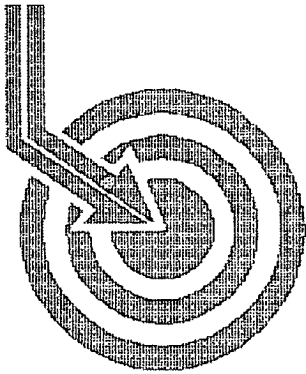




# Scientific Drilling

SUR: O-1-18s-34e, 660/S & 1980/E  
BHL: M-1-18s-34e, 457/S & 91/W  
API # 30-025-02259

## CHEVRONTXACO

Field: Vacuum Glorietta San Andres  
Site: Lea County, NM  
Well: VGSAU #12H  
Wellpath: DH - Job #32D0404230  
Survey: 04/05/04-04/10/04

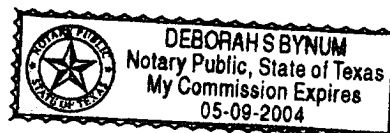
This survey is correct to the best of my knowledge  
and is supported by actual field data.

Devel Nand Company Representative

Notorized this date 16<sup>th</sup> of April, 2004.

Deborah S Bynum  
Notary Signature

County of Midland  
State of Texas





Scientific  
Drilling

# Scientific Drilling Survey Report

|                                          |                                   |                                         |                   |
|------------------------------------------|-----------------------------------|-----------------------------------------|-------------------|
| <b>Company:</b> CHEVRONTEXACO            | <b>Date:</b> 4/16/2004            | <b>Time:</b> 11:30:43                   | <b>Page:</b> 1    |
| <b>Field:</b> Vacuum Goriotta San Andres | <b>Co-ordinate(NE) Reference:</b> | <b>Site:</b> Lea County, NM, Grid North |                   |
| <b>Site:</b> Lea County, NM              | <b>Vertical (TVD) Reference:</b>  | <b>SITE</b> 0.0                         |                   |
| <b>Well:</b> VGSAU #12H                  | <b>Section (VS) Reference:</b>    | <b>Well</b> (0.00N,0.00E,263.88Azi)     |                   |
| <b>Wellpath:</b> VH - Job #32K0304174    | <b>Survey Calculation Method:</b> | <b>Minimum Curvature</b>                | <b>Db:</b> Sybase |

|                                     |                               |
|-------------------------------------|-------------------------------|
| <b>Survey:</b> 03/15/04             | <b>Start Date:</b> 3/15/2004  |
| <b>Company:</b> Scientific Drilling | <b>Engineer:</b> Guebara/Rowe |
| <b>Tool:</b> Keeper, Keeper Gyro    | <b>Tied-to:</b> From Surface  |

