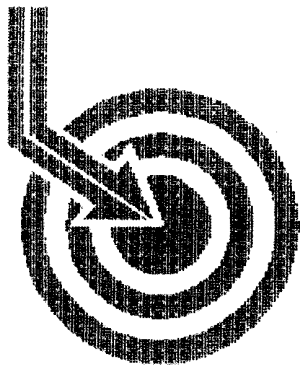


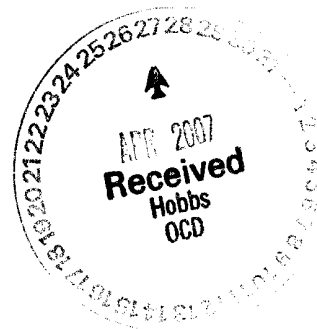


# Scientific Drilling

SUR: E-22-17s-32e, 1500/N & 990/W  
BHL: E-22-17s-32e, 1665/N & 980/W  
API # 30-025-38262

## COG RESOURCES

Field: Maljamar  
Site: Lea County, NM  
Well: MC Federal #10  
Wellpath: DH - Job #32D0307207  
Survey: 03/11/07-03/23/07



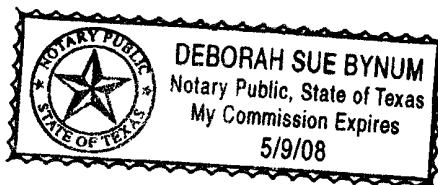
This survey is correct to the best of my knowledge  
and is supported by actual field data.

Shanta.....Company Representative

Notorized this date 17<sup>th</sup> of April, 2007.

Deborah Sue Bynum  
Notary Signature

County of Midland  
State of Texas





Scientific  
Drilling

# Scientific Drilling International Survey Report

**Company:** COG RESOURCES  
**Field:** Maljamar  
**Site:** Lea County, NM  
**Well:** MC Federal #10  
**Wellpath:** VH - Job #32K0307206

**Date:** 04/16/2007 **Time:** 15:49:52 **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,183.58Azi)  
**Survey Calculation Method:** Minimum Curvature **Db:** Sybase

