Mewbourne Oil Company

Eddy County, New Mexico (Nad 83)
Sec 16, T20-S,R29-E
Glock 16 B2IL Fed #1H 30-015-45132
Wellbore #1

Design: Wellbore #1

QES Survey Certification Report

12 September, 2018

QES
DIRECTIONAL DRILLING

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-180940	1/6/2019

Lease	Well Name	County & State
SEC 16, T-20S, R29E	Glock 16 B2IL Fed #1H	Eddy County, NM

API No.	Survey Depth Range	Survey Type
30-015-45132	3185 feet to 13305 feet MD	MWD

Sidetrack Information	Directional Supervisor/Surveyor
Click here to enter text.	Jeff Newton

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=compliance, email=chrish@qeslp.com, c=US
Date: 2019.01.07 13:11:10 -06'00'

Christopher Hughes
MWD Compliance Manager
Quintana Energy Services

MEWBOURNE OIL COMPANY

QES Survey Certification Report

QES

Company:	Mewbourne Oil Company	**Local Co-ordinate Reference:**	Well Glock 16 B2IL Fed #1H
Project:	Eddy County, New Mexico (Nad 83)	**TVD Reference:**	WELL @ 3316.0usft (Patterson #230)
Site:	Sec 16, T20-S,R29-E	**MD Reference:**	WELL @ 3316.0usft (Patterson #230)
Well:	Glock 16 B2IL Fed #1H	**North Reference:**	Grid
Wellbore:	Wellbore #1	**Survey Calculation Method:**	Minimum Curvature
Design:	Wellbore #1	**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				
Site Position:		**Northing:**	572,700.08 usft	**Latitude:**	32° 34' 26.886 N
From:	Map	**Easting:**	621,945.49 usft	**Longitude:**	104° 4' 17.955 W
Position Uncertainty:	0.0 usft	**Slot Radius:**	13-3/16"	**Grid Convergence:**	0.14 °

Well	Glock 16 B2IL Fed #1H					
Well Position	**+N/-S**	0.0 usft	**Northing:**	572,650.90 usft	**Latitude:**	32° 34' 26.399 N
	+E/-W	0.0 usft	**Easting:**	621,940.50 usft	**Longitude:**	104° 4' 18.015 W
Position Uncertainty		0.0 usft	**Wellhead Elevation:**	usft	**Ground Level:**	3,289.0 usft

Wellbore Wellbore #1

Magnetics	**Model Name**	**Sample Date**	**Declination (°)**	**Dip Angle (°)**	**Field Strength (nT)**
	IGRF2015	8/21/2018	7.09	60.29	47,971.77821491

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	257.31	

Survey Program **Date** 9/12/2018

From (usft)	**To (usft)**	**Survey (Wellbore)**	**Tool Name**	**Description**
100.0	3,185.0	Gyro (Wellbore #1)	GYRO-NS	OWSG Gyrocompass Gyro
3,266.0	13,305.0	MWD (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 (°)**
3,185.0	1.69	18.97	3,183.2	78.2	-17.4	80.1	347.46
Gyro Tie-in @ 3185.0' MD / 3183.2' TVD							
3,266.0	1.60	22.10	3,264.1	80.4	-16.6	82.1	348.35
3,313.0	1.40	4.50	3,311.1	81.5	-16.3	83.2	348.71
3,408.0	0.30	183.60	3,406.1	82.4	-16.2	84.0	348.88
3,503.0	2.30	177.40	3,501.1	80.3	-16.1	81.9	348.64
3,597.0	3.90	174.80	3,594.9	75.2	-15.8	76.9	348.17
3,692.0	4.80	180.30	3,689.7	68.0	-15.5	69.8	347.18
3,786.0	5.20	183.80	3,783.3	59.9	-15.8	61.9	345.22
3,880.0	5.00	182.00	3,876.9	51.5	-16.2	54.0	342.52
3,975.0	5.40	185.00	3,971.5	42.9	-16.8	46.1	338.68

