

# SPERRY-SUN DRILLING SERVICES

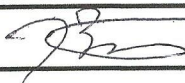
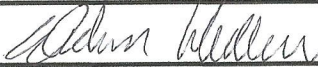
## CERTIFIED SURVEY WORK SHEET

|                             |                          |
|-----------------------------|--------------------------|
| <b>OPERATOR:</b>            | Anadarko Petroleum Corp. |
| <b>WELL:</b>                | Gee 16N-25HZ             |
| <b>FIELD:</b>               | DJ Basin                 |
| <b>RIG:</b>                 | H&P 308                  |
| <b>LEGALS:</b>              | Sec. 24-T2N-R67W         |
| <b>COUNTY:</b>              | Weld                     |
| <b>STATE:</b>               | Colorado                 |
| <b>CAL. METHOD:</b>         | True N                   |
| <b>MAG. DECL. APPLIED:</b>  | 8.52                     |
| <b>VERTICAL SEC. DIR. :</b> | 180.000                  |

|                                  |                |
|----------------------------------|----------------|
| <b>SSDS Job Number :</b>         | 901807477      |
| <b>Start Date of Job :</b>       | 11/22/2014     |
| <b>End Date of Job :</b>         | 12/16/2014     |
| <b>Lead Directional Driller:</b> | Brandon Watson |
|                                  | Brian Saunders |
| <b>Other SSDS DD's :</b>         |                |
|                                  |                |
| <b>SSDS MWD Engineers :</b>      | James Ramsey   |
|                                  | Wilson Holland |
|                                  |                |

|                         | Main Hole =====> |        | 1st Side Track =====> |         | 2nd Side Track =====> |         | 3rd Side Track =====> |         | 4th Side Track =====> |         |
|-------------------------|------------------|--------|-----------------------|---------|-----------------------|---------|-----------------------|---------|-----------------------|---------|
|                         |                  | Tie On |                       | Tie On  |                       | Tie On  |                       | Tie On  |                       | Tie On  |
| ESS Survey              |                  |        |                       |         |                       |         |                       |         |                       |         |
| First Survey Depth      | 100              | Gyro   |                       |         |                       |         |                       |         |                       |         |
| Last Survey Depth       | 948              |        |                       |         |                       |         |                       |         |                       |         |
|                         |                  |        |                       |         |                       |         |                       |         |                       |         |
|                         |                  |        |                       |         |                       |         |                       |         |                       |         |
| KOP Depth/Sidetrack MD  | 6664             | KOP    |                       | KOP-ST1 |                       | KOP-ST2 |                       | KOP-ST3 |                       | KOP-ST4 |
|                         |                  |        |                       |         |                       |         |                       |         |                       |         |
|                         |                  |        |                       |         |                       |         |                       |         |                       |         |
| First Survey Depth      | 1109             | MWD    |                       | MWD     |                       | MWD     |                       | MWD     |                       | MWD     |
| Last Survey Depth       | 16520            | MWD    |                       | MWD     |                       | MWD     |                       | MWD     |                       | MWD     |
| Bit Extrapolation to TD | 16568            | T.D.   |                       | T.D.    |                       | T.D.    |                       | T.D.    |                       | T.D.    |

The following Sperry Sun Drilling Services personnel listed below, do certify the above survey information to be accurate :

|              |   |              |   |              |  |
|--------------|---|--------------|---|--------------|--|
| Print Name : | Brian Saunders  | Print Name : | Wilson Holland  | Print Name : |  |
| Sign Name :  |  | Sign Name :  |  | Sign Name :  |  |
| Print Name : | Brandon Watson  | Print Name : | James Ramsey  | Print Name : |  |
| Sign Name :  |   | Sign Name :  |   | Sign Name :  |  |

### Examples of Survey Types:

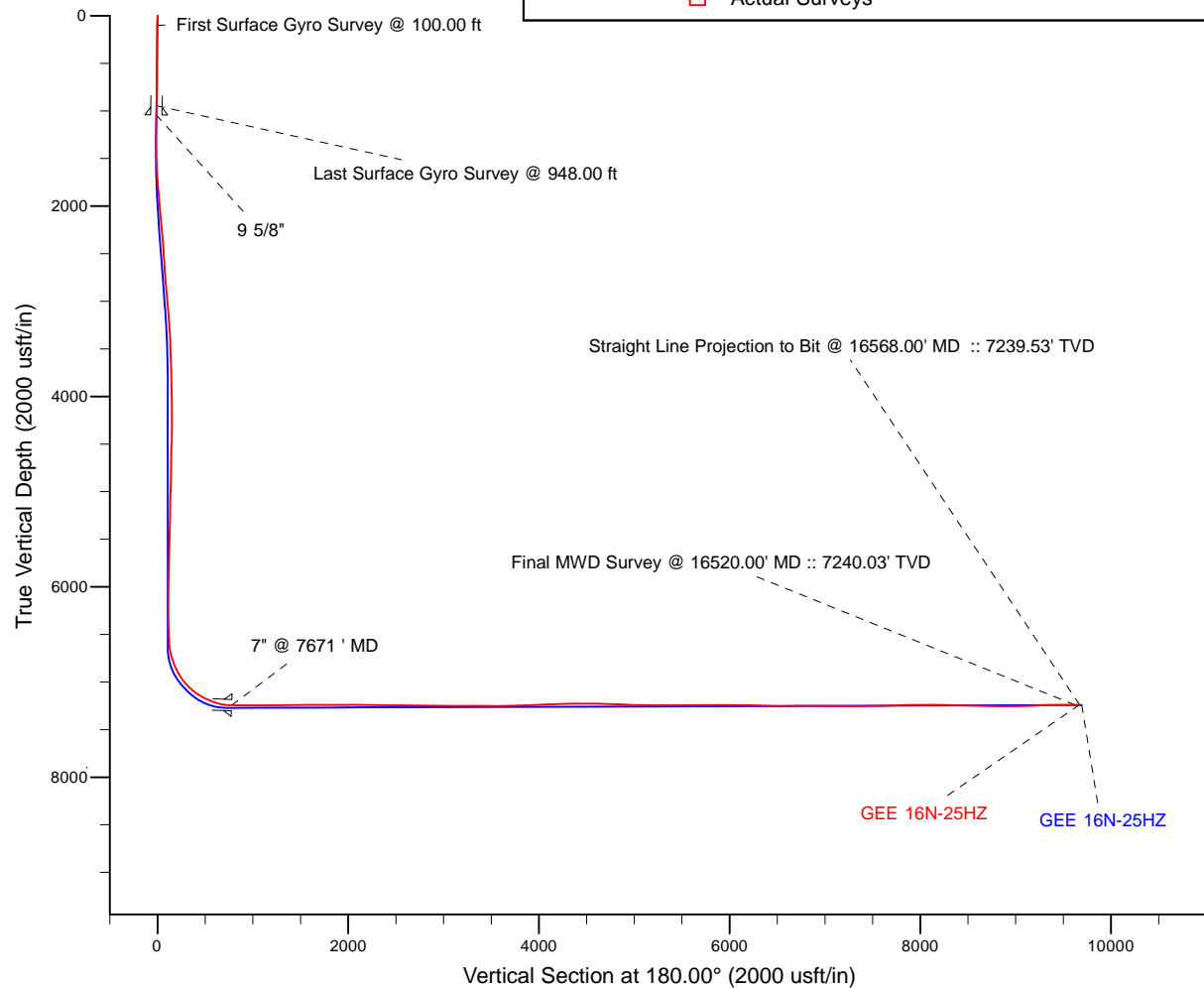
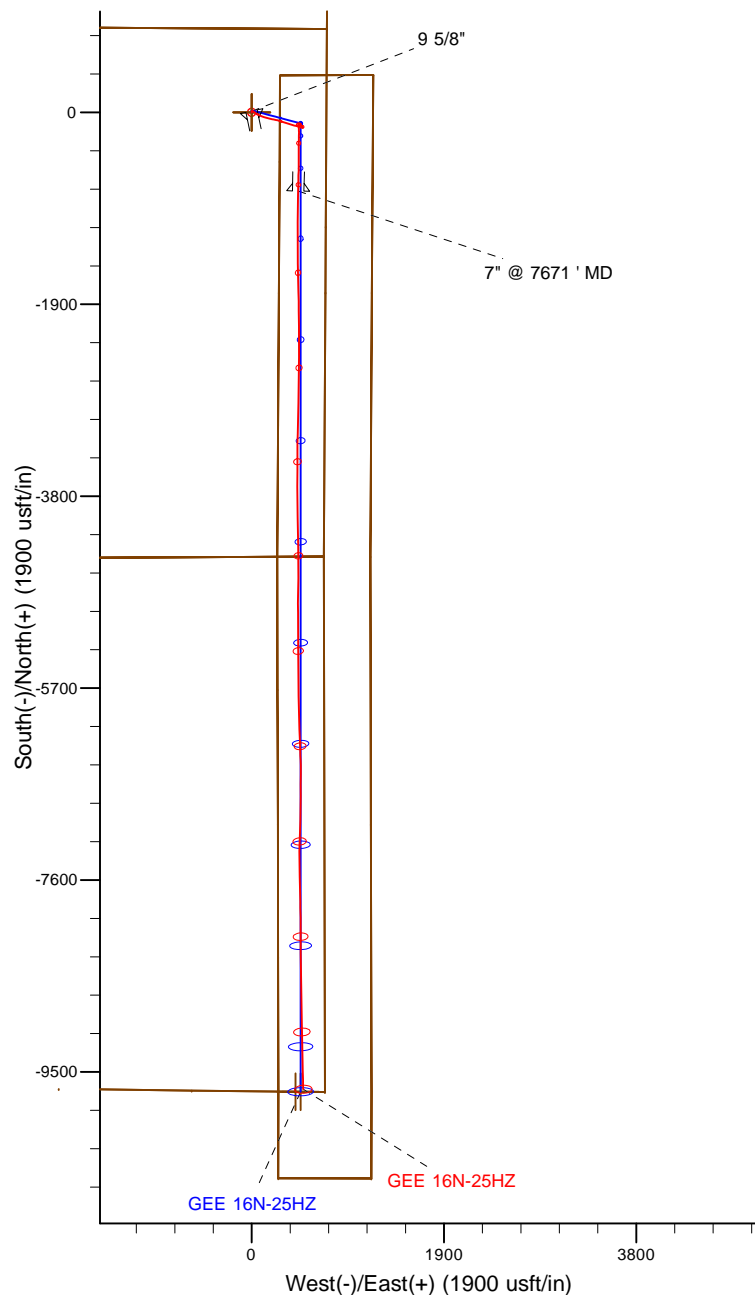
TieOn  
MWD  
ESS  
Gyro  
SS

Tie On to Surface Casing (Assumed Vertical), Tie On to existing MWD Survey (prior drilled hole)  
 Sperry Sun Drilling Services (SSDS) Measurement While Drilling (MWD) Survey's  
 Sperry Sun Drilling Services (SSDS) Electronic Survey System (ESS) Survey's  
 Gyro Survey's ; Provided by third party vendor, or by Sperry Sun Drilling Services (SSDS)  
 Single Shot (SS) Survey's ; Provided by Sperry Sun Drilling Services (SSDS) or third party vendor.