**Survey:** 03/11/07  
KSRG 0'-2944'

**Start Date:** 03/11/2007

**Company:** Scientific Drilling Internatio  
**Tool:** Keeper;Keeper Gyro

**Engineer:** Guebara w/P&M  
**Tied-to:** 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 |
|----------|-------------|-------------|-----------|----------|-----------|-----------|------------------|------------|-------------|
| 0.00     | 0.00        | 0.00        | 0.00      | 0.00     | 0.00      | 0.00      | 0.00             | 0.00       | 0.00        |
| 100.00   | 0.59        | 22.23       | 100.00    | -0.49    | 0.48      | 0.19      | 0.59             | 0.51       | 22.23       |
| 200.00   | 0.79        | 25.12       | 199.99    | -1.62    | 1.58      | 0.68      | 0.20             | 1.72       | 23.39       |
| 300.00   | 1.63        | 42.85       | 299.97    | -3.36    | 3.24      | 1.94      | 0.91             | 3.78       | 30.91       |
| 400.00   | 2.67        | 54.64       | 399.90    | -5.92    | 5.63      | 4.81      | 1.12             | 7.41       | 40.48       |
| 500.00   | 4.00        | 63.10       | 499.73    | -9.16    | 8.56      | 9.82      | 1.41             | 13.03      | 48.92       |
| 600.00   | 4.26        | 63.65       | 599.47    | -12.78   | 11.79     | 16.26     | 0.26             | 20.08      | 54.06       |
| 700.00   | 4.27        | 61.66       | 699.19    | -16.60   | 15.20     | 22.86     | 0.15             | 27.46      | 56.38       |
| 800.00   | 3.46        | 66.03       | 798.96    | -19.97   | 18.20     | 28.90     | 0.86             | 34.15      | 57.80       |
| 900.00   | 2.43        | 69.54       | 898.83    | -22.22   | 20.16     | 33.64     | 1.05             | 39.22      | 59.06       |
| 1000.00  | 1.89        | 72.01       | 998.76    | -23.69   | 21.41     | 37.20     | 0.55             | 42.92      | 60.07       |
| 1100.00  | 1.45        | 64.64       | 1098.71   | -24.91   | 22.47     | 39.91     | 0.49             | 45.80      | 60.62       |
| 1200.00  | 1.25        | 65.71       | 1198.69   | -26.04   | 23.46     | 42.04     | 0.20             | 48.14      | 60.84       |
| 1300.00  | 0.77        | 64.01       | 1298.67   | -26.88   | 24.20     | 43.64     | 0.48             | 49.90      | 60.99       |
| 1400.00  | 0.80        | 73.02       | 1398.66   | -27.45   | 24.70     | 44.91     | 0.13             | 51.26      | 61.19       |
| 1500.00  | 0.61        | 61.70       | 1498.65   | -27.98   | 25.15     | 46.05     | 0.23             | 52.47      | 61.36       |
| 1600.00  | 0.88        | 74.71       | 1598.64   | -28.51   | 25.61     | 47.26     | 0.32             | 53.75      | 61.55       |
| 1700.00  | 1.15        | 49.10       | 1698.63   | -29.46   | 26.47     | 48.76     | 0.52             | 55.48      | 61.51       |
| 1800.00  | 1.34        | 53.10       | 1798.61   | -30.92   | 27.83     | 50.45     | 0.21             | 57.62      | 61.12       |
| 1900.00  | 1.37        | 52.12       | 1898.58   | -32.47   | 29.26     | 52.33     | 0.04             | 59.96      | 60.79       |
| 2000.00  | 0.93        | 49.03       | 1998.56   | -33.83   | 30.53     | 53.89     | 0.44             | 61.93      | 60.47       |
| 2100.00  | 1.02        | 58.94       | 2098.54   | -34.91   | 31.52     | 55.26     | 0.19             | 63.62      | 60.30       |
| 2200.00  | 0.86        | 59.98       | 2198.53   | -35.83   | 32.36     | 56.68     | 0.16             | 65.26      | 60.28       |
| 2300.00  | 0.67        | 96.17       | 2298.52   | -36.22   | 32.67     | 57.91     | 0.51             | 66.49      | 60.57       |
| 2400.00  | 0.55        | 120.16      | 2398.52   | -35.98   | 32.36     | 58.90     | 0.28             | 67.21      | 61.21       |
| 2500.00  | 0.44        | 126.55      | 2498.51   | -35.55   | 31.89     | 59.63     | 0.12             | 67.62      | 61.86       |
| 2600.00  | 0.58        | 140.71      | 2598.51   | -34.97   | 31.27     | 60.25     | 0.19             | 67.89      | 62.57       |
| 2700.00  | 0.55        | 158.11      | 2698.50   | -34.17   | 30.44     | 60.75     | 0.17             | 67.95      | 63.39       |
| 2800.00  | 0.58        | 193.31      | 2798.50   | -33.24   | 29.50     | 60.82     | 0.34             | 67.59      | 64.12       |
| 2900.00  | 0.71        | 199.53      | 2898.49   | -32.14   | 28.42     | 60.49     | 0.15             | 66.84      | 64.83       |
| 2944.00  | 0.81        | 212.90      | 2942.49   | -31.61   | 27.90     | 60.23     | 0.46             | 66.38      | 65.14       |



Scientific  
Drilling

# Scientific Drilling International Survey Report

Company: COG RESOURCES  
Field: Maljamar  
Site: Lea County, NM  
Well: MC Federal #10  
Wellpath: DH - Job #32D0307207

Date: 04/16/2007 Time: 15:47:16 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,183.58Azi)  
Survey Calculation Method: Minimum Curvature Db: Sybase

Survey: 03/11/07-03/23/07  
MWD 3029'-6957' w/projection @ 7011'  
Company: Scientific Drilling Internatio  
Tool: MWD;MWD

Start Date: 03/11/2007  
Engineer: Barbre/Foster  
Tied-to: From: Definitive Path

