



Scientific Drilling

30-015-30980

Gyroscopic Survey Report
for
COG OPERATING

RECEIVED

OCT 28 2011

NMOCD ARTESIA

Well Location	EDDY COUNTY, NEW MEXICO
Well Name	SHAWNEE FEDERAL #2
Rig Name	ARIES P/U
Survey Date	9/28/2011
Latitude	32.83 deg
North Reference	True North
Grid Correction	0.00 deg
Depth Reference	12' KB
Calculation Method	Minimum Curvature
Section (VS) Ref	0.00N (ft), 0.00E (ft), 0.00Azim (deg)
Definitive Survey	FINAL OUTFRAN SURVEY
Operator	A.MADRID

Comments



Survey Report

Well Name: SHAWNEE FEDERAL #2
 Survey: FINAL OUTFRAN SURVEY
 Survey Date: 9/28/2011

MD ft	Inc deg	Azim deg	TVD ft	VS ft	Northing ft	Easting ft	DLS deg/100ft	Closure Distance ft	Closure Angle deg
0.00	0.00	0 00	0 00	0.00	0 00	0 00	Invalid	0 00	0 00
100.00	0.65	21.83	100.00	0 53	0 53	0 21	0 65	0.57	21 83
200.00	0.79	21.08	199.99	1 70	1 70	0.67	0 14	1 83	21.55
300.00	1.45	11 28	299.97	3 59	3.59	1.17	0.69	3.78	18.03
400.00	1.64	6.76	399.93	6 26	6.26	1 59	0.23	6.46	14 22
500.00	1 54	7 80	499.90	9 01	9.01	1.94	0 11	9.22	12.13
600.00	1.24	9.92	599.87	11 40	11.40	2.30	0.30	11.63	11 43
700.00	1 26	17.89	699.84	13 51	13.51	2.83	0.18	13.81	11 82
800.00	1.26	19 60	799.82	15.60	15 60	3 54	0 04	15 99	12.77
900.00	1.47	31 24	899.79	17.73	17 73	4.57	0 35	18 31	14 45
1000.00	1.75	39.87	999.75	19.99	19.99	6 21	0 37	20.93	17.25
1100.00	2.12	49 29	1099.69	22 37	22 37	8.59	0.49	23 96	21 00
1200.00	2.07	49 02	1199.63	24.76	24 76	11.35	0 05	27 23	24.63
1300.00	1.77	51 67	1299.57	26 90	26.90	13 93	0 31	30 29	27.37
1400.00	1.51	53 55	1399.53	28.64	28 64	16 20	0.27	32 90	29.49
1500.00	1 13	56 18	1499.50	29 97	29 97	18 07	0 39	35 00	31 09
1600.00	0 98	41 86	1599.49	31.15	31 15	19.46	0.30	36.73	31 99
1700.00	0.71	29 73	1699.48	32.33	32 33	20.34	0.32	38 20	32 17
1800.00	0 36	12.90	1799.47	33.18	33 18	20.72	0 38	39.12	31.98
1900.00	0.30	310 90	1899.47	33.66	33.66	20.59	0.34	39.46	31 46
2000.00	0.55	283 07	1999.47	33.94	33 94	19.93	0.32	39 36	30.42
2100.00	0.86	279 22	2099.46	34.17	34.17	18 71	0 31	38 96	28 70
2200.00	1 10	274 24	2199.44	34 36	34.36	17 01	0 25	38 34	26 33
2300.00	1 46	267.88	2299.42	34 38	34.38	14.77	0.39	37 42	23.25
2400.00	1 65	262 16	2399.38	34 14	34.14	12 07	0 24	36.21	19 47
2500.00	1.69	260 18	2499.34	33 69	33.69	9 18	0 07	34.92	15.25
2600.00	1 60	266 48	2599.30	33.35	33 35	6.33	0 20	33.95	10 75
2700.00	1.61	260 46	2699.26	33 04	33.04	3.56	0.17	33 23	6.14
2800.00	1 53	261.32	2799.22	32.60	32.60	0 85	0 08	32.61	1.50
2900.00	1 42	261 60	2899.19	32 22	32 22	-1 69	0.11	32.26	357 00
3000.00	1 29	264.54	2999.16	31 93	31.93	-4 03	0 15	32.19	352.81
3100.00	1.33	273 74	3099.13	31 90	31.90	-6 30	0.21	32 52	348.83
3200.00	1 38	271 23	3199.11	32.00	32 00	-8 66	0.08	33 16	344.85
3300.00	1 57	269 76	3299.07	32.02	32.02	-11.24	0.19	33 94	340.66
3400.00	1 84	264 35	3399.03	31.86	31.86	-14 20	0 31	34 88	335.97
3500.00	1.92	263 91	3498.98	31.53	31.53	-17 46	0 08	36 04	331.02
3600.00	1 77	270.20	3598.92	31 35	31 35	-20 67	0 25	37.55	326 61
3700.00	1.82	270 74	3698.87	31.38	31.38	-23 80	0 06	39 38	322.82
3800.00	1.69	270 60	3798.83	31.42	31.42	-26.87	0 13	41.34	319.46