## Survey

| MD<br>ft | Incl<br>deg | Azim<br>deg | TVD<br>ft | VS<br>ft | N/S<br>ft | E/W<br>ft | DLS<br>deg/100ft | ClsD<br>ft | ClsA<br>deg |
|----------|-------------|-------------|-----------|----------|-----------|-----------|------------------|------------|-------------|
| 0.0      | 0.00        | 0.00        | 0.0       | 0.0      | 0.0       | 0.0       | 0.00             | 0.0        | 0.00        |
| 100.0    | 0.27        | 151.16      | 100.0     | -0.1     | -0.2      | 0.1       | 0.27             | 0.2        | 151.16      |
| 200.0    | 0.33        | 138.54      | 200.0     | -0.3     | -0.6      | 0.4       | 0.09             | 0.8        | 146.38      |
| 300.0    | 0.20        | 24.87       | 300.0     | -0.6     | -0.7      | 0.7       | 0.45             | 1.0        | 135.17      |
| 400.0    | 0.25        | 7.93        | 400.0     | -0.7     | -0.3      | 0.8       | 0.08             | 0.8        | 111.64      |
| 500.0    | 0.31        | 15.18       | 500.0     | -0.9     | 0.2       | 0.9       | 0.07             | 0.9        | 79.42       |
| 600.0    | 0.62        | 5.43        | 600.0     | -1.1     | 1.0       | 1.0       | 0.32             | 1.4        | 46.26       |
| 700.0    | 0.46        | 10.42       | 700.0     | -1.3     | 1.9       | 1.1       | 0.17             | 2.2        | 30.81       |
| 800.0    | 0.56        | 350.89      | 800.0     | -1.4     | 2.8       | 1.1       | 0.20             | 3.0        | 22.11       |
| 900.0    | 0.25        | 4.47        | 900.0     | -1.4     | 3.5       | 1.1       | 0.32             | 3.6        | 17.07       |
| 1000.0   | 0.44        | 348.34      | 1000.0    | -1.4     | 4.1       | 1.0       | 0.21             | 4.2        | 13.89       |
| 1100.0   | 0.62        | 331.45      | 1100.0    | -1.2     | 4.9       | 0.7       | 0.24             | 5.0        | 7.76        |
| 1200.0   | 0.49        | 340.09      | 1200.0    | -0.9     | 5.8       | 0.3       | 0.15             | 5.8        | 2.63        |
| 1300.0   | 0.25        | 3.34        | 1300.0    | -0.8     | 6.4       | 0.1       | 0.28             | 6.4        | 1.19        |
| 1400.0   | 0.48        | 26.09       | 1400.0    | -1.1     | 7.0       | 0.3       | 0.27             | 7.0        | 2.70        |
| 1500.0   | 0.98        | 351.36      | 1500.0    | -1.3     | 8.2       | 0.4       | 0.65             | 8.2        | 2.68        |
| 1600.0   | 0.88        | 358.53      | 1599.9    | -1.3     | 9.8       | 0.2       | 0.15             | 9.8        | 1.38        |
| 1700.0   | 1.34        | 18.62       | 1699.9    | -1.8     | 11.7      | 0.6       | 0.60             | 11.7       | 2.89        |
| 1800.0   | 1.37        | 19.49       | 1799.9    | -2.8     | 14.0      | 1.4       | 0.04             | 14.0       | 5.58        |
| 1900.0   | 1.26        | 21.93       | 1899.9    | -3.9     | 16.1      | 2.2       | 0.12             | 16.3       | 7.68        |
| 2000.0   | 1.44        | 19.80       | 1999.8    | -4.9     | 18.3      | 3.0       | 0.19             | 18.6       | 9.34        |
| 2100.0   | 1.37        | 17.51       | 2099.8    | -6.0     | 20.6      | 3.8       | 0.09             | 21.0       | 10.42       |
| 2200.0   | 1.29        | 21.65       | 2199.8    | -7.0     | 22.8      | 4.6       | 0.12             | 23.3       | 11.33       |
| 2300.0   | 1.34        | 20.40       | 2299.8    | -8.0     | 25.0      | 5.4       | 0.06             | 25.5       | 12.19       |
| 2400.0   | 1.22        | 31.96       | 2399.7    | -9.2     | 27.0      | 6.4       | 0.28             | 27.7       | 13.28       |
| 2500.0   | 1.19        | 36.10       | 2499.7    | -10.6    | 28.7      | 7.5       | 0.09             | 29.7       | 14.72       |
| 2600.0   | 1.23        | 39.18       | 2599.7    | -12.0    | 30.4      | 8.8       | 0.08             | 31.6       | 16.21       |
| 2700.0   | 0.99        | 48.72       | 2699.7    | -13.5    | 31.8      | 10.2      | 0.30             | 33.4       | 17.73       |
| 2800.0   | 1.16        | 50.64       | 2799.7    | -15.0    | 33.0      | 11.6      | 0.17             | 35.0       | 19.36       |
| 2900.0   | 1.00        | 58.36       | 2899.6    | -16.7    | 34.1      | 13.1      | 0.22             | 36.5       | 21.04       |
| 3000.0   | 0.95        | 59.66       | 2999.6    | -18.2    | 35.0      | 14.6      | 0.05             | 37.9       | 22.63       |
| 3100.0   | 0.76        | 47.19       | 3099.6    | -19.5    | 35.8      | 15.8      | 0.26             | 39.1       | 23.76       |
| 3200.0   | 0.63        | 23.25       | 3199.6    | -20.3    | 36.8      | 16.5      | 0.32             | 40.3       | 24.13       |
| 3300.0   | 1.00        | 7.40        | 3299.6    | -20.8    | 38.2      | 16.8      | 0.43             | 41.7       | 23.77       |
| 3400.0   | 1.18        | 4.64        | 3399.6    | -21.2    | 40.0      | 17.0      | 0.19             | 43.5       | 23.00       |
| 3500.0   | 1.26        | 1.79        | 3499.6    | -21.5    | 42.2      | 17.1      | 0.10             | 45.5       | 22.10       |
| 3600.0   | 1.37        | 1.47        | 3599.5    | -21.8    | 44.5      | 17.2      | 0.11             | 47.7       | 21.13       |
| 3700.0   | 1.55        | 347.33      | 3699.5    | -21.8    | 47.0      | 16.9      | 0.40             | 49.9       | 19.81       |
| 3800.0   | 1.61        | 340.97      | 3799.5    | -21.4    | 49.6      | 16.2      | 0.19             | 52.2       | 18.04       |
| 3900.0   | 1.62        | 341.62      | 3899.4    | -20.7    | 52.3      | 15.3      | 0.02             | 54.5       | 16.27       |
| 4000.0   | 1.75        | 342.11      | 3999.4    | -20.1    | 55.1      | 14.3      | 0.13             | 56.9       | 14.60       |
| 4100.0   | 1.77        | 351.16      | 4099.3    | -19.8    | 58.1      | 13.6      | 0.28             | 59.7       | 13.22       |
| 4200.0   | 1.86        | 350.39      | 4199.3    | -19.6    | 61.2      | 13.1      | 0.09             | 62.6       | 12.11       |



