



RECEIVED

FEB 05 2019

DISTRICT II-ARTESIA O.C.D.

## Mewbourne Oil Company

Eddy County, New Mexico (Nad 83)

Sec 11, T19S, R29E

Sapphire 11/12 B2NN State Com #1H

Wellbore #1

*30-015-44053*

Design: Wellbore #1

## QES Survey Certification Report

05 October, 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-181043  | 10/9/2018 |

| Lease               | Well Name                            | County & State  |
|---------------------|--------------------------------------|-----------------|
| SEC 11, T-19S, R29E | Sapphire 11/12 B2NN State<br>Com #1H | Eddy County, NM |

| API No.      | Survey Depth Range         | Survey Type |
|--------------|----------------------------|-------------|
| 30-015-44053 | 1403 feet to 14310 feet MD | MWD         |

| Sidetrack Information     | Directional Supervisor/Surveyor |
|---------------------------|---------------------------------|
| Click here to enter text. | Donnie Jackson                  |

### 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 Directional  
Drilling, ou=MWD Compliance,  
email=Chrish@qesinc.com, c=US  
Date: 2018.10.16 07:10:34 -05'00'

Christopher Hughes  
MWD Compliance Manager

## 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-181043  | 10/9/2018 |

| Lease               | Well Name                            | County & State  |
|---------------------|--------------------------------------|-----------------|
| SEC 11, T-19S, R29E | Sapphire 11/12 B2NN State<br>Com #1H | Eddy County, NM |

| API No.      | Survey Depth Range         | Survey Type |
|--------------|----------------------------|-------------|
| 30-015-44053 | 1403 feet to 14310 feet MD | MWD         |

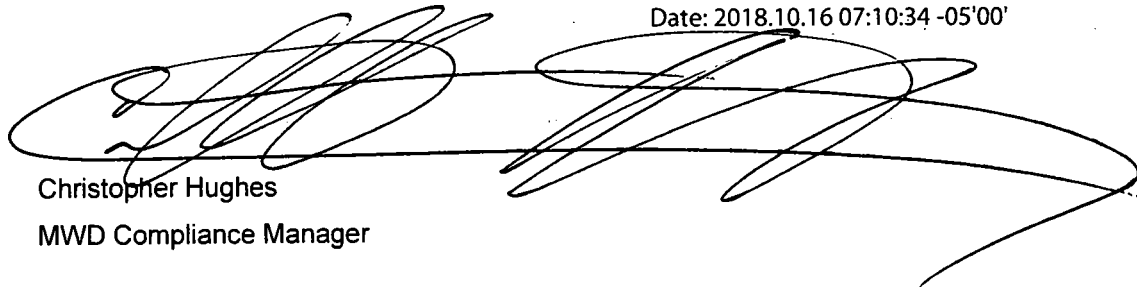
| Sidetrack Information     | Directional Supervisor/Surveyor |
|---------------------------|---------------------------------|
| Click here to enter text. | Donnie Jackson                  |

### 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 Directional  
Drilling, ou=MWD Compliance,  
email=Chrish@qesinc.com, c=US  
Date: 2018.10.16 07:10:34 -05'00'



Christopher Hughes  
MWD Compliance Manager

## **Quintana Energy Services**

11390 FM 830

Willis, TX 77318

Phone: (936) 856-4332

Fax: (936) 856-8678

---



Quintana Energy Services



## QES Survey Certification Report



Company: Mewbourne Oil Company  
 Project: Eddy County, New Mexico (Nad 83)  
 Site: Sec 11, T19S, R29E  
 Well: Sapphire 11/12 B2NN State Com #1H  
 Wellbore: Wellbore #1  
 Design: Wellbore #1

Local Co-ordinate Reference: Well Sapphire 11/12 B2NN State Com #1H  
 TVD Reference: WELL @ 3402.0usft (Patterson #230)  
 MD Reference: WELL @ 3402.0usft (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 11, T19S, R29E

