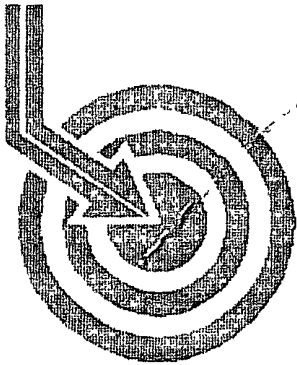


MAR 16 2009



Scientific Drilling

API # 30-015-36272

COG RESOURCES

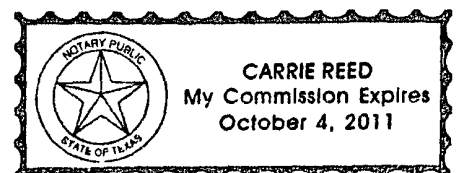
Field: Loco Hills
Site: Eddy County, NM
Well: Electra Federal #24
Wellpath: VH - Job #32K1008771
Survey: 10/02/08

This survey is correct to the best of my knowledge
and is supported by actual field data.

.....*Richards*..... Company Representative

Notorized this date 23rd of November, 2008.

Carrie Reed
Notary Signature
County of Midland
State of Texas





Scientific Drilling International Survey Report

Company: COG RESOURCES
Field: Loco Hills
Site: Eddy County, NM
Well: Electra Federal #24
Wellpath: VH - Job #32K1008771

Date: 11/26/2008
Co-ordinate(NE) Reference: Site: Eddy County, NM, Grnd North
Vertical (TVD) Reference: SITE 00
Section (VS) Reference: Well (0.00N,0.00E,90.29Azi)
Survey Calculation Method: Minimum Curvature
Db: Sybase

Survey: 10/02/08
Start Date: 10/02/2008
Company: Scientific Drilling International
Engineer: Garza w/GeoGyro
Tool: Keeper;Keeper Gyro
Tied-to: From Surface

