

# **MALLARD EXPLORATION**

**WELD COUNTY, COLORADO (NAD 83)**

**NE NW SEC. 21 T8N R60W 6th P.M.**

**GOLDENEYE FED 21-12HN**

**ORIGINAL WELLBORE**

**07 May, 2018**

**Plan: PROPOSAL #1**



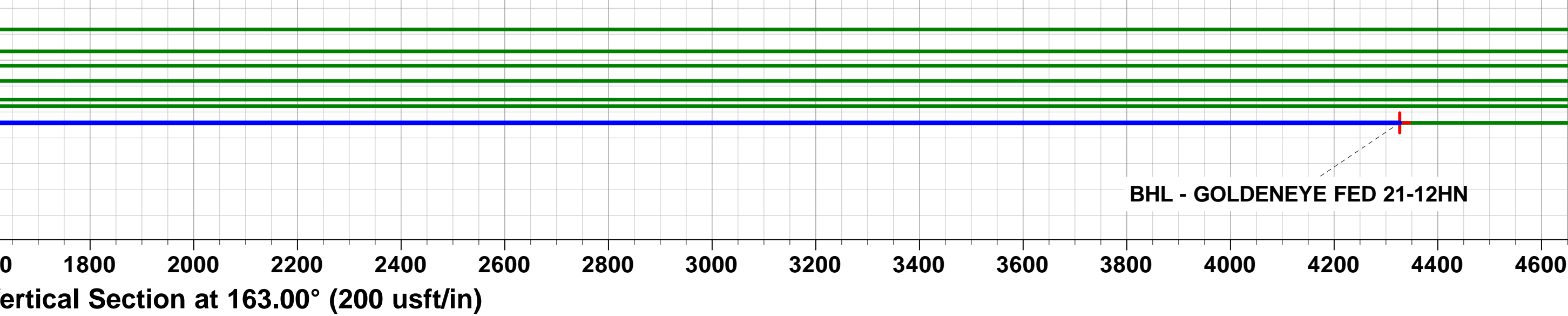
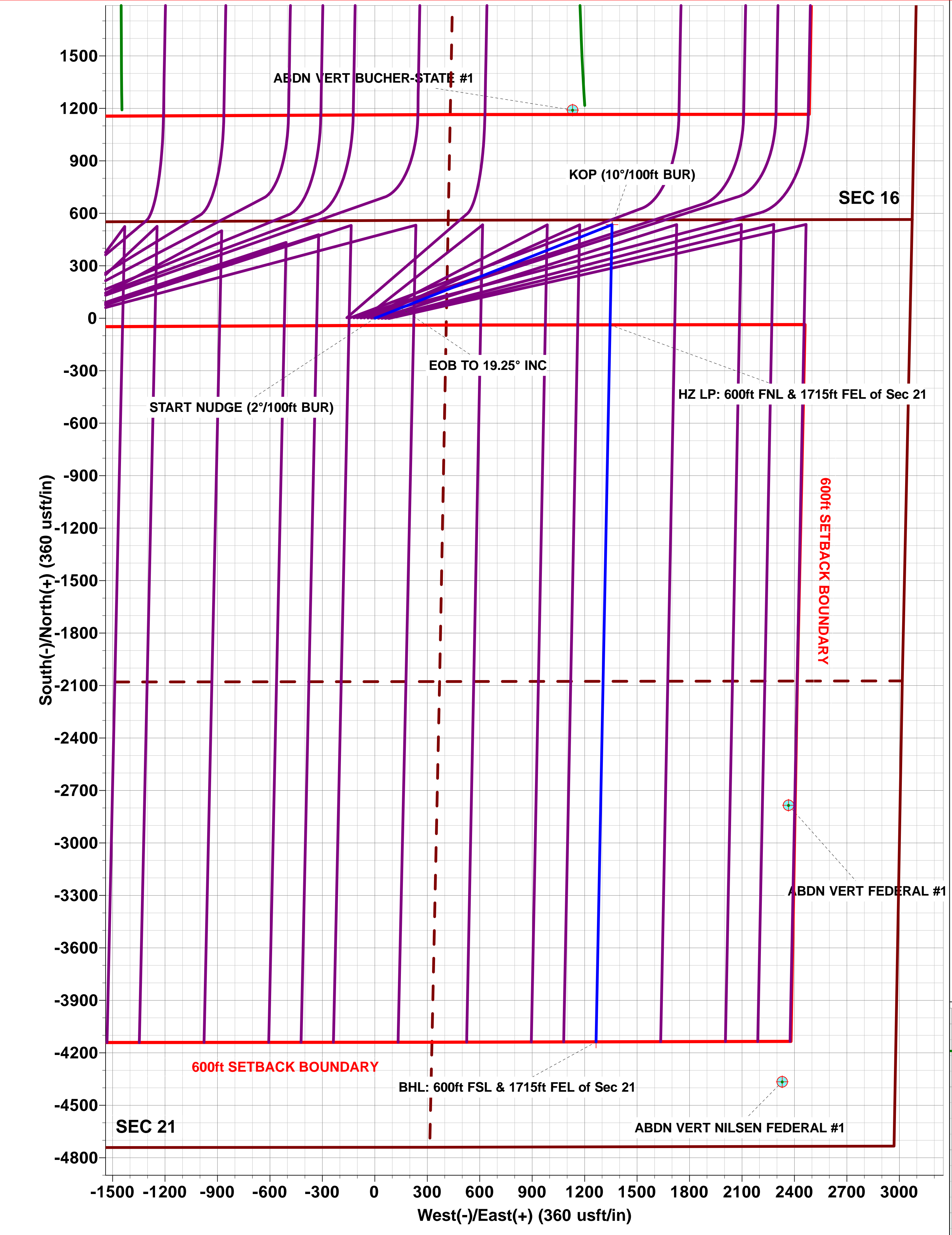
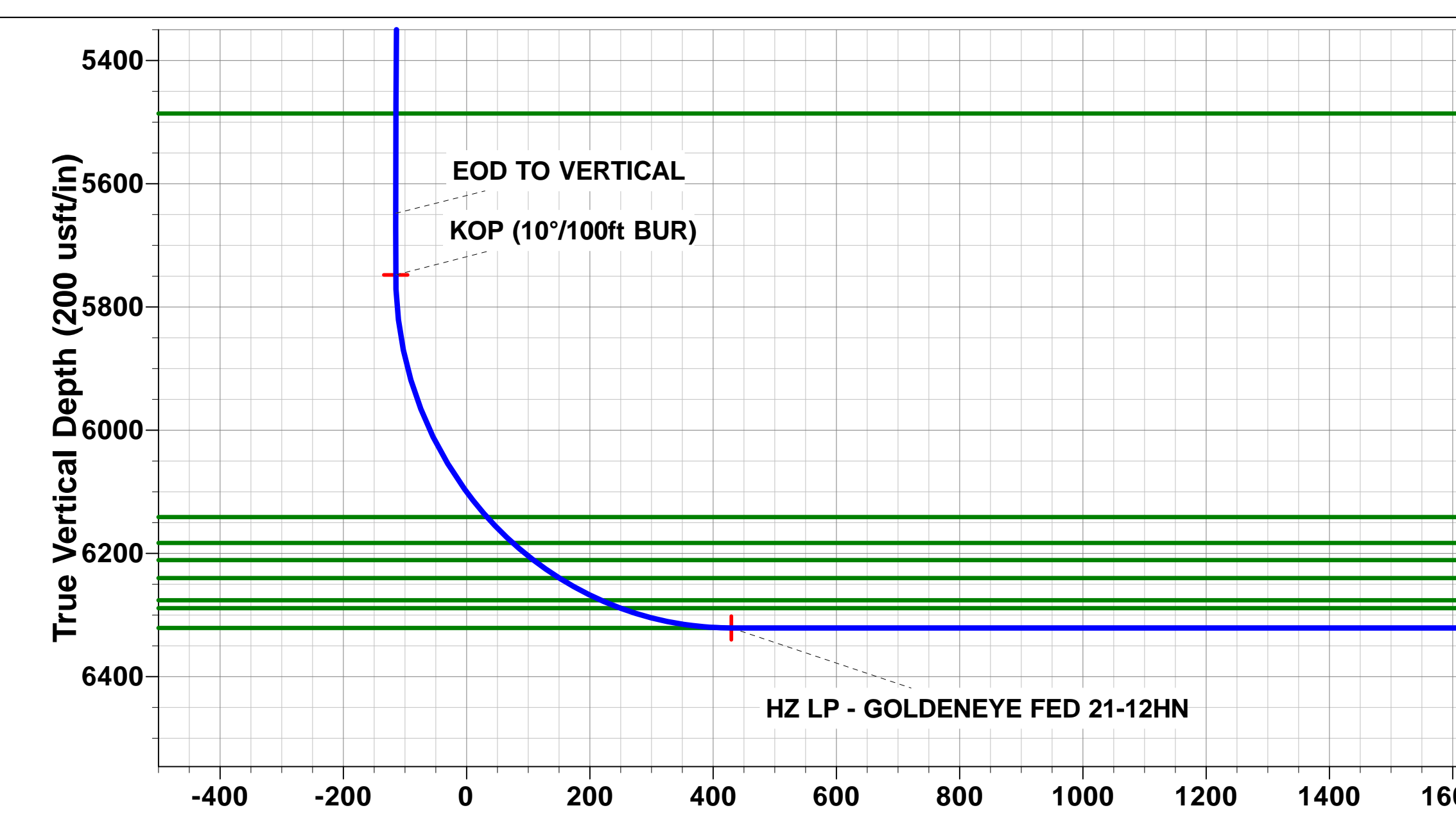
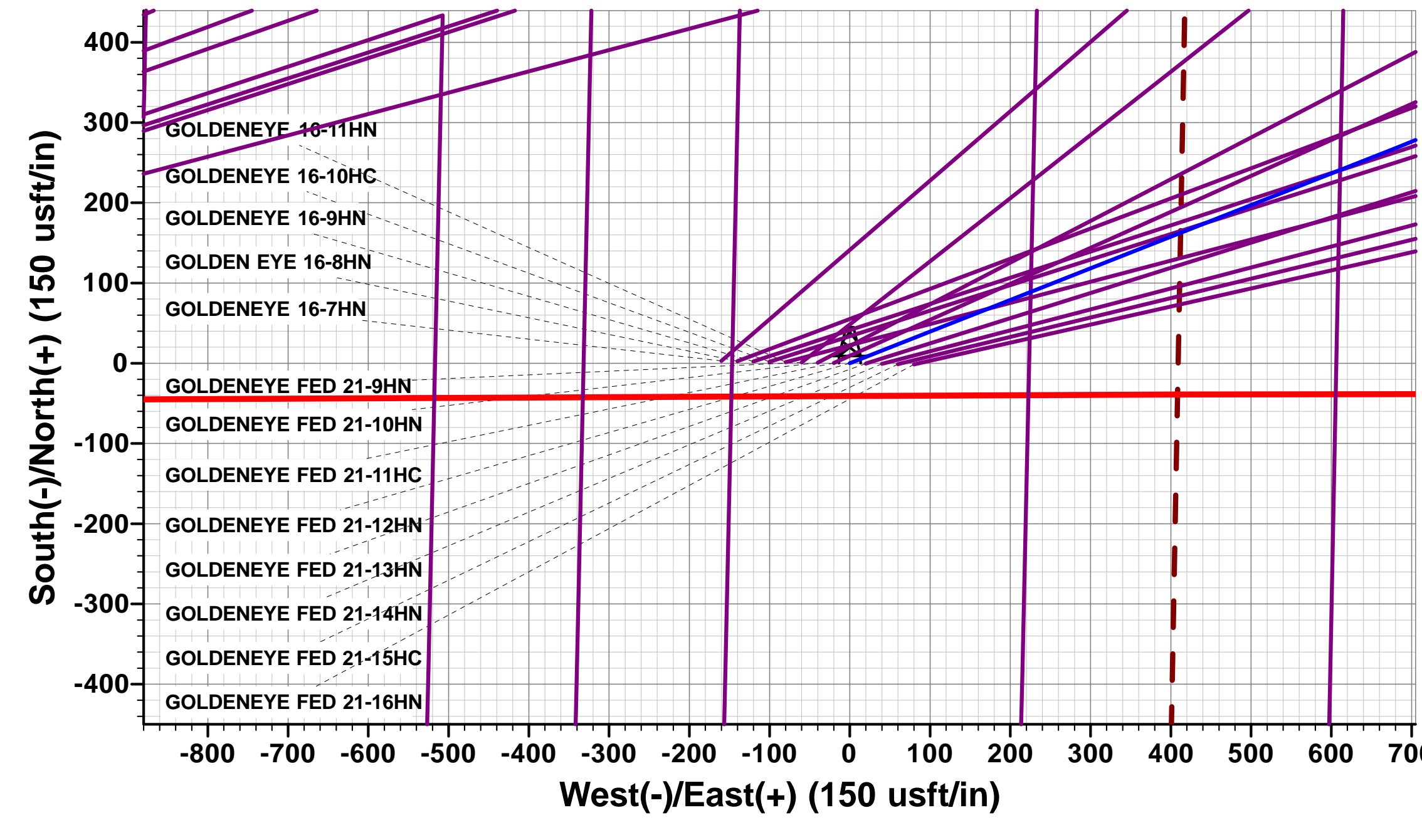
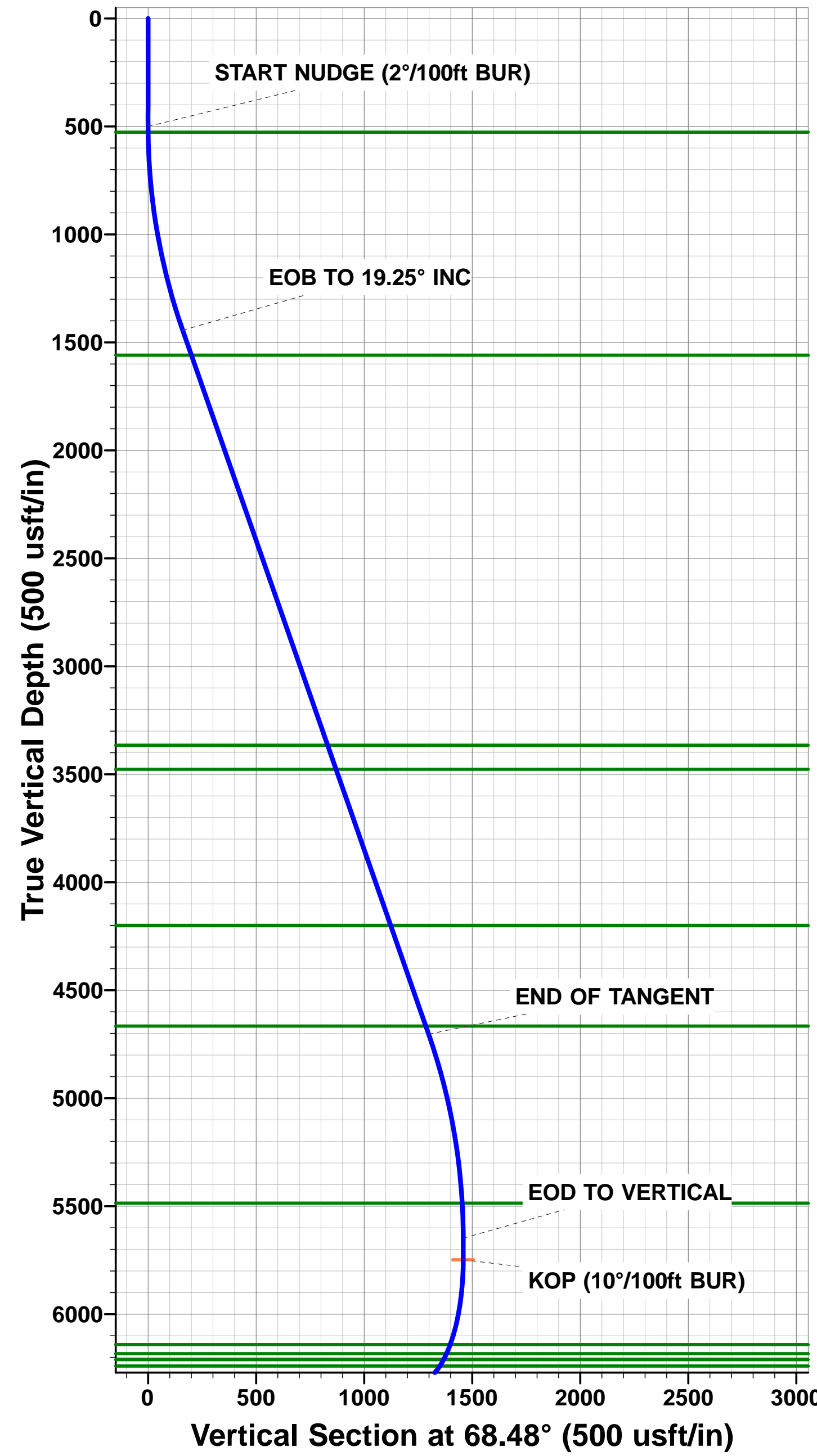


