



Gyrodata Incorporated  
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C1512

September 1, 2000

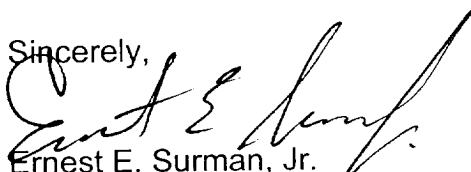
Drilling Department  
Pogo Producers  
P.O. Box 10340  
Midland, Texas 79702

Re: **Shugart 6 Fed Com, Well #1**  
**Eddy County, New Mexico**

Enclosed, please find one (1) original, four (4) copies, and one (1) disk of the completed survey of the above referenced well.

We would like to take this opportunity to thank you for using Gyrodata, and we look forward to serving you in the future.

Sincerely,



Ernest E. Surman, Jr.  
Assistant Operations Manager

EES:lnr

A Gyrodata Directional Survey

for

POGO PRODUCERS

Well: SHUGART 6 FED COM NO. 1, 4-1/2" DRILLPIPE

Location: TMBR/SHARP #10, EDDY COUNTY, NEW MEXICO

Job Number: MD0800GMW224

Run Date: 8/26/00

Surveyor: John Zugg Mike Shepherd

Calculation Method: MINIMUM CURVATURE

Survey Latitude: 33.300000 deg. N

Azimuth Correction:

Gyro: Bearings are Relative to True North

Proposed Well Direction: 336.250 deg

Vertical Section Calculated from Well Head Location

Closure Calculated from Well Head Location

Horizontal Coordinates Calculated from Well Head Location

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Location: TMBR/SHARP #10, EDDY COUNTY, NEW MEXICO

