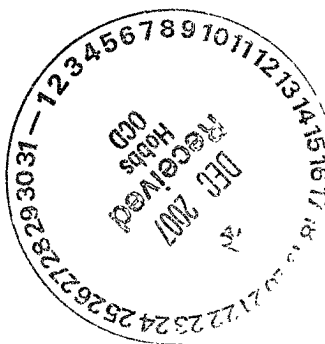


COUNTY **Lea**

P. 30-175-35e  
1065/s & 690/E

30-025-38398

|           |       |
|-----------|-------|
| 247       | 0.50  |
| 486       | 0.75  |
| 726       | 0.50  |
| 948       | 0.75  |
| 1422      | 0.75  |
| 2105      | 0.50  |
| 2355      | 0.00  |
| 2608      | 0.75  |
| 3151      | 5.46  |
| 3246      | 7.60  |
| 3308      | 8.10  |
| 3371      | 9.70  |
| 3435      | 11.10 |
| 3498      | 12.00 |
| 3561      | 12.70 |
| 3625      | 12.70 |
| 3688      | 11.40 |
| 3751      | 11.80 |
| 3814      | 13.00 |
| 3908      | 12.80 |
| 3962      | 12.10 |
| 4045      | 10.40 |
| 4098      | 9.30  |
| 4162      | 9.10  |
| 4226      | 9.10  |
| 4285      | 9.00  |
| 4349      | 8.80  |
| 4412      | 8.60  |
| 4475      | 8.40  |
| 4540      | 8.60  |
| 4601      | 7.70  |
| 4949      | 0.70  |
| 5106      | 0.75  |
| 5369      | 1.75  |
| 5674      | 1.25  |
| 5769      | 1.50  |
| 5894      | 0.00  |
| T.D. 6018 | 1.75  |

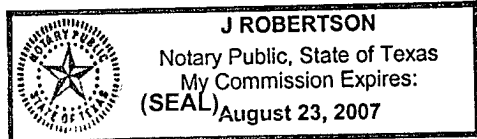


**SIGNED BY:**

**SPENCER ARMOUR, CEO**

**STATE OF TEXAS**  
**COUNTY OF MIDLAND**

ON THIS 16th DAY OF August, 2007, BEFORE ME, J ROBERTSON, A NOTARY PUBLIC, PERSONALLY APPEARED SPENCER ARMOUR, WHO ACKNOWLEDGED AND EXECUTED THIS DOCUMENT. WITNESS MY HAND AND OFFICIAL SEAL.



  
NOTARY PUBLIC

## Results of Directional Survey

|             |              |           |                                |
|-------------|--------------|-----------|--------------------------------|
| API number: | 30-025-38398 |           |                                |
| OGRID:      |              | Operator: | CONOCO PHILLIPS COMPANY        |
|             |              | Property: | VACUUM;GLORIETA EAST UNIT # 30 |

|         |        |   |      |     |     |     |     |
|---------|--------|---|------|-----|-----|-----|-----|
| surface | ULSTR: | P | 30   | T   | 17S | R   | 35E |
|         |        |   | 1065 | FSL | 690 | FEL |     |

|        |        |   |      |     |     |     |     |
|--------|--------|---|------|-----|-----|-----|-----|
| BH Loc | ULSTR: | P | 30   | T   | 17S | R   | 35E |
|        |        |   | 1152 | FSL | 401 | FEL |     |

|              |      |       |        |         |
|--------------|------|-------|--------|---------|
|              | MD   | N/S   | E/W    | VD      |
|              | 6070 | 95.30 | 288.10 | 6045    |
| TOP PERFS/OH | 6080 | 95.00 | 288.20 | 6055.00 |
|              | 6080 | 95.00 | 288.20 | 6055.00 |
|              | 6140 | 93.40 | 288.40 | 6115.00 |
| BOT PERFS/OH | 6148 | 93.16 | 288.40 | 6123.00 |
|              | 6150 | 93.10 | 288.40 | 6125.00 |

|              |      |       |        |         |
|--------------|------|-------|--------|---------|
| NEXT TO LAST | 6340 | 87.70 | 289.00 | 6315.00 |
| LAST READING | 6350 | 87.40 | 289.00 | 6325.00 |
| TD           | 6350 | 87.40 | 289.00 | 6325.00 |

|                  |      |    |     |    |
|------------------|------|----|-----|----|
| Surface Location | 1065 | FS | 690 | FE |
| Projected BHL    | 1152 | FS | 401 | FE |
| Location of      |      |    |     |    |
| Top Perfs/OH     | 1160 | FS | 402 | FE |
| Bottom Perfs/OH  | 1158 | FS | 402 | FE |

### SUMMARY of Subsurface Locations

|                  |              |      |    |     |    |             |
|------------------|--------------|------|----|-----|----|-------------|
| Surface Location | P-30-17S-35E | 1065 | FS | 690 | FE | Vert. Depth |
|                  |              |      |    |     |    |             |
| Top Perfs/OH     | P-30-17S-35E | 1160 | FS | 402 | FE | 6055.00     |
| Bottom Perfs/OH  | P-30-17S-35E | 1158 | FS | 402 | FE | 6123.00     |
|                  |              |      |    |     |    |             |
| Projected TD     | P-30-17S-35E | 1152 | FS | 401 | FE | 6325.00     |

**DIRECTIONAL SURVEY****Vacuum Glorieta East Unit 09-30****General Information:**

Company Name: ConocoPhillips Company  
Field: Vacuum (Glorieta)  
Well: Vacuum Glorieta East Unit 09-30  
County: Lea  
State: New Mexico  
Field Location: 1965'FSL & 690'FEL  
API Number: 30-025-38398  
Logging Engineer: Max Gaffney  
Processed By: Sara Draper  
Service Order Number: 11756410  
Job Number: 1585048  
Date Logged: 5-Jul-2007  
Date Processed: 9-Jul-2007

**Bottom Hole Location:**

| Measured<br>Depth<br><br>ft | True<br>Vertical<br>Depth<br><br>ft | +North<br>-South<br>Drift<br><br>ft | +East<br>-West<br>Drift<br><br>ft | Course<br>Length<br><br>ft | Course<br>Azimuth<br><br>Degrees |
|-----------------------------|-------------------------------------|-------------------------------------|-----------------------------------|----------------------------|----------------------------------|
| 6350.0                      | 6325.0                              | 87.4                                | 289.0                             | 301.9                      | 73.17                            |

SUR: P-30-17s-35e, 1065/s & 690/E  
BHL: P-30-17s-35e, 1152/s & 401/E  
API # 30-025-38398

## TVD Parameters

|                                   |                          |
|-----------------------------------|--------------------------|
| Method of Computation:            | Minimum Curvature Method |
| Type of Input Data:               | Log Inputs Only          |
| Stations Input File:              | ./tvdcomp.dat            |
| Station Data Output Sample Type?: | Continuous               |
| Magnetic Decl. Corr.?:            | Yes                      |

## Tie Point Parameters

|                      |           |
|----------------------|-----------|
| Measured Depth:      | 1700.0 ft |
| True Vertical Depth: | 1699.9 ft |
| Azimuth:             | 138.6 deg |
| Deviation:           | 0.240 deg |
| North/South Drift:   | 10.3 ft   |
| East/West Drift:     | 8.8 ft    |

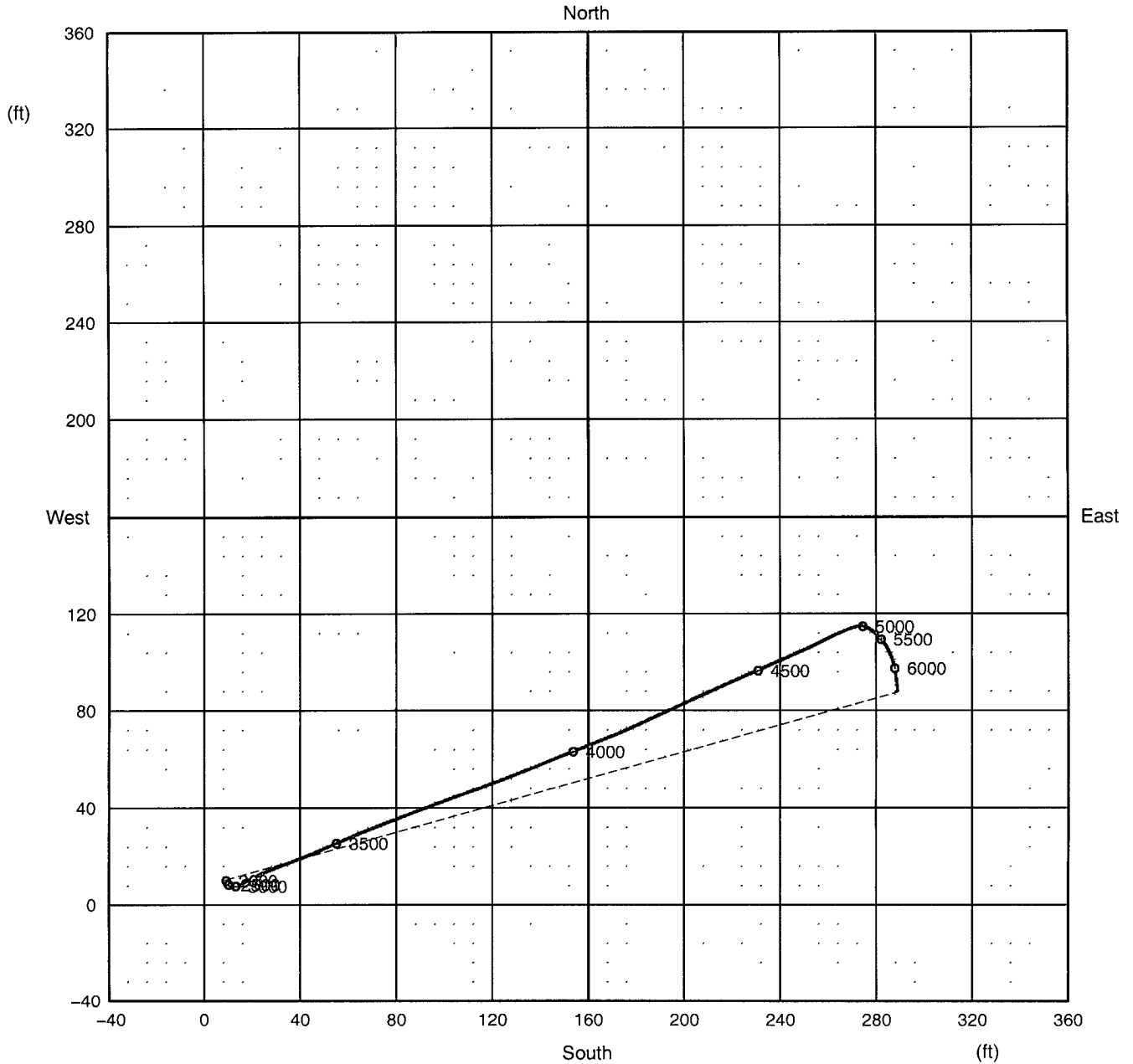
## Input Parameters:

### *General Parameters*

|               |             |
|---------------|-------------|
| Top Depth:    | 1720.000 ft |
| Bottom Depth: | 6350.000 ft |
| Sample Rate:  | -0.500 ft   |

*Tie Point information supplied by Scientific Drilling International. Well Trajectory is tied-in at 1700 ft from Scientific Drilling International Survey Report.*

