



Mewbourne Oil Company

Eddy County, New Mexico

Section 17-20-21S-25E Rio Bravo 17-20 W2AP Fed Com

Rio Bravo 17-20 W2AP Fed Com 1H

30-015-44110

Side Track

Design: Original Hole

Standard Survey Report

19 May, 2017





Microsoft Survey Report



Company: Mewbourne Oil Company
Project: Eddy County, New Mexico
Site: Section17-20-21S-25E Rio Bravo 17-20 W2AP Fed Com
Well: Rio Bravo 17-20 W2AP Fed Com 1H
Wellbore: Original Hole
Design: Original Hole

Local Co-ordinate Reference: Well Rio Bravo 17-20 W2AP Fed Com 1H
TVD Reference: 3377 + 27 @ 3404.0usft (Patterson 250)
MD Reference: 3377 + 27 @ 3404.0usft (Patterson 250)
North Reference: Grid
Survey Calculation Method: Minimum Curvature
Database: Stryker_EDM

Project	Eddy County, New Mexico		
Map System:	US State Plane 1927 (Exact solution)	System Datum:	Mean Sea Level
Geo Datum:	NAD 1927 (NADCON CONUS)		
Map Zone:	New Mexico East 3001		

Site Section17-20-21S-25E Rio Bravo 17-20 W2AP Fed Com

Site Position: **Northing:** 540,583.20 usft **Latitude:** 32° 29' 10.138 N
From: Map **Easting:** 475,585.30 usft **Longitude:** 104° 24' 45.045 W
Position Uncertainty: 0.0 usft **Slot Radius:** 13-3/16 " **Grid Convergence:** -0.04 °

Well Rio Bravo 17-20 W2AP Fed Com 1H

Well Position **+N/-S** 0.0 usft **Northing:** 540,583.20 usft **Latitude:** 32° 29' 10.138 N
+E/-W 0.0 usft **Easting:** 475,585.30 usft **Longitude:** 104° 24' 45.045 W
Position Uncertainty 0.0 usft **Wellhead Elevation:** 27.0 usft **Ground Level:** 3,377.0 usft

Wellbore Original Hole

Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2015	3/29/2017	7.38	60.17	48,025.24180820

Design Original Hole

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	152.73

Survey Program Date 5/19/2017

From (usft)	To (usft)	Survey (Wellbore)	Tool Name	Description
100.0	2,037.0	Phoenix Tech. Gyro Survey (Original Hole)	NSG-CT_WL	Continuous north-seeking gyro on wireline
2,204.0	11,581.0	MWD Survey (Original Hole)	MWD+IGRF	OWSG MWD + IGRF or WMM
10,810.0	15,384.0	Survey #4 (Original Hole)		

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	0.79	230.90	100.0	-0.4	-0.5	0.1	0.79	0.79	0.00
200.0	0.66	224.79	200.0	-1.3	-1.5	0.5	0.15	-0.13	-6.11
300.0	0.83	229.24	300.0	-2.2	-2.4	0.8	0.18	0.17	4.45
400.0	0.81	238.95	400.0	-3.0	-3.6	1.0	0.14	-0.02	9.71
500.0	0.49	200.81	500.0	-3.8	-4.3	1.4	0.52	-0.32	-38.14
600.0	0.27	109.35	600.0	-4.2	-4.3	1.8	0.57	-0.22	-91.46
700.0	0.24	303.82	700.0	-4.2	-4.2	1.8	0.51	-0.03	-165.53



