

**A Gyrodata Directional Survey**

for

**EOG RESOURCES**

**Location: MCVAY -#7, LEA COUNTY, NEW MEXICO  
Well: DAVES HOPPER "31" #1, 4 1/2" DRILLPIPE**

**Job Number: MD0403GW162**

**Run Date: 4/12/2003 4:42:33 PM**

**Surveyor: Mike Martinez**

**Calculation Method: MINIMUM CURVATURE**

**Survey Latitude: 32.978280 deg. N Longitude: 103.445280 deg. E**

**Azimuth Correction:**

**Gyro: -0.48000 deg West to Grid North**

**Vertical Section Calculated from Well Head Location**

**Closure Calculated from Well Head Location**

**Horizontal Coordinates Calculated from Well Head Location**

**SUR: B - 31-15s-35e, 991/N & 2312/E  
BHL: C-31-15s-35e, 803/N & 2943/E  
API # 30-025-28233**

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MEASURED IN CL DEPTH feet	AZIMUTH deg.	BORE HOLE BEARING deg. min.	DOGLEG SEVERITY deg./ 100 ft.	VERTICAL DEPTH feet	CLOSURE DIST. AZIMUTH feet deg.	HORIZONTAL COORDINATES feet
0.00	0.00	N 0 0 E	0.00	0.0	0.0 0.00	N 0.00 E
0-9520' RATE GYROSCOPIC MULTISHOT SURVEY RUN INSIDE 4 1/2" DRILLPIPE ALL MEASURED DEPTHS AND COORDINATES REFERENCED TO MC VAY #7 R.K.B.						
100.00	0.49	N 48 14 E	0.49	100.00	0.4 48.2	0.28 N 0.32 E
200.00	0.89	N 54 43 E	0.41	199.99	1.6 51.3	1.02 N 1.27 E
300.00	0.92	N 49 35 E	0.09	299.98	3.2 51.7	1.99 N 2.52 E
400.00	0.99	N 57 3 E	0.14	399.96	4.9 52.3	2.98 N 3.86 E
500.00	0.83	N 57 12 E	0.15	499.95	6.5 53.5	3.84 N 5.19 E
600.00	0.68	N 38 22 E	0.29	599.94	7.8 52.7	4.70 N 6.17 E
700.00	0.44	N 28 59 E	0.26	699.94	8.7 50.7	5.50 N 6.72 E
800.00	0.28	N 50 54 E	0.21	799.94	9.3 49.9	5.98 N 7.09 E
900.00	0.28	N 52 3 E	0.01	899.94	9.8 49.9	6.29 N 7.47 E
1000.00	0.11	N 11 40 E	0.21	999.94	10.1 49.6	6.53 N 7.69 E
1100.00	0.10	S 9 27 W	0.21	1099.94	10.1 49.6	6.54 N 7.69 E
1200.00	0.17	S 49 54 W	0.11	1199.93	9.9 50.0	6.35 N 7.56 E
1300.00	0.22	S 86 14 W	0.13	1299.93	9.6 49.3	6.25 N 7.26 E
1400.00	0.41	S 83 17 W	0.19	1399.93	9.1 47.3	6.19 N 6.71 E
1500.00	0.38	S 60 14 W	0.16	1499.93	8.5 45.4	5.98 N 6.07 E
1600.00	0.31	S 64 46 W	0.08	1599.93	8.0 44.1	5.71 N 5.54 E
1700.00	0.43	S 75 18 W	0.14	1699.93	7.4 41.9	5.50 N 4.93 E

