



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 B2IL Fed #1H

Wellbore #1

30-015-45132

Design: Wellbore #1

QES Survey Report

12 September, 2018





Survey Report



Company: Mewbourne Oil Company
Project: Eddy County, New Mexico (Nad 83)
Site: Sec 16, T20-S,R29-E
Well: Glock 16 B2IL Fed #1H
Wellbore: Wellbore #1
Design: Wellbore #1

Local Co-ordinate Reference: Well Glock 16 B2IL Fed #1H
TVD Reference: WELL @ 3316.0usft (Patterson #230)
MD Reference: WELL @ 3316.0usft (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		
Site Position:		Northing:	572,700.08 usft
From:	Map	Easting:	621,945.49 usft
Position Uncertainty:	0.0 usft	Slot Radius:	13-3/16 "
		Latitude:	32° 34' 26.886 N
		Longitude:	104° 4' 17.955 W
		Grid Convergence:	0.14 °

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

Wellbore	Wellbore #1		
Magnetics	Model Name	Sample Date	Declination
	IGRF2015	8/21/2018	(°)
			7.09
			Dip Angle (°)
			60.29
			Field Strength (nT)
			47,971.77821491

Design	Wellbore #1		
Audit Notes:			
Version:	1.0	Phase:	ACTUAL
		Tie On Depth:	0.0
Vertical Section:	Depth From (TVD)	+N-S	+E-W
	(usft)	(usft)	(usft)
	0.0	0.0	0.0
			Direction (°)
			257.31

Survey Program	Date 9/12/2018		
From	To	Survey (Wellbore)	Tool Name
(usft)	(usft)		
100.0	3,185.0	Gyro (Wellbore #1)	GYRO-NS
3,266.0	13,305.0	MWD (Wellbore #1)	OWSG (Rev2) MWD
			Description
			OWSG Gyrocompass Gyro
			OWSG MWD - Standard

Survey									
Measured	Inclination	Azimuth	Vertical	+N-S	+E-W	Vertical	Dogleg	Build	Turn
Depth	(°)	(°)	Depth	(usft)	(usft)	Section	Rate	Rate	Rate
(usft)			(usft)			(usft)	(°/100usft)	(°/100usft)	(°/100usft)
0.0	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00	0.00
100.0	0.29	224.50	100.0	-0.2	-0.2	0.2	0.29	0.29	0.00
200.0	1.06	290.79	200.0	0.0	-1.2	1.2	0.98	0.77	66.29
300.0	2.24	285.00	299.9	0.8	-4.0	3.7	1.19	1.18	-5.79
400.0	2.44	284.51	399.9	1.8	-7.9	7.3	0.20	0.20	-0.49
500.0	2.40	286.40	499.8	3.0	-12.0	11.0	0.09	-0.04	1.89
600.0	2.46	285.29	599.7	4.1	-16.1	14.8	0.08	0.06	-1.11
700.0	1.86	288.47	699.6	5.2	-19.7	18.1	0.61	-0.60	3.18
800.0	1.31	300.85	799.6	6.3	-22.2	20.3	0.64	-0.55	12.38
900.0	0.79	331.34	899.6	7.5	-23.5	21.3	0.75	-0.52	30.49



