

NM OIL CONSERVATION
ARTESIA DISTRICT

JAN 25 2018

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Mewbourne Oil Company

Eddy County, New Mexico (Nad 83)

Sec 18,T20S,R29E

Derringer 18 B3LI Federal #2H

Wellbore #1

30-015-44431

Design: Wellbore #1

QES Survey Report

09 November, 2017





Survey Report



Company: Mewbourne Oil Company
Project: Eddy County, New Mexico (Nad 83)
Site: Sec 18,T20S,R29E
Well: Derringer 18 B3LI Federal #2H
Wellbore: Wellbore #1
Design: Wellbore #1

Local Co-ordinate Reference: Well Derringer 18 B3LI Federal #2H
TVD Reference: WELL @ 3282.0usft (Patterson #243)
MD Reference: WELL @ 3282.0usft (Patterson #243)
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 18,T20S,R29E				
Site Position:		Northing:	574,535.70 usft	Latitude:	32° 34' 45.389 N	
From:	Map	Easting:	606,553.80 usft	Longitude:	104° 7' 17.790 W	
Position Uncertainty:		0.0 usft	Slot Radius:	13-3/16 "	Grid Convergence:	0.11 °

Well	Derringer 18 B3LI Federal #2H					
Well Position	+N/-S	0.0 usft	Northing:	571,774.48 usft	Latitude:	32° 34' 18.066 N
	+E/-W	0.0 usft	Easting:	606,525.40 usft	Longitude:	104° 7' 18.186 W
Position Uncertainty		0.0 usft	Wellhead Elevation:	usft	Ground Level:	3,255.0 usft

Wellbore	Wellbore #1					
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)	
	IGRF2010	9/1/2017	7.10	60.26	48,146.75447467	

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	89.89	

Survey Program	Date 11/9/2017			
From (usft)	To (usft)	Survey (Wellbore)	Tool Name	Description
100.0	2,868.0	Gyro Survey (Wellbore #1)	GYRO-NS	OWSG Gyrocompass Gyro
3,016.0	13,410.0	MWD Surveys (Wellbore #1)	MWD default	MWD - Standard

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)
0.0	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00	0.00
100.0	0.55	283.25	100.0	0.1	-0.5	-0.5	0.55	0.55	0.00
200.0	0.36	281.74	200.0	0.3	-1.2	-1.2	0.19	-0.19	-1.51
300.0	0.43	298.59	300.0	0.5	-1.9	-1.9	0.13	0.07	16.85
400.0	0.61	263.34	400.0	0.6	-2.7	-2.7	0.36	0.18	-35.25
500.0	1.36	213.99	500.0	-0.4	-3.9	-3.9	1.07	0.75	-49.35
600.0	1.36	199.50	599.9	-2.5	-5.0	-5.0	0.34	0.00	-14.49
700.0	1.23	181.31	699.9	-4.7	-5.4	-5.4	0.43	-0.13	-18.19
800.0	1.23	176.65	799.9	-6.8	-5.4	-5.4	0.10	0.00	-4.66
900.0	1.16	169.31	899.9	-8.9	-5.1	-5.1	0.17	-0.07	-7.34