# Vacuum Glorieta East Unit 09-30



Projection on Horizontal Plane

Horizontal scale 1 in : 66 ft

## Minimum Curvature Method Method

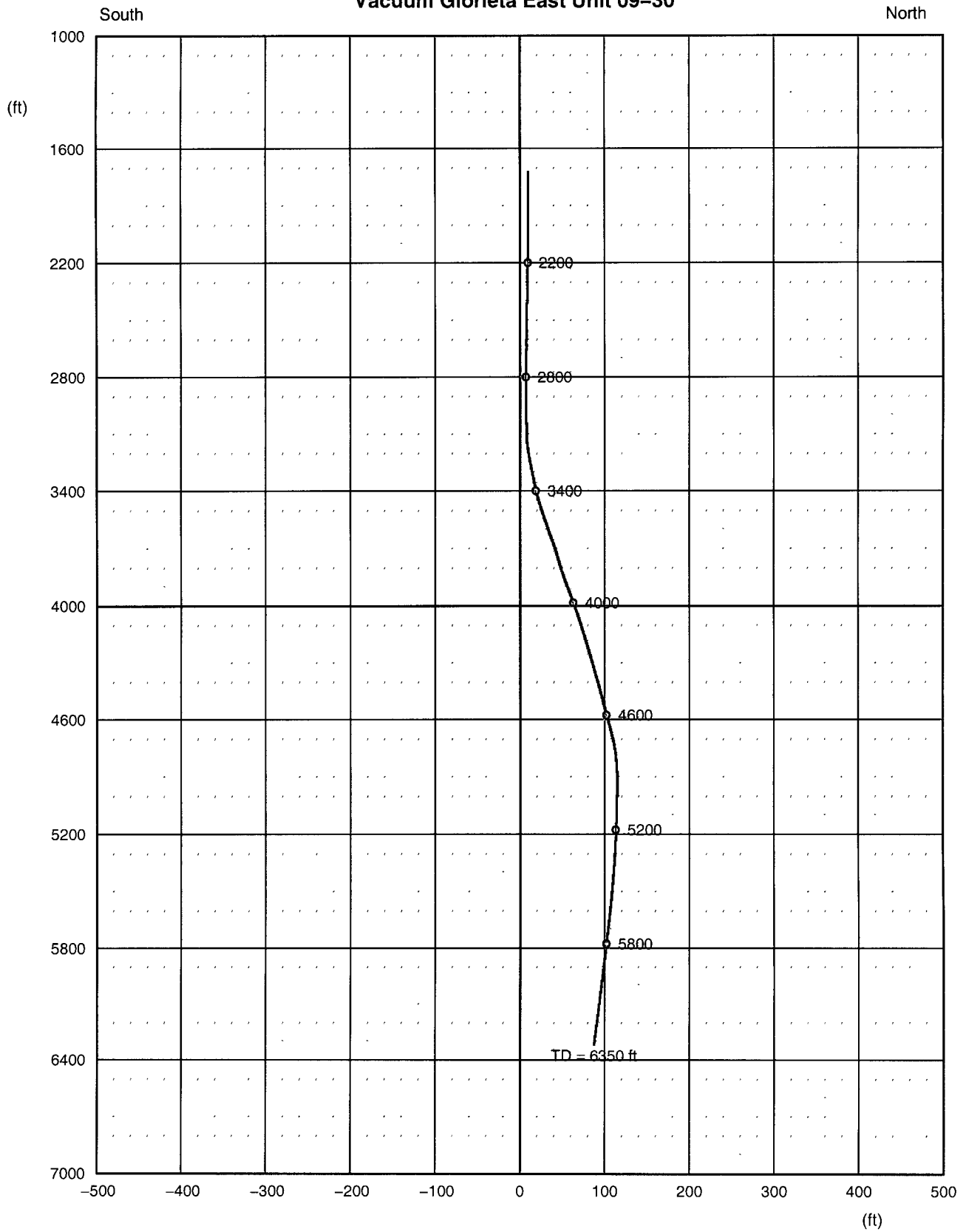
### Tie In Location

|                     |         |    |
|---------------------|---------|----|
| Measured Depth      | 1700.00 | ft |
| True Vertical Depth | 1699.92 | ft |
| Distance North      | 10.29   | ft |
| Distance East       | 8.78    | ft |

### Bottom Hole Location

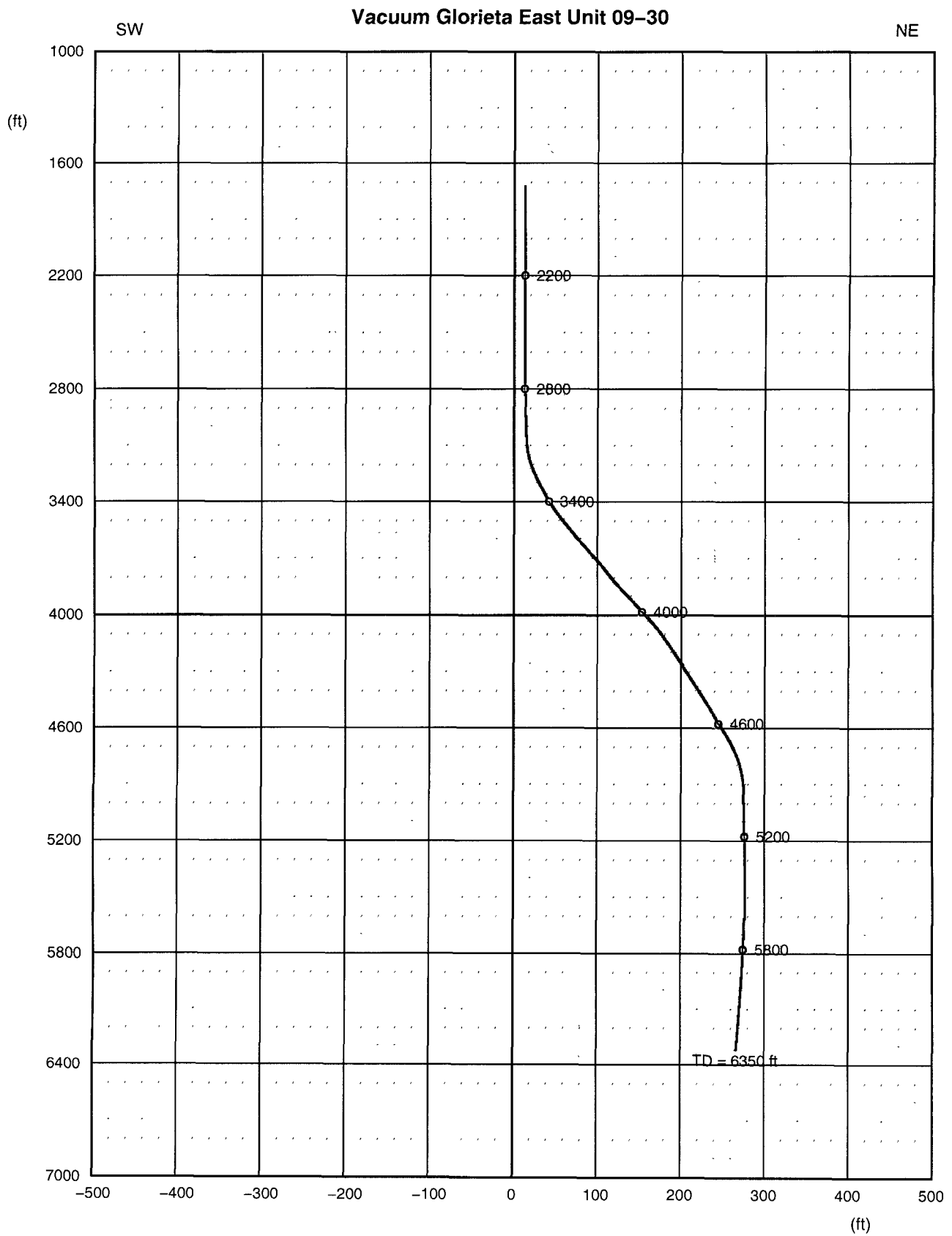
|                     |         |     |
|---------------------|---------|-----|
| Measured Depth      | 6350.00 | ft  |
| True Vertical Depth | 6325.00 | ft  |
| Distance North      | 87.45   | ft  |
| Distance East       | 289.01  | ft  |
| Course Length       | 301.95  | ft  |
| Course Azimuth      | 73.17   | deg |