Project: Weld County, CO (NAD 83)  
 Site: Sec. 24-T2N-R67W  
 Well: GEE 16N-25HZ  
 Wellbore: Plan A  
 Design: Actual Surveys



**HALLIBURTON**  
 Sperry Drilling



LEGEND

- GEE 16N-25HZ, Plan A, Rev A0 V0
- Actual Surveys

7" Casing: ~1604.98' FNL, ~273.99' FEL  
 Lat/Long: 40.126296 N, -104.830927 E  
 State Planes - CO Northern: 1,289,559.44' N, 3,187,094.29' E  
 Location: Sec. 24-T2N-R67W

BHL: ~25.72' FSL, ~213.63' FWL  
 Lat/Long: 40.101884 N, -104.830748 E  
 State Planes - CO Northern: 1,280,666.99' N, 3,187,211.52' E  
 Location: Sec. 25-T2N-R67W

|   |                 |
|---|-----------------|
| WELL DETAILS: GEE 16N-25HZ                                      |                 |
| Ground Level: 4858.00<br>RKB = 25' @ 4883.00usft (Drilling Rig) |                 |
| Design: Actual Surveys (GEE 16N-25HZ/Plan A)                    |                 |
| Created By: Katie Benner  | Date: 1/27/2015 |
| Reviewed: _____   | Date: _____     |

# Anadarko Petroleum Corp.

Weld County, CO (NAD 83)

Sec. 24-T2N-R67W

GEE 16N-25HZ

API: 05-123-39235 :: Job #: 901807477

Plan A

Design: Actual Surveys

## Sperry Drilling Services

### Standard Report

27 January, 2015

Surface UWI : API: 05-123-39235 :: Job #: 901807477

Well Coordinates: 1,290,334.29 N, 3,186,629.01 E (40° 07' 42.36" N, 104° 49' 57.25" W)

Ground Level: 4,858.00 usft

Local Coordinate Origin:

Centered on Well GEE 16N-25HZ

Viewing Datum:

RKB = 25' @ 4883.00usft (Drilling Rig)

TVDs to System:

N

North Reference:

True

Unit System:

Dec-Deg - API - US Survey Feet - Custom

Geodetic Scale Factor Applied

Version: 5000.1 Build: 70

**HALLIBURTON**

**Design Report for GEE 16N-25HZ - Actual Surveys**

| Measured Depth (usft)                        | Inclination (°) | Azimuth (°) | Vertical Depth (usft) | +N/-S (usft) | +E/-W (usft) | Vertical Section (usft) | Dogleg Rate (°/100usft) |
|--|-----------------|-------------|-----------------------|--------------|--------------|-------------------------|-------------------------|
| 0.00   | 0.00            | 0.00        | 0.00                  | 0.00         | 0.00         | 0.00                    | 0.00                    |
| 100.00                                       | 0.55            | 50.53       | 100.00                | 0.31         | 0.37         | -0.31                   | 0.55                    |
| <b>First Surface Gyro Survey @ 100.00 ft</b> |                 |             |                       |              |              |                         |                         |
| 200.00                                       | 0.58            | 34.90       | 199.99                | 1.03         | 1.03         | -1.03                   | 0.16                    |
| 300.00                                       | 0.74            | 27.55       | 299.99                | 2.02         | 1.62         | -2.02                   | 0.18                    |
| 400.00                                       | 0.79            | 7.11        | 399.98                | 3.27         | 2.01         | -3.27                   | 0.27                    |
| 500.00                                       | 0.72            | 340.31      | 499.97                | 4.54         | 1.88         | -4.54                   | 0.35                    |
| 600.00                                       | 0.63            | 342.54      | 599.96                | 5.66         | 1.50         | -5.66                   | 0.09                    |
| 700.00                                       | 0.64            | 345.96      | 699.96                | 6.73         | 1.20         | -6.73                   | 0.04                    |
| 800.00                                       | 0.53            | 359.48      | 799.95                | 7.73         | 1.06         | -7.73                   | 0.18                    |
| 900.00                                       | 0.63            | 355.28      | 899.95                | 8.74         | 1.01         | -8.74                   | 0.12                    |
| 948.00                                       | 0.96            | 338.74      | 947.94                | 9.38         | 0.84         | -9.38                   | 0.83                    |
| <b>Last Surface Gyro Survey @ 948.00 ft</b>  |                 |             |                       |              |              |                         |                         |
| 1,044.00                                     | 0.94            | 348.35      | 1,043.93              | 10.90        | 0.39         | -10.90                  | 0.17                    |
| <b>9 5/8"</b>                                |                 |             |                       |              |              |                         |                         |
| 1,109.00                                     | 0.94            | 354.98      | 1,108.92              | 11.96        | 0.24         | -11.96                  | 0.17                    |
| 1,201.00                                     | 0.94            | 3.38        | 1,200.91              | 13.46        | 0.22         | -13.46                  | 0.15                    |
| 1,294.00                                     | 2.73            | 91.83       | 1,293.87              | 14.15        | 2.48         | -14.15                  | 3.08                    |
| 1,386.00                                     | 3.91            | 104.01      | 1,385.71              | 13.32        | 7.71         | -13.32                  | 1.49                    |
| 1,478.00                                     | 3.39            | 114.19      | 1,477.53              | 11.45        | 13.23        | -11.45                  | 0.90                    |
| 1,570.00                                     | 2.97            | 133.41      | 1,569.39              | 8.70         | 17.45        | -8.70                   | 1.24                    |
| 1,663.00                                     | 5.01            | 134.98      | 1,662.16              | 4.17         | 22.07        | -4.17                   | 2.20                    |
| 1,756.00                                     | 7.15            | 126.34      | 1,754.63              | -2.13        | 29.61        | 2.13                    | 2.50                    |
| 1,864.00                                     | 8.39            | 123.84      | 1,861.64              | -10.50       | 41.57        | 10.50                   | 1.19                    |
| 1,957.00                                     | 10.08           | 121.05      | 1,953.43              | -18.48       | 54.17        | 18.48                   | 1.88                    |
| 2,049.00                                     | 12.28           | 114.60      | 2,043.68              | -26.70       | 69.97        | 26.70                   | 2.75                    |
| 2,142.00                                     | 14.24           | 113.16      | 2,134.20              | -35.32       | 89.48        | 35.32                   | 2.14                    |
| 2,234.00                                     | 16.43           | 106.96      | 2,222.92              | -43.57       | 112.33       | 43.57                   | 2.97                    |
| 2,326.00                                     | 17.97           | 106.76      | 2,310.81              | -51.46       | 138.37       | 51.46                   | 1.68                    |
| 2,419.00                                     | 16.86           | 104.90      | 2,399.54              | -59.06       | 165.14       | 59.06                   | 1.34                    |
| 2,511.00                                     | 15.69           | 102.70      | 2,487.85              | -65.23       | 190.17       | 65.23                   | 1.44                    |
| 2,602.00                                     | 16.76           | 100.71      | 2,575.23              | -70.37       | 215.07       | 70.37                   | 1.32                    |
| 2,695.00                                     | 16.35           | 101.97      | 2,664.37              | -75.58       | 241.05       | 75.58                   | 0.59                    |
| 2,787.00                                     | 17.31           | 107.28      | 2,752.44              | -82.33       | 266.79       | 82.33                   | 1.97                    |
| 2,880.00                                     | 16.68           | 107.19      | 2,841.38              | -90.38       | 292.75       | 90.38                   | 0.68                    |
| 2,972.00                                     | 15.49           | 106.46      | 2,929.77              | -97.77       | 317.14       | 97.77                   | 1.31                    |
| 3,065.00                                     | 16.89           | 108.17      | 3,019.08              | -105.50      | 341.89       | 105.50                  | 1.59                    |
| 3,156.00                                     | 15.44           | 108.19      | 3,106.48              | -113.40      | 365.96       | 113.40                  | 1.59                    |
| 3,248.00                                     | 14.54           | 106.89      | 3,195.35              | -120.58      | 388.65       | 120.58                  | 1.04                    |
| 3,340.00                                     | 13.70           | 105.22      | 3,284.57              | -126.80      | 410.21       | 126.80                  | 1.01                    |
| 3,432.00                                     | 11.49           | 104.13      | 3,374.35              | -131.89      | 429.61       | 131.89                  | 2.42                    |
| 3,524.00                                     | 9.04            | 101.03      | 3,464.87              | -135.52      | 445.59       | 135.52                  | 2.73                    |
| 3,616.00                                     | 7.65            | 101.48      | 3,555.90              | -138.12      | 458.69       | 138.12                  | 1.51                    |
| 3,708.00                                     | 7.19            | 101.78      | 3,647.13              | -140.51      | 470.33       | 140.51                  | 0.50                    |
| 3,799.00                                     | 5.57            | 111.83      | 3,737.56              | -143.32      | 480.00       | 143.32                  | 2.16                    |
| 3,891.00                                     | 5.01            | 110.03      | 3,829.17              | -146.35      | 487.92       | 146.35                  | 0.63                    |
| 3,983.00                                     | 3.24            | 115.07      | 3,920.93              | -148.83      | 494.05       | 148.83                  | 1.96                    |
| 4,075.00                                     | 2.96            | 105.08      | 4,012.80              | -150.55      | 498.70       | 150.55                  | 0.66                    |
| 4,167.00                                     | 0.72            | 109.50      | 4,104.74              | -151.36      | 501.54       | 151.36                  | 2.44                    |
| 4,259.00                                     | 0.58            | 93.61       | 4,196.74              | -151.58      | 502.55       | 151.58                  | 0.25                    |

**Design Report for GEE 16N-25HZ - Actual Surveys**

| Measured Depth (usft) | Inclination (°) | Azimuth (°) | Vertical Depth (usft) | +N/-S (usft) | +E/-W (usft) | Vertical Section (usft) | Dogleg Rate (°/100usft) |
|-----------------------|-----------------|-------------|-----------------------|--------------|--------------|-------------------------|-------------------------|
| 4,353.00              | 0.65            | 29.58       | 4,290.73              | -151.15      | 503.29       | 151.15                  | 0.70                    |
| 4,447.00              | 1.06            | 21.28       | 4,384.72              | -149.88      | 503.86       | 149.88                  | 0.45                    |
| 4,541.00              | 1.23            | 346.86      | 4,478.70              | -148.08      | 503.95       | 148.08                  | 0.74                    |
| 4,635.00              | 1.38            | 354.64      | 4,572.68              | -145.97      | 503.61       | 145.97                  | 0.25                    |
| 4,730.00              | 1.18            | 335.47      | 4,667.66              | -143.94      | 503.10       | 143.94                  | 0.49                    |
| 4,825.00              | 1.17            | 312.68      | 4,762.64              | -142.40      | 501.98       | 142.40                  | 0.49                    |
| 4,919.00              | 2.20            | 303.48      | 4,856.59              | -140.75      | 499.77       | 140.75                  | 1.13                    |
| 5,014.00              | 2.35            | 311.00      | 4,951.52              | -138.47      | 496.78       | 138.47                  | 0.35                    |
| 5,108.00              | 2.38            | 312.51      | 5,045.44              | -135.88      | 493.89       | 135.88                  | 0.07                    |
| 5,203.00              | 2.32            | 308.62      | 5,140.36              | -133.35      | 490.93       | 133.35                  | 0.18                    |
| 5,297.00              | 2.31            | 304.60      | 5,234.28              | -131.09      | 487.89       | 131.09                  | 0.17                    |
| 5,391.00              | 2.01            | 316.84      | 5,328.22              | -128.81      | 485.20       | 128.81                  | 0.58                    |
| 5,580.00              | 1.50            | 292.57      | 5,517.13              | -125.44      | 480.65       | 125.44                  | 0.47                    |
| 5,674.00              | 1.94            | 301.62      | 5,611.09              | -124.14      | 478.16       | 124.14                  | 0.55                    |
| 5,769.00              | 2.11            | 303.56      | 5,706.03              | -122.33      | 475.33       | 122.33                  | 0.19                    |
| 5,863.00              | 2.21            | 308.02      | 5,799.96              | -120.25      | 472.46       | 120.25                  | 0.21                    |
| 5,957.00              | 2.07            | 314.27      | 5,893.90              | -117.95      | 469.82       | 117.95                  | 0.29                    |
| 6,052.00              | 1.72            | 322.27      | 5,988.84              | -115.63      | 467.72       | 115.63                  | 0.46                    |
| 6,146.00              | 1.95            | 317.18      | 6,082.80              | -113.34      | 465.77       | 113.34                  | 0.30                    |
| 6,241.00              | 1.61            | 289.59      | 6,177.75              | -111.70      | 463.41       | 111.70                  | 0.96                    |
| 6,335.00              | 1.67            | 202.51      | 6,271.73              | -112.53      | 461.64       | 112.53                  | 2.40                    |
| 6,429.00              | 1.62            | 196.83      | 6,365.69              | -115.06      | 460.73       | 115.06                  | 0.18                    |
| 6,523.00              | 1.97            | 189.64      | 6,459.64              | -117.93      | 460.08       | 117.93                  | 0.44                    |
| 6,618.00              | 2.19            | 179.46      | 6,554.58              | -121.35      | 459.82       | 121.35                  | 0.45                    |
| 6,665.00              | 3.56            | 165.23      | 6,601.52              | -123.66      | 460.20       | 123.66                  | 3.27                    |
| 6,712.00              | 8.97            | 169.65      | 6,648.22              | -128.68      | 461.23       | 128.68                  | 11.55                   |
| 6,759.00              | 13.68           | 170.87      | 6,694.29              | -137.78      | 462.77       | 137.78                  | 10.03                   |
| 6,806.00              | 16.48           | 175.10      | 6,739.67              | -149.91      | 464.22       | 149.91                  | 6.40                    |
| 6,853.00              | 19.65           | 175.91      | 6,784.35              | -164.44      | 465.36       | 164.44                  | 6.77                    |
| 6,901.00              | 21.90           | 177.56      | 6,829.23              | -181.44      | 466.31       | 181.44                  | 4.84                    |
| 6,948.00              | 25.64           | 180.20      | 6,872.23              | -200.37      | 466.65       | 200.37                  | 8.27                    |
| 6,995.00              | 29.95           | 181.65      | 6,913.80              | -222.28      | 466.28       | 222.28                  | 9.28                    |
| 7,042.00              | 33.37           | 181.52      | 6,953.80              | -246.93      | 465.60       | 246.93                  | 7.28                    |
| 7,090.00              | 38.27           | 182.14      | 6,992.71              | -275.00      | 464.69       | 275.00                  | 10.24                   |
| 7,137.00              | 42.46           | 182.04      | 7,028.51              | -305.41      | 463.58       | 305.41                  | 8.92                    |
| 7,184.00              | 46.41           | 179.28      | 7,062.07              | -338.30      | 463.23       | 338.30                  | 9.35                    |
| 7,231.00              | 50.78           | 178.56      | 7,093.15              | -373.54      | 463.90       | 373.54                  | 9.37                    |
| 7,279.00              | 56.02           | 180.31      | 7,121.76              | -412.06      | 464.26       | 412.06                  | 11.30                   |
| 7,326.00              | 60.32           | 180.87      | 7,146.54              | -451.98      | 463.85       | 451.98                  | 9.20                    |
| 7,373.00              | 63.24           | 180.67      | 7,168.76              | -493.38      | 463.29       | 493.38                  | 6.22                    |
| 7,420.00              | 65.53           | 180.38      | 7,189.08              | -535.76      | 462.91       | 535.76                  | 4.90                    |
| 7,467.00              | 69.47           | 180.06      | 7,207.06              | -579.17      | 462.74       | 579.17                  | 8.41                    |
| 7,514.00              | 72.98           | 180.47      | 7,222.19              | -623.66      | 462.53       | 623.66                  | 7.51                    |
| 7,562.00              | 78.17           | 180.75      | 7,234.14              | -670.13      | 462.04       | 670.13                  | 10.83                   |
| 7,609.00              | 83.74           | 181.50      | 7,241.53              | -716.52      | 461.12       | 716.52                  | 11.96                   |
| 7,625.00              | 85.93           | 181.61      | 7,242.97              | -732.45      | 460.69       | 732.45                  | 13.70                   |
| 7,671.00              | 87.72           | 181.47      | 7,245.51              | -778.36      | 459.46       | 778.36                  | 3.91                    |
| <b>7" @ 7671' MD</b>  |                 |             |                       |              |              |                         |                         |
| 7,727.00              | 89.91           | 181.31      | 7,246.67              | -834.33      | 458.09       | 834.33                  | 3.91                    |
| 7,822.00              | 89.63           | 181.07      | 7,247.05              | -929.31      | 456.12       | 929.31                  | 0.39                    |
| 7,916.00              | 89.85           | 180.57      | 7,247.47              | -1,023.29    | 454.78       | 1,023.29                | 0.58                    |