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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	0.96	165.89	999.9	-10.7	-4.7	-4.7	0.21	-0.20	-3.42
1,100.0	0.59	168.16	1,099.9	-12.0	-4.4	-4.4	0.37	-0.37	2.27
1,200.0	0.57	181.87	1,199.8	-13.0	-4.3	-4.4	0.14	-0.02	13.71
1,300.0	0.59	190.42	1,299.8	-14.0	-4.4	-4.5	0.09	0.02	8.55
1,400.0	0.57	205.02	1,399.8	-15.0	-4.7	-4.8	0.15	-0.02	14.60
1,500.0	0.40	221.14	1,499.8	-15.7	-5.2	-5.2	0.22	-0.17	16.12
1,600.0	0.51	221.05	1,599.8	-16.3	-5.7	-5.7	0.11	0.11	-0.09
1,700.0	0.64	260.59	1,699.8	-16.7	-6.5	-6.6	0.41	0.13	39.54
1,800.0	0.57	230.73	1,799.8	-17.1	-7.5	-7.5	0.32	-0.07	-29.86
1,900.0	0.57	230.77	1,899.8	-17.8	-8.3	-8.3	0.00	0.00	0.04
2,000.0	0.70	262.79	1,999.8	-18.2	-9.2	-9.3	0.37	0.13	32.02
2,100.0	0.66	248.72	2,099.8	-18.4	-10.4	-10.4	0.17	-0.04	-14.07
2,200.0	0.70	273.88	2,199.8	-18.6	-11.5	-11.6	0.30	0.04	25.16
2,300.0	0.46	258.05	2,299.8	-18.7	-12.5	-12.6	0.29	-0.24	-15.83
2,400.0	0.30	278.01	2,399.8	-18.7	-13.2	-13.2	0.21	-0.16	19.96
2,500.0	0.26	266.53	2,499.8	-18.7	-13.7	-13.7	0.07	-0.04	-11.48
2,600.0	0.26	282.52	2,599.8	-18.6	-14.1	-14.2	0.07	0.00	15.99
2,700.0	0.34	271.33	2,699.8	-18.6	-14.6	-14.7	0.10	0.08	-11.19
2,800.0	0.26	255.94	2,799.8	-18.6	-15.2	-15.2	0.11	-0.08	-15.39
GYRO Tie-In @ 2868.0' MD / 2867.8' TVD									
2,868.0	0.50	254.26	2,867.8	-18.8	-15.6	-15.6	0.35	0.35	-2.47
3,016.0	0.40	233.60	3,015.8	-19.2	-16.6	-16.7	0.13	-0.07	-13.96
3,204.0	2.00	278.90	3,203.7	-19.1	-20.4	-20.4	0.93	0.85	24.10
3,393.0	1.90	275.80	3,392.6	-18.3	-26.8	-26.8	0.08	-0.05	-1.64
3,581.0	1.90	274.20	3,580.5	-17.7	-33.0	-33.0	0.03	0.00	-0.85
3,768.0	1.90	268.00	3,767.4	-17.6	-39.2	-39.2	0.11	0.00	-3.32
3,956.0	2.50	263.60	3,955.3	-18.2	-46.4	-46.4	0.33	0.32	-2.34
4,143.0	2.40	338.30	4,142.1	-15.0	-51.9	-51.9	1.59	-0.05	39.95
4,330.0	1.70	266.60	4,329.1	-11.5	-56.1	-56.1	1.32	-0.37	-38.34
4,518.0	1.90	267.70	4,517.0	-11.8	-62.0	-62.0	0.11	0.11	0.59
4,705.0	1.90	273.80	4,703.9	-11.7	-68.2	-68.2	0.11	0.00	3.26
4,892.0	1.90	274.00	4,890.8	-11.3	-74.4	-74.4	0.00	0.00	0.11
5,080.0	2.00	264.70	5,078.6	-11.4	-80.7	-80.8	0.18	0.05	-4.95
5,267.0	2.10	248.00	5,265.5	-13.0	-87.2	-87.2	0.32	0.05	-8.93
5,455.0	1.10	252.20	5,453.5	-14.8	-92.1	-92.1	0.54	-0.53	2.23
5,642.0	1.50	231.60	5,640.4	-16.9	-95.7	-95.7	0.33	0.21	-11.02
5,829.0	1.10	296.70	5,827.4	-17.6	-99.2	-99.3	0.77	-0.21	34.81
6,018.0	1.30	292.60	6,016.3	-16.0	-102.8	-102.8	0.12	0.11	-2.17
6,206.0	1.80	286.50	6,204.3	-14.3	-107.6	-107.6	0.28	0.27	-3.24
6,394.0	2.40	274.00	6,392.1	-13.2	-114.4	-114.4	0.40	0.32	-6.65
6,582.0	1.70	284.50	6,580.0	-12.2	-121.0	-121.0	0.42	-0.37	5.59
6,770.0	1.40	329.70	6,767.9	-9.6	-124.9	-124.9	0.65	-0.16	24.04
6,956.0	1.00	291.40	6,953.9	-7.0	-127.5	-127.5	0.47	-0.22	-20.59



