

NM OIL CONSERVATION  
ARTESIA DISTRICT

JAN 16 2019

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## Mewbourne Oil Company

Eddy County, New Mexico (Nad 83)

Sec 16, T20-S,R29-E

Glock 16 B2HE Fed #1H

Wellbore #1

30.015-43804

Design: Wellbore #1

## QES Survey Certification Report

21 August, 2018



## Quintana Energy Services

11390 FM 830  
Willis, TX 77318  
Phone: (936) 856-4332  
Fax: (936) 856-8678



### Survey Certification Sheet

| Company               | Job Number | Date      |
|-----------------------|------------|-----------|
| Mewbourne Oil Company | WT-180815  | 8/22/2018 |

| Lease               | Well Name             | County & State  |
|---------------------|-----------------------|-----------------|
| SEC 16, T-20S, R29E | Glock 16 B2HE Fed #1H | Eddy County, NM |

| API No.      | Survey Depth Range           | Survey Type |
|--------------|------------------------------|-------------|
| 35-015-43804 | 3175.1 feet to 13025 feet MD | MWD         |

| Sidetrack Information     | Directional Supervisor/Surveyor |
|---------------------------|---------------------------------|
| Click here to enter text. | Jay Mullen                      |

### Certification Statement

The data and calculations for this survey have been checked by me and conform to the standards and procedures set forth by Quintana Energy Services (QES). This report represents a true and correct directional survey of this well based on the original data obtained at the well site. Wellbore coordinates are calculated using minimum curvature.

**Christopher  
Hughes**

Digitally signed by Christopher  
Hughes  
DN: cn=Christopher Hughes, o=QES,  
ou, email=Chrish@qesinc.com, c=US  
Date: 2018.09.27 13:23:35 -05'00'

Christopher Hughes  
MWD Compliance Manager  
Quintana Energy Services



## QES Survey Certification Report



**Company:** Mewbourne Oil Company  
**Project:** Eddy County, New Mexico (Nad 83)  
**Site:** Sec 16, T20-S,R29-E  
**Well:** Glock 16 B2HE Fed #1H  
**Wellbore:** Wellbore #1  
**Design:** Wellbore #1

**Local Co-ordinate Reference:** Well Glock 16 B2HE Fed #1H  
**TVD Reference:** WELL @ 3317.0usft (Patterson #230)  
**MD Reference:** WELL @ 3317.0usft (Patterson #230)  
**North Reference:** Grid  
**Survey Calculation Method:** Minimum Curvature  
**Database:** EDM 5000.1 Single User Db

**Project** Eddy County, New Mexico (Nad 83)

**Map System:** US State Plane 1983

**System Datum:**

Mean Sea Level

**Geo Datum:** North American Datum 1983

**Map Zone:** New Mexico Eastern Zone

**Site** Sec 16, T20-S,R29-E

|                              |          |                     |                 |                          |                  |
|------------------------------|----------|---------------------|-----------------|--------------------------|------------------|
| <b>Site Position:</b>        |          | <b>Northing:</b>    | 572,700.08 usft | <b>Latitude:</b>         | 32° 34' 26.886 N |
| <b>From:</b>                 | Map      | <b>Easting:</b>     | 621,945.49 usft | <b>Longitude:</b>        | 104° 4' 17.955 W |
| <b>Position Uncertainty:</b> | 0.0 usft | <b>Slot Radius:</b> | 13-3/16"        | <b>Grid Convergence:</b> | 0.14 °           |

**Well** Glock 16 B2HE Fed #1H

|                             |              |          |                            |                 |                      |                  |
|-----------------------------|--------------|----------|----------------------------|-----------------|----------------------|------------------|
| <b>Well Position</b>        | <b>+N/-S</b> | 0.0 usft | <b>Northing:</b>           | 572,700.08 usft | <b>Latitude:</b>     | 32° 34' 26.886 N |
|                             | <b>+E/-W</b> | 0.0 usft | <b>Easting:</b>            | 621,945.49 usft | <b>Longitude:</b>    | 104° 4' 17.955 W |
| <b>Position Uncertainty</b> |              | 0.0 usft | <b>Wellhead Elevation:</b> | usft            | <b>Ground Level:</b> | 3,290.0 usft     |

**Wellbore** Wellbore #1

| <b>Magnetics</b> | <b>Model Name</b> | <b>Sample Date</b> | <b>Declination<br/>(°)</b> | <b>Dip Angle<br/>(°)</b> | <b>Field Strength<br/>(nT)</b> |
|------------------|-------------------|--------------------|----------------------------|--------------------------|--------------------------------|
|                  | IGRF2015          | 7/11/2018          | 7.10                       | 60.29                    | 47,983.42019001                |

**Design** Wellbore #1

**Audit Notes:**

**Version:** 1.0 **Phase:** ACTUAL **Tie On Depth:** 0.0

| <b>Vertical Section:</b> | <b>Depth From (TVD)<br/>(usft)</b> | <b>+N/-S<br/>(usft)</b> | <b>+E/-W<br/>(usft)</b> | <b>Direction<br/>(°)</b> |
|--------------------------|------------------------------------|-------------------------|-------------------------|--------------------------|
|                          | 0.0                                | 0.0                     | 0.0                     | 271.96                   |

**Survey Program** **Date** 8/21/2018

| <b>From<br/>(usft)</b> | <b>To<br/>(usft)</b> | <b>Survey (Wellbore)</b>      | <b>Tool Name</b> | <b>Description</b> |
|------------------------|----------------------|-------------------------------|------------------|--------------------|
| 100.0                  | 3,175.1              | Phoenix Gyros (Wellbore #1)   | Good_gyro        | Good Gyro          |
| 3,245.0                | 13,025.0             | QES MWD Surveys (Wellbore #1) | MWD default      | MWD - Standard     |

**Survey**

| <b>MD<br/>(usft)</b>                                  | <b>Inc<br/>(°)</b> | <b>Azi (azimuth)<br/>(°)</b> | <b>TVD<br/>(usft)</b> | <b>N/S<br/>(usft)</b> | <b>E/W<br/>(usft)</b> | <b>Closure Distance<br/>(usft)</b> | <b>Closure Azimuth<br/>(°)</b> |
|-------------------------------------------------------|--------------------|------------------------------|-----------------------|-----------------------|-----------------------|------------------------------------|--------------------------------|
| 3,175.1                                               | 2.32               | 6.34                         | 3,172.9               | 87.2                  | 2.4                   | 87.3                               | 1.59                           |
| 3,175.1                                               | 2.32               | 6.34                         | 3,172.9               | 87.2                  | 2.4                   | 87.3                               | 1.59                           |
| <b>Phoenix Gyro Tie-In @ 3175.1' MD / 3172.9' TVD</b> |                    |                              |                       |                       |                       |                                    |                                |
| 3,245.0                                               | 2.10               | 2.00                         | 3,242.8               | 89.9                  | 2.6                   | 90.0                               | 1.67                           |
| 3,309.0                                               | 2.10               | 4.30                         | 3,306.8               | 92.3                  | 2.8                   | 92.3                               | 1.71                           |
| 3,403.0                                               | 2.10               | 4.80                         | 3,400.7               | 95.7                  | 3.0                   | 95.7                               | 1.81                           |
| 3,497.0                                               | 1.80               | 8.70                         | 3,494.6               | 98.9                  | 3.4                   | 98.9                               | 1.97                           |
| 3,592.0                                               | 2.20               | 8.90                         | 3,589.6               | 102.1                 | 3.9                   | 102.2                              | 2.19                           |
| 3,686.0                                               | 2.20               | 12.10                        | 3,683.5               | 105.7                 | 4.6                   | 105.8                              | 2.47                           |
| 3,780.0                                               | 2.10               | 8.70                         | 3,777.4               | 109.2                 | 5.2                   | 109.3                              | 2.73                           |
| 3,875.0                                               | 1.90               | 1.70                         | 3,872.4               | 112.4                 | 5.5                   | 112.6                              | 2.80                           |