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MD ft	Inc deg	Azim deg	TVD ft	VS ft	Northing ft	Easting ft	DLS deg/100ft	Closure Distance ft	Closure Angle deg
3900.00	1.68	267.86	3898.78	31.38	31.38	-29.81	0.08	43.28	316.47
4000.00	1.58	267.83	3998.74	31.27	31.27	-32.66	0.10	45.21	313.76
4100.00	1.39	269.45	4098.71	31.20	31.20	-35.25	0.20	47.08	311.52
4200.00	1.29	262.73	4198.68	31.05	31.05	-37.58	0.18	48.75	309.57
4300.00	1.41	270.37	4298.66	30.92	30.92	-39.92	0.21	50.49	307.75
4400.00	1.50	267.10	4398.62	30.86	30.86	-42.45	0.12	52.48	306.01
4500.00	1.62	275.71	4498.59	30.93	30.93	-45.16	0.26	54.74	304.41
4600.00	1.55	277.93	4598.55	31.26	31.26	-47.91	0.09	57.21	303.12
4700.00	1.56	278.96	4698.51	31.66	31.66	-50.60	0.03	59.69	302.03
4800.00	1.43	282.20	4798.48	32.14	32.14	-53.16	0.15	62.12	301.15
4900.00	1.53	278.31	4898.44	32.59	32.59	-55.70	0.14	64.54	300.33
5000.00	1.94	292.19	4998.40	33.42	33.42	-58.59	0.59	67.45	299.70
5100.00	1.38	287.11	5098.36	34.42	34.42	-61.30	0.58	70.30	299.31
5200.00	1.38	278.01	5198.33	34.94	34.94	-63.64	0.22	72.60	298.77
5300.00	1.53	274.48	5298.30	35.21	35.21	-66.16	0.18	74.95	298.02
5400.00	1.77	272.75	5398.25	35.39	35.39	-69.04	0.24	77.58	297.14
5500.00	1.76	272.70	5498.21	35.53	35.53	-72.13	0.01	80.40	296.23
5600.00	1.33	280.83	5598.17	35.83	35.83	-74.80	0.48	82.94	295.59
5700.00	1.47	290.44	5698.14	36.49	36.49	-77.15	0.27	85.35	295.31
5800.00	1.70	297.20	5798.10	37.62	37.62	-79.67	0.29	88.11	295.28
5900.00	2.03	286.34	5898.05	38.79	38.79	-82.68	0.48	91.33	295.13
6000.00	1.76	285.83	5997.99	39.71	39.71	-85.85	0.27	94.59	294.82
6050.00	1.48	278.92	6047.97	40.02	40.02	-87.23	0.67	95.97	294.64