



NM OIL CONSERVATION
ARTESIA DISTRICT
AUG 30 2018

RECEIVED

Mewbourne Oil Company

Eddy County, New Mexico (Nad 83)

Sec 17, T23S, R30E

FNR 17/20 W2IP FED COM #3H

Wellbore #1

30-015-44578

Survey: QES MWD Surveys

QES Survey Certification Report

20 March, 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-180199	3/20/2018

Lease	Well Name	County & State
SEC 17, T-23S, R30E	FNR 17/20 W2IP FED COM. #3H	Eddy County, NM

API No.	Survey Depth Range	Survey Type
30-015-44578	105 feet to 19105 feet MD	MWD

Sidetrack Information	Directional Supervisor/Surveyor
Click here to enter text.	Beau Lucas

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

Christopher Hughes

MWD Compliance Manager

Digitally signed by Christopher Hughes

DN: cn=Christopher Hughes, o=QES,
ou=compliance, email=chrish@qeslp.com,
c=US

Date: 2018.04.02 14:39:10 -05'00'

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 17, T23S, R30E
Well: FNR 17/20 W2IP FED COM #3H
Wellbore: Wellbore #1
Design: Wellbore #1

Local Co-ordinate Reference: Well FNR 17/20 W2IP FED COM #3H
TVD Reference: Well @ 3245.0usft (Patterson #230)
MD Reference: Well @ 3245.0usft (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

Geo Datum: North American Datum 1983

Map Zone: New Mexico Eastern Zone

System Datum:

Mean Sea Level

Site Sec 17, T23S, R30E

Site Position:

From: Map

Position Uncertainty: 0.0 usft

Northing:

Easting: 474,760.00 usft

Slot Radius: 13-3/16"

Latitude:

32° 18' 15.995 N

Longitude:

103° 53' 58.273 W

Grid Convergence:

0.23 °

Well FNR 17/20 W2IP FED COM #3H

Well Position +N/-S 0.0 usft

Northing:

474,760.00 usft

Latitude:

32° 18' 15.995 N

+E/-W 0.0 usft

Easting:

675,368.70 usft

Longitude:

103° 53' 58.273 W

Position Uncertainty 0.0 usft

Wellhead Elevation:

usft

Ground Level:

3,218.0 usft

Wellbore Wellbore #1

Magnetics

Model Name

Sample Date

Declination
(°)

Dip Angle
(°)

Field Strength
(nT)

IGRF2015

12/1/2017

7.06

60.08

47,905.44269488

Design Wellbore #1

Audit Notes:

Version: 1.0

Phase:

ACTUAL

Tie On Depth:

0.0

Vertical Section:

Depth From (TVD)
(usft)

0.0

+N/-S
(usft)

0.0

+E/-W
(usft)

0.0

Direction
(°)

171.42

Survey Program

Date 3/20/2018

From
(usft)

105.0

To
(usft)

19,105.0

Survey (Wellbore)

QES MWD Surveys (Wellbore #1)

Tool Name

MWD default

Description

MWD - Standard

Survey

MD (usft)	Inc (°)	Azi (azimuth) (°)	TVD (usft)	N/S (usft)	E/W (usft)	Closure Distance (usft)	Closure Azimuth (°)
0.0	0.00	0.00	0.0	0.0	0.0	0.0	0.00
105.0	0.50	261.80	105.0	-0.1	-0.5	0.5	261.80
First MWD Survey @ 105.0' MD / 105.0' TVD							
176.0	0.50	233.80	176.0	-0.3	-1.0	1.1	253.85
292.0	1.30	228.80	292.0	-1.5	-2.4	2.8	238.81
350.0	1.10	230.00	350.0	-2.2	-3.3	4.0	235.96
480.0	1.70	240.10	479.9	-4.0	-6.0	7.2	236.04
600.0	1.40	280.90	599.9	-4.6	-8.9	10.1	242.66
721.0	2.00	321.70	720.8	-2.7	-11.7	12.0	257.07
848.0	1.80	326.60	847.8	0.7	-14.2	14.2	272.90
942.0	1.80	321.30	941.7	3.1	-15.9	16.2	281.04
1,037.0	1.80	320.20	1,036.7	5.4	-17.8	18.6	286.92



