485.24	-258.47	-611.23	257.72	3363488.77	1478159.51
6800.00	84.41	180.49	6492.26	-307.95	-611.87	307.20	3363488.13	1478110.03
6850.00	89.39	179.99	6494.97	-357.86	-612.07	357.11	3363487.93	1478060.12
6856.15	90.00	179.93	6495.00	-364.01	-612.07	363.26	3363487.93	1478053.97
6900.00	90.00	179.93	6495.00	-407.86	-612.02	407.11	3363487.98	1478010.12
7000.00	90.00	179.93	6495.00	-507.86	-611.89	507.11	3363488.11	1477910.12
7100.00	90.00	179.93	6495.00	-607.86	-611.77	607.11	3363488.23	1477810.12
7200.00	90.00	179.93	6495.00	-707.86	-611.64	707.11	3363488.36	1477710.12

7300.00	90.00	179.93	6495.00	-807.86	-611.52	807.11	3363488.48	1477610.12
7400.00	90.00	179.93	6495.00	-907.86	-611.39	907.11	3363488.61	1477510.12
7500.00	90.00	179.93	6495.00	-1007.86	-611.27	1007.11	3363488.73	1477410.12
7600.00	90.00	179.93	6495.00	-1107.86	-611.15	1107.11	3363488.85	1477310.12
7700.00	90.00	179.93	6495.00	-1207.86	-611.02	1207.11	3363488.98	1477210.12
7800.00	90.00	179.93	6495.00	-1307.86	-610.90	1307.11	3363489.10	1477110.12
7900.00	90.00	179.93	6495.00	-1407.86	-610.77	1407.11	3363489.23	1477010.12
8000.00	90.00	179.93	6495.00	-1507.86	-610.65	1507.11	3363489.35	1476910.12
8100.00	90.00	179.93	6495.00	-1607.86	-610.52	1607.11	3363489.48	1476810.12
8200.00	90.00	179.93	6495.00	-1707.86	-610.40	1707.11	3363489.60	1476710.12
8300.00	90.00	179.93	6495.00	-1807.86	-610.28	1807.11	3363489.72	1476610.12
8400.00	90.00	179.93	6495.00	-1907.86	-610.15	1907.11	3363489.85	1476510.12
8500.00	90.00	179.93	6495.00	-2007.86	-610.03	2007.11	3363489.97	1476410.12
8600.00	90.00	179.93	6495.00	-2107.86	-609.90	2107.11	3363490.10	1476310.12
8700.00	90.00	179.93	6495.00	-2207.86	-609.78	2207.11	3363490.22	1476210.12
8800.00	90.00	179.93	6495.00	-2307.86	-609.65	2307.11	3363490.35	1476110.12
8900.00	90.00	179.93	6495.00	-2407.86	-609.53	2407.11	3363490.47	1476010.12
9000.00	90.00	179.93	6495.00	-2507.86	-609.41	2507.11	3363490.59	1475910.12
9100.00	90.00	179.93	6495.00	-2607.86	-609.28	2607.11	3363490.72	1475810.12
9200.00	90.00	179.93	6495.00	-2707.86	-609.16	2707.11	3363490.84	1475710.12
9300.00	90.00	179.93	6495.00	-2807.86	-609.03	2807.11	3363490.97	1475610.12
9400.00	90.00	179.93	6495.00	-2907.86	-608.91	2907.11	3363491.09	1475510.12
9500.00	90.00	179.93	6495.00	-3007.86	-608.78	3007.11	3363491.22	1475410.12
9600.00	90.00	179.93	6495.00	-3107.86	-608.66	3107.11	3363491.34	1475310.12
9700.00	90.00	179.93	6495.00	-3207.86	-608.54	3207.11	3363491.46	1475210.12
9800.00	90.00	179.93	6495.00	-3307.86	-608.41	3307.11	3363491.59	1475110.12
9900.00	90.00	179.93	6495.00	-3407.86	-608.29	3407.11	3363491.71	1475010.12
10000.00	90.00	179.93	6495.00	-3507.86	-608.16	3507.11	3363491.84	1474910.12
10100.00	90.00	179.93	6495.00	-3607.86	-608.04	3607.11	3363491.96	1474810.12
10200.00	90.00	179.93	6495.00	-3707.86	-607.91	3707.11	3363492.09	1474710.12
10300.00	90.00	179.93	6495.00	-3807.86	-607.79	3807.11	3363492.21	1474610.12
10400.00	90.00	179.93	6495.00	-3907.86	-607.67	3907.11	3363492.33	1474510.12
10500.00	90.00	179.93	6495.00	-4007.86	-607.54	4007.11	3363492.46	1474410.12
10600.00	90.00	179.93	6495.00	-4107.86	-607.42	4107.11	3363492.58	1474310.12
10700.00	90.00	179.93	6495.00	-4207.86	-607.29	4207.11	3363492.71	1474210.12
10800.00	90.00	179.93	6495.00	-4307.86	-607.17	4307.11	3363492.83	1474110.12
10855.24	90.00	179.93	6495.00	-4363.10	-607.10	4362.36	3363492.90	1474054.88