Survey

MD ft	Incl deg	Azim deg	TVD ft	VS ft	N/S ft	E/W ft	DLS deg/100ft	ClsD ft	ClsA deg
0.00	0.00	0.20	0.00	0.00	0.00	0.00	0.00	0.00	0.00
100.00	0.39	270.44	100.00	-0.34	0.00	-0.34	0.39	0.34	270.44
200.00	0.41	285.65	200.00	-1.03	0.10	-1.03	0.11	1.03	275.67
300.00	0.83	240.34	299.99	-2.00	-0.16	-2.00	0.62	2.01	265.42
400.00	1.20	226.23	399.98	-3.38	-1.24	-3.38	0.44	3.61	249.84
500.00	1.42	226.87	499.95	-5.03	-2.81	-5.05	0.22	5.78	240.85
600.00	0.81	227.14	599.93	-6.45	-4.14	-6.47	0.61	7.68	237.36
700.00	0.38	218.05	699.92	-7.17	-4.88	-7.19	0.44	8.69	235.81
800.00	0.35	203.27	799.92	-7.49	-5.43	-7.52	0.10	9.27	234.17
900.00	0.47	77.78	899.92	-7.21	-5.62	-7.23	0.73	9.16	232.16
1000.00	1.33	64.09	999.91	-5.76	-5.03	-5.79	0.88	7.67	229.04
1100.00	1.40	66.59	1099.88	-3.60	-4.03	-3.63	0.09	5.42	221.95
1200.00	1.35	63.98	1199.85	-1.43	-3.03	-1.45	0.08	3.36	205.50
1300.00	0.94	63.93	1299.83	0.36	-2.15	0.35	0.41	2.18	170.77
1400.00	0.58	61.00	1399.82	1.54	-1.55	1.53	0.36	2.18	135.35
1500.00	0.53	62.34	1499.82	2.39	-1.09	2.38	0.05	2.62	114.55
1600.00	0.54	57.91	1599.81	3.19	-0.62	3.19	0.04	3.25	101.05
1700.00	0.45	53.28	1699.81	3.91	-0.14	3.90	0.10	3.91	92.02
1800.00	0.20	348.84	1799.81	4.18	0.27	4.19	0.41	4.19	86.33
1900.00	0.28	345.73	1899.81	4.09	0.68	4.09	0.08	4.15	80.61
2000.00	0.16	300.45	1999.81	3.91	0.98	3.91	0.20	4.03	75.88
2100.00	0.27	304.54	2099.81	3.59	1.19	3.60	0.11	3.79	71.72
2200.00	0.44	298.50	2199.80	3.06	1.50	3.07	0.17	3.41	63.85
2300.00	0.45	297.09	2299.80	2.37	1.87	2.38	0.01	3.02	51.86
2400.00	0.70	293.68	2399.79	1.46	2.29	1.47	0.25	2.72	32.66
2500.00	0.77	287.49	2499.79	0.25	2.74	0.27	0.11	2.75	5.60
2600.00	0.81	289.45	2599.78	-1.05	3.18	-1.04	0.05	3.34	341.89
2700.00	0.79	292.94	2699.77	-2.36	3.68	-2.34	0.05	4.36	327.55
2800.00	0.71	298.71	2799.76	-3.54	4.25	-3.52	0.11	5.51	320.36
2900.00	0.72	293.75	2899.75	-4.66	4.80	-4.64	0.06	6.67	315.97
3000.00	0.76	294.24	2999.74	-5.84	5.32	-5.82	0.04	7.88	312.46
3100.00	0.73	293.17	3099.73	-7.04	5.85	-7.01	0.03	9.12	309.83
3200.00	0.67	289.71	3199.73	-8.17	6.29	-8.14	0.07	10.29	307.70
3300.00	0.52	288.02	3299.72	-9.16	6.63	-9.13	0.15	11.28	306.00
3400.00	0.54	283.88	3399.72	-10.05	6.88	-10.01	0.04	12.15	304.51
3500.00	0.28	251.13	3499.71	-10.74	6.92	-10.70	0.34	12.74	302.88
3600.00	0.22	217.61	3599.71	-11.08	6.69	-11.05	0.16	12.92	301.18
3700.00	0.35	194.08	3699.71	-11.27	6.24	-11.24	0.17	12.86	299.03
3800.00	0.32	202.77	3799.71	-11.45	5.68	-11.42	0.06	12.76	296.45
3900.00	0.32	192.44	3899.71	-11.62	5.15	-11.59	0.06	12.69	293.97
4000.00	0.44	207.04	3999.71	-11.85	4.54	-11.83	0.15	12.67	291.00
4100.00	0.44	213.62	4099.70	-12.23	3.88	-12.22	0.05	12.82	287.61
4200.00	0.44	211.74	4199.70	-12.65	3.23	-12.63	0.01	13.04	284.35
4300.00	0.42	195.98	4299.70	-12.95	2.55	-12.93	0.12	13.18	281.17
4400.00	0.40	191.65	4399.70	-13.11	1.86	-13.10	0.04	13.24	278.07
4500.00	0.45	192.35	4499.69	-13.26	1.13	-13.26	0.05	13.31	274.89
4600.00	0.49	208.94	4599.69	-13.55	0.38	-13.55	0.14	13.55	271.59
4700.00	0.51	190.29	4699.69	-13.83	-0.44	-13.84	0.16	13.84	268.19
4800.00	0.63	190.05	4799.68	-14.00	-1.42	-14.01	0.12	14.08	264.23



Scientific Drilling International

Survey Report

Company: COG RESOURCES Date: 11/26/2008 Time: 10 07 09 Page: 2
Field: Loco Hills Co-ordinate(NE) Reference: Site: Eddy County, NM, Grid North
Site: Eddy County, NM Vertical (TVD) Reference: SITE 0.0
Well: Electra Federal #24 Section (VS) Reference: Well (0.00N,0.00E,90.29Azi)
Wellpath: VH - Job #32K1008771 Survey Calculation Method: Minimum Curvature Db: Sybase