Project: WELD COUNTY, COLORADO (NAD 83)  
Site: NE NW SEC. 21 T8N R60W 6th P.M.  
Well: GOLDENEYE FED 21-12HN  
Wellbore: ORIGINAL WELLBORE  
Design: PROPOSAL #1

| ANNOTATIONS |          |       |        |          |         |         |         |   |  |
|-------------|----------|-------|--------|----------|---------|---------|---------|---|--|
| TVD         | MD       | Inc   | Azi    | +N/-S    | +E/-W   | Vsect   | Dep     | Annotation                              |  |
| 0.00        | 0.00     | 0.00  | 0.00   | 0.00     | 0.00    | 0.00    | 0.00    | SHL: 559ft FNL & 2232ft FWL of Sec 21   |  |
| 500.00      | 500.00   | 0.00  | 0.00   | 0.00     | 0.00    | 0.00    | 0.00    | START NUDGE (2°/100ft BUR)              |  |
| 1444.41     | 1462.41  | 19.25 | 68.48  | 58.75    | 148.98  | -12.62  | 160.14  | EOB TO 19.25° INC                       |  |
| 4703.63     | 4914.61  | 19.25 | 68.48  | 476.25   | 1207.69 | -102.28 | 1298.20 | END OF TANGENT                          |  |
| 5648.04     | 5877.02  | 0.00  | 0.00   | 535.00   | 1356.67 | -114.90 | 1458.35 | EOD TO VERTICAL                         |  |
| 5748.04     | 5977.02  | 0.00  | 0.00   | 535.00   | 1356.67 | -114.90 | 1458.35 | KOP (10°/100ft BUR)                     |  |
| 6321.00     | 6877.02  | 90.00 | 181.12 | -37.85   | 1345.47 | 429.63  | 2031.30 | HZ LP: 600ft FNL & 1715ft FEL of Sec 21 |  |
| 6321.00     | 10977.58 | 90.00 | 181.12 | -4137.62 | 1265.22 | 4326.74 | 6131.86 | BHL: 600ft FSL & 1715ft FEL of Sec 21   |  |

PROPOSED LOCAL COORDINATES:  
  
SHL: 559ft FNL & 2232ft FWL Sec 21  
HZ LP: 600ft FNL & 1715ft FEL Sec 21  
  
BHL: 600ft FSL & 1715ft FEL of Sec 21

| WELLBORE TARGET DETAILS (LAT/LONG) |         |          |         |           |             |
|------------------------------------|---------|----------|---------|-----------|-------------|
| Name                               | TVD     | +N/-S    | +E/-W   | Latitude  | Longitude   |
| KOP - GOLDENEYE FED 21-12HN        | 5748.04 | 535.00   | 1356.67 | 40.655016 | -104.093029 |
| HZ LP - GOLDENEYE FED 21-12HN      | 6321.00 | -37.85   | 1345.47 | 40.653444 | -104.093069 |
| BHL - GOLDENEYE FED 21-12HN        | 6321.00 | -4137.62 | 1265.22 | 40.642191 | -104.093359 |



# Planning Report



|                  |                                 |                                     |   |
|------------------|---------------------------------|-------------------------------------|---|
| <b>Database:</b> | EDM 5000.1 Single User Db       | <b>Local Co-ordinate Reference:</b> | Well GOLDENEYE FED 21-12HN                |
| <b>Company:</b>  | MALLARD EXPLORATION             | <b>TVD Reference:</b>               | KB-EST @ 4953.00usft (Original Well Elev) |
| <b>Project:</b>  | WELD COUNTY, COLORADO (NAD 83)  | <b>MD Reference:</b>                | KB-EST @ 4953.00usft (Original Well Elev) |
| <b>Site:</b>     | NE NW SEC. 21 T8N R60W 6th P.M. | <b>North Reference:</b>             | True                                      |
| <b>Well:</b>     | GOLDENEYE FED 21-12HN           | <b>Survey Calculation Method:</b>   | Minimum Curvature                         |
| <b>Wellbore:</b> | ORIGINAL WELLBORE               |                                     |   |
| <b>Design:</b>   | PROPOSAL #1                     |                                     |   |

|                    |                                |                      |                             |
|--------------------|--------------------------------|----------------------|-----------------------------|
| <b>Project</b>     | WELD COUNTY, COLORADO (NAD 83) |                      |                             |
| <b>Map System:</b> | US State Plane 1983            | <b>System Datum:</b> | Mean Sea Level              |
| <b>Geo Datum:</b>  | North American Datum 1983      |                      |                             |
| <b>Map Zone:</b>   | Colorado Northern Zone         |                      | Using geodetic scale factor |

|                       |           |                                 |                   |                   |             |
|-----------------------|-----------|---------------------------------|-------------------|-------------------|-------------|
| Site                  |           | NE NW SEC. 21 T8N R60W 6th P.M. |                   |                   |             |
| Site Position:        |           | Northing:                       | 1,484,005.35 usft | Latitude:         | 40.653544   |
| From:                 | Lat/Long  | Easting:                        | 3,389,097.57 usft | Longitude:        | -104.097630 |
| Position Uncertainty: | 0.00 usft | Slot Radius:                    | 1.10000ft         | Grid Convergence: | 0.91 °      |

|                      |                       |             |                     |                   |               |               |
|----------------------|-----------------------|-------------|---------------------|-------------------|---------------|---------------|
| Well                 | GOLDENEYE FED 21-12HN |             |                     |                   |               |               |
| Well Position        | +N-S                  | 1.45 usft   | Northing:           | 1,484,005.54 usft | Latitude:     | 40.653548     |
|                      | +E-W                  | -79.91 usft | Easting:            | 3,389,017.65 usft | Longitude:    | -104.097918   |
| Position Uncertainty |                       | 0.00 usft   | Wellhead Elevation: | usft              | Ground Level: | 4,933.00 usft |

|                  |                   |                    |                        |                      |                            |
|------------------|-------------------|--------------------|------------------------|----------------------|----------------------------|
| <b>Wellbore</b>  | ORIGINAL WELLBORE |                    |                        |                      |                            |
| <b>Magnetics</b> | <b>Model Name</b> | <b>Sample Date</b> | <b>Declination (°)</b> | <b>Dip Angle (°)</b> | <b>Field Strength (nT)</b> |
|                  | IGRF2015          | 07/05/2018         | 7.78                   | 67.13                | 52,489                     |

|                          |                                |                     |                      |                      |
|--------------------------|--------------------------------|---------------------|----------------------|----------------------|
| <b>Design</b>            | PROPOSAL #1                    |                     |                      |                      |
| <b>Audit Notes:</b>      |                                |                     |                      |                      |
| <b>Version:</b>          | <b>Phase:</b>                  | PROTOTYPE           | <b>Tie On Depth:</b> | 0.00                 |
| <b>Vertical Section:</b> | <b>Depth From (TVD) (usft)</b> | <b>+N/-S (usft)</b> | <b>+E/-W (usft)</b>  | <b>Direction (°)</b> |
|                          | 0.00                           | 0.00                | 0.00                 | 163.00               |

