

A Gyrodata Directional Survey

FINAL DEFINITIVE COPY

for

DEVON ENERGY

SUR: A-15-18s-32e, 660/N & 330/E
BHL: D-15-18s-32e, 609/N & 4948/E
API # 30-025-39956

Lease: WEST SHINNERY 15 FED Well: 2H, 4 1/2" DRILL PIPE
Location: MCVAY # 8, LEA COUNTY, NEW MEXICO

Job Number: MD1211GDM522

Run Date: 20 Dec 2011

Surveyor: Michael Hattar

Calculation Method: MINIMUM CURVATURE

Survey surface coordinates obtained from: Well Plan/Plot

Survey Latitude: 32.752911 deg. N Longitude: 103.746730 deg. W

Azimuth Correction:

Gyro: -0.32000 deg to Grid North

Depth Reference: Rotary Table

Rotary Table Elevation: 19.00

Vertical Section Calculated from Well Head Location

Closure Calculated from Well Head Location

Horizontal Coordinates Calculated from Well Head Location

File in Survey for
provided by April 2012
Tanner

MAY 03 2012

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MEASURED DEPTH feet	I N C L deg.	A Z I M U T H deg.	B O R E H O L E B E A R I N G deg. min.	D O G L E G S E V E R I T Y deg./ 100 ft.	V E R T I C A L D E P T H feet	C L O S U R E D I S T. A Z I M U T H feet deg.	H O R I Z O N T A L C O O R D I N A T E S feet
0.00	0.00	0.00	N 0 0 E	0.00	0.00	0.0 0.0	0.00 N 0.00 E
0 - 8417 FT. RATE GYROSCOPIC MULTISHOT SURVEY RUN INSIDE 4 1/2" DRILLPIPE							
ALL MEASURED DEPTHS AND COORDINATES REFERENCED TO MCVAY DRILLING RIG # 8 R.K.B. HEIGHT OF 19 FT.							
90.50	0.30	68.85	N 68 51 E	0.33	90.50	0.2 68.9	0.09 N 0.22 E
176.20	0.45	104.28	S 75 43 E	0.31	176.20	0.8 83.7	0.08 N 0.76 E
264.30	0.70	132.23	S 47 46 E	0.42	264.29	1.5 103.7	0.36 S 1.49 E
355.30	0.69	105.93	S 74 4 E	0.35	355.29	2.6 110.1	0.89 S 2.43 E
441.30	0.60	115.57	S 64 26 E	0.16	441.28	3.6 110.2	1.22 S 3.33 E
530.80	0.70	114.67	S 65 20 E	0.11	530.78	4.6 111.3	1.65 S 4.25 E
626.00	0.63	108.93	S 71 4 E	0.10	625.97	5.7 111.4	2.07 S 5.28 E
721.20	0.58	95.09	S 84 55 E	0.16	721.16	6.7 110.0	2.28 S 6.25 E
816.40	0.44	80.84	N 80 50 E	0.20	816.36	7.4 107.7	2.26 S 7.09 E
911.60	0.28	88.25	N 88 15 E	0.17	911.56	8.0 106.0	2.20 S 7.69 E
1006.80	0.26	94.70	S 85 18 E	0.04	1006.76	8.4 105.2	2.21 S 8.13 E
1102.00	0.26	132.70	S 47 18 E	0.18	1101.96	8.8 105.6	2.37 S 8.51 E
1197.30	0.28	147.42	S 32 35 E	0.08	1197.26	9.2 107.2	2.72 S 8.79 E
1292.50	0.28	143.46	S 36 32 E	0.02	1292.45	9.6 108.9	3.10 S 9.05 E
1387.70	0.49	122.47	S 57 32 E	0.26	1387.65	10.2 110.2	3.50 S 9.54 E
1482.90	0.63	125.98	S 54 1 E	0.15	1482.85	11.1 111.4	4.03 S 10.30 E
1578.10	0.76	132.25	S 47 45 E	0.16	1578.04	12.2 113.0	4.76 S 11.19 E
1673.30	0.72	131.16	S 48 50 E	0.04	1673.23	13.3 114.7	5.58 S 12.11 E
1768.50	0.74	114.25	S 65 45 E	0.23	1768.43	14.5 115.4	6.23 S 13.12 E

