

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 B3IP FED COM #2H

Wellbore #1

30.015-44577

Design: Wellbore #1

QES Survey Report

19 February, 2018





Survey Report



Company:	Mewbourne Oil Company	Local Co-ordinate Reference:	Well FNR 17/20 B3IP FED COM #2H
Project:	Eddy County, New Mexico (Nad 83)	TVD Reference:	WELL @ 3247.0usft (Patterson #230)
Site:	Sec 17, T23S, R30E	MD Reference:	WELL @ 3247.0usft (Patterson #230)
Well:	FNR 17/20 B3IP FED COM #2H	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 17, T23S, R30E				
Site Position:		Northing:	474,760.00 usft	Latitude:	32° 18' 15.995 N
From:	Map	Easting:	675,368.70 usft	Longitude:	103° 53' 58.273 W
Position Uncertainty:	0.0 usft	Slot Radius:	13-3/16 "	Grid Convergence:	0.23 °

Well	FNR 17/20 B3IP FED COM #2H					
Well Position	+N/-S	0.0 usft	Northing:	474,724.50 usft	Latitude:	32° 18' 15.642 N
	+E/-W	0.0 usft	Easting:	675,404.30 usft	Longitude:	103° 53' 57.860 W
Position Uncertainty	0.0 usft		Wellhead Elevation:	usft	Ground Level:	3,220.0 usft

Wellbore	Wellbore #1				
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Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2015	2/2/2018	7.04	60.08	47,887.65507472

Design	Wellbore #1				
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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	174.19

Survey Program	Date 2/19/2018				
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From (usft)	To (usft)	Survey (Wellbore)	Tool Name	Description
82.0	17,900.0	QES 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	
First MWD Survey @ 82.0' MD / 82.0' TVD										
82.0	0.20	119.80	82.0	-0.1	0.1	0.1	0.24	0.24	0.00	
181.0	0.50	314.00	181.0	0.1	0.0	-0.1	0.70	0.30	-167.47	
252.0	0.70	261.00	252.0	0.3	-0.7	-0.4	0.80	0.28	-74.65	
283.0	0.80	239.00	283.0	0.1	-1.1	-0.3	0.98	0.32	-70.97	
341.0	0.90	221.00	341.0	-0.4	-1.7	0.2	0.49	0.17	-31.03	
417.0	1.00	212.80	417.0	-1.4	-2.5	1.2	0.22	0.13	-10.79	
483.0	0.70	184.90	483.0	-2.3	-2.8	2.0	0.76	-0.45	-42.27	
574.0	0.70	168.40	574.0	-3.4	-2.7	3.1	0.22	0.00	-18.13	
666.0	0.70	186.70	666.0	-4.5	-2.7	4.2	0.24	0.00	19.89	



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Wellbore:	Wellbore #1	Survey Calculation Method:	Minimum Curvature
Design:	Wellbore #1	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)
757.0	0.80	179.10	756.9	-5.7	-2.7	5.4	0.15	0.11	-8.35
849.0	0.90	179.80	848.9	-7.1	-2.7	6.7	0.11	0.11	0.76
943.0	0.90	176.30	942.9	-8.5	-2.7	8.2	0.06	0.00	-3.72
1,038.0	0.90	179.60	1,037.9	-10.0	-2.6	9.7	0.05	0.00	3.47
1,132.0	1.00	174.00	1,131.9	-11.6	-2.5	11.3	0.15	0.11	-5.96
1,226.0	1.10	171.50	1,225.9	-13.3	-2.3	13.0	0.12	0.11	-2.66
1,321.0	1.10	174.90	1,320.9	-15.1	-2.1	14.8	0.07	0.00	3.58
1,415.0	1.10	181.40	1,414.9	-16.9	-2.0	16.6	0.13	0.00	6.91
1,510.0	1.10	187.90	1,509.8	-18.7	-2.2	18.4	0.13	0.00	6.84
1,605.0	1.30	194.40	1,604.8	-20.7	-2.6	20.3	0.25	0.21	6.84
1,699.0	0.30	216.90	1,698.8	-21.9	-3.0	21.5	1.09	-1.06	23.94
1,793.0	0.20	306.00	1,792.8	-22.0	-3.3	21.5	0.38	-0.11	94.79
1,888.0	0.30	269.30	1,887.8	-21.9	-3.7	21.4	0.19	0.11	-38.63
1,983.0	0.30	291.60	1,982.8	-21.8	-4.1	21.3	0.12	0.00	23.47
2,077.0	0.40	264.20	2,076.8	-21.7	-4.7	21.2	0.20	0.11	-29.15
2,172.0	0.40	257.70	2,171.8	-21.8	-5.4	21.2	0.05	0.00	-6.84
2,266.0	0.60	241.70	2,265.8	-22.2	-6.1	21.4	0.26	0.21	-17.02
2,360.0	0.60	246.10	2,359.8	-22.6	-7.0	21.8	0.05	0.00	4.68
2,455.0	0.80	244.10	2,454.8	-23.1	-8.0	22.1	0.21	0.21	-2.11
2,550.0	1.00	246.10	2,549.8	-23.7	-9.4	22.6	0.21	0.21	2.11
2,645.0	1.30	298.10	2,644.8	-23.5	-11.1	22.3	1.10	0.32	54.74
2,739.0	1.70	314.40	2,738.7	-22.1	-13.0	20.6	0.62	0.43	17.34
2,834.0	1.20	315.50	2,833.7	-20.4	-14.7	18.8	0.53	-0.53	1.16
2,928.0	0.60	296.00	2,927.7	-19.4	-15.9	17.7	0.71	-0.64	-20.74
3,023.0	0.40	281.00	3,022.7	-19.2	-16.7	17.4	0.25	-0.21	-15.79
3,117.0	0.40	210.90	3,116.7	-19.4	-17.1	17.5	0.49	0.00	-74.57
3,212.0	0.80	172.40	3,211.7	-20.3	-17.2	18.5	0.58	0.42	-40.53
3,306.0	1.60	158.70	3,305.6	-22.2	-16.7	20.4	0.90	0.85	-14.57
3,401.0	0.70	177.70	3,400.6	-24.0	-16.2	22.2	1.02	-0.95	20.00
3,482.0	0.50	217.40	3,481.6	-24.8	-16.3	23.0	0.55	-0.25	49.01
3,590.0	0.50	239.40	3,589.6	-25.4	-17.0	23.5	0.18	0.00	20.37
3,684.0	2.30	85.80	3,683.6	-25.5	-15.5	23.8	2.93	1.91	-163.40
3,779.0	4.50	84.70	3,778.4	-25.0	-9.9	23.9	2.32	2.32	-1.16
3,873.0	4.70	83.60	3,872.1	-24.2	-2.4	23.8	0.23	0.21	-1.17
3,968.0	4.70	81.90	3,966.8	-23.2	5.3	23.7	0.15	0.00	-1.79
4,063.0	4.70	83.10	4,061.5	-22.2	13.0	23.4	0.10	0.00	1.26
4,157.0	4.50	81.90	4,155.2	-21.2	20.5	23.2	0.24	-0.21	-1.28
4,252.0	4.40	80.30	4,249.9	-20.1	27.8	22.8	0.17	-0.11	-1.68
LL Crossed @ 4281.9' MD / 4279.7' TVD									
4,281.9	4.40	79.92	4,279.7	-19.7	30.1	22.6	0.10	0.00	-1.28
4,346.0	4.40	79.10	4,343.6	-18.8	34.9	22.2	0.10	0.00	-1.28
4,441.0	5.40	78.40	4,438.3	-17.2	42.8	21.5	1.05	1.05	-0.74
4,536.0	3.80	89.40	4,533.0	-16.3	50.4	21.3	1.92	-1.68	11.58