Site Position: Northing: 607,339.86 usft Latitude: 32° 40' 9.484 N  
 From: Map Easting: 628,765.02 usft Longitude: 104° 2' 57.176 W  
 Position Uncertainty: 0.0 usft Slot Radius: 13-3/16" Grid Convergence: 0.15 °

Well Sapphire 11/12 B2NN State Com #1H

Well Position +N/-S 0.0 usft Northing: 607,339.86 usft Latitude: 32° 40' 9.484 N  
 +E/-W 0.0 usft Easting: 628,765.02 usft Longitude: 104° 2' 57.176 W  
 Position Uncertainty 0.0 usft Wellhead Elevation: usft Ground Level: 3,375.0 usft

Wellbore Wellbore #1

| Magnetics | Model Name | Sample Date | Declination (°) | Dip Angle (°) | Field Strength (nT) |
|-----------|------------|-------------|-----------------|---------------|---------------------|
|           | IGRF2015   | 9/14/2018   | 7.08            | 60.38         | 48,023.03344068     |

Design Wellbore #1

Audit Notes:

Version: 1.0 Phase: ACTUAL Tie On Depth: 0.0

| Vertical Section: | Depth From (TVD) (usft) | +N/-S (usft) | +E/-W (usft) | Direction (°) |
|-------------------|-------------------------|--------------|--------------|---------------|
|                   | 0.0                     | 0.0          | 0.0          | 91.87         |

Survey Program Date 10/5/2018

| From (usft) | To (usft) | Survey (Wellbore)          | Tool Name       | Description         |
|-------------|-----------|----------------------------|-----------------|---------------------|
| 478.0       | 1,403.0   | Gryo Surveys (Wellbore #1) | OWSG (Rev2) MWD | OWSG MWD - Standard |
| 1,507.0     | 14,310.0  | MWD Surveys (Wellbore #1)  | OWSG (Rev2) MWD | OWSG MWD - Standard |

Survey

| MD (usft)                              | Inc (°) | Azi (azimuth) (°) | TVD (usft) | N/S (usft) | E/W (usft) | Closure Distance (usft) | Closure Azimuth (°) |
|----------------------------------------|---------|-------------------|------------|------------|------------|-------------------------|---------------------|
| 1,403.0                                | 1.40    | 312.00            | 1,402.5    | 8.5        | -31.2      | 32.3                    | 285.26              |
| Gryo Tie In @ 1403.0' MD / 1402.5' TVD |         |                   |            |            |            |                         |                     |
| 1,507.0                                | 1.20    | 311.00            | 1,506.5    | 10.1       | -32.9      | 34.5                    | 287.00              |
| 1,602.0                                | 1.90    | 226.60            | 1,601.4    | 9.6        | -34.8      | 36.2                    | 285.47              |
| 1,697.0                                | 2.30    | 218.90            | 1,696.4    | 7.1        | -37.2      | 37.9                    | 280.78              |
| 1,791.0                                | 2.30    | 210.80            | 1,790.3    | 4.0        | -39.3      | 39.5                    | 275.79              |
| 1,885.0                                | 2.50    | 212.20            | 1,884.2    | 0.6        | -41.4      | 41.4                    | 270.88              |
| 1,980.0                                | 4.00    | 183.40            | 1,979.1    | -4.4       | -42.7      | 42.9                    | 264.08              |
| 2,075.0                                | 4.30    | 174.60            | 2,073.8    | -11.3      | -42.6      | 44.0                    | 255.16              |
| 2,170.0                                | 4.70    | 179.50            | 2,168.5    | -18.7      | -42.2      | 46.2                    | 246.07              |
| 2,264.0                                | 2.60    | 166.20            | 2,262.3    | -24.6      | -41.6      | 48.4                    | 239.39              |