Survey provided by
Operator
Tanner

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MEASURED DEPTH feet	I N C L deg.	A Z I M U T H deg.	BORE HOLE BEARING deg. min.	DOGLEG SEVERITY deg./ 100 ft.	VERTICAL DEPTH feet	CLOSURE DIST. AZIMUTH feet deg.	HORIZONTAL COORDINATES feet
1863.70	0.76	112.51	S 67 29 E	0.03	1863.62	15.8 115.2	6.72 S 14.27 E
1958.90	0.74	112.14	S 67 52 E	0.02	1958.81	17.0 115.0	7.19 S 15.42 E
2054.10	0.65	108.04	S 71 58 E	0.11	2054.00	18.2 114.7	7.59 S 16.50 E
2149.30	0.65	87.22	N 87 13 E	0.25	2149.20	19.2 113.8	7.73 S 17.56 E
2244.60	0.74	74.53	N 74 32 E	0.19	2244.49	20.2 112.0	7.54 S 18.69 E
2339.80	0.87	72.92	N 72 55 E	0.14	2339.68	21.2 109.7	7.17 S 19.97 E
2435.00	1.39	68.52	N 68 31 E	0.55	2434.86	22.7 106.7	6.53 S 21.74 E
2530.20	1.46	65.89	N 65 53 E	0.10	2530.03	24.6 103.2	5.61 S 23.92 E
2625.40	1.31	69.83	N 69 50 E	0.19	2625.20	26.5 100.3	4.74 S 26.05 E
2720.60	1.21	70.96	N 70 58 E	0.11	2720.38	28.3 98.2	4.04 S 28.02 E
2815.80	1.00	70.27	N 70 16 E	0.22	2815.56	29.9 96.6	3.43 S 29.75 E
2911.00	0.92	71.50	N 71 30 E	0.09	2910.75	31.4 95.3	2.91 S 31.26 E
3006.20	0.73	69.92	N 69 55 E	0.20	3005.94	32.6 94.3	2.46 S 32.55 E
3101.40	0.71	70.76	N 70 46 E	0.02	3101.13	33.7 93.5	2.06 S 33.68 E
3196.70	0.32	71.92	N 71 55 E	0.41	3196.43	34.5 93.0	1.78 S 34.49 E
3291.90	0.30	71.41	N 71 25 E	0.02	3291.63	35.0 92.6	1.62 S 34.98 E
3387.10	0.26	69.31	N 69 19 E	0.04	3386.83	35.4 92.4	1.46 S 35.42 E
3482.30	0.23	57.20	N 57 12 E	0.06	3482.02	35.8 92.1	1.28 S 35.78 E
3577.50	0.12	56.68	N 56 41 E	0.12	3577.22	36.0 91.8	1.12 S 36.02 E
3672.70	0.13	19.99	N 19 59 E	0.08	3672.42	36.2 91.5	0.97 S 36.14 E
3767.90	0.13	284.01	N 75 59 W	0.20	3767.62	36.1 91.3	0.84 S 36.08 E

Provided to the Operator
25 Apr 2012
TMA

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MEASURED DEPTH feet	I N C L deg.	A Z I M U T H deg.	B O R E H O L E BEARING deg. min.	D O G L E G SEVERITY deg./ 100 ft.	V E R T I C A L DEPTH feet	C L O S U R E DIST. AZIMUTH feet deg.	H O R I Z O N T A L COORDINATES feet
3863.10	0.17	293.19	N 66 49 W	0.05	3862.82	35.8 91.2	0.76 S 35.84 E
3958.30	0.23	265.53	S 85 32 W	0.12	3958.02	35.5 91.2	0.72 S 35.52 E
4053.60	0.21	265.53	S 85 32 W	0.02	4053.32	35.2 91.2	0.75 S 35.16 E
4148.80	0.28	251.24	S 71 14 W	0.10	4148.52	34.8 91.4	0.83 S 34.76 E
4244.00	0.27	255.62	S 75 37 W	0.02	4243.72	34.3 91.6	0.96 S 34.32 E
4339.20	0.36	238.90	S 58 54 W	0.13	4338.92	33.9 92.0	1.17 S 33.85 E
4434.40	0.46	242.88	S 62 53 W	0.11	4434.12	33.3 92.6	1.50 S 33.25 E
4529.60	0.45	246.51	S 66 31 W	0.03	4529.31	32.6 93.2	1.83 S 32.57 E
4624.80	0.44	236.80	S 56 48 W	0.08	4624.51	32.0 93.9	2.18 S 31.92 E
4720.00	0.41	249.34	S 69 20 W	0.10	4719.71	31.4 94.6	2.50 S 31.30 E
4815.20	0.56	255.06	S 75 4 W	0.17	4814.90	30.7 95.1	2.74 S 30.53 E
4910.40	0.62	263.39	S 83 23 W	0.11	4910.10	29.7 95.6	2.92 S 29.57 E
5005.60	0.62	261.92	S 81 55 W	0.02	5005.29	28.7 96.1	3.05 S 28.55 E
5100.90	0.67	265.46	S 85 28 W	0.07	5100.59	27.7 96.6	3.16 S 27.48 E
5196.10	0.57	264.90	S 84 54 W	0.11	5195.78	26.7 97.0	3.25 S 26.45 E
5291.30	0.65	285.06	N 74 56 W	0.24	5290.98	25.7 97.1	3.15 S 25.46 E
5386.50	0.68	300.75	N 59 15 W	0.19	5386.17	24.6 96.4	2.72 S 24.45 E
5481.70	0.65	299.25	N 60 45 W	0.04	5481.36	23.6 95.3	2.17 S 23.50 E
5576.90	0.72	301.02	N 58 59 W	0.08	5576.56	22.6 94.1	1.60 S 22.51 E
5672.10	0.88	300.44	N 59 34 W	0.17	5671.75	21.4 92.5	0.92 S 21.37 E
5767.30	1.01	295.60	N 64 24 W	0.16	5766.93	20.0 90.5	0.19 S 19.98 E
5862.50	0.89	288.63	N 71 22 W	0.17	5862.12	18.5 88.7	0.41 N 18.53 E

