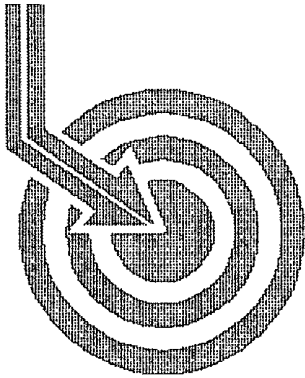


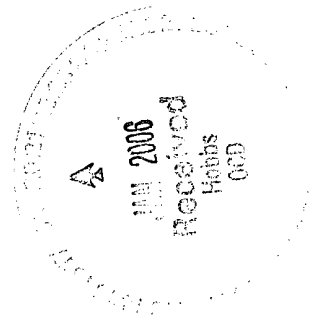


Scientific Drilling

SUR: A-14-20s-35e, 1090/N & 330/E
BHL: A-14-20s-35e, 1090/N & 685/E
API # 30-025-37351

CHESAPEAKE OPERATING, INC.

Field: Featherstone, E.
Site: Lea County, NM
Well: Neuhaus 14 Fed #5
Wellpath: VH - Job #32K08054640
Survey: 08/30/05



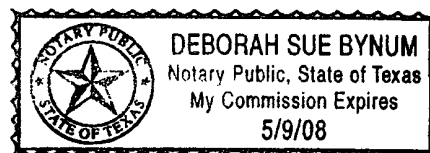
This survey is correct to the best of my knowledge
and is supported by actual field data.

[Signature] Company Representative

Notorized this date 15th of September, 2005.

Deborah Sue Bynum

Notary Signature
County of Midland
State of Texas





Scientific Drilling International

Survey Report

Company: CHESAPEAKE OPERATING, INC.
Field: Featherstone, E.
Site: Lea County, NM
Well: Neuhaus 14 Fed #5
Wellpath: VH - Job #32K08054640

Date: 9/14/2005 Time: 21:34:18 Page: 1
Co-ordinate(NE) Reference: Site: Lea County, NM, Grid North
Vertical (TVD) Reference: SITE 0.0
Section (VS) Reference: Well (0.00N,0.00E,270.00Azi)
Survey Calculation Method: Minimum Curvature Db: Sybase