Survey

MD ft	Incl deg	Azim deg	TVD ft	VS ft	N/S ft	E/W ft	DLS deg/100ft	ClsD ft	ClsA deg
4900 00	0 50	199 11	4899.68	-14.24	-2 37	-14.25	0 16	14.45	260 56
5000 00	0 55	194.73	4999 67	-14 50	-3.25	-14 51	0 06	14 87	257 39
5100 00	0.34	180 19	5099 67	-14 62	-4.01	-14 64	0 24	15.18	254 69
5200 00	0 40	192.54	5199 67	-14 69	-4 64	-14 71	0 10	15 43	252.48
5300 00	0 17	190.38	5299 67	-14.79	-5.13	-14 82	0.23	15.68	250 90
5400 00	0.27	171.46	5399.66	-14 78	-5.51	-14 81	0.12	15 80	249.59
5500.00	0 23	189 96	5499 66	-14 78	-5 94	-14 81	0 09	15 96	248 14
5600 00	0.23	202 26	5599 66	-14 89	-6.32	-14.92	0.05	16 20	247 03
5700 00	0 13	186 45	5699.66	-14.97	-6.62	-15.01	0.11	16 40	246 19
5800 00	0 20	196 99	5799 66	-15.04	-6.90	-15 07	0 08	16 58	245 39
5900 00	0 15	119.07	5899.66	-14 97	-7 13	-15.01	0 22	16.62	244 58
6000 00	0.20	126.50	5999.66	-14 72	-7.30	-14.75	0.05	16.46	243 67
6100 00	0.16	316 87	6099 66	-14 67	-7.30	-14 71	0 36	16 42	243 60
6200 00	0.13	7 03	6199 66	-14.75	-7.09	-14 79	0.13	16.40	244 40
6300 00	0.08	122.77	6299 66	-14.68	-7.01	-14.72	0.18	16.30	244.52
6400 00	0 26	133 51	6399 66	-14 46	-7 21	-14.49	0 18	16 19	243.56
6500 00	0 36	144.01	6499.66	-14.11	-7 62	-14.15	0.11	16 07	241 70
6600 00	0 41	133.85	6599 66	-13 66	-8.12	-13.70	0 08	15 93	239 35
6700 00	0.25	137.15	6699 65	-13 25	-8.53	-13.30	0 16	15.80	237 33
6800 00	0 15	146.90	6799 65	-13.03	-8.80	-13.08	0.11	15 76	236 07
6900 00	0.20	243 92	6899 65	-13 12	-8.98	-13 16	0.26	15 94	235 69
7000 00	0 27	273 68	6999.65	-13.51	-9 04	-13.55	0.14	16.29	236 28
7100 00	0 43	283 80	7099 65	-14 11	-8.94	-14.15	0.17	16 74	237 72
7200 00	0.60	305.10	7199 65	-14.90	-8.55	-14 95	0 25	17.22	240 23
7300 00	0.74	311.63	7299 64	-15 82	-7.82	-15.86	0 16	17 68	243.75
7400 00	0 74	308.49	7399 63	-16.81	-6.99	-16.85	0.04	18 24	247 47
7500.00	0 95	332.84	7499.62	-17.70	-5.85	-17.73	0 41	18.67	251.74
7520 00	0 84	306 28	7519 62	-17 89	-5.61	-17 92	2 12	18.78	252 61



Scientific Drilling International

Survey Report

Company: COG RESOURCES
Field: Loco Hills
Site: Eddy County, NM
Well: Elctra Federal #24
Wellpath: DH - Job #31D1008???

Date: 11/26/2008
Co-ordinate(N/E) Reference: Site Eddy County, NM, Grid North
Vertical (TVD) Reference: SITE 0.0
Section (VS) Reference: Well (0 00N, 0 00E, 90 29Azi)
Survey Calculation Method: Minimum Curvature
Db: Sybase

Page: 1

Survey: 10/02/08
Start Date: 10/02/2008
Company: Scientific Drilling Internatio
Engineer: Houston District
Tool: MWD, MWD
Tied-to: From: Definitive Path