## QES Survey Certification Report



**Company:** Mewbourne Oil Company  
**Project:** Eddy County, New Mexico (Nad 83)  
**Site:** Sec 11, T19S, R29E  
**Well:** Sapphire 11/12 B2NN State Com #1H  
**Wellbore:** Wellbore #1  
**Design:** Wellbore #1

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

Well Sapphire 11/12 B2NN State Com #1H  
WELL @ 3402.0usft (Patterson #230)  
WELL @ 3402.0usft (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>(°) |
|--------------|------------|----------------------|---------------|---------------|---------------|----------------------------|------------------------|
| 2,359.0      | 2.70       | 151.10               | 2,357.2       | -28.7         | -40.0         | 49.3                       | 234.38                 |
| 2,454.0      | 2.30       | 154.90               | 2,452.1       | -32.4         | -38.2         | 50.0                       | 229.69                 |
| 2,548.0      | 2.80       | 154.90               | 2,546.0       | -36.2         | -36.4         | 51.3                       | 225.18                 |
| 2,643.0      | 1.00       | 120.50               | 2,641.0       | -38.7         | -34.7         | 52.0                       | 221.88                 |
| 2,738.0      | 1.30       | 58.60                | 2,736.0       | -38.5         | -33.1         | 50.8                       | 220.61                 |
| 2,833.0      | 1.10       | 53.70                | 2,831.0       | -37.4         | -31.4         | 48.9                       | 219.98                 |
| 2,927.0      | 1.40       | 50.20                | 2,924.9       | -36.2         | -29.8         | 46.9                       | 219.47                 |
| 3,022.0      | 1.40       | 69.80                | 3,019.9       | -35.0         | -27.8         | 44.7                       | 218.44                 |
| 3,116.0      | 1.70       | 60.00                | 3,113.9       | -33.9         | -25.5         | 42.5                       | 216.94                 |
| 3,211.0      | 1.70       | 50.20                | 3,208.8       | -32.3         | -23.2         | 39.8                       | 215.69                 |
| 3,306.0      | 1.20       | 56.80                | 3,303.8       | -30.9         | -21.3         | 37.5                       | 214.60                 |
| 3,400.0      | 0.10       | 250.60               | 3,397.8       | -30.4         | -20.6         | 36.7                       | 214.09                 |
| 3,495.0      | 3.00       | 221.00               | 3,492.7       | -32.3         | -22.3         | 39.2                       | 214.60                 |
| 3,590.0      | 4.60       | 222.40               | 3,587.5       | -37.0         | -26.5         | 45.5                       | 215.60                 |
| 3,684.0      | 3.30       | 227.70               | 3,681.3       | -41.6         | -31.0         | 51.9                       | 216.72                 |
| 3,779.0      | 2.80       | 225.20               | 3,776.2       | -45.0         | -34.7         | 56.8                       | 217.59                 |
| 3,873.0      | 2.70       | 220.70               | 3,870.1       | -48.3         | -37.8         | 61.3                       | 217.99                 |
| 3,967.0      | 2.50       | 202.00               | 3,964.0       | -51.9         | -40.0         | 65.5                       | 217.59                 |
| 4,062.0      | 2.00       | 214.30               | 4,058.9       | -55.2         | -41.7         | 69.2                       | 217.05                 |
| 4,157.0      | 1.30       | 219.30               | 4,153.9       | -57.4         | -43.3         | 71.9                       | 217.02                 |
| 4,251.0      | 2.50       | 253.00               | 4,247.8       | -58.8         | -45.9         | 74.6                       | 217.97                 |
| 4,346.0      | 4.00       | 245.60               | 4,342.7       | -60.8         | -50.9         | 79.3                       | 219.94                 |
| 4,441.0      | 4.60       | 245.60               | 4,437.4       | -63.8         | -57.4         | 85.8                       | 222.00                 |
| 4,535.0      | 4.30       | 253.40               | 4,531.1       | -66.3         | -64.2         | 92.3                       | 224.08                 |
| 4,630.0      | 3.30       | 270.20               | 4,625.9       | -67.3         | -70.4         | 97.4                       | 226.27                 |
| 4,725.0      | 4.20       | 246.70               | 4,720.7       | -68.7         | -76.3         | 102.7                      | 228.00                 |
| 4,819.0      | 2.50       | 219.60               | 4,814.5       | -71.6         | -80.8         | 108.0                      | 228.43                 |
| 4,914.0      | 2.50       | 213.30               | 4,909.4       | -75.0         | -83.2         | 112.0                      | 227.99                 |
| 5,009.0      | 1.90       | 228.80               | 5,004.4       | -77.7         | -85.5         | 115.6                      | 227.74                 |
| 5,103.0      | 2.10       | 228.40               | 5,098.3       | -79.9         | -88.0         | 118.9                      | 227.76                 |
| 5,198.0      | 2.20       | 224.90               | 5,193.3       | -82.4         | -90.6         | 122.4                      | 227.73                 |
| 5,293.0      | 1.90       | 242.80               | 5,288.2       | -84.4         | -93.3         | 125.8                      | 227.88                 |
| 5,388.0      | 1.90       | 250.60               | 5,383.1       | -85.6         | -96.2         | 128.8                      | 228.33                 |
| 5,483.0      | 3.60       | 214.00               | 5,478.0       | -88.6         | -99.3         | 133.1                      | 228.27                 |
| 5,577.0      | 4.00       | 215.00               | 5,571.8       | -93.7         | -102.9        | 139.2                      | 227.66                 |
| 5,672.0      | 3.90       | 214.70               | 5,666.6       | -99.1         | -106.6        | 145.5                      | 227.09                 |
| 5,766.0      | 3.30       | 222.40               | 5,760.4       | -103.7        | -110.2        | 151.4                      | 226.74                 |
| 5,861.0      | 3.00       | 232.30               | 5,855.3       | -107.3        | -114.1        | 156.6                      | 226.76                 |
| 5,956.0      | 2.90       | 231.20               | 5,950.1       | -110.3        | -117.9        | 161.4                      | 226.91                 |
| 6,051.0      | 3.30       | 241.80               | 6,045.0       | -113.1        | -122.2        | 166.5                      | 227.21                 |
| 6,145.0      | 3.20       | 248.10               | 6,138.9       | -115.4        | -127.0        | 171.6                      | 227.75                 |
| 6,240.0      | 3.00       | 256.20               | 6,233.7       | -116.9        | -131.9        | 176.2                      | 228.44                 |
| 6,334.0      | 2.50       | 261.50               | 6,327.6       | -117.8        | -136.3        | 180.2                      | 229.16                 |
| 6,429.0      | 2.90       | 237.50               | 6,422.5       | -119.4        | -140.4        | 184.3                      | 229.61                 |