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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)
800.0	0.25	26.78	800.0	-3.9	-4.3	1.5	0.32	0.01	82.96
900.0	0.44	198.56	900.0	-4.1	-4.3	1.6	0.69	0.19	171.78
1,000.0	0.29	232.97	1,000.0	-4.6	-4.6	1.9	0.26	-0.15	34.41
1,100.0	0.58	48.52	1,100.0	-4.4	-4.5	1.9	0.87	0.29	175.55
1,200.0	0.47	82.47	1,200.0	-4.0	-3.7	1.9	0.32	-0.11	33.95
1,300.0	0.49	59.49	1,300.0	-3.7	-2.9	2.0	0.19	0.02	-22.98
1,400.0	0.62	17.71	1,399.9	-3.0	-2.4	1.6	0.41	0.13	-41.78
1,500.0	1.07	132.25	1,499.9	-3.1	-1.5	2.1	1.44	0.45	114.54
1,600.0	0.69	128.29	1,599.9	-4.1	-0.4	3.5	0.38	-0.38	-3.96
1,700.0	0.63	109.75	1,699.9	-4.7	0.6	4.4	0.22	-0.06	-18.54
1,800.0	0.52	115.49	1,799.9	-5.1	1.6	5.2	0.12	-0.11	5.74
1,900.0	0.46	141.69	1,899.9	-5.6	2.2	6.0	0.23	-0.06	26.20
2,000.0	0.63	125.26	1,999.9	-6.2	2.9	6.8	0.23	0.17	-16.43
2,037.0	0.63	104.45	2,036.9	-6.4	3.3	7.2	0.62	0.00	-56.24
2037' MD Phoenix Gyro Survey									
2,204.0	0.80	98.70	2,203.9	-6.8	5.3	8.5	0.11	0.10	-3.44
2,297.0	0.90	97.70	2,296.9	-7.0	6.7	9.3	0.11	0.11	-1.08
2,391.0	1.00	85.80	2,390.9	-7.0	8.2	10.0	0.23	0.11	-12.66
2,484.0	0.90	90.80	2,483.9	-7.0	9.8	10.7	0.14	-0.11	5.38
2,578.0	1.10	82.50	2,577.8	-6.8	11.4	11.3	0.26	0.21	-8.83
2,671.0	2.60	68.80	2,670.8	-6.0	14.3	11.8	1.67	1.61	-14.73
2,764.0	5.10	63.20	2,763.6	-3.3	19.9	12.1	2.72	2.69	-6.02
2,858.0	5.00	65.50	2,857.2	0.2	27.4	12.3	0.24	-0.11	2.45
2,952.0	4.40	63.90	2,950.9	3.5	34.3	12.6	0.65	-0.64	-1.70
3,045.0	4.40	65.90	3,043.6	6.6	40.8	12.9	0.16	0.00	2.15
3,138.0	5.40	61.60	3,136.3	10.1	47.9	13.0	1.14	1.08	-4.62
3,232.0	5.20	60.50	3,229.9	14.3	55.5	12.7	0.24	-0.21	-1.17
3,325.0	5.00	66.60	3,322.5	18.0	62.9	12.8	0.62	-0.22	6.56
3,419.0	4.90	70.30	3,416.2	21.0	70.4	13.6	0.36	-0.11	3.94
3,512.0	5.40	57.80	3,508.8	24.6	77.9	13.8	1.32	0.54	-13.44
3,606.0	5.80	45.30	3,602.3	30.3	85.0	12.0	1.36	0.43	-13.30
3,700.0	4.90	43.60	3,695.9	36.6	91.1	9.2	0.97	-0.96	-1.81
3,793.0	5.90	49.00	3,788.5	42.6	97.5	6.8	1.21	1.08	5.81
3,886.0	5.70	45.40	3,881.0	49.0	104.4	4.3	0.45	-0.22	-3.87
3,980.0	3.90	46.50	3,974.7	54.4	110.0	2.0	1.92	-1.91	1.17
4,074.0	4.10	47.70	4,068.5	58.9	114.8	0.2	0.23	0.21	1.28
4,167.0	3.50	38.30	4,161.3	63.4	119.0	-1.8	0.93	-0.65	-10.11
4,260.0	4.00	37.80	4,254.1	68.2	122.8	-4.3	0.54	0.54	-0.54
4,354.0	4.00	61.70	4,347.9	72.3	127.7	-5.8	1.76	0.00	25.43
4,447.0	4.10	58.10	4,440.6	75.6	133.4	-6.1	0.29	0.11	-3.87
4,541.0	2.50	35.90	4,534.5	79.0	137.4	-7.3	2.15	-1.70	-23.62
4,634.0	3.90	51.30	4,627.3	82.7	141.1	-8.8	1.75	1.51	16.56
4,728.0	6.20	58.70	4,720.9	87.3	147.9	-9.8	2.54	2.45	7.87

