



NM OIL CONSERVATION

ARTESIA DISTRICT

SEP 29 2017

RECEIVED

I Christopher Hair certify that I am employed by VES Survey International. That I did on the day(s) of 06/14/17 through 06/14/17 conduct or supervise the taking of a Rate Gyro survey from a depth of 0.00 feet to a depth of 8,935.00 feet; that the data is true, correct, complete and within the limitations of the tool as set forth by Vaughn Energy Services, that I am authorized and qualified to make this report; that this survey was conducted at the request of Matador Production for the Joe Coleman 13-23S-27E RB Well # 208H API # 30-015-44060 in Eddy County / Parish New Mexico; and that I have reviewed this report and find that it conforms to the principles and procedures as set forth by VES Survey International.

A handwritten signature in blue ink, appearing to read "Chris Hair", is written over a horizontal line.

Christopher Hair
Service Technician
VES Survey International

GTI

GYRO TECHNOLOGIES, INC.

Company: MATADOR PRODUCTION
Lease/Well: JOE COLEMAN 13 23S 27E RB/208H

Rig Name: PATTERSON 297
State/County: NEW MEXICO/EDDY
VS-Azi: 0.00 Degrees
Latitude: 32.29919, Longitude: -104.15355
Grid North = True North -0.10 degs (NAD 27)
Grid Correction Applied = -0.10 degs

VES SURVEY
INTERNATIONAL

Depth Reference : RKB = 28.5 FEET

DRILLOG HA GYRO SURVEY CALCULATIONS

Filename: e-line gyro-de_01.ut
Minimum Curvature Method
Report Date/Time: 6/22/2017 / 10:38

VES Survey International
Midland, TX
(432) 563-5444

Surveyor: Chris Hair
Joe Coleman 13 23S 27E RB 208H / API: 30-015-44060

NM OIL CONSERVATION
ARTESIA DISTRICT

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Measured Depth FT	Incl Angle Deg	Drift Direction Deg	TVD FT	+N/-S FT	+E/-W FT	Vertical Section FT	Closure Distance FT	Closure Direction Deg	Dogleg Severity Deg/100
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	****
100.00	0.34	222.78	100.00	-0.22	-0.20	-0.22	0.30	222.78	0.34
200.00	0.56	224.82	200.00	-0.79	-0.75	-0.79	1.09	223.70	0.22
300.00	0.73	276.44	299.99	-1.07	-1.73	-1.07	2.03	238.36	0.58
400.00	1.33	320.17	399.98	-0.10	-3.10	-0.10	3.10	268.09	0.95
500.00	1.70	328.86	499.94	2.06	-4.61	2.06	5.05	294.05	0.44
600.00	1.60	338.02	599.90	4.62	-5.90	4.62	7.49	308.05	0.28
700.00	0.91	358.72	699.88	6.71	-6.44	6.71	9.30	316.16	0.81
800.00	0.38	10.38	799.87	7.83	-6.40	7.83	10.11	320.75	0.55
900.00	0.40	56.50	899.87	8.35	-6.05	8.35	10.31	324.07	0.30
1000.00	2.80	101.54	999.82	8.05	-3.36	8.05	8.72	337.32	2.54
1100.00	3.50	103.06	1099.67	6.87	2.01	6.87	7.16	16.32	0.70
1200.00	2.88	98.23	1199.51	5.82	7.48	5.82	9.47	52.12	0.67
1300.00	3.56	98.18	1299.36	5.01	13.04	5.01	13.97	68.97	0.68
1400.00	3.42	99.89	1399.17	4.06	19.06	4.06	19.49	77.98	0.17
1500.00	3.66	102.24	1498.98	2.87	25.13	2.87	25.29	83.49	0.28
1600.00	3.83	101.89	1598.76	1.50	31.52	1.50	31.56	87.27	0.17

