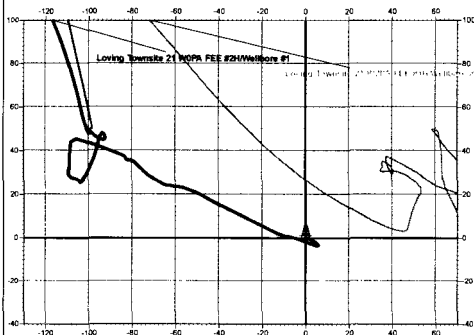


30-015-43495



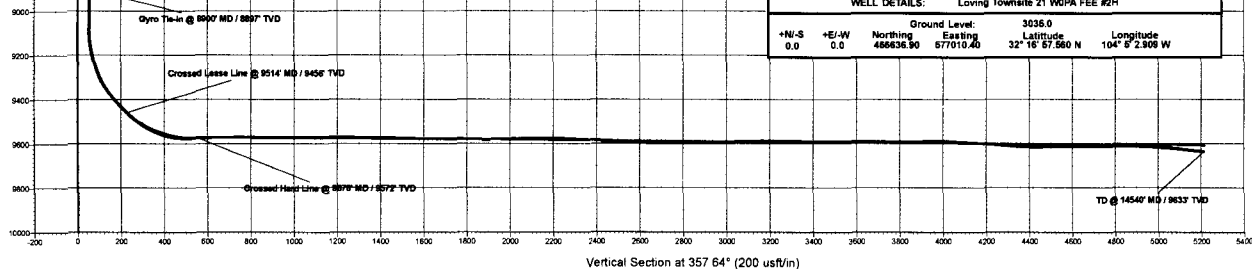
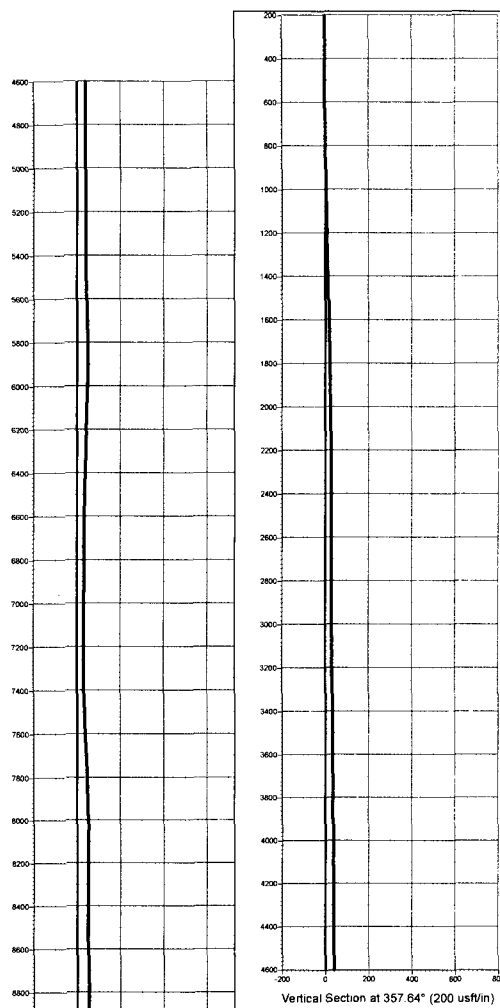
Strength: 47945.5snT
Dip Angle: 60.04°
Date: 3/21/2017
Model: IGRF2015

Geodetic System: US State Plane 1927 (Exact solution)
Datum: NAD 1927 (NADCON CONUS)
Ellipsoid: Clarke 1866
Zone: New Mexico East 3001
System Datum: Mean Sea Level