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| MEASURED<br>DEPTH<br>feet                                                 | I N C L<br>deg. | A Z I M U T H<br>deg. | V E R T I C A L<br>S E C T I O N<br>feet | D O G L E G<br>S E V E R I T Y<br>deg./<br>100 ft. | V E R T I C A L<br>D E P T H<br>feet | C L O S U R E<br>D I S T.<br>feet | A Z I M U T H<br>d e g. | H O R I Z O N T A L<br>C O O R D I N A T E S<br>feet |
|---------------------------------------------------------------------------|-----------------|-----------------------|------------------------------------------|----------------------------------------------------|--------------------------------------|-----------------------------------|-------------------------|------------------------------------------------------|
| 0.0                                                                       | 0.00            | 0.00                  | 0.0                                      | 0.00                                               | 0.0                                  | 0.0                               | 0.0                     | 0.00 N 0.00 E                                        |
| -----                                                                     |                 |                       |                                          |                                                    |                                      |                                   |                         |                                                      |
| 0 - 9235 FT. RATE GYROSCOPIC MULTISHOT SURVEY RUN INSIDE 4-1/2" DRILLPIPE |                 |                       |                                          |                                                    |                                      |                                   |                         |                                                      |
| ALL MEASURED DEPTHS AND COORDINATES REFERENCED TO TMBR/SHARP #10 R.K.B.   |                 |                       |                                          |                                                    |                                      |                                   |                         |                                                      |
| -----                                                                     |                 |                       |                                          |                                                    |                                      |                                   |                         |                                                      |
| 200.0                                                                     | 0.82            | 346.10                | 1.4                                      | 0.41                                               | 200.0                                | 1.4                               | 346.1                   | 1.39 N 0.34 W                                        |
| 400.0                                                                     | 1.53            | 19.69                 | 4.8                                      | 0.48                                               | 400.0                                | 5.3                               | 2.3                     | 5.30 N 0.21 E                                        |
| 600.0                                                                     | 1.76            | 26.91                 | 8.7                                      | 0.16                                               | 599.9                                | 10.8                              | 13.3                    | 10.55 N 2.50 E                                       |
| 800.0                                                                     | 1.61            | 46.57                 | 11.5                                     | 0.30                                               | 799.8                                | 16.3                              | 21.3                    | 15.22 N 5.93 E                                       |
| 1000.0                                                                    | 1.25            | 45.11                 | 13.3                                     | 0.18                                               | 999.7                                | 21.0                              | 27.0                    | 18.70 N 9.52 E                                       |
| -----                                                                     |                 |                       |                                          |                                                    |                                      |                                   |                         |                                                      |
| 1200.0                                                                    | 0.98            | 40.68                 | 14.8                                     | 0.14                                               | 1199.7                               | 24.7                              | 29.5                    | 21.54 N 12.18 E                                      |
| 1400.0                                                                    | 1.02            | 28.23                 | 16.6                                     | 0.11                                               | 1399.7                               | 28.2                              | 30.1                    | 24.40 N 14.14 E                                      |
| 1600.0                                                                    | 0.92            | 33.28                 | 18.6                                     | 0.06                                               | 1599.6                               | 31.6                              | 30.1                    | 27.31 N 15.86 E                                      |
| 1800.0                                                                    | 1.11            | 21.67                 | 20.8                                     | 0.14                                               | 1799.6                               | 35.1                              | 29.8                    | 30.45 N 17.45 E                                      |
| 2000.0                                                                    | 1.12            | 34.86                 | 23.2                                     | 0.13                                               | 1999.6                               | 39.0                              | 29.7                    | 33.85 N 19.28 E                                      |
| -----                                                                     |                 |                       |                                          |                                                    |                                      |                                   |                         |                                                      |
| 2200.0                                                                    | 1.14            | 25.21                 | 25.5                                     | 0.10                                               | 2199.5                               | 42.9                              | 29.7                    | 37.24 N 21.25 E                                      |
| 2400.0                                                                    | 1.06            | 25.93                 | 28.0                                     | 0.04                                               | 2399.5                               | 46.7                              | 29.4                    | 40.70 N 22.90 E                                      |
| 2600.0                                                                    | 1.19            | 22.46                 | 30.7                                     | 0.08                                               | 2599.4                               | 50.6                              | 29.0                    | 44.29 N 24.50 E                                      |
| 2800.0                                                                    | 1.57            | 10.76                 | 34.4                                     | 0.24                                               | 2799.4                               | 55.3                              | 27.8                    | 48.91 N 25.81 E                                      |
| 3000.0                                                                    | 1.85            | 12.47                 | 39.2                                     | 0.14                                               | 2999.3                               | 61.1                              | 26.3                    | 54.76 N 27.02 E                                      |
| -----                                                                     |                 |                       |                                          |                                                    |                                      |                                   |                         |                                                      |
| 3200.0                                                                    | 2.00            | 12.76                 | 44.7                                     | 0.07                                               | 3199.2                               | 67.6                              | 24.9                    | 61.32 N 28.49 E                                      |
| 3400.0                                                                    | 2.12            | 6.85                  | 50.6                                     | 0.12                                               | 3399.1                               | 74.6                              | 23.5                    | 68.38 N 29.70 E                                      |
| 3600.0                                                                    | 1.91            | 8.80                  | 56.6                                     | 0.11                                               | 3598.9                               | 81.3                              | 22.1                    | 75.35 N 30.65 E                                      |
| 3800.0                                                                    | 1.37            | 9.36                  | 61.4                                     | 0.27                                               | 3798.8                               | 86.9                              | 21.3                    | 81.00 N 31.55 E                                      |
| 4000.0                                                                    | 1.59            | 8.25                  | 65.8                                     | 0.11                                               | 3998.8                               | 92.0                              | 20.6                    | 86.10 N 32.34 E                                      |