## QES Survey Certification Report



**Company:** Mewbourne Oil Company  
**Project:** Eddy County, New Mexico (Nad 83)  
**Site:** Sec 11, T19S, R29E  
**Well:** Sapphire 11/12 B2NN State Com #1H  
**Wellbore:** Wellbore #1  
**Design:** Wellbore #1

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

Well Sapphire 11/12 B2NN State Com #1H  
WELL @ 3402.0usft (Patterson #230)  
WELL @ 3402.0usft (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>(°) |
|--------------|------------|----------------------|---------------|---------------|---------------|----------------------------|------------------------|
| 6,523.0      | 2.80       | 242.10               | 6,516.4       | -121.8        | -144.4        | 188.9                      | 229.86                 |
| 6,618.0      | 3.00       | 215.00               | 6,611.3       | -124.9        | -147.9        | 193.6                      | 229.81                 |
| 6,712.0      | 4.00       | 203.10               | 6,705.1       | -129.9        | -150.6        | 198.9                      | 229.21                 |
| 6,807.0      | 4.00       | 209.40               | 6,799.9       | -135.9        | -153.5        | 205.0                      | 228.49                 |
| 6,902.0      | 3.60       | 214.00               | 6,894.7       | -141.2        | -156.8        | 211.0                      | 227.99                 |
| 6,996.0      | 2.60       | 216.40               | 6,988.5       | -145.4        | -159.7        | 216.0                      | 227.69                 |
| 7,090.0      | 2.10       | 210.80               | 7,082.4       | -148.6        | -161.9        | 219.7                      | 227.45                 |
| 7,185.0      | 2.00       | 203.40               | 7,177.4       | -151.6        | -163.4        | 222.9                      | 227.15                 |
| 7,279.0      | 3.00       | 159.10               | 7,271.3       | -155.4        | -163.2        | 225.3                      | 226.40                 |
| 7,374.0      | 3.40       | 142.30               | 7,366.2       | -159.9        | -160.6        | 226.6                      | 225.11                 |
| 7,468.0      | 2.90       | 152.80               | 7,460.0       | -164.3        | -157.8        | 227.8                      | 223.84                 |
| 7,500.0      | 2.10       | 157.00               | 7,492.0       | -165.5        | -157.2        | 228.3                      | 223.52                 |
| 7,600.0      | 5.30       | 132.60               | 7,591.8       | -170.3        | -153.1        | 229.0                      | 221.94                 |
| 7,631.0      | 8.70       | 118.70               | 7,622.5       | -172.4        | -149.9        | 228.5                      | 221.01                 |
| 7,663.0      | 13.60      | 109.40               | 7,653.9       | -174.9        | -144.3        | 226.7                      | 219.53                 |
| 7,694.0      | 18.20      | 100.60               | 7,683.7       | -177.0        | -136.1        | 223.2                      | 217.56                 |
| 7,726.0      | 21.70      | 90.90                | 7,713.8       | -178.0        | -125.2        | 217.6                      | 215.13                 |
| 7,757.0      | 26.00      | 84.10                | 7,742.2       | -177.4        | -112.7        | 210.2                      | 212.44                 |
| 7,789.0      | 30.30      | 78.10                | 7,770.4       | -175.0        | -97.9         | 200.5                      | 209.22                 |
| 7,820.0      | 34.30      | 76.30                | 7,796.6       | -171.3        | -81.7         | 189.8                      | 205.50                 |