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Site:	Sec 16, T20-S,R29-E	**MD Reference:**	WELL @ 3316.0usft (Patterson #230)
Well:	Glock 16 B2IL 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 (usft)	Inc (°)	Azi (azimuth) (°)	TVD (usft)	N/S (usft)	E/W (usft)	Closure Distance (usft)	Closure Azimuth (°)
4,069.0	5.00	170.90	4,065.2	34.5	-16.5	38.2	334.43
4,164.0	5.00	168.50	4,159.8	26.3	-15.0	30.3	330.31
4,258.0	4.70	170.90	4,253.5	18.5	-13.6	23.0	323.72
4,353.0	3.70	164.40	4,348.2	11.7	-12.1	16.9	313.96
4,448.0	4.00	178.90	4,443.0	5.4	-11.3	12.5	295.82
4,543.0	4.40	179.70	4,537.7	-1.5	-11.2	11.3	262.29
4,638.0	4.30	174.80	4,632.5	-8.7	-10.8	13.9	231.21
4,732.0	4.40	179.00	4,726.2	-15.8	-10.4	19.0	213.45
4,827.0	4.60	174.80	4,820.9	-23.3	-10.0	25.3	203.35
4,921.0	4.80	179.60	4,914.6	-30.9	-9.7	32.4	197.36
5,016.0	4.70	177.60	5,009.3	-38.8	-9.5	39.9	193.73
5,110.0	4.30	175.70	5,103.0	-46.2	-9.1	47.0	191.10
5,205.0	4.30	169.90	5,197.7	-53.2	-8.2	53.8	188.72
5,300.0	4.00	178.00	5,292.4	-60.0	-7.4	60.5	187.05
5,394.0	3.30	170.20	5,386.3	-66.0	-6.8	66.3	185.92
5,489.0	4.00	170.20	5,481.1	-71.9	-5.8	72.2	184.62
5,584.0	5.40	172.90	5,575.7	-79.6	-4.7	79.8	183.38
5,678.0	5.30	170.60	5,669.3	-88.3	-3.4	88.4	182.23
5,773.0	5.40	171.50	5,763.9	-97.1	-2.1	97.1	181.22
5,867.0	5.50	169.70	5,857.5	-105.9	-0.6	105.9	180.33
5,962.0	5.40	164.60	5,952.1	-114.7	1.4	114.7	179.30
6,056.0	4.90	156.70	6,045.7	-122.6	4.2	122.7	178.06
6,151.0	5.10	153.50	6,140.3	-130.1	7.6	130.3	176.64
6,245.0	5.50	151.30	6,233.9	-137.8	11.7	138.3	175.16
6,340.0	5.20	146.20	6,328.5	-145.4	16.3	146.3	173.62
6,435.0	6.20	158.10	6,423.0	-153.7	20.6	155.1	172.38
6,530.0	5.80	175.20	6,517.5	-163.3	22.9	164.9	172.02
6,624.0	4.00	168.00	6,611.2	-171.2	24.0	172.9	172.03
6,719.0	3.80	170.90	6,706.0	-177.6	25.1	179.3	171.94
6,814.0	5.30	173.10	6,800.7	-185.0	26.2	186.9	171.95
6,909.0	5.90	173.20	6,895.2	-194.2	27.3	196.1	172.01
7,004.0	5.40	185.00	6,989.7	-203.5	27.5	205.4	172.32
7,099.0	5.40	191.00	7,084.3	-212.4	26.2	214.0	172.96
7,188.0	5.40	183.60	7,172.9	-220.7	25.2	222.1	173.50
7,283.0	5.30	186.20	7,267.5	-229.5	24.4	230.8	173.93
7,377.0	4.60	178.10	7,361.2	-237.6	24.1	238.8	174.22
7,472.0	5.30	162.10	7,455.8	-245.5	25.5	246.9	174.06
7,575.0	4.60	157.20	7,558.4	-253.9	28.6	255.5	173.57
7,650.0	6.10	192.90	7,633.1	-260.5	28.9	262.1	173.68
7,681.0	9.60	208.60	7,663.8	-264.4	27.3	265.8	174.11
7,712.0	12.70	214.20	7,694.2	-269.5	24.1	270.6	174.89
7,744.0	16.80	223.90	7,725.2	-275.8	18.9	276.4	176.07
7,775.0	20.00	226.70	7,754.6	-282.6	12.0	282.9	177.58
7,807.0	24.00	227.40	7,784.3	-290.8	3.2	290.8	179.37