**Design Report for GEE 16N-25HZ - Actual Surveys**

| Measured Depth (usft) | Inclination (°) | Azimuth (°) | Vertical Depth (usft) | +N/-S (usft) | +E/-W (usft) | Vertical Section (usft) | Dogleg Rate (°/100usft) |
|-----------------------|-----------------|-------------|-----------------------|--------------|--------------|-------------------------|-------------------------|
| 8,010.00              | 90.77           | 180.52      | 7,246.97              | -1,117.29    | 453.88       | 1,117.29                | 0.98                    |
| 8,104.00              | 91.60           | 180.39      | 7,245.02              | -1,211.26    | 453.14       | 1,211.26                | 0.89                    |
| 8,198.00              | 90.12           | 179.31      | 7,243.61              | -1,305.25    | 453.38       | 1,305.25                | 1.95                    |
| 8,293.00              | 90.46           | 179.42      | 7,243.13              | -1,400.24    | 454.44       | 1,400.24                | 0.38                    |
| 8,386.00              | 90.62           | 179.14      | 7,242.25              | -1,493.23    | 455.60       | 1,493.23                | 0.35                    |
| 8,480.00              | 90.34           | 178.50      | 7,241.47              | -1,587.21    | 457.54       | 1,587.21                | 0.74                    |
| 8,575.00              | 90.43           | 177.94      | 7,240.83              | -1,682.16    | 460.49       | 1,682.16                | 0.60                    |
| 8,669.00              | 90.12           | 179.63      | 7,240.38              | -1,776.13    | 462.48       | 1,776.13                | 1.83                    |
| 8,763.00              | 89.97           | 179.42      | 7,240.30              | -1,870.13    | 463.26       | 1,870.13                | 0.27                    |
| 8,858.00              | 90.34           | 179.53      | 7,240.05              | -1,965.12    | 464.13       | 1,965.12                | 0.41                    |
| 8,951.00              | 90.18           | 178.95      | 7,239.62              | -2,058.12    | 465.37       | 2,058.12                | 0.65                    |
| 9,046.00              | 89.51           | 180.32      | 7,239.88              | -2,153.11    | 465.97       | 2,153.11                | 1.61                    |
| 9,140.00              | 89.08           | 179.90      | 7,241.04              | -2,247.10    | 465.79       | 2,247.10                | 0.64                    |
| 9,234.00              | 88.86           | 179.03      | 7,242.73              | -2,341.08    | 466.67       | 2,341.08                | 0.95                    |
| 9,328.00              | 89.01           | 180.41      | 7,244.47              | -2,435.06    | 467.13       | 2,435.06                | 1.48                    |
| 9,422.00              | 88.80           | 178.96      | 7,246.27              | -2,529.04    | 467.65       | 2,529.04                | 1.56                    |
| 9,516.00              | 89.54           | 181.73      | 7,247.63              | -2,623.02    | 467.08       | 2,623.02                | 3.05                    |
| 9,611.00              | 89.35           | 181.97      | 7,248.55              | -2,717.97    | 464.01       | 2,717.97                | 0.32                    |
| 9,705.00              | 88.92           | 181.55      | 7,249.97              | -2,811.91    | 461.13       | 2,811.91                | 0.64                    |
| 9,800.00              | 89.48           | 180.55      | 7,251.30              | -2,906.88    | 459.38       | 2,906.88                | 1.21                    |
| 9,893.00              | 90.52           | 181.64      | 7,251.30              | -2,999.86    | 457.61       | 2,999.86                | 1.62                    |
| 9,985.00              | 90.40           | 181.31      | 7,250.56              | -3,091.83    | 455.24       | 3,091.83                | 0.38                    |
| 10,077.00             | 90.37           | 181.18      | 7,249.94              | -3,183.81    | 453.24       | 3,183.81                | 0.15                    |
| 10,169.00             | 89.97           | 180.35      | 7,249.67              | -3,275.80    | 452.01       | 3,275.80                | 1.00                    |
| 10,260.00             | 89.38           | 180.19      | 7,250.19              | -3,366.79    | 451.58       | 3,366.79                | 0.67                    |
| 10,352.00             | 88.74           | 178.90      | 7,251.69              | -3,458.78    | 452.31       | 3,458.78                | 1.57                    |
| 10,444.00             | 90.03           | 180.24      | 7,252.68              | -3,550.76    | 453.00       | 3,550.76                | 2.02                    |
| 10,536.00             | 91.54           | 180.62      | 7,251.42              | -3,642.75    | 452.31       | 3,642.75                | 1.69                    |
| 10,628.00             | 91.32           | 180.49      | 7,249.13              | -3,734.72    | 451.42       | 3,734.72                | 0.28                    |
| 10,720.00             | 91.48           | 180.15      | 7,246.88              | -3,826.69    | 450.91       | 3,826.69                | 0.41                    |
| 10,812.00             | 91.88           | 179.47      | 7,244.18              | -3,918.65    | 451.21       | 3,918.65                | 0.86                    |
| 10,906.00             | 92.28           | 178.54      | 7,240.77              | -4,012.57    | 452.85       | 4,012.57                | 1.08                    |
| 11,001.00             | 92.71           | 177.45      | 7,236.63              | -4,107.42    | 456.17       | 4,107.42                | 1.23                    |
| 11,095.00             | 92.90           | 179.02      | 7,232.03              | -4,201.26    | 459.06       | 4,201.26                | 1.68                    |
| 11,190.00             | 91.82           | 179.23      | 7,228.12              | -4,296.17    | 460.51       | 4,296.17                | 1.16                    |
| 11,284.00             | 90.25           | 179.94      | 7,226.42              | -4,390.15    | 461.19       | 4,390.15                | 1.83                    |
| 11,378.00             | 90.03           | 180.59      | 7,226.19              | -4,484.14    | 460.75       | 4,484.14                | 0.73                    |
| 11,473.00             | 88.92           | 180.61      | 7,227.06              | -4,579.13    | 459.76       | 4,579.13                | 1.17                    |
| 11,567.00             | 87.69           | 181.10      | 7,229.84              | -4,673.08    | 458.36       | 4,673.08                | 1.41                    |
| 11,661.00             | 87.13           | 180.32      | 7,234.09              | -4,766.98    | 457.19       | 4,766.98                | 1.02                    |
| 11,756.00             | 88.21           | 180.00      | 7,237.95              | -4,861.89    | 456.93       | 4,861.89                | 1.19                    |
| 11,850.00             | 87.94           | 179.89      | 7,241.11              | -4,955.84    | 457.02       | 4,955.84                | 0.31                    |
| 11,944.00             | 89.01           | 179.64      | 7,243.61              | -5,049.81    | 457.40       | 5,049.81                | 1.17                    |
| 12,039.00             | 88.92           | 179.35      | 7,245.33              | -5,144.79    | 458.24       | 5,144.79                | 0.32                    |
| 12,133.00             | 89.72           | 179.59      | 7,246.44              | -5,238.78    | 459.11       | 5,238.78                | 0.89                    |
| 12,227.00             | 90.68           | 179.90      | 7,246.12              | -5,332.77    | 459.53       | 5,332.77                | 1.07                    |
| 12,321.00             | 90.37           | 179.44      | 7,245.26              | -5,426.77    | 460.07       | 5,426.77                | 0.59                    |
| 12,415.00             | 90.74           | 179.13      | 7,244.34              | -5,520.75    | 461.24       | 5,520.75                | 0.51                    |
| 12,510.00             | 91.85           | 179.95      | 7,242.20              | -5,615.73    | 462.00       | 5,615.73                | 1.45                    |
| 12,604.00             | 88.61           | 179.90      | 7,241.82              | -5,709.71    | 462.13       | 5,709.71                | 3.45                    |
| 12,698.00             | 88.80           | 178.84      | 7,243.95              | -5,803.68    | 463.16       | 5,803.68                | 1.15                    |

**Design Report for GEE 16N-25HZ - Actual Surveys**

| Measured Depth (usft)  | Inclination (°) | Azimuth (°) | Vertical Depth (usft) | +N/-S (usft) | +E/-W (usft) | Vertical Section (usft) | Dogleg Rate (°/100usft) |
|--|-----------------|-------------|-----------------------|--------------|--------------|-------------------------|-------------------------|
| 12,793.00  | 90.06           | 178.50      | 7,244.89              | -5,898.65    | 465.37       | 5,898.65                | 1.37                    |
| 12,887.00  | 90.80           | 178.09      | 7,244.18              | -5,992.60    | 468.16       | 5,992.60                | 0.90                    |
| 12,982.00  | 90.52           | 177.50      | 7,243.09              | -6,087.53    | 471.82       | 6,087.53                | 0.69                    |
| 13,076.00  | 88.55           | 178.32      | 7,243.85              | -6,181.46    | 475.25       | 6,181.46                | 2.27                    |
| 13,170.00  | 88.43           | 178.19      | 7,246.33              | -6,275.38    | 478.11       | 6,275.38                | 0.19                    |
| 13,264.00  | 88.15           | 177.47      | 7,249.14              | -6,369.27    | 481.66       | 6,369.27                | 0.82                    |
| 13,358.00  | 88.52           | 179.28      | 7,251.87              | -6,463.19    | 484.33       | 6,463.19                | 1.96                    |
| 13,453.00  | 90.00           | 180.90      | 7,253.09              | -6,558.17    | 484.18       | 6,558.17                | 2.31                    |
| 13,548.00  | 90.92           | 180.51      | 7,252.33              | -6,653.16    | 483.01       | 6,653.16                | 1.05                    |
| 13,642.00  | 91.51           | 179.59      | 7,250.34              | -6,747.14    | 482.93       | 6,747.14                | 1.16                    |
| 13,737.00  | 90.28           | 180.65      | 7,248.85              | -6,842.12    | 482.73       | 6,842.12                | 1.71                    |
| 13,831.00  | 88.34           | 180.60      | 7,249.99              | -6,936.11    | 481.70       | 6,936.11                | 2.06                    |
| 13,925.00  | 89.01           | 182.02      | 7,252.16              | -7,030.05    | 479.56       | 7,030.05                | 1.67                    |
| 14,019.00  | 89.45           | 181.89      | 7,253.42              | -7,123.99    | 476.35       | 7,123.99                | 0.49                    |
| 14,113.00  | 89.72           | 181.71      | 7,254.10              | -7,217.94    | 473.40       | 7,217.94                | 0.35                    |
| 14,208.00  | 89.45           | 180.44      | 7,254.79              | -7,312.92    | 471.61       | 7,312.92                | 1.37                    |
| 14,302.00  | 90.58           | 179.55      | 7,254.77              | -7,406.92    | 471.62       | 7,406.92                | 1.53                    |
| 14,396.00  | 91.48           | 179.27      | 7,253.08              | -7,500.90    | 472.59       | 7,500.90                | 1.00                    |
| 14,491.00  | 92.40           | 178.66      | 7,249.86              | -7,595.83    | 474.31       | 7,595.83                | 1.16                    |
| 14,585.00  | 91.08           | 178.56      | 7,247.01              | -7,689.75    | 476.58       | 7,689.75                | 1.41                    |
| 14,679.00  | 92.31           | 178.30      | 7,244.23              | -7,783.67    | 479.16       | 7,783.67                | 1.34                    |
| 14,773.00  | 90.55           | 179.60      | 7,241.88              | -7,877.62    | 480.88       | 7,877.62                | 2.33                    |
| 14,867.00  | 90.92           | 179.15      | 7,240.68              | -7,971.61    | 481.91       | 7,971.61                | 0.62                    |
| 14,961.00  | 90.86           | 179.57      | 7,239.22              | -8,065.59    | 482.96       | 8,065.59                | 0.45                    |
| 15,056.00  | 88.95           | 179.95      | 7,239.37              | -8,160.59    | 483.35       | 8,160.59                | 2.05                    |
| 15,150.00  | 88.74           | 179.89      | 7,241.27              | -8,254.57    | 483.48       | 8,254.57                | 0.23                    |
| 15,244.00  | 88.37           | 179.60      | 7,243.64              | -8,348.54    | 483.90       | 8,348.54                | 0.50                    |
| 15,339.00  | 88.12           | 179.23      | 7,246.55              | -8,443.49    | 484.87       | 8,443.49                | 0.47                    |
| 15,433.00  | 88.89           | 178.95      | 7,249.00              | -8,537.44    | 486.36       | 8,537.44                | 0.87                    |
| 15,527.00  | 87.63           | 178.52      | 7,251.85              | -8,631.37    | 488.44       | 8,631.37                | 1.42                    |
| 15,622.00  | 88.49           | 179.17      | 7,255.07              | -8,726.30    | 490.35       | 8,726.30                | 1.13                    |
| 15,716.00  | 89.45           | 178.76      | 7,256.76              | -8,820.27    | 492.05       | 8,820.27                | 1.11                    |
| 15,811.00  | 91.14           | 179.60      | 7,256.27              | -8,915.25    | 493.41       | 8,915.25                | 1.99                    |
| 15,905.00  | 91.76           | 179.20      | 7,253.89              | -9,009.22    | 494.39       | 9,009.22                | 0.78                    |
| 16,000.00  | 92.25           | 179.11      | 7,250.57              | -9,104.15    | 495.79       | 9,104.15                | 0.52                    |
| 16,095.00  | 92.77           | 178.84      | 7,246.41              | -9,199.04    | 497.49       | 9,199.04                | 0.62                    |
| 16,189.00  | 90.68           | 178.81      | 7,243.58              | -9,292.97    | 499.42       | 9,292.97                | 2.22                    |
| 16,283.00  | 90.83           | 178.56      | 7,242.34              | -9,386.94    | 501.57       | 9,386.94                | 0.31                    |
| 16,378.00  | 90.28           | 178.41      | 7,241.42              | -9,481.90    | 504.09       | 9,481.90                | 0.60                    |
| 16,472.00  | 90.74           | 178.49      | 7,240.58              | -9,575.86    | 506.63       | 9,575.86                | 0.50                    |
| 16,520.00  | 90.59           | 178.02      | 7,240.03              | -9,623.84    | 508.09       | 9,623.84                | 1.03                    |
| <b>Final MWD Survey @ 16520.00' MD :: 7240.03' TVD</b>   |                 |             |                       |              |              |                         |                         |
| 16,568.00  | 90.59           | 178.02      | 7,239.53              | -9,671.81    | 509.75       | 9,671.81                | 0.00                    |
| <b>Straight Line Projection to Bit @ 16568.00' MD :: 7239.53' TVD - GEE 16N-25HZ_PBHL - GEE 16N-25HZ_BHL</b> |                 |             |                       |              |              |                         |                         |