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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)
4,821.0	6.20	63.40	4,813.4	92.2	156.7	-10.1	0.55	0.00	5.05
4,915.0	5.10	68.60	4,906.9	96.0	165.1	-9.6	1.29	-1.17	5.53
5,008.0	4.60	70.50	4,999.6	98.7	172.5	-8.7	0.56	-0.54	2.04
5,102.0	3.80	67.30	5,093.4	101.2	178.9	-8.0	0.89	-0.85	-3.40
5,195.0	4.80	52.80	5,186.1	104.7	184.9	-8.4	1.58	1.08	-15.59
5,288.0	4.20	46.20	5,278.8	109.4	190.4	-10.0	0.85	-0.65	-7.10
5,382.0	4.70	42.00	5,372.5	114.7	195.5	-12.4	0.63	0.53	-4.47
5,476.0	6.60	46.00	5,466.1	121.3	201.9	-15.3	2.06	2.02	4.26
5,569.0	4.70	47.20	5,558.6	127.6	208.6	-17.8	2.05	-2.04	1.29
5,663.0	4.80	71.30	5,652.3	131.5	215.1	-18.3	2.11	0.11	25.64
5,756.0	4.20	78.60	5,745.0	133.4	222.2	-16.8	0.89	-0.65	7.85
5,849.0	3.10	88.30	5,837.8	134.1	228.0	-14.8	1.35	-1.18	10.43
5,943.0	4.20	68.80	5,931.6	135.4	233.8	-13.3	1.75	1.17	-20.74
6,036.0	4.20	70.10	6,024.4	137.8	240.1	-12.5	0.10	0.00	1.40
6,130.0	3.30	74.10	6,118.2	139.7	246.0	-11.5	1.00	-0.96	4.26
6,223.0	4.00	61.80	6,211.0	142.0	251.4	-11.1	1.13	0.75	-13.23
6,317.0	3.70	73.60	6,304.8	144.4	257.2	-10.5	0.90	-0.32	12.55
6,410.0	4.60	68.00	6,397.5	146.7	263.5	-9.6	1.06	0.97	-6.02
6,504.0	4.30	66.70	6,491.3	149.5	270.3	-9.0	0.34	-0.32	-1.38
6,597.0	3.60	64.90	6,584.0	152.1	276.1	-8.7	0.76	-0.75	-1.94
6,691.0	6.00	60.20	6,677.7	155.8	283.1	-8.8	2.59	2.55	-5.00
6,784.0	4.40	64.90	6,770.3	159.7	290.5	-8.9	1.78	-1.72	5.05
6,878.0	3.70	61.50	6,864.1	162.7	296.4	-8.8	0.79	-0.74	-3.62
6,971.0	2.80	59.10	6,956.9	165.3	301.0	-9.0	0.98	-0.97	-2.58
7,065.0	2.50	61.70	7,050.8	167.4	304.8	-9.2	0.34	-0.32	2.77
7,158.0	1.90	57.50	7,143.8	169.2	307.9	-9.4	0.67	-0.65	-4.52
7,214.9	1.53	54.54	7,200.6	170.2	309.3	-9.6	0.66	-0.65	-5.21
BB Rio Bravo W2AP Fed Com 1H									
7,220.0	1.50	54.20	7,205.7	170.3	309.4	-9.6	0.66	-0.64	-6.59
7,282.0	2.50	101.60	7,267.7	170.5	311.4	-8.9	2.98	1.61	76.45
7,313.0	6.50	126.30	7,298.6	169.3	313.5	-6.9	14.05	12.90	79.68
7,344.0	10.50	131.40	7,329.3	166.4	317.0	-2.7	13.12	12.90	16.45
7,375.0	13.50	132.80	7,359.6	162.0	321.8	3.4	9.72	9.68	4.52
7,406.0	16.80	135.20	7,389.5	156.4	327.6	11.0	10.83	10.65	7.74
7,437.0	20.70	140.70	7,418.8	149.0	334.2	20.7	13.80	12.58	17.74
7,468.0	23.80	147.40	7,447.5	139.5	341.1	32.3	12.91	10.00	21.61
7,499.0	25.00	148.20	7,475.8	128.6	347.9	45.0	4.02	3.87	2.58
7,531.0	26.60	148.70	7,504.6	116.8	355.2	58.9	5.05	5.00	1.56
7,562.0	28.80	153.10	7,532.0	104.2	362.2	73.3	9.69	7.10	14.19
7,593.0	31.60	159.20	7,558.8	89.9	368.4	88.9	13.39	9.03	19.68
7,624.0	34.20	160.50	7,584.8	74.1	374.2	105.6	8.69	8.39	4.19
7,655.0	36.10	159.10	7,610.2	57.4	380.4	123.3	6.66	6.13	-4.52



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7,686.0	38.20	155.50	7,634.9	40.1	387.6	141.9	9.75	6.77	-11.61
