



HOBBS OCD  
OCT 31 2017  
RECEIVED

Lea County, NM (NAD 83 NME)

Nautilus 16 State Com #710H

H&P 642

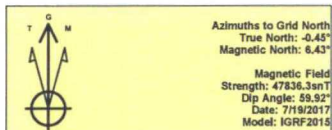
Plan #1

PROJECT DETAILS: Lea County, NM (NAD 83 NME)

Geodetic System: US State Plane 1983  
Datum: North American Datum 1983  
Ellipsoid: GRS 1980  
Zone: New Mexico Eastern Zone  
System Datum: Mean Sea Level

WELL DETAILS: #710H

KB= 25' @ 3355.0ust (H&P 642) 3330.0  
Northing 383047.00 Easting 808402.00 Longitude 103° 28' 40.085 W



To convert a Magnetic Direction to a Grid Direction, Add 6.43°  
To convert a Magnetic Direction to a True Direction, Add 6.89° East  
To convert a True Direction to a Grid Direction, Subtract 0.45°

#### SECTION DETAILS

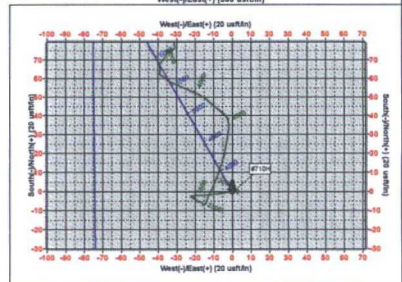
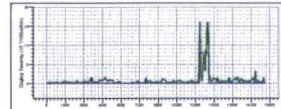
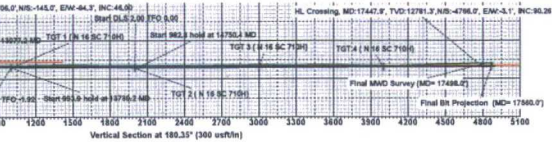
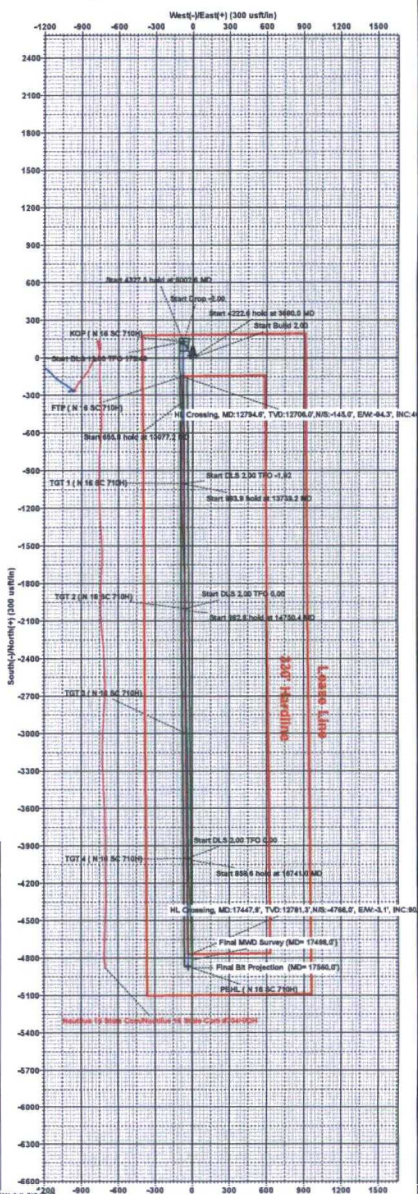
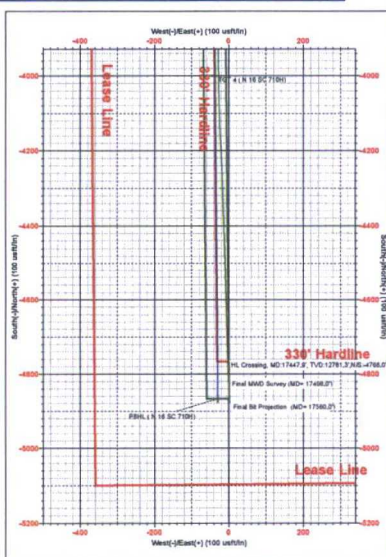
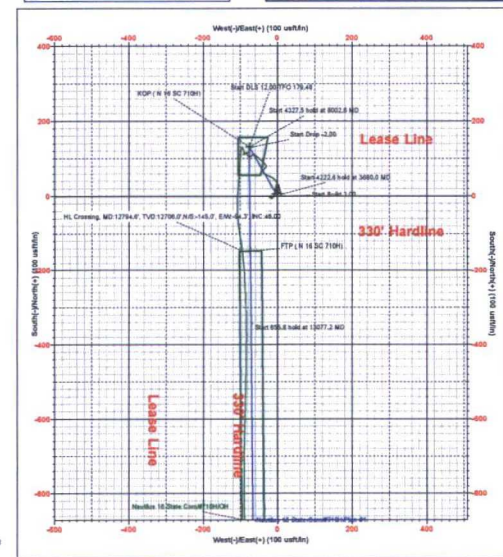
| Sec | MD      | Inc   | Azi    | TVD     | +N/-S   | +E/-W | Dleg  | TFace   | VSet   | Target               |
|-----|---------|-------|--------|---------|---------|-------|-------|---------|--------|----------------------|
| 1   | 0.0     | 0.00  | 0.00   | 0.0     | 0.0     | 0.0   | 0.0   | 0.00    | 0.0    |                      |
| 2   | 3580.0  | 0.00  | 0.00   | 3580.0  | 0.0     | 0.0   | 0.00  | 0.00    | 0.0    |                      |
| 3   | 3680.0  | 2.00  | 330.00 | 3680.0  | 1.5     | -0.9  | 2.00  | 330.00  | -1.5   |                      |
| 4   | 7902.6  | 2.00  | 330.00 | 7900.0  | 129.1   | -74.6 | 0.00  | 0.00    | -128.7 |                      |
| 5   | 8002.6  | 0.00  | 0.00   | 8000.0  | 130.6   | -75.4 | 2.00  | 180.00  | -130.2 |                      |
| 6   | 12330.1 | 0.00  | 0.00   | 12327.5 | 130.6   | -75.4 | 0.00  | 0.00    | -130.2 |                      |
| 7   | 13077.2 | 89.65 | 179.48 | 12805.0 | -343.9  | -71.1 | 12.00 | 179.48  | 344.3  |                      |
| 8   | 13733.0 | 89.65 | 179.48 | 12809.0 | -999.6  | -65.2 | 0.00  | 0.00    | 1000.0 |                      |
| 9   | 13739.2 | 89.77 | 179.48 | 12809.0 | -1005.8 | -65.2 | 2.00  | -1.92   | 1006.2 |                      |
| 10  | 14733.1 | 89.77 | 179.48 | 12813.0 | -1999.7 | -56.1 | 0.00  | 0.00    | 2000.0 | TGT 1 (N 16 SC 710H) |
| 11  | 14750.4 | 90.12 | 179.48 | 12813.0 | -2017.0 | -55.9 | 2.00  | 0.00    | 2017.3 | TGT 2 (N 16 SC 710H) |
| 12  | 15733.2 | 90.12 | 179.48 | 12811.0 | -2999.8 | -47.0 | 0.00  | 0.00    | 3000.0 | TGT 3 (N 16 SC 710H) |
| 13  | 16733.3 | 90.11 | 179.48 | 12809.0 | -3999.8 | -37.9 | 0.00  | -180.00 | 4000.0 | TGT 4 (N 16 SC 710H) |
| 14  | 16741.0 | 90.27 | 179.48 | 12809.0 | -4007.5 | -37.8 | 2.00  | 0.00    | 4007.6 |                      |
| 15  | 17599.5 | 90.27 | 179.48 | 12805.0 | -4866.0 | -30.0 | 0.00  | 0.00    | 4866.1 | PBHL (N 16 SC 710H)  |

