

Scientific Drilling

Keeper Gyro Survey

Company: E.O.G. Resources	Date: 2005-07-27	Time: 14:48:23	Page: 1
Field: Holly 8A Fed Com #1	Co-ordinate(NE) Reference:	Well: Holly 8A Fed Com #1, True North	
Site: Eddy County, NM	Vertical (TVD) Reference:	SITE: 0.0	
Well: Holly 8A Fed Com #1	Section (VS) Reference:	Well: (0.00N,0.00E,12.48Azi)	
Wellpath: 1	Survey Calculation Method:	Minimum Curvature	Db: Sybase

Survey: Gyro	Start Date: 2005-07-27
Company: Scientific Drilling	Engineer: Oscar Gomez
Tool: Keeper;Keeper Standard Rate Gyro	Tied-to: From Surface

Survey

MD ft	Incl deg	Azim deg	TVD ft	N/S ft	E/W ft	VS ft	DLS deg/100ft	Build deg/100ft	Turn deg/100ft	ClsA deg	ClsD ft	
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	Keeper
100.00	0.53	354.28	100.00	0.46	-0.05	0.44	0.53	0.53	0.00	354.28	0.46	Keeper
200.00	0.53	352.88	199.99	1.38	-0.15	1.31	0.01	0.00	-1.40	353.81	1.39	Keeper
300.00	0.40	9.17	299.99	2.18	-0.15	2.10	0.18	-0.13	16.29	356.04	2.19	Keeper
400.00	0.37	333.54	399.99	2.82	-0.24	2.70	0.24	-0.03	-35.63	355.14	2.83	Keeper
500.00	0.57	305.77	499.99	3.40	-0.79	3.15	0.30	0.20	-27.77	346.96	3.49	Keeper
600.00	0.59	303.81	599.98	3.97	-1.62	3.53	0.03	0.02	-1.96	337.84	4.29	Keeper
700.00	0.69	311.87	699.97	4.66	-2.49	4.01	0.13	0.10	8.06	331.85	5.29	Keeper
800.00	0.71	313.42	799.97	5.49	-3.39	4.63	0.03	0.02	1.55	328.28	6.45	Keeper
900.00	0.73	318.03	899.96	6.39	-4.27	5.32	0.06	0.02	4.61	326.25	7.68	Keeper
1000.00	0.71	333.89	999.95	7.42	-4.97	6.17	0.20	-0.02	15.86	326.20	8.93	Keeper
1100.00	0.82	15.32	1099.94	8.67	-5.05	7.37	0.55	0.11	41.43	329.76	10.03	Keeper
1200.00	0.97	36.37	1199.93	10.04	-4.36	8.86	0.36	0.15	21.05	336.52	10.94	Keeper
1300.00	0.97	35.57	1299.92	11.41	-3.37	10.41	0.01	0.00	-0.80	343.56	11.89	Keeper
1400.00	0.83	31.12	1399.90	12.72	-2.50	11.88	0.16	-0.14	-4.45	348.88	12.96	Keeper
1500.00	0.78	6.57	1499.89	14.01	-2.05	13.24	0.35	-0.05	-24.55	351.69	14.16	Keeper
1600.00	0.80	355.32	1599.89	15.38	-2.03	14.58	0.16	0.02	-11.25	352.50	15.52	Keeper
1700.00	0.88	355.66	1699.87	16.85	-2.14	15.98	0.08	0.08	0.34	352.76	16.98	Keeper
1800.00	0.87	346.00	1799.86	18.35	-2.38	17.40	0.15	-0.01	-9.66	352.60	18.50	Keeper
1900.00	0.95	348.14	1899.85	19.90	-2.74	18.83	0.09	0.08	2.14	352.17	20.08	Keeper
2000.00	0.93	346.40	1999.84	21.50	-3.10	20.32	0.03	-0.02	-1.74	351.80	21.72	Keeper