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7,144.0	1.10	124.10	7,141.9	-7.4	-127.6	-127.6	1.11	0.05	-88.99
7,332.0	2.90	109.30	7,329.8	-10.0	-121.6	-121.6	0.99	0.96	-7.87
7,519.0	1.20	203.00	7,516.7	-13.4	-117.9	-117.9	1.72	-0.91	50.11
7,707.0	1.40	186.80	7,704.6	-17.5	-118.9	-118.9	0.22	0.11	-8.62
7,894.0	1.30	209.10	7,891.6	-21.6	-120.2	-120.3	0.28	-0.05	11.93
8,081.0	2.80	196.80	8,078.5	-27.8	-122.6	-122.6	0.83	0.80	-6.58
8,268.0	1.20	210.90	8,265.3	-33.9	-124.9	-125.0	0.89	-0.86	7.54
8,362.0	1.00	197.40	8,359.3	-35.5	-125.6	-125.7	0.35	-0.21	-14.36
8,396.0	1.00	175.90	8,393.3	-36.1	-125.7	-125.8	1.10	0.00	-63.24
8,427.0	1.80	114.00	8,424.3	-36.5	-125.2	-125.3	5.15	2.58	-199.68
8,458.0	5.70	95.10	8,455.2	-36.9	-123.3	-123.3	13.03	12.58	-60.97
8,490.0	9.60	98.40	8,486.9	-37.4	-119.0	-119.1	12.26	12.19	10.31
8,521.0	14.00	99.30	8,517.3	-38.4	-112.8	-112.9	14.21	14.19	2.90
8,552.0	18.70	98.90	8,547.0	-39.8	-104.2	-104.2	15.17	15.16	-1.29
8,584.0	23.00	97.50	8,576.9	-41.4	-92.9	-93.0	13.53	13.44	-4.38
8,615.0	26.20	96.50	8,605.1	-42.9	-80.1	-80.2	10.41	10.32	-3.23
8,646.0	27.40	94.50	8,632.8	-44.3	-66.2	-66.3	4.84	3.87	-6.45
8,678.0	28.80	91.40	8,661.0	-45.0	-51.1	-51.2	6.32	4.38	-9.69
8,709.0	29.60	89.60	8,688.1	-45.2	-36.0	-36.1	3.83	2.58	-5.81
8,740.0	33.10	89.40	8,714.5	-45.0	-19.9	-20.0	11.30	11.29	-0.65
8,772.0	36.90	90.50	8,740.7	-45.0	-1.5	-1.6	12.04	11.88	3.44
8,803.0	40.30	91.00	8,765.0	-45.3	17.8	17.7	11.01	10.97	1.61
8,835.0	44.40	90.70	8,788.6	-45.6	39.4	39.3	12.83	12.81	-0.94
8,866.0	49.20	90.10	8,809.8	-45.7	61.9	61.9	15.55	15.48	-1.94
8,897.0	54.30	90.50	8,829.0	-45.9	86.3	86.2	16.48	16.45	1.29
8,928.0	59.50	89.80	8,845.9	-45.9	112.2	112.2	16.88	16.77	-2.26
8,959.0	63.60	88.00	8,860.7	-45.4	139.5	139.4	14.18	13.23	-5.81
8,990.0	66.20	87.70	8,873.9	-44.3	167.5	167.5	8.43	8.39	-0.97
Crossed 330' HL @ 9003.2' MD / 8879.1' TVD									
9,003.2	67.07	87.82	8,879.1	-43.9	179.6	179.6	6.62	6.56	0.95
9,022.0	68.30	88.00	8,886.2	-43.2	197.0	196.9	6.62	6.56	0.93
9,053.0	70.90	89.10	8,897.0	-42.5	226.1	226.0	9.02	8.39	3.55
9,084.0	73.70	89.60	8,906.5	-42.2	255.6	255.5	9.16	9.03	1.61
9,115.0	77.40	90.70	8,914.2	-42.3	285.6	285.5	12.42	11.94	3.55
9,147.0	80.00	91.00	8,920.5	-42.7	317.0	316.9	8.18	8.13	0.94
9,178.0	82.80	91.50	8,925.1	-43.4	347.6	347.5	9.17	9.03	1.61
9,209.0	86.20	92.10	8,928.1	-44.4	378.5	378.4	11.14	10.97	1.94
9,225.0	87.70	91.90	8,928.9	-44.9	394.4	394.3	9.46	9.38	-1.25
9,333.0	91.40	91.70	8,929.8	-48.3	502.4	502.3	3.43	3.43	-0.19
9,427.0	89.50	89.80	8,929.0	-49.5	596.3	596.2	2.86	-2.02	-2.02
9,521.0	89.70	89.10	8,929.7	-48.6	690.3	690.2	0.77	0.21	-0.74
9,615.0	86.80	88.20	8,932.6	-46.4	784.2	784.2	3.23	-3.09	-0.96
9,709.0	90.20	88.60	8,935.0	-43.8	878.2	878.1	3.64	3.62	0.43
9,803.0	90.50	88.40	8,934.4	-41.3	972.1	972.0	0.38	0.32	-0.21