MD	Inc	Azi	TVD	+N/-S	+E/-W	Vsect	Departure	Annotation
8900.0	0.22	80.14	8896.8	49.7	-99.1	53.7	197.7	Gyro Tie-In @ 8900' MD / 8897' TVD
9514.0	47.50	349.08	9456.2	218.9	-153.7	225.1	380.5	Crossed Lease Line @ 9514' MD / 9458' TVD
9877.5	90.35	354.50	9572.4	548.6	-192.0	556.0	712.3	Crossed Hard Line @ 9878' MD / 9572' TVD
14540.0	84.40	339.40	9633.3	5206.2	-170.5	5208.8	5371.9	TD @ 14540' MD / 9633' TVD

Ground Level:		3035.0	
+N/-S	+E/-W	Northing	Easting
0.0	0.0	486636.90	577010.40
		Latitude	Longitude
		32° 16' 57.560 N	104° 5' 2.909 W





Mewbourne Oil Company

Eddy County, New Mexico

Sec 28, T23S, R28E

Loving Townsite 21 W0PA FEE #2H

30-015-43495

Wellbore #1

Design: Wellbore #1

QES Survey Report

02 May, 2017

NM OIL CONSERVATION
ARTESIA DISTRICT

JUL 05 2017

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Survey Report

QES

Company: Mewbourne Oil Company
Project: Eddy County, New Mexico
Site: Sec 28, T23S, R28E
Well: Loving Townsite 21 W0PA FEE #2H
Wellbore: Wellbore #1
Design: Wellbore #1

Local Co-ordinate Reference: Well Loving Townsite 21 W0PA FEE #2H
TVD Reference: WELL @ 3062.0usft (Patterson #243)
MD Reference: WELL @ 3062.0usft (Patterson #243)
North Reference: Grid
Survey Calculation Method: Minimum Curvature
Database: EDM5002

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 Sec 28, T23S, R28E

Site Position:
From: Map
Position Uncertainty: 0.0 usft

Northing: 466,637.50 usft
Easting: 577,080.40 usft
Slot Radius: 13-3/16 "

Latitude: 32° 16' 57.565 N
Longitude: 104° 5' 2.093 W
Grid Convergence: 0.13 °

Well Loving Townsite 21 W0PA FEE #2H

Well Position +N/-S 0.0 usft **Northing:** 466,636.90 usft **Latitude:** 32° 16' 57.560 N
+E/-W 0.0 usft **Easting:** 577,010.40 usft **Longitude:** 104° 5' 2.909 W
Position Uncertainty 0.0 usft **Wellhead Elevation:** 0.0 usft **Ground Level:** 3,035.0 usft

Wellbore Wellbore #1

Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2015	3/21/2017	7.22	60.04	47,946

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	357.64

Survey Program Date 5/2/2017

From (usft)	To (usft)	Survey (Wellbore)	Tool Name	Description
100.0	8,900.0	Gyros (Wellbore #1)	Good_gyro	Good Gyro
9,010.0	14,540.0	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)
Gyro Tie-In @ 8900' MD / 8897' TVD									
8,900.0	0.22	80.14	8,896.8	49.7	-99.1	53.7	0.00	0.00	0.00
9,010.0	1.10	198.50	9,006.7	48.7	-99.2	52.8	1.11	0.80	107.60
9,026.0	1.10	188.50	9,022.7	48.4	-99.3	52.5	1.20	0.00	-62.50
9,058.0	1.10	195.90	9,054.7	47.8	-99.4	51.9	0.44	0.00	23.13
9,089.0	2.10	312.30	9,085.7	47.9	-100.0	52.0	8.94	3.23	375.48
9,120.0	5.70	339.80	9,116.7	49.8	-100.9	53.9	12.77	11.61	88.71
9,152.0	9.70	342.00	9,148.4	53.8	-102.3	58.0	12.53	12.50	6.88
9,183.0	10.30	349.00	9,178.9	59.0	-103.6	63.2	4.37	1.94	22.58
9,214.0	13.80	344.90	9,209.2	65.3	-105.1	69.6	11.62	11.29	-13.23