## QES Survey Certification Report



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**Project:** Eddy County, New Mexico (Nad 83)  
**Site:** Sec 16, T20-S,R29-E  
**Well:** Glock 16 B2HE Fed #1H  
**Wellbore:** Wellbore #1  
**Design:** Wellbore #1

**Local Co-ordinate Reference:** Well Glock 16 B2HE Fed #1H  
**TVD Reference:** WELL @ 3317.0usft (Patterson #230)  
**MD Reference:** WELL @ 3317.0usft (Patterson #230)  
**North Reference:** Grid  
**Survey Calculation Method:** Minimum Curvature  
**Database:** EDM 5000.1 Single User Db

## Survey

| MD<br>(usft) | Inc<br>(°) | Azi (azimuth)<br>(°) | TVD<br>(usft) | N/S<br>(usft) | E/W<br>(usft) | Closure Distance<br>(usft) | Closure Azimuth<br>(°) |
|--------------|------------|----------------------|---------------|---------------|---------------|----------------------------|------------------------|
| 3,969.0      | 1.30       | 41.60                | 3,966.3       | 114.8         | 6.3           | 115.0                      | 3.12                   |
| 4,064.0      | 1.50       | 65.80                | 4,061.3       | 116.1         | 8.1           | 116.4                      | 4.00                   |
| 4,158.0      | 1.10       | 57.60                | 4,155.3       | 117.1         | 10.0          | 117.5                      | 4.88                   |
| 4,252.0      | 1.40       | 56.30                | 4,249.3       | 118.2         | 11.7          | 118.8                      | 5.66                   |
| 4,347.0      | 1.30       | 31.90                | 4,344.2       | 119.8         | 13.2          | 120.5                      | 6.31                   |
| 4,441.0      | 1.00       | 35.60                | 4,438.2       | 121.4         | 14.3          | 122.2                      | 6.72                   |
| 4,535.0      | 1.10       | 47.90                | 4,532.2       | 122.6         | 15.4          | 123.6                      | 7.17                   |
| 4,630.0      | 0.90       | 44.40                | 4,627.2       | 123.8         | 16.6          | 124.9                      | 7.65                   |
| 4,725.0      | 0.90       | 50.40                | 4,722.2       | 124.8         | 17.7          | 126.0                      | 8.09                   |
| 4,819.0      | 0.90       | 111.40               | 4,816.2       | 125.0         | 19.0          | 126.4                      | 8.64                   |
| 4,913.0      | 1.10       | 74.30                | 4,910.2       | 125.0         | 20.5          | 126.6                      | 9.34                   |
| 5,008.0      | 2.40       | 40.90                | 5,005.1       | 126.7         | 22.7          | 128.7                      | 10.17                  |
| 5,103.0      | 2.70       | 44.80                | 5,100.0       | 129.8         | 25.6          | 132.3                      | 11.16                  |
| 5,197.0      | 2.70       | 29.60                | 5,193.9       | 133.3         | 28.3          | 136.3                      | 11.97                  |
| 5,292.0      | 2.50       | 1.00                 | 5,288.8       | 137.3         | 29.4          | 140.4                      | 12.08                  |
| 5,386.0      | 2.10       | 351.50               | 5,382.8       | 141.1         | 29.2          | 144.1                      | 11.69                  |
| 5,480.0      | 1.20       | 4.30                 | 5,476.7       | 143.8         | 29.0          | 146.6                      | 11.41                  |
| 5,574.0      | 1.40       | 19.10                | 5,570.7       | 145.8         | 29.4          | 148.8                      | 11.42                  |
| 5,669.0      | 1.10       | 13.30                | 5,665.7       | 147.8         | 30.0          | 150.8                      | 11.49                  |
| 5,764.0      | 1.20       | 7.80                 | 5,760.6       | 149.7         | 30.4          | 152.7                      | 11.47                  |
| 5,858.0      | 1.10       | 21.40                | 5,854.6       | 151.5         | 30.8          | 154.6                      | 11.51                  |
| 5,953.0      | 0.70       | 43.20                | 5,949.6       | 152.8         | 31.6          | 156.0                      | 11.68                  |
| 6,047.0      | 0.90       | 46.00                | 6,043.6       | 153.7         | 32.5          | 157.1                      | 11.94                  |
| 6,142.0      | 1.80       | 36.50                | 6,138.6       | 155.4         | 33.9          | 159.1                      | 12.31                  |
| 6,236.0      | 1.70       | 42.50                | 6,232.5       | 157.6         | 35.7          | 161.6                      | 12.78                  |
| 6,331.0      | 1.50       | 56.30                | 6,327.5       | 159.4         | 37.7          | 163.8                      | 13.32                  |
| 6,425.0      | 1.70       | 15.90                | 6,421.5       | 161.4         | 39.1          | 166.1                      | 13.63                  |
| 6,520.0      | 1.30       | 17.90                | 6,516.4       | 163.8         | 39.9          | 168.5                      | 13.68                  |
| 6,614.0      | 0.40       | 21.90                | 6,610.4       | 165.1         | 40.3          | 169.9                      | 13.72                  |
| 6,709.0      | 1.90       | 10.80                | 6,705.4       | 166.9         | 40.7          | 171.8                      | 13.71                  |
| 6,803.0      | 1.80       | 10.50                | 6,799.4       | 169.9         | 41.3          | 174.9                      | 13.66                  |
| 6,899.0      | 1.90       | 10.80                | 6,895.3       | 173.0         | 41.9          | 178.0                      | 13.60                  |
| 6,993.0      | 1.50       | 19.40                | 6,989.3       | 175.7         | 42.6          | 180.7                      | 13.62                  |
| 7,088.0      | 1.50       | 2.20                 | 7,084.2       | 178.1         | 43.0          | 183.2                      | 13.58                  |
| 7,182.0      | 1.70       | 8.50                 | 7,178.2       | 180.7         | 43.3          | 185.8                      | 13.47                  |
| 7,277.0      | 1.60       | 8.20                 | 7,273.2       | 183.4         | 43.7          | 188.5                      | 13.39                  |
| 7,372.0      | 1.70       | 8.90                 | 7,368.1       | 186.1         | 44.1          | 191.2                      | 13.33                  |
| 7,466.0      | 1.10       | 23.30                | 7,462.1       | 188.3         | 44.6          | 193.5                      | 13.34                  |
| 7,550.0      | 1.00       | 54.40                | 7,546.1       | 189.5         | 45.6          | 194.9                      | 13.52                  |
| 7,616.0      | 2.40       | 273.60               | 7,612.1       | 189.9         | 44.7          | 195.1                      | 13.23                  |
| 7,648.0      | 6.90       | 269.80               | 7,643.9       | 189.9         | 42.1          | 194.5                      | 12.49                  |
| 7,679.0      | 11.80      | 270.10               | 7,674.5       | 189.9         | 37.0          | 193.5                      | 11.03                  |
| 7,711.0      | 17.00      | 271.00               | 7,705.5       | 190.0         | 29.1          | 192.2                      | 8.70                   |
| 7,742.0      | 22.30      | 271.30               | 7,734.7       | 190.2         | 18.7          | 191.1                      | 5.60                   |