7,717.0	42.00	154.20	7,658.6	22.0	396.1	161.9	12.55	12.26	-4.19
7,748.0	46.20	153.60	7,680.9	2.7	405.6	183.4	13.62	13.55	-1.94
7,779.0	49.50	153.60	7,701.7	-17.9	415.8	206.4	10.65	10.65	0.00
7,811.0	52.20	153.90	7,721.9	-40.2	426.8	231.2	8.47	8.44	0.94
7,842.0	54.40	154.90	7,740.4	-62.6	437.5	256.1	7.55	7.10	3.23
7,873.0	55.70	156.00	7,758.2	-85.7	448.1	281.4	5.10	4.19	3.55
7,904.0	56.20	156.10	7,775.5	-109.2	458.5	307.1	1.63	1.61	0.32
7,935.0	57.80	156.80	7,792.4	-133.0	468.9	333.0	5.50	5.16	2.26
7,966.0	61.00	159.80	7,808.2	-157.8	478.8	359.6	13.26	10.32	9.68
7,998.0	64.50	163.10	7,822.8	-184.8	487.8	387.7	14.27	10.94	10.31
8,029.0	68.40	166.10	7,835.2	-212.1	495.3	415.5	15.39	12.58	9.68
8,060.0	72.80	167.80	7,845.5	-240.6	501.9	443.8	15.11	14.19	5.48
8,091.0	77.60	169.50	7,853.4	-270.0	507.8	472.6	16.37	15.48	5.48
8,122.0	82.50	172.40	7,858.8	-300.1	512.6	501.6	18.29	15.81	9.35
8,153.0	86.00	174.80	7,861.9	-330.8	516.0	530.4	13.67	11.29	7.74
8,271.0	89.40	177.90	7,866.6	-448.4	523.5	638.4	3.90	2.88	2.63
8,306.3	89.25	177.98	7,867.0	-483.7	524.8	670.4	0.48	-0.43	0.21
LP Rio Bravo 17-20 W2AP Fed Com 1H									
8,365.0	89.00	178.10	7,867.9	-542.4	526.8	723.4	0.48	-0.43	0.21
8,458.0	89.50	180.40	7,869.2	-635.3	528.0	806.6	2.53	0.54	2.47
8,552.0	86.80	181.20	7,872.2	-729.3	526.7	889.5	3.00	-2.87	0.85
8,645.0	87.90	180.80	7,876.5	-822.2	525.1	971.4	1.26	1.18	-0.43
8,738.0	87.00	180.40	7,880.6	-915.1	524.1	1,053.5	1.06	-0.97	-0.43
8,831.0	89.20	179.70	7,883.7	-1,008.0	524.0	1,136.1	2.48	2.37	-0.75
8,924.0	89.30	179.80	7,884.9	-1,101.0	524.5	1,218.9	0.15	0.11	0.11
9,017.0	88.50	180.10	7,886.7	-1,194.0	524.5	1,301.6	0.92	-0.86	0.32
9,111.0	88.00	180.50	7,889.6	-1,287.9	524.0	1,384.9	0.68	-0.53	0.43
9,204.0	89.00	180.20	7,892.0	-1,380.9	523.5	1,467.3	1.12	1.08	-0.32
9,298.0	89.50	180.70	7,893.2	-1,474.9	522.7	1,550.5	0.75	0.53	0.53
9,391.0	89.30	181.20	7,894.2	-1,567.9	521.2	1,632.4	0.58	-0.22	0.54
9,485.0	89.20	180.60	7,895.5	-1,661.8	519.7	1,715.3	0.65	-0.11	-0.64
9,579.0	89.80	181.20	7,896.3	-1,755.8	518.2	1,798.2	0.90	0.64	0.64
9,672.0	89.60	180.60	7,896.8	-1,848.8	516.8	1,880.1	0.68	-0.22	-0.65
9,766.0	89.60	181.00	7,897.4	-1,942.8	515.5	1,963.1	0.43	0.00	0.43
9,859.0	89.00	178.90	7,898.6	-2,035.8	515.6	2,045.8	2.35	-0.65	-2.26
9,953.0	89.10	176.60	7,900.1	-2,129.7	519.2	2,130.9	2.45	0.11	-2.45
10,046.0	88.80	177.70	7,901.8	-2,222.6	523.9	2,215.6	1.23	-0.32	1.18
10,140.0	90.30	177.00	7,902.6	-2,316.5	528.2	2,301.1	1.76	1.60	-0.74
10,233.0	90.30	176.40	7,902.1	-2,409.3	533.6	2,386.0	0.65	0.00	-0.65
10,327.0	88.40	176.30	7,903.1	-2,503.1	539.5	2,472.2	2.02	-2.02	-0.11
10,420.0	89.80	176.80	7,904.6	-2,595.9	545.1	2,557.2	1.60	1.51	0.54
10,514.0	90.80	176.70	7,904.1	-2,689.8	550.5	2,643.1	1.07	1.06	-0.11