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Design:	Wellbore #1	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)
4,630.0	3.60	87.70	4,626.8	-16.1	56.4	21.8	0.24	-0.21	-1.81
4,725.0	4.10	85.10	4,721.5	-15.7	62.8	22.0	0.56	0.53	-2.74
4,819.0	4.00	82.60	4,815.3	-15.0	69.4	22.0	0.22	-0.11	-2.66
4,914.0	4.00	81.50	4,910.1	-14.1	76.0	21.7	0.08	0.00	-1.16
5,008.0	3.80	80.80	5,003.9	-13.1	82.3	21.4	0.22	-0.21	-0.74
5,103.0	4.10	88.70	5,098.6	-12.5	88.8	21.5	0.65	0.32	8.32
5,197.0	3.90	87.70	5,192.4	-12.3	95.3	21.9	0.23	-0.21	-1.06
5,292.0	3.80	86.80	5,287.2	-12.0	101.7	22.3	0.12	-0.11	-0.95
5,386.0	3.90	86.30	5,381.0	-11.6	108.0	22.5	0.11	0.11	-0.53
5,481.0	3.70	85.40	5,475.8	-11.2	114.3	22.7	0.22	-0.21	-0.95
5,575.0	5.00	85.40	5,569.5	-10.6	121.4	22.9	1.38	1.38	0.00
5,670.0	5.10	85.40	5,664.1	-9.9	129.7	23.0	0.11	0.11	0.00
5,764.0	4.50	84.90	5,757.8	-9.3	137.6	23.2	0.64	-0.64	-0.53
5,859.0	4.60	88.90	5,852.5	-8.9	145.1	23.5	0.35	0.11	4.21
5,954.0	4.30	91.60	5,947.2	-8.9	152.5	24.3	0.39	-0.32	2.84
6,048.0	3.70	93.80	6,041.0	-9.2	159.0	25.3	0.66	-0.64	2.34
6,143.0	4.20	87.30	6,135.8	-9.2	165.5	26.0	0.71	0.53	-6.84
6,237.0	3.80	88.20	6,229.5	-9.0	172.1	26.4	0.43	-0.43	0.96
6,332.0	4.70	83.50	6,324.3	-8.4	179.1	26.5	1.02	0.95	-4.95
6,426.0	4.50	83.50	6,418.0	-7.6	186.6	26.4	0.21	-0.21	0.00
6,521.0	4.00	84.90	6,512.7	-6.9	193.6	26.4	0.54	-0.53	1.47
6,615.0	3.60	85.20	6,606.5	-6.3	199.8	26.5	0.43	-0.43	0.32
6,710.0	5.10	85.80	6,701.2	-5.8	207.0	26.7	1.58	1.58	0.63
6,805.0	5.10	86.60	6,795.8	-5.2	215.4	27.0	0.07	0.00	0.84
6,899.0	4.80	87.90	6,889.5	-4.8	223.5	27.4	0.34	-0.32	1.38
6,994.0	4.50	81.20	6,984.2	-4.1	231.2	27.5	0.65	-0.32	-7.05
7,088.0	4.00	84.20	7,077.9	-3.2	238.1	27.3	0.58	-0.53	3.19
7,183.0	3.60	86.60	7,172.7	-2.7	244.3	27.4	0.45	-0.42	2.53
7,278.0	4.60	79.10	7,267.5	-1.8	251.1	27.2	1.19	1.05	-7.89
7,373.0	4.40	77.30	7,362.2	-0.3	258.4	26.4	0.26	-0.21	-1.89
7,467.0	4.00	77.30	7,455.9	1.2	265.1	25.6	0.43	-0.43	0.00
7,562.0	3.40	75.90	7,550.7	2.6	271.0	24.8	0.64	-0.63	-1.47
7,657.0	5.00	81.40	7,645.5	3.9	277.9	24.2	1.73	1.68	5.79
7,752.0	9.70	91.40	7,739.7	4.4	290.0	25.0	5.11	4.95	10.53
7,846.0	15.40	108.60	7,831.4	0.2	309.7	31.2	7.19	6.06	18.30
7,947.0	16.30	124.80	7,928.6	-12.2	334.1	45.9	4.46	0.89	16.04
8,042.0	11.70	110.20	8,020.8	-23.1	354.1	58.9	6.07	-4.84	-15.37
8,137.0	6.40	76.80	8,114.6	-25.2	368.3	62.4	7.64	-5.58	-35.16
8,232.0	4.40	52.70	8,209.2	-21.8	376.4	59.8	3.14	-2.11	-25.37
8,327.0	2.80	65.20	8,304.0	-18.6	381.4	57.2	1.87	-1.68	13.16
8,422.0	0.70	66.40	8,399.0	-17.4	384.0	56.2	2.21	-2.21	1.26
8,517.0	1.70	100.30	8,494.0	-17.5	385.9	56.4	1.25	1.05	35.68
8,612.0	3.50	92.30	8,588.9	-17.8	390.2	57.2	1.93	1.89	-8.42