## QES Survey Certification Report



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**Project:** Eddy County, New Mexico (Nad 83)  
**Site:** Sec 16, T20-S,R29-E  
**Well:** Glock 16 B2HE Fed #1H  
**Wellbore:** Wellbore #1  
**Design:** Wellbore #1

**Local Co-ordinate Reference:**  
**TVD Reference:**  
**MD Reference:**  
**North Reference:**  
**Survey Calculation Method:**  
**Database:**

Well Glock 16 B2HE Fed #1H  
WELL @ 3317.0usft (Patterson #230)  
WELL @ 3317.0usft (Patterson #230)  
Grid  
Minimum Curvature  
EDM 5000.1 Single User Db

## Survey

| MD<br>(usft) | Inc<br>(°) | Azi (azimuth)<br>(°) | TVD<br>(usft) | N/S<br>(usft) | E/W<br>(usft) | Closure Distance<br>(usft) | Closure Azimuth<br>(°) |
|--------------|------------|----------------------|---------------|---------------|---------------|----------------------------|------------------------|
| 7,774.0      | 26.70      | 271.20               | 7,763.8       | 190.5         | 5.4           | 190.6                      | 1.62                   |
| 7,805.0      | 30.40      | 270.30               | 7,791.0       | 190.7         | -9.4          | 190.9                      | 357.17                 |
| 7,837.0      | 34.10      | 269.00               | 7,818.1       | 190.6         | -26.5         | 192.4                      | 352.09                 |
| 7,868.0      | 36.50      | 268.90               | 7,843.4       | 190.3         | -44.4         | 195.4                      | 346.86                 |
| 7,899.0      | 39.00      | 268.90               | 7,867.9       | 189.9         | -63.4         | 200.2                      | 341.54                 |
| 7,931.0      | 41.70      | 268.70               | 7,892.3       | 189.5         | -84.1         | 207.3                      | 336.07                 |
| 7,963.0      | 44.40      | 269.20               | 7,915.7       | 189.1         | -105.9        | 216.7                      | 330.74                 |
| 7,994.0      | 47.00      | 268.70               | 7,937.3       | 188.6         | -128.1        | 228.0                      | 325.82                 |
| 8,026.0      | 50.30      | 268.90               | 7,958.4       | 188.1         | -152.1        | 241.9                      | 321.04                 |
| 8,057.0      | 52.80      | 269.60               | 7,977.7       | 187.8         | -176.4        | 257.7                      | 316.80                 |
| 8,089.0      | 55.60      | 270.50               | 7,996.4       | 187.9         | -202.3        | 276.1                      | 312.87                 |
| 8,121.0      | 58.50      | 270.80               | 8,013.8       | 188.2         | -229.2        | 296.5                      | 309.38                 |
| 8,153.0      | 62.00      | 270.60               | 8,029.7       | 188.5         | -257.0        | 318.7                      | 306.26                 |
| 8,184.0      | 65.60      | 270.30               | 8,043.4       | 188.7         | -284.8        | 341.6                      | 303.53                 |
| 8,215.0      | 69.20      | 271.00               | 8,055.3       | 189.0         | -313.4        | 366.0                      | 301.10                 |
| 8,247.0      | 72.70      | 270.80               | 8,065.8       | 189.5         | -343.6        | 392.4                      | 298.88                 |
| 8,278.0      | 77.10      | 270.50               | 8,073.8       | 189.9         | -373.6        | 419.0                      | 296.94                 |
| 8,310.0      | 80.40      | 269.80               | 8,080.1       | 189.9         | -404.9        | 447.3                      | 295.13                 |
| 8,341.0      | 82.80      | 269.60               | 8,084.6       | 189.8         | -435.6        | 475.1                      | 293.54                 |
| 8,370.0      | 84.80      | 269.20               | 8,087.7       | 189.5         | -464.4        | 501.6                      | 292.19                 |
| 8,431.0      | 88.40      | 269.80               | 8,091.4       | 188.9         | -525.3        | 558.3                      | 289.78                 |
| 8,525.0      | 88.60      | 268.50               | 8,093.8       | 187.6         | -619.3        | 647.0                      | 286.85                 |
| 8,620.0      | 89.60      | 269.40               | 8,095.3       | 185.8         | -714.2        | 738.0                      | 284.58                 |
| 8,683.0      | 89.20      | 269.00               | 8,096.0       | 184.9         | -777.2        | 798.9                      | 283.38                 |
| 8,777.0      | 90.30      | 269.80               | 8,096.4       | 183.9         | -871.2        | 890.4                      | 281.92                 |
| 8,872.0      | 91.40      | 269.90               | 8,095.0       | 183.7         | -966.2        | 983.5                      | 280.76                 |
| 8,967.0      | 91.20      | 269.40               | 8,092.8       | 183.1         | -1,061.2      | 1,076.9                    | 279.79                 |
| 9,061.0      | 90.70      | 269.20               | 8,091.3       | 182.0         | -1,155.2      | 1,169.4                    | 278.95                 |
| 9,156.0      | 90.00      | 268.70               | 8,090.7       | 180.2         | -1,250.1      | 1,263.1                    | 278.20                 |
| 9,250.0      | 90.00      | 269.80               | 8,090.7       | 179.0         | -1,344.1      | 1,356.0                    | 277.59                 |
| 9,345.0      | 91.40      | 271.00               | 8,089.5       | 179.7         | -1,439.1      | 1,450.3                    | 277.12                 |
| 9,440.0      | 91.40      | 270.80               | 8,087.2       | 181.2         | -1,534.1      | 1,544.7                    | 276.73                 |
| 9,534.0      | 91.40      | 270.30               | 8,084.9       | 182.1         | -1,628.0      | 1,638.2                    | 276.38                 |
| 9,629.0      | 91.40      | 269.90               | 8,082.6       | 182.2         | -1,723.0      | 1,732.6                    | 276.04                 |
| 9,723.0      | 91.40      | 269.40               | 8,080.3       | 181.6         | -1,817.0      | 1,826.0                    | 275.71                 |
| 9,818.0      | 91.10      | 268.90               | 8,078.2       | 180.2         | -1,911.9      | 1,920.4                    | 275.39                 |
| 9,913.0      | 91.00      | 268.40               | 8,076.5       | 178.0         | -2,006.9      | 2,014.8                    | 275.07                 |
| 10,007.0     | 90.80      | 268.40               | 8,075.0       | 175.4         | -2,100.9      | 2,108.2                    | 274.77                 |
| 10,102.0     | 90.90      | 267.60               | 8,073.6       | 172.1         | -2,195.8      | 2,202.5                    | 274.48                 |
| 10,197.0     | 91.20      | 266.90               | 8,071.8       | 167.5         | -2,290.7      | 2,296.8                    | 274.18                 |
| 10,292.0     | 90.50      | 268.50               | 8,070.4       | 163.7         | -2,385.6      | 2,391.2                    | 273.93                 |
| 10,386.0     | 89.60      | 269.40               | 8,070.3       | 162.0         | -2,479.6      | 2,484.8                    | 273.74                 |
| 10,480.0     | 89.90      | 269.60               | 8,070.8       | 161.1         | -2,573.5      | 2,578.6                    | 273.58                 |
| 10,574.0     | 89.50      | 268.50               | 8,071.2       | 159.6         | -2,667.5      | 2,672.3                    | 273.42                 |