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Design: Original Hole

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TVD Reference: 3377 + 27 @ 3404.0usft (Patterson 250)
MD Reference: 3377 + 27 @ 3404.0usft (Patterson 250)
North Reference: Grid
Survey Calculation Method: Minimum Curvature
Database: Stryker_EDM

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)
10,607.0	89.80	175.50	7,903.6	-2,782.5	556.8	2,728.5	1.68	-1.08	-1.29
10,701.0	89.70	176.10	7,904.0	-2,876.3	563.7	2,814.9	0.65	-0.11	0.64
10,810.0	88.30	174.50	7,905.9	-2,984.9	572.6	2,915.6	1.95	-1.28	-1.47
10,904.0	90.00	172.70	7,907.3	-3,078.3	583.1	3,003.4	2.63	1.81	-1.91
10,998.0	90.10	172.20	7,907.2	-3,171.5	595.4	3,091.9	0.54	0.11	-0.53
11,091.0	90.90	171.70	7,906.4	-3,263.6	608.5	3,179.7	1.01	0.86	-0.54
11,185.0	90.50	172.70	7,905.3	-3,356.7	621.2	3,268.3	1.15	-0.43	1.06
11,278.0	91.30	172.40	7,903.8	-3,448.9	633.3	3,355.8	0.92	0.86	-0.32
11,372.0	90.00	173.50	7,902.8	-3,542.2	644.8	3,444.0	1.81	-1.38	1.17
11,465.0	88.40	174.70	7,904.1	-3,634.7	654.4	3,530.6	2.15	-1.72	1.29
11,559.0	88.70	174.80	7,906.4	-3,728.2	663.0	3,617.7	0.34	0.32	0.11
11,652.0	89.10	174.90	7,908.2	-3,820.8	671.3	3,703.9	0.44	0.43	0.11
11,746.0	91.10	177.10	7,908.1	-3,914.6	677.9	3,790.2	3.16	2.13	2.34
11,839.0	89.50	178.40	7,907.6	-4,007.5	681.5	3,874.5	2.22	-1.72	1.40
11,933.0	88.60	178.70	7,909.1	-4,101.5	683.9	3,959.1	1.01	-0.96	0.32
12,024.0	88.60	180.00	7,911.3	-4,192.4	684.9	4,040.4	1.43	0.00	1.43
12,118.0	89.10	179.50	7,913.2	-4,286.4	685.3	4,124.1	0.75	0.53	-0.53
12,211.0	89.30	179.70	7,914.5	-4,379.4	686.0	4,207.1	0.30	0.22	0.22
12,305.0	89.90	179.50	7,915.2	-4,473.4	686.6	4,291.0	0.67	0.64	-0.21
12,398.0	90.10	181.20	7,915.2	-4,566.4	686.1	4,373.4	1.84	0.22	1.83
12,493.0	88.60	179.30	7,916.3	-4,661.4	685.7	4,457.6	2.55	-1.58	-2.00
12,586.0	88.30	180.00	7,918.8	-4,754.4	686.2	4,540.5	0.82	-0.32	0.75
12,679.0	88.60	179.50	7,921.3	-4,847.3	686.6	4,623.3	0.63	0.32	-0.54
12,772.0	90.80	179.80	7,921.8	-4,940.3	687.2	4,706.2	2.39	2.37	0.32
12,866.0	90.90	179.30	7,920.4	-5,034.3	687.9	4,790.1	0.54	0.11	-0.53
12,959.0	91.60	180.30	7,918.4	-5,127.3	688.3	4,872.9	1.31	0.75	1.08
13,053.0	90.70	180.30	7,916.5	-5,221.2	687.8	4,956.2	0.96	-0.96	0.00
13,146.0	90.20	180.90	7,915.7	-5,314.2	686.8	5,038.4	0.84	-0.54	0.65
13,240.0	90.90	181.90	7,914.8	-5,408.2	684.5	5,120.9	1.30	0.74	1.06
13,334.0	91.30	182.90	7,913.0	-5,502.1	680.6	5,202.6	1.15	0.43	1.06
13,427.0	88.50	183.40	7,913.2	-5,595.0	675.5	5,282.8	3.06	-3.01	0.54
13,521.0	90.50	184.90	7,914.0	-5,688.7	668.7	5,363.0	2.66	2.13	1.60
13,615.0	88.60	184.70	7,914.8	-5,782.4	660.8	5,442.6	2.03	-2.02	-0.21
13,708.0	88.00	183.60	7,917.5	-5,875.1	654.1	5,522.0	1.35	-0.65	-1.18
13,802.0	87.50	183.60	7,921.2	-5,968.8	648.2	5,602.6	0.53	-0.53	0.00
13,895.0	86.90	183.80	7,925.8	-6,061.5	642.2	5,682.2	0.68	-0.65	0.22
13,989.0	87.30	182.90	7,930.5	-6,155.2	636.7	5,763.0	1.05	0.43	-0.96
14,083.0	90.70	182.70	7,932.1	-6,249.1	632.1	5,844.4	3.62	3.62	-0.21
14,176.0	89.20	180.80	7,932.2	-6,342.0	629.3	5,925.7	2.60	-1.61	-2.04
14,270.0	90.60	182.00	7,932.4	-6,436.0	627.0	6,008.2	1.96	1.49	1.28
14,363.0	89.70	181.10	7,932.1	-6,529.0	624.4	6,089.6	1.37	-0.97	-0.97
14,457.0	89.70	182.00	7,932.6	-6,622.9	621.9	6,172.0	0.96	0.00	0.96



Microsoft Survey Report



Company: Mewbourne Oil Company
Project: Eddy County, New Mexico
Site: Section17-20-21S-25E Rio Bravo 17-20 W2AP Fed Com
Well: Rio Bravo 17-20 W2AP Fed Com 1H
Wellbore: Original Hole
Design: Original Hole

Local Co-ordinate Reference: Well Rio Bravo 17-20 W2AP Fed Com 1H
TVD Reference: 3377 + 27 @ 3404.0usft (Patterson 250)
MD Reference: 3377 + 27 @ 3404.0usft (Patterson 250)
North Reference: Grid
Survey Calculation Method: Minimum Curvature
Database: Stryker_EDM

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)
14,550.0	87.90	180.80	7,934.6	-6,715.9	619.6	6,253.6	2.33	-1.94	-1.29
14,643.0	89.00	181.30	7,937.1	-6,808.8	617.9	6,335.4	1.30	1.18	0.54
14,736.0	89.50	181.70	7,938.3	-6,901.8	615.5	6,416.9	0.69	0.54	0.43
14,830.0	88.50	181.10	7,940.0	-6,995.7	613.2	6,499.4	1.24	-1.06	-0.64
14,923.0	90.20	181.80	7,941.0	-7,088.7	610.8	6,580.9	1.98	1.83	0.75
15,016.0	89.70	180.70	7,941.1	-7,181.7	608.8	6,662.7	1.30	-0.54	-1.18
15,109.0	90.60	180.60	7,940.9	-7,274.7	607.8	6,744.8	0.97	0.97	-0.11
15,203.0	90.40	180.20	7,940.0	-7,368.7	607.1	6,828.1	0.48	-0.21	-0.43
15,296.0	91.30	181.30	7,938.7	-7,461.6	605.9	6,910.2	1.53	0.97	1.18
15,384.0	91.30	181.30	7,936.7	-7,549.6	603.9	6,987.5	0.00	0.00	0.00

15384' MD Survey Depth - PBHL Rio Bravo 17-20 W2AP Fed Com 1H

Design Annotations

Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates		Comment
		+N/-S (usft)	+E/-W (usft)	
2,037.0	2,036.9	-6.4	3.3	2037' MD Phoenix Gyro Survey
15,384.0	7,936.7	-7,549.6	603.9	15384' MD Survey Depth



July 12, 2017

New Mexico Energy, Minerals and Natural Resources Department
Attn: Oil Conservation Division
1220 South St. Francis Drive
Santa Fe, NM 87505