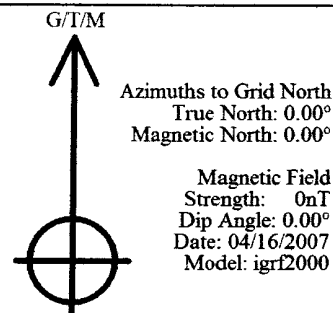
## Survey

| 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 |
|----------|-------------|-------------|-----------|----------|-----------|-----------|------------------|------------|-------------|
| 2944.00  | 0.81        | 212.90      | 2942.49   | -31.61   | 27.90     | 60.23     | 0.00             | 66.38      | 65.14       |
| 3029.00  | 2.64        | 206.83      | 3027.45   | -29.29   | 25.65     | 59.02     | 2.16             | 64.36      | 66.51       |
| 3122.00  | 4.93        | 202.94      | 3120.24   | -23.55   | 20.06     | 56.50     | 2.48             | 59.95      | 70.45       |
| 3247.00  | 5.47        | 206.17      | 3244.72   | -12.98   | 9.77      | 51.78     | 0.49             | 52.69      | 79.32       |
| 3373.00  | 4.90        | 195.90      | 3370.21   | -2.18    | -0.80     | 47.65     | 0.86             | 47.66      | 90.96       |
| 3498.00  | 5.10        | 197.83      | 3494.73   | 8.42     | -11.22    | 44.49     | 0.21             | 45.88      | 104.16      |
| 3592.00  | 6.35        | 198.20      | 3588.26   | 17.50    | -20.14    | 41.59     | 1.33             | 46.21      | 115.84      |
| 3686.00  | 6.05        | 197.44      | 3681.71   | 27.34    | -29.80    | 38.48     | 0.33             | 48.67      | 127.76      |
| 3780.00  | 6.02        | 196.82      | 3775.19   | 36.95    | -39.25    | 35.57     | 0.08             | 52.97      | 137.81      |
| 3936.00  | 5.77        | 200.03      | 3930.37   | 52.43    | -54.44    | 30.52     | 0.27             | 62.41      | 150.73      |
| 4058.00  | 5.47        | 201.17      | 4051.78   | 63.86    | -65.63    | 26.31     | 0.26             | 70.71      | 158.15      |
| 4180.00  | 5.13        | 197.58      | 4173.26   | 74.69    | -76.25    | 22.57     | 0.39             | 79.52      | 163.51      |
| 4305.00  | 5.10        | 207.05      | 4297.76   | 85.21    | -86.53    | 18.35     | 0.68             | 88.45      | 168.02      |
| 4398.00  | 6.44        | 205.02      | 4390.29   | 93.86    | -94.93    | 14.27     | 1.46             | 96.00      | 171.45      |
| 4522.00  | 6.57        | 204.73      | 4513.49   | 106.95   | -107.68   | 8.36      | 0.11             | 108.00     | 175.56      |
| 4645.00  | 6.32        | 203.81      | 4635.72   | 119.86   | -120.26   | 2.68      | 0.22             | 120.29     | 178.72      |
| 4771.00  | 5.21        | 199.14      | 4761.08   | 131.88   | -132.01   | -1.99     | 0.96             | 132.03     | 180.87      |