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8,706.0	3.20	80.10	8,682.7	-17.5	395.7	57.5	0.82	-0.32	-12.98
8,801.0	2.90	82.40	8,777.6	-16.7	400.7	57.2	0.34	-0.32	2.42
8,895.0	2.40	81.20	8,871.5	-16.1	405.0	57.0	0.54	-0.53	-1.28
8,990.0	3.50	65.40	8,966.4	-14.6	409.6	56.0	1.43	1.16	-16.63
9,085.0	3.10	75.70	9,061.2	-12.7	414.7	54.7	0.75	-0.42	10.84
9,179.0	2.30	71.50	9,155.1	-11.5	418.9	53.9	0.88	-0.85	-4.47
9,274.0	2.70	58.50	9,250.0	-9.7	422.7	52.5	0.73	0.42	-13.68
9,369.0	3.90	56.20	9,344.8	-6.8	427.3	50.0	1.27	1.26	-2.42
9,464.0	1.00	60.40	9,439.7	-4.6	430.7	48.1	3.06	-3.05	4.42
9,558.0	2.20	63.40	9,533.7	-3.4	433.0	47.2	1.28	1.28	3.19
9,653.0	1.80	80.10	9,628.6	-2.3	436.1	46.4	0.74	-0.42	17.58
9,747.0	1.80	113.70	9,722.6	-2.6	438.9	47.0	1.11	0.00	35.74
9,842.0	1.10	85.80	9,817.6	-3.2	441.2	47.8	1.03	-0.74	-29.37
9,937.0	0.50	90.90	9,912.6	-3.1	442.5	47.9	0.64	-0.63	5.37
10,031.0	0.30	141.30	10,006.6	-3.3	443.1	48.1	0.41	-0.21	53.62
10,091.0	0.50	150.40	10,066.6	-3.7	443.3	48.5	0.35	0.33	15.17
10,185.0	0.70	166.80	10,160.6	-4.6	443.6	49.5	0.28	0.21	17.45
10,248.0	1.40	152.60	10,223.5	-5.6	444.1	50.5	1.18	1.11	-22.54
10,280.0	5.00	152.00	10,255.5	-7.2	444.9	52.2	11.25	11.25	-1.88
10,312.0	7.60	161.70	10,287.3	-10.4	446.2	55.6	8.75	8.13	30.31
10,343.0	10.10	166.30	10,317.9	-15.0	447.5	60.3	8.38	8.06	14.84
10,375.0	12.90	166.80	10,349.3	-21.2	449.0	66.6	8.76	8.75	1.56
10,406.0	15.70	165.20	10,379.3	-28.7	450.8	74.2	9.12	9.03	-5.16
10,438.0	19.40	164.00	10,409.8	-38.0	453.4	83.7	11.62	11.56	-3.75
HL Crossed @ 10449.6' MD / 10420.7' TVD									
10,449.6	20.97	163.83	10,420.7	-41.8	454.5	87.6	13.56	13.55	-1.44
10,469.0	23.60	163.60	10,438.7	-48.9	456.6	94.8	13.56	13.55	-1.20
10,501.0	28.30	162.40	10,467.4	-62.2	460.7	108.6	14.78	14.69	-3.75
10,532.0	31.30	161.50	10,494.3	-76.9	465.5	123.6	9.78	9.68	-2.90
10,564.0	35.30	160.30	10,521.1	-93.5	471.2	140.7	12.67	12.50	-3.75
10,595.0	40.10	157.80	10,545.6	-111.2	478.0	159.0	16.25	15.48	-8.06
10,627.0	45.40	158.20	10,569.1	-131.3	486.2	179.8	16.58	16.56	1.25
10,658.0	49.60	159.90	10,590.0	-152.7	494.3	201.9	14.14	13.55	5.48
10,690.0	52.70	162.40	10,610.1	-176.2	502.4	226.2	11.44	9.69	7.81
10,721.0	56.50	163.10	10,628.0	-200.4	509.8	250.9	12.40	12.26	2.26
10,753.0	60.90	163.30	10,644.7	-226.5	517.7	277.8	13.76	13.75	0.63
10,784.0	65.90	162.70	10,658.5	-253.0	525.8	305.0	16.22	16.13	-1.94
10,815.0	70.30	163.30	10,670.1	-280.5	534.3	333.2	14.31	14.19	1.94
10,847.0	75.40	162.30	10,679.5	-309.7	543.3	363.1	16.21	15.94	-3.13
10,878.0	80.00	160.80	10,686.1	-338.5	552.9	392.7	15.57	14.84	-4.84
10,910.0	83.30	161.20	10,690.8	-368.4	563.2	423.5	10.39	10.31	1.25
10,941.0	85.50	161.30	10,693.8	-397.6	573.1	453.6	7.10	7.10	0.32
<u>10,963.0</u>	86.70	161.20	10,695.3	<u>-418.4</u>	<u>580.2</u>	475.0	5.47	5.45	-0.45
11,048.0	89.30	164.00	10,698.3	-499.4	605.6	558.2	4.49	3.06	3.29