Scientific  
Drilling

# Scientific Drilling Survey Report

|                                           |                                                                    |                       |                |
|-------------------------------------------|--------------------------------------------------------------------|-----------------------|----------------|
| <b>Company:</b> CHEVRONTExACO             | <b>Date:</b> 4/16/2004                                             | <b>Time:</b> 11:39:13 | <b>Page:</b> 1 |
| <b>Field:</b> Vacuum Glorietta San Andres | <b>Co-ordinate(NE) Reference:</b> Site: Lea County, NM, Grid North |                       |                |
| <b>Site:</b> Lea County, NM               | <b>Vertical (TVD) Reference:</b> SITE 0.0                          |                       |                |
| <b>Well:</b> VGSAU #12H                   | <b>Section (VS) Reference:</b> Well (0.00N,0.00E,263.88Azi)        |                       |                |
| <b>Wellpath:</b> DH - Job #32D0404230     | <b>Survey Calculation Method:</b> Minimum Curvature                | <b>Db:</b> Sybase     |                |

|                                     |                                        |
|-------------------------------------|----------------------------------------|
| <b>Survey:</b> 04/05/04-04/10/04    | <b>Start Date:</b> 4/5/2004            |
| <b>Company:</b> Scientific Drilling | <b>Engineer:</b> Lamb/Melendez/Hendrix |
| <b>Tool:</b> MWD,MWD                | <b>Tied-to:</b> User Defined           |