Survey: 08/30/05 Start Date: 8/30/2005
KSRG 0'-10295'
Company: Scientific Drilling Internatio Engineer: Guebara w/P&M
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	0.49	0.00	0.00	0.00	0.00	0.00	0.00	0.00
100.00	0.26	338.53	100.00	0.08	0.21	-0.08	0.26	0.23	338.53
200.00	0.27	322.78	200.00	0.31	0.61	-0.31	0.07	0.68	333.16
300.00	0.27	312.47	300.00	0.62	0.96	-0.62	0.05	1.14	326.85
400.00	0.34	286.11	400.00	1.08	1.20	-1.08	0.15	1.62	317.87
500.00	0.35	282.59	499.99	1.67	1.35	-1.67	0.02	2.14	308.94
600.00	0.41	273.45	599.99	2.32	1.44	-2.32	0.09	2.73	301.72
700.00	0.34	257.97	699.99	2.97	1.39	-2.97	0.12	3.28	295.16
800.00	0.40	286.63	799.99	3.59	1.43	-3.59	0.19	3.87	291.74
900.00	0.44	308.98	899.99	4.23	1.77	-4.23	0.17	4.58	292.77
1000.00	0.54	301.53	999.98	4.93	2.26	-4.93	0.12	5.42	294.66
1100.00	0.52	291.84	1099.98	5.75	2.68	-5.75	0.09	6.34	294.97
1200.00	0.36	301.39	1199.97	6.44	3.01	-6.44	0.18	7.11	295.05
1300.00	0.36	304.59	1299.97	6.97	3.35	-6.97	0.02	7.73	295.69
1400.00	0.24	309.13	1399.97	7.39	3.66	-7.39	0.12	8.25	296.37
1500.00	0.06	295.07	1499.97	7.60	3.82	-7.60	0.18	8.50	296.67
1600.00	0.04	132.09	1599.97	7.62	3.82	-7.62	0.10	8.52	296.60
1700.00	0.05	250.35	1699.97	7.63	3.78	-7.63	0.08	8.52	296.33
1800.00	0.16	249.58	1799.97	7.81	3.71	-7.81	0.11	8.64	295.45
1900.00	0.12	163.76	1899.97	7.91	3.56	-7.91	0.19	8.67	294.27
2000.00	0.02	57.87	1999.97	7.86	3.47	-7.86	0.13	8.60	293.83
2100.00	0.08	299.31	2099.97	7.91	3.52	-7.91	0.09	8.66	293.97
2200.00	0.18	47.78	2199.97	7.85	3.66	-7.85	0.22	8.66	294.97
2300.00	0.25	74.06	2299.97	7.53	3.82	-7.53	0.12	8.44	296.92
2400.00	0.37	83.00	2399.97	7.00	3.92	-7.00	0.13	8.02	299.27
2500.00	0.45	81.88	2499.97	6.29	4.02	-6.29	0.08	7.46	302.57
2600.00	0.50	70.13	2599.96	5.49	4.22	-5.49	0.11	6.92	307.55
2700.00	0.46	71.44	2699.96	4.70	4.50	-4.70	0.04	6.50	313.74
2800.00	0.57	74.89	2799.95	3.84	4.75	-3.84	0.11	6.11	321.09
2900.00	0.58	73.37	2899.95	2.87	5.03	-2.87	0.02	5.79	330.26
3000.00	0.83	64.51	2999.94	1.73	5.48	-1.73	0.27	5.75	342.46
3100.00	1.12	61.07	3099.93	0.22	6.27	-0.22	0.30	5.27	357.95
3200.00	1.21	61.23	3199.91	-1.56	7.25	1.56	0.09	7.42	12.11
3300.00	1.37	57.54	3299.88	-3.49	8.40	3.49	0.18	9.10	22.56
3400.00	1.46	57.69	3399.85	-5.58	9.72	5.58	0.09	11.21	29.83
3500.00	1.50	57.00	3499.82	-7.75	11.12	7.75	0.04	13.55	34.88
3600.00	1.55	54.76	3599.78	-9.95	12.61	9.95	0.08	16.06	38.28
3700.00	1.41	48.61	3699.75	-11.98	14.20	11.98	0.21	18.58	40.15
3800.00	1.29	48.49	3799.72	-13.75	15.76	13.75	0.12	20.91	41.09
3900.00	1.29	48.40	3899.70	-15.43	17.26	15.43	0.00	23.15	41.80
4000.00	0.95	55.26	3999.68	-16.95	18.48	16.95	0.36	25.08	42.54
4100.00	0.43	81.64	4099.67	-18.01	19.00	18.01	0.60	26.18	43.46
4200.00	0.23	167.34	4199.67	-18.42	18.86	18.42	0.47	26.36	44.32
4300.00	0.55	233.28	4299.67	-18.08	18.38	18.08	0.50	25.78	44.53
4400.00	0.94	229.87	4399.66	-17.07	17.56	17.07	0.39	24.49	44.18
4500.00	1.19	224.97	4499.64	-15.71	16.30	15.71	0.27	22.64	43.94
4600.00	1.34	215.73	4599.62	-14.29	14.62	14.29	0.25	20.44	44.36
4700.00	1.35	218.42	4699.59	-12.88	12.74	12.88	0.06	18.12	45.30
4800.00	1.28	218.52	4799.56	-11.45	10.95	11.45	0.07	15.84	46.28



Scientific
Drilling

Scientific Drilling International Survey Report

Company: CHESAPEAKE OPERATING, INC.
Field: Featherstone, E.
Site: Lea County, NM
Well: Neuhaus 14 Fed #5
Wellpath: VH - Job #32K08054640