# Vacuum Glorieta East Unit 09-30

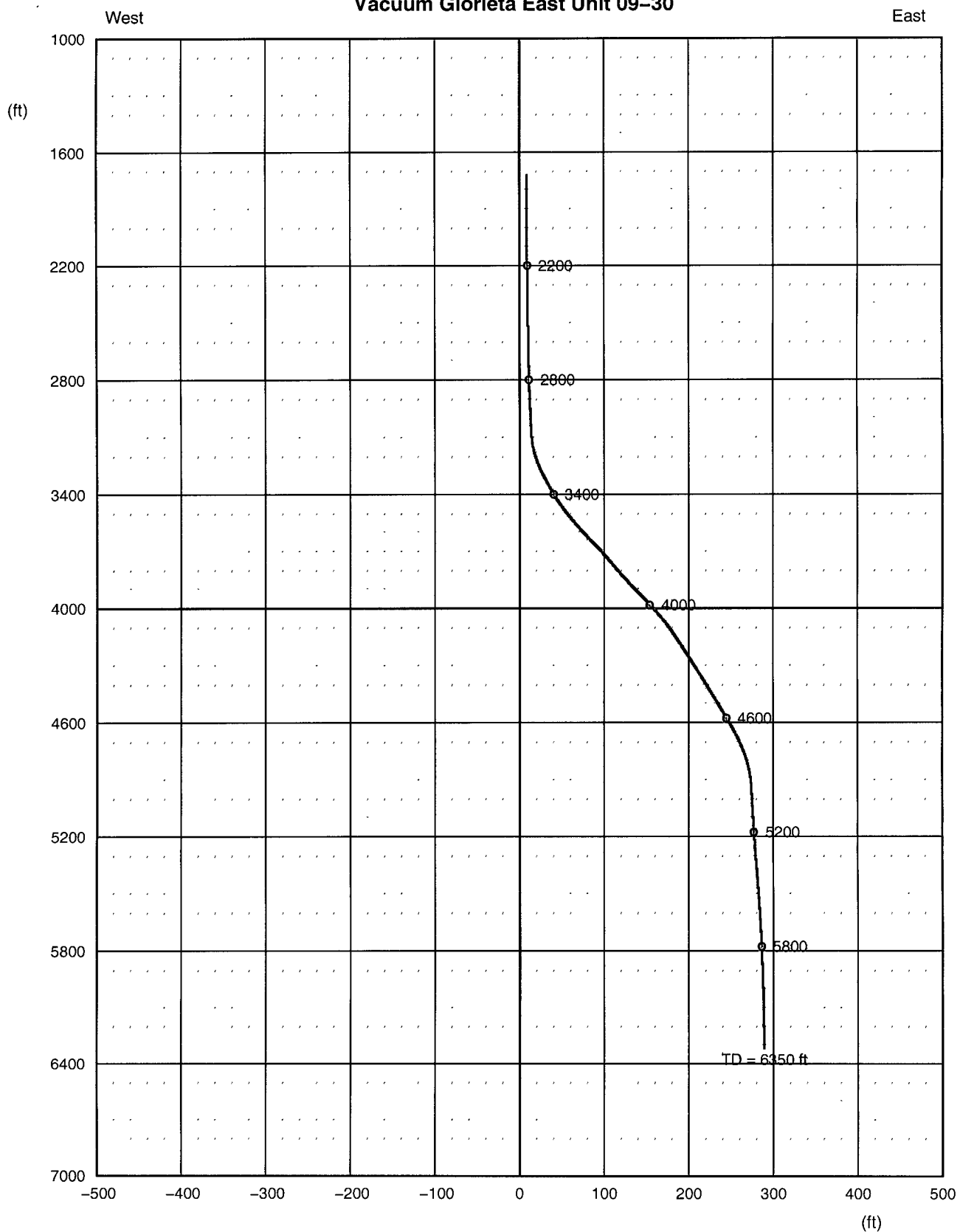


Projection on Vertical Plane

Vertical scale 1 in : 750 , Horizontal scale 1 in : 166 ft



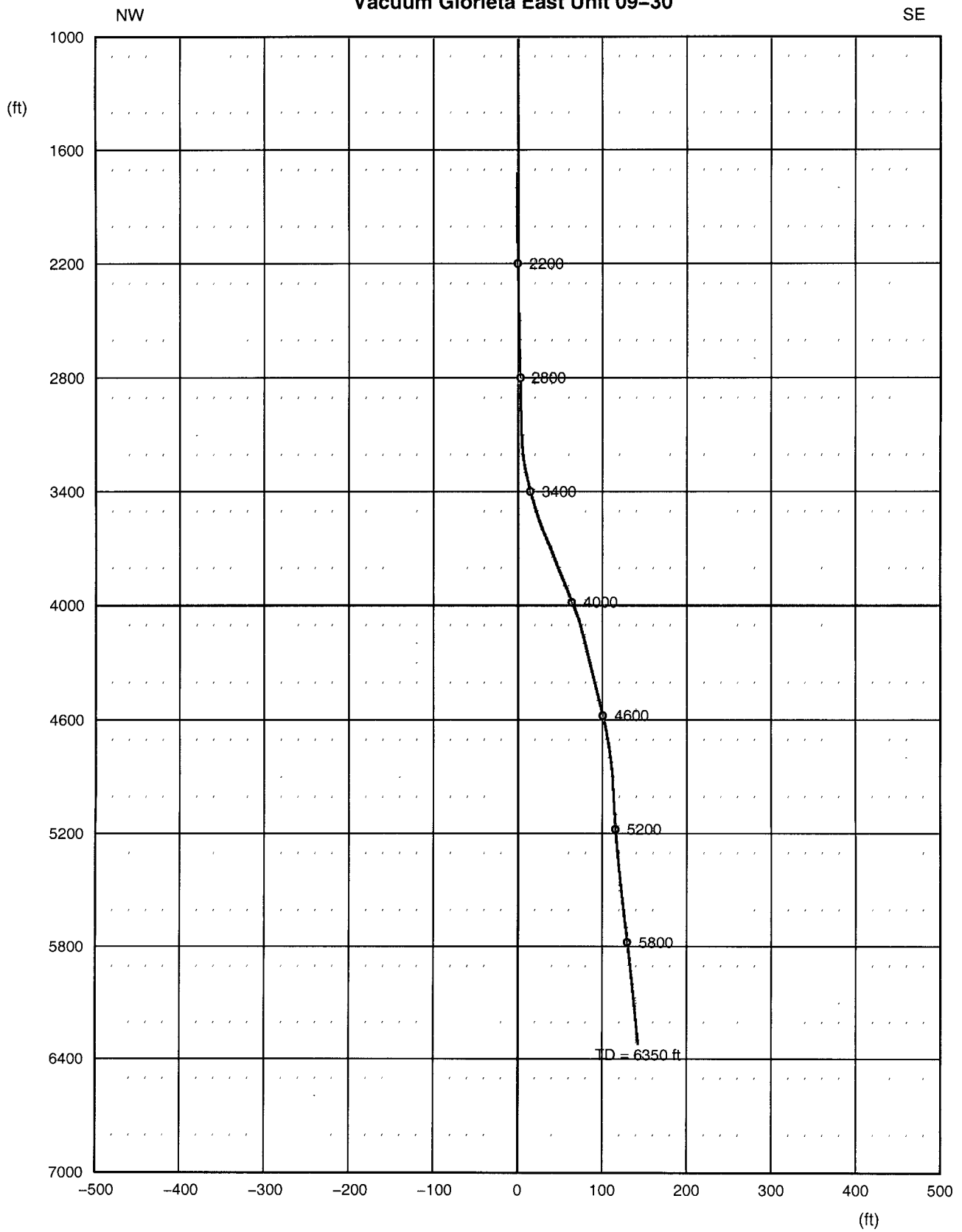
# Vacuum Glorieta East Unit 09-30



Projection on Vertical Plane

Vertical scale 1 in : 750 , Horizontal scale 1 in : 166 ft

# Vacuum Glorieta East Unit 09-30



Projection on Vertical Plane

Vertical scale 1 in : 750 , Horizontal scale 1 in : 166 ft

## Tie Point Parameters for Directional Survey

| Measured<br>Depth | True<br>Vertical<br>Depth | +East<br>-West<br>Well<br>Departure | +North<br>-South<br>Well<br>Departure | Deviation | Azimuth |
|-------------------|---------------------------|-------------------------------------|---------------------------------------|-----------|---------|
| 1700.0            | 1699.9                    | 8.8                                 | 10.3                                  | 0.240     | 138.6   |

### Coordinates

| Measured<br>Depth<br>(ft) | True<br>Vertical<br>Depth<br>(ft) | +North<br>-South<br>(ft) | +East<br>-West<br>(ft) | Course<br>Length<br>(ft) | Wellbore<br>Deviation<br>(deg) | Wellbore<br>Azimuth<br>(deg) |
|---------------------------|-----------------------------------|--------------------------|------------------------|--------------------------|--------------------------------|------------------------------|
| 1720.0                    | 1720.0                            | 10.3                     | 8.9                    | 13.5                     | 0.3                            | 96.0                         |
| 1730.0                    | 1730.0                            | 10.3                     | 8.9                    | 13.6                     | 0.2                            | 95.4                         |
| 1740.0                    | 1740.0                            | 10.2                     | 8.9                    | 13.6                     | 0.1                            | 90.6                         |
| 1750.0                    | 1750.0                            | 10.2                     | 9.0                    | 13.6                     | 0.1                            | 126.7                        |
| 1760.0                    | 1760.0                            | 10.2                     | 9.0                    | 13.6                     | 0.1                            | 169.5                        |
| 1770.0                    | 1770.0                            | 10.2                     | 9.0                    | 13.6                     | 0.2                            | 182.2                        |
| 1780.0                    | 1780.0                            | 10.2                     | 9.0                    | 13.5                     | 0.2                            | 162.1                        |
| 1790.0                    | 1790.0                            | 10.1                     | 9.0                    | 13.6                     | 0.3                            | 87.6                         |
| 1800.0                    | 1800.0                            | 10.2                     | 9.1                    | 13.6                     | 0.3                            | 63.0                         |
| 1810.0                    | 1810.0                            | 10.2                     | 9.1                    | 13.7                     | 0.2                            | 68.7                         |
| 1820.0                    | 1820.0                            | 10.2                     | 9.1                    | 13.7                     | 0.1                            | 51.8                         |
| 1830.0                    | 1830.0                            | 10.2                     | 9.1                    | 13.7                     | 0.0                            | 318.0                        |
| 1840.0                    | 1840.0                            | 10.2                     | 9.1                    | 13.7                     | 0.1                            | 207.0                        |
| 1850.0                    | 1850.0                            | 10.2                     | 9.1                    | 13.7                     | 0.2                            | 150.3                        |
| 1860.0                    | 1860.0                            | 10.2                     | 9.2                    | 13.7                     | 0.2                            | 116.9                        |
| 1870.0                    | 1870.0                            | 10.1                     | 9.2                    | 13.7                     | 0.2                            | 90.4                         |
| 1880.0                    | 1880.0                            | 10.2                     | 9.2                    | 13.7                     | 0.2                            | 49.6                         |
| 1890.0                    | 1890.0                            | 10.2                     | 9.2                    | 13.7                     | 0.1                            | 54.2                         |
| 1900.0                    | 1900.0                            | 10.2                     | 9.2                    | 13.7                     | 0.1                            | 163.0                        |
| 1910.0                    | 1910.0                            | 10.2                     | 9.2                    | 13.7                     | 0.1                            | 325.2                        |
| 1920.0                    | 1920.0                            | 10.2                     | 9.2                    | 13.7                     | 0.2                            | 332.5                        |
| 1930.0                    | 1930.0                            | 10.2                     | 9.2                    | 13.7                     | 0.2                            | 299.1                        |
| 1940.0                    | 1940.0                            | 10.2                     | 9.2                    | 13.7                     | 0.1                            | 210.4                        |
| 1950.0                    | 1950.0                            | 10.2                     | 9.2                    | 13.7                     | 0.2                            | 166.5                        |
| 1960.0                    | 1960.0                            | 10.2                     | 9.2                    | 13.7                     | 0.2                            | 152.8                        |

## Coordinates

| Measured<br>Depth | True<br>Vertical<br>Depth | +North<br>-South | +East<br>-West | Course<br>Length | Wellbore<br>Deviation | Wellbore<br>Azimuth |
|-------------------|---------------------------|------------------|----------------|------------------|-----------------------|---------------------|
| (ft)              | (ft)                      | (ft)             | (ft)           | (ft)             | (deg)                 | (deg)               |
| 1970.0            | 1970.0                    | 10.1             | 9.2            | 13.7             | 0.1                   | 105.3               |
| 1980.0            | 1980.0                    | 10.1             | 9.2            | 13.7             | 0.2                   | 104.9               |
| 1990.0            | 1990.0                    | 10.1             | 9.2            | 13.7             | 0.1                   | 160.9               |
| 2000.0            | 2000.0                    | 10.1             | 9.2            | 13.7             | 0.1                   | 187.3               |
| 2010.0            | 2010.0                    | 10.1             | 9.2            | 13.7             | 0.1                   | 184.3               |
| 2020.0            | 2020.0                    | 10.1             | 9.2            | 13.7             | 0.1                   | 174.1               |
| 2030.0            | 2030.0                    | 10.0             | 9.2            | 13.6             | 0.1                   | 158.2               |
| 2040.0            | 2040.0                    | 10.0             | 9.2            | 13.6             | 0.1                   | 214.6               |
| 2050.0            | 2050.0                    | 10.0             | 9.2            | 13.6             | 0.2                   | 165.1               |
| 2060.0            | 2060.0                    | 10.0             | 9.2            | 13.6             | 0.2                   | 196.7               |
| 2070.0            | 2070.0                    | 9.9              | 9.2            | 13.6             | 0.3                   | 176.3               |
| 2080.0            | 2080.0                    | 9.9              | 9.2            | 13.5             | 0.3                   | 153.0               |
| 2090.0            | 2090.0                    | 9.9              | 9.3            | 13.5             | 0.3                   | 123.3               |
| 2100.0            | 2100.0                    | 9.8              | 9.3            | 13.5             | 0.5                   | 125.2               |
| 2110.0            | 2110.0                    | 9.8              | 9.4            | 13.6             | 0.3                   | 95.8                |
| 2120.0            | 2120.0                    | 9.8              | 9.4            | 13.6             | 0.2                   | 165.6               |
| 2130.0            | 2130.0                    | 9.8              | 9.4            | 13.6             | 0.1                   | 163.1               |
| 2140.0            | 2140.0                    | 9.7              | 9.4            | 13.6             | 0.2                   | 166.9               |
| 2150.0            | 2150.0                    | 9.7              | 9.5            | 13.5             | 0.2                   | 166.8               |
| 2160.0            | 2160.0                    | 9.7              | 9.5            | 13.5             | 0.2                   | 178.9               |
| 2170.0            | 2170.0                    | 9.6              | 9.5            | 13.5             | 0.2                   | 200.8               |
| 2180.0            | 2180.0                    | 9.6              | 9.5            | 13.5             | 0.3                   | 170.8               |
| 2190.0            | 2190.0                    | 9.5              | 9.5            | 13.4             | 0.3                   | 158.4               |
| 2200.0            | 2200.0                    | 9.5              | 9.5            | 13.4             | 0.2                   | 137.2               |
| 2210.0            | 2210.0                    | 9.5              | 9.5            | 13.4             | 0.3                   | 134.2               |
| 2220.0            | 2220.0                    | 9.4              | 9.6            | 13.4             | 0.3                   | 113.7               |
| 2230.0            | 2230.0                    | 9.4              | 9.6            | 13.5             | 0.2                   | 127.5               |
| 2240.0            | 2240.0                    | 9.4              | 9.6            | 13.4             | 0.2                   | 166.4               |
| 2250.0            | 2250.0                    | 9.3              | 9.7            | 13.4             | 0.3                   | 139.6               |
| 2260.0            | 2260.0                    | 9.3              | 9.7            | 13.4             | 0.3                   | 139.0               |
| 2270.0            | 2270.0                    | 9.3              | 9.7            | 13.4             | 0.4                   | 123.5               |
| 2280.0            | 2280.0                    | 9.2              | 9.8            | 13.5             | 0.4                   | 100.2               |
| 2290.0            | 2290.0                    | 9.2              | 9.9            | 13.5             | 0.2                   | 110.4               |