## Survey

| MD<br>ft | Incl<br>deg | Azim<br>deg | TVD<br>ft | VS<br>ft | N/S<br>ft | E/W<br>ft | DLS<br>deg/100ft | ClsD<br>ft | ClsA<br>deg |
|----------|-------------|-------------|-----------|----------|-----------|-----------|------------------|------------|-------------|
| 4147.0   | 1.82        | 350.73      | 4154.3    | -19.7    | 59.8      | 13.4      | 0.00             | 61.2       | 12.61       |
| 4155.0   | 3.05        | 310.85      | 4162.3    | -19.5    | 60.0      | 13.2      | 25.29            | 61.5       | 12.39       |
| 4186.0   | 14.91       | 271.56      | 4192.9    | -15.0    | 60.7      | 8.6       | 40.95            | 61.3       | 8.03        |
| 4216.0   | 27.40       | 275.25      | 4220.8    | -4.3     | 61.4      | -2.2      | 41.85            | 61.5       | 357.93      |
| 4236.0   | 35.40       | 271.61      | 4237.9    | 5.9      | 62.0      | -12.6     | 41.09            | 63.3       | 348.51      |
| 4279.0   | 51.24       | 267.13      | 4269.0    | 35.2     | 61.5      | -42.0     | 37.51            | 74.5       | 325.68      |
| 4311.0   | 57.12       | 265.14      | 4287.8    | 61.1     | 59.8      | -67.9     | 19.05            | 90.4       | 311.36      |
| 4343.0   | 62.62       | 263.85      | 4303.8    | 88.8     | 57.1      | -95.4     | 17.54            | 111.2      | 300.90      |
| 4374.0   | 68.15       | 263.27      | 4316.7    | 116.9    | 53.9      | -123.4    | 17.92            | 134.7      | 293.61      |
| 4406.0   | 73.67       | 262.56      | 4327.2    | 147.2    | 50.2      | -153.4    | 17.38            | 161.4      | 288.12      |
| 4437.0   | 79.48       | 261.26      | 4334.4    | 177.3    | 46.0      | -183.2    | 19.18            | 188.9      | 284.08      |
| 4469.0   | 83.01       | 261.65      | 4339.3    | 208.9    | 41.3      | -214.5    | 11.10            | 218.4      | 280.89      |
| 4500.0   | 82.90       | 261.71      | 4343.1    | 239.6    | 36.8      | -245.0    | 0.40             | 247.7      | 278.54      |
| 4532.0   | 83.07       | 261.66      | 4347.0    | 271.4    | 32.2      | -276.4    | 0.55             | 278.2      | 276.65      |
| 4563.0   | 86.26       | 262.17      | 4349.9    | 302.2    | 27.9      | -306.9    | 10.42            | 308.2      | 275.19      |
| 4595.0   | 85.55       | 261.67      | 4352.1    | 334.1    | 23.4      | -338.5    | 2.71             | 339.3      | 273.95      |
| 4626.0   | 84.76       | 261.93      | 4354.8    | 365.0    | 19.0      | -369.1    | 2.68             | 369.6      | 272.94      |
| 4658.0   | 84.26       | 261.56      | 4357.8    | 396.8    | 14.4      | -400.6    | 1.94             | 400.9      | 272.06      |
| 4689.0   | 83.59       | 261.36      | 4361.1    | 427.6    | 9.8       | -431.1    | 2.25             | 431.2      | 271.31      |
| 4719.0   | 83.18       | 261.57      | 4364.6    | 457.4    | 5.4       | -460.6    | 1.53             | 460.6      | 270.67      |
| 4751.0   | 86.74       | 262.15      | 4367.4    | 489.2    | 0.9       | -492.1    | 11.27            | 492.1      | 270.10      |
| 4782.0   | 85.58       | 262.28      | 4369.4    | 520.2    | -3.3      | -522.8    | 3.77             | 522.8      | 269.64      |
| 4814.0   | 84.86       | 262.86      | 4372.1    | 552.0    | -7.4      | -554.4    | 2.89             | 554.4      | 269.23      |