QES Survey Certification Report



Company: Mewbourne Oil Company
Project: Eddy County, New Mexico (Nad 83)
Site: Sec 17, T23S, R30E
Well: FNR 17/20 W2IP FED COM #3H
Wellbore: Wellbore #1
Design: Wellbore #1

Local Co-ordinate Reference: Well FNR 17/20 W2IP FED COM #3H
TVD Reference: Well @ 3245.0usft (Patterson #230)
MD Reference: Well @ 3245.0usft (Patterson #230)
North Reference: Grid
Survey Calculation Method: Minimum Curvature
Database: EDM 5000.1 Single User Db

Survey

MD (usft)	Inc (°)	Azi (azimuth) (°)	TVD (usft)	N/S (usft)	E/W (usft)	Closure Distance (usft)	Closure Azimuth (°)
1,131.0	1.60	312.30	1,130.6	7.4	-19.7	21.1	290.66
1,225.0	1.50	312.90	1,224.6	9.2	-21.6	23.4	292.98
1,320.0	1.60	303.10	1,319.6	10.7	-23.6	25.9	294.43
1,414.0	1.40	293.50	1,413.5	11.9	-25.8	28.4	294.79
1,509.0	1.50	296.70	1,508.5	12.9	-27.9	30.8	294.82
1,604.0	1.40	284.40	1,603.5	13.8	-30.2	33.2	294.53
1,698.0	1.50	271.00	1,697.4	14.1	-32.5	35.4	293.41
1,792.0	1.50	265.90	1,791.4	14.0	-35.0	37.7	291.83
1,887.0	1.60	261.50	1,886.4	13.7	-37.5	39.9	290.09
1,982.0	1.50	249.60	1,981.3	13.1	-40.0	42.1	288.12
2,076.0	1.60	238.30	2,075.3	12.0	-42.3	43.9	285.82
2,171.0	1.50	230.40	2,170.3	10.5	-44.4	45.6	283.30
2,265.0	1.20	224.60	2,264.2	9.0	-46.0	46.9	281.07
2,359.0	1.30	215.30	2,358.2	7.4	-47.3	47.9	278.92
2,454.0	1.30	213.90	2,453.2	5.7	-48.5	48.9	276.65
2,549.0	1.40	204.80	2,548.2	3.7	-49.6	49.7	274.27
2,644.0	1.30	201.60	2,643.1	1.7	-50.5	50.5	271.87
2,738.0	1.80	199.70	2,737.1	-0.7	-51.4	51.4	269.18
2,833.0	2.10	184.90	2,832.1	-3.9	-52.0	52.2	265.75
2,927.0	2.70	168.90	2,926.0	-7.8	-51.8	52.3	261.47
3,022.0	1.20	169.40	3,020.9	-10.9	-51.1	52.3	257.93
3,116.0	1.40	163.80	3,114.9	-13.0	-50.6	52.3	255.60
3,211.0	1.80	148.70	3,209.9	-15.4	-49.5	51.9	252.74
3,305.0	2.50	152.20	3,303.8	-18.5	-47.8	51.3	248.88
3,400.0	1.80	126.00	3,398.7	-21.2	-45.6	50.3	245.11
3,494.0	1.60	101.60	3,492.7	-22.3	-43.2	48.6	242.67
3,505.0	1.50	106.80	3,503.7	-22.4	-42.9	48.4	242.44
3,599.0	1.80	104.40	3,597.6	-23.1	-40.3	46.4	240.16
3,694.0	2.60	94.50	3,692.6	-23.6	-36.7	43.6	237.19
3,788.0	4.40	87.70	3,786.4	-23.7	-30.9	39.0	232.59
3,883.0	6.20	82.10	3,881.0	-22.8	-22.2	31.9	224.25
3,977.0	6.50	82.80	3,974.4	-21.5	-11.9	24.5	209.06
4,072.0	6.50	82.20	4,068.8	-20.0	-1.3	20.1	183.58
4,167.0	6.40	83.30	4,163.2	-18.7	9.3	20.9	153.48
4,261.0	6.40	82.80	4,256.6	-17.4	19.7	26.3	131.46
4,355.0	6.20	82.40	4,350.0	-16.1	30.0	34.0	118.26
4,450.0	5.90	82.60	4,444.5	-14.8	39.9	42.5	110.35
4,544.0	5.60	83.10	4,538.0	-13.6	49.2	51.1	105.47
4,640.0	5.30	83.50	4,633.6	-12.6	58.3	59.6	102.16
4,735.0	5.20	83.60	4,728.2	-11.6	66.9	67.9	99.82
4,830.0	5.20	83.80	4,822.8	-10.6	75.5	76.2	98.02
4,925.0	5.00	85.90	4,917.4	-9.9	83.9	84.5	96.71
5,020.0	4.70	85.20	5,012.1	-9.3	91.9	92.4	95.75
5,115.0	4.40	85.90	5,106.8	-8.7	99.4	99.8	94.98