## QES Survey Certification Report



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Site: Sec 16, T20-S,R29-E  
Well: Glock 16 B2HE Fed #1H  
Wellbore: Wellbore #1  
Design: Wellbore #1

Local Co-ordinate Reference:  
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MD Reference:  
North Reference:  
Survey Calculation Method:  
Database:

Well Glock 16 B2HE Fed #1H  
WELL @ 3317.0usft (Patterson #230)  
WELL @ 3317.0usft (Patterson #230)  
Grid  
Minimum Curvature  
EDM 5000.1 Single User Db

## Survey

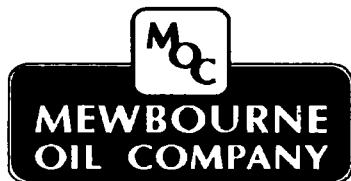
| MD<br>(usft) | Inc<br>(°) | Azi (azimuth)<br>(°) | TVD<br>(usft) | N/S<br>(usft) | E/W<br>(usft) | Closure Distance<br>(usft) | Closure Azimuth<br>(°) |
|--------------|------------|----------------------|---------------|---------------|---------------|----------------------------|------------------------|
| 10,669.0     | 91.20      | 269.00               | 8,070.7       | 157.5         | -2,762.5      | 2,767.0                    | 273.26                 |
| 10,763.0     | 91.70      | 271.70               | 8,068.3       | 158.1         | -2,856.5      | 2,860.8                    | 273.17                 |
| 10,858.0     | 92.50      | 272.90               | 8,064.8       | 161.9         | -2,951.3      | 2,955.8                    | 273.14                 |
| 10,953.0     | 93.10      | 271.90               | 8,060.2       | 165.9         | -3,046.1      | 3,050.6                    | 273.12                 |
| 11,047.0     | 92.90      | 271.30               | 8,055.2       | 168.5         | -3,140.0      | 3,144.5                    | 273.07                 |
| 11,142.0     | 92.20      | 270.30               | 8,051.0       | 169.8         | -3,234.9      | 3,239.3                    | 273.01                 |
| 11,236.0     | 90.60      | 270.50               | 8,048.7       | 170.5         | -3,328.8      | 3,333.2                    | 272.93                 |
| 11,331.0     | 89.50      | 271.20               | 8,048.6       | 171.9         | -3,423.8      | 3,428.1                    | 272.87                 |
| 11,425.0     | 89.80      | 271.70               | 8,049.2       | 174.3         | -3,517.8      | 3,522.1                    | 272.84                 |
| 11,519.0     | 88.00      | 272.20               | 8,051.0       | 177.5         | -3,611.7      | 3,616.1                    | 272.81                 |
| 11,614.0     | 87.80      | 271.70               | 8,054.5       | 180.7         | -3,706.6      | 3,711.0                    | 272.79                 |
| 11,708.0     | 87.90      | 271.50               | 8,058.0       | 183.3         | -3,800.5      | 3,804.9                    | 272.76                 |
| 11,809.0     | 89.10      | 272.20               | 8,060.7       | 186.6         | -3,901.4      | 3,905.8                    | 272.74                 |
| 11,895.0     | 89.20      | 272.20               | 8,061.9       | 189.9         | -3,987.3      | 3,991.8                    | 272.73                 |
| 11,990.0     | 91.40      | 271.70               | 8,061.4       | 193.1         | -4,082.2      | 4,086.8                    | 272.71                 |
| 12,085.0     | 91.00      | 271.90               | 8,059.5       | 196.1         | -4,177.2      | 4,181.8                    | 272.69                 |
| 12,180.0     | 91.20      | 271.90               | 8,057.6       | 199.2         | -4,272.1      | 4,276.8                    | 272.67                 |
| 12,275.0     | 91.50      | 271.90               | 8,055.4       | 202.4         | -4,367.0      | 4,371.7                    | 272.65                 |
| 12,369.0     | 91.50      | 271.50               | 8,052.9       | 205.2         | -4,461.0      | 4,465.7                    | 272.63                 |
| 12,464.0     | 91.60      | 271.70               | 8,050.4       | 207.8         | -4,555.9      | 4,560.6                    | 272.61                 |
| 12,559.0     | 92.20      | 272.20               | 8,047.2       | 211.1         | -4,650.8      | 4,655.6                    | 272.60                 |
| 12,654.0     | 92.50      | 272.90               | 8,043.3       | 215.3         | -4,745.6      | 4,750.5                    | 272.60                 |
| 12,749.0     | 92.90      | 275.20               | 8,038.8       | 222.0         | -4,840.3      | 4,845.3                    | 272.63                 |
| 12,843.0     | 93.00      | 275.40               | 8,034.0       | 230.7         | -4,933.7      | 4,939.1                    | 272.68                 |
| 12,938.0     | 93.30      | 275.60               | 8,028.8       | 239.7         | -5,028.1      | 5,033.9                    | 272.73                 |
| 12,965.0     | 93.30      | 275.60               | 8,027.2       | 242.4         | -5,055.0      | 5,060.8                    | 272.75                 |
| 13,025.0     | 93.30      | 275.60               | 8,023.8       | 248.2         | -5,114.6      | 5,120.3                    | 272.73                 |

TD @ 13025.0' MD / 8023.8' TVD

## Design Annotations

| Measured<br>Depth<br>(usft) | Vertical<br>Depth<br>(usft) | Local Coordinates<br>+N/-S<br>(usft) | +E/-W<br>(usft) | Comment                                        |
|-----------------------------|-----------------------------|--------------------------------------|-----------------|------------------------------------------------|
| 3,175.1                     | 3,172.9                     | 87.2                                 | 2.4             | Phoenix Gyro Tie-In @ 3175.1' MD / 3172.9' TVD |
| 13,025.0                    | 8,023.8                     | 248.2                                | -5,114.6        | TD @ 13025.0' MD / 8023.8' TVD                 |

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



# **Mewbourne Oil Company**

**Eddy County, New Mexico (Nad 83)**

**Sec 16, T20-S,R29-E**

**Glock 16 B2HE Fed #1H**

**Wellbore #1**

**Design: Wellbore #1**

## **QES Survey Certification Report**

**21 August, 2018**



## Quintana Energy Services

11390 FM 830

Willis, TX 77318

Phone: (936) 856-4332

Fax: (936) 856-8678



### Survey Certification Sheet

| Company               | Job Number | Date      |
|-----------------------|------------|-----------|
| Mewbourne Oil Company | WT-180815  | 8/22/2018 |

| Lease               | Well Name             | County & State  |
|---------------------|-----------------------|-----------------|
| SEC 16, T-20S, R29E | Glock 16 B2HE Fed #1H | Eddy County, NM |

| API No.      | Survey Depth Range           | Survey Type |
|--------------|------------------------------|-------------|
| 35-015-43804 | 3175.1 feet to 13025 feet MD | MWD         |

| Sidetrack Information     | Directional Supervisor/Surveyor |
|---------------------------|---------------------------------|
| Click here to enter text. | Jay Mullen                      |

### Certification Statement

The data and calculations for this survey have been checked by me and conform to the standards and procedures set forth by Quintana Energy Services (QES). This report represents a true and correct directional survey of this well based on the original data obtained at the well site. Wellbore coordinates are calculated using minimum curvature.