*THE IN Survey Provided
by Operator 25 Apr 2011
Tuan*

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MEASURED DEPTH feet	INCL deg.	AZIMUTH deg.	BORE HOLE BEARING deg. min.	DOGLEG SEVERITY deg./ 100 ft.	VERTICAL DEPTH feet	CLOSURE DIST. AZIMUTH feet deg.	HORIZONTAL COORDINATES feet
5957.80	1.27	268.90	S 88 54 W	0.55	5957.40	16.8 87.9	0.63 N 16.77 E
6053.00	1.76	284.68	N 75 19 W	0.67	6052.57	14.3 86.1	0.98 N 14.30 E
6148.20	1.95	291.66	N 68 20 W	0.31	6147.72	11.5 80.3	1.95 N 11.38 E
6243.40	2.05	300.08	N 59 55 W	0.33	6242.86	9.1 68.0	3.40 N 8.40 E
6338.60	1.54	306.79	N 53 13 W	0.58	6338.02	7.7 49.6	5.02 N 5.90 E
6433.80	1.44	306.45	N 53 33 W	0.11	6433.18	7.6 31.1	6.49 N 3.92 E
6529.00	1.30	315.65	N 44 21 W	0.27	6528.36	8.3 15.4	7.98 N 2.20 E
6624.20	1.16	317.97	N 42 2 W	0.16	6623.54	9.5 4.8	9.47 N 0.80 E
6719.40	0.91	317.86	N 42 8 W	0.26	6718.72	10.7 358.1	10.74 N 0.35 W
6814.60	0.64	323.30	N 36 42 W	0.29	6813.91	11.8 354.3	11.73 N 1.18 W
6909.90	1.36	313.93	N 46 4 W	0.77	6909.20	13.1 349.9	12.94 N 2.31 W
7005.10	1.53	304.91	N 55 5 W	0.30	7004.37	15.0 343.9	14.45 N 4.17 W
7100.30	1.85	297.05	N 62 57 W	0.41	7099.52	17.2 337.5	15.88 N 6.58 W
7195.50	2.13	294.66	N 65 20 W	0.31	7194.67	19.8 331.1	17.31 N 9.55 W
7290.70	2.22	291.94	N 68 4 W	0.14	7289.80	22.7 325.5	18.74 N 12.87 W
7385.90	2.50	286.56	N 73 26 W	0.37	7384.92	26.0 320.4	20.02 N 16.57 W
7481.10	2.27	282.82	N 77 11 W	0.29	7480.04	29.3 315.9	21.03 N 20.40 W
7576.30	2.22	277.41	N 82 35 W	0.23	7575.16	32.4 312.0	21.69 N 24.07 W
7671.50	2.35	280.33	N 79 40 W	0.18	7670.29	35.6 308.7	22.28 N 27.82 W
7766.70	2.79	286.39	N 73 37 W	0.54	7765.39	39.5 306.1	23.28 N 31.96 W
7861.90	2.73	286.25	N 73 45 W	0.06	7860.48	43.9 304.0	24.57 N 36.36 W
7957.20	3.04	286.93	N 73 4 W	0.33	7955.66	48.5 302.3	25.94 N 40.95 W

TIE-IN SURVEY
B.P. OPERATOR
25 APR 2012
PROVIDED
THIN

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Job Number: MD1211GDM522

MEASURED DEPTH feet	I N C L deg.	AZIMUTH deg.	BORE HOLE BEARING deg. min.	DOGLEG SEVERITY deg./ 100 ft.	VERTICAL DEPTH feet	CLOSURE DIST. AZIMUTH feet deg.	HORIZONTAL COORDINATES feet
8052.40	3.40	291.12	N 68 53 W	0.45	8050.71	53.7 301.0	27.69 N 46.00 W
8147.60	4.09	294.15	N 65 51 W	0.75	8145.71	59.9 300.2	30.10 N 51.73 W
8242.80	3.66	295.44	N 64 34 W	0.46	8240.69	66.3 299.7	32.79 N 57.58 W
8338.00	3.24	299.04	N 60 58 W	0.50	8335.72	72.0 299.5	35.40 N 62.67 W
8401.00 ✓	3.07	303.93	N 56 4 W	0.51	8398.62	75.4 299.6	37.21 N ✓ 65.63 W ✓

Final Station Closure: Distance: 75.44 ft Az: 299.55 deg.

*Tie-in Survey provided
by Operator 25 Apr 2012
TMM*