## Design Report for GEE 16N-25HZ - Actual Surveys

Design Annotations

| Measured<br>Depth<br>(usft) | Vertical<br>Depth<br>(usft) | Local Coordinates |                 | Comment  |
|-----------------------------|-----------------------------|-------------------|-----------------|--|
|                             |                             | +N/-S<br>(usft)   | +E/-W<br>(usft) |  |
| 100.00                      | 100.00                      | 0.31              | 0.37            | First Surface Gyro Survey @ 100.00 ft                          |
| 948.00                      | 947.94                      | 9.38              | 0.84            | Last Surface Gyro Survey @ 948.00 ft                           |
| 16,520.00                   | 7,240.03                    | -9,623.84         | 508.09          | Final MWD Survey @ 16520.00' MD :: 7240.03' TVD                |
| 16,568.00                   | 7,239.53                    | -9,671.81         | 509.75          | Straight Line Projection to Bit @ 16568.00' MD :: 7239.53' TVD |

Vertical Section Information

| Angle<br>Type | Target               | Azimuth<br>(°) | Origin<br>Type | Origin          |                 | Start<br>TVD<br>(usft) |
|---------------|----------------------|----------------|----------------|-----------------|-----------------|------------------------|
|               |                      |                |                | +N/_S<br>(usft) | +E/-W<br>(usft) |                        |
| User          | No Target (Freehand) | 180.00         | Slot           | 0.00            | 0.00            | 0.00                   |

Survey tool program

| From<br>(usft) | To<br>(usft) | Survey/Plan              | Survey Tool |
|----------------|--------------|--------------------------|-------------|
| 100.00         | 948.00       | VES Gyro Surface Surveys | NS-GYRO-MS  |
| 1,109.00       | 7,625.00     | Vertical/Build Surveys   | MWD+IFR1+SC |
| 7,727.00       | 16,568.00    | MWD Lateral Surveys      | MWD+IFR1+SC |

Casing Details

| Measured<br>Depth<br>(usft) | Vertical<br>Depth<br>(usft) | Name          | Casing<br>Diameter<br>(") | Hole<br>Diameter<br>(") |
|-----------------------------|-----------------------------|---------------|---------------------------|-------------------------|
| 1,044.00                    | 1,043.93                    | 9 5/8"        | 9-5/8                     | 13-1/2                  |
| 7,671.00                    | 7,245.51                    | 7" @ 7671' MD | 7                         | 8-3/4                   |



## Design Report for GEE 16N-25HZ - Actual Surveys

Wellbore Targets

| Target Name<br>- hit/miss target<br>- Shape | Dip<br>Angle<br>(°) | Dip<br>Dir.<br>(°) | TVD<br>(usft) | +N/-S<br>(usft) | +E/-W<br>(usft) | Northing<br>(usft) | Easting<br>(usft) | Latitude     | Longitude   |
|---|---------------------|--------------------|---------------|-----------------|-----------------|--------------------|-------------------|--------------|-------------|
| GEE 16N-25HZ_SEC                            | 0.00                | 0.00               | 0.00          | 0.00            | 0.00            | 1,290,334.29       | 3,186,629.01      | 40.128433    | -104.832570 |
| - actual wellpath hits target center        |                     |                    |               |                 |                 |                    |                   |              |             |
| - Polygon                                   |                     |                    |               |                 |                 |                    |                   |              |             |
| Point 1                                     |                     |                    |               | 0.00            | 6,126.77        | -4,460.92          | 1,296,427.07      | 3,182,122.29 |             |
| Point 2                                     |                     |                    |               | 0.00            | 8,764.51        | -4,451.87          | 1,299,064.69      | 3,182,111.48 |             |
| Point 3                                     |                     |                    |               | 0.00            | 11,400.71       | -4,439.21          | 1,301,700.80      | 3,182,104.30 |             |
| Point 4                                     |                     |                    |               | 0.00            | 11,332.13       | -1,817.59          | 1,301,651.96      | 3,184,726.26 |             |
| Point 5                                     |                     |                    |               | 0.00            | 11,297.90       | -506.83            | 1,301,627.60      | 3,186,037.18 |             |
| Point 6                                     |                     |                    |               | 0.00            | 11,263.48       | 803.98             | 1,301,603.05      | 3,187,348.16 |             |
| Point 7                                     |                     |                    |               | 0.00            | 8,654.39        | 787.34             | 1,298,994.01      | 3,187,351.16 |             |
| Point 8                                     |                     |                    |               | 0.00            | 6,045.86        | 771.08             | 1,296,385.54      | 3,187,354.53 |             |
| Point 9                                     |                     |                    |               | 0.00            | 6,085.56        | -1,846.28          | 1,296,405.54      | 3,184,737.06 |             |
| Point 10                                    |                     |                    |               | 0.00            | 6,126.77        | -4,460.92          | 1,296,427.07      | 3,182,122.29 |             |
| Point 11                                    |                     |                    |               | 0.00            | 6,085.56        | -1,846.28          | 1,296,405.54      | 3,184,737.06 |             |
| Point 12                                    |                     |                    |               | 0.00            | 6,045.86        | 771.08             | 1,296,385.54      | 3,187,354.53 |             |
| Point 13                                    |                     |                    |               | 0.00            | 6,045.86        | 771.15             | 1,296,385.54      | 3,187,354.60 |             |
| Point 14                                    |                     |                    |               | 0.00            | 3,435.18        | 757.29             | 1,293,774.94      | 3,187,360.39 |             |
| Point 15                                    |                     |                    |               | 0.00            | 2,129.91        | 749.95             | 1,292,469.70      | 3,187,362.88 |             |
| Point 16                                    |                     |                    |               | 0.00            | 825.14          | 742.64             | 1,291,164.97      | 3,187,365.39 |             |
| Point 17                                    |                     |                    |               | 0.00            | 839.49          | -1,870.68          | 1,291,159.65      | 3,184,752.14 |             |
| Point 18                                    |                     |                    |               | 0.00            | 854.92          | -4,483.48          | 1,291,155.41      | 3,182,139.41 |             |
| Point 19                                    |                     |                    |               | 0.00            | 839.49          | -1,870.68          | 1,291,159.65      | 3,184,752.14 |             |
| Point 20                                    |                     |                    |               | 0.00            | 825.14          | 742.64             | 1,291,164.97      | 3,187,365.39 |             |
| Point 21                                    |                     |                    |               | 0.00            | -1,132.84       | 731.43             | 1,289,207.04      | 3,187,368.92 |             |
| Point 22                                    |                     |                    |               | 0.00            | -1,785.50       | 727.66             | 1,288,554.39      | 3,187,370.06 |             |
| Point 23                                    |                     |                    |               | 0.00            | -4,396.27       | 712.56             | 1,285,943.69      | 3,187,374.61 |             |
| Point 24                                    |                     |                    |               | 0.00            | -4,407.94       | -1,898.05          | 1,285,912.37      | 3,184,764.27 |             |
| Point 25                                    |                     |                    |               | 0.00            | -4,407.03       | -4,507.55          | 1,285,893.64      | 3,182,154.94 |             |
| Point 26                                    |                     |                    |               | 0.00            | -4,407.94       | -1,898.05          | 1,285,912.37      | 3,184,764.27 |             |
| Point 27                                    |                     |                    |               | 0.00            | -4,396.27       | 712.56             | 1,285,943.69      | 3,187,374.61 |             |
| Point 28                                    |                     |                    |               | 0.00            | -9,699.98       | 723.44             | 1,280,640.43      | 3,187,425.41 |             |
| Point 29                                    |                     |                    |               | 0.00            | -9,684.80       | -593.22            | 1,280,645.70      | 3,186,108.72 |             |
| Point 30                                    |                     |                    |               | 0.00            | -9,669.76       | -1,910.12          | 1,280,650.83      | 3,184,791.80 |             |
| Point 31                                    |                     |                    |               | 0.00            | -9,654.14       | -3,232.80          | 1,280,656.49      | 3,183,469.10 |             |
| Point 32                                    |                     |                    |               | 0.00            | -9,638.26       | -4,555.46          | 1,280,662.42      | 3,182,146.41 |             |
| Point 33                                    |                     |                    |               | 0.00            | -8,319.03       | -4,542.13          | 1,281,981.65      | 3,182,149.81 |             |
| Point 34                                    |                     |                    |               | 0.00            | -6,999.97       | -4,528.68          | 1,283,300.72      | 3,182,153.33 |             |
| Point 35                                    |                     |                    |               | 0.00            | -4,407.03       | -4,507.55          | 1,285,893.64      | 3,182,154.94 |             |
| Point 36                                    |                     |                    |               | 0.00            | -4,407.03       | -4,507.55          | 1,285,893.64      | 3,182,154.94 |             |
| Point 37                                    |                     |                    |               | 0.00            | -3,093.06       | -4,501.33          | 1,287,207.57      | 3,182,151.27 |             |
| Point 38                                    |                     |                    |               | 0.00            | -1,779.59       | -4,495.15          | 1,288,521.00      | 3,182,147.57 |             |
| Point 39                                    |                     |                    |               | 0.00            | 854.89          | -4,479.60          | 1,291,155.41      | 3,182,143.29 |             |
| Point 40                                    |                     |                    |               | 0.00            | 854.92          | -4,483.48          | 1,291,155.41      | 3,182,139.41 |             |
| Point 41                                    |                     |                    |               | 0.00            | 3,491.47        | -4,472.12          | 1,293,791.86      | 3,182,130.92 |             |
| Point 42                                    |                     |                    |               | 0.00            | 4,150.20        | -4,469.44          | 1,294,450.57      | 3,182,128.64 |             |
| Point 43                                    |                     |                    |               | 0.00            | 4,809.06        | -4,466.57          | 1,295,109.40      | 3,182,126.56 |             |
| Point 44                                    |                     |                    |               | 0.00            | 6,126.77        | -4,460.92          | 1,296,427.07      | 3,182,122.29 |             |
| GEE 16N-25HZ_SHL                            | 0.00                | 0.00               | 0.00          | 0.00            | 0.00            | 1,290,334.29       | 3,186,629.01      | 40.128433    | -104.832570 |
| - actual wellpath hits target center        |                     |                    |               |                 |                 |                    |                   |              |             |
| - Point                                     |                     |                    |               |                 |                 |                    |                   |              |             |
| GEE 16N-25HZ_LD                             | 0.00                | 0.00               | 0.00          | 0.00            | 0.00            | 1,290,334.29       | 3,186,629.01      | 40.128433    | -104.832570 |
| - actual wellpath hits target center        |                     |                    |               |                 |                 |                    |                   |              |             |
| - Polygon                                   |                     |                    |               |                 |                 |                    |                   |              |             |
| Point 1                                     |                     |                    |               | 0.00            | -4,398.31       | 252.61             | 1,285,938.19      | 3,186,914.71 |             |
| Point 2                                     |                     |                    |               | 0.00            | -3,091.83       | 260.04             | 1,287,244.64      | 3,186,912.30 |             |
| Point 3                                     |                     |                    |               | 0.00            | -1,785.13       | 267.71             | 1,288,551.30      | 3,186,910.14 |             |
| Point 4                                     |                     |                    |               | 0.00            | -484.18         | 275.13             | 1,289,852.22      | 3,186,907.77 |             |
| Point 5                                     |                     |                    |               | 0.00            | 367.66          | 280.00             | 1,290,704.04      | 3,186,906.22 |             |
| Point 6                                     |                     |                    |               | 0.00            | 369.93          | 1,200.07           | 1,290,713.23      | 3,187,826.21 |             |
| Point 7                                     |                     |                    |               | 0.00            | -1,783.29       | 1,187.77           | 1,288,560.07      | 3,187,830.12 |             |
| Point 8                                     |                     |                    |               | 0.00            | -4,396.81       | 1,172.66           | 1,285,946.61      | 3,187,834.68 |             |
| Point 9                                     |                     |                    |               | 0.00            | -7,048.35       | 1,178.06           | 1,283,295.30      | 3,187,860.04 |             |
| Point 10                                    |                     |                    |               | 0.00            | -9,697.63       | 1,183.46           | 1,280,646.24      | 3,187,885.38 |             |