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Survey

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
1,000.0	0.72	44.11	999.6	8.5	-23.4	21.0	0.90	-0.07	72.77
1,100.0	0.97	55.85	1,099.5	9.5	-22.3	19.6	0.30	0.25	11.74
1,200.0	1.08	60.47	1,199.5	10.4	-20.7	18.0	0.14	0.11	4.62
1,300.0	0.91	36.24	1,299.5	11.5	-19.5	16.5	0.45	-0.17	-24.23
1,400.0	0.90	15.73	1,399.5	12.9	-18.8	15.5	0.32	-0.01	-20.51
1,500.0	1.04	352.28	1,499.5	14.6	-18.7	15.0	0.42	0.14	-23.45
1,600.0	1.67	323.34	1,599.5	16.6	-19.7	15.5	0.91	0.63	-28.94
1,700.0	2.21	338.81	1,699.4	19.6	-21.2	16.4	0.75	0.54	15.47
1,800.0	2.36	344.33	1,799.3	23.4	-22.5	16.8	0.27	0.15	5.52
1,900.0	2.40	350.35	1,899.2	27.4	-23.4	16.8	0.25	0.04	6.02
2,000.0	2.09	350.77	1,999.2	31.3	-24.0	16.6	0.31	-0.31	0.42
2,100.0	2.15	339.82	2,099.1	34.9	-25.0	16.7	0.41	0.06	-10.95
2,200.0	2.38	353.01	2,199.0	38.7	-25.9	16.8	0.57	0.23	13.19
2,300.0	2.84	0.81	2,298.9	43.2	-26.1	16.0	0.58	0.46	7.80
2,400.0	2.85	5.00	2,398.8	48.2	-25.9	14.6	0.21	0.01	4.19
2,500.0	2.43	13.43	2,498.7	52.7	-25.1	12.9	0.57	-0.42	8.43
2,600.0	2.27	16.81	2,598.6	56.7	-24.1	11.0	0.21	-0.16	3.38
2,700.0	2.37	17.17	2,698.5	60.5	-22.9	9.0	0.10	0.10	0.36
2,800.0	2.62	17.50	2,798.4	64.7	-21.6	6.9	0.25	0.25	0.33
2,900.0	2.29	16.83	2,898.3	68.8	-20.3	4.7	0.33	-0.33	-0.67
3,000.0	1.93	18.11	2,998.3	72.3	-19.2	2.9	0.36	-0.36	1.28
3,100.0	2.00	16.36	3,098.2	75.6	-18.2	1.2	0.09	0.07	-1.75
Gyro Tie-in @ 3185.0' MD / 3183.2' TVD									
3,185.0	1.69	18.97	3,183.2	78.2	-17.4	-0.2	0.38	-0.36	3.07
3,266.0	1.60	22.10	3,264.1	80.4	-16.6	-1.5	0.16	-0.11	3.86
3,313.0	1.40	4.50	3,311.1	81.5	-16.3	-2.0	1.06	-0.43	-37.45
3,408.0	0.30	183.60	3,406.1	82.4	-16.2	-2.3	1.79	-1.16	188.53
3,503.0	2.30	177.40	3,501.1	80.3	-16.1	-1.9	2.11	2.11	-6.53
3,597.0	3.90	174.80	3,594.9	75.2	-15.8	-1.2	1.71	1.70	-2.77
3,692.0	4.80	180.30	3,689.7	68.0	-15.5	0.2	1.04	0.95	5.79
3,786.0	5.20	183.80	3,783.3	59.9	-15.8	2.3	0.53	0.43	3.72
3,880.0	5.00	182.00	3,876.9	51.5	-16.2	4.5	0.27	-0.21	-1.91
3,975.0	5.40	185.00	3,971.5	42.9	-16.8	6.9	0.51	0.42	3.16
4,069.0	5.00	170.90	4,065.2	34.5	-16.5	8.5	1.42	-0.43	-15.00
4,164.0	5.00	168.50	4,159.8	26.3	-15.0	8.9	0.22	0.00	-2.53
4,258.0	4.70	170.90	4,253.5	18.5	-13.6	9.2	0.39	-0.32	2.55
4,353.0	3.70	164.40	4,348.2	11.7	-12.1	9.3	1.16	-1.05	-6.84
4,448.0	4.00	178.90	4,443.0	5.4	-11.3	9.8	1.07	0.32	15.26
4,543.0	4.40	179.70	4,537.7	-1.5	-11.2	11.2	0.43	0.42	0.84
4,638.0	4.30	174.80	4,632.5	-8.7	-10.8	12.5	0.40	-0.11	-5.16
4,732.0	4.40	179.00	4,726.2	-15.8	-10.4	13.7	0.36	0.11	4.47
4,827.0	4.60	174.80	4,820.9	-23.3	-10.0	14.9	0.41	0.21	-4.42
4,921.0	4.80	179.60	4,914.6	-30.9	-9.7	16.2	0.47	0.21	5.11