| <b>Plan Sections</b> |         |         |                |           |              |              |                        |                       |                      |         |                   |
|----------------------|---------|---------|----------------|-----------|--------------|--------------|------------------------|-----------------------|----------------------|---------|-------------------|
| MD (usft)            | Inc (°) | Azi (°) | Vertical Depth | SS (usft) | +N/-S (usft) | +E/-W (usft) | Dogleg Rate (°/100usf) | Build Rate (°/100usf) | Turn Rate (°/100usf) | TFO (°) | Target            |
| 0.00                 | 0.00    | 0.00    | 0.00           | -4,953.00 | 0.00         | 0.00         | 0.00                   | 0.00                  | 0.00                 | 0.00    |                   |
| 500.00               | 0.00    | 0.00    | 500.00         | -4,453.00 | 0.00         | 0.00         | 0.00                   | 0.00                  | 0.00                 | 0.00    |                   |
| 1,462.41             | 19.25   | 68.48   | 1,444.41       | -3,508.59 | 58.75        | 148.98       | 2.00                   | 2.00                  | 0.00                 | 68.48   |                   |
| 4,914.61             | 19.25   | 68.48   | 4,703.63       | -249.37   | 476.25       | 1,207.69     | 0.00                   | 0.00                  | 0.00                 | 0.00    |                   |
| 5,877.02             | 0.00    | 0.00    | 5,648.04       | 695.04    | 535.00       | 1,356.67     | 2.00                   | -2.00                 | 0.00                 | 180.00  |                   |
| 5,977.02             | 0.00    | 0.00    | 5,748.04       | 795.04    | 535.00       | 1,356.67     | 0.00                   | 0.00                  | 0.00                 | 0.00    | KOP - GOLDENEYE   |
| 6,877.02             | 90.00   | 181.12  | 6,321.00       | 1,368.00  | -37.85       | 1,345.47     | 10.00                  | 10.00                 | -19.88               | 181.12  | HZ LP - GOLDENEYE |
| 10,977.58            | 90.00   | 181.12  | 6,321.00       | 1,368.00  | -4,137.62    | 1,265.22     | 0.00                   | 0.00                  | 0.00                 | 72.24   | BHL - GOLDENEYE   |

# Planning Report



|                  |                                 |                                     |   |
|------------------|---------------------------------|-------------------------------------|---|
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| <b>Company:</b>  | MALLARD EXPLORATION             | <b>TVD Reference:</b>               | KB-EST @ 4953.00usft (Original Well Elev) |
| <b>Project:</b>  | WELD COUNTY, COLORADO (NAD 83)  | <b>MD Reference:</b>                | KB-EST @ 4953.00usft (Original Well Elev) |
| <b>Site:</b>     | NE NW SEC. 21 T8N R60W 6th P.M. | <b>North Reference:</b>             | True                                      |
| <b>Well:</b>     | GOLDENEYE FED 21-12HN           | <b>Survey Calculation Method:</b>   | Minimum Curvature                         |
| <b>Wellbore:</b> | ORIGINAL WELLBORE               |                                     |   |
| <b>Design:</b>   | PROPOSAL #1                     |                                     |   |

| Planned Survey                                   |            |            |               |              |                 |                 |                               |                               |                              |                             |
|--|------------|------------|---------------|--------------|-----------------|-----------------|-------------------------------|-------------------------------|------------------------------|-----------------------------|
| MD<br>(usft)                                     | Inc<br>(°) | Azi<br>(°) | TVD<br>(usft) | SS<br>(usft) | +N/-S<br>(usft) | +E/-W<br>(usft) | Vertical<br>Section<br>(usft) | Dogleg<br>Rate<br>(°/100usft) | Build<br>Rate<br>(°/100usft) | Turn<br>Rate<br>(°/100usft) |
| <b>SHL: 559ft FNL &amp; 2232ft FWL of Sec 21</b> |            |            |               |              |                 |                 |                               |                               |                              |                             |
| 0.00   | 0.00       | 0.00       | 0.00          | 4,953.00     | 0.00            | 0.00            | 0.00                          | 0.00                          | 0.00                         | 0.00                        |
| 100.00   | 0.00       | 0.00       | 100.00        | 4,853.00     | 0.00            | 0.00            | 0.00                          | 0.00                          | 0.00                         | 0.00                        |
| 200.00   | 0.00       | 0.00       | 200.00        | 4,753.00     | 0.00            | 0.00            | 0.00                          | 0.00                          | 0.00                         | 0.00                        |
| 300.00   | 0.00       | 0.00       | 300.00        | 4,653.00     | 0.00            | 0.00            | 0.00                          | 0.00                          | 0.00                         | 0.00                        |
| 400.00   | 0.00       | 0.00       | 400.00        | 4,553.00     | 0.00            | 0.00            | 0.00                          | 0.00                          | 0.00                         | 0.00                        |
| <b>START NUDGE (2°/100ft BUR)</b>                |            |            |               |              |                 |                 |                               |                               |                              |                             |
| 500.00   | 0.00       | 0.00       | 500.00        | 4,453.00     | 0.00            | 0.00            | 0.00                          | 0.00                          | 0.00                         | 0.00                        |
| <b>Fox Hills Base</b>                            |            |            |               |              |                 |                 |                               |                               |                              |                             |
| 527.00   | 0.54       | 68.48      | 527.00        | 4,426.00     | 0.05            | 0.12            | -0.01                         | 2.00                          | 2.00                         | 0.00                        |
| 600.00   | 2.00       | 68.48      | 599.98        | 4,353.02     | 0.64            | 1.62            | -0.14                         | 2.00                          | 2.00                         | 0.00                        |
| 700.00   | 4.00       | 68.48      | 699.84        | 4,253.16     | 2.56            | 6.49            | -0.55                         | 2.00                          | 2.00                         | 0.00                        |
| 800.00   | 6.00       | 68.48      | 799.45        | 4,153.55     | 5.76            | 14.60           | -1.24                         | 2.00                          | 2.00                         | 0.00                        |
| 900.00   | 8.00       | 68.48      | 898.70        | 4,054.30     | 10.23           | 25.94           | -2.20                         | 2.00                          | 2.00                         | 0.00                        |
| 1,000.00   | 10.00      | 68.48      | 997.47        | 3,955.53     | 15.97           | 40.49           | -3.43                         | 2.00                          | 2.00                         | 0.00                        |
| 1,100.00   | 12.00      | 68.48      | 1,095.62      | 3,857.38     | 22.97           | 58.24           | -4.93                         | 2.00                          | 2.00                         | 0.00                        |
| 1,200.00   | 14.00      | 68.48      | 1,193.06      | 3,759.94     | 31.22           | 79.16           | -6.70                         | 2.00                          | 2.00                         | 0.00                        |
| 1,300.00   | 16.00      | 68.48      | 1,289.64      | 3,663.36     | 40.71           | 103.24          | -8.74                         | 2.00                          | 2.00                         | 0.00                        |
