

A Gyrodata Directional Survey

FINAL DEFINITIVE COPY

for

GREAT WESTERN OIL AND GAS COMPANY LLC

Lease: Newlander H Unit Well: 1, 4-1/2" Casing
Location: Workover, Adams County, Colorado

Job Number: RM0515GVC247

Run Date: 12 May 2015

Report Generated: 19 May 2015 01:31

Surveyor: Robert Steele, John Keeth

Calculation Method: MINIMUM CURVATURE

Survey surface coordinates obtained from: Company Man

Survey Latitude: 39.991125 deg. N Longitude: 104.859665 deg. W

Azimuth Correction:

Gyro: Bearings are Relative to True North

Depth Reference: Rotary Table

Air Gap (RKB to Ground / RKB to MSL): 11.00

Vertical Section Calculated from Well Head Location

Closure Calculated from Well Head Location

Horizontal Coordinates Calculated from Well Head Location

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MEASURED DEPTH feet	INCL deg.	AZIMUTH deg.	DOGLEG SEVERITY deg./ 100 ft.	VERTICAL DEPTH feet	CLOSURE DIST. feet	AZIMUTH deg.	HORIZONTAL COORDINATES feet
0.00	0.00	0.00	0.00	0.00	0.0	0.0	0.00 N 0.00 E

0 - 7330 FT. RATE GYROSCOPIC MULTISHOT CONTINUOUS SURVEY RUN INSIDE 4-1/2" CASING							
ALL MEASURED DEPTHS AND COORDINATES REFERENCED TO AN R.K.B. OF 11 FT.							

100.00	0.08	323.79	0.08	100.00	0.1	323.8	0.06 N 0.04 W
200.00	0.08	330.85	0.01	200.00	0.2	326.2	0.18 N 0.12 W
300.00	0.44	315.76	0.36	300.00	0.7	320.7	0.51 N 0.42 W
400.00	0.58	317.63	0.14	399.99	1.5	318.5	1.15 N 1.02 W
500.00	0.64	317.97	0.06	499.99	2.6	318.2	1.94 N 1.74 W
600.00	0.69	316.76	0.05	599.98	3.8	317.9	2.80 N 2.52 W
700.00	0.75	330.74	0.19	699.97	5.0	319.5	3.81 N 3.26 W
800.00	0.77	327.21	0.05	799.97	6.3	321.4	4.94 N 3.94 W
900.00	0.74	327.12	0.03	899.96	7.6	322.4	6.05 N 4.66 W
1000.00	0.78	330.20	0.06	999.95	9.0	323.4	7.19 N 5.35 W
1100.00	0.79	317.93	0.17	1099.94	10.3	323.4	8.29 N 6.15 W
1200.00	0.84	306.08	0.18	1199.93	11.7	322.0	9.23 N 7.20 W
1300.00	0.94	296.21	0.18	1299.92	13.2	319.6	10.03 N 8.53 W
1400.00	0.98	292.48	0.08	1399.90	14.7	316.8	10.72 N 10.06 W
1500.00	1.02	289.17	0.07	1499.89	16.3	314.1	11.34 N 11.69 W
1600.00	1.06	288.45	0.04	1599.87	17.9	311.6	11.92 N 13.41 W
1700.00	1.08	283.72	0.09	1699.85	19.6	309.3	12.44 N 15.19 W

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1800.00	1.05	280.96	0.06	1799.84	21.3	307.0	12.83 N 17.01 W
1900.00	1.00	280.38	0.05	1899.82	22.9	305.0	13.17 N 18.77 W
2000.00	1.01	277.51	0.05	1999.80	24.5	303.2	13.44 N 20.51 W
2100.00	0.92	274.41	0.11	2099.79	26.0	301.5	13.62 N 22.18 W
2200.00	0.89	273.46	0.03	2199.78	27.4	300.0	13.72 N 23.76 W
2300.00	0.78	277.62	0.12	2299.77	28.8	298.8	13.86 N 25.21 W
2400.00	0.82	282.20	0.07	2399.76	30.1	297.9	14.10 N 26.59 W
2500.00	0.81	273.56	0.12	2499.75	31.4	297.1	14.30 N 28.00 W
2600.00	1.00	265.52	0.23	2599.73	32.8	295.8	14.27 N 29.58 W
2700.00	1.01	265.27	0.01	2699.72	34.4	294.3	14.13 N 31.33 W
2800.00	0.95	275.44	0.18	2799.70	35.9	293.2	14.14 N 33.04 W
2900.00	0.88	287.31	0.20	2899.69	37.5	292.7	14.45 N 34.60 W
3000.00	0.67	277.45	0.25	2999.68	38.8	292.3	14.75 N 35.91 W
3100.00	0.55	247.65	0.33	3099.68	39.7	291.6	14.64 N 36.93 W
3200.00	0.57	243.82	0.05	3199.67	40.4	290.6	14.24 N 37.82 W
3300.00	0.55	237.69	0.06	3299.67	41.1	289.6	13.76 N 38.68 W
3400.00	0.57	215.29	0.22	3399.66	41.5	288.4	13.10 N 39.37 W
3500.00	0.93	183.91	0.53	3499.66	41.5	286.7	11.89 N 39.71 W
3600.00	0.97	185.45	0.05	3599.64	41.1	284.4	10.24 N 39.84 W
3700.00	0.97	220.78	0.59	3699.63	41.4	282.2	8.77 N 40.48 W
3800.00	1.07	239.54	0.35	3799.61	42.5	280.4	7.65 N 41.83 W
3900.00	1.11	238.20	0.04	3899.59	44.0	278.7	6.67 N 43.46 W