#### CASING DETAILS

No casing data is available

#### WELLBORE TARGET DETAILS (MAP CO-ORDINATES)

| Name                 | TVD     | +N/-S   | +E/-W | Northing  | Easting   |
|----------------------|---------|---------|-------|-----------|-----------|
| KOP (N 16 SC 710H)   | 12327.5 | 130.6   | -75.4 | 383177.65 | 808326.57 |
| FTP (N 16 SC 710H)   | 12805.0 | -145.0  | -73.0 | 382902.00 | 808329.00 |
| PBHL (N 16 SC 710H)  | 12805.0 | -4866.0 | -30.0 | 378181.00 | 808372.00 |
| TGT 1 (N 16 SC 710H) | 12809.0 | -899.6  | -65.2 | 382047.40 | 808336.78 |
| TGT 4 (N 16 SC 710H) | 12809.0 | -3999.8 | -37.8 | 378047.20 | 808364.11 |
| TGT 3 (N 16 SC 710H) | 12811.0 | -2999.8 | -47.0 | 380047.20 | 808355.00 |
| TGT 2 (N 16 SC 710H) | 12813.0 | -1999.7 | -56.1 | 381047.30 | 808345.89 |



Lea County, NM (NAD 83 NME)  
Datum: North American Datum 1983  
Ellipsoid: GRS 1980  
Zone: New Mexico Eastern Zone  
System Datum: Mean Sea Level

# **EOG Resources - Midland**

Lea County, NM (NAD 83 NME)

Nautilus 16 State Com

#710H

OH

Design: OH

## **PVA Report**

16 August, 2017

# PVA Report

|                  |                             |                                     |                                |
|------------------|-----------------------------|-------------------------------------|--------------------------------|
| <b>Company:</b>  | EOG Resources - Midland     | <b>Local Co-ordinate Reference:</b> | Well #710H                     |
| <b>Project:</b>  | Lea County, NM (NAD 83 NME) | <b>TVD Reference:</b>               | KB= 25' @ 3355.0usft (H&P 642) |
| <b>Site:</b>     | Nautilus 16 State Com       | <b>MD Reference:</b>                | KB= 25' @ 3355.0usft (H&P 642) |
| <b>Well:</b>     | #710H                       | <b>North Reference:</b>             | Grid                           |
| <b>Wellbore:</b> | OH                          | <b>Survey Calculation Method:</b>   | Minimum Curvature              |
| <b>Design:</b>   | OH                          | <b>Database:</b>                    | EDM 5000.14                    |

|                    |                             |                      |                |
|--------------------|-----------------------------|----------------------|----------------|
| <b>Project</b>     | Lea County, NM (NAD 83 NME) |                      |                |
| <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>   | New Mexico Eastern Zone     |                      |                |

|                              |                       |                          |                   |
|------------------------------|-----------------------|--------------------------|-------------------|
| <b>Site</b>                  | Nautilus 16 State Com |                          |                   |
| <b>Site Position:</b>        |                       | <b>Northing:</b>         | 383,047.00 usft   |
| <b>From:</b>                 | Map                   | <b>Easting:</b>          | 806,402.00 usft   |
| <b>Position Uncertainty:</b> | 0.0 usft              | <b>Slot Radius:</b>      | 13-3/16 "         |
|                              |                       | <b>Latitude:</b>         | 32° 3' 0.681 N    |
|                              |                       | <b>Longitude:</b>        | 103° 28' 40.085 W |
|                              |                       | <b>Grid Convergence:</b> | 0.45 °            |

| Well                 |       | #710H    |                     |                 |               |                   |
|----------------------|-------|----------|---------------------|-----------------|---------------|-------------------|
| Well Position        | +N/-S | 0.0 usft | Northing:           | 383,047.00 usft | Latitude:     | 32° 3' 0.681 N    |
|                      | +E/-W | 0.0 usft | Easting:            | 806,402.00 usft | Longitude:    | 103° 28' 40.085 W |
| Position Uncertainty |       | 0.0 usft | Wellhead Elevation: | usft            | Ground Level: | 3,330.0 usft      |