**Christopher  
Hughes**

Digitally signed by Christopher  
Hughes

DN: cn=Christopher Hughes, o=QES,  
ou, email=Chrish@qesinc.com, c=US  
Date: 2018.09.27 13:23:35 -05'00'

Christopher Hughes  
MWD Compliance Manager  
Quintana Energy Services





## QES Survey Certification Report



**Company:** Mewbourne Oil Company  
**Project:** Eddy County, New Mexico (Nad 83)  
**Site:** Sec 16, T20-S,R29-E  
**Well:** Glock 16 B2HE Fed #1H  
**Wellbore:** Wellbore #1  
**Design:** Wellbore #1

**Local Co-ordinate Reference:** Well Glock 16 B2HE Fed #1H  
**TVD Reference:** WELL @ 3317.0usft (Patterson #230)  
**MD Reference:** WELL @ 3317.0usft (Patterson #230)  
**North Reference:** Grid  
**Survey Calculation Method:** Minimum Curvature  
**Database:** EDM 5000.1 Single User Db

|                    |                                  |                      |                |
|--------------------|----------------------------------|----------------------|----------------|
| <b>Project</b>     | Eddy County, New Mexico (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>   | New Mexico Eastern Zone          |                      |                |

|                              |                     |                     |                 |                                    |
|------------------------------|---------------------|---------------------|-----------------|------------------------------------|
| <b>Site</b>                  | Sec 16, T20-S,R29-E |                     |                 |                                    |
| <b>Site Position:</b>        |                     | <b>Northing:</b>    | 572,700.08 usft | <b>Latitude:</b> 32° 34' 26.886 N  |
| <b>From:</b>                 | Map                 | <b>Easting:</b>     | 621,945.49 usft | <b>Longitude:</b> 104° 4' 17.955 W |
| <b>Position Uncertainty:</b> | 0.0 usft            | <b>Slot Radius:</b> | 13-3/16"        | <b>Grid Convergence:</b> 0.14 °    |

|                             |                       |          |                            |                 |
|-----------------------------|-----------------------|----------|----------------------------|-----------------|
| <b>Well</b>                 | Glock 16 B2HE Fed #1H |          |                            |                 |
| <b>Well Position</b>        | <b>+N/-S</b>          | 0.0 usft | <b>Northing:</b>           | 572,700.08 usft |
|                             | <b>+E/-W</b>          | 0.0 usft | <b>Easting:</b>            | 621,945.49 usft |
| <b>Position Uncertainty</b> | 0.0 usft              |          | <b>Wellhead Elevation:</b> | usft            |
|                             |                       |          | <b>Ground Level:</b>       | 3,290.0 usft    |

|                  |                   |                    |                        |                      |                            |
|------------------|-------------------|--------------------|------------------------|----------------------|----------------------------|
| <b>Wellbore</b>  | Wellbore #1       |                    |                        |                      |                            |
| <b>Magnetics</b> | <b>Model Name</b> | <b>Sample Date</b> | <b>Declination (°)</b> | <b>Dip Angle (°)</b> | <b>Field Strength (nT)</b> |
|                  | IGRF2015          | 7/11/2018          | 7.10                   | 60.29                | 47,983.42019001            |

|                          |                         |                     |                     |                      |     |
|--------------------------|-------------------------|---------------------|---------------------|----------------------|-----|
| <b>Design</b>            | Wellbore #1             |                     |                     |                      |     |
| <b>Audit Notes:</b>      |                         |                     |                     |                      |     |
| <b>Version:</b>          | 1.0                     | <b>Phase:</b>       | ACTUAL              | <b>Tie On Depth:</b> | 0.0 |
| <b>Vertical Section:</b> | <b>Depth From (TVD)</b> | <b>+N/-S (usft)</b> | <b>+E/-W (usft)</b> | <b>Direction (°)</b> |     |
|                          | 0.0                     | 0.0                 | 0.0                 | 271.96               |     |

|                       |                  |                               |                  |                    |  |
|-----------------------|------------------|-------------------------------|------------------|--------------------|--|
| <b>Survey Program</b> | Date 8/21/2018   |                               |                  |                    |  |
| <b>From (usft)</b>    | <b>To (usft)</b> | <b>Survey (Wellbore)</b>      | <b>Tool Name</b> | <b>Description</b> |  |
| 100.0                 | 3,175.1          | Phoenix Gyros (Wellbore #1)   | Good_gyro        | Good Gyro          |  |
| 3,245.0               | 13,025.0         | QES MWD Surveys (Wellbore #1) | MWD default      | MWD - Standard     |  |

|                                                       |                |                          |                   |                   |                   |                                |                            |
|-------------------------------------------------------|----------------|--------------------------|-------------------|-------------------|-------------------|--------------------------------|----------------------------|
| <b>Survey</b>                                         |                |                          |                   |                   |                   |                                |                            |
| <b>MD (usft)</b>                                      | <b>Inc (°)</b> | <b>Azi (azimuth) (°)</b> | <b>TVD (usft)</b> | <b>N/S (usft)</b> | <b>E/W (usft)</b> | <b>Closure Distance (usft)</b> | <b>Closure Azimuth (°)</b> |
| 3,175.1                                               | 2.32           | 6.34                     | 3,172.9           | 87.2              | 2.4               | 87.3                           | 1.59                       |
| 3,175.1                                               | 2.32           | 6.34                     | 3,172.9           | 87.2              | 2.4               | 87.3                           | 1.59                       |
| <b>Phoenix Gyro Tie-In @ 3175.1' MD / 3172.9' TVD</b> |                |                          |                   |                   |                   |                                |                            |
| 3,245.0                                               | 2.10           | 2.00                     | 3,242.8           | 89.9              | 2.6               | 90.0                           | 1.67                       |
| 3,309.0                                               | 2.10           | 4.30                     | 3,306.8           | 92.3              | 2.8               | 92.3                           | 1.71                       |
| 3,403.0                                               | 2.10           | 4.80                     | 3,400.7           | 95.7              | 3.0               | 95.7                           | 1.81                       |
| 3,497.0                                               | 1.80           | 8.70                     | 3,494.6           | 98.9              | 3.4               | 98.9                           | 1.97                       |
| 3,592.0                                               | 2.20           | 8.90                     | 3,589.6           | 102.1             | 3.9               | 102.2                          | 2.19                       |
| 3,686.0                                               | 2.20           | 12.10                    | 3,683.5           | 105.7             | 4.6               | 105.8                          | 2.47                       |
| 3,780.0                                               | 2.10           | 8.70                     | 3,777.4           | 109.2             | 5.2               | 109.3                          | 2.73                       |
| 3,875.0                                               | 1.90           | 1.70                     | 3,872.4           | 112.4             | 5.5               | 112.6                          | 2.80                       |