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Survey

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
5,016.0	4.70	177.60	5,009.3	-38.8	-9.5	17.8	0.20	-0.11	-2.11
5,110.0	4.30	175.70	5,103.0	-46.2	-9.1	19.0	0.45	-0.43	-2.02
5,205.0	4.30	169.90	5,197.7	-53.2	-8.2	19.7	0.46	0.00	-6.11
5,300.0	4.00	178.00	5,292.4	-60.0	-7.4	20.4	0.69	-0.32	8.53
5,394.0	3.30	170.20	5,386.3	-66.0	-6.8	21.2	0.91	-0.74	-8.30
5,489.0	4.00	170.20	5,481.1	-71.9	-5.8	21.5	0.74	0.74	0.00
5,584.0	5.40	172.90	5,575.7	-79.6	-4.7	22.1	1.49	1.47	2.84
5,678.0	5.30	170.60	5,669.3	-88.3	-3.4	22.8	0.25	-0.11	-2.45
5,773.0	5.40	171.50	5,763.9	-97.1	-2.1	23.3	0.14	0.11	0.95
5,867.0	5.50	169.70	5,857.5	-105.9	-0.6	23.9	0.21	0.11	-1.91
5,962.0	5.40	164.60	5,952.1	-114.7	1.4	23.8	0.52	-0.11	-5.37
6,056.0	4.90	156.70	6,045.7	-122.6	4.2	22.9	0.92	-0.53	-8.40
6,151.0	5.10	153.50	6,140.3	-130.1	7.6	21.1	0.36	0.21	-3.37
6,245.0	5.50	151.30	6,233.9	-137.8	11.7	18.9	0.48	0.43	-2.34
6,340.0	5.20	146.20	6,328.5	-145.4	16.3	16.1	0.59	-0.32	-5.37
6,435.0	6.20	158.10	6,423.0	-153.7	20.6	13.7	1.62	1.05	12.53
6,530.0	5.80	175.20	6,517.5	-163.3	22.9	13.5	1.92	-0.42	18.00
6,624.0	4.00	168.00	6,611.2	-171.2	24.0	14.2	2.02	-1.91	-7.66
6,719.0	3.80	170.90	6,706.0	-177.6	25.1	14.5	0.30	-0.21	3.05
6,814.0	5.30	173.10	6,800.7	-185.0	26.2	15.1	1.59	1.58	2.32
Crossed LL @ 6847.0' MD / 6833.5' TVD									
6,847.0	5.51	173.14	6,833.5	-188.1	26.5	15.4	0.63	0.63	0.11
6,909.0	5.90	173.20	6,895.2	-194.2	27.3	16.1	0.63	0.63	0.10
7,004.0	5.40	185.00	6,989.7	-203.5	27.5	17.9	1.33	-0.53	12.42
7,099.0	5.40	191.00	7,084.3	-212.4	26.2	21.1	0.59	0.00	6.32
7,188.0	5.40	183.60	7,172.9	-220.7	25.2	23.9	0.78	0.00	-8.31
7,283.0	5.30	186.20	7,267.5	-229.5	24.4	26.6	0.28	-0.11	2.74
7,377.0	4.60	178.10	7,361.2	-237.6	24.1	28.7	1.05	-0.74	-8.62
7,472.0	5.30	162.10	7,455.8	-245.5	25.5	29.0	1.62	0.74	-16.84
7,575.0	4.60	157.20	7,558.4	-253.9	28.6	27.9	0.79	-0.68	-4.76
7,650.0	6.10	192.90	7,633.1	-260.5	28.9	29.1	4.76	2.00	47.60
7,681.0	9.60	208.60	7,663.8	-264.4	27.3	31.5	13.14	11.29	50.65
7,712.0	12.70	214.20	7,694.2	-269.5	24.1	35.7	10.58	10.00	18.06
7,744.0	16.80	223.90	7,725.2	-275.8	18.9	42.1	14.92	12.81	30.31
7,775.0	20.00	226.70	7,754.6	-282.6	12.0	50.4	10.71	10.32	9.03
7,807.0	24.00	227.40	7,784.3	-290.8	3.2	60.8	12.53	12.50	2.19
7,838.0	29.00	227.00	7,812.0	-300.2	-7.0	72.7	16.14	16.13	-1.29
7,870.0	33.70	227.60	7,839.3	-311.5	-19.2	87.1	14.72	14.69	1.88
7,901.0	37.70	228.30	7,864.5	-323.6	-32.6	102.9	12.97	12.90	2.26
7,933.0	41.70	229.30	7,889.1	-337.0	-48.0	120.9	12.66	12.50	3.13
7,964.0	45.10	229.30	7,911.6	-350.9	-64.2	139.7	10.97	10.97	0.00
7,996.0	47.60	228.40	7,933.7	-366.1	-81.6	160.0	8.07	7.81	-2.81
8,027.0	49.90	226.70	7,954.2	-381.9	-98.8	180.3	8.49	7.42	-5.48
8,059.0	52.90	225.30	7,974.1	-399.3	-116.8	201.6	9.98	9.38	-4.38