**Design Report for GEE 16N-25HZ - Actual Surveys**

|  |      |            |          |              |              |              |              |
|--|------|------------|----------|--------------|--------------|--------------|--------------|
| Point 11   | 0.00 | -9,697.63  | 1,183.46 | 1,280,646.24 | 3,187,885.38 |              |              |
| Point 12   | 0.00 | -10,553.99 | 1,181.82 | 1,279,789.93 | 3,187,890.18 |              |              |
| Point 13   | 0.00 | -10,552.83 | 261.78   | 1,279,784.17 | 3,186,970.20 |              |              |
| Point 14   | 0.00 | -9,694.64  | 263.42   | 1,280,642.31 | 3,186,965.38 |              |              |
| Point 15   | 0.00 | -8,364.14  | 260.71   | 1,281,972.70 | 3,186,952.65 |              |              |
| Point 16   | 0.00 | -7,045.16  | 258.01   | 1,283,291.56 | 3,186,940.03 |              |              |
| Point 17   | 0.00 | -5,715.23  | 255.30   | 1,284,621.38 | 3,186,927.31 |              |              |
| GEE 16N-25HZ_PBHL  | 0.00 | 0.00       | 7,243.00 | -9,695.66    | 483.33       | 1,280,642.94 | 3,187,185.28 |
| - actual wellpath misses target center by 35.76usft at 16568.00usft MD (7239.53 TVD, -9671.81 N, 509.75 E) |      |            |          |              |              |              | 40.101818    |
| - Point  |      |            |          |              |              |              | -104.830842  |
| GEE 16N-25HZ_BHL   | 0.00 | 0.00       | 7,243.00 | -9,695.66    | 433.33       | 1,280,642.57 | 3,187,135.28 |
| - actual wellpath misses target center by 80.13usft at 16568.00usft MD (7239.53 TVD, -9671.81 N, 509.75 E) |      |            |          |              |              |              | 40.101818    |
| - Point  |      |            |          |              |              |              | -104.831021  |

**Directional Difficulty Index**

|                                     |                |                               |                                  |
|-------------------------------------|----------------|-------------------------------|----------------------------------|
| Average Dogleg over Survey:         | 1.50 °/100usft | Maximum Dogleg over Survey:   | 13.70 °/100usft at 7,625.00 usft |
| Net Tortousity applicable to Plans: | 0.74 °/100usft | Directional Difficulty Index: | 6.762                            |

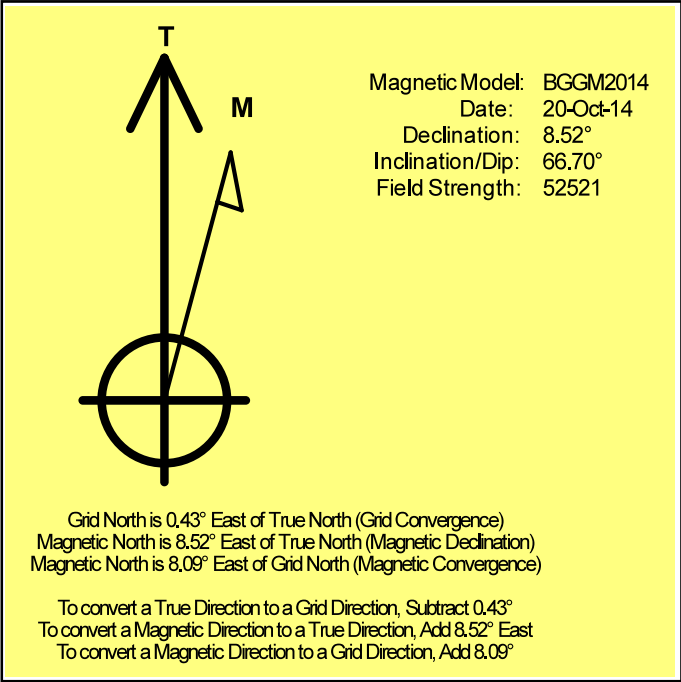
**Audit Info**

**North Reference Sheet for Sec. 24-T2N-R67W - GEE 16N-25HZ - Plan A**

All data is in US Feet unless otherwise stated. Directions and Coordinates are relative to True North Reference.  
 Vertical Depths are relative to RKB = 25' @ 4883.00usft (Drilling Rig). Northing and Easting are relative to GEE 16N-25HZ  
 Coordinate System is US State Plane 1983, Colorado Northern Zone using datum North American Datum 1983, ellipsoid GRS 1980  
 Projection method is Lambert Conformal Conic (2 parallel)  
 Central Meridian is -105.500000°, Longitude Origin:0.000000°, Latitude Origin:40.783333°  
 False Easting: 3,000,000.00usft, False Northing: 1,000,000.00usft, Scale Reduction: 0.99995911

Grid Coordinates of Well: 1,290,334.29 usft N, 3,186,629.01 usft E  
 Geographical Coordinates of Well: 40° 07' 42.36" N, 104° 49' 57.25" W  
 Grid Convergence at Surface is: 0.43°

Based upon Minimum Curvature type calculations, at a Measured Depth of 16,568.00usft  
 the Bottom Hole Displacement is 9,685.23usft in the Direction of 176.98° ( True).  
 Magnetic Convergence at surface is: -8.09° (20 October 2014, , BGGM2014)



# Anadarko Petroleum Corp.

Weld County, CO (NAD 83)

Sec. 24-T2N-R67W

GEE 16N-25HZ

API: 05-123-39235 :: Job #: 901807477

Plan A

Design: Actual Surveys

## Sperry Drilling Services

### Geodetic Report

27 January, 2015

Well Coordinates: 1,290,334.29 N, 3,186,629.01 E (40° 07' 42.36" N, 104° 49' 57.25" W)

Ground Level: 4,858.00 usft

Local Coordinate Origin:

Viewing Datum:

TVDs to System:

North Reference:

Unit System:

Geodetic Scale Factor Applied

Version: 5000.1 Build: 70

Centered on Well GEE 16N-25HZ

RKB = 25' @ 4883.00usft (Drilling Rig)

N

True

Dec-Deg - API - US Survey Feet - Custom

**HALLIBURTON**

## Design Report for GEE 16N-25HZ - Actual Surveys

| Measured<br>Depth<br>(usft) | Inclination<br>(°) | Azimuth<br>(°) | Vertical<br>Depth<br>(usft) | Local Coordinates |                 | Geographic Coordinates |                     | UTM Coordinates    |                   |
|-----------------------------|--------------------|----------------|-----------------------------|-------------------|-----------------|------------------------|---------------------|--------------------|-------------------|
|                             |                    |                |                             | +N/-S<br>(usft)   | +E/-W<br>(usft) | Latitude<br>(usft)     | Longitude<br>(usft) | Northing<br>(usft) | Easting<br>(usft) |
| 0.00                        | 0.00               | 0.00           | 0.00                        | 0.00              | 0.00            | 40.128433              | -104.832570         | 1,290,334.29       | 3,186,629.01      |
| 100.00                      | 0.55               | 50.53          | 100.00                      | 0.31              | 0.37            | 40.128434              | -104.832569         | 1,290,334.60       | 3,186,629.38      |
| 200.00                      | 0.58               | 34.90          | 199.99                      | 1.03              | 1.03            | 40.128436              | -104.832567         | 1,290,335.33       | 3,186,630.04      |
| 300.00                      | 0.74               | 27.55          | 299.99                      | 2.02              | 1.62            | 40.128439              | -104.832564         | 1,290,336.32       | 3,186,630.62      |
| 400.00                      | 0.79               | 7.11           | 399.98                      | 3.27              | 2.01            | 40.128442              | -104.832563         | 1,290,337.58       | 3,186,630.99      |
| 500.00                      | 0.72               | 340.31         | 499.97                      | 4.54              | 1.88            | 40.128446              | -104.832564         | 1,290,338.85       | 3,186,630.86      |
| 600.00                      | 0.63               | 342.54         | 599.96                      | 5.66              | 1.50            | 40.128449              | -104.832565         | 1,290,339.96       | 3,186,630.47      |
| 700.00                      | 0.64               | 345.96         | 699.96                      | 6.73              | 1.20            | 40.128452              | -104.832566         | 1,290,341.03       | 3,186,630.16      |
| 800.00                      | 0.53               | 359.48         | 799.95                      | 7.73              | 1.06            | 40.128454              | -104.832566         | 1,290,342.03       | 3,186,630.01      |
| 900.00                      | 0.63               | 355.28         | 899.95                      | 8.74              | 1.01            | 40.128457              | -104.832567         | 1,290,343.04       | 3,186,629.96      |
| 948.00                      | 0.96               | 338.74         | 947.94                      | 9.38              | 0.84            | 40.128459              | -104.832567         | 1,290,343.68       | 3,186,629.78      |
| 1,044.00                    | 0.94               | 348.35         | 1,043.93                    | 10.90             | 0.39            | 40.128463              | -104.832569         | 1,290,345.20       | 3,186,629.32      |
| 1,109.00                    | 0.94               | 354.98         | 1,108.92                    | 11.96             | 0.24            | 40.128466              | -104.832569         | 1,290,346.25       | 3,186,629.16      |
| 1,201.00                    | 0.94               | 3.38           | 1,200.91                    | 13.46             | 0.22            | 40.128470              | -104.832569         | 1,290,347.75       | 3,186,629.13      |
| 1,294.00                    | 2.73               | 91.83          | 1,293.87                    | 14.15             | 2.48            | 40.128472              | -104.832561         | 1,290,348.46       | 3,186,631.38      |
| 1,386.00                    | 3.91               | 104.01         | 1,385.71                    | 13.32             | 7.71            | 40.128470              | -104.832543         | 1,290,347.67       | 3,186,636.62      |
| 1,478.00                    | 3.39               | 114.19         | 1,477.53                    | 11.45             | 13.23           | 40.128464              | -104.832523         | 1,290,345.84       | 3,186,642.16      |
| 1,570.00                    | 2.97               | 133.41         | 1,569.39                    | 8.70              | 17.45           | 40.128457              | -104.832508         | 1,290,343.12       | 3,186,646.39      |
| 1,663.00                    | 5.01               | 134.98         | 1,662.16                    | 4.17              | 22.07           | 40.128445              | -104.832491         | 1,290,338.63       | 3,186,651.05      |
| 1,756.00                    | 7.15               | 126.34         | 1,754.63                    | -2.13             | 29.61           | 40.128427              | -104.832464         | 1,290,332.38       | 3,186,658.63      |
| 1,864.00                    | 8.39               | 123.84         | 1,861.64                    | -10.50            | 41.57           | 40.128404              | -104.832422         | 1,290,324.10       | 3,186,670.65      |
| 1,957.00                    | 10.08              | 121.05         | 1,953.43                    | -18.48            | 54.17           | 40.128382              | -104.832377         | 1,290,316.22       | 3,186,683.32      |
| 2,049.00                    | 12.28              | 114.60         | 2,043.68                    | -26.70            | 69.97           | 40.128360              | -104.832320         | 1,290,308.11       | 3,186,699.18      |
| 2,142.00                    | 14.24              | 113.16         | 2,134.20                    | -35.32            | 89.48           | 40.128336              | -104.832250         | 1,290,299.65       | 3,186,718.75      |
| 2,234.00                    | 16.43              | 106.96         | 2,222.92                    | -43.57            | 112.33          | 40.128313              | -104.832169         | 1,290,291.57       | 3,186,741.67      |
| 2,326.00                    | 17.97              | 106.76         | 2,310.81                    | -51.46            | 138.37          | 40.128292              | -104.832075         | 1,290,283.88       | 3,186,767.76      |
| 2,419.00                    | 16.86              | 104.90         | 2,399.54                    | -59.06            | 165.14          | 40.128271              | -104.831980         | 1,290,276.48       | 3,186,794.58      |
| 2,511.00                    | 15.69              | 102.70         | 2,487.85                    | -65.23            | 190.17          | 40.128254              | -104.831890         | 1,290,270.50       | 3,186,819.66      |
| 2,602.00                    | 16.76              | 100.71         | 2,575.23                    | -70.37            | 215.07          | 40.128240              | -104.831801         | 1,290,265.54       | 3,186,844.59      |
| 2,695.00                    | 16.35              | 101.97         | 2,664.37                    | -75.58            | 241.05          | 40.128226              | -104.831708         | 1,290,260.53       | 3,186,870.61      |
| 2,787.00                    | 17.31              | 107.28         | 2,752.44                    | -82.33            | 266.79          | 40.128207              | -104.831616         | 1,290,253.97       | 3,186,896.40      |
| 2,880.00                    | 16.68              | 107.19         | 2,841.38                    | -90.38            | 292.75          | 40.128185              | -104.831523         | 1,290,246.12       | 3,186,922.42      |
| 2,972.00                    | 15.49              | 106.46         | 2,929.77                    | -97.77            | 317.14          | 40.128165              | -104.831436         | 1,290,238.92       | 3,186,946.87      |
| 3,065.00                    | 16.89              | 108.17         | 3,019.08                    | -105.50           | 341.89          | 40.128143              | -104.831348         | 1,290,231.37       | 3,186,971.67      |
| 3,156.00                    | 15.44              | 108.19         | 3,106.48                    | -113.40           | 365.96          | 40.128122              | -104.831262         | 1,290,223.65       | 3,186,995.80      |
| 3,248.00                    | 14.54              | 106.89         | 3,195.35                    | -120.58           | 388.65          | 40.128102              | -104.831180         | 1,290,216.64       | 3,187,018.54      |
| 3,340.00                    | 13.70              | 105.22         | 3,284.57                    | -126.80           | 410.21          | 40.128085              | -104.831103         | 1,290,210.59       | 3,187,040.15      |
| 3,432.00                    | 11.49              | 104.13         | 3,374.35                    | -131.89           | 429.61          | 40.128071              | -104.831034         | 1,290,205.64       | 3,187,059.58      |
| 3,524.00                    | 9.04               | 101.03         | 3,464.87                    | -135.52           | 445.59          | 40.128061              | -104.830977         | 1,290,202.14       | 3,187,075.59      |
| 3,616.00                    | 7.65               | 101.48         | 3,555.90                    | -138.12           | 458.69          | 40.128054              | -104.830930         | 1,290,199.64       | 3,187,088.71      |
| 3,708.00                    | 7.19               | 101.78         | 3,647.13                    | -140.51           | 470.33          | 40.128047              | -104.830888         | 1,290,197.33       | 3,187,100.36      |
| 3,799.00                    | 5.57               | 111.83         | 3,737.56                    | -143.32           | 480.00          | 40.128040              | -104.830854         | 1,290,194.60       | 3,187,110.06      |