# A Gyrodata Directional Survey

## POGO PRODUCERS

Well: SHUGART 6 FED COM NO. 1, 4-1/2" DRILLPIPE

Location: TMBR/SHARP #10, EDDY COUNTY, NEW MEXICO

Job Number: MD0800GMW224

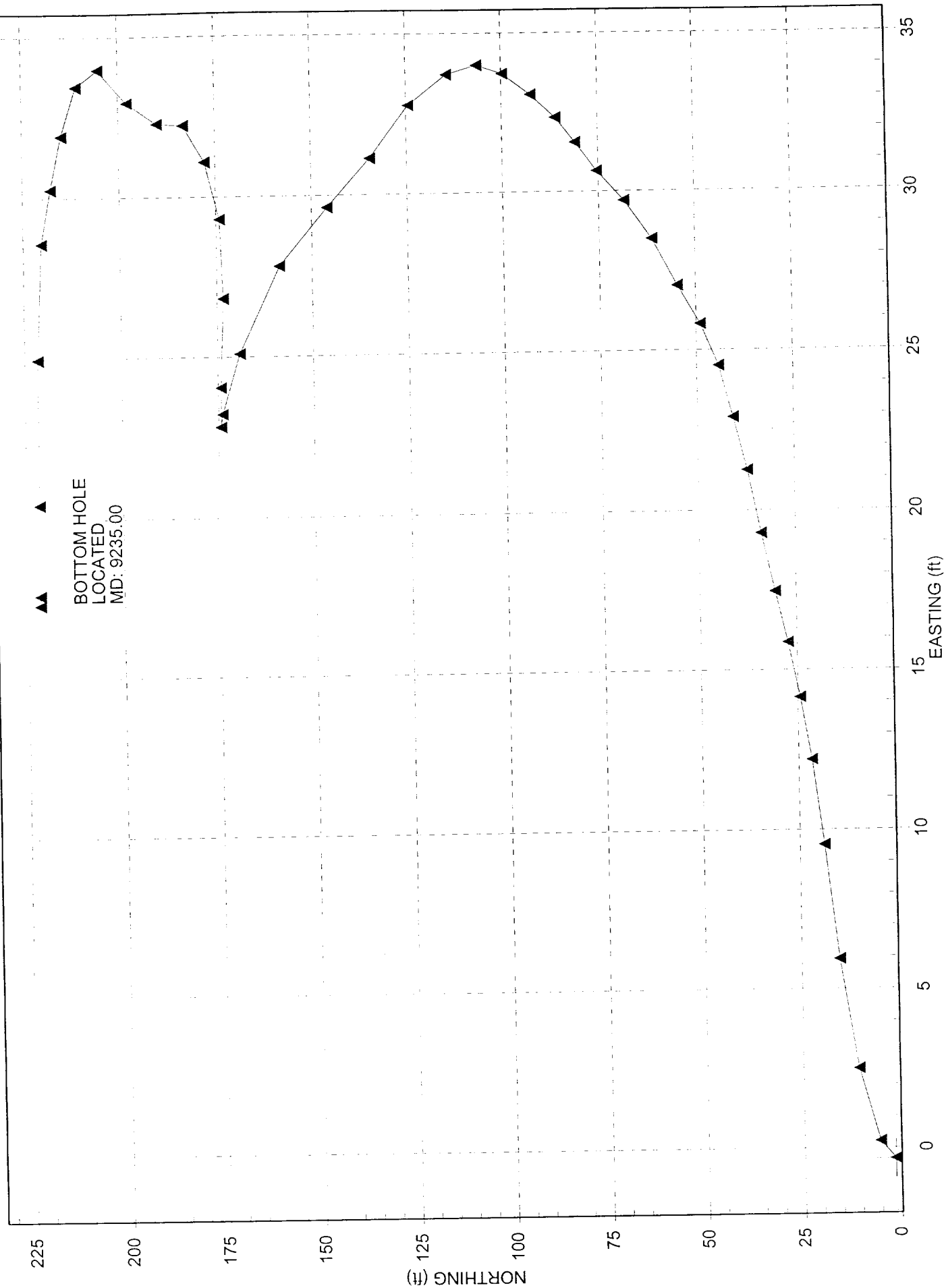
| MEASURED<br>DEPTH<br>feet | I N C L<br>deg. | AZIMUTH<br>deg. | VERTICAL<br>SECTION<br>feet | DOGLEG<br>SEVERITY<br>deg./<br>100 ft. | VERTICAL<br>DEPTH<br>feet | CLOSURE<br>DIST. AZIMUTH<br>feet deg. | HORIZONTAL<br>COORDINATES<br>feet |
|---------------------------|-----------------|-----------------|-----------------------------|----------------------------------------|---------------------------|---------------------------------------|-----------------------------------|
| 4200.0                    | 2.10            | 5.22            | 71.3                        | 0.26                                   | 4198.7                    | 98.2 19.7                             | 92.49 N 33.07 E                   |
| 4400.0                    | 2.11            | 5.19            | 77.8                        | 0.01                                   | 4398.5                    | 105.4 18.7                            | 99.81 N 33.73 E                   |
| 4600.0                    | 1.71            | 358.60          | 83.8                        | 0.23                                   | 4598.4                    | 111.8 17.7                            | 106.47 N 34.00 E                  |
| 4800.0                    | 2.80            | 357.61          | 91.1                        | 0.54                                   | 4798.3                    | 119.2 16.4                            | 114.34 N 33.72 E                  |
| 5000.0                    | 3.01            | 351.84          | 100.7                       | 0.18                                   | 4998.0                    | 128.7 14.8                            | 124.41 N 32.77 E                  |
| 5200.0                    | 2.92            | 349.80          | 110.7                       | 0.07                                   | 5197.7                    | 138.2 13.0                            | 134.62 N 31.12 E                  |
| 5400.0                    | 3.62            | 354.50          | 121.6                       | 0.37                                   | 5397.4                    | 148.9 11.5                            | 145.92 N 29.62 E                  |
| 5600.0                    | 3.73            | 349.33          | 134.0                       | 0.17                                   | 5597.0                    | 161.0 9.9                             | 158.59 N 27.81 E                  |
| 5800.0                    | 2.59            | 340.47          | 144.8                       | 0.62                                   | 5796.7                    | 171.1 8.4                             | 169.23 N 25.10 E                  |
| 6000.0                    | 0.31            | 317.43          | 149.8                       | 1.15                                   | 5996.6                    | 175.4 7.6                             | 173.88 N 23.23 E                  |
| 6200.0                    | 0.04            | 320.13          | 150.4                       | 0.14                                   | 6196.6                    | 175.8 7.5                             | 174.32 N 22.83 E                  |