Survey Report

QES

Company: Mewbourne Oil Company
Project: Eddy County, New Mexico
Site: Sec 28, T23S, R28E
Well: Loving Townsite 21 W0PA FEE #2H
Wellbore: Wellbore #1
Design: Wellbore #1

Local Co-ordinate Reference: Well Loving Townsite 21 W0PA FEE #2H
TVD Reference: WELL @ 3062.0usft (Patterson #243)
MD Reference: WELL @ 3062.0usft (Patterson #243)
North Reference: Grid
Survey Calculation Method: Minimum Curvature
Database: EDM5002

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)
9,245.0	17.90	344.40	9,239.0	73.5	-107.4	77.8	13.23	13.23	-1.61
9,277.0	22.00	341.10	9,269.1	83.9	-110.6	88.4	13.28	12.81	-10.31
9,308.0	25.90	338.60	9,297.4	95.7	-115.0	100.3	13.00	12.58	-8.06
9,339.0	30.80	337.60	9,324.7	109.3	-120.5	114.2	15.88	15.81	-3.23
9,370.0	36.00	338.80	9,350.6	125.2	-126.8	130.3	16.91	16.77	3.87
9,401.0	41.00	341.30	9,374.8	143.3	-133.4	148.7	16.89	16.13	8.06
9,433.0	42.80	342.80	9,398.6	163.7	-139.9	169.3	6.44	5.63	4.69
9,464.0	44.40	345.50	9,421.1	184.2	-145.8	190.1	7.92	5.16	8.71
9,495.0	45.30	347.20	9,443.1	205.5	-150.9	211.5	4.84	2.90	5.48
9,526.0	48.90	350.20	9,464.2	227.7	-155.4	233.9	13.60	11.61	9.68
9,558.0	51.40	352.70	9,484.7	252.0	-159.0	258.3	9.85	7.81	7.81
9,589.0	54.50	355.00	9,503.3	276.6	-161.6	283.0	11.62	10.00	7.42
9,620.0	58.70	355.70	9,520.4	302.4	-163.7	308.9	13.68	13.55	2.26
9,651.0	63.70	354.80	9,535.3	329.5	-166.0	336.0	16.33	16.13	-2.90
9,682.0	68.30	353.50	9,547.9	357.6	-168.9	364.3	15.32	14.84	-4.19
9,714.0	72.60	352.70	9,558.7	387.6	-172.5	394.3	13.64	13.44	-2.50
9,745.0	78.50	352.30	9,566.4	417.3	-176.4	424.2	19.07	19.03	-1.29
9,760.0	81.30	352.50	9,569.0	431.9	-178.4	438.9	18.71	18.67	1.33
9,807.0	89.60	353.00	9,572.7	478.4	-184.3	485.6	17.69	17.66	1.06
9,901.0	91.40	355.00	9,571.9	571.8	-194.1	579.4	2.86	1.91	2.13
9,994.0	91.60	354.80	9,569.5	664.4	-202.4	672.2	0.30	0.22	-0.22
10,088.0	89.80	357.40	9,568.3	758.2	-208.8	766.2	3.36	-1.91	2.77
10,182.0	89.20	357.40	9,569.2	852.1	-213.0	860.2	0.64	-0.64	0.00
10,276.0	90.20	358.00	9,569.6	946.0	-216.8	954.2	1.24	1.06	0.64
10,370.0	90.60	358.10	9,569.0	1,040.0	-220.0	1,048.2	0.44	0.43	0.11
10,464.0	90.00	0.40	9,568.5	1,134.0	-221.2	1,142.1	2.53	-0.64	2.45
10,558.0	90.20	1.50	9,568.3	1,227.9	-219.7	1,236.0	1.19	0.21	1.17
10,651.0	88.40	1.80	9,569.5	1,320.9	-217.0	1,328.7	1.96	-1.94	0.32
10,745.0	89.70	2.00	9,571.0	1,414.8	-213.9	1,422.4	1.40	1.38	0.21
10,839.0	87.30	1.30	9,573.5	1,508.8	-211.2	1,516.2	2.66	-2.55	-0.74
10,932.0	89.90	1.60	9,575.8	1,601.7	-208.8	1,608.9	2.81	2.80	0.32
11,026.0	90.20	2.70	9,575.7	1,695.6	-205.3	1,702.6	1.21	0.32	1.17
11,120.0	87.80	2.20	9,577.3	1,789.5	-201.3	1,796.3	2.61	-2.55	-0.53
11,213.0	89.30	2.90	9,579.7	1,882.4	-197.1	1,888.9	1.78	1.61	0.75
11,306.0	93.00	2.20	9,577.8	1,975.3	-193.0	1,981.5	4.05	3.98	-0.75
11,400.0	90.90	1.50	9,574.6	2,069.1	-190.0	2,075.2	2.35	-2.23	-0.74
11,494.0	90.60	0.40	9,573.4	2,163.1	-188.4	2,169.0	1.21	-0.32	-1.17
11,587.0	86.80	359.40	9,575.5	2,256.1	-188.6	2,261.9	4.23	-4.09	-1.08
11,681.0	87.20	0.10	9,580.4	2,350.0	-189.0	2,355.7	0.86	0.43	0.74
11,775.0	86.50	0.40	9,585.6	2,443.8	-188.6	2,449.5	0.81	-0.74	0.32
11,869.0	87.40	1.10	9,590.6	2,537.7	-187.3	2,543.2	1.21	0.96	0.74
11,962.0	89.10	359.70	9,593.4	2,630.6	-186.7	2,636.1	2.37	1.83	-1.51
12,057.0	89.70	359.90	9,594.4	2,725.6	-187.0	2,731.0	0.67	0.63	0.21