Survey Report



Company:	Mewbourne Oil Company	Local Co-ordinate Reference:	Well FNR 17/20 B3IP FED COM #2H
Project:	Eddy County, New Mexico (Nad 83)	TVD Reference:	WELL @ 3247.0usft (Patterson #230)
Site:	Sec 17, T23S, R30E	MD Reference:	WELL @ 3247.0usft (Patterson #230)
Well:	FNR 17/20 B3IP FED COM #2H	North Reference:	Grid
Wellbore:	Wellbore #1	Survey Calculation Method:	Minimum Curvature
Design:	Wellbore #1	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)
11,142.0	87.90	167.00	10,700.6	-590.4	629.1	651.0	3.52	-1.49	3.19
11,237.0	86.90	166.80	10,704.9	-682.8	650.6	745.2	1.07	-1.05	-0.21
11,332.0	87.80	167.90	10,709.3	-775.4	671.4	839.4	1.50	0.95	1.16
11,427.0	91.00	169.40	10,710.3	-868.5	690.1	933.9	3.72	3.37	1.58
11,521.0	90.80	171.70	10,708.8	-961.2	705.5	1,027.7	2.46	-0.21	2.45
11,616.0	88.30	172.60	10,709.5	-1,055.3	718.5	1,122.7	2.80	-2.63	0.95
11,710.0	88.80	174.20	10,711.9	-1,148.7	729.3	1,216.6	1.78	0.53	1.70
11,805.0	89.60	177.00	10,713.2	-1,243.4	736.6	1,311.6	3.07	0.84	2.95
11,900.0	92.00	179.60	10,711.9	-1,338.3	739.4	1,406.3	3.72	2.53	2.74
11,994.0	89.40	179.80	10,710.8	-1,432.3	739.9	1,499.8	2.77	-2.77	0.21
12,089.0	91.50	180.70	10,710.0	-1,527.3	739.5	1,594.3	2.40	2.21	0.95
12,183.0	89.40	180.20	10,709.3	-1,621.3	738.7	1,687.7	2.30	-2.23	-0.53
12,278.0	89.90	178.00	10,709.9	-1,716.3	740.2	1,782.4	2.37	0.53	-2.32
12,372.0	90.80	178.90	10,709.3	-1,810.2	742.7	1,876.1	1.35	0.96	0.96
12,466.0	89.10	178.70	10,709.4	-1,904.2	744.7	1,969.8	1.82	-1.81	-0.21
12,561.0	89.90	178.40	10,710.2	-1,999.2	747.1	2,064.5	0.90	0.84	-0.32
12,656.0	93.20	180.50	10,707.6	-2,094.1	748.0	2,159.1	4.12	3.47	2.21
12,751.0	93.70	181.00	10,701.9	-2,188.9	746.8	2,253.3	0.74	0.53	0.53
12,845.0	92.90	180.00	10,696.5	-2,282.8	746.0	2,346.6	1.36	-0.85	-1.06
12,939.0	92.60	180.70	10,692.0	-2,376.7	745.4	2,439.9	0.81	-0.32	0.74
13,034.0	92.00	180.30	10,688.2	-2,471.6	744.6	2,534.3	0.76	-0.63	-0.42
13,128.0	89.60	179.40	10,686.9	-2,565.6	744.8	2,627.8	2.73	-2.55	-0.96
13,223.0	89.30	180.30	10,687.8	-2,660.6	745.1	2,722.3	1.00	-0.32	0.95
13,318.0	89.50	180.50	10,688.8	-2,755.5	744.4	2,816.7	0.30	0.21	0.21
13,413.0	88.80	179.80	10,690.2	-2,850.5	744.2	2,911.2	1.04	-0.74	-0.74
13,507.0	89.10	180.30	10,691.9	-2,944.5	744.1	3,004.7	0.62	0.32	0.53
13,602.0	89.40	180.70	10,693.1	-3,039.5	743.2	3,099.1	0.53	0.32	0.42
13,696.0	88.50	180.10	10,694.9	-3,133.5	742.6	3,192.6	1.15	-0.96	-0.64
13,791.0	91.40	183.50	10,694.9	-3,228.4	739.6	3,286.7	4.70	3.05	3.58
13,886.0	90.30	182.60	10,693.5	-3,323.3	734.6	3,380.6	1.50	-1.16	-0.95
13,980.0	88.10	180.50	10,694.8	-3,417.2	732.0	3,473.8	3.24	-2.34	-2.23
14,074.0	88.10	181.20	10,698.0	-3,511.1	730.6	3,567.1	0.74	0.00	0.74
14,169.0	90.20	180.30	10,699.4	-3,606.1	729.4	3,661.4	2.40	2.21	-0.95
14,264.0	90.00	179.60	10,699.2	-3,701.1	729.5	3,756.0	0.77	-0.21	-0.74
14,359.0	91.80	181.00	10,697.7	-3,796.1	729.0	3,850.4	2.40	1.89	1.47
14,453.0	90.90	180.90	10,695.5	-3,890.1	727.4	3,943.7	0.96	-0.96	-0.11
14,548.0	90.00	182.60	10,694.8	-3,985.0	724.5	4,037.9	2.02	-0.95	1.79
14,642.0	91.40	185.90	10,693.6	-4,078.7	717.5	4,130.4	3.81	1.49	3.51
14,737.0	90.10	183.80	10,692.4	-4,173.4	709.5	4,223.8	2.60	-1.37	-2.21
14,831.0	90.40	183.50	10,692.0	-4,267.2	703.5	4,316.5	0.45	0.32	-0.32
14,926.0	89.40	181.70	10,692.1	-4,362.1	699.2	4,410.5	2.17	-1.05	-1.89
15,020.0	90.50	182.30	10,692.2	-4,456.0	695.9	4,503.6	1.33	1.17	0.64
15,114.0	89.20	180.00	10,692.4	-4,550.0	694.0	4,596.9	2.81	-1.38	-2.45