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8,091.0	56.90	225.30	7,992.5	-417.7	-135.4	223.8	12.50	12.50	0.00
8,123.0	60.30	226.50	8,009.2	-436.7	-155.0	247.1	11.10	10.63	3.75
8,154.0	63.20	227.00	8,023.9	-455.4	-174.9	270.6	9.46	9.35	1.61
8,185.0	65.30	227.00	8,037.3	-474.4	-195.3	294.7	6.77	6.77	0.00
8,217.0	67.70	226.50	8,050.1	-494.5	-216.7	320.0	7.64	7.50	-1.56
8,248.0	68.80	226.50	8,061.6	-514.3	-237.5	344.7	3.55	3.55	0.00
Crossed HL @ 8255.0' MD / 8064.1' TVD									
8,255.0	69.11	226.50	8,064.1	-518.8	-242.3	350.3	4.38	4.38	0.00
8,280.0	70.20	226.50	8,072.8	-535.0	-259.3	370.5	4.38	4.38	0.00
8,311.0	72.50	227.00	8,082.7	-555.1	-280.7	395.8	7.58	7.42	1.61
8,343.0	74.70	227.40	8,091.7	-576.0	-303.2	422.3	6.98	6.88	1.25
8,375.0	76.20	227.60	8,099.8	-596.9	-326.0	449.2	4.73	4.69	0.63
8,395.0	79.10	226.80	8,104.0	-610.2	-340.4	466.1	15.02	14.50	-4.00
8,494.0	86.30	228.80	8,116.6	-676.1	-413.1	551.5	7.54	7.27	2.02
8,589.0	91.50	230.70	8,118.4	-737.4	-485.5	635.7	5.83	5.47	2.00
8,683.0	92.00	231.90	8,115.6	-796.1	-558.9	720.1	1.38	0.53	1.28
8,778.0	90.50	234.40	8,113.5	-853.1	-634.9	806.8	3.07	-1.58	2.63
8,873.0	90.70	239.00	8,112.5	-905.2	-714.2	895.6	4.85	0.21	4.84
8,967.0	91.20	246.50	8,110.9	-948.2	-797.7	986.6	8.00	0.53	7.98
9,062.0	91.00	251.10	8,109.1	-982.6	-886.3	1,080.5	4.85	-0.21	4.84
9,157.0	90.30	253.90	8,108.0	-1,011.1	-976.9	1,175.1	3.04	-0.74	2.95
9,251.0	92.20	257.40	8,106.0	-1,034.4	-1,067.9	1,269.0	4.24	2.02	3.72
9,346.0	93.10	258.70	8,101.6	-1,054.1	-1,160.7	1,363.9	1.66	0.95	1.37
9,440.0	92.10	258.10	8,097.3	-1,073.0	-1,252.7	1,457.8	1.24	-1.06	-0.64
9,535.0	91.70	261.80	8,094.2	-1,089.5	-1,346.2	1,552.6	3.92	-0.42	3.89
9,630.0	90.70	264.60	8,092.2	-1,100.8	-1,440.5	1,647.1	3.13	-1.05	2.95
9,724.0	90.90	268.10	8,090.9	-1,106.8	-1,534.3	1,739.9	3.73	0.21	3.72
9,819.0	92.60	269.20	8,088.0	-1,109.0	-1,629.2	1,833.0	2.13	1.79	1.16
9,913.0	93.00	268.90	8,083.4	-1,110.6	-1,723.1	1,924.9	0.53	0.43	-0.32
10,008.0	92.90	268.50	8,078.5	-1,112.7	-1,817.9	2,017.9	0.43	-0.11	-0.42
10,103.0	94.20	268.30	8,072.6	-1,115.4	-1,912.7	2,111.0	1.38	1.37	-0.21
10,198.0	92.70	267.10	8,066.9	-1,119.2	-2,007.4	2,204.3	2.02	-1.58	-1.26
10,292.0	90.90	267.30	8,063.9	-1,123.7	-2,101.3	2,296.8	1.93	-1.91	0.21
10,387.0	91.20	266.60	8,062.2	-1,128.8	-2,196.1	2,390.4	0.80	0.32	-0.74
10,481.0	89.20	268.50	8,061.9	-1,132.8	-2,290.0	2,482.9	2.93	-2.13	2.02
10,575.0	88.60	270.10	8,063.7	-1,134.0	-2,384.0	2,574.9	1.82	-0.64	1.70
10,669.0	89.70	269.20	8,065.1	-1,134.5	-2,478.0	2,666.7	1.51	1.17	-0.96
10,764.0	89.30	268.70	8,065.9	-1,136.3	-2,573.0	2,759.7	0.67	-0.42	-0.53
10,859.0	89.40	269.90	8,067.0	-1,137.4	-2,667.9	2,852.6	1.27	0.11	1.26
10,954.0	90.50	270.40	8,067.1	-1,137.2	-2,762.9	2,945.3	1.27	1.16	0.53
11,048.0	89.30	268.30	8,067.2	-1,138.3	-2,856.9	3,037.2	2.57	-1.28	-2.23
11,142.0	92.00	270.30	8,066.2	-1,139.4	-2,950.9	3,129.1	3.57	2.87	2.13
11,237.0	92.30	270.60	8,062.6	-1,138.7	-3,045.8	3,221.6	0.45	0.32	0.32