## Design Report for GEE 16N-25HZ - Actual Surveys

| Measured<br>Depth<br>(usft) | Inclination<br>(°) | Azimuth<br>(°) | Vertical<br>Depth<br>(usft) | Local Coordinates |                 | Geographic Coordinates |                     | UTM Coordinates    |                   |
|-----------------------------|--------------------|----------------|-----------------------------|-------------------|-----------------|------------------------|---------------------|--------------------|-------------------|
|                             |                    |                |                             | +N/-S<br>(usft)   | +E/-W<br>(usft) | Latitude<br>(usft)     | Longitude<br>(usft) | Northing<br>(usft) | Easting<br>(usft) |
| 3,891.00                    | 5.01               | 110.03         | 3,829.17                    | -146.35           | 487.92          | 40.128031              | -104.830825         | 1,290,191.62       | 3,187,118.00      |
| 3,983.00                    | 3.24               | 115.07         | 3,920.93                    | -148.83           | 494.05          | 40.128024              | -104.830804         | 1,290,189.19       | 3,187,124.15      |
| 4,075.00                    | 2.96               | 105.08         | 4,012.80                    | -150.55           | 498.70          | 40.128020              | -104.830787         | 1,290,187.50       | 3,187,128.81      |
| 4,167.00                    | 0.72               | 109.50         | 4,104.74                    | -151.36           | 501.54          | 40.128018              | -104.830777         | 1,290,186.71       | 3,187,131.65      |
| 4,259.00                    | 0.58               | 93.61          | 4,196.74                    | -151.58           | 502.55          | 40.128017              | -104.830773         | 1,290,186.50       | 3,187,132.66      |
| 4,353.00                    | 0.65               | 29.58          | 4,290.73                    | -151.15           | 503.29          | 40.128018              | -104.830770         | 1,290,186.94       | 3,187,133.40      |
| 4,447.00                    | 1.06               | 21.28          | 4,384.72                    | -149.88           | 503.86          | 40.128022              | -104.830768         | 1,290,188.22       | 3,187,133.97      |
| 4,541.00                    | 1.23               | 346.86         | 4,478.70                    | -148.08           | 503.95          | 40.128027              | -104.830768         | 1,290,190.01       | 3,187,134.04      |
| 4,635.00                    | 1.38               | 354.64         | 4,572.68                    | -145.97           | 503.61          | 40.128032              | -104.830769         | 1,290,192.12       | 3,187,133.69      |
| 4,730.00                    | 1.18               | 335.47         | 4,667.66                    | -143.94           | 503.10          | 40.128038              | -104.830771         | 1,290,194.14       | 3,187,133.16      |
| 4,825.00                    | 1.17               | 312.68         | 4,762.64                    | -142.40           | 501.98          | 40.128042              | -104.830775         | 1,290,195.68       | 3,187,132.03      |
| 4,919.00                    | 2.20               | 303.48         | 4,856.59                    | -140.75           | 499.77          | 40.128047              | -104.830783         | 1,290,197.31       | 3,187,129.81      |
| 5,014.00                    | 2.35               | 311.00         | 4,951.52                    | -138.47           | 496.78          | 40.128053              | -104.830794         | 1,290,199.57       | 3,187,126.80      |
| 5,108.00                    | 2.38               | 312.51         | 5,045.44                    | -135.88           | 493.89          | 40.128060              | -104.830804         | 1,290,202.13       | 3,187,123.89      |
| 5,203.00                    | 2.32               | 308.62         | 5,140.36                    | -133.35           | 490.93          | 40.128067              | -104.830815         | 1,290,204.64       | 3,187,120.91      |
| 5,297.00                    | 2.31               | 304.60         | 5,234.28                    | -131.09           | 487.89          | 40.128073              | -104.830826         | 1,290,206.88       | 3,187,117.85      |
| 5,391.00                    | 2.01               | 316.84         | 5,328.22                    | -128.81           | 485.20          | 40.128079              | -104.830835         | 1,290,209.14       | 3,187,115.15      |
| 5,580.00                    | 1.50               | 292.57         | 5,517.13                    | -125.44           | 480.65          | 40.128089              | -104.830851         | 1,290,212.47       | 3,187,110.57      |
| 5,674.00                    | 1.94               | 301.62         | 5,611.09                    | -124.14           | 478.16          | 40.128092              | -104.830860         | 1,290,213.76       | 3,187,108.07      |
| 5,769.00                    | 2.11               | 303.56         | 5,706.03                    | -122.33           | 475.33          | 40.128097              | -104.830870         | 1,290,215.55       | 3,187,105.23      |
| 5,863.00                    | 2.21               | 308.02         | 5,799.96                    | -120.25           | 472.46          | 40.128103              | -104.830881         | 1,290,217.60       | 3,187,102.34      |
| 5,957.00                    | 2.07               | 314.27         | 5,893.90                    | -117.95           | 469.82          | 40.128109              | -104.830890         | 1,290,219.88       | 3,187,099.68      |
| 6,052.00                    | 1.72               | 322.27         | 5,988.84                    | -115.63           | 467.72          | 40.128116              | -104.830898         | 1,290,222.19       | 3,187,097.56      |
| 6,146.00                    | 1.95               | 317.18         | 6,082.80                    | -113.34           | 465.77          | 40.128122              | -104.830905         | 1,290,224.47       | 3,187,095.60      |
| 6,241.00                    | 1.61               | 289.59         | 6,177.75                    | -111.70           | 463.41          | 40.128126              | -104.830913         | 1,290,226.08       | 3,187,093.23      |
| 6,335.00                    | 1.67               | 202.51         | 6,271.73                    | -112.53           | 461.64          | 40.128124              | -104.830919         | 1,290,225.25       | 3,187,091.47      |
| 6,429.00                    | 1.62               | 196.83         | 6,365.69                    | -115.06           | 460.73          | 40.128117              | -104.830923         | 1,290,222.70       | 3,187,090.58      |
| 6,523.00                    | 1.97               | 189.64         | 6,459.64                    | -117.93           | 460.08          | 40.128109              | -104.830925         | 1,290,219.83       | 3,187,089.94      |
| 6,618.00                    | 2.19               | 179.46         | 6,554.58                    | -121.35           | 459.82          | 40.128100              | -104.830926         | 1,290,216.41       | 3,187,089.71      |
| 6,665.00                    | 3.56               | 165.23         | 6,601.52                    | -123.66           | 460.20          | 40.128094              | -104.830925         | 1,290,214.10       | 3,187,090.11      |
| 6,712.00                    | 8.97               | 169.65         | 6,648.22                    | -128.68           | 461.23          | 40.128080              | -104.830921         | 1,290,209.09       | 3,187,091.18      |
| 6,759.00                    | 13.68              | 170.87         | 6,694.29                    | -137.78           | 462.77          | 40.128055              | -104.830915         | 1,290,200.00       | 3,187,092.79      |
| 6,806.00                    | 16.48              | 175.10         | 6,739.67                    | -149.91           | 464.22          | 40.128022              | -104.830910         | 1,290,187.88       | 3,187,094.33      |
| 6,853.00                    | 19.65              | 175.91         | 6,784.35                    | -164.44           | 465.36          | 40.127982              | -104.830906         | 1,290,173.36       | 3,187,095.57      |
| 6,901.00                    | 21.90              | 177.56         | 6,829.23                    | -181.44           | 466.31          | 40.127935              | -104.830903         | 1,290,156.38       | 3,187,096.66      |
| 6,948.00                    | 25.64              | 180.20         | 6,872.23                    | -200.37           | 466.65          | 40.127883              | -104.830902         | 1,290,137.45       | 3,187,097.14      |
| 6,995.00                    | 29.95              | 181.65         | 6,913.80                    | -222.28           | 466.28          | 40.127823              | -104.830903         | 1,290,115.54       | 3,187,096.93      |
| 7,042.00                    | 33.37              | 181.52         | 6,953.80                    | -246.93           | 465.60          | 40.127755              | -104.830905         | 1,290,090.88       | 3,187,096.44      |
| 7,090.00                    | 38.27              | 182.14         | 6,992.71                    | -275.00           | 464.69          | 40.127678              | -104.830909         | 1,290,062.81       | 3,187,095.74      |
| 7,137.00                    | 42.46              | 182.04         | 7,028.51                    | -305.41           | 463.58          | 40.127595              | -104.830912         | 1,290,032.39       | 3,187,094.86      |
| 7,184.00                    | 46.41              | 179.28         | 7,062.07                    | -338.30           | 463.23          | 40.127504              | -104.830914         | 1,289,999.50       | 3,187,094.76      |
| 7,231.00                    | 50.78              | 178.56         | 7,093.15                    | -373.54           | 463.90          | 40.127408              | -104.830911         | 1,289,964.27       | 3,187,095.69      |