Measured Depth FT	Incl Angle Deg	Drift Direction Deg	TVD FT	+N/-S FT	+E/-W FT	Vertical Section FT	Closure Distance FT	Closure Direction Deg	Dogleg Severity Deg/100
1700.00	3.57	93.18	1698.56	0.64	37.90	0.64	37.90	89.03	0.62
1800.00	3.94	80.35	1798.34	1.04	44.39	1.04	44.40	88.65	0.92
1900.00	4.08	86.53	1898.10	1.83	51.32	1.83	51.35	87.95	0.45
2000.00	4.17	89.69	1997.84	2.07	58.50	2.07	58.54	87.97	0.25
2100.00	4.08	91.53	2097.58	1.99	65.69	1.99	65.72	88.26	0.16
2200.00	3.27	99.61	2197.38	1.42	72.06	1.42	72.08	88.87	0.95
2300.00	3.04	85.35	2297.23	1.16	77.52	1.16	77.53	89.14	0.82
2400.00	2.91	83.08	2397.09	1.68	82.69	1.68	82.71	88.83	0.18
2500.00	2.97	85.40	2496.96	2.20	87.80	2.20	87.82	88.57	0.13
2600.00	3.99	87.62	2596.77	2.55	93.85	2.55	93.88	88.44	1.03
2700.00	4.05	88.08	2696.53	2.81	100.85	2.81	100.89	88.40	0.08
2800.00	4.18	158.45	2796.33	-0.46	105.73	-0.46	105.73	90.25	4.74
2900.00	4.07	88.45	2896.12	-3.76	110.62	-3.76	110.68	91.94	4.73
3000.00	5.23	91.36	2995.79	-3.77	118.72	-3.77	118.78	91.82	1.18
3100.00	6.72	94.92	3095.25	-4.38	129.11	-4.38	129.18	91.94	1.54
3200.00	7.93	93.70	3194.43	-5.32	141.83	-5.32	141.93	92.15	1.22
3300.00	8.42	92.27	3293.41	-6.06	156.03	-6.06	156.15	92.22	0.53
3400.00	8.24	91.09	3392.36	-6.49	170.51	-6.49	170.64	92.18	0.25
3500.00	8.19	90.37	3491.33	-6.67	184.80	-6.67	184.92	92.07	0.11
3600.00	7.82	89.42	3590.36	-6.65	198.72	-6.65	198.83	91.92	0.39
3700.00	7.47	89.59	3689.47	-6.53	212.02	-6.53	212.13	91.76	0.35
3800.00	7.47	88.99	3788.62	-6.37	225.02	-6.37	225.11	91.62	0.08
3900.00	8.96	89.92	3887.59	-6.24	239.31	-6.24	239.39	91.49	1.50
4000.00	9.19	90.26	3986.34	-6.27	255.08	-6.27	255.16	91.41	0.24
4100.00	9.25	90.04	4085.05	-6.31	271.11	-6.31	271.18	91.33	0.07
4200.00	7.37	87.28	4183.99	-6.01	285.56	-6.01	285.62	91.21	1.93
4300.00	6.40	85.95	4283.27	-5.31	297.53	-5.31	297.57	91.02	0.98
4400.00	5.55	89.66	4382.73	-4.89	307.93	-4.89	307.96	90.91	0.93
4500.00	3.81	93.05	4482.39	-5.04	316.08	-5.04	316.12	90.91	1.77
4600.00	1.79	77.82	4582.26	-4.89	320.92	-4.89	320.96	90.87	2.13
4700.00	1.36	59.88	4682.23	-3.96	323.48	-3.96	323.51	90.70	0.65
4800.00	0.33	287.84	4782.22	-3.27	324.24	-3.27	324.25	90.58	1.60
4900.00	0.63	241.49	4882.22	-3.45	323.48	-3.45	323.50	90.61	0.47
5000.00	1.64	257.52	4982.19	-4.02	321.59	-4.02	321.62	90.72	1.05
5100.00	2.54	261.83	5082.13	-4.65	317.99	-4.65	318.03	90.84	0.91
5200.00	2.56	260.01	5182.03	-5.35	313.60	-5.35	313.65	90.98	0.08
5300.00	1.21	246.55	5281.97	-6.16	310.44	-6.16	310.50	91.14	1.41
5400.00	1.16	245.96	5381.95	-6.99	308.55	-6.99	308.63	91.30	0.05
5500.00	1.12	249.15	5481.93	-7.75	306.71	-7.75	306.81	91.45	0.08