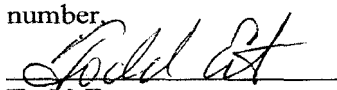
Attn: Jackie Lathan

Re: Mewbourne Oil Company
Rio Bravo 17 20 W2AP Federal Com #001H
Avalon; Wolfcamp (Gas)
Eddy County, New Mexico
API# 30-015-44110

Enclosed please find the original and one (1) copy of the survey performed on the reference well by STRYKER ENERGY DIRECTIONAL SERVICES, L.L.C. Other information required by your office is as follows:

<u>Name & Title</u>	<u>Drainhole No.</u>	<u>Survey Depths</u>	<u>Dates Performed</u>	<u>Type Survey</u>
David Calabrese	Original Hole	2,204ft. to 13,891ft.	04-11-17 to 04-28-17	MWD Survey
David Calabrese	Sidetrack Hole	10,810ft. to 15,296ft.	05-01-17 to 05-16-17	MWD Survey

A certified plat on which the bottom-hole location is oriented to both surface location and to the lease lines (or unit lines in case of pooling) is attached to the survey report. If any other information is required, please contact the undersigned at the letterhead address and phone number.


Todd Estes

Enclosures

CC:

Mewbourne Oil Company
Attn: Frosty Lathan
P.O. Box 5720
Hobbs, NM 88241

Mewbourne Oil Company
Attn: Robin Terrell
P.O. Box 5720
Hobbs, NM 88241

NMEMaNRD\Mewbourne Oil Company\Rio Bravo 17 20 W2AP Fed Com #1H\M171026

STRYKER ENERGY DIRECTIONAL SERVICES, L.L.C.
P.O. Box 1250
Montgomery, TX 77356
Office (936) 582-7296 * Fax (936)-588-4163



July 12, 2017

Survey Certification Report

STATE OF TEXAS

COUNTY OF Montgomery

I, Todd Estes, certify that I am employed by STRYKER ENERGY DIRECTIONAL SERVICES, L.L.C., and that I did on the day(s) of April 11, 2017, through April 28, 2017 conduct or supervise the taking of a SEDS Original Hole MWD Survey from a depth of 2,204 feet to a depth of 13,891 feet; and that I did on the day(s) of May 01, 2017, through May 16, 2017 conduct or supervise the taking of a SEDS Sidetrack Hole MWD Survey from a depth of 10,810 feet to a depth of 15,296 feet; that I am authorized and qualified to make this report; that this survey was conducted at the request of Mewbourne Oil Company, for the Rio Bravo 17 20 W2AP Federal Com #001H well, API # 30-015-44110 in Eddy County, New Mexico; and that I have reviewed this report and find that it conforms to the principles as set forth by STRYKER ENERGY DIRECTIONAL SERVICES, L.L.C.


Todd Estes

STRYKER ENERGY DIRECTIONAL SERVICES, L.L.C.

STRYKER ENERGY DIRECTIONAL SERVICES, L.L.C.
P.O. Box 1250
Montgomery, TX 77356
Office (936) 582-7296 * Fax (936)-588-4163



Mewbourne Oil Company

Eddy County, New Mexico

Section 17-20-21S-25E Rio Bravo 17-20 W2AP Fed Com

Rio Bravo 17-20 W2AP Fed Com 1H

Original Hole

Survey: Sidetrack

Standard Survey Report

12 July, 2017





Microsoft Survey Report



Company: Mewbourne Oil Company
Project: Eddy County, New Mexico
Site: Section17-20-21S-25E Rio Bravo 17-20 W2AP Fed Com
Well: Rio Bravo 17-20 W2AP Fed Com 1H
Wellbore: Original Hole
Design: Original Hole

Local Co-ordinate Reference: Well Rio Bravo 17-20 W2AP Fed Com 1H
TVD Reference: 3377 + 27 @ 3404.0usft (Patterson 250)
MD Reference: 3377 + 27 @ 3404.0usft (Patterson 250)
North Reference: Grid
Survey Calculation Method: Minimum Curvature
Database: Stryker_EDM

Project	Eddy County, New Mexico		
Map System:	US State Plane 1927 (Exact solution)	System Datum:	Mean Sea Level
Geo Datum:	NAD 1927 (NADCON CONUS)		
Map Zone:	New Mexico East 3001		

Site Section17-20-21S-25E Rio Bravo 17-20 W2AP Fed Com

Site Position: **Map** **Northing:** 540,583.20 usft **Latitude:** 32° 29' 10.138 N
From: **Easting:** 475,585.30 usft **Longitude:** 104° 24' 45.045 W
Position Uncertainty: 0.0 usft **Slot Radius:** 13-3/16 " **Grid Convergence:** -0.04 °

Well Rio Bravo 17-20 W2AP Fed Com 1H

Well Position **+N/-S** 0.0 usft **Northing:** 540,583.20 usft **Latitude:** 32° 29' 10.138 N
+E/-W 0.0 usft **Easting:** 475,585.30 usft **Longitude:** 104° 24' 45.045 W
Position Uncertainty 0.0 usft **Wellhead Elevation:** 27.0 usft **Ground Level:** 3,377.0 usft

Wellbore Original Hole

Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2015	3/29/2017	7.38	60.17	48,025.24180820