| 6400.0                    | 0.73            | 98.45           | 149.7                       | 0.38                                   | 6396.6                    | 175.8 7.9                             | 174.18 N 24.05 E                  |
| 6600.0                    | 0.94            | 113.05          | 147.9                       | 0.15                                   | 6596.6                    | 175.4 8.8                             | 173.35 N 26.82 E                  |
| 6800.0                    | 0.96            | 35.33           | 147.5                       | 0.59                                   | 6796.6                    | 176.5 9.6                             | 174.07 N 29.29 E                  |
| 7000.0                    | 1.44            | 19.35           | 150.2                       | 0.29                                   | 6996.5                    | 180.5 9.9                             | 177.80 N 31.09 E                  |
| 7200.0                    | 1.80            | 5.67            | 154.8                       | 0.26                                   | 7196.5                    | 186.1 10.0                            | 183.29 N 32.23 E                  |
| 7400.0                    | 2.10            | 355.88          | 161.0                       | 0.22                                   | 7396.3                    | 192.8 9.6                             | 190.06 N 32.28 E                  |
| 7600.0                    | 2.40            | 12.79           | 167.8                       | 0.36                                   | 7596.2                    | 200.5 9.5                             | 197.79 N 32.94 E                  |
| 7800.0                    | 1.90            | 1.71            | 174.1                       | 0.33                                   | 7796.1                    | 208.0 9.4                             | 205.18 N 33.97 E                  |
| 8000.0                    | 1.42            | 345.52          | 179.6                       | 0.33                                   | 7996.0                    | 213.5 9.0                             | 210.90 N 33.45 E                  |
| 8200.0                    | 1.01            | 328.87          | 183.8                       | 0.27                                   | 8195.9                    | 217.2 8.5                             | 214.81 N 31.91 E                  |
| 8400.0                    | 0.93            | 332.68          | 187.1                       | 0.05                                   | 8395.9                    | 219.9 7.9                             | 217.76 N 30.26 E                  |
| 8600.0                    | 0.83            | 319.62          | 190.1                       | 0.11                                   | 8595.9                    | 222.2 7.4                             | 220.31 N 28.57 E                  |
| 8800.0                    | 1.54            | 272.93          | 192.7                       | 0.57                                   | 8795.8                    | 222.9 6.4                             | 221.55 N 24.96 E                  |