## Coordinates

| Measured<br>Depth | True<br>Vertical<br>Depth | +North<br>-South | +East<br>-West | Course<br>Length | Wellbore<br>Deviation | Wellbore<br>Azimuth |
|-------------------|---------------------------|------------------|----------------|------------------|-----------------------|---------------------|
| (ft)              | (ft)                      | (ft)             | (ft)           | (ft)             | (deg)                 | (deg)               |
| 2300.0            | 2300.0                    | 9.2              | 9.9            | 13.5             | 0.1                   | 173.4               |
| 2310.0            | 2310.0                    | 9.2              | 9.9            | 13.5             | 0.2                   | 181.2               |
| 2320.0            | 2320.0                    | 9.1              | 9.9            | 13.5             | 0.3                   | 161.6               |
| 2330.0            | 2330.0                    | 9.1              | 9.9            | 13.4             | 0.3                   | 147.8               |
| 2340.0            | 2340.0                    | 9.1              | 9.9            | 13.4             | 0.3                   | 132.7               |
| 2350.0            | 2350.0                    | 9.0              | 10.0           | 13.5             | 0.2                   | 119.3               |
| 2360.0            | 2360.0                    | 9.0              | 10.0           | 13.5             | 0.3                   | 153.6               |
| 2370.0            | 2370.0                    | 9.0              | 10.0           | 13.4             | 0.2                   | 181.6               |
| 2380.0            | 2380.0                    | 8.9              | 10.0           | 13.4             | 0.3                   | 172.2               |
| 2390.0            | 2390.0                    | 8.9              | 10.0           | 13.4             | 0.3                   | 172.7               |
| 2400.0            | 2400.0                    | 8.8              | 10.0           | 13.3             | 0.4                   | 176.1               |
| 2410.0            | 2410.0                    | 8.8              | 10.0           | 13.3             | 0.3                   | 155.3               |
| 2420.0            | 2420.0                    | 8.7              | 10.1           | 13.3             | 0.4                   | 159.0               |
| 2430.0            | 2430.0                    | 8.6              | 10.1           | 13.3             | 0.5                   | 147.1               |
| 2440.0            | 2440.0                    | 8.6              | 10.1           | 13.3             | 0.4                   | 133.0               |
| 2450.0            | 2450.0                    | 8.5              | 10.2           | 13.3             | 0.3                   | 137.6               |
| 2460.0            | 2460.0                    | 8.5              | 10.2           | 13.3             | 0.3                   | 117.8               |
| 2470.0            | 2470.0                    | 8.5              | 10.3           | 13.3             | 0.2                   | 117.6               |
| 2480.0            | 2480.0                    | 8.5              | 10.3           | 13.3             | 0.3                   | 158.6               |
| 2490.0            | 2490.0                    | 8.4              | 10.3           | 13.3             | 0.3                   | 155.5               |
| 2500.0            | 2500.0                    | 8.4              | 10.3           | 13.3             | 0.3                   | 142.6               |
| 2510.0            | 2510.0                    | 8.3              | 10.4           | 13.3             | 0.3                   | 145.7               |
| 2520.0            | 2520.0                    | 8.3              | 10.4           | 13.3             | 0.5                   | 151.6               |
| 2530.0            | 2530.0                    | 8.2              | 10.5           | 13.3             | 0.4                   | 142.9               |
| 2540.0            | 2540.0                    | 8.2              | 10.5           | 13.3             | 0.4                   | 138.6               |
| 2550.0            | 2550.0                    | 8.1              | 10.5           | 13.3             | 0.4                   | 122.3               |
| 2560.0            | 2560.0                    | 8.1              | 10.6           | 13.3             | 0.3                   | 119.3               |
| 2570.0            | 2570.0                    | 8.1              | 10.6           | 13.3             | 0.3                   | 162.1               |
| 2580.0            | 2580.0                    | 8.0              | 10.7           | 13.3             | 0.2                   | 129.4               |
| 2590.0            | 2590.0                    | 8.0              | 10.7           | 13.3             | 0.3                   | 154.8               |
| 2600.0            | 2600.0                    | 7.9              | 10.7           | 13.3             | 0.2                   | 154.2               |
| 2610.0            | 2610.0                    | 7.9              | 10.7           | 13.3             | 0.2                   | 117.1               |
| 2620.0            | 2620.0                    | 7.9              | 10.8           | 13.3             | 0.2                   | 91.8                |

## Coordinates

| Measured<br>Depth | True<br>Vertical<br>Depth | +North<br>-South | +East<br>-West | Course<br>Length | Wellbore<br>Deviation | Wellbore<br>Azimuth |
|-------------------|---------------------------|------------------|----------------|------------------|-----------------------|---------------------|
| (ft)              | (ft)                      | (ft)             | (ft)           | (ft)             | (deg)                 | (deg)               |
| 2630.0            | 2630.0                    | 7.9              | 10.8           | 13.4             | 0.3                   | 68.8                |
| 2640.0            | 2640.0                    | 7.9              | 10.9           | 13.5             | 0.2                   | 33.3                |
| 2650.0            | 2650.0                    | 8.0              | 10.9           | 13.5             | 0.1                   | 160.1               |
| 2660.0            | 2660.0                    | 7.9              | 10.9           | 13.4             | 0.3                   | 148.3               |
| 2670.0            | 2670.0                    | 7.9              | 10.9           | 13.4             | 0.3                   | 145.8               |
| 2680.0            | 2680.0                    | 7.8              | 10.9           | 13.4             | 0.3                   | 137.1               |
| 2690.0            | 2690.0                    | 7.8              | 11.0           | 13.5             | 0.3                   | 133.1               |
| 2700.0            | 2700.0                    | 7.7              | 11.0           | 13.5             | 0.4                   | 117.7               |
| 2710.0            | 2710.0                    | 7.7              | 11.1           | 13.5             | 0.4                   | 111.9               |
| 2720.0            | 2720.0                    | 7.7              | 11.2           | 13.5             | 0.4                   | 108.7               |
| 2730.0            | 2730.0                    | 7.7              | 11.2           | 13.6             | 0.4                   | 102.6               |
| 2740.0            | 2740.0                    | 7.7              | 11.3           | 13.6             | 0.3                   | 106.5               |
| 2750.0            | 2750.0                    | 7.6              | 11.3           | 13.7             | 0.2                   | 111.1               |
| 2760.0            | 2760.0                    | 7.6              | 11.4           | 13.7             | 0.4                   | 109.6               |
| 2770.0            | 2770.0                    | 7.6              | 11.4           | 13.7             | 0.3                   | 116.6               |
| 2780.0            | 2780.0                    | 7.6              | 11.5           | 13.7             | 0.4                   | 114.2               |
| 2790.0            | 2790.0                    | 7.5              | 11.5           | 13.8             | 0.4                   | 95.6                |
| 2800.0            | 2800.0                    | 7.5              | 11.6           | 13.8             | 0.4                   | 87.4                |
| 2810.0            | 2810.0                    | 7.5              | 11.7           | 13.9             | 0.4                   | 84.6                |
| 2820.0            | 2820.0                    | 7.6              | 11.8           | 14.0             | 0.5                   | 78.9                |
| 2830.0            | 2830.0                    | 7.6              | 11.8           | 14.1             | 0.5                   | 77.6                |
| 2840.0            | 2840.0                    | 7.6              | 11.9           | 14.1             | 0.4                   | 79.8                |
| 2850.0            | 2850.0                    | 7.6              | 12.0           | 14.2             | 0.5                   | 74.5                |
| 2860.0            | 2860.0                    | 7.6              | 12.1           | 14.3             | 0.5                   | 80.1                |
| 2870.0            | 2870.0                    | 7.6              | 12.2           | 14.4             | 0.5                   | 74.6                |
| 2880.0            | 2880.0                    | 7.7              | 12.2           | 14.5             | 0.5                   | 74.9                |
| 2890.0            | 2890.0                    | 7.7              | 12.3           | 14.5             | 0.5                   | 72.4                |
| 2900.0            | 2900.0                    | 7.7              | 12.4           | 14.6             | 0.5                   | 89.2                |
| 2910.0            | 2910.0                    | 7.7              | 12.5           | 14.7             | 0.5                   | 88.8                |
| 2920.0            | 2920.0                    | 7.7              | 12.6           | 14.8             | 0.6                   | 81.0                |
| 2930.0            | 2930.0                    | 7.7              | 12.7           | 14.9             | 0.6                   | 74.7                |
| 2940.0            | 2940.0                    | 7.8              | 12.8           | 15.0             | 0.5                   | 70.8                |
| 2950.0            | 2950.0                    | 7.8              | 12.9           | 15.0             | 0.5                   | 83.6                |

