



Scientific Drilling

Gyroscopic Survey Report for COG OPERATING

Well Location	EDDY COUNTY, NEW MEXICO
Well Name	SHAWNEE FEDERAL #1
Rig Name	P/U
Survey Date	9/7/2011
Latitude	32.83 deg
North Reference	Grid North
Grid Correction	-0.20 deg
Depth Reference	RKB
Calculation Method	Minimum Curvature
Section (VS) Ref	0.00N (ft), 0.00E (ft), 0.00Azim (deg)
Definitive Survey	FINAL GYRO SURVEY
Operator	FRANK RENTERIA

Comments

12 FOOT KB





Survey Report

Well Name:		SHAWNEE FEDERAL #1							
Survey:		FINAL GYRO SURVEY							
Survey Date:		9/7/2011							
MD	Inc	Azim	TVD	VS	Northing	Easting	DLS	Closure Distance	Closure Angle
ft	deg	deg	ft	ft	ft	ft	deg/100ft	ft	deg
0 00	0.00	0 00	0.00	0.00	0 00	0 00	Invalid	0.00	0.00
100.00	0.91	15.59	100 00	0.77	0 77	0.21	0.91	0 80	15.59
200 00	0.37	348 01	199 99	1.85	1.85	0.36	0 61	1.89	11.09
300.00	0.39	342 39	299 99	2.48	2 48	0.19	0 04	2.49	4 48
400.00	0.46	347.66	399.98	3 20	3 20	0.01	0.08	3.20	0 13
500.00	0.46	338 25	499 98	3 96	3.96	-0 23	0 08	3.97	356.71
600.00	0.73	12.98	599 98	4 95	4.95	-0.23	0 44	4.96	357.31
700.00	0.85	15 16	699 97	6.29	6.29	0.10	0 13	6.29	0.95
800.00	1.04	21 83	799 95	7.85	7.85	0.64	0 22	7 88	4 63
900.00	1.41	37.44	899.93	9.67	9.67	1.72	0 50	9.82	10.10
1000.00	1 55	41.76	999.90	11.66	11.66	3 37	0 18	12 14	16 13
1100.00	1 47	41 05	1099.86	13.64	13 64	5.12	0 08	14.56	20 57
1200.00	1.09	53.30	1199 84	15.17	15.17	6 72	0 47	16 59	23.89
1300.00	0.91	70 41	1299 82	16.00	16 00	8.23	0.34	17.99	27 20
1400 00	0.79	79 94	1399.81	16.39	16.39	9.65	0 18	19 02	30 50
1500 00	0.62	126.11	1499 80	16 19	16.19	10 77	0.58	19 45	33.63
1600 00	0.67	153.12	1599 80	15.35	15.35	11 47	0 31	19 16	36.76
1700 00	0 64	177.37	1699.79	14.28	14 28	11.76	0 28	18 50	39 48
1800 00	0 62	187 34	1799.79	13.19	13 19	11.72	0 11	17 64	41 61
1900 00	0 46	214.15	1899 78	12.33	12 33	11.42	0 29	16 81	42 82
2000.00	0.41	217 53	1999.78	11.71	11.71	10 98	0.05	16.05	43.16
2100 00	0 40	222 28	2099.78	11 16	11.16	10 52	0.04	15 34	43 31
2200.00	0 44	225 03	2199 77	10.63	10.63	10 02	0.04	14.61	43 29
2300.00	0.47	245.35	2299 77	10.19	10.19	9 37	0.16	13 84	42.60
2400.00	0.52	247.65	2399 77	9.85	9 85	8 58	0.05	13 06	41 06
2500 00	0 50	257.71	2499.76	9.58	9.58	7.73	0.09	12.31	38 89
2600 00	0 55	264 70	2599.76	9 44	9 44	6.82	0.08	11.65	35 83
2700.00	0.66	260 77	2699.75	9.30	9 30	5.77	0 12	10 95	31.79
2800.00	0.71	265 76	2799.75	9.17	9.17	4.58	0.08	10.25	26.56
2900.00	0.72	269.55	2899 74	9.12	9 12	3.34	0.05	9.71	20.10
3000.00	0.71	271 17	2999 73	9.12	9 12	2.09	0 02	9 36	12.89
3100.00	0.52	292 49	3099.72	9.31	9 31	1.05	0 29	9 37	6.43
3200.00	0 58	295 87	3199.72	9 71	9.71	0 17	0 07	9.71	1 02
3300.00	0.56	298.81	3299 71	10.16	10 16	-0.72	0 04	10 19	355.97
3400.00	0 52	285.31	3399.71	10.52	10 52	-1 59	0 13	10.64	351.42
3500.00	0.49	260.20	3499 71	10.57	10.57	-2.45	0 22	10 85	346 95
3600.00	0.61	237 66	3599 70	10 21	10 21	-3.32	0 25	10 74	341.97
3700 00	0 54	233 67	3699.70	9 64	9 64	-4.16	0.08	10 50	336.69
3800.00	0.61	223.54	3799 69	8 98	8.98	-4 91	0.13	10 23	331 34