Date: 9/14/2005 Time: 21:34:18 Page: 2
Co-ordinate(NE) Reference: Site: Lea County, NM, Grid North
Vertical (TVD) Reference: SITE 0.0
Section (VS) Reference: Well (0.00N,0.00E,270.00Azi)
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	1.15	227.25	4899.54	-10.02	9.39	10.02	0.23	13.73	46.84
5000.00	1.08	233.32	4999.52	-8.52	8.15	8.52	0.14	11.79	46.29
5100.00	0.97	233.60	5099.50	-7.09	7.08	7.09	0.11	10.02	45.02
5200.00	0.80	240.11	5199.49	-5.80	6.23	5.80	0.20	8.51	42.94
5300.00	0.64	249.04	5299.48	-4.67	5.68	4.67	0.19	7.36	39.42
5400.00	0.46	245.69	5399.48	-3.79	5.32	3.79	0.18	6.53	35.44
5500.00	0.27	275.05	5499.48	-3.19	5.18	3.19	0.26	6.08	31.61
5600.00	0.26	327.30	5599.48	-2.83	5.39	2.83	0.23	6.08	27.70
5700.00	0.42	5.85	5699.47	-2.74	5.94	2.74	0.27	6.54	24.78
5800.00	0.41	17.66	5799.47	-2.89	6.65	2.89	0.09	7.25	23.49
5900.00	0.36	36.42	5899.47	-3.18	7.24	3.18	0.13	7.91	23.73
6000.00	0.39	32.62	5999.47	-3.55	7.78	3.55	0.04	8.55	24.55
6100.00	0.35	45.38	6099.47	-3.95	8.28	3.95	0.09	9.18	25.52
6200.00	0.47	72.49	6199.46	-4.56	8.62	4.56	0.22	9.75	27.89
6300.00	0.66	93.71	6299.46	-5.53	8.71	5.53	0.28	10.31	32.42
6400.00	0.49	100.63	6399.45	-6.52	8.59	6.52	0.18	10.79	37.21
6500.00	0.41	123.11	6499.45	-7.24	8.32	7.24	0.19	11.03	41.06
6600.00	0.41	135.94	6599.45	-7.79	7.86	7.79	0.09	11.07	44.74
6700.00	0.50	159.89	6699.44	-8.19	7.20	8.19	0.21	10.90	48.70
6800.00	0.49	162.90	6799.44	-8.47	6.38	8.47	0.03	10.60	53.01
6900.00	0.54	161.99	6899.44	-8.74	5.52	8.74	0.05	10.34	57.71
7000.00	0.61	152.72	6999.43	-9.13	4.60	9.13	0.12	10.22	63.25
7100.00	0.57	160.38	7099.43	-9.54	3.66	9.54	0.09	10.22	69.02
7200.00	0.55	156.18	7199.42	-9.90	2.75	9.90	0.05	10.27	74.47
7300.00	0.49	139.77	7299.42	-10.37	1.99	10.37	0.16	10.56	79.16