QES Survey Certification Report



Company: Mewbourne Oil Company
Project: Eddy County, New Mexico (Nad 83)
Site: Sec 17, T23S, R30E
Well: FNR 17/20 W2IP FED COM #3H
Wellbore: Wellbore #1
Design: Wellbore #1

Local Co-ordinate Reference: Well FNR 17/20 W2IP FED COM #3H
TVD Reference: Well @ 3245.0usft (Patterson #230)
MD Reference: Well @ 3245.0usft (Patterson #230)
North Reference: Grid
Survey Calculation Method: Minimum Curvature
Database: EDM 5000.1 Single User Db

Survey

MD (usft)	Inc (°)	Azi (azimuth) (°)	TVD (usft)	N/S (usft)	EW (usft)	Closure Distance (usft)	Closure Azimuth (°)
5,210.0	4.10	86.80	5,201.5	-8.2	106.4	106.8	94.41
5,304.0	4.00	88.40	5,295.3	-7.9	113.1	113.3	94.02
5,398.0	4.40	78.90	5,389.1	-7.2	119.9	120.1	93.41
5,493.0	4.50	78.20	5,483.8	-5.7	127.1	127.2	92.56
5,587.0	4.70	75.90	5,577.5	-4.0	134.5	134.5	91.70
5,682.0	4.80	76.10	5,672.1	-2.1	142.1	142.1	90.84
5,777.0	4.50	76.10	5,766.8	-0.2	149.6	149.6	90.09
5,872.0	4.70	78.70	5,861.5	1.4	157.0	157.0	89.48
5,966.0	4.70	81.00	5,955.2	2.8	164.6	164.6	89.04
6,061.0	4.30	81.40	6,049.9	3.9	171.9	172.0	88.70
6,155.0	3.50	82.10	6,143.7	4.8	178.3	178.3	88.45
6,250.0	3.30	82.90	6,238.5	5.6	183.9	183.9	88.26
6,344.0	3.30	82.90	6,332.4	6.2	189.2	189.3	88.11
6,439.0	3.10	83.60	6,427.2	6.9	194.5	194.6	87.98
6,533.0	3.00	84.30	6,521.1	7.4	199.5	199.6	87.88
6,628.0	3.70	75.40	6,615.9	8.4	204.9	205.1	87.65
6,722.0	3.80	74.90	6,709.7	10.0	210.8	211.1	87.29
6,817.0	3.80	75.60	6,804.5	11.6	216.9	217.2	86.94
6,912.0	3.70	77.00	6,899.3	13.1	223.0	223.4	86.65
7,006.0	3.40	77.50	6,993.1	14.3	228.6	229.1	86.41
7,100.0	3.30	77.10	7,087.0	15.6	234.0	234.5	86.20
7,195.0	2.90	79.30	7,181.8	16.6	239.0	239.6	86.02
7,290.0	3.40	77.80	7,276.7	17.7	244.1	244.8	85.86
7,385.0	3.50	76.80	7,371.5	18.9	249.7	250.4	85.67
7,480.0	3.30	76.10	7,466.3	20.2	255.2	256.0	85.47
7,575.0	2.60	71.00	7,561.2	21.6	259.9	260.8	85.25
7,670.0	2.40	61.10	7,656.1	23.3	263.7	264.7	84.96
7,764.0	3.10	79.10	7,750.0	24.7	267.9	269.0	84.74
7,859.0	2.30	54.50	7,844.9	26.3	272.0	273.2	84.48
7,953.0	4.00	56.90	7,938.8	29.2	276.2	277.8	83.97
8,048.0	3.70	59.70	8,033.6	32.5	281.7	283.5	83.41
8,143.0	2.70	61.30	8,128.4	35.1	286.3	288.4	83.00
8,238.0	3.10	77.70	8,223.3	36.8	290.8	293.1	82.79
8,333.0	2.60	79.40	8,318.2	37.7	295.4	297.8	82.73
8,428.0	3.30	83.50	8,413.0	38.4	300.2	302.7	82.71
8,523.0	5.30	88.20	8,507.8	38.9	307.3	309.8	82.79
8,618.0	4.60	90.00	8,602.4	39.0	315.5	317.9	82.95
8,712.0	3.80	92.40	8,696.2	38.9	322.4	324.7	83.13
8,807.0	3.90	99.60	8,791.0	38.2	328.7	330.9	83.37
8,897.0	3.00	104.40	8,880.8	37.1	334.0	336.1	83.66
8,992.0	3.90	92.80	8,975.6	36.3	339.7	341.6	83.90
9,087.0	3.70	90.00	9,070.4	36.2	346.0	347.8	84.03
9,181.0	1.10	99.60	9,164.3	36.0	349.9	351.7	84.12
9,276.0	2.10	98.10	9,259.3	35.6	352.5	354.3	84.23
9,371.0	3.00	92.60	9,354.2	35.3	356.7	358.4	84.36