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Survey

MD (usft)	Inc (°)	Azi (azimuth) (°)	TVD (usft)	N/S (usft)	E/W (usft)	Closure Distance (usft)	Closure Azimuth (°)
7,838.0	29.00	227.00	7,812.0	-300.2	-7.0	300.3	181.33
7,870.0	33.70	227.60	7,839.3	-311.5	-19.2	312.0	183.53
7,901.0	37.70	228.30	7,864.5	-323.6	-32.6	325.2	185.76
7,933.0	41.70	229.30	7,889.1	-337.0	-48.0	340.4	188.11
7,964.0	45.10	229.30	7,911.6	-350.9	-64.2	356.7	190.36
7,996.0	47.60	228.40	7,933.7	-366.1	-81.6	375.1	192.56
8,027.0	49.90	226.70	7,954.2	-381.9	-98.8	394.4	194.50
8,059.0	52.90	225.30	7,974.1	-399.3	-116.8	416.0	196.30
8,091.0	56.90	225.30	7,992.5	-417.7	-135.4	439.1	197.96
8,123.0	60.30	226.50	8,009.2	-436.7	-155.0	463.4	199.54
8,154.0	63.20	227.00	8,023.9	-455.4	-174.9	487.8	201.01
8,185.0	65.30	227.00	8,037.3	-474.4	-195.3	513.0	202.37
8,217.0	67.70	226.50	8,050.1	-494.5	-216.7	539.9	203.66
8,248.0	68.80	226.50	8,061.6	-514.3	-237.5	566.5	204.79
8,280.0	70.20	226.50	8,072.8	-535.0	-259.3	594.5	205.86
8,311.0	72.50	227.00	8,082.7	-555.1	-280.7	622.0	206.82
8,343.0	74.70	227.40	8,091.7	-576.0	-303.2	650.9	207.76
8,375.0	76.20	227.60	8,099.8	-596.9	-326.0	680.1	208.65
8,395.0	79.10	226.80	8,104.0	-610.2	-340.4	698.7	209.15
8,494.0	86.30	228.80	8,116.6	-676.1	-413.1	792.3	211.43
8,589.0	91.50	230.70	8,118.4	-737.4	-485.5	882.9	213.36
8,683.0	92.00	231.90	8,115.6	-796.1	-558.9	972.7	215.07
8,778.0	90.50	234.40	8,113.5	-853.1	-634.9	1,063.4	216.66
8,873.0	90.70	239.00	8,112.5	-905.2	-714.2	1,153.1	218.27
8,967.0	91.20	246.50	8,110.9	-948.2	-797.7	1,239.2	220.07
9,062.0	91.00	251.10	8,109.1	-982.6	-886.3	1,323.2	222.05
9,157.0	90.30	253.90	8,108.0	-1,011.1	-976.9	1,405.9	224.01
9,251.0	92.20	257.40	8,106.0	-1,034.4	-1,067.9	1,486.7	225.91
9,346.0	93.10	258.70	8,101.6	-1,054.1	-1,160.7	1,567.9	227.76
9,440.0	92.10	258.10	8,097.3	-1,073.0	-1,252.7	1,649.4	229.42
9,535.0	91.70	261.80	8,094.2	-1,089.5	-1,346.2	1,731.8	231.01
9,630.0	90.70	264.60	8,092.2	-1,100.8	-1,440.5	1,812.9	232.61
9,724.0	90.90	268.10	8,090.9	-1,106.8	-1,534.3	1,891.8	234.19
9,819.0	92.60	269.20	8,088.0	-1,109.0	-1,629.2	1,970.8	235.76
9,913.0	93.00	268.90	8,083.4	-1,110.6	-1,723.1	2,049.9	237.20
10,008.0	92.90	268.50	8,078.5	-1,112.7	-1,817.9	2,131.4	238.53
10,103.0	94.20	268.30	8,072.6	-1,115.4	-1,912.7	2,214.1	239.75
10,198.0	92.70	267.10	8,066.9	-1,119.2	-2,007.4	2,298.3	240.86
10,292.0	90.90	267.30	8,063.9	-1,123.7	-2,101.3	2,382.9	241.86
10,387.0	91.20	266.60	8,062.2	-1,128.8	-2,196.1	2,469.2	242.80
10,481.0	89.20	268.50	8,061.9	-1,132.8	-2,290.0	2,554.9	243.68
10,575.0	88.60	270.10	8,063.7	-1,134.0	-2,384.0	2,639.9	244.56
10,669.0	89.70	269.20	8,065.1	-1,134.5	-2,478.0	2,725.4	245.40
10,764.0	89.30	268.70	8,065.9	-1,136.3	-2,573.0	2,812.7	246.17