| 4845.0   | 86.63       | 261.57      | 4374.4    | 582.9    | -11.6     | -585.0    | 7.06             | 585.1      | 268.86      |
| 4877.0   | 87.30       | 261.76      | 4376.1    | 614.9    | -16.2     | -616.6    | 2.18             | 616.9      | 268.49      |
| 4908.0   | 86.81       | 261.69      | 4377.7    | 645.8    | -20.7     | -647.3    | 1.60             | 647.6      | 268.17      |
| 4940.0   | 86.66       | 261.61      | 4379.5    | 677.7    | -25.3     | -678.9    | 0.53             | 679.4      | 267.86      |
| 4971.0   | 85.94       | 261.79      | 4381.5    | 708.6    | -29.8     | -709.5    | 2.39             | 710.1      | 267.59      |
| 5002.0   | 85.89       | 261.52      | 4383.7    | 739.5    | -34.3     | -740.1    | 0.88             | 740.9      | 267.35      |
| 5034.0   | 89.46       | 262.23      | 4385.0    | 771.5    | -38.8     | -771.7    | 11.37            | 772.7      | 267.12      |
| 5065.0   | 89.70       | 262.70      | 4385.3    | 802.5    | -42.9     | -802.5    | 1.70             | 803.6      | 266.94      |
| 5097.0   | 86.34       | 263.28      | 4386.4    | 834.4    | -46.8     | -834.2    | 10.66            | 835.5      | 266.79      |
| 5128.0   | 85.65       | 263.14      | 4388.5    | 865.4    | -50.4     | -864.9    | 2.27             | 866.4      | 266.66      |
| 5159.0   | 85.21       | 260.57      | 4391.0    | 896.2    | -54.8     | -895.5    | 8.38             | 897.2      | 266.50      |
| 5191.0   | 84.50       | 260.31      | 4393.9    | 928.1    | -60.1     | -926.9    | 2.36             | 928.9      | 266.29      |
| 5222.0   | 83.69       | 260.56      | 4397.1    | 958.8    | -65.2     | -957.3    | 2.73             | 959.6      | 266.10      |
| 5254.0   | 83.12       | 260.64      | 4400.7    | 990.6    | -70.4     | -988.7    | 1.80             | 991.2      | 265.93      |
| 5285.0   | 85.18       | 262.54      | 4403.9    | 1021.4   | -74.9     | -1019.2   | 9.02             | 1022.0     | 265.80      |
| 5317.0   | 85.42       | 262.87      | 4406.5    | 1053.3   | -79.0     | -1050.8   | 1.27             | 1053.8     | 265.70      |
| 5348.0   | 85.62       | 263.47      | 4408.9    | 1084.2   | -82.7     | -1081.5   | 2.03             | 1084.7     | 265.63      |
| 5380.0   | 85.26       | 263.93      | 4411.5    | 1116.1   | -86.2     | -1113.2   | 1.82             | 1116.6     | 265.57      |
| 5411.0   | 83.52       | 261.49      | 4414.5    | 1146.9   | -90.1     | -1143.8   | 9.64             | 1147.4     | 265.50      |
| 5443.0   | 83.15       | 261.46      | 4418.2    | 1178.7   | -94.8     | -1175.3   | 1.16             | 1179.1     | 265.39      |
| 5475.0   | 85.86       | 260.80      | 4421.3    | 1210.5   | -99.7     | -1206.7   | 8.71             | 1210.8     | 265.28      |
| 5506.0   | 86.93       | 261.05      | 4423.2    | 1241.4   | -104.6    | -1237.3   | 3.54             | 1241.7     | 265.17      |
| 5538.0   | 87.14       | 261.44      | 4424.9    | 1273.3   | -109.4    | -1268.9   | 1.38             | 1273.6     | 265.07      |
| 5569.0   | 87.21       | 261.72      | 4426.4    | 1304.2   | -114.0    | -1299.5   | 0.93             | 1304.5     | 264.99      |
| 5602.0   | 86.91       | 263.88      | 4428.1    | 1337.2   | -118.1    | -1332.2   | 6.60             | 1337.4     | 264.93      |
| 5633.0   | 85.57       | 263.82      | 4430.1    | 1368.1   | -121.4    | -1362.9   | 4.33             | 1368.3     | 264.91      |