## QES Survey Certification Report



|           |                                  |                              |                                    |
|-----------|----------------------------------|------------------------------|------------------------------------|
| Company:  | Mewbourne Oil Company            | Local Co-ordinate Reference: | Well Glock 16 B2HE Fed #1H         |
| Project:  | Eddy County, New Mexico (Nad 83) | TVD Reference:               | WELL @ 3317.0usft (Patterson #230) |
| Site:     | Sec 16, T20-S,R29-E              | MD Reference:                | WELL @ 3317.0usft (Patterson #230) |
| Well:     | Glock 16 B2HE Fed #1H            | North Reference:             | Grid                               |
| Wellbore: | Wellbore #1                      | Survey Calculation Method:   | Minimum Curvature                  |
| Design:   | Wellbore #1                      | Database:                    | EDM 5000.1 Single User Db          |

## Survey

| MD<br>(usft) | Inc<br>(°) | Azi (azimuth)<br>(°) | TVD<br>(usft) | N/S<br>(usft) | E/W<br>(usft) | Closure Distance<br>(usft) | Closure Azimuth<br>(°) |
|--------------|------------|----------------------|---------------|---------------|---------------|----------------------------|------------------------|
| 3,969.0      | 1.30       | 41.60                | 3,966.3       | 114.8         | 6.3           | 115.0                      | 3.12                   |
| 4,064.0      | 1.50       | 65.80                | 4,061.3       | 116.1         | 8.1           | 116.4                      | 4.00                   |
| 4,158.0      | 1.10       | 57.60                | 4,155.3       | 117.1         | 10.0          | 117.5                      | 4.88                   |
| 4,252.0      | 1.40       | 56.30                | 4,249.3       | 118.2         | 11.7          | 118.8                      | 5.66                   |
| 4,347.0      | 1.30       | 31.90                | 4,344.2       | 119.8         | 13.2          | 120.5                      | 6.31                   |
| 4,441.0      | 1.00       | 35.60                | 4,438.2       | 121.4         | 14.3          | 122.2                      | 6.72                   |
| 4,535.0      | 1.10       | 47.90                | 4,532.2       | 122.6         | 15.4          | 123.6                      | 7.17                   |
| 4,630.0      | 0.90       | 44.40                | 4,627.2       | 123.8         | 16.6          | 124.9                      | 7.65                   |
| 4,725.0      | 0.90       | 50.40                | 4,722.2       | 124.8         | 17.7          | 126.0                      | 8.09                   |
| 4,819.0      | 0.90       | 111.40               | 4,816.2       | 125.0         | 19.0          | 126.4                      | 8.64                   |
| 4,913.0      | 1.10       | 74.30                | 4,910.2       | 125.0         | 20.5          | 126.6                      | 9.34                   |
| 5,008.0      | 2.40       | 40.90                | 5,005.1       | 126.7         | 22.7          | 128.7                      | 10.17                  |
| 5,103.0      | 2.70       | 44.80                | 5,100.0       | 129.8         | 25.6          | 132.3                      | 11.16                  |
| 5,197.0      | 2.70       | 29.60                | 5,193.9       | 133.3         | 28.3          | 136.3                      | 11.97                  |
| 5,292.0      | 2.50       | 1.00                 | 5,288.8       | 137.3         | 29.4          | 140.4                      | 12.08                  |
| 5,386.0      | 2.10       | 351.50               | 5,382.8       | 141.1         | 29.2          | 144.1                      | 11.69                  |
| 5,480.0      | 1.20       | 4.30                 | 5,476.7       | 143.8         | 29.0          | 146.6                      | 11.41                  |
| 5,574.0      | 1.40       | 19.10                | 5,570.7       | 145.8         | 29.4          | 148.8                      | 11.42                  |
| 5,669.0      | 1.10       | 13.30                | 5,665.7       | 147.8         | 30.0          | 150.8                      | 11.49                  |
| 5,764.0      | 1.20       | 7.80                 | 5,760.6       | 149.7         | 30.4          | 152.7                      | 11.47                  |
| 5,858.0      | 1.10       | 21.40                | 5,854.6       | 151.5         | 30.8          | 154.6                      | 11.51                  |
| 5,953.0      | 0.70       | 43.20                | 5,949.6       | 152.8         | 31.6          | 156.0                      | 11.68                  |
| 6,047.0      | 0.90       | 46.00                | 6,043.6       | 153.7         | 32.5          | 157.1                      | 11.94                  |
| 6,142.0      | 1.80       | 36.50                | 6,138.6       | 155.4         | 33.9          | 159.1                      | 12.31                  |
| 6,236.0      | 1.70       | 42.50                | 6,232.5       | 157.6         | 35.7          | 161.6                      | 12.78                  |
| 6,331.0      | 1.50       | 56.30                | 6,327.5       | 159.4         | 37.7          | 163.8                      | 13.32                  |
| 6,425.0      | 1.70       | 15.90                | 6,421.5       | 161.4         | 39.1          | 166.1                      | 13.63                  |
| 6,520.0      | 1.30       | 17.90                | 6,516.4       | 163.8         | 39.9          | 168.5                      | 13.68                  |
| 6,614.0      | 0.40       | 21.90                | 6,610.4       | 165.1         | 40.3          | 169.9                      | 13.72                  |
| 6,709.0      | 1.90       | 10.80                | 6,705.4       | 166.9         | 40.7          | 171.8                      | 13.71                  |
| 6,803.0      | 1.80       | 10.50                | 6,799.4       | 169.9         | 41.3          | 174.9                      | 13.66                  |
| 6,899.0      | 1.90       | 10.80                | 6,895.3       | 173.0         | 41.9          | 178.0                      | 13.60                  |
| 6,993.0      | 1.50       | 19.40                | 6,989.3       | 175.7         | 42.6          | 180.7                      | 13.62                  |
| 7,088.0      | 1.50       | 2.20                 | 7,084.2       | 178.1         | 43.0          | 183.2                      | 13.58                  |
| 7,182.0      | 1.70       | 8.50                 | 7,178.2       | 180.7         | 43.3          | 185.8                      | 13.47                  |
| 7,277.0      | 1.60       | 8.20                 | 7,273.2       | 183.4         | 43.7          | 188.5                      | 13.39                  |
| 7,372.0      | 1.70       | 8.90                 | 7,368.1       | 186.1         | 44.1          | 191.2                      | 13.33                  |
| 7,466.0      | 1.10       | 23.30                | 7,462.1       | 188.3         | 44.6          | 193.5                      | 13.34                  |
| 7,550.0      | 1.00       | 54.40                | 7,546.1       | 189.5         | 45.6          | 194.9                      | 13.52                  |
| 7,616.0      | 2.40       | 273.60               | 7,612.1       | 189.9         | 44.7          | 195.1                      | 13.23                  |
| 7,648.0      | 6.90       | 269.80               | 7,643.9       | 189.9         | 42.1          | 194.5                      | 12.49                  |
| 7,679.0      | 11.80      | 270.10               | 7,674.5       | 189.9         | 37.0          | 193.5                      | 11.03                  |
| 7,711.0      | 17.00      | 271.00               | 7,705.5       | 190.0         | 29.1          | 192.2                      | 8.70                   |
| 7,742.0      | 22.30      | 271.30               | 7,734.7       | 190.2         | 18.7          | 191.1                      | 5.60                   |