QES Survey Certification Report



Company: Mewbourne Oil Company
Project: Eddy County, New Mexico (Nad 83)
Site: Sec 17, T23S, R30E
Well: FNR 17/20 W2IP FED COM #3H
Wellbore: Wellbore #1
Design: Wellbore #1

Local Co-ordinate Reference: Well FNR 17/20 W2IP FED COM #3H
TVD Reference: Well @ 3245.0usft (Patterson #230)
MD Reference: Well @ 3245.0usft (Patterson #230)
North Reference: Grid
Survey Calculation Method: Minimum Curvature
Database: EDM 5000.1 Single User Db

Survey

MD (usft)	Inc (°)	Azi (azimuth) (°)	TVD (usft)	N/S (usft)	E/W (usft)	Closure Distance (usft)	Closure Azimuth (°)
9,466.0	2.60	76.80	9,449.1	35.6	361.3	363.0	84.37
9,561.0	3.70	78.50	9,543.9	36.7	366.4	368.2	84.27
9,655.0	4.60	85.60	9,637.7	37.6	373.1	375.0	84.24
9,750.0	5.70	96.30	9,732.3	37.4	381.6	383.4	84.40
9,844.0	4.00	94.50	9,826.0	36.6	389.5	391.2	84.63
9,939.0	3.60	95.80	9,920.7	36.1	395.8	397.4	84.79
10,033.0	3.40	108.10	10,014.6	34.9	401.4	402.9	85.03
10,128.0	3.60	113.90	10,109.4	32.8	406.8	408.1	85.39
10,223.0	3.40	113.20	10,204.2	30.5	412.1	413.2	85.77
10,317.0	3.70	112.50	10,298.0	28.3	417.5	418.4	86.13
10,412.0	4.00	102.50	10,392.8	26.4	423.5	424.3	86.44
10,506.0	4.00	103.30	10,486.6	24.9	429.9	430.6	86.69
10,601.0	4.30	102.80	10,581.3	23.3	436.6	437.2	86.94
10,695.0	5.70	98.90	10,675.0	21.8	444.7	445.2	87.19
10,789.0	5.70	97.20	10,768.5	20.5	453.9	454.4	87.41
10,884.0	4.40	97.20	10,863.2	19.5	462.2	462.6	87.59
10,979.0	2.60	100.30	10,958.0	18.6	467.9	468.3	87.72
11,073.0	1.60	86.10	11,051.9	18.4	471.3	471.7	87.77
11,129.0	1.10	94.40	11,107.9	18.4	472.7	473.0	87.77
11,164.0	0.70	104.90	11,142.9	18.3	473.2	473.6	87.79
11,196.0	2.50	122.10	11,174.9	17.9	474.0	474.3	87.84
11,228.0	6.30	127.60	11,206.8	16.4	476.0	476.2	88.02
11,259.0	11.30	132.30	11,237.4	13.3	479.6	479.7	88.41
11,291.0	12.70	141.50	11,268.7	8.5	484.1	484.1	89.00
11,322.0	11.50	153.30	11,299.0	3.0	487.6	487.6	89.64
11,354.0	11.50	160.50	11,330.4	-2.8	490.1	490.1	90.33
11,385.0	14.90	159.40	11,360.6	-9.5	492.5	492.6	91.10
11,417.0	19.70	157.30	11,391.1	-18.3	496.0	496.4	92.11
11,449.0	25.50	155.40	11,420.6	-29.5	501.0	501.9	93.37
11,480.0	30.20	152.20	11,448.0	-42.5	507.4	509.2	94.79
11,511.0	32.30	149.00	11,474.5	-56.5	515.3	518.4	96.26
11,543.0	35.70	143.80	11,501.1	-71.4	525.2	530.1	97.74
11,575.0	40.40	142.40	11,526.3	-87.1	537.1	544.1	99.22
11,606.0	43.40	140.80	11,549.3	-103.4	550.0	559.6	100.64
11,638.0	46.90	141.70	11,571.9	-121.0	564.1	577.0	102.11
11,670.0	49.70	144.50	11,593.2	-140.2	578.5	595.2	103.62
11,701.0	52.50	144.50	11,612.6	-159.8	592.5	613.7	105.09
11,733.0	55.70	141.80	11,631.4	-180.5	608.0	634.3	106.54
11,764.0	59.40	141.10	11,648.0	-201.0	624.3	655.9	107.84
11,796.0	63.30	142.50	11,663.4	-223.0	641.7	679.4	109.17
11,827.0	67.40	143.40	11,676.3	-245.5	658.7	702.9	110.44
11,917.0	74.20	143.90	11,705.9	-313.9	709.0	775.4	113.88
11,949.0	75.50	145.20	11,714.3	-339.1	726.9	802.1	115.01
11,980.0	75.90	145.50	11,721.9	-363.8	744.0	828.2	116.06