2100.00	0.93	340.89	2099.82	23.05	-3.55	21.74	0.09	0.00	-5.51	351.23	23.32	Keeper
2200.00	0.94	318.66	2199.81	24.43	-4.36	22.91	0.36	0.01	-22.23	349.88	24.82	Keeper
2300.00	0.97	324.68	2299.80	25.74	-5.39	23.97	0.10	0.03	6.02	348.17	26.30	Keeper
2400.00	1.13	325.05	2399.78	27.24	-6.45	25.20	0.16	0.16	0.37	346.68	27.99	Keeper
2500.00	1.09	325.31	2499.76	28.83	-7.55	26.52	0.04	-0.04	0.26	345.32	29.80	Keeper
2600.00	0.96	320.31	2599.75	30.26	-8.63	27.68	0.16	-0.13	-5.00	344.08	31.46	Keeper
2700.00	0.97	313.24	2699.73	31.48	-9.78	28.62	0.12	0.01	-7.07	342.74	32.97	Keeper
2800.00	1.05	315.53	2799.72	32.71	-11.04	29.56	0.09	0.08	2.29	341.35	34.53	Keeper
2900.00	1.09	324.51	2899.70	34.14	-12.23	30.69	0.17	0.04	8.98	340.29	36.27	Keeper
3000.00	0.84	314.74	2999.68	35.43	-13.31	31.72	0.30	-0.25	-9.77	339.42	37.85	Keeper
3100.00	0.80	318.78	3099.67	36.47	-14.29	32.52	0.07	-0.04	4.04	338.61	39.17	Keeper
3200.00	0.83	312.32	3199.66	37.49	-15.28	33.30	0.10	0.03	-6.46	337.82	40.48	Keeper
3300.00	0.81	306.36	3299.65	38.39	-16.39	33.94	0.09	-0.02	-5.96	336.89	41.75	Keeper
3400.00	0.54	314.00	3399.65	39.14	-17.30	34.48	0.28	-0.27	7.64	336.16	42.79	Keeper
3500.00	0.33	341.70	3499.64	39.74	-17.73	34.97	0.29	-0.21	27.70	335.96	43.52	Keeper
3600.00	0.43	23.18	3599.64	40.36	-17.67	35.59	0.28	0.10	41.48	336.36	44.06	Keeper
3700.00	0.49	34.67	3699.64	41.06	-17.28	36.35	0.11	0.06	11.49	337.18	44.54	Keeper
3800.00	0.54	38.01	3799.63	41.78	-16.74	37.17	0.06	0.05	3.34	338.16	45.01	Keeper
3900.00	0.98	46.72	3899.63	42.74	-15.83	38.31	0.45	0.44	8.71	339.67	45.57	Keeper
4000.00	1.17	40.68	3999.61	44.10	-14.54	39.91	0.22	0.19	-6.04	341.75	46.43	Keeper
4100.00	1.05	38.30	4099.59	45.59	-13.31	41.64	0.13	-0.12	-2.38	343.73	47.49	Keeper
4200.00	0.91	48.64	4199.57	46.83	-12.15	43.10	0.23	-0.14	10.34	345.46	48.38	Keeper
4300.00	1.06	48.96	4299.56	47.97	-10.85	44.49	0.15	0.15	0.32	347.25	49.18	Keeper
4400.00	0.88	53.55	4399.55	49.03	-9.54	45.81	0.20	-0.18	4.59	348.99	49.95	Keeper
4500.00	1.02	57.71	4499.53	49.96	-8.17	47.02	0.16	0.14	4.16	350.72	50.62	Keeper
4600.00	1.06	50.77	4599.51	51.02	-6.70	48.37	0.13	0.04	-6.94	352.52	51.46	Keeper
4700.00	0.99	55.67	4699.50	52.09	-5.27	49.72	0.11	-0.07	4.90	354.23	52.36	Keeper
4800.00	1.08	66.24	4799.48	52.96	-3.69	50.91	0.21	0.09	10.57	356.01	53.09	Keeper