## Coordinates

| Measured<br>Depth<br><br>(ft) | True<br>Vertical<br>Depth<br>(ft) | +North<br>-South<br>(ft) | +East<br>-West<br>(ft) | Course<br>Length<br>(ft) | Wellbore<br>Deviation<br>(deg) | Wellbore<br>Azimuth<br>(deg) |
|-------------------------------|-----------------------------------|--------------------------|------------------------|--------------------------|--------------------------------|------------------------------|
| 2960.0                        | 2960.0                            | 7.8                      | 13.0                   | 15.1                     | 0.6                            | 90.1                         |
| 2970.0                        | 2970.0                            | 7.8                      | 13.1                   | 15.2                     | 0.6                            | 80.1                         |
| 2980.0                        | 2980.0                            | 7.8                      | 13.2                   | 15.3                     | 0.6                            | 75.0                         |
| 2990.0                        | 2990.0                            | 7.9                      | 13.3                   | 15.4                     | 0.5                            | 76.7                         |
| 3000.0                        | 3000.0                            | 7.9                      | 13.4                   | 15.5                     | 0.5                            | 78.6                         |
| 3010.0                        | 3010.0                            | 7.9                      | 13.4                   | 15.6                     | 0.5                            | 88.7                         |
| 3020.0                        | 3020.0                            | 7.9                      | 13.5                   | 15.7                     | 0.6                            | 87.4                         |
| 3030.0                        | 3030.0                            | 7.9                      | 13.6                   | 15.8                     | 0.6                            | 84.1                         |
| 3040.0                        | 3040.0                            | 7.9                      | 13.7                   | 15.8                     | 0.6                            | 79.7                         |
| 3050.0                        | 3050.0                            | 7.9                      | 13.8                   | 16.0                     | 0.6                            | 80.1                         |
| 3060.0                        | 3060.0                            | 7.9                      | 13.9                   | 16.1                     | 0.6                            | 81.1                         |
| 3070.0                        | 3070.0                            | 8.0                      | 14.1                   | 16.2                     | 0.7                            | 83.1                         |
| 3080.0                        | 3080.0                            | 8.0                      | 14.2                   | 16.3                     | 0.9                            | 77.0                         |
| 3090.0                        | 3090.0                            | 8.0                      | 14.4                   | 16.4                     | 1.1                            | 73.6                         |
| 3100.0                        | 3100.0                            | 8.1                      | 14.5                   | 16.6                     | 1.2                            | 71.0                         |
| 3110.0                        | 3110.0                            | 8.2                      | 14.8                   | 16.9                     | 1.5                            | 68.0                         |
| 3120.0                        | 3120.0                            | 8.3                      | 15.0                   | 17.2                     | 1.8                            | 66.6                         |
| 3130.0                        | 3130.0                            | 8.4                      | 15.3                   | 17.5                     | 2.0                            | 64.9                         |
| 3140.0                        | 3140.0                            | 8.6                      | 15.7                   | 17.9                     | 2.3                            | 62.5                         |
| 3150.0                        | 3150.0                            | 8.8                      | 16.0                   | 18.3                     | 2.8                            | 62.1                         |
| 3160.0                        | 3160.0                            | 9.0                      | 16.5                   | 18.8                     | 3.2                            | 62.2                         |
| 3170.0                        | 3170.0                            | 9.3                      | 17.0                   | 19.4                     | 3.5                            | 61.2                         |
| 3180.0                        | 3180.0                            | 9.6                      | 17.6                   | 20.0                     | 3.8                            | 61.0                         |
| 3190.0                        | 3190.0                            | 9.9                      | 18.2                   | 20.7                     | 4.1                            | 61.7                         |
| 3200.0                        | 3200.0                            | 10.3                     | 18.8                   | 21.5                     | 4.4                            | 63.2                         |
| 3210.0                        | 3210.0                            | 10.6                     | 19.6                   | 22.3                     | 4.8                            | 63.5                         |
| 3220.0                        | 3220.0                            | 11.0                     | 20.3                   | 23.1                     | 5.1                            | 63.7                         |
| 3230.0                        | 3230.0                            | 11.4                     | 21.1                   | 24.0                     | 5.3                            | 64.1                         |
| 3240.0                        | 3240.0                            | 11.8                     | 22.0                   | 25.0                     | 5.6                            | 64.3                         |
| 3250.0                        | 3250.0                            | 12.3                     | 22.9                   | 26.0                     | 5.9                            | 64.8                         |
| 3260.0                        | 3260.0                            | 12.7                     | 23.9                   | 27.0                     | 6.1                            | 64.5                         |
| 3270.0                        | 3269.0                            | 13.2                     | 24.8                   | 28.1                     | 6.4                            | 65.7                         |
| 3280.0                        | 3279.0                            | 13.6                     | 25.9                   | 29.2                     | 6.7                            | 67.4                         |

## Coordinates

| Measured<br>Depth<br>(ft) | True<br>Vertical<br>Depth<br>(ft) | +North<br>-South<br>(ft) | +East<br>-West<br>(ft) | Course<br>Length<br>(ft) | Wellbore<br>Deviation<br>(deg) | Wellbore<br>Azimuth<br>(deg) |
|---------------------------|-----------------------------------|--------------------------|------------------------|--------------------------|--------------------------------|------------------------------|
| 3290.0                    | 3289.0                            | 14.1                     | 27.0                   | 30.4                     | 6.9                            | 68.0                         |
| 3300.0                    | 3299.0                            | 14.5                     | 28.1                   | 31.6                     | 7.1                            | 68.7                         |
| 3310.0                    | 3309.0                            | 15.0                     | 29.3                   | 32.9                     | 7.2                            | 69.3                         |
| 3320.0                    | 3319.0                            | 15.4                     | 30.4                   | 34.1                     | 7.3                            | 69.9                         |
| 3330.0                    | 3329.0                            | 15.8                     | 31.6                   | 35.4                     | 7.3                            | 70.0                         |
| 3340.0                    | 3339.0                            | 16.3                     | 32.8                   | 36.7                     | 7.4                            | 70.2                         |
| 3350.0                    | 3349.0                            | 16.7                     | 34.0                   | 37.9                     | 7.3                            | 70.1                         |
| 3360.0                    | 3359.0                            | 17.2                     | 35.2                   | 39.2                     | 7.3                            | 69.2                         |
| 3370.0                    | 3369.0                            | 17.6                     | 36.4                   | 40.5                     | 7.5                            | 69.1                         |
| 3380.0                    | 3379.0                            | 18.1                     | 37.7                   | 41.8                     | 7.9                            | 69.3                         |
| 3390.0                    | 3388.0                            | 18.6                     | 39.0                   | 43.2                     | 8.2                            | 69.5                         |
| 3400.0                    | 3398.0                            | 19.1                     | 40.3                   | 44.6                     | 8.2                            | 69.2                         |
| 3410.0                    | 3408.0                            | 19.6                     | 41.7                   | 46.1                     | 8.3                            | 68.8                         |
| 3420.0                    | 3418.0                            | 20.1                     | 43.0                   | 47.5                     | 8.6                            | 67.6                         |
| 3430.0                    | 3428.0                            | 20.7                     | 44.4                   | 49.0                     | 8.9                            | 67.2                         |
| 3440.0                    | 3438.0                            | 21.3                     | 45.9                   | 50.6                     | 9.3                            | 67.4                         |
| 3450.0                    | 3448.0                            | 22.0                     | 47.4                   | 52.3                     | 9.6                            | 67.3                         |
| 3460.0                    | 3458.0                            | 22.6                     | 49.0                   | 53.9                     | 9.8                            | 66.8                         |
| 3470.0                    | 3467.0                            | 23.3                     | 50.5                   | 55.7                     | 9.9                            | 66.4                         |
| 3480.0                    | 3477.0                            | 24.0                     | 52.1                   | 57.4                     | 10.1                           | 66.3                         |
| 3490.0                    | 3487.0                            | 24.7                     | 53.8                   | 59.2                     | 10.4                           | 66.5                         |
| 3500.0                    | 3497.0                            | 25.4                     | 55.4                   | 61.0                     | 10.8                           | 67.1                         |
| 3510.0                    | 3507.0                            | 26.2                     | 57.2                   | 62.9                     | 11.0                           | 67.2                         |
| 3520.0                    | 3517.0                            | 26.9                     | 59.0                   | 64.8                     | 11.1                           | 67.3                         |
| 3530.0                    | 3526.0                            | 27.7                     | 60.7                   | 66.7                     | 11.2                           | 67.4                         |
| 3540.0                    | 3536.0                            | 28.4                     | 62.5                   | 68.7                     | 11.2                           | 67.7                         |
| 3550.0                    | 3546.0                            | 29.1                     | 64.3                   | 70.6                     | 11.3                           | 67.9                         |
| 3560.0                    | 3556.0                            | 29.9                     | 66.2                   | 72.6                     | 11.6                           | 68.5                         |
| 3570.0                    | 3566.0                            | 30.6                     | 68.1                   | 74.6                     | 11.9                           | 68.5                         |
| 3580.0                    | 3575.0                            | 31.4                     | 70.0                   | 76.7                     | 12.1                           | 68.6                         |
| 3590.0                    | 3585.0                            | 32.1                     | 72.0                   | 78.8                     | 12.1                           | 68.5                         |
| 3600.0                    | 3595.0                            | 32.9                     | 73.9                   | 80.9                     | 12.2                           | 68.6                         |
| 3610.0                    | 3605.0                            | 33.7                     | 75.9                   | 83.0                     | 12.1                           | 69.0                         |

## Coordinates

| Measured<br>Depth<br><br>(ft) | True<br>Vertical<br>Depth<br>(ft) | +North<br>-South<br>(ft) | +East<br>-West<br>(ft) | Course<br>Length<br>(ft) | Wellbore<br>Deviation<br>(deg) | Wellbore<br>Azimuth<br>(deg) |
|-------------------------------|-----------------------------------|--------------------------|------------------------|--------------------------|--------------------------------|------------------------------|
| 3620.0                        | 3615.0                            | 34.4                     | 77.8                   | 85.1                     | 12.3                           | 69.2                         |
| 3630.0                        | 3624.0                            | 35.2                     | 79.9                   | 87.3                     | 12.6                           | 69.3                         |
| 3640.0                        | 3634.0                            | 36.0                     | 81.9                   | 89.5                     | 12.9                           | 69.2                         |
| 3650.0                        | 3644.0                            | 36.8                     | 84.0                   | 91.7                     | 13.0                           | 69.3                         |
| 3660.0                        | 3654.0                            | 37.6                     | 86.1                   | 94.0                     | 13.0                           | 69.4                         |
| 3670.0                        | 3663.0                            | 38.3                     | 88.2                   | 96.2                     | 12.9                           | 69.5                         |
| 3680.0                        | 3673.0                            | 39.1                     | 90.3                   | 98.4                     | 12.8                           | 69.6                         |
| 3690.0                        | 3683.0                            | 39.9                     | 92.4                   | 100.6                    | 12.7                           | 69.7                         |
| 3700.0                        | 3693.0                            | 40.7                     | 94.4                   | 102.8                    | 12.5                           | 69.8                         |
| 3710.0                        | 3702.0                            | 41.4                     | 96.5                   | 105.0                    | 12.3                           | 69.9                         |
| 3720.0                        | 3712.0                            | 42.1                     | 98.5                   | 107.1                    | 12.1                           | 70.0                         |
| 3730.0                        | 3722.0                            | 42.8                     | 100.4                  | 109.2                    | 11.9                           | 70.1                         |
| 3740.0                        | 3732.0                            | 43.5                     | 102.3                  | 111.2                    | 11.7                           | 70.2                         |
| 3750.0                        | 3741.0                            | 44.2                     | 104.2                  | 113.2                    | 11.6                           | 70.3                         |
| 3760.0                        | 3751.0                            | 44.9                     | 106.1                  | 115.2                    | 11.4                           | 70.5                         |
| 3770.0                        | 3761.0                            | 45.5                     | 108.0                  | 117.2                    | 11.3                           | 70.6                         |
| 3780.0                        | 3771.0                            | 46.2                     | 109.8                  | 119.1                    | 11.1                           | 70.6                         |
| 3790.0                        | 3781.0                            | 46.8                     | 111.6                  | 121.0                    | 11.1                           | 70.7                         |
| 3800.0                        | 3791.0                            | 47.4                     | 113.4                  | 123.0                    | 11.0                           | 70.7                         |
| 3810.0                        | 3800.0                            | 48.1                     | 115.2                  | 124.9                    | 11.2                           | 70.1                         |
| 3820.0                        | 3810.0                            | 48.8                     | 117.1                  | 126.8                    | 11.7                           | 70.2                         |
| 3830.0                        | 3820.0                            | 49.5                     | 119.0                  | 128.9                    | 12.2                           | 70.2                         |
| 3840.0                        | 3830.0                            | 50.2                     | 121.1                  | 131.1                    | 12.4                           | 70.1                         |
| 3850.0                        | 3839.0                            | 50.9                     | 123.1                  | 133.2                    | 12.4                           | 69.8                         |
| 3860.0                        | 3849.0                            | 51.7                     | 125.1                  | 135.3                    | 12.4                           | 69.4                         |
| 3870.0                        | 3859.0                            | 52.4                     | 127.1                  | 137.5                    | 12.5                           | 68.9                         |
| 3880.0                        | 3869.0                            | 53.2                     | 129.1                  | 139.7                    | 12.7                           | 68.7                         |
| 3890.0                        | 3878.0                            | 54.0                     | 131.2                  | 141.9                    | 13.0                           | 68.7                         |
| 3900.0                        | 3888.0                            | 54.9                     | 133.3                  | 144.2                    | 13.1                           | 68.6                         |
| 3910.0                        | 3898.0                            | 55.7                     | 135.4                  | 146.4                    | 13.1                           | 68.5                         |
| 3920.0                        | 3908.0                            | 56.5                     | 137.5                  | 148.7                    | 13.1                           | 68.5                         |
| 3930.0                        | 3917.0                            | 57.4                     | 139.6                  | 151.0                    | 13.1                           | 68.4                         |
| 3940.0                        | 3927.0                            | 58.2                     | 141.7                  | 153.2                    | 13.0                           | 68.3                         |