| 4895.00  | 5.22        | 195.26      | 4884.56   | 142.83   | -142.77   | -5.32     | 0.28             | 142.87     | 182.14      |
| 5018.00  | 4.17        | 195.22      | 5007.15   | 152.69   | -152.49   | -7.97     | 0.85             | 152.70     | 182.99      |
| 5144.00  | 1.58        | 196.62      | 5132.98   | 158.87   | -158.57   | -9.67     | 2.06             | 158.87     | 183.49      |
| 5264.00  | 0.84        | 217.73      | 5252.95   | 161.21   | -160.85   | -10.68    | 0.71             | 161.21     | 183.80      |
| 5393.00  | 0.98        | 210.58      | 5381.94   | 162.97   | -162.55   | -11.82    | 0.14             | 162.98     | 184.16      |
| 5469.00  | 1.03        | 198.56      | 5457.93   | 164.21   | -163.76   | -12.37    | 0.28             | 164.23     | 184.32      |
| 5594.00  | 0.74        | 56.98       | 5582.92   | 164.82   | -164.38   | -12.05    | 1.34             | 164.83     | 184.19      |
| 5780.00  | 0.56        | 56.98       | 5768.91   | 163.56   | -163.23   | -10.28    | 0.10             | 163.56     | 183.60      |
| 5904.00  | 0.42        | 81.63       | 5892.90   | 163.10   | -162.84   | -9.32     | 0.20             | 163.11     | 183.28      |
| 5999.00  | 0.41        | 83.95       | 5987.90   | 162.97   | -162.75   | -8.64     | 0.02             | 162.98     | 183.04      |
| 6121.00  | 0.83        | 343.59      | 6109.89   | 162.07   | -161.86   | -8.46     | 0.81             | 162.08     | 182.99      |
| 6244.00  | 0.68        | 350.44      | 6232.88   | 160.52   | -160.28   | -8.83     | 0.14             | 160.53     | 183.15      |
| 6370.00  | 0.39        | 215.32      | 6358.88   | 160.16   | -159.90   | -9.20     | 0.79             | 160.16     | 183.29      |
| 6494.00  | 0.36        | 210.05      | 6482.88   | 160.87   | -160.58   | -9.64     | 0.04             | 160.87     | 183.44      |
| 6619.00  | 0.60        | 205.04      | 6607.87   | 161.83   | -161.51   | -10.12    | 0.19             | 161.83     | 183.58      |
| 6744.00  | 0.69        | 181.87      | 6732.87   | 163.19   | -162.86   | -10.42    | 0.22             | 163.19     | 183.66      |
| 6838.00  | 0.54        | 183.67      | 6826.86   | 164.20   | -163.86   | -10.46    | 0.16             | 164.20     | 183.65      |
| 6957.00  | 0.42        | 131.21      | 6945.86   | 165.02   | -164.71   | -10.17    | 0.37             | 165.02     | 183.53      |
| 7011.00  | 0.41        | 131.21      | 6999.86   | 165.26   | -164.97   | -9.88     | 0.02             | 165.26     | 183.43      |