## Design Report for GEE 16N-25HZ - Actual Surveys

| Measured<br>Depth<br>(usft) | Inclination<br>(°) | Azimuth<br>(°) | Vertical<br>Depth<br>(usft) | Local Coordinates |                 | Geographic Coordinates |                     | UTM Coordinates    |                   |
|-----------------------------|--------------------|----------------|-----------------------------|-------------------|-----------------|------------------------|---------------------|--------------------|-------------------|
|                             |                    |                |                             | +N/-S<br>(usft)   | +E/-W<br>(usft) | Latitude<br>(usft)     | Longitude<br>(usft) | Northing<br>(usft) | Easting<br>(usft) |
| 7,279.00                    | 56.02              | 180.31         | 7,121.76                    | -412.06           | 464.26          | 40.127302              | -104.830910         | 1,289,925.76       | 3,187,096.34      |
| 7,326.00                    | 60.32              | 180.87         | 7,146.54                    | -451.98           | 463.85          | 40.127192              | -104.830912         | 1,289,885.84       | 3,187,096.23      |
| 7,373.00                    | 63.24              | 180.67         | 7,168.76                    | -493.38           | 463.29          | 40.127079              | -104.830914         | 1,289,844.43       | 3,187,095.99      |
| 7,420.00                    | 65.53              | 180.38         | 7,189.08                    | -535.76           | 462.91          | 40.126962              | -104.830915         | 1,289,802.05       | 3,187,095.92      |
| 7,467.00                    | 69.47              | 180.06         | 7,207.06                    | -579.17           | 462.74          | 40.126843              | -104.830916         | 1,289,758.64       | 3,187,096.08      |
| 7,514.00                    | 72.98              | 180.47         | 7,222.19                    | -623.66           | 462.53          | 40.126721              | -104.830916         | 1,289,714.15       | 3,187,096.21      |
| 7,562.00                    | 78.17              | 180.75         | 7,234.14                    | -670.13           | 462.04          | 40.126594              | -104.830918         | 1,289,667.68       | 3,187,096.06      |
| 7,609.00                    | 83.74              | 181.50         | 7,241.53                    | -716.52           | 461.12          | 40.126466              | -104.830921         | 1,289,621.29       | 3,187,095.50      |
| 7,625.00                    | 85.93              | 181.61         | 7,242.97                    | -732.45           | 460.69          | 40.126422              | -104.830923         | 1,289,605.36       | 3,187,095.18      |
| 7,671.00                    | 87.72              | 181.47         | 7,245.51                    | -778.36           | 459.46          | 40.126296              | -104.830927         | 1,289,559.44       | 3,187,094.29      |
| 7,727.00                    | 89.91              | 181.31         | 7,246.67                    | -834.33           | 458.09          | 40.126143              | -104.830932         | 1,289,503.47       | 3,187,093.35      |
| 7,822.00                    | 89.63              | 181.07         | 7,247.05                    | -929.31           | 456.12          | 40.125882              | -104.830939         | 1,289,408.48       | 3,187,092.10      |
| 7,916.00                    | 89.85              | 180.57         | 7,247.47                    | -1,023.29         | 454.78          | 40.125624              | -104.830944         | 1,289,314.49       | 3,187,091.46      |
| 8,010.00                    | 90.77              | 180.52         | 7,246.97                    | -1,117.29         | 453.88          | 40.125366              | -104.830947         | 1,289,220.50       | 3,187,091.27      |
| 8,104.00                    | 91.60              | 180.39         | 7,245.02                    | -1,211.26         | 453.14          | 40.125108              | -104.830950         | 1,289,126.52       | 3,187,091.23      |
| 8,198.00                    | 90.12              | 179.31         | 7,243.61                    | -1,305.25         | 453.38          | 40.124850              | -104.830949         | 1,289,032.54       | 3,187,092.19      |
| 8,293.00                    | 90.46              | 179.42         | 7,243.13                    | -1,400.24         | 454.44          | 40.124589              | -104.830945         | 1,288,937.57       | 3,187,093.95      |
| 8,386.00                    | 90.62              | 179.14         | 7,242.25                    | -1,493.23         | 455.60          | 40.124334              | -104.830941         | 1,288,844.59       | 3,187,095.82      |
| 8,480.00                    | 90.34              | 178.50         | 7,241.47                    | -1,587.21         | 457.54          | 40.124076              | -104.830934         | 1,288,750.64       | 3,187,098.47      |
| 8,575.00                    | 90.43              | 177.94         | 7,240.83                    | -1,682.16         | 460.49          | 40.123815              | -104.830924         | 1,288,655.71       | 3,187,102.13      |
| 8,669.00                    | 90.12              | 179.63         | 7,240.38                    | -1,776.13         | 462.48          | 40.123557              | -104.830917         | 1,288,561.76       | 3,187,104.83      |
| 8,763.00                    | 89.97              | 179.42         | 7,240.30                    | -1,870.13         | 463.26          | 40.123299              | -104.830914         | 1,288,467.78       | 3,187,106.32      |
| 8,858.00                    | 90.34              | 179.53         | 7,240.05                    | -1,965.12         | 464.13          | 40.123039              | -104.830911         | 1,288,372.79       | 3,187,107.90      |
| 8,951.00                    | 90.18              | 178.95         | 7,239.62                    | -2,058.12         | 465.37          | 40.122783              | -104.830906         | 1,288,279.82       | 3,187,109.84      |
| 9,046.00                    | 89.51              | 180.32         | 7,239.88                    | -2,153.11         | 465.97          | 40.122523              | -104.830904         | 1,288,184.84       | 3,187,111.16      |
| 9,140.00                    | 89.08              | 179.90         | 7,241.04                    | -2,247.10         | 465.79          | 40.122265              | -104.830905         | 1,288,090.85       | 3,187,111.68      |
| 9,234.00                    | 88.86              | 179.03         | 7,242.73                    | -2,341.08         | 466.67          | 40.122007              | -104.830902         | 1,287,996.88       | 3,187,113.27      |
| 9,328.00                    | 89.01              | 180.41         | 7,244.47                    | -2,435.06         | 467.13          | 40.121749              | -104.830900         | 1,287,902.91       | 3,187,114.43      |
| 9,422.00                    | 88.80              | 178.96         | 7,246.27                    | -2,529.04         | 467.65          | 40.121491              | -104.830898         | 1,287,808.94       | 3,187,115.66      |
| 9,516.00                    | 89.54              | 181.73         | 7,247.63                    | -2,623.02         | 467.08          | 40.121233              | -104.830900         | 1,287,714.97       | 3,187,115.80      |
| 9,611.00                    | 89.35              | 181.97         | 7,248.55                    | -2,717.97         | 464.01          | 40.120972              | -104.830911         | 1,287,620.00       | 3,187,113.45      |
| 9,705.00                    | 88.92              | 181.55         | 7,249.97                    | -2,811.91         | 461.13          | 40.120714              | -104.830921         | 1,287,526.05       | 3,187,111.27      |
| 9,800.00                    | 89.48              | 180.55         | 7,251.30                    | -2,906.88         | 459.38          | 40.120454              | -104.830928         | 1,287,431.07       | 3,187,110.24      |
| 9,893.00                    | 90.52              | 181.64         | 7,251.30                    | -2,999.86         | 457.61          | 40.120198              | -104.830934         | 1,287,338.08       | 3,187,109.17      |
| 9,985.00                    | 90.40              | 181.31         | 7,250.56                    | -3,091.83         | 455.24          | 40.119946              | -104.830943         | 1,287,246.10       | 3,187,107.49      |
| 10,077.00                   | 90.37              | 181.18         | 7,249.94                    | -3,183.81         | 453.24          | 40.119693              | -104.830950         | 1,287,154.12       | 3,187,106.18      |
| 10,169.00                   | 89.97              | 180.35         | 7,249.67                    | -3,275.80         | 452.01          | 40.119441              | -104.830954         | 1,287,062.12       | 3,187,105.65      |
| 10,260.00                   | 89.38              | 180.19         | 7,250.19                    | -3,366.79         | 451.58          | 40.119191              | -104.830956         | 1,286,971.13       | 3,187,105.90      |
| 10,352.00                   | 88.74              | 178.90         | 7,251.69                    | -3,458.78         | 452.31          | 40.118939              | -104.830953         | 1,286,879.16       | 3,187,107.33      |
| 10,444.00                   | 90.03              | 180.24         | 7,252.68                    | -3,550.76         | 453.00          | 40.118686              | -104.830951         | 1,286,787.18       | 3,187,108.71      |
| 10,536.00                   | 91.54              | 180.62         | 7,251.42                    | -3,642.75         | 452.31          | 40.118434              | -104.830953         | 1,286,695.20       | 3,187,108.71      |
| 10,628.00                   | 91.32              | 180.49         | 7,249.13                    | -3,734.72         | 451.42          | 40.118181              | -104.830956         | 1,286,603.23       | 3,187,108.51      |

## Design Report for GEE 16N-25HZ - Actual Surveys

| Measured<br>Depth<br>(usft) | Inclination<br>(°) | Azimuth<br>(°) | Vertical<br>Depth<br>(usft) | Local Coordinates |                 | Geographic Coordinates |                     | UTM Coordinates    |                   |
|-----------------------------|--------------------|----------------|-----------------------------|-------------------|-----------------|------------------------|---------------------|--------------------|-------------------|
|                             |                    |                |                             | +N/-S<br>(usft)   | +E/-W<br>(usft) | Latitude<br>(usft)     | Longitude<br>(usft) | Northing<br>(usft) | Easting<br>(usft) |
| 10,720.00                   | 91.48              | 180.15         | 7,246.88                    | -3,826.69         | 450.91          | 40.117929              | -104.830958         | 1,286,511.26       | 3,187,108.69      |
| 10,812.00                   | 91.88              | 179.47         | 7,244.18                    | -3,918.65         | 451.21          | 40.117676              | -104.830957         | 1,286,419.31       | 3,187,109.69      |
| 10,906.00                   | 92.28              | 178.54         | 7,240.77                    | -4,012.57         | 452.85          | 40.117418              | -104.830951         | 1,286,325.41       | 3,187,112.03      |
| 11,001.00                   | 92.71              | 177.45         | 7,236.63                    | -4,107.42         | 456.17          | 40.117158              | -104.830939         | 1,286,230.59       | 3,187,116.06      |
| 11,095.00                   | 92.90              | 179.02         | 7,232.03                    | -4,201.26         | 459.06          | 40.116900              | -104.830929         | 1,286,136.78       | 3,187,119.66      |
| 11,190.00                   | 91.82              | 179.23         | 7,228.12                    | -4,296.17         | 460.51          | 40.116640              | -104.830924         | 1,286,041.89       | 3,187,121.82      |
| 11,284.00                   | 90.25              | 179.94         | 7,226.42                    | -4,390.15         | 461.19          | 40.116382              | -104.830921         | 1,285,947.92       | 3,187,123.21      |
| 11,378.00                   | 90.03              | 180.59         | 7,226.19                    | -4,484.14         | 460.75          | 40.116124              | -104.830923         | 1,285,853.92       | 3,187,123.48      |
| 11,473.00                   | 88.92              | 180.61         | 7,227.06                    | -4,579.13         | 459.76          | 40.115863              | -104.830926         | 1,285,758.93       | 3,187,123.20      |
| 11,567.00                   | 87.69              | 181.10         | 7,229.84                    | -4,673.08         | 458.36          | 40.115605              | -104.830931         | 1,285,664.98       | 3,187,122.51      |
| 11,661.00                   | 87.13              | 180.32         | 7,234.09                    | -4,766.98         | 457.19          | 40.115348              | -104.830936         | 1,285,571.09       | 3,187,122.05      |
| 11,756.00                   | 88.21              | 180.00         | 7,237.95                    | -4,861.89         | 456.93          | 40.115087              | -104.830937         | 1,285,476.17       | 3,187,122.50      |
| 11,850.00                   | 87.94              | 179.89         | 7,241.11                    | -4,955.84         | 457.02          | 40.114829              | -104.830936         | 1,285,382.23       | 3,187,123.30      |
| 11,944.00                   | 89.01              | 179.64         | 7,243.61                    | -5,049.81         | 457.40          | 40.114571              | -104.830935         | 1,285,288.28       | 3,187,124.39      |
| 12,039.00                   | 88.92              | 179.35         | 7,245.33                    | -5,144.79         | 458.24          | 40.114310              | -104.830932         | 1,285,193.31       | 3,187,125.94      |
| 12,133.00                   | 89.72              | 179.59         | 7,246.44                    | -5,238.78         | 459.11          | 40.114052              | -104.830929         | 1,285,099.33       | 3,187,127.52      |
| 12,227.00                   | 90.68              | 179.90         | 7,246.12                    | -5,332.77         | 459.53          | 40.113794              | -104.830927         | 1,285,005.35       | 3,187,128.64      |
| 12,321.00                   | 90.37              | 179.44         | 7,245.26                    | -5,426.77         | 460.07          | 40.113536              | -104.830925         | 1,284,911.36       | 3,187,129.89      |
| 12,415.00                   | 90.74              | 179.13         | 7,244.34                    | -5,520.75         | 461.24          | 40.113278              | -104.830921         | 1,284,817.39       | 3,187,131.77      |
| 12,510.00                   | 91.85              | 179.95         | 7,242.20                    | -5,615.73         | 462.00          | 40.113018              | -104.830918         | 1,284,722.43       | 3,187,133.25      |
| 12,604.00                   | 88.61              | 179.90         | 7,241.82                    | -5,709.71         | 462.13          | 40.112760              | -104.830918         | 1,284,628.45       | 3,187,134.08      |
| 12,698.00                   | 88.80              | 178.84         | 7,243.95                    | -5,803.68         | 463.16          | 40.112502              | -104.830914         | 1,284,534.50       | 3,187,135.82      |
| 12,793.00                   | 90.06              | 178.50         | 7,244.89                    | -5,898.65         | 465.37          | 40.112241              | -104.830906         | 1,284,439.55       | 3,187,138.74      |
| 12,887.00                   | 90.80              | 178.09         | 7,244.18                    | -5,992.60         | 468.16          | 40.111983              | -104.830896         | 1,284,345.63       | 3,187,142.24      |
| 12,982.00                   | 90.52              | 177.50         | 7,243.09                    | -6,087.53         | 471.82          | 40.111723              | -104.830883         | 1,284,250.74       | 3,187,146.61      |
| 13,076.00                   | 88.55              | 178.32         | 7,243.85                    | -6,181.46         | 475.25          | 40.111465              | -104.830871         | 1,284,156.84       | 3,187,150.75      |
| 13,170.00                   | 88.43              | 178.19         | 7,246.33                    | -6,275.38         | 478.11          | 40.111207              | -104.830861         | 1,284,062.94       | 3,187,154.32      |
| 13,264.00                   | 88.15              | 177.47         | 7,249.14                    | -6,369.27         | 481.66          | 40.110949              | -104.830848         | 1,283,969.09       | 3,187,158.58      |
| 13,358.00                   | 88.52              | 179.28         | 7,251.87                    | -6,463.19         | 484.33          | 40.110691              | -104.830839         | 1,283,875.20       | 3,187,161.95      |
| 13,453.00                   | 90.00              | 180.90         | 7,253.09                    | -6,558.17         | 484.18          | 40.110431              | -104.830839         | 1,283,780.21       | 3,187,162.52      |
| 13,548.00                   | 90.92              | 180.51         | 7,252.33                    | -6,653.16         | 483.01          | 40.110170              | -104.830843         | 1,283,685.22       | 3,187,162.06      |
| 13,642.00                   | 91.51              | 179.59         | 7,250.34                    | -6,747.14         | 482.93          | 40.109912              | -104.830844         | 1,283,591.25       | 3,187,162.69      |
| 13,737.00                   | 90.28              | 180.65         | 7,248.85                    | -6,842.12         | 482.73          | 40.109651              | -104.830844         | 1,283,496.27       | 3,187,163.20      |
| 13,831.00                   | 88.34              | 180.60         | 7,249.99                    | -6,936.11         | 481.70          | 40.109393              | -104.830848         | 1,283,402.29       | 3,187,162.89      |
| 13,925.00                   | 89.01              | 182.02         | 7,252.16                    | -7,030.05         | 479.56          | 40.109135              | -104.830856         | 1,283,308.33       | 3,187,161.44      |
| 14,019.00                   | 89.45              | 181.89         | 7,253.42                    | -7,123.99         | 476.35          | 40.108877              | -104.830867         | 1,283,214.38       | 3,187,158.95      |
| 14,113.00                   | 89.72              | 181.71         | 7,254.10                    | -7,217.94         | 473.40          | 40.108620              | -104.830878         | 1,283,120.41       | 3,187,156.70      |
| 14,208.00                   | 89.45              | 180.44         | 7,254.79                    | -7,312.92         | 471.61          | 40.108359              | -104.830884         | 1,283,025.42       | 3,187,155.63      |
| 14,302.00                   | 90.58              | 179.55         | 7,254.77                    | -7,406.92         | 471.62          | 40.108101              | -104.830884         | 1,282,931.43       | 3,187,156.35      |
| 14,396.00                   | 91.48              | 179.27         | 7,253.08                    | -7,500.90         | 472.59          | 40.107843              | -104.830881         | 1,282,837.47       | 3,187,158.02      |
| 14,491.00                   | 92.40              | 178.66         | 7,249.86                    | -7,595.83         | 474.31          | 40.107582              | -104.830875         | 1,282,742.56       | 3,187,160.45      |
| 14,585.00                   | 91.08              | 178.56         | 7,247.01                    | -7,689.75         | 476.58          | 40.107324              | -104.830866         | 1,282,648.66       | 3,187,163.44      |