QES Survey Certification Report



Company: Mewbourne Oil Company
Project: Eddy County, New Mexico (Nad 83)
Site: Sec 17, T23S, R30E
Well: FNR 17/20 W2IP FED COM #3H
Wellbore: Wellbore #1
Design: Wellbore #1

Local Co-ordinate Reference: Well FNR 17/20 W2IP FED COM #3H
TVD Reference: Well @ 3245.0usft (Patterson #230)
MD Reference: Well @ 3245.0usft (Patterson #230)
North Reference: Grid
Survey Calculation Method: Minimum Curvature
Database: EDM 5000.1 Single User Db

Survey

MD (usft)	Inc (°)	Azi (azimuth) (°)	TVD (usft)	N/S (usft)	E/W (usft)	Closure Distance (usft)	Closure Azimuth (°)
12,012.0	77.20	146.80	11,729.4	-389.7	761.3	855.3	117.10
12,044.0	79.10	146.40	11,735.9	-415.8	778.6	882.7	118.11
12,075.0	80.90	147.40	11,741.3	-441.4	795.2	909.5	119.03
12,106.0	83.80	147.30	11,745.4	-467.3	811.8	936.7	119.92
12,138.0	84.40	147.10	11,748.7	-494.0	829.1	965.1	120.79
12,169.0	86.70	147.80	11,751.1	-520.1	845.7	992.8	121.59
12,201.0	87.60	146.20	11,752.7	-547.2	862.6	1,021.5	122.39
12,232.0	89.30	147.60	11,753.6	-573.4	879.1	1,049.6	123.12
12,264.0	90.10	148.50	11,753.7	-600.6	896.0	1,078.7	123.83
12,295.0	89.50	149.00	11,753.8	-627.1	912.1	1,106.9	124.51
12,334.0	91.10	150.30	11,753.6	-660.7	931.8	1,142.3	125.34
12,397.0	93.30	154.30	11,751.2	-716.4	961.1	1,198.7	126.70
12,491.0	91.50	157.50	11,747.3	-802.2	999.4	1,281.5	128.75
12,586.0	88.00	159.20	11,747.7	-890.4	1,034.5	1,364.9	130.72
12,681.0	94.00	164.70	11,746.0	-980.7	1,063.9	1,446.9	132.67
12,776.0	87.70	168.90	11,744.6	-1,073.1	1,085.5	1,526.4	134.67
12,871.0	91.80	174.90	11,745.0	-1,167.1	1,098.9	1,603.0	136.72
12,965.0	88.70	175.60	11,744.6	-1,260.7	1,106.7	1,677.6	138.72
13,059.0	90.60	180.50	11,745.2	-1,354.6	1,109.9	1,751.3	140.67
13,154.0	88.00	178.20	11,746.4	-1,449.6	1,111.0	1,826.4	142.53
13,249.0	86.80	176.80	11,750.7	-1,544.4	1,115.1	1,904.9	144.17
13,343.0	92.90	181.70	11,750.9	-1,638.3	1,116.3	1,982.5	145.73