Scientific  
Drilling

# Scientific Drilling Survey Report

Company: CHEVRONTEXACO  
Field: Vacuum Goriotta San Andres  
Site: Lea County, NM  
Well: VGSAU #12H  
Wellpath: DH - Job #32D0404230

Date: 4/16/2004 Time: 11:39:13 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,263.88Azi)  
Survey Calculation Method: Minimum Curvature Db: Sybase

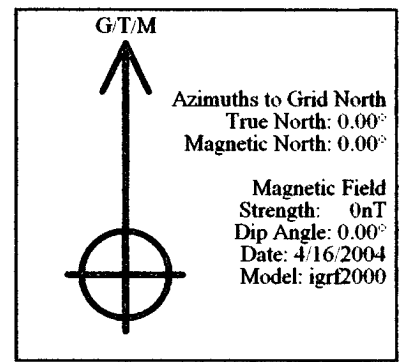
## Survey

| MD<br>ft | Incl<br>deg | Azim<br>deg | TVD<br>ft | VS<br>ft | N/S<br>ft | E/W<br>ft | DLS<br>deg/100ft | ClsD<br>ft | ClsA<br>deg |
|----------|-------------|-------------|-----------|----------|-----------|-----------|------------------|------------|-------------|
| 5665.0   | 84.60       | 262.79      | 4432.9    | 1400.0   | -125.1    | -1394.6   | 4.41             | 1400.2     | 264.87      |
| 5696.0   | 84.60       | 262.15      | 4435.8    | 1430.9   | -129.2    | -1425.2   | 2.06             | 1431.0     | 264.82      |
| 5727.0   | 84.75       | 261.48      | 4438.7    | 1461.7   | -133.6    | -1455.8   | 2.21             | 1461.9     | 264.76      |
| 5759.0   | 84.12       | 260.99      | 4441.8    | 1493.5   | -138.4    | -1487.2   | 2.49             | 1493.7     | 264.68      |
| 5790.0   | 83.40       | 260.34      | 4445.1    | 1524.3   | -143.4    | -1517.6   | 3.12             | 1524.4     | 264.60      |
| 5822.0   | 83.28       | 259.60      | 4448.9    | 1556.0   | -149.0    | -1548.9   | 2.33             | 1556.1     | 264.51      |
| 5854.0   | 86.61       | 259.89      | 4451.7    | 1587.8   | -154.6    | -1580.3   | 10.45            | 1587.8     | 264.41      |
| 5885.0   | 86.80       | 259.18      | 4453.5    | 1618.6   | -160.2    | -1610.7   | 2.37             | 1618.7     | 264.32      |
| 5917.0   | 87.13       | 258.50      | 4455.2    | 1650.5   | -166.4    | -1642.1   | 2.36             | 1650.5     | 264.21      |
| 5948.0   | 86.02       | 260.85      | 4457.0    | 1681.3   | -172.0    | -1672.5   | 8.37             | 1681.3     | 264.13      |
| 5980.0   | 85.62       | 261.32      | 4459.3    | 1713.2   | -176.9    | -1704.1   | 1.93             | 1713.2     | 264.07      |
| 6012.0   | 85.39       | 260.32      | 4461.8    | 1745.1   | -182.0    | -1735.5   | 3.20             | 1745.1     | 264.01      |
| 6043.0   | 84.70       | 260.04      | 4464.5    | 1775.9   | -187.3    | -1766.0   | 2.40             | 1775.9     | 263.95      |
| 6075.0   | 84.06       | 262.48      | 4467.7    | 1807.7   | -192.1    | -1797.5   | 7.85             | 1807.7     | 263.90      |
| 6106.0   | 84.06       | 262.48      | 4470.9    | 1838.5   | -196.2    | -1828.0   | 0.00             | 1838.5     | 263.88      |
| 6134.0   | 83.28       | 263.53      | 4474.0    | 1866.3   | -199.5    | -1855.6   | 4.65             | 1866.3     | 263.86      |
| 6168.0   | 83.28       | 263.53      | 4477.9    | 1900.1   | -203.4    | -1889.2   | 0.00             | 1900.1     | 263.86      |