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 Well: SHUGART 6 FED COM NO. 1, 4-1/2" DRILLPIPE  
 Location: TMBR/SHARP #10, EDDY COUNTY, NEW MEXICO  
 Job Number: MD0800GMW224

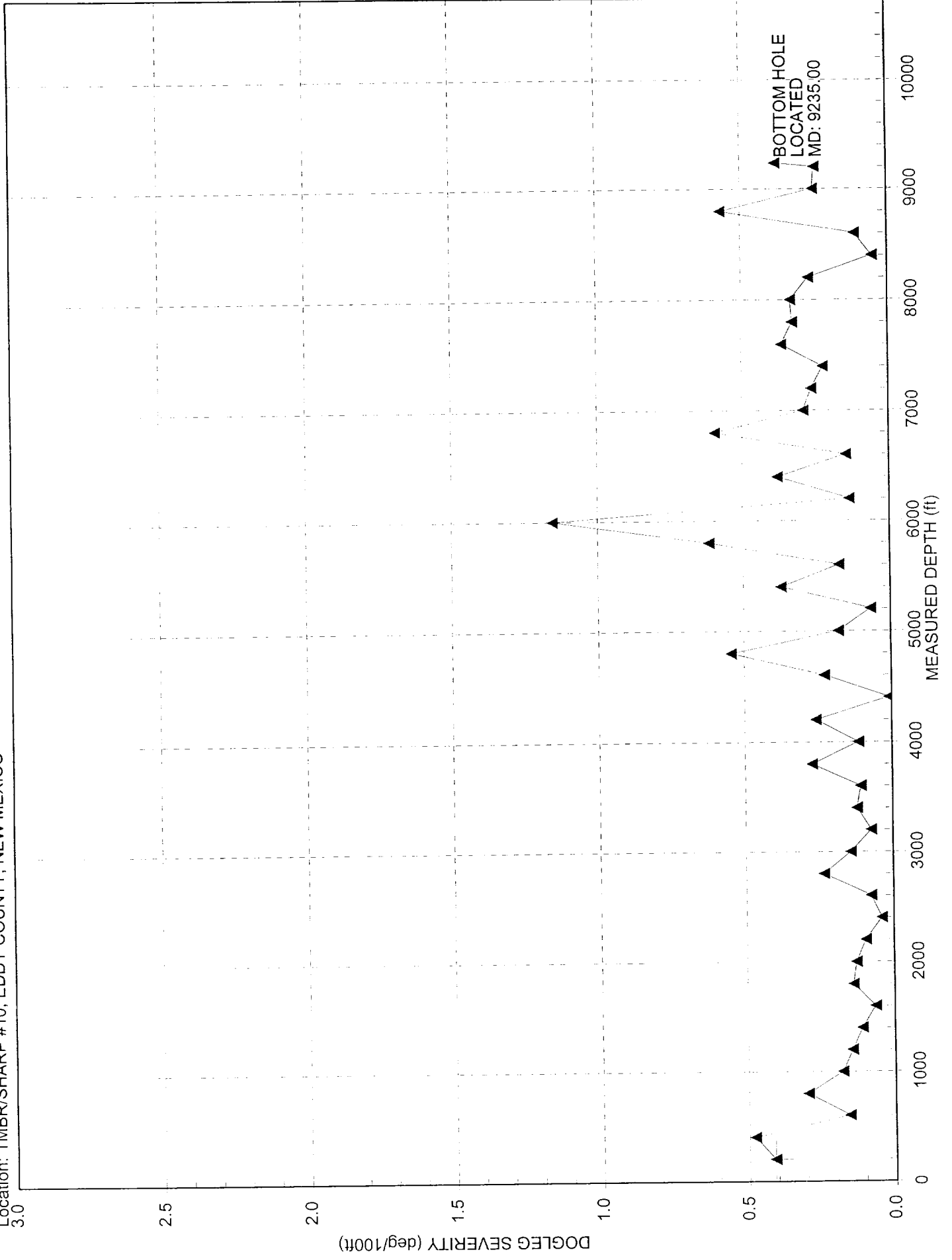
| MEASURED<br>DEPTH<br>feet | I N C L<br>deg. | A Z I M U T H<br>deg. | V E R T I C A L<br>S E C T I O N<br>feet | D O G L E G<br>S E V E R I T Y<br>deg./<br>100 ft. | V E R T I C A L<br>D E P T H<br>feet | C L O S U R E<br>D I S T . A Z I M U T H<br>feet deg. | H O R I Z O N T A L<br>C O O R D I N A T E S<br>feet |
|---------------------------|-----------------|-----------------------|------------------------------------------|----------------------------------------------------|--------------------------------------|-------------------------------------------------------|------------------------------------------------------|
| 9000.0                    | 1.05            | 266.82                | 194.6                                    | 0.25                                               | 8995.8                               | 222.5 5.3                                             | 221.58 N 20.45 E                                     |
| 9200.0                    | 0.59            | 280.35                | 195.8                                    | 0.25                                               | 9195.8                               | 222.4 4.5                                             | 221.67 N 17.61 E                                     |
| 9235.0                    | 0.46            | 281.17                | 196.0                                    | 0.38                                               | 9230.8                               | 222.4 4.5                                             | 221.73 N 17.30 E                                     |

Final Station Closure: Distance: 222.40 ft Az: 4.46 deg.



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Gyrodata, Inc.  
MD0800GMW224 DEFINITIVE



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