## Design Report for GEE 16N-25HZ - Actual Surveys

| Measured Depth<br>(usft) | Inclination<br>(°) | Azimuth<br>(°) | Vertical Depth<br>(usft) | Local Coordinates |                 | Geographic Coordinates |                     | UTM Coordinates    |                   |
|--------------------------|--------------------|----------------|--------------------------|-------------------|-----------------|------------------------|---------------------|--------------------|-------------------|
|                          |                    |                |                          | +N/-S<br>(usft)   | +E/-W<br>(usft) | Latitude<br>(usft)     | Longitude<br>(usft) | Northing<br>(usft) | Easting<br>(usft) |
| 14,679.00                | 92.31              | 178.30         | 7,244.23                 | -7,783.67         | 479.16          | 40.107067              | -104.830857         | 1,282,554.76       | 3,187,166.72      |
| 14,773.00                | 90.55              | 179.60         | 7,241.88                 | -7,877.62         | 480.88          | 40.106809              | -104.830851         | 1,282,460.83       | 3,187,169.15      |
| 14,867.00                | 90.92              | 179.15         | 7,240.68                 | -7,971.61         | 481.91          | 40.106551              | -104.830847         | 1,282,366.86       | 3,187,170.88      |
| 14,961.00                | 90.86              | 179.57         | 7,239.22                 | -8,065.59         | 482.96          | 40.106293              | -104.830844         | 1,282,272.89       | 3,187,172.64      |
| 15,056.00                | 88.95              | 179.95         | 7,239.37                 | -8,160.59         | 483.35          | 40.106032              | -104.830842         | 1,282,177.91       | 3,187,173.75      |
| 15,150.00                | 88.74              | 179.89         | 7,241.27                 | -8,254.57         | 483.48          | 40.105774              | -104.830842         | 1,282,083.93       | 3,187,174.59      |
| 15,244.00                | 88.37              | 179.60         | 7,243.64                 | -8,348.54         | 483.90          | 40.105516              | -104.830840         | 1,281,989.97       | 3,187,175.71      |
| 15,339.00                | 88.12              | 179.23         | 7,246.55                 | -8,443.49         | 484.87          | 40.105255              | -104.830837         | 1,281,895.04       | 3,187,177.40      |
| 15,433.00                | 88.89              | 178.95         | 7,249.00                 | -8,537.44         | 486.36          | 40.104997              | -104.830832         | 1,281,801.10       | 3,187,179.60      |
| 15,527.00                | 87.63              | 178.52         | 7,251.85                 | -8,631.37         | 488.44          | 40.104740              | -104.830824         | 1,281,707.19       | 3,187,182.38      |
| 15,622.00                | 88.49              | 179.17         | 7,255.07                 | -8,726.30         | 490.35          | 40.104479              | -104.830817         | 1,281,612.29       | 3,187,185.01      |
| 15,716.00                | 89.45              | 178.76         | 7,256.76                 | -8,820.27         | 492.05          | 40.104221              | -104.830811         | 1,281,518.34       | 3,187,187.41      |
| 15,811.00                | 91.14              | 179.60         | 7,256.27                 | -8,915.25         | 493.41          | 40.103960              | -104.830806         | 1,281,423.37       | 3,187,189.49      |
| 15,905.00                | 91.76              | 179.20         | 7,253.89                 | -9,009.22         | 494.39          | 40.103702              | -104.830803         | 1,281,329.42       | 3,187,191.18      |
| 16,000.00                | 92.25              | 179.11         | 7,250.57                 | -9,104.15         | 495.79          | 40.103442              | -104.830798         | 1,281,234.50       | 3,187,193.29      |
| 16,095.00                | 92.77              | 178.84         | 7,246.41                 | -9,199.04         | 497.49          | 40.103181              | -104.830792         | 1,281,139.63       | 3,187,195.70      |
| 16,189.00                | 90.68              | 178.81         | 7,243.58                 | -9,292.97         | 499.42          | 40.102923              | -104.830785         | 1,281,045.72       | 3,187,198.34      |
| 16,283.00                | 90.83              | 178.56         | 7,242.34                 | -9,386.94         | 501.57          | 40.102666              | -104.830777         | 1,280,951.78       | 3,187,201.20      |
| 16,378.00                | 90.28              | 178.41         | 7,241.42                 | -9,481.90         | 504.09          | 40.102405              | -104.830768         | 1,280,856.84       | 3,187,204.43      |
| 16,472.00                | 90.74              | 178.49         | 7,240.58                 | -9,575.86         | 506.63          | 40.102147              | -104.830759         | 1,280,762.90       | 3,187,207.68      |
| 16,520.00                | 90.59              | 178.02         | 7,240.03                 | -9,623.84         | 508.09          | 40.102015              | -104.830754         | 1,280,714.94       | 3,187,209.50      |
| 16,568.00                | 90.59              | 178.02         | 7,239.53                 | -9,671.81         | 509.75          | 40.101884              | -104.830748         | 1,280,666.99       | 3,187,211.52      |

### Design Annotations

| Measured Depth<br>(usft) | Vertical Depth<br>(usft) | Local Coordinates |                 | Comment  |
|--------------------------|--------------------------|-------------------|-----------------|--|
|                          |                          | +N/-S<br>(usft)   | +E/-W<br>(usft) |  |
| 100.00                   | 100.00                   | 0.31              | 0.37            | First Surface Gyro Survey @ 100.00 ft                          |
| 948.00                   | 947.94                   | 9.38              | 0.84            | Last Surface Gyro Survey @ 948.00 ft                           |
| 16,520.00                | 7,240.03                 | -9,623.84         | 508.09          | Final MWD Survey @ 16520.00' MD :: 7240.03' TVD                |
| 16,568.00                | 7,239.53                 | -9,671.81         | 509.75          | Straight Line Projection to Bit @ 16568.00' MD :: 7239.53' TVD |

### Vertical Section Information

| Angle Type | Target               | Azimuth<br>(°) | Origin Type | Origin          |                 | Start TVD<br>(usft) |
|------------|----------------------|----------------|-------------|-----------------|-----------------|---------------------|
|            |                      |                |             | +N/_S<br>(usft) | +E/-W<br>(usft) |                     |
| User       | No Target (Freehand) | 180.00         | Slot        | 0.00            | 0.00            | 0.00                |

## Design Report for GEE 16N-25HZ - Actual Surveys

Survey tool program

| From<br>(usft) | To<br>(usft) | Survey/Plan              | Survey Tool |
|----------------|--------------|--------------------------|-------------|
| 100.00         | 948.00       | VES Gyro Surface Surveys | NS-GYRO-MS  |
| 1,109.00       | 7,625.00     | Vertical/Build Surveys   | MWD+IFR1+SC |
| 7,727.00       | 16,568.00    | MWD Lateral Surveys      | MWD+IFR1+SC |

Casing Details

| Measured<br>Depth<br>(usft) | Vertical<br>Depth<br>(usft) | Name           | Casing<br>Diameter<br>(") | Hole<br>Diameter<br>(") |
|-----------------------------|-----------------------------|----------------|---------------------------|-------------------------|
| 1,044.00                    | 1,043.93                    | 9 5/8"         | 9-5/8                     | 13-1/2                  |
| 7,671.00                    | 7,245.51                    | 7" @ 7671 ' MD | 7                         | 8-3/4                   |

Design Targets

| Shape | Target Name | TVD<br>( ) | Northing<br>( ) | Easting<br>( ) | +N/-S | +E/-W | Created | Updated |
|-------|-------------|------------|-----------------|----------------|-------|-------|---------|---------|
|-------|-------------|------------|-----------------|----------------|-------|-------|---------|---------|

Directional Difficulty Index

|                                     |                |                               |                                  |
|-------------------------------------|----------------|-------------------------------|----------------------------------|
| Average Dogleg over Survey:         | 1.50 °/100usft | Maximum Dogleg over Survey:   | 13.70 °/100usft at 7,625.00 usft |
| Net Tortousity applicable to Plans: | 0.74 °/100usft | Directional Difficulty Index: | 6.762                            |

Audit Info

**North Reference Sheet for Sec. 24-T2N-R67W - GEE 16N-25HZ - Plan A**

All data is in US Feet unless otherwise stated. Directions and Coordinates are relative to True North Reference.

Vertical Depths are relative to RKB = 25' @ 4883.00usft (Drilling Rig). Northing and Easting are relative to GEE 16N-25HZ

Coordinate System is US State Plane 1983, Colorado Northern Zone using datum North American Datum 1983, ellipsoid GRS 1980

Projection method is Lambert Conformal Conic (2 parallel)

Central Meridian is -105.500000°, Longitude Origin:0.000000°, Latitude Origin:40.783333°

False Easting: 3,000,000.00usft, False Northing: 1,000,000.00usft, Scale Reduction: 0.99995911

Grid Coordinates of Well: 1,290,334.29 usft N, 3,186,629.01 usft E

Geographical Coordinates of Well: 40° 07' 42.36" N, 104° 49' 57.25" W

Grid Convergence at Surface is: 0.43°

Based upon Minimum Curvature type calculations, at a Measured Depth of 16,568.00usft

the Bottom Hole Displacement is 9,685.23usft in the Direction of 176.98° (True).

Magnetic Convergence at surface is: -8.09° (20 October 2014, , BGGM2014)