| 7,852.0      | 39.20      | 77.20                | 7,822.2       | -166.9        | -63.1         | 178.4                      | 200.70                 |
| 7,883.0      | 42.20      | 77.40                | 7,845.7       | -162.5        | -43.4         | 168.2                      | 194.94                 |
| 7,915.0      | 45.20      | 79.20                | 7,868.8       | -158.0        | -21.7         | 159.5                      | 187.82                 |
| 7,946.0      | 48.40      | 81.30                | 7,890.1       | -154.2        | 0.6           | 154.2                      | 179.79                 |
| 7,978.0      | 50.00      | 82.90                | 7,911.0       | -150.9        | 24.6          | 152.8                      | 170.76                 |
| 8,010.0      | 51.00      | 84.30                | 7,931.3       | -148.1        | 49.1          | 156.0                      | 161.66                 |
| 8,041.0      | 51.60      | 86.20                | 7,950.7       | -146.1        | 73.2          | 163.4                      | 153.39                 |
| 8,073.0      | 53.60      | 86.70                | 7,970.1       | -144.5        | 98.6          | 174.9                      | 145.71                 |
| 8,104.0      | 56.80      | 86.60                | 7,987.8       | -143.0        | 124.0         | 189.3                      | 139.08                 |
| 8,135.0      | 61.60      | 88.10                | 8,003.7       | -141.8        | 150.6         | 206.8                      | 133.29                 |
| 8,167.0      | 67.20      | 87.80                | 8,017.5       | -140.8        | 179.4         | 228.0                      | 128.12                 |
| 8,198.0      | 73.00      | 87.30                | 8,028.1       | -139.5        | 208.5         | 250.9                      | 123.79                 |
| 8,222.0      | 78.30      | 86.70                | 8,034.0       | -138.3        | 231.7         | 269.9                      | 120.83                 |
| 8,405.0      | 90.80      | 88.10                | 8,051.4       | -130.1        | 413.3         | 433.3                      | 107.47                 |
| 8,500.0      | 89.60      | 90.60                | 8,051.0       | -129.0        | 508.3         | 524.4                      | 104.24                 |
| 8,595.0      | 89.30      | 90.40                | 8,051.9       | -129.8        | 603.3         | 617.1                      | 102.15                 |
| 8,689.0      | 89.80      | 92.90                | 8,052.7       | -132.6        | 697.3         | 709.8                      | 100.76                 |
| 8,784.0      | 90.00      | 91.80                | 8,052.9       | -136.5        | 792.2         | 803.8                      | 99.77                  |
| 8,879.0      | 90.40      | 91.10                | 8,052.5       | -138.9        | 887.1         | 898.0                      | 98.90                  |
| 8,973.0      | 91.40      | 90.80                | 8,051.0       | -140.4        | 981.1         | 991.1                      | 98.14                  |
| 9,067.0      | 91.00      | 92.20                | 8,049.1       | -142.9        | 1,075.1       | 1,084.5                    | 97.57                  |
| 9,162.0      | 89.90      | 92.50                | 8,048.3       | -146.8        | 1,170.0       | 1,179.2                    | 97.15                  |
| 9,256.0      | 87.90      | 92.90                | 8,050.1       | -151.2        | 1,263.9       | 1,272.9                    | 96.82                  |
| 9,350.0      | 87.80      | 92.50                | 8,053.7       | -155.6        | 1,357.7       | 1,366.6                    | 96.54                  |