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MEASURED INCL DEPTH feet	deg.	AZIMUTH deg.	BORE HOLE BEARING deg. min.	DOGLEG SEVERITY deg./ 100 ft.	VERTICAL DEPTH feet	CLOSURE DIST. AZIMUTH feet deg.	HORIZONTAL COORDINATES feet
1800.00	0.61	240.37	S 60 22 W	0.22	1799.92	6.6 38.6	5.14 N 4.10 E
1900.00	0.42	239.48	S 59 29 W	0.19	1899.92	5.7 35.3	4.69 N 3.32 E
2000.00	0.42	260.85	S 80 51 W	0.16	1999.92	5.2 30.8	4.44 N 2.65 E
2100.00	0.56	245.91	S 65 54 W	0.19	2099.91	4.6 23.7	4.19 N 1.84 E
2200.00	0.46	249.06	S 69 4 W	0.10	2199.91	4.0 14.9	3.85 N 1.02 E
2300.00	0.61	252.65	S 72 39 W	0.15	2299.90	3.5 2.2	3.54 N 0.14 E
2400.00	0.44	248.64	S 68 38 W	0.17	2399.90	3.3 347.4	3.24 N 0.73 W
2500.00	0.29	64.38	N 64 23 E	0.73	2499.90	3.3 345.0	3.21 N 0.86 W
2600.00	0.84	82.00	N 82 0 E	0.57	2599.89	3.4 1.5	3.42 N 0.09 E
2700.00	1.06	75.43	N 75 26 E	0.24	2699.88	4.1 24.4	3.76 N 1.71 E
2800.00	1.19	95.69	S 84 19 E	0.42	2799.86	5.3 43.1	3.88 N 3.64 E
2900.00	1.38	108.75	S 71 15 E	0.35	2899.84	6.7 59.7	3.39 N 5.81 E
3000.00	1.41	109.63	S 70 22 E	0.04	2999.81	8.5 72.3	2.59 N 8.11 E
3100.00	1.33	104.96	S 75 3 E	0.14	3099.78	10.6 79.8	1.88 N 10.39 E
3200.00	1.18	118.85	S 61 9 E	0.34	3199.75	12.5 85.0	1.08 N 12.42 E
3300.00	0.99	122.04	S 57 58 E	0.20	3299.74	14.1 89.5	0.12 N 14.06 E
3400.00	0.90	121.86	S 58 8 E	0.09	3399.72	15.5 92.8	0.75 S 15.46 E
3500.00	0.93	117.12	S 62 53 E	0.08	3499.71	16.9 95.2	1.53 S 16.85 E
3600.00	0.85	114.08	S 65 55 E	0.10	3599.70	18.4 96.9	2.20 S 18.24 E
3700.00	0.96	107.52	S 72 29 E	0.15	3699.68	19.9 98.0	2.76 S 19.71 E
3800.00	0.84	106.98	S 73 1 E	0.12	3799.67	21.5 98.6	3.22 S 21.21 E
3900.00	0.91	107.17	S 72 50 E	0.07	3899.66	23.0 99.2	3.67 S 22.67 E

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MEASURED INCL DEPTH feet	deg.	AZIMUTH deg.	BORE HOLE BEARING deg. min.	DOGLEG SEVERITY deg./ 100 ft.	VERTICAL DEPTH feet	CLOSURE DIST. AZIMUTH feet deg.	HORIZONTAL COORDINATES feet
4000.00	0.63	105.82	S 74 11 E	0.27	3999.65	24.3 99.6	4.06 S 23.96 E
4100.00	0.60	122.40	S 57 36 E	0.18	4099.65	25.3 100.2	4.49 S 24.93 E
4200.00	0.47	122.31	S 57 42 E	0.13	4199.64	26.2 101.0	4.99 S 25.72 E
4300.00	0.47	126.56	S 53 26 E	0.04	4299.64	27.0 101.7	5.45 S 26.40 E
4400.00	0.51	124.40	S 55 36 E	0.05	4399.63	27.7 102.4	5.95 S 27.10 E
4500.00	0.44	120.24	S 59 46 E	0.09	4499.63	28.5 103.0	6.39 S 27.80 E
4600.00	0.43	133.67	S 46 20 E	0.10	4599.63	29.2 103.6	6.84 S 28.39 E
4700.00	0.34	154.66	S 25 20 E	0.17	4699.63	29.7 104.4	7.37 S 28.79 E
4800.00	0.46	138.51	S 41 29 E	0.16	4799.62	30.2 105.2	7.93 S 29.18 E
4900.00	0.38	130.29	S 49 43 E	0.10	4899.62	30.9 105.9	8.45 S 29.70 E
5000.00	0.41	119.65	S 60 21 E	0.08	4999.62	31.5 106.3	8.84 S 30.27 E
5100.00	0.52	109.91	S 70 5 E	0.13	5099.62	32.3 106.5	9.18 S 31.01 E
5200.00	0.45	100.25	S 79 45 E	0.11	5199.61	33.2 106.5	9.40 S 31.83 E
5300.00	0.62	95.33	S 84 40 E	0.17	5299.61	34.1 106.2	9.52 S 32.76 E
5400.00	0.58	102.28	S 77 43 E	0.08	5399.60	35.1 106.0	9.68 S 33.79 E
5500.00	0.81	106.43	S 73 34 E	0.23	5499.59	36.4 105.9	9.99 S 34.96 E
5600.00	1.14	129.25	S 50 45 E	0.50	5599.58	38.0 106.5	10.82 S 36.40 E
5700.00	1.02	133.70	S 46 18 E	0.15	5699.56	39.7 107.7	12.06 S 37.82 E
5800.00	1.24	124.51	S 55 29 E	0.28	5799.54	41.5 108.7	13.28 S 39.35 E
5900.00	1.27	124.03	S 55 58 E	0.04	5899.52	43.6 109.4	14.52 S 41.16 E
6000.00	1.22	128.90	S 51 6 E	0.12	5999.50	45.7 110.2	15.81 S 42.91 E
6100.00	1.23	122.46	S 57 32 E	0.14	6099.47	47.8 110.9	17.05 S 44.65 E