Design Original Hole

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	152.73

Survey Program Date 7/12/2017

From (usft)	To (usft)	Survey (Wellbore)	Tool Name	Description
10,810.0	15,384.0	Survey #4 (Original Hole)		

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)	
10,701.0	89.70	176.10	7,904.0	-2,876.3	563.7	2,814.9	0.00	0.00	0.00	Tie-In
BB Rio Bravo W2AP Fed Com 1H - LP Rio Bravo 17-20 W2AP Fed Com 1H										
10,810.0	88.30	174.50	7,905.9	-2,984.9	572.6	2,915.6	1.95	-1.28	-1.47	
10,904.0	90.00	172.70	7,907.3	-3,078.3	583.1	3,003.4	2.63	1.81	-1.91	
10,998.0	90.10	172.20	7,907.2	-3,171.5	595.4	3,091.9	0.54	0.11	-0.53	
11,091.0	90.90	171.70	7,906.4	-3,263.6	608.5	3,179.7	1.01	0.86	-0.54	
11,185.0	90.50	172.70	7,905.3	-3,356.7	621.2	3,268.3	1.15	-0.43	1.06	
11,278.0	91.30	172.40	7,903.8	-3,448.9	633.3	3,355.8	0.92	0.86	-0.32	
11,372.0	90.00	173.50	7,902.8	-3,542.2	644.8	3,444.0	1.81	-1.38	1.17	
11,465.0	88.40	174.70	7,904.1	-3,634.7	654.4	3,530.6	2.15	-1.72	1.29	



Microsoft Survey Report



Company: Mewbourne Oil Company
Project: Eddy County, New Mexico
Site: Section17-20-21S-25E Rio Bravo 17-20 W2AP Fed Com
Well: Rio Bravo 17-20 W2AP Fed Com 1H
Wellbore: Original Hole
Design: Original Hole

Local Co-ordinate Reference: Well Rio Bravo 17-20 W2AP Fed Com 1H
TVD Reference: 3377 + 27 @ 3404.0usft (Patterson 250)
MD Reference: 3377 + 27 @ 3404.0usft (Patterson 250)
North Reference: Grid
Survey Calculation Method: Minimum Curvature
Database: Stryker_EDM

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)
11,559.0	88.70	174.80	7,906.4	-3,728.2	663.0	3,617.7	0.34	0.32	0.11
11,652.0	89.10	174.90	7,908.2	-3,820.8	671.3	3,703.9	0.44	0.43	0.11
11,746.0	91.10	177.10	7,908.1	-3,914.6	677.9	3,790.2	3.16	2.13	2.34
11,839.0	89.50	178.40	7,907.6	-4,007.5	681.5	3,874.5	2.22	-1.72	1.40
11,933.0	88.60	178.70	7,909.1	-4,101.5	683.9	3,959.1	1.01	-0.96	0.32
12,024.0	88.60	180.00	7,911.3	-4,192.4	684.9	4,040.4	1.43	0.00	1.43
12,118.0	89.10	179.50	7,913.2	-4,286.4	685.3	4,124.1	0.75	0.53	-0.53
12,211.0	89.30	179.70	7,914.5	-4,379.4	686.0	4,207.1	0.30	0.22	0.22
12,305.0	89.90	179.50	7,915.2	-4,473.4	686.6	4,291.0	0.67	0.64	-0.21
12,398.0	90.10	181.20	7,915.2	-4,566.4	686.1	4,373.4	1.84	0.22	1.83
12,493.0	88.60	179.30	7,916.3	-4,661.4	685.7	4,457.6	2.55	-1.58	-2.00
12,586.0	88.30	180.00	7,918.8	-4,754.4	686.2	4,540.5	0.82	-0.32	0.75
12,679.0	88.60	179.50	7,921.3	-4,847.3	686.6	4,623.3	0.63	0.32	-0.54
12,772.0	90.80	179.80	7,921.8	-4,940.3	687.2	4,706.2	2.39	2.37	0.32
12,866.0	90.90	179.30	7,920.4	-5,034.3	687.9	4,790.1	0.54	0.11	-0.53
12,959.0	91.60	180.30	7,918.4	-5,127.3	688.3	4,872.9	1.31	0.75	1.08
13,053.0	90.70	180.30	7,916.5	-5,221.2	687.8	4,956.2	0.96	-0.96	0.00
13,146.0	90.20	180.90	7,915.7	-5,314.2	686.8	5,038.4	0.84	-0.54	0.65
13,240.0	90.90	181.90	7,914.8	-5,408.2	684.5	5,120.9	1.30	0.74	1.06
13,334.0	91.30	182.90	7,913.0	-5,502.1	680.6	5,202.6	1.15	0.43	1.06
13,427.0	88.50	183.40	7,913.2	-5,595.0	675.5	5,282.8	3.06	-3.01	0.54
13,521.0	90.50	184.90	7,914.0	-5,688.7	668.7	5,363.0	2.66	2.13	1.60
13,615.0	88.60	184.70	7,914.8	-5,782.4	660.8	5,442.6	2.03	-2.02	-0.21
13,708.0	88.00	183.60	7,917.5	-5,875.1	654.1	5,522.0	1.35	-0.65	-1.18
13,802.0	87.50	183.60	7,921.2	-5,968.8	648.2	5,602.6	0.53	-0.53	0.00
13,895.0	86.90	183.80	7,925.8	-6,061.5	642.2	5,682.2	0.68	-0.65	0.22
13,989.0	87.30	182.90	7,930.5	-6,155.2	636.7	5,763.0	1.05	0.43	-0.96
14,083.0	90.70	182.70	7,932.1	-6,249.1	632.1	5,844.4	3.62	3.62	-0.21
14,176.0	89.20	180.80	7,932.2	-6,342.0	629.3	5,925.7	2.60	-1.61	-2.04
14,270.0	90.60	182.00	7,932.4	-6,436.0	627.0	6,008.2	1.96	1.49	1.28
14,363.0	89.70	181.10	7,932.1	-6,529.0	624.4	6,089.6	1.37	-0.97	-0.97
14,457.0	89.70	182.00	7,932.6	-6,622.9	621.9	6,172.0	0.96	0.00	0.96
14,550.0	87.90	180.80	7,934.6	-6,715.9	619.6	6,253.6	2.33	-1.94	-1.29
14,643.0	89.00	181.30	7,937.1	-6,808.8	617.9	6,335.4	1.30	1.18	0.54
14,736.0	89.50	181.70	7,938.3	-6,901.8	615.5	6,416.9	0.69	0.54	0.43
14,830.0	88.50	181.10	7,940.0	-6,995.7	613.2	6,499.4	1.24	-1.06	-0.64
14,923.0	90.20	181.80	7,941.0	-7,088.7	610.8	6,580.9	1.98	1.83	0.75
15,016.0	89.70	180.70	7,941.1	-7,181.7	608.8	6,662.7	1.30	-0.54	-1.18
15,109.0	90.60	180.60	7,940.9	-7,274.7	607.8	6,744.8	0.97	0.97	-0.11
15,203.0	90.40	180.20	7,940.0	-7,368.7	607.1	6,828.1	0.48	-0.21	-0.43
15,296.0	91.30	181.30	7,938.7	-7,461.6	605.9	6,910.2	1.53	0.97	1.18
15,384.0	91.30	181.30	7,936.7	-7,549.6	603.9	6,987.5	0.00	0.00	0.00