## QES Survey Certification Report



**Company:** Mewbourne Oil Company  
**Project:** Eddy County, New Mexico (Nad 83)  
**Site:** Sec 11, T19S, R29E  
**Well:** Sapphire 11/12 B2NN State Com #1H  
**Wellbore:** Wellbore #1  
**Design:** Wellbore #1

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

Well Sapphire 11/12 B2NN State Com #1H  
WELL @ 3402.0usft (Patterson #230)  
WELL @ 3402.0usft (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) | EW<br>(usft) | Closure Distance<br>(usft) | Closure Azimuth<br>(°) |
|--------------|------------|----------------------|---------------|---------------|--------------|----------------------------|------------------------|
| 9,444.0      | 89.10      | 92.70                | 8,056.2       | -159.9        | 1,451.6      | 1,460.3                    | 96.29                  |
| 9,539.0      | 87.50      | 92.00                | 8,059.0       | -163.8        | 1,546.4      | 1,555.1                    | 96.05                  |
| 9,633.0      | 87.70      | 91.50                | 8,063.0       | -166.6        | 1,640.3      | 1,648.7                    | 95.80                  |
| 9,727.0      | 87.90      | 90.60                | 8,066.6       | -168.4        | 1,734.2      | 1,742.4                    | 95.55                  |
| 9,822.0      | 88.50      | 90.40                | 8,069.6       | -169.2        | 1,829.2      | 1,837.0                    | 95.28                  |
| 9,916.0      | 89.20      | 90.10                | 8,071.4       | -169.6        | 1,923.1      | 1,930.6                    | 95.04                  |
| 10,011.0     | 89.60      | 89.50                | 8,072.4       | -169.3        | 2,018.1      | 2,025.2                    | 94.79                  |
| 10,106.0     | 90.00      | 88.80                | 8,072.8       | -167.9        | 2,113.1      | 2,119.8                    | 94.54                  |
| 10,200.0     | 90.20      | 87.80                | 8,072.6       | -165.1        | 2,207.1      | 2,213.2                    | 94.28                  |
| 10,295.0     | 89.40      | 88.30                | 8,072.9       | -161.8        | 2,302.0      | 2,307.7                    | 94.02                  |
| 10,389.0     | 88.60      | 87.60                | 8,074.6       | -158.5        | 2,396.0      | 2,401.2                    | 93.78                  |
| 10,484.0     | 88.70      | 88.80                | 8,076.8       | -155.5        | 2,490.9      | 2,495.7                    | 93.57                  |
| 10,578.0     | 88.90      | 91.80                | 8,078.8       | -156.0        | 2,584.8      | 2,589.5                    | 93.45                  |
| 10,672.0     | 89.10      | 92.20                | 8,080.4       | -159.3        | 2,678.8      | 2,683.5                    | 93.40                  |
| 10,767.0     | 88.60      | 91.50                | 8,082.3       | -162.3        | 2,773.7      | 2,778.4                    | 93.35                  |
| 10,862.0     | 88.90      | 90.80                | 8,084.4       | -164.2        | 2,868.7      | 2,873.4                    | 93.28                  |
| 10,956.0     | 89.30      | 89.70                | 8,085.9       | -164.7        | 2,962.6      | 2,967.2                    | 93.18                  |
| 11,051.0     | 89.50      | 88.50                | 8,086.9       | -163.2        | 3,057.6      | 3,062.0                    | 93.05                  |
| 11,145.0     | 90.40      | 89.40                | 8,087.0       | -161.4        | 3,151.6      | 3,155.7                    | 92.93                  |
| 11,240.0     | 90.70      | 90.60                | 8,086.0       | -161.4        | 3,246.6      | 3,250.6                    | 92.85                  |