| 1,400.00   | 18.00      | 68.48      | 1,385.27      | 3,567.73     | 51.44           | 130.44          | -11.05                        | 2.00                          | 2.00                         | 0.00                        |
| <b>EOB TO 19.25° INC</b>                         |            |            |               |              |                 |                 |                               |                               |                              |                             |
| 1,462.41   | 19.25      | 68.48      | 1,444.41      | 3,508.59     | 58.75           | 148.98          | -12.62                        | 2.00                          | 2.00                         | 0.00                        |
| 1,500.00   | 19.25      | 68.48      | 1,479.90      | 3,473.10     | 63.30           | 160.51          | -13.59                        | 0.00                          | 0.00                         | 0.00                        |
| <b>Pierre Shale Top</b>                          |            |            |               |              |                 |                 |                               |                               |                              |                             |
| 1,584.85   | 19.25      | 68.48      | 1,560.00      | 3,393.00     | 73.56           | 186.53          | -15.80                        | 0.00                          | 0.00                         | 0.00                        |
| 1,600.00   | 19.25      | 68.48      | 1,574.31      | 3,378.69     | 75.39           | 191.17          | -16.19                        | 0.00                          | 0.00                         | 0.00                        |
| 1,700.00   | 19.25      | 68.48      | 1,668.72      | 3,284.28     | 87.48           | 221.84          | -18.79                        | 0.00                          | 0.00                         | 0.00                        |
| 1,800.00   | 19.25      | 68.48      | 1,763.13      | 3,189.87     | 99.58           | 252.51          | -21.39                        | 0.00                          | 0.00                         | 0.00                        |
| 1,900.00   | 19.25      | 68.48      | 1,857.54      | 3,095.46     | 111.67          | 283.18          | -23.98                        | 0.00                          | 0.00                         | 0.00                        |
| 2,000.00   | 19.25      | 68.48      | 1,951.95      | 3,001.05     | 123.76          | 313.84          | -26.58                        | 0.00                          | 0.00                         | 0.00                        |
| 2,100.00   | 19.25      | 68.48      | 2,046.36      | 2,906.64     | 135.86          | 344.51          | -29.18                        | 0.00                          | 0.00                         | 0.00                        |
| 2,200.00   | 19.25      | 68.48      | 2,140.77      | 2,812.23     | 147.95          | 375.18          | -31.78                        | 0.00                          | 0.00                         | 0.00                        |
| 2,300.00   | 19.25      | 68.48      | 2,235.18      | 2,717.82     | 160.05          | 405.85          | -34.37                        | 0.00                          | 0.00                         | 0.00                        |
| 2,400.00   | 19.25      | 68.48      | 2,329.59      | 2,623.41     | 172.14          | 436.52          | -36.97                        | 0.00                          | 0.00                         | 0.00                        |
| 2,500.00   | 19.25      | 68.48      | 2,424.00      | 2,529.00     | 184.23          | 467.18          | -39.57                        | 0.00                          | 0.00                         | 0.00                        |
| 2,600.00   | 19.25      | 68.48      | 2,518.41      | 2,434.59     | 196.33          | 497.85          | -42.16                        | 0.00                          | 0.00                         | 0.00                        |
| 2,700.00   | 19.25      | 68.48      | 2,612.82      | 2,340.18     | 208.42          | 528.52          | -44.76                        | 0.00                          | 0.00                         | 0.00                        |
| 2,800.00   | 19.25      | 68.48      | 2,707.23      | 2,245.77     | 220.51          | 559.19          | -47.36                        | 0.00                          | 0.00                         | 0.00                        |
| 2,900.00   | 19.25      | 68.48      | 2,801.64      | 2,151.36     | 232.61          | 589.85          | -49.96                        | 0.00                          | 0.00                         | 0.00                        |
| 3,000.00   | 19.25      | 68.48      | 2,896.05      | 2,056.95     | 244.70          | 620.52          | -52.55                        | 0.00                          | 0.00                         | 0.00                        |
| 3,100.00   | 19.25      | 68.48      | 2,990.46      | 1,962.54     | 256.80          | 651.19          | -55.15                        | 0.00                          | 0.00                         | 0.00                        |
| 3,200.00   | 19.25      | 68.48      | 3,084.87      | 1,868.13     | 268.89          | 681.86          | -57.75                        | 0.00                          | 0.00                         | 0.00                        |
| 3,300.00   | 19.25      | 68.48      | 3,179.28      | 1,773.72     | 280.98          | 712.53          | -60.35                        | 0.00                          | 0.00                         | 0.00                        |
| 3,400.00   | 19.25      | 68.48      | 3,273.69      | 1,679.31     | 293.08          | 743.19          | -62.94                        | 0.00                          | 0.00                         | 0.00                        |
| <b>Richard Sandstone</b>                         |            |            |               |              |                 |                 |                               |                               |                              |                             |
| 3,497.78   | 19.25      | 68.48      | 3,366.00      | 1,587.00     | 304.90          | 773.18          | -65.48                        | 0.00                          | 0.00                         | 0.00                        |
| 3,500.00   | 19.25      | 68.48      | 3,368.10      | 1,584.90     | 305.17          | 773.86          | -65.54                        | 0.00                          | 0.00                         | 0.00                        |
| 3,600.00   | 19.25      | 68.48      | 3,462.51      | 1,490.49     | 317.26          | 804.53          | -68.14                        | 0.00                          | 0.00                         | 0.00                        |
| <b>Parkman Sandstone</b>                         |            |            |               |              |                 |                 |                               |                               |                              |                             |
| 3,615.35   | 19.25      | 68.48      | 3,477.00      | 1,476.00     | 319.12          | 809.24          | -68.54                        | 0.00                          | 0.00                         | 0.00                        |
| 3,700.00   | 19.25      | 68.48      | 3,556.92      | 1,396.08     | 329.36          | 835.20          | -70.74                        | 0.00                          | 0.00                         | 0.00                        |
| 3,800.00   | 19.25      | 68.48      | 3,651.33      | 1,301.67     | 341.45          | 865.86          | -73.33                        | 0.00                          | 0.00                         | 0.00                        |
| 3,900.00   | 19.25      | 68.48      | 3,745.74      | 1,207.26     | 353.55          | 896.53          | -75.93                        | 0.00                          | 0.00                         | 0.00                        |
| 4,000.00   | 19.25      | 68.48      | 3,840.15      | 1,112.85     | 365.64          | 927.20          | -78.53                        | 0.00                          | 0.00                         | 0.00                        |