Measured Depth FT	Incl Angle Deg	Drift Direction Deg	TVD FT	+N/-S FT	+E/-W FT	Vertical Section FT	Closure Distance FT	Closure Direction Deg	Dogleg Severity Deg/100
5600.00	1.13	257.80	5581.91	-8.30	304.84	-8.30	304.95	91.56	0.17
5700.00	1.22	262.14	5681.89	-8.66	302.82	-8.66	302.94	91.64	0.12
5800.00	1.11	296.48	5781.87	-8.37	300.90	-8.37	301.01	91.59	0.69
5900.00	1.26	292.99	5881.85	-7.51	299.02	-7.51	299.11	91.44	0.16
6000.00	1.22	285.15	5981.83	-6.80	296.98	-6.80	297.06	91.31	0.17
6100.00	0.92	298.19	6081.81	-6.14	295.24	-6.14	295.31	91.19	0.38
6200.00	0.44	338.26	6181.80	-5.41	294.39	-5.41	294.44	91.05	0.65
6300.00	0.54	15.35	6281.80	-4.60	294.37	-4.60	294.41	90.89	0.32
6400.00	0.70	19.26	6381.79	-3.57	294.70	-3.57	294.72	90.69	0.17
6500.00	1.01	68.91	6481.78	-2.67	295.72	-2.67	295.73	90.52	0.77
6600.00	1.27	52.30	6581.76	-1.68	297.42	-1.68	297.42	90.32	0.42
6700.00	0.66	92.67	6681.75	-1.03	298.86	-1.03	298.86	90.20	0.88
6800.00	1.01	130.06	6781.74	-1.63	300.11	-1.63	300.11	90.31	0.63
6900.00	1.28	156.72	6881.72	-3.23	301.23	-3.23	301.24	90.61	0.59
7000.00	0.56	183.82	6981.71	-4.74	301.64	-4.74	301.67	90.90	0.83
7100.00	0.30	237.40	7081.70	-5.37	301.39	-5.37	301.43	91.02	0.45
7200.00	1.58	338.25	7181.69	-4.22	300.66	-4.22	300.69	90.80	1.67
7300.00	1.62	358.06	7281.65	-1.53	300.10	-1.53	300.10	90.29	0.55
7400.00	1.53	267.47	7381.63	-0.17	298.71	-0.17	298.71	90.03	2.24
7500.00	1.58	260.95	7481.59	-0.45	296.02	-0.45	296.02	90.09	0.18
7600.00	1.66	262.29	7581.55	-0.86	293.22	-0.86	293.22	90.17	0.08
7700.00	1.50	267.74	7681.51	-1.11	290.48	-1.11	290.48	90.22	0.22
7800.00	1.30	269.29	7781.48	-1.17	288.04	-1.17	288.04	90.23	0.20
7900.00	0.98	268.20	7881.46	-1.21	286.05	-1.21	286.05	90.24	0.32
8000.00	0.27	262.56	7981.46	-1.27	284.96	-1.27	284.96	90.26	0.72
8100.00	0.77	90.90	8081.46	-1.31	285.40	-1.31	285.40	90.26	1.04
8200.00	1.26	109.90	8181.44	-1.70	287.11	-1.70	287.12	90.34	0.59
8300.00	0.87	77.83	8281.42	-1.91	288.88	-1.91	288.89	90.38	0.70
8400.00	0.57	121.64	8381.42	-2.01	290.05	-2.01	290.05	90.40	0.60
8500.00	1.82	159.68	8481.39	-3.76	291.02	-3.76	291.04	90.74	1.42
8600.00	2.19	174.61	8581.33	-7.16	291.75	-7.16	291.84	91.41	0.64
8700.00	2.38	162.82	8681.25	-11.04	292.54	-11.04	292.75	92.16	0.50
8800.00	17.95	107.25	8779.47	-17.63	307.98	-17.63	308.48	93.28	16.72
8900.00	27.88	102.01	8871.48	-27.09	345.66	-27.09	346.72	94.48	10.13
8935.00	30.18	104.43	8902.08	-30.99	362.18	-30.99	363.51	94.89	7.39

GTI

GYRO TECHNOLOGIES INC

VES Survey International

Midland, TX

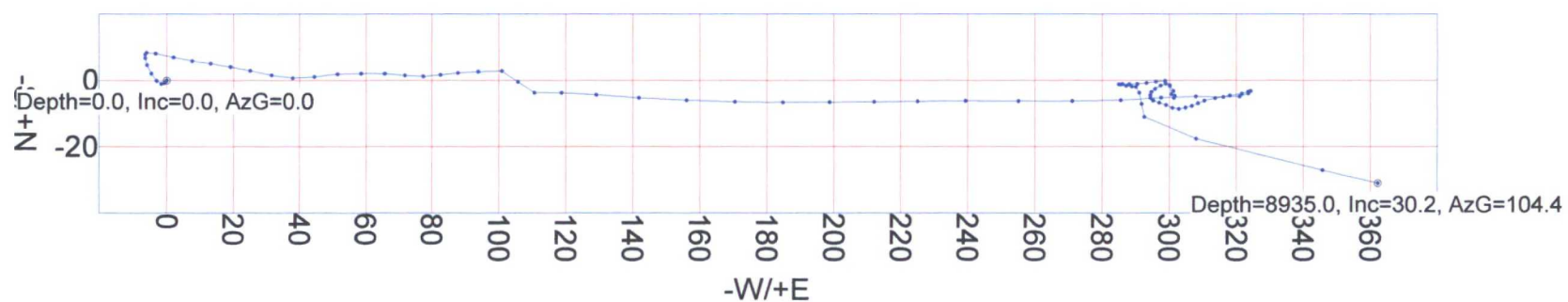
(432) 563-5444

Surveyor: Chris Hair

Joe Coleman 13 23S 27E RB 208H / API: 30-015-440

VES

**SURVEY
INTERNATIONAL**



VES Survey Date: 6/14/2017