Scientific Drilling

Keeper Gyro Survey

Company: E.O.G. Resources
 Field: Holly 8A Fed Com #1
 Site: Eddy County, NM
 Well: Holly 8A Fed Com #1
 Wellpath: 1

Date: 2005-07-27 Time: 14:48:23 Page: 2
 Co-ordinate(NE) Reference: Well: Holly 8A Fed Com #1, True North
 Vertical (TVD) Reference: SITE 0.0
 Section (VS) Reference: Well (0.00N,0.00E,12.48Azi)
 Survey Calculation Method: Minimum Curvature Db: Sybase

Survey

MD ft	Incl deg	Azlm deg	TVD ft	N/S ft	E/W ft	VS ft	DLS deg/100ft	Build deg/100ft	Turn deg/100ft	ClsA deg	ClsD ft	
4900.00	1.12	67.70	4899.46	53.71	-1.93	52.03	0.05	0.04	1.46	357.95	53.75	Keeper
5000.00	1.15	78.08	4999.44	54.29	-0.04	53.00	0.21	0.03	10.38	359.96	54.29	Keeper
5100.00	1.08	73.25	5099.43	54.77	1.85	53.87	0.12	-0.07	-4.83	1.93	54.80	Keeper
5200.00	1.04	70.71	5199.41	55.34	3.60	54.81	0.06	-0.04	-2.54	3.73	55.46	Keeper
5300.00	1.05	69.53	5299.39	55.96	5.32	55.79	0.02	0.01	-1.18	5.43	56.21	Keeper
5400.00	1.02	69.85	5399.38	56.59	7.01	56.77	0.03	-0.03	0.32	7.06	57.02	Keeper
5500.00	0.84	86.07	5499.36	56.94	8.58	57.45	0.32	-0.18	16.22	8.57	57.59	Keeper
5600.00	0.87	95.15	5599.35	56.93	10.07	57.76	0.14	0.03	9.08	10.03	57.81	Keeper
5700.00	1.20	109.10	5699.34	56.52	11.81	57.73	0.41	0.33	13.95	11.81	57.74	Keeper
5800.00	1.28	113.66	5799.31	55.72	13.83	57.40	0.13	0.08	4.56	13.93	57.41	Keeper
5900.00	1.69	140.20	5899.28	54.14	15.79	56.28	0.79	0.41	26.54	16.26	56.40	Keeper
6000.00	1.95	148.78	5999.23	51.56	17.62	54.15	0.38	0.26	8.58	18.87	54.48	Keeper
6100.00	2.04	162.37	6099.17	48.40	19.04	51.38	0.48	0.09	13.59	21.47	52.01	Keeper
6200.00	1.64	176.59	6199.12	45.28	19.66	48.46	0.60	-0.40	14.22	23.47	49.37	Keeper
6300.00	1.52	204.81	6299.08	42.65	19.19	45.79	0.78	-0.12	28.22	24.23	46.77	Keeper
6400.00	1.00	210.36	6399.06	40.69	18.19	43.66	0.53	-0.52	5.55	24.09	44.57	Keeper
6500.00	0.31	237.90	6499.05	39.79	17.52	42.64	0.74	-0.69	27.54	23.77	43.48	Keeper
6600.00	0.69	346.90	6599.05	40.24	17.16	42.99	0.84	0.38	109.00	23.10	43.74	Keeper
6700.00	0.69	355.08	6699.04	41.42	16.97	44.11	0.10	0.00	8.18	22.28	44.76	Keeper
6800.00	0.73	354.67	6799.03	42.66	16.86	45.29	0.04	0.04	-0.41	21.57	45.87	Keeper
6900.00	1.04	2.20	6899.02	44.20	16.84	46.79	0.33	0.31	7.53	20.85	47.30	Keeper
7000.00	1.14	2.54	6999.00	46.10	16.91	48.66	0.10	0.10	0.34	20.15	49.10	Keeper
7100.00	1.17	357.13	7098.98	48.11	16.91	50.63	0.11	0.03	-5.41	19.36	51.00	Keeper
7200.00	1.16	355.27	7198.96	50.14	16.77	52.58	0.04	-0.01	-1.86	18.50	52.87	Keeper
7300.00	1.11	352.34	7298.94	52.11	16.56	54.46	0.08	-0.05	-2.93	17.63	54.68	Keeper
7400.00	1.11	0.07	7398.92	54.04	16.43	56.31	0.15	0.00	7.73	16.91	56.48	Keeper
7500.00	0.99	2.90	7498.91	55.87	16.48	58.11	0.13	-0.12	2.83	16.43	58.25	Keeper
7600.00	0.91	347.65	7598.89	57.51	16.35	59.68	0.26	-0.08	-15.25	15.87	59.79	Keeper
7700.00	0.82	330.04	7698.88	58.90	15.82	60.93	0.28	-0.09	-17.61	15.04	60.99	Keeper
7800.00	0.66	326.46	7798.87	60.00	15.15	61.86	0.17	-0.16	-3.58	14.17	61.89	Keeper
7900.00	0.77	319.32	7898.87	60.99	14.39	62.66	0.14	0.11	-7.14	13.28	62.67	Keeper
8000.00	0.40	300.73	7998.86	61.68	13.65	63.17	0.41	-0.37	-18.59	12.48	63.17	Keeper



Survey Report

INTEQ

MINI CURVATURE CALCULATIONS (SPE-3382)