Company:	Mewbourne Oil Company	Local Co-ordinate Reference:	Well FNR 17/20 B3IP FED COM #2H
Project:	Eddy County, New Mexico (Nad 83)	TVD Reference:	WELL @ 3247.0usft (Patterson #230)
Site:	Sec 17, T23S, R30E	MD Reference:	WELL @ 3247.0usft (Patterson #230)
Well:	FNR 17/20 B3IP FED COM #2H	North Reference:	Grid
Wellbore:	Wellbore #1	Survey Calculation Method:	Minimum Curvature
Design:	Wellbore #1	Database:	EDM 5000.1 Single User Db

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)	
15,209.0	88.20	179.40	10,694.6	-4,645.0	694.5	4,691.4	1.23	-1.05	-0.63	
15,304.0	87.00	179.60	10,698.6	-4,739.9	695.4	4,785.9	1.28	-1.26	0.21	
15,399.0	87.80	178.40	10,702.9	-4,834.8	697.0	4,880.5	1.52	0.84	-1.26	
15,493.0	90.40	178.00	10,704.4	-4,928.7	700.0	4,974.2	2.80	2.77	-0.43	
15,587.0	88.40	177.30	10,705.4	-5,022.6	703.8	5,068.1	2.25	-2.13	-0.74	
15,681.0	90.00	176.30	10,706.7	-5,116.4	709.1	5,161.9	2.01	1.70	-1.06	
15,776.0	88.60	176.30	10,707.8	-5,211.2	715.2	5,256.9	1.47	-1.47	0.00	
15,870.0	91.20	177.20	10,708.0	-5,305.1	720.5	5,350.8	2.93	2.77	0.96	
15,964.0	91.40	177.30	10,705.9	-5,398.9	725.0	5,444.6	0.24	0.21	0.11	
16,059.0	90.80	177.00	10,704.0	-5,493.8	729.8	5,539.5	0.71	-0.63	-0.32	
16,153.0	89.50	177.20	10,703.8	-5,587.7	734.5	5,633.3	1.40	-1.38	0.21	
16,248.0	89.50	176.10	10,704.6	-5,682.5	740.1	5,728.2	1.16	0.00	-1.16	
16,342.0	90.50	177.20	10,704.6	-5,776.4	745.6	5,822.2	1.58	1.06	1.17	
16,437.0	90.60	177.20	10,703.7	-5,871.2	750.2	5,917.0	0.11	0.11	0.00	
16,531.0	90.20	177.00	10,703.0	-5,965.1	755.0	6,010.9	0.48	-0.43	-0.21	
16,626.0	90.00	176.60	10,702.9	-6,060.0	760.3	6,105.8	0.47	-0.21	-0.42	
16,720.0	89.10	180.00	10,703.6	-6,153.9	763.1	6,199.5	3.74	-0.96	3.62	
16,814.0	89.70	180.70	10,704.6	-6,247.9	762.5	6,293.0	0.98	0.64	0.74	
16,909.0	89.30	180.70	10,705.4	-6,342.9	761.3	6,387.4	0.42	-0.42	0.00	
17,003.0	89.50	180.70	10,706.4	-6,436.9	760.2	6,480.8	0.21	0.21	0.00	
17,098.0	89.50	180.10	10,707.2	-6,531.9	759.5	6,575.2	0.63	0.00	-0.63	
17,192.0	89.50	179.80	10,708.1	-6,625.9	759.6	6,668.7	0.32	0.00	-0.32	
17,287.0	90.00	179.40	10,708.5	-6,720.9	760.3	6,763.3	0.67	0.53	-0.42	
17,382.0	90.30	179.40	10,708.2	-6,815.9	761.2	6,857.9	0.32	0.32	0.00	
17,476.0	90.40	179.30	10,707.7	-6,909.9	762.3	6,951.5	0.15	0.11	-0.11	
17,571.0	91.20	180.00	10,706.3	-7,004.8	762.9	7,046.1	1.12	0.84	0.74	
17,666.0	91.00	179.60	10,704.5	-7,099.8	763.2	7,140.6	0.47	-0.21	-0.42	
17,761.0	90.30	179.30	10,703.4	-7,194.8	764.1	7,235.2	0.80	-0.74	-0.32	
17,850.0	88.60	177.70	10,704.3	-7,283.8	766.5	7,323.9	2.62	-1.91	-1.80	
TD @ 17900.0' MD / 10705.5' TVD										
17,900.0	88.60	177.70	10,705.5	-7,333.7	768.5	7,373.8	0.00	0.00	0.00	

Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates		Comment
		+N/-S (usft)	+E/-W (usft)	
82.0	82.0	-0.1	0.1	First MWD Survey @ 82.0' MD / 82.0' TVD
4,281.9	4,279.7	-19.7	30.1	LL Crossed @ 4281.9' MD / 4279.7' TVD
10,449.6	10,420.7	-41.8	454.5	HL Crossed @ 10449.6' MD / 10420.7' TVD
17,900.0	10,705.5	-7,333.7	768.5	TD @ 17900.0' MD / 10705.5' TVD

Checked By: _____ Approved By: _____ Date: _____

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-180150	3/23/2018

Lease	Well Name	County & State
SEC 17, T-23S, R30E	FNR 17/20 B3IP FED COM #2H	Eddy County, NM

API No.	Survey Depth Range	Survey Type
30-015-44577	82 feet to 17900 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

Digitally signed by Christopher Hughes
DN: cn=Christopher Hughes, o=QES,
ou=compliance, email=chrish@qeslp.com,
c=US
Date: 2018.03.26 14:27:14 -05'00'