Survey

MD ft	Incl deg	Azim deg	TVD ft	VS ft	N/S ft	E/W ft	DLS deg/100ft	ClsD ft	ClsA deg
7520.00	0.84	306.28	7519.62	-17.89	-5.61	-17.92	0.00	18.78	252.61
7539.00	4.18	94.00	7538.60	-17.32	-5.58	-17.34	25.85	18.22	252.16
7571.00	12.92	125.30	7570.23	-13.21	-7.73	-13.25	29.98	15.34	239.73
7603.00	21.86	122.55	7600.74	-5.23	-13.02	-5.29	28.05	14.05	202.13
7634.00	31.77	117.79	7628.37	6.92	-19.95	6.82	32.69	21.08	161.12
7663.00	41.00	113.01	7651.70	22.51	-27.24	22.37	33.27	35.25	140.61
7695.00	49.14	107.73	7674.29	43.78	-35.04	43.60	27.97	55.94	128.79
7726.00	56.21	103.32	7693.08	67.55	-41.59	67.34	25.45	79.15	121.70
7757.00	59.19	101.09	7709.64	93.18	-47.12	92.95	11.37	104.21	116.88
7788.00	63.88	95.19	7724.42	120.16	-50.95	119.90	22.55	130.28	113.02
7817.00	66.45	92.05	7736.61	146.43	-52.60	146.16	13.23	155.34	109.79
7849.00	71.79	88.35	7748.01	176.31	-52.69	176.04	19.88	183.76	106.66
7879.00	77.42	87.44	7755.97	205.19	-51.62	204.94	18.99	211.34	104.14
7910.00	82.37	88.56	7761.41	235.68	-50.56	235.43	16.36	240.79	102.12
7942.00	83.46	88.48	7765.36	267.42	-49.74	267.17	3.42	271.76	100.55
8006.00	87.48	89.27	7770.41	331.19	-48.49	330.95	6.40	334.48	98.34
8070.00	88.12	88.87	7772.87	395.12	-47.45	394.89	1.18	397.73	96.85
8134.00	88.42	88.72	7774.80	459.07	-46.11	458.85	0.52	461.16	95.74
8197.00	89.09	89.73	7776.17	522.05	-45.25	521.82	1.92	523.78	94.96
8291.00	87.11	89.70	7779.28	615.99	-44.79	615.77	2.11	617.39	94.16
8354.00	88.52	88.89	7781.69	678.93	-44.01	678.71	2.58	680.14	93.71
8449.00	87.75	88.81	7784.78	773.85	-42.11	773.64	0.81	774.79	93.12
8480.00	87.88	89.10	7785.96	804.82	-41.54	804.62	1.02	805.69	92.96
8512.00	87.92	89.86	7787.13	836.79	-41.25	836.59	2.38	837.61	92.82
8544.00	89.12	89.84	7787.96	868.78	-41.17	868.58	3.75	869.56	92.71
8577.00	89.19	90.46	7788.44	901.77	-41.25	901.58	1.89	902.52	92.62
8605.00	89.06	90.41	7788.87	929.77	-41.47	929.57	0.50	930.50	92.55
8635.00	89.29	90.51	7789.30	959.77	-41.71	959.57	0.84	960.48	92.49
8699.00	90.30	89.93	7789.53	1023.77	-41.95	1023.57	1.82	1024.43	92.35
8763.00	90.87	89.60	7788.88	1087.76	-41.69	1087.56	1.03	1088.36	92.20
8827.00	90.24	87.74	7788.26	1151.73	-40.21	1151.54	3.07	1152.24	92.00
8922.00	90.60	87.27	7787.56	1246.61	-36.07	1246.45	0.62	1246.97	91.66
8985.00	90.20	85.57	7787.12	1309.47	-32.14	1309.32	2.77	1309.71	91.41
9048.00	91.14	86.60	7786.39	1372.29	-27.84	1372.17	2.21	1372.45	91.16
9112.00	90.40	86.73	7785.53	1436.16	-24.11	1436.05	1.17	1436.25	90.96
9176.00	89.46	88.29	7785.61	1500.08	-21.33	1499.99	2.85	1500.14	90.81
9239.00	87.68	87.95	7787.18	1563.01	-19.27	1562.93	2.88	1563.05	90.71
9303.00	87.45	89.51	7789.90	1626.93	-17.85	1626.86	2.46	1626.96	90.63
9335.00	87.08	88.79	7791.42	1658.88	-17.37	1658.82	2.53	1658.91	90.60
9398.00	87.61	88.55	7794.34	1721.79	-15.91	1721.73	0.92	1721.81	90.53
9460.00	87.85	87.38	7796.80	1783.69	-13.71	1783.64	1.92	1783.70	90.44
9555.00	88.19	88.47	7800.08	1878.55	-10.28	1878.52	1.20	1878.55	90.31