| Coordinates       |                           |                  |                |                  |                       |                     |
|-------------------|---------------------------|------------------|----------------|------------------|-----------------------|---------------------|
| Measured<br>Depth | True<br>Vertical<br>Depth | +North<br>-South | +East<br>-West | Course<br>Length | Wellbore<br>Deviation | Wellbore<br>Azimuth |
| (ft)              | (ft)                      | (ft)             | (ft)           | (ft)             | (deg)                 | (deg)               |
| 3950.0            | 3937.0                    | 59.0             | 143.8          | 155.5            | 13.0                  | 68.2                |
| 3960.0            | 3947.0                    | 59.9             | 145.9          | 157.7            | 12.9                  | 68.3                |
| 3970.0            | 3956.0                    | 60.7             | 148.0          | 159.9            | 12.9                  | 68.3                |
| 3980.0            | 3966.0                    | 61.5             | 150.0          | 162.2            | 12.8                  | 68.3                |
| 3990.0            | 3976.0                    | 62.3             | 152.1          | 164.4            | 12.7                  | 68.4                |
| 4000.0            | 3986.0                    | 63.1             | 154.1          | 166.6            | 12.7                  | 68.5                |
| 4010.0            | 3995.0                    | 63.9             | 156.2          | 168.7            | 12.6                  | 68.6                |
| 4020.0            | 4005.0                    | 64.7             | 158.2          | 170.9            | 12.5                  | 68.7                |
| 4030.0            | 4015.0                    | 65.5             | 160.2          | 173.1            | 12.4                  | 68.7                |
| 4040.0            | 4025.0                    | 66.3             | 162.2          | 175.2            | 12.0                  | 68.6                |
| 4050.0            | 4035.0                    | 67.0             | 164.1          | 177.3            | 11.9                  | 68.6                |
| 4060.0            | 4044.0                    | 67.8             | 166.0          | 179.3            | 11.8                  | 68.7                |
| 4070.0            | 4054.0                    | 68.5             | 167.9          | 181.4            | 11.7                  | 68.8                |
| 4080.0            | 4064.0                    | 69.2             | 169.8          | 183.4            | 11.7                  | 68.7                |
| 4090.0            | 4074.0                    | 70.0             | 171.7          | 185.4            | 11.4                  | 68.0                |
| 4100.0            | 4084.0                    | 70.7             | 173.5          | 187.3            | 10.8                  | 67.3                |
| 4110.0            | 4093.0                    | 71.4             | 175.1          | 189.1            | 10.2                  | 66.8                |
| 4120.0            | 4103.0                    | 72.1             | 176.7          | 190.9            | 9.8                   | 66.2                |
| 4130.0            | 4113.0                    | 72.8             | 178.3          | 192.6            | 9.7                   | 66.0                |
| 4140.0            | 4123.0                    | 73.5             | 179.8          | 194.3            | 9.6                   | 65.8                |
| 4150.0            | 4133.0                    | 74.2             | 181.3          | 195.9            | 9.5                   | 65.6                |
| 4160.0            | 4143.0                    | 74.8             | 182.8          | 197.5            | 9.3                   | 65.6                |
| 4170.0            | 4152.0                    | 75.5             | 184.3          | 199.2            | 9.3                   | 65.5                |
| 4180.0            | 4162.0                    | 76.2             | 185.8          | 200.8            | 9.3                   | 65.4                |
| 4190.0            | 4172.0                    | 76.9             | 187.2          | 202.4            | 9.3                   | 65.4                |
| 4200.0            | 4182.0                    | 77.5             | 188.7          | 204.0            | 9.3                   | 65.4                |
| 4210.0            | 4192.0                    | 78.2             | 190.1          | 205.6            | 9.3                   | 65.4                |
| 4220.0            | 4202.0                    | 78.9             | 191.6          | 207.2            | 9.2                   | 65.5                |
| 4230.0            | 4212.0                    | 79.5             | 193.1          | 208.8            | 9.2                   | 65.5                |
| 4240.0            | 4222.0                    | 80.2             | 194.5          | 210.4            | 9.1                   | 65.5                |
| 4250.0            | 4231.0                    | 80.8             | 196.0          | 212.0            | 9.1                   | 65.5                |
| 4260.0            | 4241.0                    | 81.5             | 197.4          | 213.6            | 9.1                   | 65.5                |
| 4270.0            | 4251.0                    | 82.2             | 198.8          | 215.1            | 9.1                   | 65.5                |

| Coordinates       |                           |                  |                |                  |                       |                     |
|-------------------|---------------------------|------------------|----------------|------------------|-----------------------|---------------------|
| Measured<br>Depth | True<br>Vertical<br>Depth | +North<br>-South | +East<br>-West | Course<br>Length | Wellbore<br>Deviation | Wellbore<br>Azimuth |
| (ft)              | (ft)                      | (ft)             | (ft)           | (ft)             | (deg)                 | (deg)               |
| 4280.0            | 4261.0                    | 82.8             | 200.3          | 216.7            | 9.1                   | 65.6                |
| 4290.0            | 4271.0                    | 83.5             | 201.7          | 218.3            | 9.1                   | 65.7                |
| 4300.0            | 4281.0                    | 84.1             | 203.1          | 219.9            | 9.0                   | 65.7                |
| 4310.0            | 4291.0                    | 84.8             | 204.6          | 221.4            | 9.0                   | 65.7                |
| 4320.0            | 4301.0                    | 85.4             | 206.0          | 223.0            | 9.0                   | 65.8                |
| 4330.0            | 4310.0                    | 86.0             | 207.4          | 224.5            | 8.9                   | 65.8                |
| 4340.0            | 4320.0                    | 86.7             | 208.8          | 226.1            | 8.9                   | 65.9                |
| 4350.0            | 4330.0                    | 87.3             | 210.2          | 227.6            | 8.9                   | 66.0                |
| 4360.0            | 4340.0                    | 87.9             | 211.6          | 229.2            | 8.9                   | 66.0                |
| 4370.0            | 4350.0                    | 88.6             | 213.1          | 230.7            | 8.8                   | 66.0                |
| 4380.0            | 4360.0                    | 89.2             | 214.5          | 232.3            | 8.8                   | 66.0                |
| 4390.0            | 4370.0                    | 89.8             | 215.9          | 233.8            | 8.8                   | 66.0                |
| 4400.0            | 4380.0                    | 90.4             | 217.3          | 235.3            | 8.8                   | 66.0                |
| 4410.0            | 4390.0                    | 91.0             | 218.7          | 236.8            | 8.8                   | 66.1                |
| 4420.0            | 4399.0                    | 91.7             | 220.0          | 238.4            | 8.8                   | 66.1                |
| 4430.0            | 4409.0                    | 92.3             | 221.4          | 239.9            | 8.7                   | 66.1                |
| 4440.0            | 4419.0                    | 92.9             | 222.8          | 241.4            | 8.7                   | 66.0                |
| 4450.0            | 4429.0                    | 93.5             | 224.2          | 242.9            | 8.7                   | 66.2                |
| 4460.0            | 4439.0                    | 94.1             | 225.6          | 244.4            | 8.7                   | 66.3                |
| 4470.0            | 4449.0                    | 94.7             | 227.0          | 245.9            | 8.7                   | 66.4                |
| 4480.0            | 4459.0                    | 95.3             | 228.3          | 247.4            | 8.6                   | 66.4                |
| 4490.0            | 4469.0                    | 95.9             | 229.7          | 248.9            | 8.6                   | 66.5                |
| 4500.0            | 4478.0                    | 96.5             | 231.1          | 250.4            | 8.6                   | 66.5                |
| 4510.0            | 4488.0                    | 97.1             | 232.4          | 251.9            | 8.5                   | 66.4                |
| 4520.0            | 4498.0                    | 97.7             | 233.8          | 253.4            | 8.4                   | 66.4                |
| 4530.0            | 4508.0                    | 98.3             | 235.1          | 254.8            | 8.4                   | 66.4                |
| 4540.0            | 4518.0                    | 98.9             | 236.5          | 256.3            | 8.4                   | 66.4                |
| 4550.0            | 4528.0                    | 99.4             | 237.8          | 257.8            | 8.4                   | 66.4                |
| 4560.0            | 4538.0                    | 100.0            | 239.1          | 259.2            | 8.4                   | 66.4                |
| 4570.0            | 4548.0                    | 100.6            | 240.5          | 260.7            | 8.4                   | 66.4                |
| 4580.0            | 4558.0                    | 101.2            | 241.8          | 262.1            | 8.4                   | 66.1                |
| 4590.0            | 4568.0                    | 101.8            | 243.1          | 263.6            | 8.4                   | 66.0                |
| 4600.0            | 4577.0                    | 102.4            | 244.5          | 265.0            | 8.4                   | 66.0                |