| 11,335.0     | 91.60      | 90.80                | 8,084.1       | -162.6        | 3,341.6      | 3,345.5                    | 92.79                  |
| 11,429.0     | 90.00      | 91.30                | 8,082.8       | -164.3        | 3,435.5      | 3,439.5                    | 92.74                  |
| 11,523.0     | 88.90      | 91.10                | 8,083.7       | -166.3        | 3,529.5      | 3,533.4                    | 92.70                  |
| 11,618.0     | 88.30      | 91.30                | 8,086.0       | -168.3        | 3,624.5      | 3,628.4                    | 92.66                  |
| 11,713.0     | 89.10      | 90.80                | 8,088.2       | -170.0        | 3,719.4      | 3,723.3                    | 92.62                  |
| 11,808.0     | 88.40      | 91.30                | 8,090.3       | -171.8        | 3,814.4      | 3,818.3                    | 92.58                  |
| 11,902.0     | 90.30      | 89.90                | 8,091.3       | -172.7        | 3,908.4      | 3,912.2                    | 92.53                  |
| 11,996.0     | 87.70      | 89.50                | 8,093.0       | -172.2        | 4,002.3      | 4,006.1                    | 92.46                  |
| 12,090.0     | 86.80      | 89.20                | 8,097.5       | -171.2        | 4,096.2      | 4,099.8                    | 92.39                  |
| 12,185.0     | 86.30      | 87.80                | 8,103.2       | -168.7        | 4,191.0      | 4,194.4                    | 92.31                  |
| 12,280.0     | 86.60      | 88.30                | 8,109.1       | -165.5        | 4,285.8      | 4,289.0                    | 92.21                  |
| 12,374.0     | 87.70      | 90.10                | 8,113.8       | -164.2        | 4,379.7      | 4,382.7                    | 92.15                  |
| 12,469.0     | 91.40      | 90.20                | 8,114.5       | -164.4        | 4,474.6      | 4,477.7                    | 92.10                  |
| 12,563.0     | 91.40      | 89.00                | 8,112.2       | -163.8        | 4,568.6      | 4,571.5                    | 92.05                  |
| 12,658.0     | 91.60      | 89.50                | 8,109.7       | -162.5        | 4,663.6      | 4,666.4                    | 92.00                  |
| 12,753.0     | 92.10      | 88.80                | 8,106.7       | -161.1        | 4,758.5      | 4,761.2                    | 91.94                  |
| 12,847.0     | 91.60      | 89.90                | 8,103.6       | -160.0        | 4,852.4      | 4,855.1                    | 91.89                  |
| 12,941.0     | 91.70      | 90.40                | 8,100.9       | -160.3        | 4,946.4      | 4,949.0                    | 91.86                  |
| 13,036.0     | 91.40      | 91.70                | 8,098.3       | -162.0        | 5,041.4      | 5,044.0                    | 91.84                  |
| 13,131.0     | 88.00      | 92.20                | 8,098.8       | -165.3        | 5,136.3      | 5,138.9                    | 91.84                  |
| 13,225.0     | 86.60      | 91.50                | 8,103.3       | -168.3        | 5,230.1      | 5,232.8                    | 91.84                  |
| 13,319.0     | 86.10      | 90.80                | 8,109.3       | -170.2        | 5,323.9      | 5,326.6                    | 91.83                  |
| 13,413.0     | 87.00      | 92.20                | 8,114.9       | -172.6        | 5,417.7      | 5,420.5                    | 91.83                  |
| 13,508.0     | 88.00      | 92.90                | 8,119.1       | -176.9        | 5,512.5      | 5,515.4                    | 91.84                  |
| 13,603.0     | 88.70      | 94.30                | 8,121.8       | -182.8        | 5,607.3      | 5,610.3                    | 91.87                  |