# Planning Report



|                  |                                 |                                     |   |
|------------------|---------------------------------|-------------------------------------|---|
| <b>Database:</b> | EDM 5000.1 Single User Db       | <b>Local Co-ordinate Reference:</b> | Well GOLDENEYE FED 21-12HN                |
| <b>Company:</b>  | MALLARD EXPLORATION             | <b>TVD Reference:</b>               | KB-EST @ 4953.00usft (Original Well Elev) |
| <b>Project:</b>  | WELD COUNTY, COLORADO (NAD 83)  | <b>MD Reference:</b>                | KB-EST @ 4953.00usft (Original Well Elev) |
| <b>Site:</b>     | NE NW SEC. 21 T8N R60W 6th P.M. | <b>North Reference:</b>             | True                                      |
| <b>Well:</b>     | GOLDENEYE FED 21-12HN           | <b>Survey Calculation Method:</b>   | Minimum Curvature                         |
| <b>Wellbore:</b> | ORIGINAL WELLBORE               |                                     |   |
| <b>Design:</b>   | PROPOSAL #1                     |                                     |   |

| Planned Survey                |              |               |                 |                  |                 |                 |                               |                               |                              |                             |
|-------------------------------|--------------|---------------|-----------------|------------------|-----------------|-----------------|-------------------------------|-------------------------------|------------------------------|-----------------------------|
| MD<br>(usft)                  | Inc<br>(°)   | Azi<br>(°)    | TVD<br>(usft)   | SS<br>(usft)     | +N/-S<br>(usft) | +E/-W<br>(usft) | Vertical<br>Section<br>(usft) | Dogleg<br>Rate<br>(°/100usft) | Build<br>Rate<br>(°/100usft) | Turn<br>Rate<br>(°/100usft) |
| 4,100.00                      | 19.25        | 68.48         | 3,934.56        | 1,018.44         | 377.73          | 957.87          | -81.12                        | 0.00                          | 0.00                         | 0.00                        |
| 4,200.00                      | 19.25        | 68.48         | 4,028.97        | 924.03           | 389.83          | 988.54          | -83.72                        | 0.00                          | 0.00                         | 0.00                        |
| 4,300.00                      | 19.25        | 68.48         | 4,123.37        | 829.63           | 401.92          | 1,019.20        | -86.32                        | 0.00                          | 0.00                         | 0.00                        |
| <b>Sussex Sandstone</b>       |              |               |                 |                  |                 |                 |                               |                               |                              |                             |
| <b>4,381.16</b>               | <b>19.25</b> | <b>68.48</b>  | <b>4,200.00</b> | <b>753.00</b>    | <b>411.74</b>   | <b>1,044.09</b> | <b>-88.43</b>                 | <b>0.00</b>                   | <b>0.00</b>                  | <b>0.00</b>                 |
| 4,400.00                      | 19.25        | 68.48         | 4,217.78        | 735.22           | 414.01          | 1,049.87        | -88.92                        | 0.00                          | 0.00                         | 0.00                        |
| 4,500.00                      | 19.25        | 68.48         | 4,312.19        | 640.81           | 426.11          | 1,080.54        | -91.51                        | 0.00                          | 0.00                         | 0.00                        |
| 4,600.00                      | 19.25        | 68.48         | 4,406.60        | 546.40           | 438.20          | 1,111.21        | -94.11                        | 0.00                          | 0.00                         | 0.00                        |
| 4,700.00                      | 19.25        | 68.48         | 4,501.01        | 451.99           | 450.30          | 1,141.87        | -96.71                        | 0.00                          | 0.00                         | 0.00                        |
| 4,800.00                      | 19.25        | 68.48         | 4,595.42        | 357.58           | 462.39          | 1,172.54        | -99.31                        | 0.00                          | 0.00                         | 0.00                        |
| <b>Shannon Sandstone</b>      |              |               |                 |                  |                 |                 |                               |                               |                              |                             |
| <b>4,874.75</b>               | <b>19.25</b> | <b>68.48</b>  | <b>4,666.00</b> | <b>287.00</b>    | <b>471.43</b>   | <b>1,195.47</b> | <b>-101.25</b>                | <b>0.00</b>                   | <b>0.00</b>                  | <b>0.00</b>                 |
| 4,900.00                      | 19.25        | 68.48         | 4,689.83        | 263.17           | 474.48          | 1,203.21        | -101.90                       | 0.00                          | 0.00                         | 0.00                        |
| <b>END OF TANGENT</b>         |              |               |                 |                  |                 |                 |                               |                               |                              |                             |
| <b>4,914.61</b>               | <b>19.25</b> | <b>68.48</b>  | <b>4,703.63</b> | <b>249.37</b>    | <b>476.25</b>   | <b>1,207.69</b> | <b>-102.28</b>                | <b>0.00</b>                   | <b>0.00</b>                  | <b>0.00</b>                 |
| 5,000.00                      | 17.54        | 68.48         | 4,784.65        | 168.35           | 486.14          | 1,232.76        | -104.41                       | 2.00                          | -2.00                        | 0.00                        |
| 5,100.00                      | 15.54        | 68.48         | 4,880.51        | 72.49            | 496.58          | 1,259.24        | -106.65                       | 2.00                          | -2.00                        | 0.00                        |
| 5,200.00                      | 13.54        | 68.48         | 4,977.30        | -24.30           | 505.79          | 1,282.59        | -108.63                       | 2.00                          | -2.00                        | 0.00                        |
| 5,300.00                      | 11.54        | 68.48         | 5,074.91        | -121.91          | 513.75          | 1,302.79        | -110.34                       | 2.00                          | -2.00                        | 0.00                        |
| 5,400.00                      | 9.54         | 68.48         | 5,173.22        | -220.22          | 520.46          | 1,319.81        | -111.78                       | 2.00                          | -2.00                        | 0.00                        |
| 5,500.00                      | 7.54         | 68.48         | 5,272.10        | -319.10          | 525.91          | 1,333.62        | -112.95                       | 2.00                          | -2.00                        | 0.00                        |
| 5,600.00                      | 5.54         | 68.48         | 5,371.45        | -418.45          | 530.09          | 1,344.22        | -113.85                       | 2.00                          | -2.00                        | 0.00                        |
| 5,700.00                      | 3.54         | 68.48         | 5,471.13        | -518.13          | 532.99          | 1,351.58        | -114.47                       | 2.00                          | -2.00                        | 0.00                        |
| <b>TeePee Buttes</b>          |              |               |                 |                  |                 |                 |                               |                               |                              |                             |
| <b>5,714.90</b>               | <b>3.24</b>  | <b>68.48</b>  | <b>5,486.00</b> | <b>-533.00</b>   | <b>533.32</b>   | <b>1,352.40</b> | <b>-114.54</b>                | <b>2.00</b>                   | <b>-2.00</b>                 | <b>0.00</b>                 |
| 5,800.00                      | 1.54         | 68.48         | 5,571.03        | -618.03          | 534.62          | 1,355.71        | -114.82                       | 2.00                          | -2.00                        | 0.00                        |
| <b>EOD TO VERTICAL</b>        |              |               |                 |                  |                 |                 |                               |                               |                              |                             |
| <b>5,877.02</b>               | <b>0.00</b>  | <b>0.00</b>   | <b>5,648.04</b> | <b>-695.04</b>   | <b>535.00</b>   | <b>1,356.67</b> | <b>-114.90</b>                | <b>2.00</b>                   | <b>-2.00</b>                 | <b>0.00</b>                 |
| 5,900.00                      | 0.00         | 0.00          | 5,671.02        | -718.02          | 535.00          | 1,356.67        | -114.90                       | 0.00                          | 0.00                         | 0.00                        |
| <b>KOP (10°/100ft BUR)</b>    |              |               |                 |                  |                 |                 |                               |                               |                              |                             |
| <b>5,977.02</b>               | <b>0.00</b>  | <b>0.00</b>   | <b>5,748.04</b> | <b>-795.04</b>   | <b>535.00</b>   | <b>1,356.67</b> | <b>-114.90</b>                | <b>0.00</b>                   | <b>0.00</b>                  | <b>0.00</b>                 |
| 6,000.00                      | 2.30         | 181.12        | 5,771.01        | -818.01          | 534.54          | 1,356.66        | -114.46                       | 10.00                         | 10.00                        | 0.00                        |
| 6,100.00                      | 12.30        | 181.12        | 5,870.07        | -917.07          | 521.86          | 1,356.41        | -102.41                       | 10.00                         | 10.00                        | 0.00                        |
| 6,200.00                      | 22.30        | 181.12        | 5,965.43        | -1,012.43        | 492.17          | 1,355.83        | -74.18                        | 10.00                         | 10.00                        | 0.00                        |
| 6,300.00                      | 32.30        | 181.12        | 6,054.18        | -1,101.18        | 446.37          | 1,354.94        | -30.65                        | 10.00                         | 10.00                        | 0.00                        |
| 6,400.00                      | 42.30        | 181.12        | 6,133.63        | -1,180.63        | 385.86          | 1,353.75        | 26.86                         | 10.00                         | 10.00                        | 0.00                        |
| <b>Sharon Springs</b>         |              |               |                 |                  |                 |                 |                               |                               |                              |                             |
| <b>6,410.04</b>               | <b>43.30</b> | <b>181.12</b> | <b>6,141.00</b> | <b>-1,188.00</b> | <b>379.04</b>   | <b>1,353.62</b> | <b>33.35</b>                  | <b>10.00</b>                  | <b>10.00</b>                 | <b>0.00</b>                 |
| <b>Niobrara Top</b>           |              |               |                 |                  |                 |                 |                               |                               |                              |                             |
| <b>6,470.91</b>               | <b>49.39</b> | <b>181.12</b> | <b>6,183.00</b> | <b>-1,230.00</b> | <b>335.03</b>   | <b>1,352.76</b> | <b>75.19</b>                  | <b>10.00</b>                  | <b>10.00</b>                 | <b>0.00</b>                 |
| 6,500.00                      | 52.30        | 181.12        | 6,201.36        | -1,248.36        | 312.48          | 1,352.32        | 96.62                         | 10.00                         | 10.00                        | 0.00                        |
| <b>Niobrara A Chalk</b>       |              |               |                 |                  |                 |                 |                               |                               |                              |                             |
| <b>6,516.05</b>               | <b>53.90</b> | <b>181.12</b> | <b>6,211.00</b> | <b>-1,258.00</b> | <b>299.65</b>   | <b>1,352.07</b> | <b>108.82</b>                 | <b>10.00</b>                  | <b>10.00</b>                 | <b>0.00</b>                 |
| <b>Niobrara A Chalk Base</b>  |              |               |                 |                  |                 |                 |                               |                               |                              |                             |
| <b>6,568.66</b>               | <b>59.16</b> | <b>181.12</b> | <b>6,240.00</b> | <b>-1,287.00</b> | <b>255.79</b>   | <b>1,351.21</b> | <b>150.51</b>                 | <b>10.00</b>                  | <b>10.00</b>                 | <b>0.00</b>                 |
| 6,600.00                      | 62.30        | 181.12        | 6,255.32        | -1,302.32        | 228.46          | 1,350.68        | 176.49                        | 10.00                         | 10.00                        | 0.00                        |
| <b>Niobrara B1 Chalk Top</b>  |              |               |                 |                  |                 |                 |                               |                               |                              |                             |
| <b>6,648.43</b>               | <b>67.14</b> | <b>181.12</b> | <b>6,276.00</b> | <b>-1,323.00</b> | <b>184.69</b>   | <b>1,349.82</b> | <b>218.10</b>                 | <b>10.00</b>                  | <b>10.00</b>                 | <b>0.00</b>                 |
| <b>Niobrara B1 Chalk Base</b> |              |               |                 |                  |                 |                 |                               |                               |                              |                             |
| <b>6,684.63</b>               | <b>70.76</b> | <b>181.12</b> | <b>6,289.00</b> | <b>-1,336.00</b> | <b>150.91</b>   | <b>1,349.16</b> | <b>250.20</b>                 | <b>10.00</b>                  | <b>10.00</b>                 | <b>0.00</b>                 |
| 6,700.00                      | 72.30        | 181.12        | 6,293.87        | -1,340.87        | 136.34          | 1,348.88        | 264.06                        | 10.00                         | 10.00                        | 0.00                        |
| 6,800.00                      | 82.30        | 181.12        | 6,315.83        | -1,362.83        | 38.93           | 1,346.97        | 356.65                        | 10.00                         | 10.00                        | 0.00                        |