|           |            |             |                    |                  |                        |
|-----------|------------|-------------|--------------------|------------------|------------------------|
| Wellbore  | OH         |             |                    |                  |                        |
| Magnetics | Model Name | Sample Date | Declination<br>(°) | Dip Angle<br>(°) | Field Strength<br>(nT) |
|           | IGRF2015   | 7/19/2017   | 6.89               | 59.92            | 47,836.26783377        |

|                   |                            |                 |                 |                   |
|-------------------|----------------------------|-----------------|-----------------|-------------------|
| Design            |                            | OH              |                 |                   |
| Audit Notes:      |                            |                 |                 |                   |
| Version:          | 1.0                        | Phase:          | ACTUAL          | Tie On Depth: 0.0 |
| Vertical Section: | Depth From (TVD)<br>(usft) | +N/-S<br>(usft) | +E/-W<br>(usft) | Direction<br>(°)  |
|                   | 0.0                        | 0.0             | 0.0             | 180.35            |

| Survey Program |           | Date 8/16/2017    |           |                |
|----------------|-----------|-------------------|-----------|----------------|
| From (usft)    | To (usft) | Survey (Wellbore) | Tool Name | Description    |
| 146.0          | 17,560.0  | Intrepid MWD (OH) | MWD       | MWD - Standard |

# PVA Report

|                  |                             |                                     |                                |
|------------------|-----------------------------|-------------------------------------|--------------------------------|
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| <b>Well:</b>     | #710H                       | <b>North Reference:</b>             | Grid                           |
| <b>Wellbore:</b> | OH                          | <b>Survey Calculation Method:</b>   | Minimum Curvature              |
| <b>Design:</b>   | OH                          | <b>Database:</b>                    | EDM 5000.14                    |

| Survey       |            |                          |               |               |               |                     |                      |                     |                        |                         |
|--------------|------------|--------------------------|---------------|---------------|---------------|---------------------|----------------------|---------------------|------------------------|-------------------------|
| MD<br>(usft) | Inc<br>(°) | Azi<br>(grid_north_azim) | TVD<br>(usft) | N/S<br>(usft) | E/W<br>(usft) | DLeg<br>(°/100usft) | Build<br>(°/100usft) | Turn<br>(°/100usft) | High to Plan<br>(usft) | Right to Plan<br>(usft) |
| 0.0          | 0.00       | 0.00                     | 0.0           | 0.0           | 0.0           | 0.00                | 0.00                 | 0.00                | 0.0                    | 0.0                     |
| 146.0        | 0.50       | 257.30                   | 146.0         | -0.1          | -0.6          | 0.34                | 0.34                 | 0.00                | -0.6                   | 0.0                     |
| 329.0        | 1.00       | 261.20                   | 329.0         | -0.6          | -3.0          | 0.27                | 0.27                 | 2.13                | -3.0                   | 0.1                     |
| 502.0        | 1.50       | 262.40                   | 501.9         | -1.1          | -6.7          | 0.29                | 0.29                 | 0.69                | -6.8                   | 0.2                     |
| 691.0        | 1.00       | 265.30                   | 690.9         | -1.6          | -10.8         | 0.27                | -0.26                | 1.53                | -10.9                  | 0.7                     |
| 781.0        | 1.40       | 262.70                   | 780.9         | -1.8          | -12.7         | 0.45                | 0.44                 | -2.89               | -12.8                  | 0.1                     |
| 965.0        | 1.10       | 270.50                   | 964.8         | -2.0          | -16.7         | 0.19                | -0.16                | 4.24                | -16.7                  | 2.2                     |
| 1,150.0      | 1.20       | 265.20                   | 1,149.8       | -2.2          | -20.4         | 0.08                | 0.05                 | -2.86               | -20.5                  | 0.5                     |
| 1,335.0      | 0.20       | 193.50                   | 1,334.8       | -2.6          | -22.4         | 0.62                | -0.54                | -38.76              | -7.8                   | -21.2                   |
| 1,520.0      | 1.30       | 116.40                   | 1,519.8       | -3.9          | -20.6         | 0.69                | 0.59                 | -41.68              | 16.7                   | -12.6                   |
| 1,707.0      | 0.60       | 125.50                   | 1,706.7       | -5.4          | -17.9         | 0.38                | -0.37                | 4.87                | 11.4                   | -14.8                   |
| 1,894.0      | 0.30       | 38.90                    | 1,893.7       | -5.6          | -16.8         | 0.35                | -0.16                | -46.31              | 14.9                   | 9.5                     |
| 2,082.0      | 0.30       | 156.80                   | 2,081.7       | -5.7          | -16.3         | 0.27                | 0.00                 | 62.71               | 1.2                    | -17.2                   |
| 2,270.0      | 0.70       | 156.30                   | 2,269.7       | -7.2          | -15.6         | 0.21                | 0.21                 | -0.27               | -0.3                   | -17.2                   |
| 2,458.0      | 1.10       | 22.30                    | 2,457.7       | -6.6          | -14.5         | 0.89                | 0.21                 | -71.28              | 11.6                   | 10.9                    |
| 2,645.0      | 1.10       | 24.10                    | 2,644.7       | -3.3          | -13.1         | 0.02                | 0.00                 | 0.96                | 8.3                    | 10.6                    |
| 2,832.0      | 1.80       | 24.80                    | 2,831.6       | 1.1           | -11.1         | 0.37                | 0.37                 | 0.37                | 3.7                    | 10.5                    |
| 3,020.0      | 2.90       | 22.70                    | 3,019.5       | 8.1           | -8.0          | 0.59                | 0.59                 | -1.12               | -4.4                   | 10.5                    |
| 3,208.0      | 4.00       | 15.50                    | 3,207.1       | 18.8          | -4.4          | 0.63                | 0.59                 | -3.83               | -16.9                  | 9.3                     |
| 3,396.0      | 4.30       | 6.00                     | 3,394.6       | 32.2          | -2.0          | 0.40                | 0.16                 | -5.05               | -31.8                  | 5.3                     |
| 3,583.0      | 2.60       | 300.80                   | 3,581.3       | 41.3          | -4.9          | 2.13                | -0.91                | -34.87              | -25.3                  | -33.0                   |
| 3,770.0      | 2.60       | 317.70                   | 3,768.1       | 46.6          | -11.4         | 0.41                | 0.00                 | 9.04                | -37.4                  | -21.9                   |
| 3,958.0      | 2.90       | 294.60                   | 3,955.9       | 51.7          | -18.6         | 0.61                | 0.16                 | -12.29              | -29.1                  | -32.7                   |
| 4,146.0      | 3.50       | 292.80                   | 4,143.6       | 55.9          | -28.2         | 0.32                | 0.32                 | -0.96               | -33.4                  | -29.8                   |
| 4,333.0      | 0.80       | 313.50                   | 4,330.5       | 59.1          | -34.4         | 1.48                | -1.44                | 11.07               | -42.1                  | -12.2                   |
| 4,521.0      | 2.50       | 301.10                   | 4,518.4       | 62.1          | -38.8         | 0.92                | 0.90                 | -6.60               | -38.1                  | -18.1                   |
| 4,709.0      | 3.00       | 43.60                    | 4,706.3       | 67.8          | -39.0         | 2.29                | 0.27                 | 54.52               | -11.6                  | 38.9                    |