Microsoft Survey Report



Company: Mewbourne Oil Company
Project: Eddy County, New Mexico
Site: Section17-20-21S-25E Rio Bravo 17-20 W2AP Fed Com
Well: Rio Bravo 17-20 W2AP Fed Com 1H
Wellbore: Original Hole
Design: Original Hole

Local Co-ordinate Reference: Well Rio Bravo 17-20 W2AP Fed Com 1H
TVD Reference: 3377 + 27 @ 3404.0usft (Patterson 250)
MD Reference: 3377 + 27 @ 3404.0usft (Patterson 250)
North Reference: Grid
Survey Calculation Method: Minimum Curvature
Database: Stryker_EDM

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)
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15384' MD Projected to Bit - PBHL Rio Bravo 17-20 W2AP Fed Com 1H

Survey Annotations

Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates		Comment
		+N/-S (usft)	+E/-W (usft)	
15,384.0	7,936.7	-7,549.6	603.9	15384' MD Projected to Bit



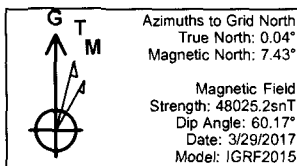
COMPANY: Mewbourne Oil Company
WELL: Rio Bravo 17-20 W2AP Fed Com 1H
COUNTY: Eddy County, New Mexico
DATUM: NAD 1927 (NADCON CONUS)



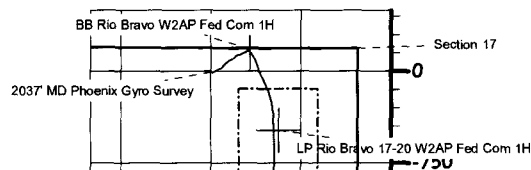
RIG: Patterson Patterson 250
Grid Correction MWD: To convert a Magnetic Direction to a Grid Direction, Add 7.43°

OFFICE: 936.582.7296

GEODETTIC ZONE: New Mexico East 3001 3377 + 27 @ 3404.0usft (Patterson 250) GROUND ELEVATION: 3377.0					
+N/-S	+E/-W	Northing	Easting	Latitude	Longitude
0.0	0.0	540583.20	475585.30	32° 29' 10.138 N	104° 24' 45.045 W
					Slot



SHL 150 FSL; 2250' FWL
Section 8-26S-32E
PBHL 330' FNL; 2250' FWL
Section 8-26S-32E



PLAN SECTIONS

Sec	MD	Inc	Azi	TVD	+N/-S	+E/-W	Dleg	TFace	VSeet	Target
1	10607.0	89.80	175.50	7903.6	-2782.5	556.8	0.00	0.00	2809.1	
2	10662.0	89.37	173.91	7904.0	-2837.3	561.9	3.00	-105.00	2864.0	
3	11662.0	89.37	173.91	7915.0	-3831.6	668.0	0.00	0.00	3862.7	
4	12028.0	90.11	181.19	7916.6	-4197.0	683.7	2.00	84.23	4228.4	
5	17961.4	90.11	181.19	7905.0	-10129.1	560.6	0.00	0.00	10144.6	PBHL Rio Bravo 17-20 W2AP Fed Com 1H