# Planning Report



|                  |                                 |                                     |   |
|------------------|---------------------------------|-------------------------------------|---|
| <b>Database:</b> | EDM 5000.1 Single User Db       | <b>Local Co-ordinate Reference:</b> | Well GOLDENEYE FED 21-12HN                |
| <b>Company:</b>  | MALLARD EXPLORATION             | <b>TVD Reference:</b>               | KB-EST @ 4953.00usft (Original Well Elev) |
| <b>Project:</b>  | WELD COUNTY, COLORADO (NAD 83)  | <b>MD Reference:</b>                | KB-EST @ 4953.00usft (Original Well Elev) |
| <b>Site:</b>     | NE NW SEC. 21 T8N R60W 6th P.M. | <b>North Reference:</b>             | True                                      |
| <b>Well:</b>     | GOLDENEYE FED 21-12HN           | <b>Survey Calculation Method:</b>   | Minimum Curvature                         |
| <b>Wellbore:</b> | ORIGINAL WELLBORE               |                                     |   |
| <b>Design:</b>   | PROPOSAL #1                     |                                     |   |

## Planned Survey

| MD<br>(usft)  | Inc<br>(°) | Azi<br>(°) | TVD<br>(usft) | SS<br>(usft) | +N/-S<br>(usft) | +E/-W<br>(usft) | Vertical<br>Section<br>(usft) | Dogleg<br>Rate<br>(°/100usft) | Build<br>Rate<br>(°/100usft) | Turn<br>Rate<br>(°/100usft) |
|---|------------|------------|---------------|--------------|-----------------|-----------------|-------------------------------|-------------------------------|------------------------------|-----------------------------|
| <b>HZ LP: 600ft FNL &amp; 1715ft FEL of Sec 21 - Niobrara B2 Chalk Top (Target)</b> |            |            |               |              |                 |                 |                               |                               |                              |                             |
| 6,877.02  | 90.00      | 181.12     | 6,321.00      | -1,368.00    | -37.85          | 1,345.47        | 429.63                        | 10.00                         | 10.00                        | 0.00                        |
| 6,900.00  | 90.00      | 181.12     | 6,321.00      | -1,368.00    | -60.82          | 1,345.02        | 451.47                        | 0.00                          | 0.00                         | 0.00                        |
| 7,000.00  | 90.00      | 181.12     | 6,321.00      | -1,368.00    | -160.80         | 1,343.07        | 546.51                        | 0.00                          | 0.00                         | 0.00                        |
| 7,100.00  | 90.00      | 181.12     | 6,321.00      | -1,368.00    | -260.78         | 1,341.11        | 641.55                        | 0.00                          | 0.00                         | 0.00                        |
| 7,200.00  | 90.00      | 181.12     | 6,321.00      | -1,368.00    | -360.76         | 1,339.16        | 736.59                        | 0.00                          | 0.00                         | 0.00                        |
| 7,300.00  | 90.00      | 181.12     | 6,321.00      | -1,368.00    | -460.74         | 1,337.20        | 831.63                        | 0.00                          | 0.00                         | 0.00                        |
| 7,400.00  | 90.00      | 181.12     | 6,321.00      | -1,368.00    | -560.72         | 1,335.25        | 926.67                        | 0.00                          | 0.00                         | 0.00                        |
| 7,500.00  | 90.00      | 181.12     | 6,321.00      | -1,368.00    | -660.70         | 1,333.29        | 1,021.70                      | 0.00                          | 0.00                         | 0.00                        |
| 7,600.00  | 90.00      | 181.12     | 6,321.01      | -1,368.01    | -760.69         | 1,331.34        | 1,116.74                      | 0.00                          | 0.00                         | 0.00                        |
| 7,700.00  | 90.00      | 181.12     | 6,321.01      | -1,368.01    | -860.67         | 1,329.38        | 1,211.78                      | 0.00                          | 0.00                         | 0.00                        |
| 7,800.00  | 90.00      | 181.12     | 6,321.01      | -1,368.01    | -960.65         | 1,327.43        | 1,306.82                      | 0.00                          | 0.00                         | 0.00                        |
| 7,900.00  | 90.00      | 181.12     | 6,321.01      | -1,368.01    | -1,060.63       | 1,325.47        | 1,401.86                      | 0.00                          | 0.00                         | 0.00                        |
| 8,000.00  | 90.00      | 181.12     | 6,321.01      | -1,368.01    | -1,160.61       | 1,323.52        | 1,496.90                      | 0.00                          | 0.00                         | 0.00                        |
| 8,100.00  | 90.00      | 181.12     | 6,321.01      | -1,368.01    | -1,260.59       | 1,321.56        | 1,591.94                      | 0.00                          | 0.00                         | 0.00                        |
| 8,200.00  | 90.00      | 181.12     | 6,321.01      | -1,368.01    | -1,360.57       | 1,319.61        | 1,686.98                      | 0.00                          | 0.00                         | 0.00                        |
| 8,300.00  | 90.00      | 181.12     | 6,321.01      | -1,368.01    | -1,460.55       | 1,317.65        | 1,782.02                      | 0.00                          | 0.00                         | 0.00                        |
| 8,400.00  | 90.00      | 181.12     | 6,321.01      | -1,368.01    | -1,560.53       | 1,315.69        | 1,877.05                      | 0.00                          | 0.00                         | 0.00                        |
| 8,500.00  | 90.00      | 181.12     | 6,321.01      | -1,368.01    | -1,660.51       | 1,313.74        | 1,972.09                      | 0.00                          | 0.00                         | 0.00                        |
| 8,600.00  | 90.00      | 181.12     | 6,321.01      | -1,368.01    | -1,760.49       | 1,311.78        | 2,067.13                      | 0.00                          | 0.00                         | 0.00                        |
| 8,700.00  | 90.00      | 181.12     | 6,321.01      | -1,368.01    | -1,860.48       | 1,309.82        | 2,162.17                      | 0.00                          | 0.00                         | 0.00                        |
| 8,800.00  | 90.00      | 181.12     | 6,321.01      | -1,368.01    | -1,960.46       | 1,307.87        | 2,257.21                      | 0.00                          | 0.00                         | 0.00                        |
| 8,900.00  | 90.00      | 181.12     | 6,321.01      | -1,368.01    | -2,060.44       | 1,305.91        | 2,352.25                      | 0.00                          | 0.00                         | 0.00                        |
| 9,000.00  | 90.00      | 181.12     | 6,321.01      | -1,368.01    | -2,160.42       | 1,303.95        | 2,447.29                      | 0.00                          | 0.00                         | 0.00                        |
| 9,100.00  | 90.00      | 181.12     | 6,321.01      | -1,368.01    | -2,260.40       | 1,301.99        | 2,542.32                      | 0.00                          | 0.00                         | 0.00                        |
| 9,200.00  | 90.00      | 181.12     | 6,321.01      | -1,368.01    | -2,360.38       | 1,300.04        | 2,637.36                      | 0.00                          | 0.00                         | 0.00                        |
| 9,300.00  | 90.00      | 181.12     | 6,321.01      | -1,368.01    | -2,460.36       | 1,298.08        | 2,732.40                      | 0.00                          | 0.00                         | 0.00                        |
| 9,400.00  | 90.00      | 181.12     | 6,321.01      | -1,368.01    | -2,560.34       | 1,296.12        | 2,827.44                      | 0.00                          | 0.00                         | 0.00                        |
| 9,500.00  | 90.00      | 181.12     | 6,321.01      | -1,368.01    | -2,660.32       | 1,294.16        | 2,922.48                      | 0.00                          | 0.00                         | 0.00                        |
| 9,600.00  | 90.00      | 181.12     | 6,321.01      | -1,368.01    | -2,760.30       | 1,292.20        | 3,017.52                      | 0.00                          | 0.00                         | 0.00                        |
| 9,700.00  | 90.00      | 181.12     | 6,321.01      | -1,368.01    | -2,860.28       | 1,290.25        | 3,112.55                      | 0.00                          | 0.00                         | 0.00                        |
| 9,800.00  | 90.00      | 181.12     | 6,321.01      | -1,368.01    | -2,960.26       | 1,288.29        | 3,207.59                      | 0.00                          | 0.00                         | 0.00                        |
| 9,900.00  | 90.00      | 181.12     | 6,321.01      | -1,368.01    | -3,060.25       | 1,286.33        | 3,302.63                      | 0.00                          | 0.00                         | 0.00                        |
| 10,000.00   | 90.00      | 181.12     | 6,321.01      | -1,368.01    | -3,160.23       | 1,284.37        | 3,397.67                      | 0.00                          | 0.00                         | 0.00                        |
| 10,100.00   | 90.00      | 181.12     | 6,321.01      | -1,368.01    | -3,260.21       | 1,282.41        | 3,492.71                      | 0.00                          | 0.00                         | 0.00                        |
| 10,200.00   | 90.00      | 181.12     | 6,321.01      | -1,368.01    | -3,360.19       | 1,280.45        | 3,587.74                      | 0.00                          | 0.00                         | 0.00                        |
| 10,300.00   | 90.00      | 181.12     | 6,321.01      | -1,368.01    | -3,460.17       | 1,278.49        | 3,682.78                      | 0.00                          | 0.00                         | 0.00                        |
| 10,400.00   | 90.00      | 181.12     | 6,321.00      | -1,368.00    | -3,560.15       | 1,276.53        | 3,777.82                      | 0.00                          | 0.00                         | 0.00                        |
| 10,500.00   | 90.00      | 181.12     | 6,321.00      | -1,368.00    | -3,660.13       | 1,274.58        | 3,872.86                      | 0.00                          | 0.00                         | 0.00                        |
| 10,600.00   | 90.00      | 181.12     | 6,321.00      | -1,368.00    | -3,760.11       | 1,272.62        | 3,967.89                      | 0.00                          | 0.00                         | 0.00                        |
| 10,700.00   | 90.00      | 181.12     | 6,321.00      | -1,368.00    | -3,860.09       | 1,270.66        | 4,062.93                      | 0.00                          | 0.00                         | 0.00                        |
| 10,800.00   | 90.00      | 181.12     | 6,321.00      | -1,368.00    | -3,960.07       | 1,268.70        | 4,157.97                      | 0.00                          | 0.00                         | 0.00                        |
| 10,900.00   | 90.00      | 181.12     | 6,321.00      | -1,368.00    | -4,060.05       | 1,266.74        | 4,253.01                      | 0.00                          | 0.00                         | 0.00                        |
| <b>BHL: 600ft FSL &amp; 1715ft FEL of Sec 21</b>                                    |            |            |               |              |                 |                 |                               |                               |                              |                             |
| 10,977.58   | 90.00      | 181.12     | 6,321.00      | -1,368.00    | -4,137.62       | 1,265.22        | 4,326.74                      | 0.00                          | 0.00                         | 0.00                        |