# PVA Report

|                  |                             |                                     |                                |
|------------------|-----------------------------|-------------------------------------|--------------------------------|
| <b>Company:</b>  | EOG Resources - Midland     | <b>Local Co-ordinate Reference:</b> | Well #710H                     |
| <b>Project:</b>  | Lea County, NM (NAD 83 NME) | <b>TVD Reference:</b>               | KB= 25' @ 3355.0usft (H&P 642) |
| <b>Site:</b>     | Nautilus 16 State Com       | <b>MD Reference:</b>                | KB= 25' @ 3355.0usft (H&P 642) |
| <b>Well:</b>     | #710H                       | <b>North Reference:</b>             | Grid                           |
| <b>Wellbore:</b> | OH                          | <b>Survey Calculation Method:</b>   | Minimum Curvature              |
| <b>Design:</b>   | OH                          | <b>Database:</b>                    | EDM 5000.14                    |

| Survey       |            |                          |               |               |               |                     |                      |                     |                        |                         |
|--------------|------------|--------------------------|---------------|---------------|---------------|---------------------|----------------------|---------------------|------------------------|-------------------------|
| MD<br>(usft) | Inc<br>(°) | Azi<br>(grid_north_azim) | TVD<br>(usft) | N/S<br>(usft) | E/W<br>(usft) | DLeg<br>(°/100usft) | Build<br>(°/100usft) | Turn<br>(°/100usft) | High to Plan<br>(usft) | Right to Plan<br>(usft) |
| 4,896.0      | 1.90       | 23.40                    | 4,893.1       | 74.2          | -34.4         | 0.74                | -0.59                | -10.80              | -28.1                  | 25.5                    |
| 5,085.0      | 1.10       | 133.80                   | 5,082.1       | 75.8          | -31.8         | 1.33                | -0.42                | 58.41               | 26.7                   | 18.5                    |
| 5,273.0      | 1.10       | 351.10                   | 5,270.1       | 76.3          | -30.8         | 1.11                | 0.00                 | -75.90              | -26.7                  | -2.0                    |
| 5,459.0      | 0.70       | 352.50                   | 5,456.0       | 79.2          | -31.2         | 0.22                | -0.22                | 0.75                | -23.7                  | -3.8                    |
| 5,647.0      | 0.60       | 16.30                    | 5,644.0       | 81.3          | -31.1         | 0.15                | -0.05                | 12.66               | -20.7                  | 1.8                     |
| 5,835.0      | 1.60       | 314.30                   | 5,832.0       | 84.1          | -32.7         | 0.76                | 0.53                 | -32.98              | -8.1                   | -16.5                   |
| 6,021.0      | 1.40       | 311.90                   | 6,017.9       | 87.4          | -36.2         | 0.11                | -0.11                | -1.29               | -6.1                   | -14.9                   |
| 6,210.0      | 1.40       | 314.20                   | 6,206.9       | 90.5          | -39.6         | 0.03                | 0.00                 | 1.22                | -4.9                   | -12.8                   |
| 6,397.0      | 1.50       | 313.40                   | 6,393.8       | 93.8          | -43.0         | 0.05                | 0.05                 | -0.43               | -3.2                   | -11.0                   |
| 6,585.0      | 1.40       | 313.50                   | 6,581.7       | 97.1          | -46.5         | 0.05                | -0.05                | 0.05                | -1.7                   | -9.2                    |
| 6,773.0      | 1.50       | 309.70                   | 6,769.7       | 100.2         | -50.0         | 0.07                | 0.05                 | -2.02               | 0.3                    | -7.1                    |
| 6,958.0      | 2.20       | 310.50                   | 6,954.6       | 104.1         | -54.6         | 0.38                | 0.38                 | 0.43                | 0.3                    | -4.9                    |
| 7,146.0      | 2.20       | 308.70                   | 7,142.5       | 108.7         | -60.2         | 0.04                | 0.00                 | -0.96               | -0.6                   | -2.7                    |
| 7,334.0      | 0.60       | 276.90                   | 7,330.4       | 111.1         | -63.9         | 0.91                | -0.85                | -16.91              | 0.8                    | 0.8                     |
| 7,521.0      | 0.70       | 238.70                   | 7,517.4       | 110.6         | -65.9         | 0.23                | 0.05                 | -20.43              | -1.9                   | 7.0                     |
| 7,708.0      | 0.50       | 254.70                   | 7,704.4       | 109.8         | -67.7         | 0.14                | -0.11                | 8.56                | -0.2                   | 13.9                    |
| 7,879.0      | 0.70       | 204.70                   | 7,875.4       | 108.6         | -68.8         | 0.31                | 0.12                 | -29.24              | -15.7                  | 13.1                    |
| 8,066.0      | 1.20       | 207.20                   | 8,062.3       | 105.9         | -70.2         | 0.27                | 0.27                 | 1.34                | -19.6                  | 16.0                    |
| 8,253.0      | 1.80       | 272.80                   | 8,249.3       | 104.3         | -74.0         | 0.91                | 0.32                 | 35.08               | 2.7                    | 26.3                    |
| 8,441.0      | 1.50       | 314.60                   | 8,437.2       | 106.1         | -78.7         | 0.64                | -0.16                | 22.23               | 14.9                   | 19.8                    |
| 8,628.0      | 1.30       | 325.00                   | 8,624.2       | 109.6         | -81.7         | 0.17                | -0.11                | 5.56                | 13.7                   | 17.2                    |
| 8,815.0      | 0.30       | 11.30                    | 8,811.1       | 111.8         | -82.8         | 0.60                | -0.53                | 24.76               | 19.9                   | 3.5                     |
| 9,003.0      | 1.20       | 29.40                    | 8,999.1       | 114.0         | -81.7         | 0.49                | 0.48                 | 9.63                | 17.6                   | -2.7                    |
| 9,191.0      | 1.50       | 62.90                    | 9,187.1       | 116.8         | -78.6         | 0.44                | 0.16                 | 17.82               | 9.1                    | -10.9                   |
| 9,378.0      | 2.00       | 223.30                   | 9,374.0       | 115.6         | -78.6         | 1.84                | 0.27                 | 85.78               | -13.2                  | 8.0                     |
| 9,565.0      | 1.00       | 298.80                   | 9,561.0       | 114.0         | -82.3         | 1.07                | -0.53                | 40.37               | 2.0                    | 17.9                    |
| 9,752.0      | 0.60       | 291.00                   | 9,748.0       | 115.1         | -84.6         | 0.22                | -0.21                | -4.17               | -3.0                   | 17.8                    |