13,438.0	88.60	179.40	11,749.7	-1,733.3	1,115.4	2,061.2	147.24
13,533.0	89.70	179.40	11,751.1	-1,828.3	1,116.4	2,142.2	148.59
13,627.0	88.60	180.00	11,752.5	-1,922.3	1,116.9	2,223.2	149.84
13,722.0	87.70	180.50	11,755.5	-2,017.2	1,116.5	2,305.6	151.04
13,817.0	90.80	181.90	11,756.8	-2,112.2	1,114.5	2,388.2	152.18
13,911.0	89.80	182.80	11,756.3	-2,206.1	1,110.7	2,469.9	153.28
14,006.0	90.00	184.00	11,756.5	-2,300.9	1,105.0	2,552.5	154.35
14,100.0	92.80	184.70	11,754.2	-2,394.6	1,097.9	2,634.3	155.37
14,194.0	91.60	183.50	11,750.6	-2,488.3	1,091.2	2,717.0	156.32
14,289.0	88.90	182.10	11,750.1	-2,583.2	1,086.5	2,802.4	157.19
14,384.0	89.90	182.80	11,751.1	-2,678.1	1,082.5	2,888.6	157.99
14,478.0	91.30	180.90	11,750.2	-2,772.0	1,079.4	2,974.8	158.72
14,573.0	93.40	178.70	11,746.3	-2,866.9	1,079.8	3,063.5	159.36
14,667.0	92.10	180.90	11,741.7	-2,960.8	1,080.1	3,151.7	159.96
14,762.0	92.90	183.30	11,737.6	-3,055.7	1,076.6	3,239.8	160.59
14,856.0	91.00	185.60	11,734.4	-3,149.3	1,069.3	3,325.9	161.25
14,951.0	85.60	185.80	11,737.2	-3,243.8	1,059.9	3,412.5	161.91
15,045.0	90.20	182.10	11,740.7	-3,337.4	1,053.4	3,499.7	162.48
15,139.0	86.00	181.00	11,743.8	-3,431.3	1,050.9	3,588.6	162.97
15,234.0	92.90	180.10	11,744.7	-3,526.3	1,050.0	3,679.3	163.42
15,329.0	90.00	177.30	11,742.3	-3,621.2	1,052.1	3,770.9	163.80
15,424.0	93.30	175.20	11,739.6	-3,715.9	1,058.4	3,863.7	164.10



QES Survey Certification Report



Company: Mewbourne Oil Company
Project: Eddy County, New Mexico (Nad 83)
Site: Sec 17, T23S, R30E
Well: FNR 17/20 W2IP FED COM #3H
Wellbore: Wellbore #1
Design: Wellbore #1

Local Co-ordinate Reference: Well FNR 17/20 W2IP FED COM #3H
TVD Reference: Well @ 3245.0usft (Patterson #230)
MD Reference: Well @ 3245.0usft (Patterson #230)
North Reference: Grid
Survey Calculation Method: Minimum Curvature
Database: EDM 5000.1 Single User Db