| Coordinates       |                           |                  |                |                  |                       |                     |
|-------------------|---------------------------|------------------|----------------|------------------|-----------------------|---------------------|
| Measured<br>Depth | True<br>Vertical<br>Depth | +North<br>-South | +East<br>-West | Course<br>Length | Wellbore<br>Deviation | Wellbore<br>Azimuth |
| (ft)              | (ft)                      | (ft)             | (ft)           | (ft)             | (deg)                 | (deg)               |
| 4610.0            | 4587.0                    | 103.0            | 245.8          | 266.5            | 8.4                   | 66.0                |
| 4620.0            | 4597.0                    | 103.6            | 247.1          | 268.0            | 8.4                   | 66.1                |
| 4630.0            | 4607.0                    | 104.2            | 248.5          | 269.4            | 8.4                   | 66.4                |
| 4640.0            | 4617.0                    | 104.7            | 249.8          | 270.9            | 8.4                   | 66.7                |
| 4650.0            | 4627.0                    | 105.3            | 251.1          | 272.3            | 8.4                   | 66.6                |
| 4660.0            | 4637.0                    | 105.9            | 252.5          | 273.8            | 8.1                   | 65.0                |
| 4670.0            | 4647.0                    | 106.5            | 253.7          | 275.2            | 7.8                   | 63.8                |
| 4680.0            | 4657.0                    | 107.1            | 254.9          | 276.5            | 7.4                   | 62.8                |
| 4690.0            | 4667.0                    | 107.7            | 256.0          | 277.7            | 7.3                   | 62.6                |
| 4700.0            | 4676.0                    | 108.2            | 257.1          | 279.0            | 7.1                   | 62.7                |
| 4710.0            | 4686.0                    | 108.8            | 258.2          | 280.2            | 7.1                   | 63.1                |
| 4720.0            | 4696.0                    | 109.4            | 259.3          | 281.5            | 7.1                   | 63.5                |
| 4730.0            | 4706.0                    | 109.9            | 260.4          | 282.7            | 6.7                   | 64.3                |
| 4740.0            | 4716.0                    | 110.4            | 261.4          | 283.8            | 6.2                   | 64.6                |
| 4750.0            | 4726.0                    | 110.8            | 262.4          | 284.8            | 5.9                   | 65.2                |
| 4760.0            | 4736.0                    | 111.3            | 263.3          | 285.8            | 5.9                   | 65.6                |
| 4770.0            | 4746.0                    | 111.7            | 264.2          | 286.9            | 5.8                   | 66.4                |
| 4780.0            | 4756.0                    | 112.1            | 265.2          | 287.9            | 5.8                   | 66.8                |
| 4790.0            | 4766.0                    | 112.5            | 266.1          | 288.8            | 5.2                   | 67.7                |
| 4800.0            | 4776.0                    | 112.8            | 266.9          | 289.7            | 4.7                   | 67.2                |
| 4810.0            | 4786.0                    | 113.1            | 267.6          | 290.5            | 4.0                   | 68.9                |
| 4820.0            | 4796.0                    | 113.3            | 268.2          | 291.1            | 3.8                   | 70.4                |
| 4830.0            | 4806.0                    | 113.5            | 268.8          | 291.8            | 3.8                   | 71.1                |
| 4840.0            | 4816.0                    | 113.7            | 269.4          | 292.5            | 3.8                   | 72.4                |
| 4850.0            | 4826.0                    | 113.9            | 270.1          | 293.1            | 3.6                   | 73.0                |
| 4860.0            | 4836.0                    | 114.1            | 270.6          | 293.7            | 3.2                   | 72.4                |
| 4870.0            | 4846.0                    | 114.3            | 271.1          | 294.2            | 2.8                   | 73.4                |
| 4880.0            | 4856.0                    | 114.4            | 271.6          | 294.7            | 2.6                   | 75.4                |
| 4890.0            | 4866.0                    | 114.5            | 272.0          | 295.1            | 2.5                   | 76.9                |
| 4900.0            | 4876.0                    | 114.6            | 272.4          | 295.5            | 2.5                   | 78.5                |
| 4910.0            | 4886.0                    | 114.7            | 272.9          | 296.0            | 2.4                   | 78.9                |
| 4920.0            | 4896.0                    | 114.7            | 273.2          | 296.3            | 1.8                   | 76.3                |
| 4930.0            | 4906.0                    | 114.8            | 273.5          | 296.6            | 1.3                   | 75.7                |

| Coordinates       |                           |                  |                |                  |                       |                     |
|-------------------|---------------------------|------------------|----------------|------------------|-----------------------|---------------------|
| Measured<br>Depth | True<br>Vertical<br>Depth | +North<br>-South | +East<br>-West | Course<br>Length | Wellbore<br>Deviation | Wellbore<br>Azimuth |
| (ft)              | (ft)                      | (ft)             | (ft)           | (ft)             | (deg)                 | (deg)               |
| 4940.0            | 4916.0                    | 114.8            | 273.7          | 296.8            | 0.9                   | 81.9                |
| 4950.0            | 4926.0                    | 114.9            | 273.8          | 296.9            | 0.8                   | 89.6                |
| 4960.0            | 4936.0                    | 114.8            | 274.0          | 297.1            | 0.7                   | 99.1                |
| 4970.0            | 4946.0                    | 114.8            | 274.1          | 297.2            | 0.8                   | 113.8               |
| 4980.0            | 4956.0                    | 114.7            | 274.2          | 297.3            | 1.0                   | 106.5               |
| 4990.0            | 4966.0                    | 114.7            | 274.4          | 297.4            | 0.9                   | 97.9                |
| 5000.0            | 4976.0                    | 114.7            | 274.5          | 297.5            | 0.8                   | 100.4               |
| 5010.0            | 4986.0                    | 114.7            | 274.7          | 297.6            | 0.8                   | 105.0               |
| 5020.0            | 4996.0                    | 114.6            | 274.8          | 297.8            | 0.7                   | 109.1               |
| 5030.0            | 5006.0                    | 114.6            | 274.9          | 297.8            | 0.8                   | 111.0               |
| 5040.0            | 5016.0                    | 114.5            | 275.1          | 298.0            | 0.9                   | 104.5               |
| 5050.0            | 5026.0                    | 114.5            | 275.2          | 298.1            | 0.8                   | 109.1               |
| 5060.0            | 5036.0                    | 114.4            | 275.3          | 298.2            | 0.8                   | 114.8               |
| 5070.0            | 5046.0                    | 114.4            | 275.5          | 298.3            | 0.8                   | 119.5               |
| 5080.0            | 5056.0                    | 114.3            | 275.6          | 298.4            | 0.9                   | 120.1               |
| 5090.0            | 5066.0                    | 114.2            | 275.7          | 298.5            | 0.9                   | 109.4               |
| 5100.0            | 5076.0                    | 114.2            | 275.9          | 298.6            | 0.8                   | 110.3               |
| 5110.0            | 5086.0                    | 114.1            | 276.0          | 298.7            | 0.8                   | 116.5               |
| 5120.0            | 5096.0                    | 114.1            | 276.1          | 298.8            | 0.8                   | 117.3               |
| 5130.0            | 5106.0                    | 114.0            | 276.3          | 298.9            | 0.9                   | 117.8               |
| 5140.0            | 5116.0                    | 113.9            | 276.4          | 299.0            | 0.9                   | 113.4               |
| 5150.0            | 5126.0                    | 113.9            | 276.6          | 299.1            | 0.9                   | 114.2               |
| 5160.0            | 5136.0                    | 113.8            | 276.7          | 299.2            | 0.9                   | 118.6               |
| 5170.0            | 5146.0                    | 113.7            | 276.8          | 299.3            | 1.0                   | 122.8               |
| 5180.0            | 5156.0                    | 113.6            | 277.0          | 299.4            | 1.0                   | 123.2               |
| 5190.0            | 5166.0                    | 113.5            | 277.1          | 299.5            | 1.0                   | 118.5               |
| 5200.0            | 5176.0                    | 113.5            | 277.3          | 299.6            | 0.9                   | 116.2               |
| 5210.0            | 5186.0                    | 113.4            | 277.4          | 299.7            | 0.9                   | 118.4               |
| 5220.0            | 5196.0                    | 113.3            | 277.6          | 299.8            | 0.9                   | 122.8               |
| 5230.0            | 5206.0                    | 113.2            | 277.7          | 299.9            | 1.0                   | 125.2               |
| 5240.0            | 5216.0                    | 113.1            | 277.8          | 300.0            | 1.1                   | 125.4               |
| 5250.0            | 5226.0                    | 113.0            | 278.0          | 300.1            | 1.1                   | 119.5               |
| 5260.0            | 5236.0                    | 112.9            | 278.2          | 300.2            | 1.0                   | 118.4               |

| Coordinates       |                           |                  |                |                  |                       |                     |
|-------------------|---------------------------|------------------|----------------|------------------|-----------------------|---------------------|
| Measured<br>Depth | True<br>Vertical<br>Depth | +North<br>-South | +East<br>-West | Course<br>Length | Wellbore<br>Deviation | Wellbore<br>Azimuth |
| (ft)              | (ft)                      | (ft)             | (ft)           | (ft)             | (deg)                 | (deg)               |
| 5270.0            | 5246.0                    | 112.8            | 278.3          | 300.3            | 1.0                   | 120.0               |
| 5280.0            | 5256.0                    | 112.7            | 278.5          | 300.4            | 1.0                   | 125.5               |
| 5290.0            | 5266.0                    | 112.6            | 278.6          | 300.5            | 1.1                   | 125.6               |
| 5300.0            | 5276.0                    | 112.5            | 278.8          | 300.6            | 1.2                   | 127.9               |
| 5310.0            | 5286.0                    | 112.4            | 278.9          | 300.7            | 1.3                   | 124.7               |
| 5320.0            | 5296.0                    | 112.3            | 279.1          | 300.9            | 1.2                   | 123.6               |
| 5330.0            | 5306.0                    | 112.1            | 279.3          | 301.0            | 1.1                   | 125.5               |
| 5340.0            | 5316.0                    | 112.0            | 279.4          | 301.1            | 1.1                   | 129.4               |
| 5350.0            | 5326.0                    | 111.9            | 279.6          | 301.2            | 1.2                   | 131.5               |
| 5360.0            | 5336.0                    | 111.8            | 279.8          | 301.3            | 1.3                   | 131.9               |
| 5370.0            | 5346.0                    | 111.6            | 279.9          | 301.3            | 1.4                   | 134.0               |
| 5380.0            | 5356.0                    | 111.4            | 280.1          | 301.5            | 1.5                   | 131.8               |
| 5390.0            | 5366.0                    | 111.3            | 280.3          | 301.6            | 1.3                   | 131.9               |
| 5400.0            | 5376.0                    | 111.1            | 280.4          | 301.7            | 1.3                   | 133.7               |
| 5410.0            | 5386.0                    | 111.0            | 280.6          | 301.8            | 1.3                   | 135.3               |
| 5420.0            | 5396.0                    | 110.8            | 280.8          | 301.8            | 1.4                   | 135.8               |
| 5430.0            | 5406.0                    | 110.6            | 280.9          | 301.9            | 1.4                   | 138.2               |
| 5440.0            | 5416.0                    | 110.4            | 281.1          | 302.0            | 1.5                   | 135.2               |
| 5450.0            | 5426.0                    | 110.2            | 281.3          | 302.1            | 1.4                   | 135.4               |
| 5460.0            | 5436.0                    | 110.1            | 281.5          | 302.2            | 1.4                   | 137.2               |
| 5470.0            | 5446.0                    | 109.9            | 281.6          | 302.3            | 1.4                   | 137.1               |
| 5480.0            | 5456.0                    | 109.7            | 281.8          | 302.4            | 1.4                   | 137.6               |
| 5490.0            | 5466.0                    | 109.5            | 282.0          | 302.5            | 1.4                   | 138.8               |
| 5500.0            | 5476.0                    | 109.3            | 282.1          | 302.6            | 1.4                   | 137.4               |
| 5510.0            | 5486.0                    | 109.2            | 282.3          | 302.7            | 1.4                   | 140.1               |
| 5520.0            | 5496.0                    | 109.0            | 282.4          | 302.7            | 1.4                   | 140.5               |
| 5530.0            | 5506.0                    | 108.8            | 282.6          | 302.8            | 1.4                   | 140.1               |
| 5540.0            | 5516.0                    | 108.6            | 282.8          | 302.9            | 1.4                   | 141.7               |
| 5550.0            | 5526.0                    | 108.4            | 282.9          | 303.0            | 1.4                   | 141.4               |
| 5560.0            | 5536.0                    | 108.2            | 283.1          | 303.0            | 1.5                   | 142.5               |
| 5570.0            | 5546.0                    | 108.0            | 283.2          | 303.1            | 1.5                   | 143.2               |
| 5580.0            | 5556.0                    | 107.8            | 283.4          | 303.2            | 1.5                   | 144.5               |
| 5590.0            | 5566.0                    | 107.6            | 283.5          | 303.2            | 1.5                   | 146.0               |