# PVA Report

|                  |                             |                                     |                                |
|------------------|-----------------------------|-------------------------------------|--------------------------------|
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| <b>Project:</b>  | Lea County, NM (NAD 83 NME) | <b>TVD Reference:</b>               | KB= 25' @ 3355.0usft (H&P 642) |
| <b>Site:</b>     | Nautilus 16 State Com       | <b>MD Reference:</b>                | KB= 25' @ 3355.0usft (H&P 642) |
| <b>Well:</b>     | #710H                       | <b>North Reference:</b>             | Grid                           |
| <b>Wellbore:</b> | OH                          | <b>Survey Calculation Method:</b>   | Minimum Curvature              |
| <b>Design:</b>   | OH                          | <b>Database:</b>                    | EDM 5000.14                    |

| Survey       |            |                          |               |               |               |                     |                      |                     |                        |                         |  |
|--------------|------------|--------------------------|---------------|---------------|---------------|---------------------|----------------------|---------------------|------------------------|-------------------------|--|
| MD<br>(usft) | Inc<br>(°) | Azi<br>(grid_north_azim) | TVD<br>(usft) | N/S<br>(usft) | E/W<br>(usft) | DLeg<br>(°/100usft) | Build<br>(°/100usft) | Turn<br>(°/100usft) | High to Plan<br>(usft) | Right to Plan<br>(usft) |  |
| 9,939.0      | 0.50       | 209.40                   | 9,935.0       | 114.8         | -86.0         | 0.39                | -0.05                | -43.64              | -19.0                  | -1.4                    |  |
| 10,121.0     | 1.30       | 202.00                   | 10,116.9      | 112.2         | -87.1         | 0.44                | 0.44                 | -4.07               | -21.5                  | -3.9                    |  |
| 10,215.0     | 0.70       | 249.50                   | 10,210.9      | 111.0         | -88.1         | 1.04                | -0.64                | 50.53               | -18.7                  | 14.0                    |  |
| 10,401.0     | 1.30       | 259.70                   | 10,396.9      | 110.2         | -91.2         | 0.34                | 0.32                 | 5.48                | -19.2                  | 17.3                    |  |
| 10,589.0     | 0.30       | 102.10                   | 10,584.9      | 109.7         | -92.8         | 0.84                | -0.53                | -83.83              | 12.6                   | -24.1                   |  |
| 10,775.0     | 1.70       | 22.40                    | 10,770.9      | 112.2         | -91.3         | 0.90                | 0.75                 | -42.85              | 23.1                   | 7.6                     |  |
| 10,963.0     | 1.10       | 353.40                   | 10,958.8      | 116.5         | -90.4         | 0.48                | -0.32                | -15.43              | 12.3                   | 16.5                    |  |
| 11,057.0     | 0.80       | 355.40                   | 11,052.8      | 118.1         | -90.6         | 0.32                | -0.32                | 2.13                | 11.3                   | 16.1                    |  |
| 11,150.0     | 0.90       | 338.30                   | 11,145.8      | 119.4         | -90.9         | 0.29                | 0.11                 | -18.39              | 4.7                    | 18.5                    |  |
| 11,337.0     | 1.70       | 351.70                   | 11,332.7      | 123.5         | -91.9         | 0.45                | 0.43                 | 7.17                | 4.7                    | 17.3                    |  |
| 11,525.0     | 1.90       | 317.40                   | 11,520.6      | 128.6         | -94.4         | 0.57                | 0.11                 | -18.24              | -11.3                  | 15.4                    |  |
| 11,712.0     | 0.30       | 116.60                   | 11,707.6      | 130.6         | -96.0         | 1.17                | -0.86                | 85.13               | 18.4                   | -9.2                    |  |
| 11,806.0     | 0.60       | 155.20                   | 11,801.6      | 130.1         | -95.6         | 0.44                | 0.32                 | 41.06               | 7.9                    | -18.6                   |  |
| 11,900.0     | 0.90       | 175.30                   | 11,895.6      | 128.9         | -95.3         | 0.42                | 0.32                 | 21.38               | -0.1                   | -20.0                   |  |
| 11,988.0     | 0.60       | 198.90                   | 11,983.6      | 127.8         | -95.4         | 0.48                | -0.34                | 26.82               | -9.2                   | -18.0                   |  |
| 12,126.0     | 1.10       | 236.50                   | 12,121.6      | 126.4         | -96.8         | 0.52                | 0.36                 | 27.25               | -20.2                  | -8.2                    |  |
| 12,220.0     | 1.00       | 239.90                   | 12,215.6      | 125.4         | -98.2         | 0.13                | -0.11                | 3.62                | -22.3                  | -6.9                    |  |
| 12,267.0     | 4.00       | 180.90                   | 12,262.5      | 123.6         | -98.6         | 7.64                | 6.38                 | -125.53             | -7.4                   | -23.1                   |  |
| 12,313.0     | 11.60      | 179.90                   | 12,308.1      | 117.4         | -98.6         | 16.52               | 16.52                | -2.17               | -13.0                  | -23.3                   |  |
| 12,360.0     | 22.80      | 185.20                   | 12,352.9      | 103.5         | -99.5         | 24.04               | 23.83                | 11.28               | -27.8                  | -22.4                   |  |
| 12,407.0     | 30.80      | 184.10                   | 12,394.8      | 82.4          | -101.1        | 17.05               | 17.02                | -2.34               | -44.0                  | -24.1                   |  |
| 12,454.0     | 32.20      | 183.60                   | 12,434.9      | 57.9          | -102.8        | 3.03                | 2.98                 | -1.06               | -59.9                  | -24.9                   |  |
| 12,501.0     | 31.70      | 184.00                   | 12,474.8      | 33.1          | -104.4        | 1.16                | -1.06                | 0.85                | -71.6                  | -25.1                   |  |
| 12,548.0     | 31.30      | 184.30                   | 12,514.8      | 8.6           | -106.2        | 0.91                | -0.85                | 0.64                | -77.6                  | -26.2                   |  |
| 12,594.0     | 33.30      | 183.00                   | 12,553.7      | -15.9         | -107.8        | 4.60                | 4.35                 | -2.83               | -78.0                  | -29.7                   |  |
| 12,641.0     | 37.80      | 178.20                   | 12,591.9      | -43.2         | -108.0        | 11.26               | 9.57                 | -10.21              | -74.0                  | -35.4                   |  |
| 12,688.0     | 41.30      | 173.00                   | 12,628.2      | -73.0         | -105.6        | 10.25               | 7.45                 | -11.06              | -67.8                  | -37.6                   |  |