7400.00	0.55	149.44	7399.41	-10.89	1.25	10.89	0.11	10.96	83.48
7500.00	0.49	137.47	7499.41	-11.42	0.52	11.42	0.12	11.43	87.41
7600.00	0.45	138.07	7599.41	-11.97	-0.09	11.97	0.04	11.97	90.43
7700.00	0.44	146.07	7699.40	-12.45	-0.70	12.45	0.06	12.47	93.22
7800.00	0.49	147.38	7799.40	-12.90	-1.38	12.90	0.05	12.97	96.11
7900.00	0.39	149.71	7899.40	-13.30	-2.03	13.30	0.10	13.45	98.69
8000.00	0.44	122.65	7999.39	-13.79	-2.53	13.79	0.20	14.02	100.41
8100.00	0.62	126.08	8099.39	-14.55	-3.06	14.55	0.18	14.87	101.88
8200.00	0.91	99.54	8199.38	-15.77	-3.51	15.77	0.45	16.16	102.55
8300.00	1.00	98.54	8299.37	-17.42	-3.77	17.42	0.09	17.82	102.22
8400.00	0.74	110.53	8399.36	-18.89	-4.13	18.89	0.32	19.33	102.33
8500.00	0.55	142.70	8499.35	-19.78	-4.74	19.78	0.40	20.34	103.46
8600.00	0.55	187.01	8599.35	-20.02	-5.59	20.02	0.41	20.78	105.62
8700.00	1.41	209.23	8699.33	-19.36	-7.14	19.36	0.92	20.63	110.26
8800.00	1.73	214.29	8799.29	-17.91	-9.47	17.91	0.35	20.25	117.86
8900.00	1.69	213.75	8899.25	-16.24	-11.94	16.24	0.04	20.15	126.33
9000.00	1.44	205.16	8999.21	-14.88	-14.30	14.88	0.34	20.64	133.86
9100.00	1.46	184.62	9099.18	-14.25	-16.71	14.25	0.52	21.96	139.55
9200.00	1.61	175.67	9199.14	-14.25	-19.38	14.25	0.28	24.05	143.67
9300.00	1.67	169.35	9299.10	-14.62	-22.21	14.62	0.19	26.59	146.64
9400.00	1.66	168.62	9399.06	-15.18	-25.06	15.18	0.02	29.30	148.80
9500.00	1.33	171.36	9499.03	-15.64	-27.63	15.64	0.34	31.75	150.49
9600.00	1.10	170.48	9599.00	-15.97	-29.73	15.97	0.23	33.75	151.75
9700.00	1.05	176.99	9698.99	-16.18	-31.59	16.18	0.13	35.49	152.88
9800.00	1.10	182.89	9798.97	-16.18	-33.46	16.18	0.12	37.17	154.20
9900.00	1.15	191.39	9898.95	-15.93	-35.40	15.93	0.17	38.82	155.77
10000.00	1.34	196.48	9998.93	-15.40	-37.51	15.40	0.22	40.55	157.67