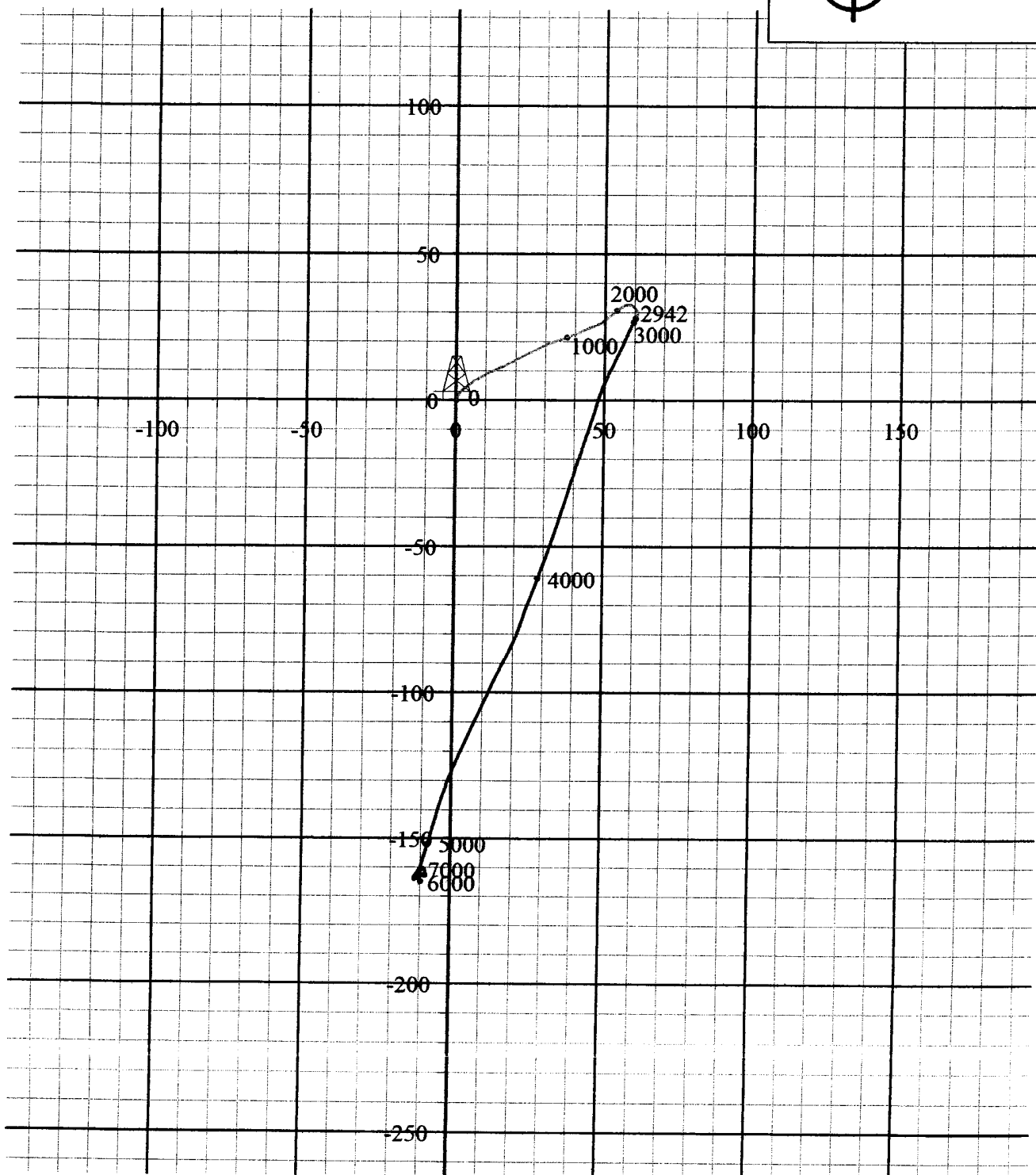


Scientific  
Drilling

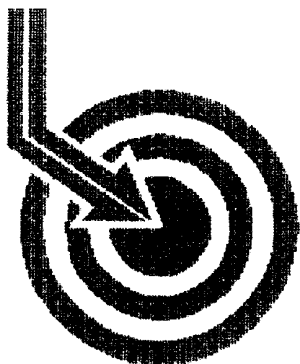
Field: Maljamar  
Site: Lea County, NM  
Well: MC Federal #10  
Wellpath: DH - Job #32D0307207  
Survey: 03/11/07-03/23/07



South(-)/North(+) [50ft/in]



West(-)/East(+) [50ft/in]



# Scientific Drilling

## COG RESOURCES

Field: Maljamar  
Site: Lea County, NM  
Well: MC Federal #10  
Wellpath: VH - Job #32K0307206  
Survey: 03/11/07

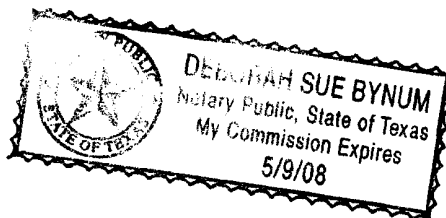
This survey is correct to the best of my knowledge  
and is supported by actual field data.

.....*Dr. Hart*..... Company Representative

Notorized this date 4<sup>th</sup> of April, 2007.

*Deborah Sue Bynum*

Notary Signature  
County of Midland  
State of Texas





# Scientific Drilling International Survey Report

Company: COG RESOURCES  
Field: Maljamar  
Site: Lea County, NM  
Well: MC Federal #10  
Wellpath: VH - Job #32K0307206

Date: 04/04/2007 Time: 09:40:55 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,65.14Azi)  
Survey Calculation Method: Minimum Curvature Db: Sybase

Survey: 03/11/07  
KSRG 0'-2944'