## QES Survey Certification Report



|                  |                                  |                                     |                                    |
|------------------|----------------------------------|-------------------------------------|------------------------------------|
| <b>Company:</b>  | Mewbourne Oil Company            | <b>Local Co-ordinate Reference:</b> | Well Glock 16 B2HE Fed #1H         |
| <b>Project:</b>  | Eddy County, New Mexico (Nad 83) | <b>TVD Reference:</b>               | WELL @ 3317.0usft (Patterson #230) |
| <b>Site:</b>     | Sec 16, T20-S,R29-E              | <b>MD Reference:</b>                | WELL @ 3317.0usft (Patterson #230) |
| <b>Well:</b>     | Glock 16 B2HE Fed #1H            | <b>North Reference:</b>             | Grid                               |
| <b>Wellbore:</b> | Wellbore #1                      | <b>Survey Calculation Method:</b>   | Minimum Curvature                  |
| <b>Design:</b>   | Wellbore #1                      | <b>Database:</b>                    | EDM 5000.1 Single User Db          |

## Survey

| MD<br>(usft) | Inc<br>(°) | Azi (azimuth)<br>(°) | TVD<br>(usft) | N/S<br>(usft) | E/W<br>(usft) | Closure Distance<br>(usft) | Closure Azimuth<br>(°) |
|--------------|------------|----------------------|---------------|---------------|---------------|----------------------------|------------------------|
| 7,774.0      | 26.70      | 271.20               | 7,763.8       | 190.5         | 5.4           | 190.6                      | 1.62                   |
| 7,805.0      | 30.40      | 270.30               | 7,791.0       | 190.7         | -9.4          | 190.9                      | 357.17                 |
| 7,837.0      | 34.10      | 269.00               | 7,818.1       | 190.6         | -26.5         | 192.4                      | 352.09                 |
| 7,868.0      | 36.50      | 268.90               | 7,843.4       | 190.3         | -44.4         | 195.4                      | 346.86                 |
| 7,899.0      | 39.00      | 268.90               | 7,867.9       | 189.9         | -63.4         | 200.2                      | 341.54                 |
| 7,931.0      | 41.70      | 268.70               | 7,892.3       | 189.5         | -84.1         | 207.3                      | 336.07                 |
| 7,963.0      | 44.40      | 269.20               | 7,915.7       | 189.1         | -105.9        | 216.7                      | 330.74                 |
| 7,994.0      | 47.00      | 268.70               | 7,937.3       | 188.6         | -128.1        | 228.0                      | 325.82                 |
| 8,026.0      | 50.30      | 268.90               | 7,958.4       | 188.1         | -152.1        | 241.9                      | 321.04                 |
| 8,057.0      | 52.80      | 269.60               | 7,977.7       | 187.8         | -176.4        | 257.7                      | 316.80                 |
| 8,089.0      | 55.60      | 270.50               | 7,996.4       | 187.9         | -202.3        | 276.1                      | 312.87                 |
| 8,121.0      | 58.50      | 270.80               | 8,013.8       | 188.2         | -229.2        | 296.5                      | 309.38                 |
| 8,153.0      | 62.00      | 270.60               | 8,029.7       | 188.5         | -257.0        | 318.7                      | 306.26                 |
| 8,184.0      | 65.60      | 270.30               | 8,043.4       | 188.7         | -284.8        | 341.6                      | 303.53                 |
| 8,215.0      | 69.20      | 271.00               | 8,055.3       | 189.0         | -313.4        | 366.0                      | 301.10                 |
| 8,247.0      | 72.70      | 270.80               | 8,065.8       | 189.5         | -343.6        | 392.4                      | 298.88                 |
| 8,278.0      | 77.10      | 270.50               | 8,073.8       | 189.9         | -373.6        | 419.0                      | 296.94                 |
| 8,310.0      | 80.40      | 269.80               | 8,080.1       | 189.9         | -404.9        | 447.3                      | 295.13                 |
| 8,341.0      | 82.80      | 269.60               | 8,084.6       | 189.8         | -435.6        | 475.1                      | 293.54                 |
| 8,370.0      | 84.80      | 269.20               | 8,087.7       | 189.5         | -464.4        | 501.6                      | 292.19                 |
| 8,431.0      | 88.40      | 269.80               | 8,091.4       | 188.9         | -525.3        | 558.3                      | 289.78                 |
| 8,525.0      | 88.60      | 268.50               | 8,093.8       | 187.6         | -619.3        | 647.0                      | 286.85                 |
| 8,620.0      | 89.60      | 269.40               | 8,095.3       | 185.8         | -714.2        | 738.0                      | 284.58                 |
| 8,683.0      | 89.20      | 269.00               | 8,096.0       | 184.9         | -777.2        | 798.9                      | 283.38                 |
| 8,777.0      | 90.30      | 269.80               | 8,096.4       | 183.9         | -871.2        | 890.4                      | 281.92                 |
| 8,872.0      | 91.40      | 269.90               | 8,095.0       | 183.7         | -966.2        | 983.5                      | 280.76                 |
| 8,967.0      | 91.20      | 269.40               | 8,092.8       | 183.1         | -1,061.2      | 1,076.9                    | 279.79                 |
| 9,061.0      | 90.70      | 269.20               | 8,091.3       | 182.0         | -1,155.2      | 1,169.4                    | 278.95                 |
| 9,156.0      | 90.00      | 268.70               | 8,090.7       | 180.2         | -1,250.1      | 1,263.1                    | 278.20                 |
| 9,250.0      | 90.00      | 269.80               | 8,090.7       | 179.0         | -1,344.1      | 1,356.0                    | 277.59                 |
| 9,345.0      | 91.40      | 271.00               | 8,089.5       | 179.7         | -1,439.1      | 1,450.3                    | 277.12                 |
| 9,440.0      | 91.40      | 270.80               | 8,087.2       | 181.2         | -1,534.1      | 1,544.7                    | 276.73                 |
| 9,534.0      | 91.40      | 270.30               | 8,084.9       | 182.1         | -1,628.0      | 1,638.2                    | 276.38                 |
| 9,629.0      | 91.40      | 269.90               | 8,082.6       | 182.2         | -1,723.0      | 1,732.6                    | 276.04                 |
| 9,723.0      | 91.40      | 269.40               | 8,080.3       | 181.6         | -1,817.0      | 1,826.0                    | 275.71                 |
| 9,818.0      | 91.10      | 268.90               | 8,078.2       | 180.2         | -1,911.9      | 1,920.4                    | 275.39                 |
| 9,913.0      | 91.00      | 268.40               | 8,076.5       | 178.0         | -2,006.9      | 2,014.8                    | 275.07                 |
| 10,007.0     | 90.80      | 268.40               | 8,075.0       | 175.4         | -2,100.9      | 2,108.2                    | 274.77                 |
| 10,102.0     | 90.90      | 267.60               | 8,073.6       | 172.1         | -2,195.8      | 2,202.5                    | 274.48                 |
| 10,197.0     | 91.20      | 266.90               | 8,071.8       | 167.5         | -2,290.7      | 2,296.8                    | 274.18                 |
| 10,292.0     | 90.50      | 268.50               | 8,070.4       | 163.7         | -2,385.6      | 2,391.2                    | 273.93                 |
| 10,386.0     | 89.60      | 269.40               | 8,070.3       | 162.0         | -2,479.6      | 2,484.8                    | 273.74                 |
| 10,480.0     | 89.90      | 269.60               | 8,070.8       | 161.1         | -2,573.5      | 2,578.6                    | 273.58                 |
| 10,574.0     | 89.50      | 268.50               | 8,071.2       | 159.6         | -2,667.5      | 2,672.3                    | 273.42                 |