Christopher Hughes
MWD Compliance Manager



QES Survey Certification Report



Company: Mewbourne Oil Company
 Project: Eddy County, New Mexico (Nad 83)
 Site: Sec 17, T23S, R30E
 Well: FNR 17/20 B3IP FED COM #2H
 Wellbore: Wellbore #1
 Design: Wellbore #1

Local Co-ordinate Reference: Well FNR 17/20 B3IP FED COM #2H
 TVD Reference: WELL @ 3247.0usft (Patterson #230)
 MD Reference: WELL @ 3247.0usft (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 17, T23S, R30E

Site Position: Northing: 474,760.00 usft Latitude: 32° 18' 15.995 N
 From: Map Easting: 675,368.70 usft Longitude: 103° 53' 58.273 W
 Position Uncertainty: 0.0 usft Slot Radius: 13-3/16" Grid Convergence: 0.23 °

Well: FNR 17/20 B3IP FED COM #2H

Position: +N/-S 0.0 usft Northing: 474,724.50 usft Latitude: 32° 18' 15.642 N
 +E/-W 0.0 usft Easting: 675,404.30 usft Longitude: 103° 53' 57.860 W
 Position Uncertainty: 0.0 usft Wellhead Elevation: usft Ground Level: 3,220.0 usft

Wellbore: Wellbore #1

Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2015	2/2/2018	7.04	60.08	47,887.65507473

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	174.19

Survey Program: Date 2/16/2018

From (usft)	To (usft)	Survey (Wellbore)	Tool Name	Description
82.0	17,900.0	QES MWD Surveys (Wellbore #1)	MWD default	MWD - Standard

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
82.0	0.20	119.80	82.0	-0.1	0.1	0.1	119.80
First MWD Survey @ 82.0' MD / 82.0' TVD							
181.0	0.50	314.00	181.0	0.1	0.0	0.1	345.65
252.0	0.70	261.00	252.0	0.3	-0.7	0.7	292.89
283.0	0.80	239.00	283.0	0.1	-1.1	1.1	278.02
341.0	0.90	221.00	341.0	-0.4	-1.7	1.8	256.71
417.0	1.00	212.80	417.0	-1.4	-2.5	2.8	240.13
483.0	0.70	184.90	483.0	-2.3	-2.8	3.6	230.68
574.0	0.70	168.40	574.0	-3.4	-2.7	4.4	218.90
666.0	0.70	186.70	666.0	-4.5	-2.7	5.2	210.87
757.0	0.80	179.10	756.9	-5.7	-2.7	6.3	205.76



QES Survey Certification Report



Company: Mewbourne Oil Company
 Project: Eddy County, New Mexico (Nad 83)
 Site: Sec 17, T23S, R30E
 Well: FNR 17/20 B3IP FED COM #2H
 Wellbore: Wellbore #1
 Design: Wellbore #1

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

Well FNR 17/20 B3IP FED COM #2H
 WELL @ 3247.0usft (Patterson #230)
 WELL @ 3247.0usft (Patterson #230)
 Grid
 Minimum Curvature
 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 (")
849.0	0.90	179.80	848.9	-7.1	-2.7	7.6	201.18
943.0	0.90	176.30	942.9	-8.5	-2.7	8.9	197.46
1,039.0	0.90	179.60	1,038.9	-10.0	-2.6	10.4	194.68
1,132.0	1.00	174.00	1,131.9	-11.6	-2.5	11.8	192.38
1,226.0	1.10	171.50	1,225.9	-13.3	-2.3	13.5	189.91
1,321.0	1.10	174.90	1,320.9	-15.1	-2.1	15.2	187.94
1,415.0	1.10	181.40	1,414.9	-16.9	-2.0	17.0	186.91
1,510.0	1.10	187.90	1,509.8	-18.7	-2.2	18.8	186.69
1,605.0	1.30	194.40	1,604.8	-20.7	-2.6	20.8	187.14
1,699.0	0.30	216.90	1,698.8	-21.9	-3.0	22.1	187.81
1,793.0	0.20	306.00	1,792.8	-22.0	-3.3	22.2	188.49
1,888.0	0.30	269.30	1,887.8	-21.9	-3.7	22.2	189.50
1,983.0	0.30	291.60	1,982.8	-21.8	-4.1	22.2	190.76
2,077.0	0.40	264.20	2,076.8	-21.7	-4.7	22.2	192.19
2,172.0	0.40	257.70	2,171.8	-21.8	-5.4	22.5	193.77
2,266.0	0.60	241.70	2,265.8	-22.2	-6.1	23.0	195.41
2,360.0	0.60	246.10	2,359.8	-22.6	-7.0	23.6	197.20
2,455.0	0.80	244.10	2,454.8	-23.1	-8.0	24.4	199.21
2,550.0	1.00	246.10	2,549.8	-23.7	-9.4	25.5	201.63
2,645.0	1.30	298.10	2,644.8	-23.5	-11.1	26.0	205.26
2,739.0	1.70	314.40	2,738.7	-22.1	-13.0	25.6	210.60
2,834.0	1.20	315.50	2,833.7	-20.4	-14.7	25.1	215.92
2,928.0	0.60	296.00	2,927.7	-19.4	-15.9	25.1	219.24
3,023.0	0.40	281.00	3,022.7	-19.2	-16.7	25.4	221.00
3,117.0	0.40	210.90	3,116.7	-19.4	-17.1	25.9	221.50
3,212.0	0.80	172.40	3,211.7	-20.3	-17.2	26.6	220.29
3,306.0	1.60	158.70	3,305.6	-22.2	-16.7	27.7	216.90
3,401.0	0.70	177.70	3,400.6	-24.0	-16.2	28.9	213.94
3,482.0	0.50	217.40	3,481.6	-24.8	-16.4	29.7	213.41
3,590.0	0.50	239.40	3,589.6	-25.4	-17.0	30.6	213.86
3,684.0	2.30	85.80	3,683.6	-25.5	-15.5	29.8	211.35
3,779.0	4.50	84.70	3,778.4	-25.0	-9.9	26.9	201.62
3,873.0	4.70	83.60	3,872.1	-24.2	-2.4	24.3	185.66
3,968.0	4.70	81.90	3,966.8	-23.2	5.3	23.8	167.10
4,063.0	4.70	83.10	4,061.5	-22.2	13.0	25.8	149.59
4,157.0	4.50	81.90	4,155.2	-21.2	20.5	29.5	135.99
4,252.0	4.40	80.30	4,249.9	-20.1	27.8	34.3	125.87
4,346.0	4.40	79.10	4,343.6	-18.8	34.9	39.6	118.33
4,441.0	5.40	78.40	4,438.3	-17.2	42.8	46.2	111.89
4,536.0	3.80	89.40	4,533.0	-16.3	50.4	52.9	107.92
4,630.0	3.60	87.70	4,626.8	-16.1	56.4	58.7	105.95
4,725.0	4.10	85.10	4,721.5	-15.7	62.8	64.7	104.06
4,819.0	4.00	82.60	4,815.3	-15.0	69.4	71.0	102.21
4,914.0	4.00	81.50	4,910.1	-14.1	76.0	77.3	100.51