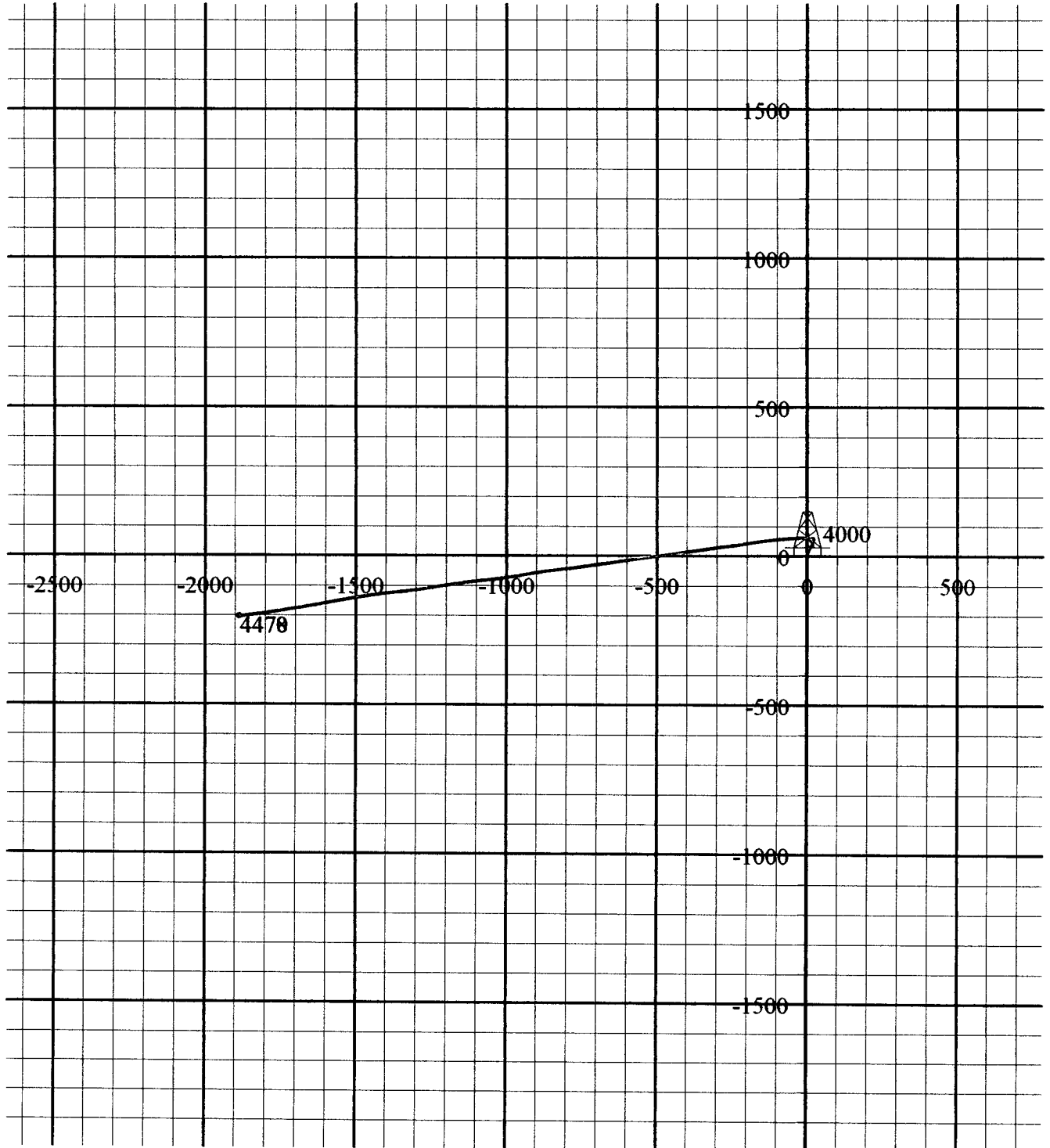


**Scientific  
Drilling**

Field: Vacuum Glorietta San Andres  
Site: Lea County, NM  
Well: VGSAU #12H  
Wellpath: DH - Job #32D0404230  
Survey: 04/05/04-04/10/04



South(-)/North(+) [500ft/in]



West(-)/East(+) [500ft/in]