## QES Survey Certification Report



|           |                                  |                              |                                    |
|-----------|----------------------------------|------------------------------|------------------------------------|
| Company:  | Mewbourne Oil Company            | Local Co-ordinate Reference: | Well Glock 16 B2HE Fed #1H         |
| Project:  | Eddy County, New Mexico (Nad 83) | TVD Reference:               | WELL @ 3317.0usft (Patterson #230) |
| Site:     | Sec 16, T20-S,R29-E              | MD Reference:                | WELL @ 3317.0usft (Patterson #230) |
| Well:     | Glock 16 B2HE Fed #1H            | North Reference:             | Grid                               |
| Wellbore: | Wellbore #1                      | Survey Calculation Method:   | Minimum Curvature                  |
| Design:   | Wellbore #1                      | Database:                    | EDM 5000.1 Single User Db          |

## Survey

| MD<br>(usft) | Inc<br>(°) | Azi (azimuth)<br>(°) | TVD<br>(usft) | N/S<br>(usft) | E/W<br>(usft) | Closure Distance<br>(usft) | Closure Azimuth<br>(°) |
|--------------|------------|----------------------|---------------|---------------|---------------|----------------------------|------------------------|
| 10,669.0     | 91.20      | 269.00               | 8,070.7       | 157.5         | -2,762.5      | 2,767.0                    | 273.26                 |
| 10,763.0     | 91.70      | 271.70               | 8,068.3       | 158.1         | -2,856.5      | 2,860.8                    | 273.17                 |
| 10,858.0     | 92.50      | 272.90               | 8,064.8       | 161.9         | -2,951.3      | 2,955.8                    | 273.14                 |
| 10,953.0     | 93.10      | 271.90               | 8,060.2       | 165.9         | -3,046.1      | 3,050.6                    | 273.12                 |
| 11,047.0     | 92.90      | 271.30               | 8,055.2       | 168.5         | -3,140.0      | 3,144.5                    | 273.07                 |
| 11,142.0     | 92.20      | 270.30               | 8,051.0       | 169.8         | -3,234.9      | 3,239.3                    | 273.01                 |
| 11,236.0     | 90.60      | 270.50               | 8,048.7       | 170.5         | -3,328.8      | 3,333.2                    | 272.93                 |
| 11,331.0     | 89.50      | 271.20               | 8,048.6       | 171.9         | -3,423.8      | 3,428.1                    | 272.87                 |
| 11,425.0     | 89.80      | 271.70               | 8,049.2       | 174.3         | -3,517.8      | 3,522.1                    | 272.84                 |
| 11,519.0     | 88.00      | 272.20               | 8,051.0       | 177.5         | -3,611.7      | 3,616.1                    | 272.81                 |
| 11,614.0     | 87.80      | 271.70               | 8,054.5       | 180.7         | -3,706.6      | 3,711.0                    | 272.79                 |
| 11,708.0     | 87.90      | 271.50               | 8,058.0       | 183.3         | -3,800.5      | 3,804.9                    | 272.76                 |
| 11,809.0     | 89.10      | 272.20               | 8,060.7       | 186.6         | -3,901.4      | 3,905.8                    | 272.74                 |
| 11,895.0     | 89.20      | 272.20               | 8,061.9       | 189.9         | -3,987.3      | 3,991.8                    | 272.73                 |
| 11,990.0     | 91.40      | 271.70               | 8,061.4       | 193.1         | -4,082.2      | 4,086.8                    | 272.71                 |
| 12,085.0     | 91.00      | 271.90               | 8,059.5       | 196.1         | -4,177.2      | 4,181.8                    | 272.69                 |
| 12,180.0     | 91.20      | 271.90               | 8,057.6       | 199.2         | -4,272.1      | 4,276.8                    | 272.67                 |
| 12,275.0     | 91.50      | 271.90               | 8,055.4       | 202.4         | -4,367.0      | 4,371.7                    | 272.65                 |
| 12,369.0     | 91.50      | 271.50               | 8,052.9       | 205.2         | -4,461.0      | 4,465.7                    | 272.63                 |
| 12,464.0     | 91.60      | 271.70               | 8,050.4       | 207.8         | -4,555.9      | 4,560.6                    | 272.61                 |
| 12,559.0     | 92.20      | 272.20               | 8,047.2       | 211.1         | -4,650.8      | 4,655.6                    | 272.60                 |
| 12,654.0     | 92.50      | 272.90               | 8,043.3       | 215.3         | -4,745.6      | 4,750.5                    | 272.60                 |
| 12,749.0     | 92.90      | 275.20               | 8,038.8       | 222.0         | -4,840.3      | 4,845.3                    | 272.63                 |
| 12,843.0     | 93.00      | 275.40               | 8,034.0       | 230.7         | -4,933.7      | 4,939.1                    | 272.68                 |
| 12,938.0     | 93.30      | 275.60               | 8,028.8       | 239.7         | -5,028.1      | 5,033.9                    | 272.73                 |
| 12,965.0     | 93.30      | 275.60               | 8,027.2       | 242.4         | -5,055.0      | 5,060.8                    | 272.75                 |
| 13,025.0     | 93.30      | 275.60               | 8,023.8       | 248.2         | -5,114.6      | <u>5,120.6</u>             | <u>272.76</u>          |

TD @ 13025.0' MD / 8023.8' TVD

## Design Annotations

| Measured<br>Depth<br>(usft) | Vertical<br>Depth<br>(usft) | Local Coordinates |                 | Comment                                        |
|-----------------------------|-----------------------------|-------------------|-----------------|------------------------------------------------|
|                             |                             | +N/-S<br>(usft)   | +E/-W<br>(usft) |                                                |
| 3,175.1                     | 3,172.9                     | 87.2              | 2.4             | Phoenix Gyro Tie-In @ 3175.1' MD / 3172.9' TVD |
| 13,025.0                    | 8,023.8                     | 248.2             | -5,114.6        | TD @ 13025.0' MD / 8023.8' TVD                 |

|                   |                    |             |
|-------------------|--------------------|-------------|
| Checked By: _____ | Approved By: _____ | Date: _____ |
|-------------------|--------------------|-------------|