Survey Report

QES

Company: Mewbourne Oil Company
Project: Eddy County, New Mexico
Site: Sec 28, T23S, R28E
Well: Loving Townsite 21 W0PA FEE #2H
Wellbore: Wellbore #1
Design: Wellbore #1

Local Co-ordinate Reference: Well Loving Townsite 21 W0PA FEE #2H
TVD Reference: WELL @ 3062.0usft (Patterson #243)
MD Reference: WELL @ 3062.0usft (Patterson #243)
North Reference: Grid
Survey Calculation Method: Minimum Curvature
Database: EDM5002

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)
12,152.0	90.30	0.10	9,594.4	2,820.6	-187.0	2,825.9	0.67	0.63	0.21
12,246.0	91.20	0.60	9,593.2	2,914.6	-186.4	2,919.8	1.10	0.96	0.53
12,340.0	91.40	0.60	9,591.0	3,008.6	-185.5	3,013.7	0.21	0.21	0.00
12,434.0	92.60	1.10	9,587.8	3,102.5	-184.1	3,107.4	1.38	1.28	0.53
12,528.0	89.20	0.40	9,586.3	3,196.5	-182.8	3,201.3	3.69	-3.62	-0.74
12,623.0	89.40	1.10	9,587.5	3,291.4	-181.6	3,296.1	0.77	0.21	0.74
12,718.0	89.10	1.50	9,588.7	3,386.4	-179.4	3,390.9	0.53	-0.32	0.42
12,811.0	90.50	1.60	9,589.0	3,479.4	-176.9	3,483.7	1.51	1.51	0.11
12,905.0	89.80	2.20	9,588.8	3,573.3	-173.8	3,577.5	0.98	-0.74	0.64
12,999.0	90.30	2.70	9,588.7	3,667.2	-169.8	3,671.1	0.75	0.53	0.53
13,093.0	89.70	0.40	9,588.7	3,761.2	-167.3	3,764.9	2.53	-0.64	-2.45
13,186.0	90.10	0.80	9,588.9	3,854.2	-166.3	3,857.8	0.61	0.43	0.43
13,281.0	90.60	1.60	9,588.3	3,949.2	-164.3	3,952.6	0.99	0.53	0.84
13,374.0	87.90	0.60	9,589.5	4,042.1	-162.5	4,045.4	3.10	-2.90	-1.08
13,468.0	85.90	358.80	9,594.6	4,136.0	-163.0	4,139.2	2.86	-2.13	-1.91