OPERATOR: EOG Resources
WELL: Holly 8A Fed Com #1H RE
LOCATION: Eddy County NM

START: 9/23/2005
FINISH:
JOB #: 981502

Revised Well Plan 9-23

PROPOSED DIRECTION: 6.11
Magnetic to Grid 8.59

STATION NUMBER	SURVEY DEPTH	INC	AZMTH	TVD	N-S	E-W	VERT. SECTION	DLS/ 100
Tie	8269	95.90	5.80	7925.39	563.09	70.92	567.44	0.00
MWD	8300	94.80	5.40	7922.50	593.81	73.93	598.30	3.77
MWD	8332	94.00	5.40	7920.04	625.57	76.93	630.21	2.50
MWD	8364	93.00	5.40	7918.09	657.37	79.94	662.14	3.13
MWD	8394	92.50	5.40	7916.65	687.20	82.76	692.11	1.67
MWD	8426	92.00	5.80	7915.40	719.02	85.88	724.08	2.00
MWD	8458	90.10	6.80	7914.81	750.82	89.39	756.07	6.71
MWD	8490	90.60	7.90	7914.61	782.56	93.48	788.06	3.78
MWD	8521	90.30	8.20	7914.37	813.25	97.83	819.05	1.37
MWD	8553	89.70	8.90	7914.37	844.90	102.58	851.02	2.88
MWD	8582	89.80	8.90	7914.55	873.55	107.07	879.98	0.34
MWD	8613	89.10	8.90	7914.90	904.17	111.87	910.94	1.61
MWD	8645	88.60	8.90	7915.54	935.78	116.82	942.90	1.56
MWD	8676	88.00	8.90	7916.46	966.39	121.61	973.85	1.94
MWD	8708	87.40	8.90	7917.75	997.98	126.56	1005.78	1.88
MWD	8739	87.00	7.50	7919.26	1028.63	130.97	1036.73	4.89
MWD	8771	87.30	6.50	7920.85	1060.35	134.87	1068.68	3.26
MWD	8802	87.50	6.10	7922.26	1091.13	138.27	1099.65	1.44
MWD	8833	87.60	5.10	7923.58	1121.95	141.29	1130.62	3.24
MWD	8865	87.30	5.10	7925.01	1153.80	144.13	1162.58	0.94
MWD	8897	86.50	4.40	7926.74	1185.64	146.78	1194.53	3.32
MWD	8927	85.30	3.00	7928.88	1215.50	148.71	1224.42	6.14
MWD	8959	82.60	1.60	7932.25	1247.29	149.98	1256.17	9.49
Bit Proj	9019	79.00	1.60	7941.85	1306.49	151.64	1315.20	6.00

Pathfinder

Survey Report

Page 1
Job No: J-WT-0509-0162-WT-WT
Date: 10/4/2005
Time: 1:35 pm
Wellpath ID: 05090162
Date Created: 9/30/2005
Last Revision: 10/4/2005

Calculated using the Minimum Curvature Method
Computed using PDS VER2.2.6
Vertical Section Plane: 6.10 deg.

Survey Reference: WELLHEAD
Vertical Section Reference: WELLHEAD
Closure Reference: WELLHEAD
TVD Reference: WELLHEAD