Scientific Drilling International

Survey Report

Company: CHESAPEAKE OPERATING, INC.
Field: Featherstone, E.
Site: Lea County, NM
Well: Neuhaus 14 Fed #5
Wellpath: VH - Job #32K08054640

Date: 9/14/2005 **Time:** 21:34:18 **Page:** 3
Co-ordinate(NE) Reference: Site: Lea County, NM, Grid North
Vertical (TVD) Reference: SITE 0.0
Section (VS) Reference: Well (0.00N,0.00E,270.00Azi)
Survey Calculation Method: Minimum Curvature **Db:** Sybase

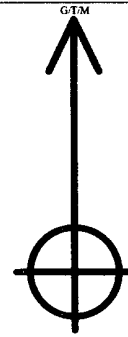
Survey

MD ft	Incl deg	Azim deg	TVD ft	VS ft	N/S ft	E/W ft	DLS deg/100ft	ClsD ft	ClsA deg
10100.00	1.34	186.68	10098.90	-14.93	-39.79	14.93	0.23	42.50	159.43
10200.00	0.78	198.35	10198.88	-14.58	-41.60	14.58	0.60	44.08	160.68
10270.00	0.46	194.99	10268.88	-14.36	-42.32	14.36	0.46	44.69	161.26



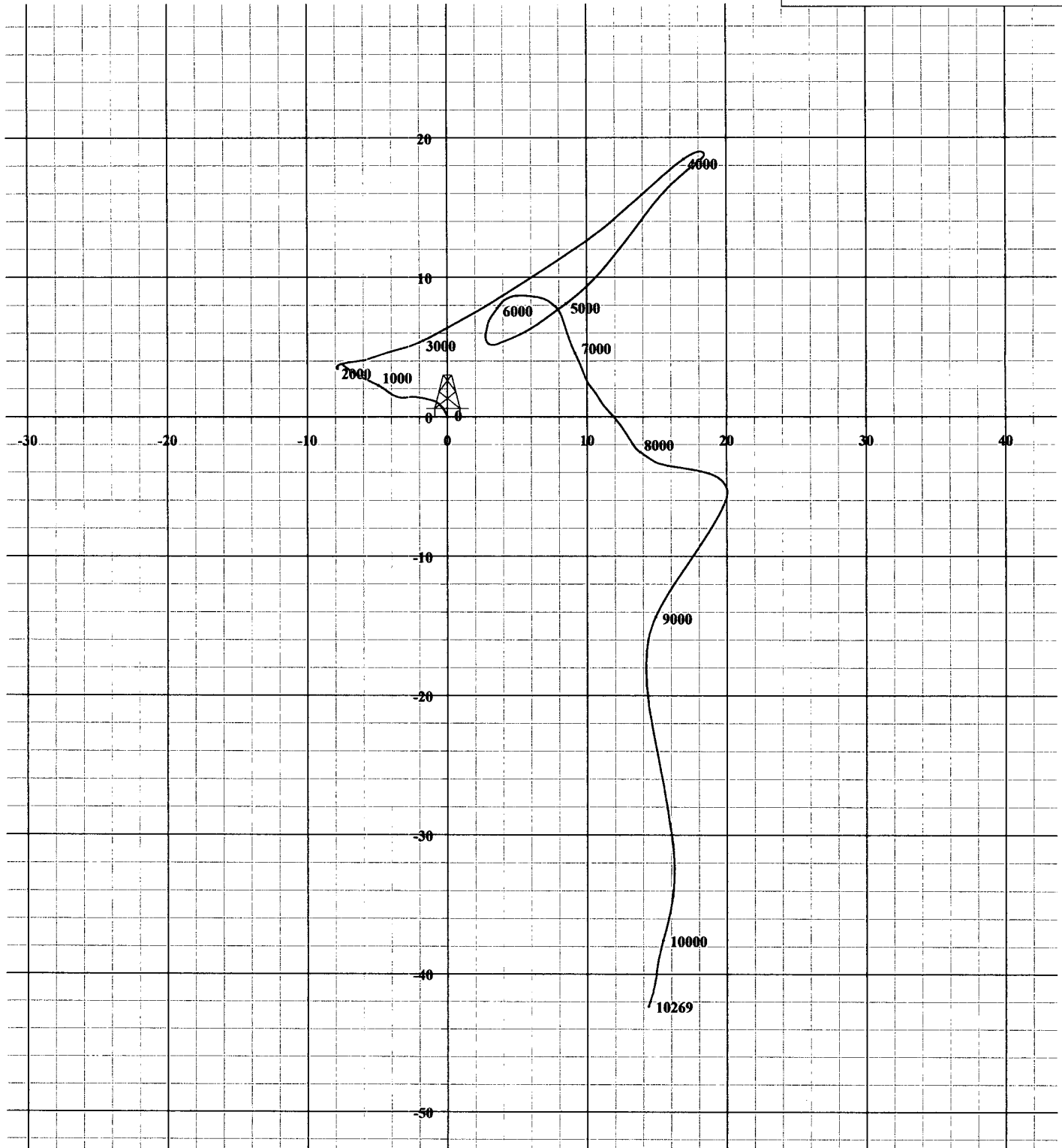
**Scientific
Drilling**

Field: Featherstone, E.
Site: Lea County, NM
Well: Neuhaus 14 Fed #5
Wellpath: VH - Job #32K08054640
Survey: 08/30/05



Azimuth to Grid North
True North: 0.00°
Magnetic North: 0.00°
Magnetic Field
Strength: 0nT
Dip Angle: 0.00°
Date: 9/14/2005
Model: igr2000

South(-)/North(+) [10ft/in]



West(-)/East(+) [10ft/in]