# PVA Report

Company: EOG Resources - Midland  
 Project: Lea County, NM (NAD 83 NME)  
 Site: Nautilus 16 State Com  
 Well: #710H  
 Wellbore: OH  
 Design: OH

Local Co-ordinate Reference: Well #710H  
 TVD Reference: KB= 25' @ 3355.0usft (H&P 642)  
 MD Reference: KB= 25' @ 3355.0usft (H&P 642)  
 North Reference: Grid  
 Survey Calculation Method: Minimum Curvature  
 Database: EDM 5000.14

| Survey       |            |                          |               |               |               |                     |                      |                     |                        |                         |
|--------------|------------|--------------------------|---------------|---------------|---------------|---------------------|----------------------|---------------------|------------------------|-------------------------|
| MD<br>(usft) | Inc<br>(°) | Azi<br>(grid_north_azim) | TVD<br>(usft) | N/S<br>(usft) | E/W<br>(usft) | DLeg<br>(°/100usft) | Build<br>(°/100usft) | Turn<br>(°/100usft) | High to Plan<br>(usft) | Right to Plan<br>(usft) |
| 12,735.0     | 42.60      | 169.80                   | 12,663.1      | -104.1        | -100.9        | 5.33                | 2.77                 | -6.81               | -59.7                  | -34.4                   |
| 12,781.0     | 44.70      | 171.10                   | 12,696.4      | -135.4        | -95.7         | 4.96                | 4.57                 | 2.83                | -49.8                  | -27.4                   |
| 12,811.0     | 47.60      | 174.70                   | 12,717.2      | -156.9        | -93.0         | 12.97               | 9.67                 | 12.00               | -42.6                  | -22.6                   |
| 12,874.0     | 54.20      | 176.80                   | 12,756.9      | -205.6        | -89.4         | 10.79               | 10.48                | 3.33                | -24.6                  | -18.1                   |
| 12,906.0     | 60.70      | 176.90                   | 12,774.1      | -232.5        | -88.0         | 20.31               | 20.31                | 0.31                | -15.9                  | -16.4                   |
| 12,937.0     | 68.00      | 177.60                   | 12,787.5      | -260.4        | -86.6         | 23.64               | 23.55                | 2.26                | -9.1                   | -14.9                   |
| 12,968.0     | 72.80      | 177.60                   | 12,797.9      | -289.6        | -85.4         | 15.48               | 15.48                | 0.00                | -3.4                   | -13.8                   |
| 12,988.0     | 77.50      | 178.50                   | 12,803.1      | -308.9        | -84.7         | 23.90               | 23.50                | 4.50                | -0.3                   | -13.3                   |
| 13,048.0     | 89.40      | 180.50                   | 12,809.9      | -368.4        | -84.2         | 20.11               | 19.83                | 3.33                | 4.8                    | -13.3                   |
| 13,071.0     | 90.20      | 180.40                   | 12,810.0      | -391.4        | -84.4         | 3.51                | 3.48                 | -0.43               | 4.7                    | -13.7                   |
| 13,164.0     | 92.60      | 180.50                   | 12,807.7      | -484.3        | -85.2         | 2.58                | 2.58                 | 0.11                | 1.9                    | -15.3                   |
| 13,258.0     | 92.30      | 181.20                   | 12,803.7      | -578.2        | -86.5         | 0.81                | -0.32                | 0.74                | -2.7                   | -17.5                   |
| 13,351.0     | 91.50      | 181.70                   | 12,800.6      | -671.2        | -88.9         | 1.01                | -0.86                | 0.54                | -6.3                   | -20.7                   |
| 13,445.0     | 90.60      | 179.80                   | 12,798.9      | -765.1        | -90.1         | 2.24                | -0.96                | -2.02               | -8.7                   | -22.8                   |
| 13,539.0     | 90.10      | 178.60                   | 12,798.3      | -859.1        | -88.8         | 1.38                | -0.53                | -1.28               | -9.8                   | -22.3                   |
| 13,634.0     | 90.90      | 180.10                   | 12,797.5      | -954.1        | -87.7         | 1.79                | 0.84                 | 1.58                | -11.2                  | -22.1                   |
| 13,728.0     | 90.90      | 180.00                   | 12,796.0      | -1,048.1      | -87.8         | 0.11                | 0.00                 | -0.11               | -13.2                  | -23.0                   |
| 13,822.0     | 90.80      | 178.30                   | 12,794.6      | -1,142.1      | -86.4         | 1.81                | -0.11                | -1.81               | -15.0                  | -22.5                   |
| 13,916.0     | 90.90      | 178.30                   | 12,793.2      | -1,236.0      | -83.6         | 0.11                | 0.11                 | 0.00                | -16.7                  | -20.6                   |
| 14,010.0     | 90.70      | 177.90                   | 12,791.9      | -1,330.0      | -80.5         | 0.48                | -0.21                | -0.43               | -18.4                  | -18.3                   |
| 14,104.0     | 90.20      | 177.30                   | 12,791.2      | -1,423.9      | -76.6         | 0.83                | -0.53                | -0.64               | -19.5                  | -15.2                   |
| 14,198.0     | 89.50      | 177.10                   | 12,791.4      | -1,517.8      | -72.0         | 0.77                | -0.74                | -0.21               | -19.7                  | -11.5                   |
| 14,292.0     | 89.50      | 177.40                   | 12,792.2      | -1,611.6      | -67.5         | 0.32                | 0.00                 | 0.32                | -19.2                  | -7.8                    |
| 14,386.0     | 89.30      | 178.20                   | 12,793.2      | -1,705.6      | -63.9         | 0.88                | -0.21                | 0.85                | -18.6                  | -5.1                    |
| 14,480.0     | 88.70      | 178.20                   | 12,794.9      | -1,799.5      | -60.9         | 0.64                | -0.64                | 0.00                | -17.3                  | -3.0                    |
| 14,574.0     | 89.10      | 178.30                   | 12,796.7      | -1,893.4      | -58.1         | 0.44                | 0.43                 | 0.11                | -15.9                  | -1.0                    |
| 14,668.0     | 90.80      | 179.10                   | 12,796.7      | -1,987.4      | -55.9         | 2.00                | 1.81                 | 0.85                | -16.2                  | 0.3                     |