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9,896.0	90.90	88.40	8,933.3	-38.7	1,065.1	1,065.0	0.43	0.43	0.00
9,991.0	89.30	87.80	8,933.1	-35.6	1,160.0	1,160.0	1.80	-1.68	-0.63
10,085.0	88.20	89.60	8,935.2	-33.5	1,254.0	1,253.9	2.24	-1.17	1.91
10,178.0	88.60	88.90	8,937.8	-32.2	1,346.9	1,346.9	0.87	0.43	-0.75
10,272.0	89.00	89.60	8,939.8	-31.0	1,440.9	1,440.8	0.86	0.43	0.74
10,366.0	87.30	90.00	8,942.8	-30.7	1,534.8	1,534.8	1.86	-1.81	0.43
10,460.0	88.70	90.10	8,946.1	-30.8	1,628.8	1,628.7	1.49	1.49	0.11
10,554.0	86.40	89.40	8,950.1	-30.4	1,722.7	1,722.6	2.56	-2.45	-0.74
10,647.0	85.80	89.60	8,956.4	-29.5	1,815.5	1,815.4	0.68	-0.65	0.22
10,741.0	87.70	89.10	8,961.7	-28.5	1,909.3	1,909.3	2.09	2.02	-0.53
10,835.0	87.20	88.60	8,965.9	-26.6	2,003.2	2,003.1	0.75	-0.53	-0.53
10,928.0	89.50	87.50	8,968.6	-23.4	2,096.1	2,096.1	2.74	2.47	-1.18
11,022.0	89.90	87.20	8,969.1	-19.1	2,190.0	2,190.0	0.53	0.43	-0.32
11,116.0	90.50	87.50	8,968.8	-14.7	2,283.9	2,283.9	0.71	0.64	0.32
11,209.0	89.10	87.20	8,969.1	-10.4	2,376.8	2,376.8	1.54	-1.51	-0.32
11,303.0	90.10	86.30	8,969.7	-5.1	2,470.6	2,470.6	1.43	1.06	-0.96
11,396.0	91.00	85.60	8,968.9	1.5	2,563.4	2,563.4	1.23	0.97	-0.75
11,490.0	89.60	84.90	8,968.4	9.2	2,657.1	2,657.1	1.67	-1.49	-0.74
11,583.0	90.10	83.60	8,968.6	18.6	2,749.6	2,749.6	1.50	0.54	-1.40
11,677.0	88.50	83.40	8,969.8	29.2	2,843.0	2,843.0	1.72	-1.70	-0.21
11,770.0	89.30	82.80	8,971.5	40.4	2,935.3	2,935.4	1.08	0.86	-0.65
11,864.0	92.00	83.10	8,970.5	51.9	3,028.6	3,028.7	2.89	2.87	0.32
11,957.0	91.10	85.00	8,968.0	61.5	3,121.0	3,121.1	2.26	-0.97	2.04
12,051.0	89.00	87.30	8,967.9	67.8	3,214.8	3,214.9	3.31	-2.23	2.45
12,145.0	90.00	87.30	8,968.7	72.3	3,308.7	3,308.8	1.06	1.06	0.00
12,238.0	88.50	87.00	8,969.9	76.9	3,401.6	3,401.7	1.64	-1.61	-0.32
12,332.0	87.90	87.00	8,972.9	81.8	3,495.4	3,495.5	0.64	-0.64	0.00
12,425.0	89.00	87.20	8,975.4	86.5	3,588.2	3,588.4	1.20	1.18	0.22
12,518.0	90.40	87.50	8,975.9	90.8	3,681.1	3,681.3	1.54	1.51	0.32
12,612.0	87.80	88.20	8,977.3	94.3	3,775.1	3,775.2	2.86	-2.77	0.74
12,705.0	87.70	88.20	8,981.0	97.3	3,867.9	3,868.1	0.11	-0.11	0.00
12,799.0	85.20	87.70	8,986.8	100.6	3,961.7	3,961.9	2.71	-2.66	-0.53
12,892.0	87.50	88.20	8,992.7	103.9	4,054.4	4,054.6	2.53	2.47	0.54
12,986.0	88.60	88.00	8,995.9	107.1	4,148.3	4,148.5	1.19	1.17	-0.21
13,080.0	89.30	86.60	8,997.7	111.5	4,242.2	4,242.4	1.66	0.74	-1.49
13,173.0	90.80	87.50	8,997.6	116.3	4,335.1	4,335.3	1.88	1.61	0.97
13,267.0	90.00	87.20	8,996.9	120.6	4,429.0	4,429.2	0.91	-0.85	-0.32
13,343.0	88.60	87.00	8,997.8	124.5	4,504.9	4,505.1	1.86	-1.84	-0.26
TD @ 13410.0' MD / 8999.5' TVD									
13,410.0	88.60	87.00	8,999.5	128.0	4,571.8	4,572.0	0.00	0.00	0.00