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4000.00	1.07	240.39	0.05	3999.58	45.5	277.2	5.70 N 45.10 W
4100.00	1.49	248.52	0.45	4099.55	47.4	275.8	4.76 N 47.12 W
4200.00	2.15	246.73	0.67	4199.50	50.2	274.0	3.54 N 50.06 W
4300.00	2.73	241.08	0.62	4299.41	53.9	271.7	1.64 N 53.87 W
4400.00	3.35	235.91	0.68	4399.27	58.4	268.9	1.15 S 58.38 W
4500.00	3.03	233.59	0.34	4499.11	63.1	266.0	4.36 S 62.93 W
4600.00	2.80	235.58	0.26	4598.98	67.5	263.8	7.31 S 67.07 W
4700.00	2.09	238.86	0.72	4698.89	71.3	262.2	9.63 S 70.65 W
4800.00	1.74	245.11	0.41	4798.84	74.4	261.3	11.22 S 73.59 W
4900.00	1.88	242.76	0.17	4898.79	77.5	260.6	12.60 S 76.42 W
5000.00	1.92	247.25	0.15	4998.73	80.7	260.0	14.00 S 79.43 W
5100.00	2.05	244.86	0.16	5098.67	84.0	259.4	15.41 S 82.59 W
5200.00	2.22	247.73	0.20	5198.60	87.6	258.9	16.91 S 86.00 W
5300.00	1.63	260.02	0.72	5298.54	91.0	258.7	17.89 S 89.20 W
5400.00	1.49	286.35	0.72	5398.51	93.5	259.1	17.77 S 91.84 W
5500.00	1.48	291.33	0.13	5498.48	95.8	259.8	16.93 S 94.29 W
5600.00	1.36	290.34	0.12	5598.44	97.9	260.6	16.05 S 96.60 W
5700.00	1.31	292.36	0.07	5698.42	99.9	261.2	15.21 S 98.77 W
5800.00	0.82	259.96	0.75	5798.40	101.6	261.6	14.90 S 100.53 W
5900.00	0.71	226.96	0.45	5898.39	102.9	261.4	15.45 S 101.69 W
6000.00	0.74	224.28	0.04	5998.38	103.9	261.0	16.33 S 102.59 W

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6100.00	0.84	226.54	0.10	6098.37	105.0 260.5	17.30 S 103.58 W
6200.00	0.78	226.80	0.06	6198.36	106.2 260.1	18.26 S 104.60 W
6300.00	0.83	228.76	0.06	6298.35	107.4 259.7	19.20 S 105.64 W
6400.00	0.57	238.01	0.28	6398.35	108.5 259.4	19.94 S 106.61 W
6500.00	0.59	249.16	0.11	6498.34	109.4 259.3	20.39 S 107.51 W
6600.00	0.47	231.55	0.20	6598.34	110.3 259.1	20.83 S 108.31 W
6700.00	0.63	213.48	0.24	6698.33	111.0 258.8	21.54 S 108.93 W
6800.00	0.51	202.15	0.16	6798.33	111.7 258.4	22.42 S 109.40 W
6900.00	0.38	193.92	0.14	6898.33	112.1 258.1	23.16 S 109.65 W
7000.00	0.60	259.48	0.56	6998.32	112.7 257.9	23.58 S 110.24 W
7100.00	0.74	260.67	0.15	7098.32	113.9 258.0	23.78 S 111.39 W
7200.00	0.55	275.05	0.25	7198.31	115.0 258.0	23.84 S 112.51 W
7300.00	0.43	274.21	0.12	7298.31	115.8 258.2	23.77 S 113.37 W
7330.00	0.38	267.43	0.24	7328.30	116.0 258.2	23.77 S 113.58 W

Final Station Closure: Distance: 116.04 ft Az: 258.18 deg.