Survey

MD (usft)	Inc (°)	Azi (azimuth) (°)	TVD (usft)	N/S (usft)	E/W (usft)	Closure Distance (usft)	Closure Azimuth (°)
15,518.0	92.10	173.10	11,735.1	-3,809.3	1,067.9	3,956.2	164.34
15,612.0	90.80	171.70	11,732.7	-3,902.5	1,080.3	4,049.2	164.53
15,694.0	94.00	169.10	11,729.3	-3,983.2	1,094.0	4,130.7	164.64
15,788.0	95.80	171.90	11,721.3	-4,075.6	1,109.5	4,223.9	164.77
15,883.0	97.00	179.30	11,710.7	-4,169.6	1,116.7	4,316.6	165.01
15,977.0	95.20	184.40	11,700.7	-4,263.0	1,113.7	4,406.1	165.36
16,071.0	93.70	185.90	11,693.4	-4,356.4	1,105.3	4,494.4	165.76
16,166.0	90.20	188.20	11,690.2	-4,450.6	1,093.6	4,583.0	166.19
16,260.0	89.60	188.60	11,690.3	-4,543.6	1,079.9	4,670.1	166.63
16,355.0	87.20	187.40	11,693.0	-4,637.6	1,066.7	4,758.7	167.05
16,449.0	86.00	185.80	11,698.5	-4,730.8	1,055.9	4,847.2	167.42
16,544.0	92.30	187.20	11,700.0	-4,825.1	1,045.1	4,937.0	167.78
16,639.0	91.30	186.30	11,697.0	-4,919.4	1,034.0	5,026.9	168.13
16,733.0	87.10	185.40	11,698.3	-5,012.9	1,024.4	5,116.5	168.45
16,827.0	87.30	185.30	11,702.9	-5,106.4	1,015.6	5,206.4	168.75
16,925.0	88.40	185.30	11,706.6	-5,203.9	1,006.6	5,300.3	169.05
17,019.0	89.30	183.50	11,708.4	-5,297.6	999.4	5,391.0	169.32
17,114.0	90.50	182.80	11,708.6	-5,392.4	994.2	5,483.3	169.55
17,208.0	88.70	180.30	11,709.3	-5,486.4	991.6	5,575.3	169.75
17,303.0	87.60	179.30	11,712.3	-5,581.3	992.0	5,668.8	169.92
17,398.0	88.60	179.10	11,715.5	-5,676.3	993.3	5,762.5	170.07
17,492.0	90.30	178.90	11,716.4	-5,770.3	994.9	5,855.4	170.22
17,587.0	90.90	180.50	11,715.4	-5,865.2	995.4	5,949.1	170.37
17,682.0	89.60	178.90	11,715.0	-5,960.2	995.9	6,042.9	170.51
17,776.0	88.20	178.60	11,716.8	-6,054.2	998.0	6,135.9	170.64
17,871.0	89.90	183.00	11,718.3	-6,149.1	996.6	6,229.4	170.79
17,967.0	87.80	181.90	11,720.3	-6,245.0	992.5	6,323.4	170.97
18,063.0	90.20	182.30	11,722.0	-6,340.9	989.0	6,417.6	171.13
18,158.0	87.80	182.80	11,723.6	-6,435.8	984.8	6,510.7	171.30
18,254.0	92.90	184.40	11,723.0	-6,531.6	978.8	6,604.5	171.48
18,350.0	89.10	180.70	11,721.3	-6,627.5	974.5	6,698.7	171.64
18,446.0	90.40	180.90	11,721.8	-6,723.4	973.2	6,793.5	171.76
18,541.0	87.80	178.90	11,723.3	-6,818.4	973.3	6,887.5	171.88
18,635.0	88.90	178.40	11,726.0	-6,912.4	975.5	6,980.9	171.97
18,730.0	87.20	176.60	11,729.2	-7,007.2	979.7	7,075.4	172.04
18,824.0	89.30	180.90	11,732.1	-7,101.1	981.7	7,168.7	172.13
18,918.0	90.10	180.00	11,732.6	-7,195.1	981.0	7,261.7	172.24
19,013.0	87.90	176.50	11,734.2	-7,290.0	983.9	7,356.1	172.31
19,045.0	87.60	176.10	11,735.5	-7,321.9	986.0	7,388.0	172.33
19,105.0	87.60	176.10	11,738.0	-7,381.7	990.0	7,447.8	172.36

TD @ 19105.0' MD / 11738.0' TVD



QES Survey Certification Report



Company: Mewbourne Oil Company
Project: Eddy County, New Mexico (Nad 83)
Site: Sec 17, T23S, R30E
Well: FNR 17/20 W2IP FED COM #3H
Wellbore: Wellbore #1
Design: Wellbore #1

Local Co-ordinate Reference: Well FNR 17/20 W2IP FED COM #3H
TVD Reference: Well @ 3245.0usft (Patterson #230)
MD Reference: Well @ 3245.0usft (Patterson #230)
North Reference: Grid
Survey Calculation Method: Minimum Curvature
Database: EDM 5000.1 Single User Db

Survey Annotations

Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates		Comment
		+N/-S (usft)	+E/-W (usft)	
105.0	105.0	-0.1	-0.5	First MWD Survey @ 105.0' MD / 105.0' TVD TD @ 19105.0' MD / 11738.0' TVD
19,105.0	11,738.0	-7,381.7	990.0	

Checked By: _____ Approved By: _____ Date: _____