Company: Mewbourne Oil Company
Project: Eddy County, New Mexico (Nad 83)
Site: Séc 16, T20-S,R29-E
Well: Glock 16 B2IL Fed #1H
Wellbore: Wellbore #1
Design: Wellbore #1

Local Co-ordinate Reference: Well Glock 16 B2IL Fed #1H
TVD Reference: WELL @ 3316.0usft (Patterson #230)
MD Reference: WELL @ 3316.0usft (Patterson #230)
North Reference: Grid
Survey Calculation Method: Minimum Curvature
Database: EDM 5000.1 Single User Db

Survey

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
11,331.0	93.20	270.40	8,058.1	-1,137.8	-3,139.7	3,313.0	0.98	0.96	-0.21
11,426.0	93.70	270.30	8,052.4	-1,137.3	-3,234.5	3,405.4	0.54	0.53	-0.11
11,520.0	94.30	270.30	8,045.8	-1,136.8	-3,328.3	3,496.7	0.64	0.64	0.00
11,615.0	93.50	271.70	8,039.3	-1,135.1	-3,423.1	3,588.8	1.69	-0.84	1.47
11,709.0	91.80	269.90	8,035.0	-1,133.8	-3,517.0	3,680.1	2.63	-1.81	-1.91
11,804.0	90.50	269.90	8,033.1	-1,134.0	-3,611.9	3,772.8	1.37	-1.37	0.00
11,898.0	91.00	269.00	8,031.9	-1,134.9	-3,705.9	3,864.7	1.10	0.53	-0.96
11,993.0	90.00	269.70	8,031.0	-1,136.0	-3,800.9	3,957.6	1.28	-1.05	0.74
12,088.0	89.70	268.50	8,031.3	-1,137.4	-3,895.9	4,050.6	1.30	-0.32	-1.26
12,183.0	90.00	267.50	8,031.5	-1,140.8	-3,990.8	4,144.0	1.10	0.32	-1.05
12,278.0	90.40	267.60	8,031.2	-1,144.8	-4,085.8	4,237.4	0.43	0.42	0.11
12,373.0	90.10	266.60	8,030.8	-1,149.6	-4,180.6	4,331.1	1.10	-0.32	-1.05
12,467.0	90.20	265.20	8,030.5	-1,156.3	-4,274.4	4,424.0	1.49	0.11	-1.49
12,562.0	90.80	263.00	8,029.7	-1,166.1	-4,368.9	4,518.3	2.40	0.63	-2.32
12,657.0	90.70	264.50	8,028.5	-1,176.5	-4,463.3	4,612.7	1.58	-0.11	1.58
12,752.0	91.60	268.10	8,026.6	-1,182.6	-4,558.1	4,706.5	3.91	0.95	3.79
12,847.0	92.10	270.30	8,023.5	-1,183.9	-4,653.0	4,799.4	2.37	0.53	2.32
12,942.0	93.30	271.70	8,019.0	-1,182.3	-4,747.9	4,891.6	1.94	1.26	1.47
13,036.0	92.40	271.10	8,014.3	-1,180.0	-4,841.7	4,982.7	1.15	-0.96	-0.64
13,131.0	92.20	271.80	8,010.5	-1,177.6	-4,936.6	5,074.7	0.77	-0.21	0.74
13,225.0	92.70	269.90	8,006.5	-1,176.2	-5,030.5	5,166.0	2.09	0.53	-2.02
13,240.0	92.60	269.40	8,005.8	-1,176.3	-5,045.5	5,180.7	3.40	-0.67	-3.33
TD @ 13305.0' MD / 8002.9' TVD									
13,305.0	92.60	269.40	8,002.9	-1,176.9	-5,110.4	5,244.1	0.00	0.00	0.00

Design Annotations

Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates		Comment
		+N/-S (usft)	+E/-W (usft)	
3,185.0	3,183.2	78.2	-17.4	Gyro Tie-in @ 3185.0' MD / 3183.2' TVD
6,847.0	6,833.5	-188.1	26.5	Crossed LL @ 6847.0' MD / 6833.5' TVD
8,255.0	8,064.1	-518.8	-242.3	Crossed HL @ 8255.0' MD / 8064.1' TVD
13,305.0	8,002.9	-1,176.9	-5,110.4	TD @ 13305.0' MD / 8002.9' TVD

Vertical Section at 257.31° (200 usf/tn)