## QES Survey Certification Report



Company: Mewbourne Oil Company  
Project: Eddy County, New Mexico (Nad 83)  
Site: Sec 11, T19S, R29E  
Well: Sapphire 11/12 B2NN State Com #1H  
Wellbore: Wellbore #1  
Design: Wellbore #1

Local Co-ordinate Reference: Well Sapphire 11/12 B2NN State Com #1H  
TVD Reference: WELL @ 3402.0usft (Patterson #230)  
MD Reference: WELL @ 3402.0usft (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>(°) |
|--------------|------------|----------------------|---------------|---------------|---------------|----------------------------|------------------------|
| 13,697.0     | 92.20      | 93.80                | 8,121.1       | -189.5        | 5,701.0       | 5,704.2                    | 91.90                  |
| 13,792.0     | 91.30      | 92.50                | 8,118.2       | -194.7        | 5,795.9       | 5,799.1                    | 91.92                  |
| 13,886.0     | 91.40      | 92.20                | 8,115.9       | -198.5        | 5,889.7       | 5,893.1                    | 91.93                  |
| 13,981.0     | 90.80      | 91.50                | 8,114.1       | -201.6        | 5,984.7       | 5,988.1                    | 91.93                  |
| 14,075.0     | 89.10      | 91.30                | 8,114.2       | -203.9        | 6,078.6       | 6,082.1                    | 91.92                  |
| 14,170.0     | 86.90      | 90.90                | 8,117.5       | -205.7        | 6,173.6       | 6,177.0                    | 91.91                  |
| 14,240.0     | 86.70      | 90.80                | 8,121.4       | -206.7        | 6,243.4       | 6,246.9                    | 91.90                  |
| 14,310.0     | 86.70      | 90.80                | 8,125.4       | -207.7        | 6,313.3       | 6,316.7                    | 91.98                  |

TD @ 14310.0' MD / 8125.4' TVD

## Design Annotations

| Measured<br>Depth<br>(usft) | Vertical<br>Depth<br>(usft) | Local Coordinates |                 | Comment                                |
|-----------------------------|-----------------------------|-------------------|-----------------|----------------------------------------|
|                             |                             | +N/-S<br>(usft)   | +E/-W<br>(usft) |                                        |
| 1,403.0                     | 1,402.5                     | 8.5               | -31.2           | Gyro Tie In @ 1403.0' MD / 1402.5' TVD |
| 14,310.0                    | 8,125.4                     | -207.7            | 6,313.3         | TD @ 14310.0' MD / 8125.4' TVD         |