# Planning Report



|                  |                                 |                                     |   |
|------------------|---------------------------------|-------------------------------------|---|
| <b>Database:</b> | EDM 5000.1 Single User Db       | <b>Local Co-ordinate Reference:</b> | Well GOLDENEYE FED 21-12HN                |
| <b>Company:</b>  | MALLARD EXPLORATION             | <b>TVD Reference:</b>               | KB-EST @ 4953.00usft (Original Well Elev) |
| <b>Project:</b>  | WELD COUNTY, COLORADO (NAD 83)  | <b>MD Reference:</b>                | KB-EST @ 4953.00usft (Original Well Elev) |
| <b>Site:</b>     | NE NW SEC. 21 T8N R60W 6th P.M. | <b>North Reference:</b>             | True                                      |
| <b>Well:</b>     | GOLDENEYE FED 21-12HN           | <b>Survey Calculation Method:</b>   | Minimum Curvature                         |
| <b>Wellbore:</b> | ORIGINAL WELLBORE               |                                     |   |
| <b>Design:</b>   | PROPOSAL #1                     |                                     |   |

| Formations   |               |                                |           |            |                         |  |
|--------------|---------------|--------------------------------|-----------|------------|-------------------------|--|
| MD<br>(usft) | TVD<br>(usft) | Name                           | Lithology | Dip<br>(°) | Dip<br>Direction<br>(°) |  |
| 527.00       | 527.00        | Fox Hills Base                 |           |            |                         |  |
| 1,584.85     | 1,560.00      | Pierre Shale Top               |           |            |                         |  |
| 3,497.78     | 3,366.00      | Richard Sandstone              |           |            |                         |  |
| 3,615.35     | 3,477.00      | Parkman Sandstone              |           |            |                         |  |
| 4,381.16     | 4,200.00      | Sussex Sandstone               |           |            |                         |  |
| 4,874.75     | 4,666.00      | Shannon Sandstone              |           |            |                         |  |
| 5,714.90     | 5,486.00      | TeePee Buttes                  |           |            |                         |  |
| 6,410.04     | 6,141.00      | Sharon Springs                 |           |            |                         |  |
| 6,470.91     | 6,183.00      | Niobrara Top                   |           |            |                         |  |
| 6,516.05     | 6,211.00      | Niobrara A Chalk               |           |            |                         |  |
| 6,568.66     | 6,240.00      | Niobrara A Chalk Base          |           |            |                         |  |
| 6,648.43     | 6,276.00      | Niobrara B1 Chalk Top          |           |            |                         |  |
| 6,684.63     | 6,289.00      | Niobrara B1 Chalk Base         |           |            |                         |  |
| 6,877.02     | 6,321.00      | Niobrara B2 Chalk Top (Target) |           |            |                         |  |

| Plan Annotations |               |                   |                 |   |
|------------------|---------------|-------------------|-----------------|---|
| MD<br>(usft)     | TVD<br>(usft) | Local Coordinates |                 | Comment                                 |
|                  |               | +N/-S<br>(usft)   | +E/-W<br>(usft) |   |
| 0.00             | 0.00          | 0.00              | 0.00            | SHL: 559ft FNL & 2232ft FWL of Sec 21   |
| 500.00           | 500.00        | 0.00              | 0.00            | START NUDGE (2°/100ft BUR)              |
| 1,462.41         | 1,444.41      | 58.75             | 148.98          | EOB TO 19.25° INC                       |
| 4,914.61         | 4,703.63      | 476.25            | 1,207.69        | END OF TANGENT                          |
| 5,877.02         | 5,648.04      | 535.00            | 1,356.67        | EOD TO VERTICAL                         |
| 5,977.02         | 5,748.04      | 535.00            | 1,356.67        | KOP (10°/100ft BUR)                     |
| 6,877.02         | 6,321.00      | -37.85            | 1,345.47        | HZ LP: 600ft FNL & 1715ft FEL of Sec 21 |
| 10,977.58        | 6,321.00      | -4,137.62         | 1,265.22        | BHL: 600ft FSL & 1715ft FEL of Sec 21   |