QES Survey Certification Report



Company: Mewbourne Oil Company
Project: Eddy County, New Mexico (Nad 83)
Site: Sec 17, T23S, R30E
Well: FNR 17/20 B3IP FED COM #2H
Wellbore: Wellbore #1
Design: Wellbore #1

Local Co-ordinate Reference: Well FNR 17/20 B3IP FED COM #2H
TVD Reference: WELL @ 3247.0usft (Patterson #230)
MD Reference: WELL @ 3247.0usft (Patterson #230)
North Reference: Grid
Survey Calculation Method: Minimum Curvature
Database: EDM 5000.1 Single User Db

Survey

Table with 9 columns: MD (usft), Inc (°), Azi (azimuth) (°), TVD (usft), N/S (usft), E/W (usft), Closure Distance (usft), Closure Azimuth (°). Contains 48 rows of survey data.



QES Survey Certification Report



Company: Mewbourne Oil Company
 Project: Eddy County, New Mexico (Nad 83)
 Site: Sec 17, T23S, R30E
 Well: FNR 17/20 B3IP FED COM #2H
 Wellbore: Wellbore #1
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Local Co-ordinate Reference: Well FNR 17/20 B3IP FED COM #2H
 TVD Reference: WELL @ 3247.0usft (Patterson #230)
 MD Reference: WELL @ 3247.0usft (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 (°)
16,059.0	90.80	177.00	10,704.0	-5,493.8	729.8	5,542.1	172.43
16,153.0	89.50	177.20	10,703.8	-5,587.7	734.6	5,635.8	172.51
16,248.0	89.50	176.10	10,704.6	-5,682.5	740.1	5,730.5	172.58
16,342.0	90.50	177.20	10,704.6	-5,776.3	745.6	5,824.3	172.64
16,437.0	90.60	177.20	10,703.7	-5,871.2	750.3	5,919.0	172.72
16,531.0	90.20	177.00	10,703.0	-5,965.1	755.0	6,012.7	172.79
16,626.0	90.00	176.60	10,702.9	-6,060.0	760.3	6,107.5	172.85
16,720.0	89.10	180.00	10,703.6	-6,153.9	763.1	6,201.0	172.93
16,814.0	89.70	180.70	10,704.6	-6,247.9	762.5	6,294.2	173.04
16,909.0	89.30	180.30	10,705.4	-6,342.9	761.7	6,388.5	173.15
17,003.0	89.50	180.50	10,706.4	-6,436.9	761.0	6,481.7	173.26
17,098.0	89.50	180.10	10,707.2	-6,531.9	760.5	6,576.0	173.36
17,192.0	89.50	179.80	10,708.1	-6,625.9	760.6	6,669.4	173.45
17,287.0	90.00	179.40	10,708.5	-6,720.9	761.3	6,763.8	173.54
17,382.0	90.30	179.40	10,708.2	-6,815.9	762.3	6,858.3	173.62
17,476.0	90.40	179.30	10,707.7	-6,909.8	763.4	6,951.9	173.70
17,571.0	91.20	180.00	10,706.3	-7,004.8	763.9	7,046.4	173.78
17,666.0	91.00	179.60	10,704.5	-7,099.8	764.3	7,140.8	173.86
17,761.0	90.30	179.30	10,703.4	-7,194.8	765.2	7,235.4	173.93
17,850.0	88.60	177.70	10,704.3	-7,283.8	767.5	7,324.1	173.98
17,900.0	88.60	177.70	10,705.5	-7,333.7	769.5	7,400.0	174.00

TD @ 17900.0' MD / 10705.5' TVD

Design Annotations

Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates		Comment
		+N-S (usft)	+E-W (usft)	
82.0	82.0	-0.1	0.1	First MWD Survey @ 82.0' MD / 82.0' TVD
17,900.0	10,705.5	-7,333.7	769.5	TD @ 17900.0' MD / 10705.5' TVD

Checked By: _____ Approved By: _____ Date: _____

Company Name: Mewbourne Oil Company
 FNR 17/20 B3IP FED COM #2H
 Eddy County, New Mexico (Nad 83)
 Rig: Patterson #230
 Created By: Shane Robbins
 Date: 2/19/2018

FNR 17/20 B3IP FED COM #2H
 Eddy County, New Mexico (Nad 83)
 Q180171 & WT-180150
 Design #1



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: FNR 17/20 B3IP FED COM #2H