# PVA Report

|                  |                             |                                     |                                |
|------------------|-----------------------------|-------------------------------------|--------------------------------|
| <b>Company:</b>  | EOG Resources - Midland     | <b>Local Co-ordinate Reference:</b> | Well #710H                     |
| <b>Project:</b>  | Lea County, NM (NAD 83 NME) | <b>TVD Reference:</b>               | KB= 25' @ 3355.0usft (H&P 642) |
| <b>Site:</b>     | Nautilus 16 State Com       | <b>MD Reference:</b>                | KB= 25' @ 3355.0usft (H&P 642) |
| <b>Well:</b>     | #710H                       | <b>North Reference:</b>             | Grid                           |
| <b>Wellbore:</b> | OH                          | <b>Survey Calculation Method:</b>   | Minimum Curvature              |
| <b>Design:</b>   | OH                          | <b>Database:</b>                    | EDM 5000.14                    |

| Survey       |            |                          |               |               |               |                     |                      |                     |                        |                         |
|--------------|------------|--------------------------|---------------|---------------|---------------|---------------------|----------------------|---------------------|------------------------|-------------------------|
| MD<br>(usft) | Inc<br>(°) | Azi<br>(grid_north_azim) | TVD<br>(usft) | N/S<br>(usft) | E/W<br>(usft) | DLeg<br>(°/100usft) | Build<br>(°/100usft) | Turn<br>(°/100usft) | High to Plan<br>(usft) | Right to Plan<br>(usft) |
| 14,761.0     | 89.90      | 179.60                   | 12,796.2      | -2,080.4      | -54.9         | 1.11                | -0.97                | 0.54                | -16.7                  | 0.5                     |
| 14,855.0     | 89.90      | 179.80                   | 12,796.3      | -2,174.4      | -54.4         | 0.21                | 0.00                 | 0.21                | -16.4                  | 0.1                     |
| 14,949.0     | 90.40      | 179.30                   | 12,796.1      | -2,268.4      | -53.6         | 0.75                | 0.53                 | -0.53               | -16.4                  | 0.0                     |
| 15,042.0     | 90.70      | 180.60                   | 12,795.2      | -2,361.4      | -53.6         | 1.43                | 0.32                 | 1.40                | -17.1                  | -0.7                    |
| 15,136.0     | 89.50      | 180.80                   | 12,795.0      | -2,455.4      | -54.7         | 1.29                | -1.28                | 0.21                | -17.1                  | -2.7                    |
| 15,229.0     | 90.70      | 179.10                   | 12,794.9      | -2,548.4      | -54.6         | 2.24                | 1.29                 | -1.83               | -17.1                  | -3.5                    |
| 15,322.0     | 89.60      | 179.30                   | 12,794.6      | -2,641.4      | -53.3         | 1.20                | -1.18                | 0.22                | -17.1                  | -3.1                    |
| 15,416.0     | 90.90      | 177.50                   | 12,794.2      | -2,735.3      | -50.7         | 2.36                | 1.38                 | -1.91               | -17.3                  | -1.3                    |
| 15,510.0     | 91.10      | 177.40                   | 12,792.6      | -2,829.2      | -46.5         | 0.24                | 0.21                 | -0.11               | -18.8                  | 2.0                     |
| 15,604.0     | 90.90      | 178.60                   | 12,790.9      | -2,923.1      | -43.2         | 1.29                | -0.21                | 1.28                | -20.2                  | 4.5                     |
| 15,697.0     | 89.30      | 178.50                   | 12,790.8      | -3,016.1      | -40.9         | 1.72                | -1.72                | -0.11               | -20.2                  | 6.0                     |
| 15,792.0     | 89.40      | 179.00                   | 12,791.9      | -3,111.1      | -38.8         | 0.54                | 0.11                 | 0.53                | -18.9                  | 7.2                     |
| 15,885.0     | 89.50      | 179.80                   | 12,792.7      | -3,204.1      | -37.8         | 0.87                | 0.11                 | 0.86                | -17.8                  | 7.3                     |
| 15,979.0     | 90.40      | 179.40                   | 12,792.8      | -3,298.1      | -37.2         | 1.05                | 0.96                 | -0.43               | -17.6                  | 7.1                     |
| 16,072.0     | 90.80      | 179.10                   | 12,791.9      | -3,391.1      | -36.0         | 0.54                | 0.43                 | -0.32               | -18.4                  | 7.5                     |
| 16,166.0     | 90.50      | 178.70                   | 12,790.8      | -3,485.0      | -34.2         | 0.53                | -0.32                | -0.43               | -19.2                  | 8.4                     |
| 16,259.0     | 89.70      | 179.30                   | 12,790.6      | -3,578.0      | -32.5         | 1.08                | -0.86                | 0.65                | -19.2                  | 9.2                     |
| 16,353.0     | 89.50      | 179.70                   | 12,791.3      | -3,672.0      | -31.7         | 0.48                | -0.21                | 0.43                | -18.4                  | 9.2                     |
| 16,446.0     | 88.70      | 179.40                   | 12,792.7      | -3,765.0      | -31.0         | 0.92                | -0.86                | -0.32               | -16.7                  | 9.0                     |
| 16,539.0     | 87.20      | 179.30                   | 12,796.1      | -3,857.9      | -29.9         | 1.62                | -1.61                | -0.11               | -13.2                  | 9.3                     |
| 16,633.0     | 89.10      | 179.00                   | 12,799.1      | -3,951.9      | -28.5         | 2.05                | 2.02                 | -0.32               | -10.0                  | 9.8                     |
| 16,728.0     | 89.40      | 179.50                   | 12,800.3      | -4,046.9      | -27.3         | 0.61                | 0.32                 | 0.53                | -8.4                   | 10.2                    |
| 16,822.0     | 92.90      | 177.00                   | 12,798.5      | -4,140.8      | -24.4         | 4.58                | 3.72                 | -2.66               | -9.9                   | 12.2                    |
| 16,916.0     | 92.70      | 177.30                   | 12,793.9      | -4,234.5      | -19.8         | 0.38                | -0.21                | 0.32                | -14.0                  | 16.0                    |
| 17,010.0     | 92.00      | 178.10                   | 12,790.0      | -4,328.4      | -16.0         | 1.13                | -0.74                | 0.85                | -17.5                  | 18.9                    |
| 17,103.0     | 91.50      | 178.20                   | 12,787.2      | -4,421.3      | -13.0         | 0.55                | -0.54                | 0.11                | -19.9                  | 21.1                    |
| 17,197.0     | 91.10      | 178.40                   | 12,785.0      | -4,515.2      | -10.2         | 0.48                | -0.43                | 0.21                | -21.6                  | 23.0                    |