Start Date: 03/11/2007

Company: Scientific Drilling Internatio  
Tool: Keeper, Keeper Gyro

Engineer: Guebara w/P&M  
Tied-to: From Surface

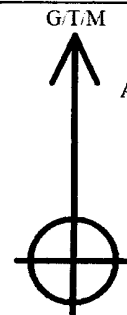
## Survey

| 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 | ChD<br>ft | ChA<br>deg |
|----------|-------------|-------------|-----------|----------|-----------|-----------|------------------|-----------|------------|
| 0.00     | 0.00        | 0.00        | 0.00      | 0.00     | 0.00      | 0.00      | 0.00             | 0.00      | 0.00       |
| 100.00   | 0.59        | 22.23       | 100.00    | 0.38     | 0.48      | 0.19      | 0.59             | 0.51      | 22.23      |
| 200.00   | 0.79        | 25.12       | 199.99    | 1.28     | 1.58      | 0.68      | 0.20             | 1.72      | 23.39      |
| 300.00   | 1.63        | 42.85       | 299.97    | 3.13     | 3.24      | 1.94      | 0.91             | 3.78      | 30.91      |
| 400.00   | 2.67        | 54.64       | 399.90    | 6.73     | 5.63      | 4.81      | 1.12             | 7.41      | 40.48      |
| 500.00   | 4.00        | 63.10       | 499.73    | 12.51    | 8.56      | 9.82      | 1.41             | 13.03     | 48.92      |
| 600.00   | 4.26        | 63.65       | 599.47    | 19.71    | 11.79     | 16.26     | 0.26             | 20.08     | 54.06      |
| 700.00   | 4.27        | 61.66       | 699.19    | 27.14    | 15.20     | 22.86     | 0.15             | 27.46     | 56.38      |
| 800.00   | 3.46        | 66.03       | 798.96    | 33.87    | 18.20     | 28.90     | 0.86             | 34.15     | 57.80      |
| 900.00   | 2.43        | 69.54       | 898.83    | 39.00    | 20.16     | 33.64     | 1.05             | 39.22     | 59.06      |
| 1000.00  | 1.89        | 72.01       | 998.76    | 42.75    | 21.41     | 37.20     | 0.55             | 42.92     | 60.07      |
| 1100.00  | 1.45        | 64.64       | 1098.71   | 45.65    | 22.47     | 39.91     | 0.49             | 45.80     | 60.62      |
| 1200.00  | 1.25        | 65.71       | 1198.69   | 48.01    | 23.46     | 42.04     | 0.20             | 48.14     | 60.84      |
| 1300.00  | 0.77        | 64.01       | 1298.67   | 49.77    | 24.20     | 43.64     | 0.48             | 49.90     | 60.99      |
| 1400.00  | 0.80        | 73.02       | 1398.66   | 51.13    | 24.70     | 44.91     | 0.13             | 51.26     | 61.19      |
| 1500.00  | 0.61        | 61.70       | 1498.65   | 52.36    | 25.15     | 46.05     | 0.23             | 52.47     | 61.36      |
| 1600.00  | 0.88        | 74.71       | 1598.64   | 53.65    | 25.61     | 47.26     | 0.32             | 53.75     | 61.55      |
| 1700.00  | 1.15        | 49.10       | 1698.63   | 55.37    | 26.47     | 48.76     | 0.52             | 55.48     | 61.51      |
| 1800.00  | 1.34        | 53.10       | 1798.61   | 57.48    | 27.83     | 50.45     | 0.21             | 57.62     | 61.12      |
| 1900.00  | 1.37        | 52.12       | 1898.58   | 59.78    | 29.26     | 52.33     | 0.04             | 59.96     | 60.79      |
| 2000.00  | 0.93        | 49.03       | 1998.56   | 61.73    | 30.53     | 53.89     | 0.44             | 61.93     | 60.47      |
| 2100.00  | 1.02        | 58.94       | 2098.54   | 63.39    | 31.52     | 55.26     | 0.19             | 63.62     | 60.30      |
| 2200.00  | 0.86        | 59.98       | 2198.53   | 65.03    | 32.36     | 56.68     | 0.16             | 65.26     | 60.28      |
| 2300.00  | 0.67        | 96.17       | 2298.52   | 66.27    | 32.67     | 57.91     | 0.51             | 66.49     | 60.57      |
| 2400.00  | 0.55        | 120.16      | 2398.52   | 67.05    | 32.36     | 58.90     | 0.28             | 67.21     | 61.21      |
| 2500.00  | 0.44        | 126.55      | 2498.51   | 67.51    | 31.89     | 59.63     | 0.12             | 67.62     | 61.86      |
| 2600.00  | 0.58        | 140.71      | 2598.51   | 67.82    | 31.27     | 60.25     | 0.19             | 67.89     | 62.57      |
| 2700.00  | 0.55        | 158.11      | 2698.50   | 67.92    | 30.44     | 60.75     | 0.17             | 67.95     | 63.39      |
| 2800.00  | 0.58        | 193.31      | 2798.50   | 67.58    | 29.50     | 60.82     | 0.34             | 67.59     | 64.12      |
| 2900.00  | 0.71        | 199.53      | 2898.49   | 66.84    | 28.42     | 60.49     | 0.15             | 66.84     | 64.83      |
| 2944.00  | 0.81        | 212.90      | 2942.49   | 66.38    | 27.90     | 60.23     | 0.46             | 66.38     | 65.14      |