| Coordinates       |                           |                  |                |                  |                       |                     |
|-------------------|---------------------------|------------------|----------------|------------------|-----------------------|---------------------|
| Measured<br>Depth | True<br>Vertical<br>Depth | +North<br>-South | +East<br>-West | Course<br>Length | Wellbore<br>Deviation | Wellbore<br>Azimuth |
| (ft)              | (ft)                      | (ft)             | (ft)           | (ft)             | (deg)                 | (deg)               |
| 5600.0            | 5576.0                    | 107.3            | 283.7          | 303.3            | 1.5                   | 146.2               |
| 5610.0            | 5586.0                    | 107.1            | 283.8          | 303.4            | 1.5                   | 145.7               |
| 5620.0            | 5596.0                    | 106.9            | 284.0          | 303.4            | 1.5                   | 147.3               |
| 5630.0            | 5605.0                    | 106.7            | 284.1          | 303.5            | 1.6                   | 148.2               |
| 5640.0            | 5615.0                    | 106.4            | 284.3          | 303.5            | 1.5                   | 147.9               |
| 5650.0            | 5625.0                    | 106.2            | 284.4          | 303.6            | 1.5                   | 149.0               |
| 5660.0            | 5635.0                    | 106.0            | 284.5          | 303.6            | 1.6                   | 150.2               |
| 5670.0            | 5645.0                    | 105.7            | 284.7          | 303.7            | 1.6                   | 151.3               |
| 5680.0            | 5655.0                    | 105.5            | 284.8          | 303.7            | 1.6                   | 151.3               |
| 5690.0            | 5665.0                    | 105.3            | 284.9          | 303.8            | 1.6                   | 151.8               |
| 5700.0            | 5675.0                    | 105.0            | 285.1          | 303.8            | 1.6                   | 151.5               |
| 5710.0            | 5685.0                    | 104.8            | 285.2          | 303.8            | 1.6                   | 152.8               |
| 5720.0            | 5695.0                    | 104.5            | 285.3          | 303.9            | 1.6                   | 153.9               |
| 5730.0            | 5705.0                    | 104.3            | 285.4          | 303.9            | 1.6                   | 154.8               |
| 5740.0            | 5715.0                    | 104.0            | 285.6          | 303.9            | 1.6                   | 155.4               |
| 5750.0            | 5725.0                    | 103.8            | 285.7          | 303.9            | 1.6                   | 155.1               |
| 5760.0            | 5735.0                    | 103.5            | 285.8          | 304.0            | 1.5                   | 155.2               |
| 5770.0            | 5745.0                    | 103.3            | 285.9          | 304.0            | 1.5                   | 156.5               |
| 5780.0            | 5755.0                    | 103.0            | 286.0          | 304.0            | 1.6                   | 156.8               |
| 5790.0            | 5765.0                    | 102.8            | 286.1          | 304.0            | 1.6                   | 158.1               |
| 5800.0            | 5775.0                    | 102.5            | 286.2          | 304.0            | 1.6                   | 159.0               |
| 5810.0            | 5785.0                    | 102.3            | 286.3          | 304.0            | 1.6                   | 159.2               |
| 5820.0            | 5795.0                    | 102.0            | 286.4          | 304.0            | 1.6                   | 159.6               |
| 5830.0            | 5805.0                    | 101.7            | 286.5          | 304.0            | 1.6                   | 159.8               |
| 5840.0            | 5815.0                    | 101.5            | 286.6          | 304.0            | 1.6                   | 160.2               |
| 5850.0            | 5825.0                    | 101.2            | 286.7          | 304.0            | 1.6                   | 161.3               |
| 5860.0            | 5835.0                    | 101.0            | 286.8          | 304.0            | 1.6                   | 161.0               |
| 5870.0            | 5845.0                    | 100.7            | 286.9          | 304.0            | 1.6                   | 161.4               |
| 5880.0            | 5855.0                    | 100.5            | 286.9          | 304.0            | 1.6                   | 162.0               |
| 5890.0            | 5865.0                    | 100.2            | 287.0          | 304.0            | 1.6                   | 162.6               |
| 5900.0            | 5875.0                    | 99.9             | 287.1          | 304.0            | 1.6                   | 163.2               |
| 5910.0            | 5885.0                    | 99.7             | 287.2          | 304.0            | 1.6                   | 163.6               |
| 5920.0            | 5895.0                    | 99.4             | 287.3          | 304.0            | 1.6                   | 164.1               |

| Coordinates       |                           |                  |                |                  |                       |                     |
|-------------------|---------------------------|------------------|----------------|------------------|-----------------------|---------------------|
| Measured<br>Depth | True<br>Vertical<br>Depth | +North<br>-South | +East<br>-West | Course<br>Length | Wellbore<br>Deviation | Wellbore<br>Azimuth |
| (ft)              | (ft)                      | (ft)             | (ft)           | (ft)             | (deg)                 | (deg)               |
| 5930.0            | 5905.0                    | 99.1             | 287.3          | 304.0            | 1.6                   | 164.4               |
| 5940.0            | 5915.0                    | 98.9             | 287.4          | 303.9            | 1.6                   | 165.0               |
| 5950.0            | 5925.0                    | 98.6             | 287.5          | 303.9            | 1.6                   | 165.5               |
| 5960.0            | 5935.0                    | 98.3             | 287.6          | 303.9            | 1.6                   | 166.4               |
| 5970.0            | 5945.0                    | 98.1             | 287.6          | 303.9            | 1.6                   | 166.6               |
| 5980.0            | 5955.0                    | 97.8             | 287.7          | 303.8            | 1.6                   | 168.6               |
| 5990.0            | 5965.0                    | 97.5             | 287.7          | 303.8            | 1.7                   | 167.2               |
| 6000.0            | 5975.0                    | 97.2             | 287.8          | 303.8            | 1.6                   | 167.1               |
| 6010.0            | 5985.0                    | 97.0             | 287.9          | 303.7            | 1.6                   | 168.4               |
| 6020.0            | 5995.0                    | 96.7             | 287.9          | 303.7            | 1.6                   | 168.6               |
| 6030.0            | 6005.0                    | 96.4             | 288.0          | 303.7            | 1.6                   | 170.1               |
| 6040.0            | 6015.0                    | 96.1             | 288.0          | 303.6            | 1.7                   | 170.5               |
| 6050.0            | 6025.0                    | 95.8             | 288.1          | 303.6            | 1.7                   | 171.1               |
| 6060.0            | 6035.0                    | 95.5             | 288.1          | 303.5            | 1.6                   | 171.2               |
| 6070.0            | 6045.0                    | 95.3             | 288.1          | 303.5            | 1.6                   | 171.9               |
| 6080.0            | 6055.0                    | 95.0             | 288.2          | 303.4            | 1.6                   | 172.1               |
| 6090.0            | 6065.0                    | 94.7             | 288.2          | 303.4            | 1.5                   | 171.6               |
| 6100.0            | 6075.0                    | 94.5             | 288.3          | 303.3            | 1.6                   | 171.9               |
| 6110.0            | 6085.0                    | 94.2             | 288.3          | 303.3            | 1.6                   | 173.1               |
| 6120.0            | 6095.0                    | 93.9             | 288.3          | 303.2            | 1.6                   | 173.4               |
| 6130.0            | 6105.0                    | 93.6             | 288.4          | 303.2            | 1.6                   | 172.4               |
| 6140.0            | 6115.0                    | 93.4             | 288.4          | 303.1            | 1.6                   | 172.2               |
| 6150.0            | 6125.0                    | 93.1             | 288.4          | 303.1            | 1.6                   | 171.6               |
| 6160.0            | 6135.0                    | 92.8             | 288.5          | 303.0            | 1.6                   | 170.8               |
| 6170.0            | 6145.0                    | 92.6             | 288.5          | 303.0            | 1.6                   | 172.1               |
| 6180.0            | 6155.0                    | 92.3             | 288.6          | 303.0            | 1.6                   | 170.9               |
| 6190.0            | 6165.0                    | 92.0             | 288.6          | 302.9            | 1.6                   | 170.2               |
| 6200.0            | 6175.0                    | 91.7             | 288.7          | 302.9            | 1.6                   | 171.7               |
| 6210.0            | 6185.0                    | 91.4             | 288.7          | 302.8            | 1.7                   | 174.5               |
| 6220.0            | 6195.0                    | 91.2             | 288.7          | 302.8            | 1.7                   | 174.0               |
| 6230.0            | 6205.0                    | 90.9             | 288.8          | 302.7            | 1.7                   | 174.1               |
| 6240.0            | 6215.0                    | 90.6             | 288.8          | 302.6            | 1.7                   | 174.1               |
| 6250.0            | 6225.0                    | 90.3             | 288.8          | 302.6            | 1.7                   | 173.3               |

| Coordinates       |                           |                  |                |                  |                       |                     |
|-------------------|---------------------------|------------------|----------------|------------------|-----------------------|---------------------|
| Measured<br>Depth | True<br>Vertical<br>Depth | +North<br>-South | +East<br>-West | Course<br>Length | Wellbore<br>Deviation | Wellbore<br>Azimuth |
| (ft)              | (ft)                      | (ft)             | (ft)           | (ft)             | (deg)                 | (deg)               |
| 6260.0            | 6235.0                    | 90.0             | 288.8          | 302.5            | 1.7                   | 174.6               |
| 6270.0            | 6245.0                    | 89.7             | 288.9          | 302.5            | 1.7                   | 176.7               |
| 6280.0            | 6255.0                    | 89.4             | 288.9          | 302.4            | 1.7                   | 175.8               |
| 6290.0            | 6265.0                    | 89.1             | 288.9          | 302.3            | 1.6                   | 174.8               |
| 6300.0            | 6275.0                    | 88.8             | 288.9          | 302.3            | 1.6                   | 175.6               |
| 6310.0            | 6285.0                    | 88.6             | 289.0          | 302.2            | 1.6                   | 176.2               |
| 6320.0            | 6295.0                    | 88.3             | 289.0          | 302.2            | 1.6                   | 176.8               |
| 6330.0            | 6305.0                    | 88.0             | 289.0          | 302.1            | 1.6                   | 177.5               |
| 6340.0            | 6315.0                    | 87.7             | 289.0          | 302.0            | 1.6                   | 176.9               |
| 6350.0            | 6325.0                    | 87.4             | 289.0          | 301.9            | 1.6                   | 178.7               |