Scientific Drilling Survey Report



Company:	COG Operating	Local Co-ordinate Reference:	Well Electra Federal #24
Project:	Eddy County, NM (NAN27 NME)	TVD Reference:	Ground Elev @ 3688 00ft (Rig ?)
Site:	Electra Federal #24	MD Reference:	Ground Elev @ 3688 00ft (Rig ?)
Well:	Electra Federal #24	North Reference:	Grid
Wellbore:	OH	Survey Calculation Method:	Minimum Curvature
Design:	Actual	Database:	EDM 2003 16 Single User Db

Survey									
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)
MWD Survey									
9,600 00	88 33	88 93	7,801 45	-9 26	1,923 49	1,923 51	1 07	0 31	1 02
Projection to Bit - PBHL-Electra #24									

Targets									
Target Name	Dip Angle (°)	Dip Dir. (°)	TVD (ft)	+N/-S (ft)	+E/-W (ft)	Northing (ft)	Easting (ft)	Latitude	Longitude
- hit/miss target									
- Shape									
NHL-Electra #24	0 00	0 00	0 00	0 00	1,980 00	669,772 600	614,561 500	32° 50' 26 644 N	103° 57' 37 193 W
- actual wellpath misses by 1980 00ft at 0 00ft MD (0 00 TVD, 0 00 N, 0 00 E)									
- Rectangle (sides W0 00 H1,000 00 D0 00)									
PBHL-Electra #24	0 00	0 00	7,820 00	-10 00	1,980 00	669,762 600	614,561 500	32° 50' 26 545 N	103° 57' 37 193 W
- actual wellpath misses by 59 48ft at 9600 00ft MD (7801 45 TVD, -9 26 N, 1923 49 E)									
- Circle (radius 10 00)									

Checked By _____	Approved By _____	Date _____
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COG Operating

Scientific Drilling for COG Operating
 Site: Eddy County, NM (NAN27 NME)
 Well: Electra Federal #24
 Wellbore: OH
 Design: Plan #3 vs Actual - 4-3/4" Hole



SECTION DETAILS

Sec	MD	Inc	Azi	TVD	+N/-S	+E/-W	DLeg	TFace	VSec	Target
1	7757 00	59 19	101 09	7709 64	-47 12	92 95	0 00	0 00	93 18	
2	7974 10	88 30	88 23	7770 00	-62 08	298 10	14 53	-25 17	298 41	
3	9657 55	88 30	88 23	7820 00	-10 00	1980 00	0 00	0 00	1980 03	PBHL-Electra #24

WELLBORE TARGET DETAILS (MAP CO-ORDINATES)

Name	TVD	+N/-S	+E/-W	Northing	Easting	Latitude	Longitude	Shape
NHL	0 00	0 00	1980 00	669772 600	614561 500	32°50' 26 644 N	103°57' 37 193 W	Rectangle (Sides L0 00 W1000 00)
PBHL	7820 00	-10 00	1980 00	669762 600	614561 500	32°50' 26 545 N	103°57' 37 193 W	Circle (Radius 10 00)

WELL DETAILS Electra Federal #24

	+N/-S	+E/-W	Northing	Easting	Latitude	Longitude	Slot
Ground Level	3688 00						
	0 00	0 00	669772 600	612581 500	32°50' 26 713 N	103°58' 0 401 W	

PROJECT DETAILS Eddy County, NM (NAN27 NME)

Geodetic System US State Plane 1927 (Exact solution)
 Datum NAD 1927 (NADCON CONUS)
 Ellipsoid Clarke 1866
 Zone New Mexico East 3001
 System Datum Mean Sea Level

Plan Plan #3 - 4-3/4" Hole (Electra Federal #24/OH)

Created By Julio Pina Date 20-Oct-08
 Checked _____ Date _____
 Reviewed _____ Date _____
 Approved _____ Date _____

AZIMUTH CORRECTIONS

ALL AZIMUTHS MUST BE CORRECTED TO GRID
 GRID CORRECTIONS MUST BE APPLIED BEFORE PLOTTING
 To convert a Magnetic Direction to a Grd Direction, Add 7 92°
 To convert a True Direction to a Grd Direction, Subtract 0 20°

LEGEND

- Electra Federal #24, OH, MWD
- Electra Federal #24, OH, GYRO
- Plan #3 - 4-3/4" Hole