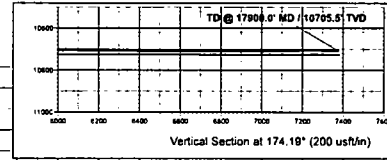
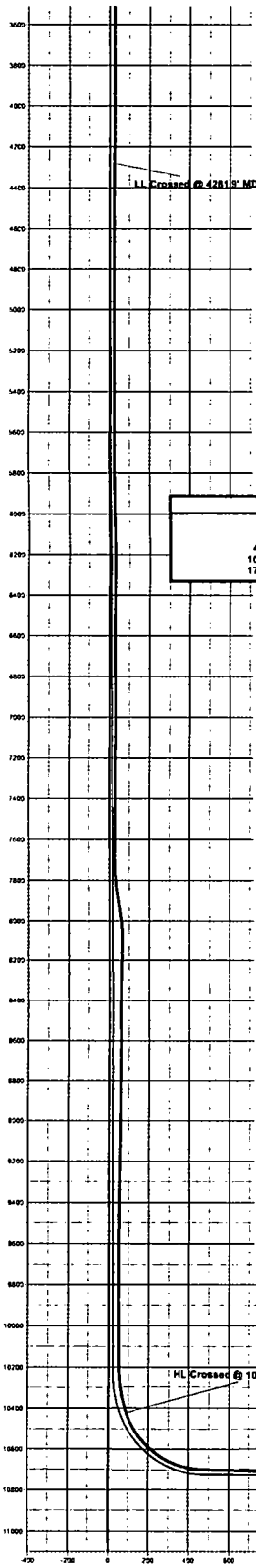
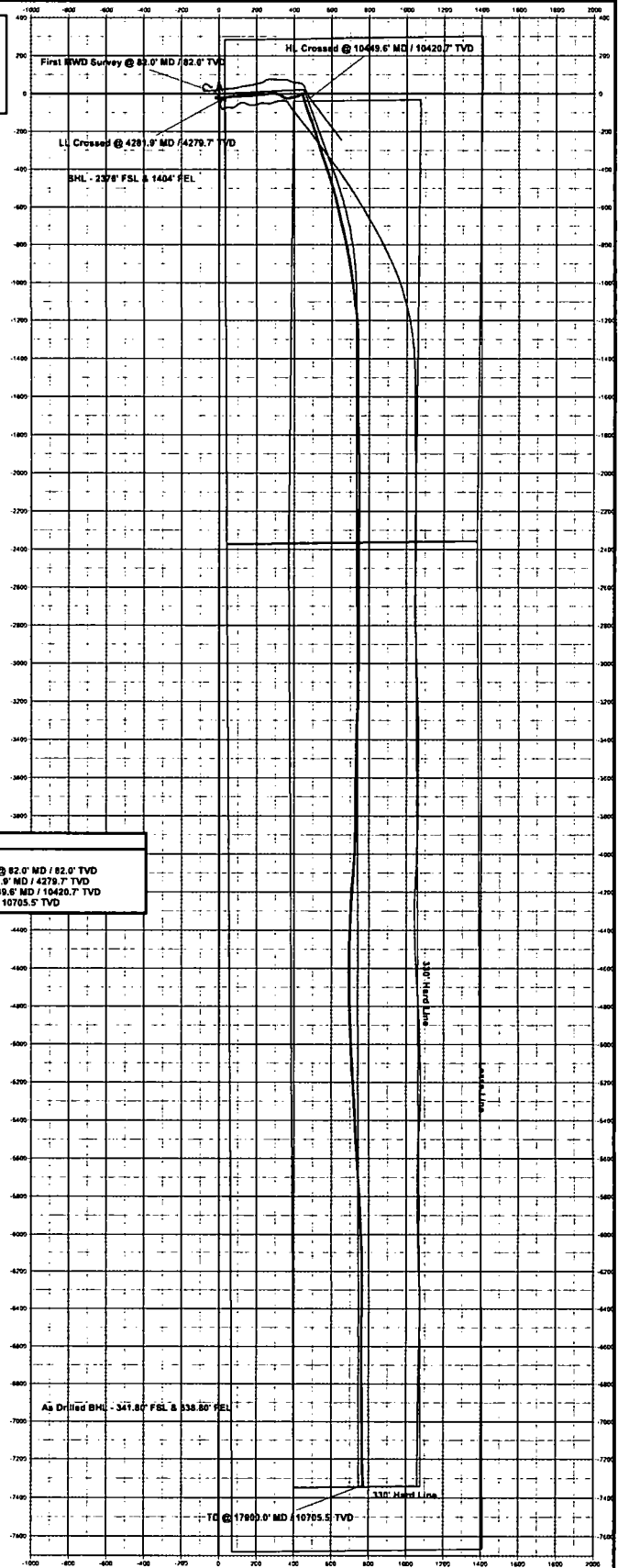
3229.8						
+N-S	+E-W	Northing	Easting	Latitude	Longitude	
0.0	0.0	474724.00	875454.30	32° 18' 15.842 N	103° 53' 07.886 W	

ANNOTATIONS

MD	Inc	Azi	TVD	+N-S	+E-W	VSect	Departure	Annotation
82.0	0.20	119.80	82.0	-0.1	0.1	0.1	0.1	First MWD Survey @ 82.0' MD / 82.0' TVD
4281.9	4.40	79.92	4279.7	-19.7	30.1	22.6	96.4	LL Crossed @ 4281.9' MD / 4279.7' TVD
10449.6	20.97	103.03	10420.7	-41.9	454.5	87.6	555.4	HL Crossed @ 10449.6' MD / 10420.7' TVD
17900.0	68.80	177.70	10705.5	-7333.7	766.5	7373.8	7897.6	TD @ 17900.0' MD / 10705.5' TVD

Azimuths to Grid North

Magnetic North: 6.81°
 Magnetic Field
 Strength: 47887.7snT
 Dip Angle: 60.08°
 Date: 2/2/2018
 Model: IGRF2015



Vertical Section at 174.19' (200 usf/in)