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6200.00	1.49	119.67	S 60 20 E	0.26	6199.44	50.1 111.4	18.27 S	46.68 E
6300.00	1.29	117.66	S 62 21 E	0.20	6299.42	52.5 111.7	19.44 S	48.81 E
6400.00	1.09	121.36	S 58 39 E	0.21	6399.39	54.6 112.0	20.46 S	50.62 E
6500.00	1.08	119.93	S 60 4 E	0.03	6499.38	56.5 112.3	21.42 S	52.25 E
6600.00	0.80	118.21	S 61 47 E	0.28	6599.36	58.1 112.5	22.22 S	53.68 E
6700.00	0.84	130.29	S 49 42 E	0.18	6699.35	59.5 112.8	23.03 S	54.85 E
6800.00	0.72	144.61	S 35 23 E	0.23	6799.34	60.7 113.3	24.02 S	55.78 E
6900.00	0.91	144.01	S 35 59 E	0.18	6899.33	62.0 114.0	25.17 S	56.61 E
7000.00	0.67	149.35	S 30 39 E	0.25	6999.32	63.1 114.6	26.32 S	57.37 E
7100.00	0.55	154.63	S 25 22 E	0.13	7099.32	64.0 115.2	27.25 S	57.87 E
7200.00	0.58	163.99	S 16 0 E	0.10	7199.31	64.7 115.8	28.17 S	58.22 E
7300.00	0.68	187.86	S 7 51 W	0.28	7299.31	65.2 116.7	29.25 S	58.28 E
7400.00	0.61	184.28	S 4 17 W	0.08	7399.30	65.6 117.6	30.38 S	58.16 E
7500.00	0.87	189.39	S 9 24 W	0.27	7499.29	66.1 118.6	31.67 S	57.99 E
7600.00	0.89	191.32	S 11 19 W	0.04	7599.28	66.6 119.9	33.18 S	57.72 E
7700.00	0.87	186.41	S 6 25 W	0.08	7699.27	67.1 121.1	34.70 S	57.48 E
7800.00	0.83	192.95	S 12 57 W	0.11	7799.26	67.7 122.3	36.16 S	57.23 E
7900.00	0.94	187.44	S 7 26 W	0.14	7899.24	68.3 123.5	37.68 S	56.96 E
8000.00	0.89	181.02	S 1 1 W	0.12	7999.23	69.1 124.6	39.27 S	56.84 E
8100.00	0.82	155.36	S 24 39 E	0.39	8099.22	70.1 125.5	40.69 S	57.13 E
8200.00	0.84	142.05	S 37 57 E	0.19	8199.21	71.5 125.9	41.93 S	57.88 E

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MEASURED INCL DEPTH feet	AZIMUTH deg.	BORE HOLE BEARING deg. min.	DOGLEG SEVERITY deg/ 100 ft.	VERTICAL DEPTH feet	CLOSURE DIST. AZIMUTH feet deg.	HORIZONTAL COORDINATES feet	
8300.00	1.10	140.60	S 39 24 E	0.25	8299.20	73.1 126.3	43.24 S 58.94 E
8400.00	0.92	140.78	S 39 13 E	0.18	8399.18	74.8 126.6	44.60 S 60.05 E
8500.00	0.96	146.92	S 33 5 E	0.11	8499.17	76.4 127.0	45.92 S 61.01 E
8600.00	1.05	137.18	S 42 49 E	0.19	8599.15	78.1 127.3	47.29 S 62.09 E
8700.00	1.21	145.82	S 34 11 E	0.24	8699.13	80.0 127.6	48.84 S 63.31 E
8800.00	1.29	145.80	S 34 12 E	0.08	8799.11	82.0 128.1	50.64 S 64.53 E
8900.00	1.25	138.80	S 41 12 E	0.16	8899.08	84.2 128.5	52.39 S 65.88 E
9000.00	1.24	147.16	S 32 50 E	0.18	8999.06	86.3 128.9	54.13 S 67.19 E
9100.00	1.42	142.95	S 37 3 E	0.21	9099.03	88.5 129.3	56.03 S 68.53 E
9200.00	1.37	149.66	S 30 20 E	0.17	9199.00	90.8 129.7	58.05 S 69.88 E
9300.00	1.32	152.39	S 27 37 E	0.08	9298.98	93.0 130.2	60.10 S 71.01 E
9400.00	1.45	143.91	S 36 5 E	0.24	9398.95	95.3 130.7	62.14 S 72.29 E
9500.00	1.68	139.73	S 40 16 E	0.25	9498.91	98.0 131.0	64.27 S 73.98 E
9520.00	1.58	140.00	S 40 0 E	0.51	9518.90	98.6 131.0	64.71 S 74.34 E

Final Station Closure: Distance: 98.56 ft Az: 131.04 deg.