EOG RESOURCES
HOLLY 8-A FED. #1-H
EDDY CO. NM
RIG: KEY #92

DECL: 8.31° EAST TO GRID
KBH = 12' ROTARY TO GROUND

PATHFINDER OFFICE SUPERVISOR
CODY MEBANE
PATHFINDER FIELD ENGINEERS
MARTY SCHMIDT / MEL THOMAS

Measured Depth (ft)	Incl (deg.)	Drift Dir. (deg.)	TVD (ft)	Course Length (ft)	Vertical Section (ft)	TOTAL Rectangular Offsets (ft) (ft)		Closure Dist. Dir. (ft) (deg.)		DLS (dg/100ft)
TIED INTO BAKER HUGHES MWD SURVEY.										
8959.00	82.80	1.60	7932.25	0.00	1258.17	1247.29 N	149.98 E	1256.27	8.86	0.00
THE FOLLOWING ARE PATHFINDER LWD SURVEYS.										
8971.00	81.25	359.26	7933.94	12.00	1267.99	1259.17 N	150.07 E	1268.08	8.80	22.34
8980.00	80.81	358.91	7935.34	9.00	1276.81	1268.06 N	149.93 E	1276.89	8.74	6.22
9012.00	79.05	357.67	7940.93	32.00	1308.02	1299.55 N	148.99 E	1308.06	8.54	6.69
9043.00	81.07	357.32	7946.29	31.00	1338.21	1330.05 N	147.85 E	1338.22	8.33	6.61
9074.00	82.57	357.32	7950.70	31.00	1368.54	1360.70 N	146.22 E	1368.54	8.13	4.84
9107.00	84.33	357.50	7954.46	33.00	1400.94	1393.45 N	144.74 E	1400.96	5.93	5.38
9138.00	86.53	357.41	7958.93	31.00	1431.49	1424.32 N	143.37 E	1431.52	5.75	7.10
9170.00	88.37	357.85	7968.35	32.00	1463.11	1456.26 N	142.04 E	1463.17	5.57	5.91
9201.00	90.57	359.52	7968.64	31.00	1493.85	1487.25 N	141.33 E	1493.85	5.43	8.91
9233.00	92.07	0.05	7967.90	32.00	1525.64	1519.24 N	141.21 E	1525.75	5.31	4.97
9284.00	93.39	0.31	7966.43	31.00	1556.44	1550.20 N	141.31 E	1556.63	5.21	4.34
9296.00	94.44	0.58	7954.24	32.00	1588.21	1582.13 N	141.56 E	1588.45	5.11	3.39
9328.00	94.70	0.58	7951.69	32.00	1619.96	1614.02 N	141.88 E	1620.25	5.02	0.81
9391.00	93.39	1.81	7947.25	63.00	1682.57	1676.85 N	143.19 E	1682.85	4.88	2.85
9422.00	93.21	1.63	7946.46	31.00	1713.43	1707.79 N	144.12 E	1713.86	4.82	0.82
9454.00	93.47	1.19	7943.60	32.00	1745.27	1739.72 N	144.91 E	1745.75	4.76	1.60
9517.00	93.30	2.33	7939.88	63.00	1807.98	1802.58 N	146.84 E	1808.56	4.66	1.83
9580.00	92.86	3.48	7936.49	63.00	1870.79	1865.41 N	150.03 E	1871.43	4.60	1.95
9643.00	91.01	4.82	7934.37	63.00	1933.71	1928.21 N	154.47 E	1934.36	4.58	3.45
9706.00	90.31	5.41	7933.64	63.00	1996.89	1990.98 N	159.98 E	1997.38	4.59	1.68
9769.00	90.22	5.87	7933.35	63.00	2059.69	2053.67 N	166.08 E	2060.37	4.62	0.44
9832.00	90.75	4.79	7932.82	63.00	2122.68	2116.40 N	171.80 E	2123.37	4.64	1.63
9895.00	89.25	5.94	7932.82	63.00	2185.67	2179.13 N	177.69 E	2186.36	4.66	3.00
9957.00	89.25	6.11	7933.63	62.00	2247.66	2240.78 N	184.20 E	2248.34	4.70	0.27
10020.00	89.16	6.46	7934.50	63.00	2310.66	2303.39 N	191.10 E	2311.31	4.74	0.57
10084.00	89.16	6.55	7935.44	64.00	2374.65	2366.97 N	198.35 E	2375.27	4.79	0.14

Pathfinder **Survey Report**

Page 2
Date: 10/4/2005
Wellpath ID: 05090162

Measured Depth (ft)	Incl (deg.)	Drift Dir. (deg.)	TVD (ft)	Course Length (ft)	Vertical Section (ft)	TOTAL Rectangular Offsets (ft)		Closure Dist. (ft)	Dir. (deg.)	DLS (dg/100ft)
10145.00	89.96	7.70	7935.91	61.00	2435.64	2427.50 N	205.91 E	2436.22@	4.85	2.30
10208.00	90.68	7.17	7935.57	63.00	2498.62	2489.97 N	214.07 E	2499.15@	4.91	1.39
10272.00	90.92	6.29	7934.69	64.00	2562.61	2553.52 N	221.57 E	2563.11@	4.96	1.43
10334.00	90.04	6.82	7934.17	62.00	2624.60	2616.11 N	228.64 E	2626.06@	5.00	1.66
10398.00	90.60	6.90	7933.82	62.00	2686.69	2676.67 N	238.05 E	2687.05@	5.04	0.91
10458.00	90.48	6.73	7933.23	63.00	2749.69	2739.22 N	243.52 E	2750.02@	5.08	0.33
10522.00	90.64	6.64	7932.60	63.00	2812.58	2801.79 N	250.86 E	2812.96@	5.12	0.59
10585.00	91.10	6.73	7931.43	63.00	2875.57	2864.35 N	258.19 E	2875.96@	5.15	0.44
STRAIGHT LINE PROJECTION TO BIT										
10638.00	91.10	6.73	7930.46	51.00	2926.55	2914.99 N	264.17 E	2926.93@	5.18	0.00