# PVA Report

|           |                             |                              |                                |
|-----------|-----------------------------|------------------------------|--------------------------------|
| Company:  | EOG Resources - Midland     | Local Co-ordinate Reference: | Well #710H                     |
| Project:  | Lea County, NM (NAD 83 NME) | TVD Reference:               | KB= 25' @ 3355.0usft (H&P 642) |
| Site:     | Nautilus 16 State Com       | MD Reference:                | KB= 25' @ 3355.0usft (H&P 642) |
| Well:     | #710H                       | North Reference:             | Grid                           |
| Wellbore: | OH                          | Survey Calculation Method:   | Minimum Curvature              |
| Design:   | OH                          | Database:                    | EDM 5000.14                    |

| Survey       |            |                          |               |               |               |                     |                      |                     |                        |                         |  |
|--------------|------------|--------------------------|---------------|---------------|---------------|---------------------|----------------------|---------------------|------------------------|-------------------------|--|
| MD<br>(usft) | Inc<br>(°) | Azi<br>(grid_north_azim) | TVD<br>(usft) | N/S<br>(usft) | E/W<br>(usft) | DLeg<br>(°/100usft) | Build<br>(°/100usft) | Turn<br>(°/100usft) | High to Plan<br>(usft) | Right to Plan<br>(usft) |  |
| 17,291.0     | 91.00      | 178.80                   | 12,783.3      | -4,609.2      | -7.9          | 0.44                | -0.11                | 0.43                | -22.9                  | 24.4                    |  |
| 17,385.0     | 90.80      | 178.10                   | 12,781.8      | -4,703.1      | -5.4          | 0.77                | -0.21                | -0.74               | -23.9                  | 26.1                    |  |
| 17,479.0     | 90.00      | 177.60                   | 12,781.2      | -4,797.1      | -1.8          | 1.00                | -0.85                | -0.53               | -24.1                  | 28.8                    |  |
| 17,498.0     | 89.70      | 177.30                   | 12,781.2      | -4,816.0      | -1.0          | 2.23                | -1.58                | -1.58               | -24.0                  | 29.5                    |  |
| 17,560.0     | 89.70      | 177.30                   | 12,781.6      | -4,878.0      | 1.9           | 0.00                | 0.00                 | 0.00                | -24.8                  | 33.1                    |  |

| Design Annotations          |                             |                   |                 |                                                                            |  |
|-----------------------------|-----------------------------|-------------------|-----------------|----------------------------------------------------------------------------|--|
| Measured<br>Depth<br>(usft) | Vertical<br>Depth<br>(usft) | Local Coordinates |                 |                                                                            |  |
|                             |                             | +N/-S<br>(usft)   | +E/-W<br>(usft) | Comment                                                                    |  |
| 12,794.6                    | 12,706.0                    | -145.0            | -94.3           | HL Crossing, MD:12794.6', TVD:12706.0', N/S:-145.0', E/W:-94.3', INC:46.00 |  |
| 17,447.9                    | 12,781.3                    | -4,766.0          | -3.1            | HL Crossing, MD:17447.9', TVD:12781.3', N/S:-4766.0', E/W:-3.1', INC:90.26 |  |
| 17,498.0                    | 12,781.2                    | -4,816.0          | -1.0            | Final MWD Survey (MD= 17498.0')                                            |  |
| 17,560.0                    | 12,781.6                    | -4,878.0          | 1.9             | Final Bit Projection (MD= 17560.0')                                        |  |

Checked By: \_\_\_\_\_ Approved By: \_\_\_\_\_ Date: \_\_\_\_\_