Survey Report



Company: Mewbourne Oil Company
Project: Eddy County, New Mexico (Nad 83)
Site: Sec 18,T20S,R29E
Well: Derringer 18 B3LI Federal #2H
Wellbore: Wellbore #1
Design: Wellbore #1

Local Co-ordinate Reference: Well Derringer 18 B3LI Federal #2H
TVD Reference: WELL @ 3282.0usft (Patterson #243)
MD Reference: WELL @ 3282.0usft (Patterson #243)
North Reference: Grid
Survey Calculation Method: Minimum Curvature
Database: EDM 5000.1 Single User Db

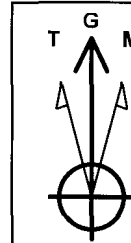
Design Annotations

Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates		Comment
		+N/-S (usft)	+E/-W (usft)	
2,868.0	2,867.8	-18.8	-15.6	GYRO Tie-In @ 2868.0' MD / 2867.8' TVD
9,003.2	8,879.1	-43.9	179.6	Crossed 330' HL @ 9003.2' MD / 8879.1' TVD
13,410.0	8,999.5	128.0	4,571.8	TD @ 13410.0' MD / 8999.5' TVD

Checked By: _____ Approved By: _____ Date: _____

Company Name: Newbourne Oil Company
 Derringer 18 B3LI Federal #2H
 Eddy County, New Mexico (Nad 83)
 Rig: Patterson #243
 Created By: Shane Robbins
 Date: 10/6/2017

Derringer 18 B3LI Federal #2H
 Eddy County, New Mexico (Nad 83)
 Q171158 & WT-170982
 Design #2

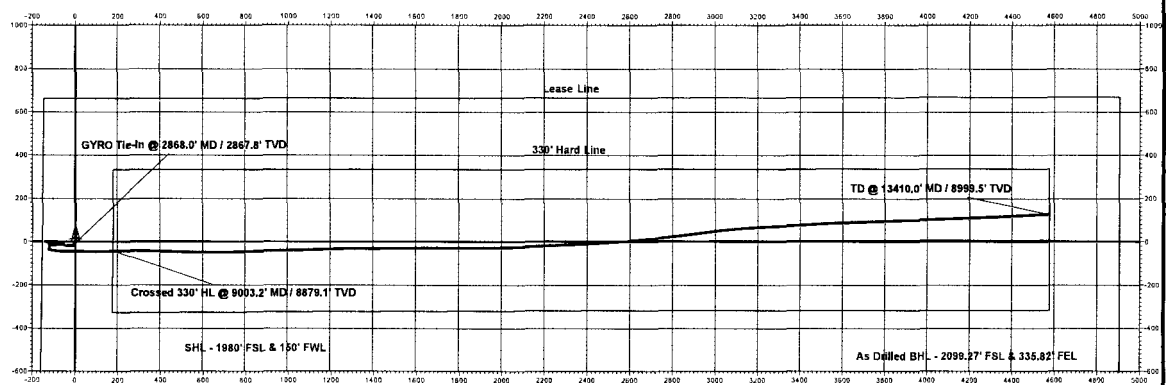


Azimuths to Grid North

Correction: 6.99°
 Magnetic Field

Strength: 48146.8snT
 Dip Angle: 60.26°
 Date: 9/1/2017
 Model: IGRF2010

GYRO Tie-In @ 2868.0' MD / 2867.8' TVD



PROJECT DETAILS: Eddy County, New Mexico (Nad 83)
 Geodetic System: US State Plane 1983
 Datum: North American Datum 1983
 Ellipsoid: GRS 1980
 Zone: New Mexico Eastern Zone
 System Datum: Mean Sea Level

WELL DETAILS: Derringer 18 B3LI Federal #2H

3256.0		Latitude		Longitude	
+N/-S	+E/-W	Northing	Easting	32° 54' 18.066 N	104° 7' 18.186 W
0.0	0.0	671774.48	606626.40		

ANNOTATIONS

MD	Inc	Azi	TVD	+N/-S	+E/-W	Vsect	Departure	Annotation
2868.0	0.50	254.26	2867.8	-18.8	-15.6	-15.6	32.0	GYRO Tie-In @ 2868.0' MD / 2867.8' TVD
9003.2	67.07	87.82	8879.1	-43.9	179.6	179.6	501.9	Crossed 330' HL @ 9003.2' MD / 8879.1' TVD
13410.0	88.60	87.00	8999.5	128.0	4571.8	4572.0	4900.0	TD @ 13410.0' MD / 8999.5' TVD

Crossed 330' HL @ 9003.2' MD / 8879.1' TVD

TD @ 13410.0' MD / 8999.5' TVD

Vertical Section at 89.89° (200 usf/m)