Survey Report

Well Name: SHAWNEE FEDERAL #1

Survey: FINAL GYRO SURVEY

Survey Date: 9/7/2011

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	0.63	224.70	3899.69	8.20	8.20	-5.66	0.02	9.96	325.36
4000.00	0.67	215.53	3999.68	7.33	7.33	-6.39	0.11	9.72	318.94
4100.00	0.79	220.20	4099.67	6.33	6.33	-7.17	0.14	9.57	311.45
4200.00	0.81	223.08	4199.66	5.29	5.29	-8.10	0.04	9.67	303.16
4300.00	0.94	216.87	4299.65	4.12	4.12	-9.07	0.16	9.96	294.45
4400.00	1.10	209.33	4399.63	2.63	2.63	-10.03	0.21	10.37	284.69
4500.00	1.13	201.29	4499.62	0.87	0.87	-10.86	0.16	10.89	274.59
4600.00	0.75	186.25	4599.60	-0.70	-0.70	-11.29	0.45	11.31	266.46
4700.00	0.43	175.29	4699.60	-1.72	-1.72	-11.33	0.34	11.46	261.35
4800.00	0.60	197.93	4799.59	-2.60	-2.60	-11.46	0.27	11.75	257.23
4900.00	0.70	199.48	4899.59	-3.68	-3.68	-11.83	0.10	12.39	252.73
5000.00	0.74	204.70	4999.58	-4.84	-4.84	-12.30	0.08	13.22	248.53
5100.00	0.52	207.38	5099.57	-5.83	-5.83	-12.78	0.22	14.05	245.48
5200.00	0.86	240.09	5199.56	-6.61	-6.61	-13.64	0.51	15.16	244.15
5300.00	1.23	250.99	5299.55	-7.33	-7.33	-15.30	0.42	16.97	244.40
5400.00	1.20	265.41	5399.53	-7.76	-7.76	-17.35	0.31	19.01	245.90
5500.00	1.11	247.84	5499.51	-8.21	-8.21	-19.29	0.36	20.97	246.94
5600.00	1.67	234.67	5599.48	-9.42	-9.42	-21.38	0.64	23.37	246.21
5700.00	1.64	228.70	5699.43	-11.21	-11.21	-23.65	0.18	26.17	244.63
5800.00	1.64	228.73	5799.39	-13.10	-13.10	-25.80	0.00	28.94	243.08
5900.00	1.45	223.06	5899.36	-14.97	-14.97	-27.74	0.25	31.52	241.65
6000.00	1.61	232.70	5999.32	-16.74	-16.74	-29.72	0.30	34.11	240.60
6068.00	1.80	237.67	6067.29	-17.89	-17.89	-31.38	0.36	36.12	240.31