MEWBOURNE OIL COMPANY

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QES

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Wellbore:	Wellbore #1	**Survey Calculation Method:**	Minimum Curvature
Design:	Wellbore #1	**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 (°)
10,859.0	89.40	269.90	8,067.0	-1,137.4	-2,667.9	2,900.3	246.91
10,954.0	90.50	270.40	8,067.1	-1,137.2	-2,762.9	2,987.8	247.63
11,048.0	89.30	268.30	8,067.2	-1,138.3	-2,856.9	3,075.3	248.28
11,142.0	92.00	270.30	8,066.2	-1,139.4	-2,950.9	3,163.2	248.89
11,237.0	92.30	270.60	8,062.6	-1,138.7	-3,045.8	3,251.7	249.50
11,331.0	93.20	270.40	8,058.1	-1,137.8	-3,139.7	3,339.5	250.08
11,426.0	93.70	270.30	8,052.4	-1,137.3	-3,234.5	3,428.7	250.63
11,520.0	94.30	270.30	8,045.8	-1,136.8	-3,328.3	3,517.1	251.14
11,615.0	93.50	271.70	8,039.3	-1,135.1	-3,423.1	3,606.4	251.65
11,709.0	91.80	269.90	8,035.0	-1,133.8	-3,517.0	3,695.2	252.13
11,804.0	90.50	269.90	8,033.1	-1,134.0	-3,611.9	3,785.8	252.57
11,898.0	91.00	269.00	8,031.9	-1,134.9	-3,705.9	3,875.8	252.97
11,993.0	90.00	269.70	8,031.0	-1,136.0	-3,800.9	3,967.0	253.36
12,088.0	89.70	268.50	8,031.3	-1,137.4	-3,895.9	4,058.6	253.72
12,183.0	90.00	267.50	8,031.5	-1,140.8	-3,990.8	4,150.7	254.05
12,278.0	90.40	267.60	8,031.2	-1,144.8	-4,085.8	4,243.1	254.35
12,373.0	90.10	266.60	8,030.8	-1,149.6	-4,180.6	4,335.8	254.62
12,467.0	90.20	265.20	8,030.5	-1,156.3	-4,274.4	4,428.0	254.86
12,562.0	90.80	263.00	8,029.7	-1,166.1	-4,368.9	4,521.8	255.06
12,657.0	90.70	264.50	8,028.5	-1,176.5	-4,463.3	4,615.7	255.23
12,752.0	91.60	268.10	8,026.6	-1,182.6	-4,558.1	4,709.0	255.46
12,847.0	92.10	270.30	8,023.5	-1,183.9	-4,653.0	4,801.3	255.72
12,942.0	93.30	271.70	8,019.0	-1,182.3	-4,747.9	4,892.9	256.02
13,036.0	92.40	271.10	8,014.3	-1,180.0	-4,841.7	4,983.4	256.30
13,131.0	92.20	271.80	8,010.5	-1,177.6	-4,936.6	5,075.1	256.58
13,225.0	92.70	269.90	8,006.5	-1,176.2	-5,030.5	5,166.2	256.84
13,240.0	92.60	269.40	8,005.8	-1,176.3	-5,045.5	5,180.8	256.88
13,305.0	92.60	269.40	8,002.9	-1,176.9	-5,110.4	[redacted]	[redacted]

TD @ 13305.0' MD / 8002.9' TVD

Design Annotations

Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates +N/-S (usft)	Local Coordinates +E/-W (usft)	Comment
3,185.0	3,183.2	78.2	-17.4	Gyro Tie-in @ 3185.0' MD / 3183.2' TVD
13,305.0	8,002.9	-1,176.9	-5,110.4	TD @ 13305.0' MD / 8002.9' TVD