Scientific  
Drilling

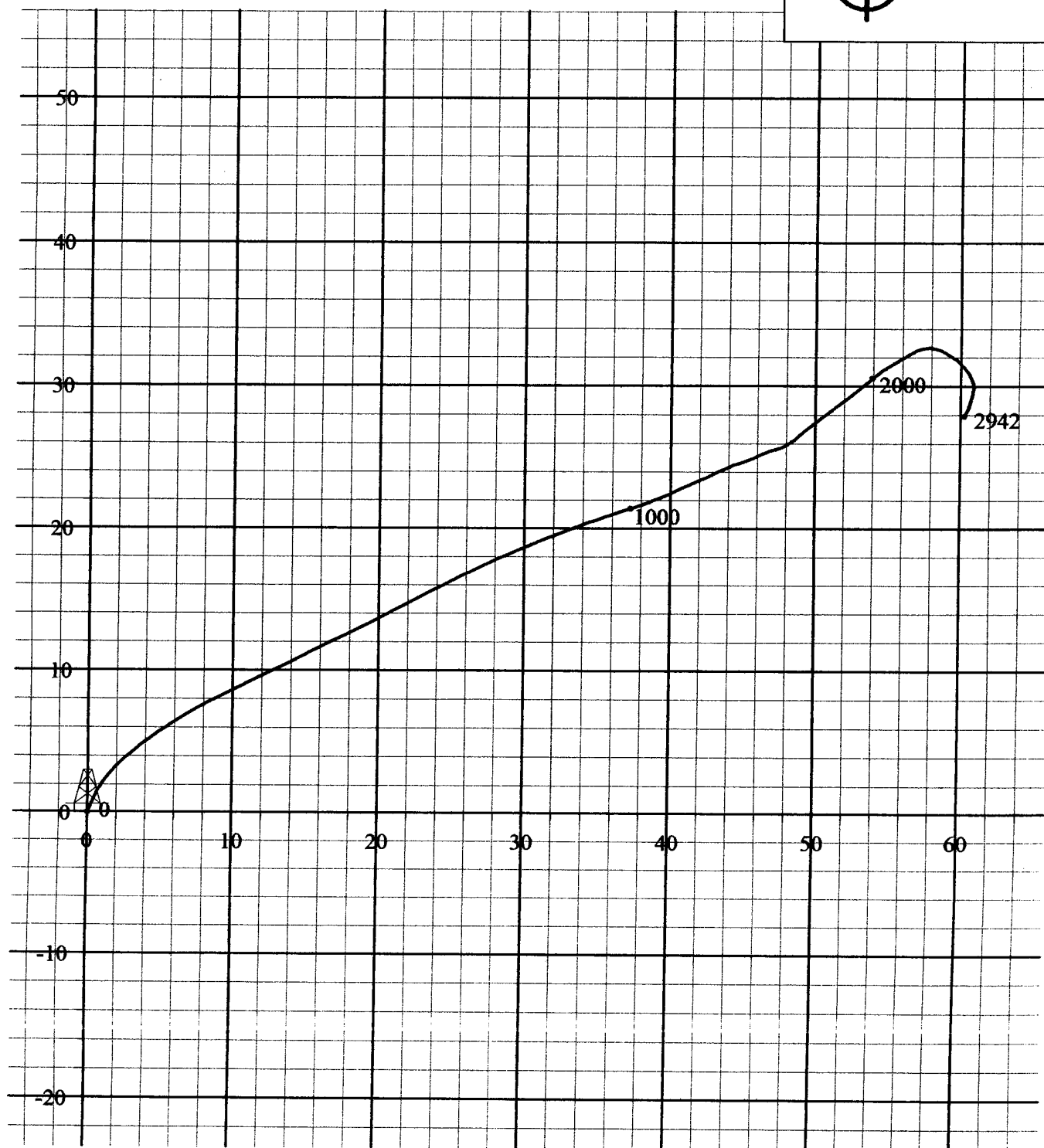
Field: Maljamar  
Site: Lea County, NM  
Well: MC Federal #10  
Wellpath: VH - Job #32K0307206  
Survey: 03/11/07



Azimuths to Grid North  
True North: 0.00°  
Magnetic North: 0.00°

Magnetic Field  
Strength: 0nT  
Dip Angle: 0.00°  
Date: 04/04/2007  
Model: igrf2000

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



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