13,561.0	86.30	359.50	9,600.9	4,228.8	-164.4	4,231.9	0.87	0.43	0.75
13,655.0	86.10	359.40	9,607.1	4,322.5	-165.3	4,325.7	0.24	-0.21	-0.11
13,748.0	89.20	358.10	9,610.9	4,415.4	-167.3	4,418.6	3.61	3.33	-1.40
13,842.0	92.60	359.20	9,609.5	4,509.4	-169.5	4,512.5	3.80	3.62	1.17
13,936.0	89.30	359.50	9,607.9	4,603.4	-170.6	4,606.5	3.53	-3.51	0.32
14,029.0	89.40	359.50	9,609.0	4,696.3	-171.4	4,699.4	0.11	0.11	0.00
14,123.0	90.80	0.80	9,608.8	4,790.3	-171.1	4,793.3	2.03	1.49	1.38
14,217.0	89.20	0.80	9,608.8	4,884.3	-169.8	4,887.2	1.70	-1.70	0.00
14,311.0	87.60	359.70	9,611.4	4,978.3	-169.4	4,981.0	2.07	-1.70	-1.17
14,405.0	83.00	0.10	9,619.1	5,071.9	-169.6	5,074.6	4.91	-4.89	0.43
14,485.0	84.40	359.40	9,627.9	5,151.5	-169.9	5,154.1	1.95	1.75	-0.88
TD @ 14540' MD / 9633' TVD									
14,540.0	84.40	359.40	9,633.3	5,206.2	-170.5	5,208.8	0.00	0.00	0.00

Survey Annotations

Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates		Comment
		+N/-S (usft)	+E/-W (usft)	
8,900.0	8,896.8	49.7	-99.1	Gyro Tie-in @ 8900' MD / 8897' TVD
14,540.0	9,633.3	5,206.2	-170.5	TD @ 14540' MD / 9633' 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-170395	5/24/2017

Lease	Well Name	County & State
Sec28,T23S,R28E	LovingTownsite21W0PAFEE#2H	Eddy,NM

API No.	Survey Depth Range	Survey Type
30-015-43495	8900 feet to 14540 feet MD	MWD

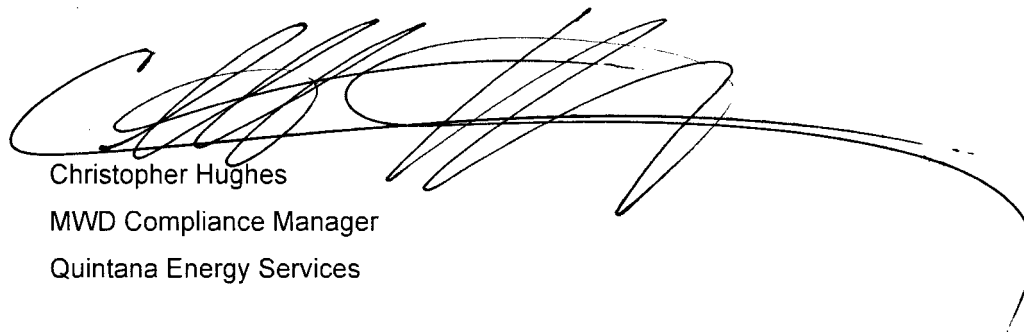
Sidetrack Information	Directional Supervisor/Surveyor
N/A	Brad Reed

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: 2017.05.25 08:42:26 -05'00'



Christopher Hughes
MWD Compliance Manager
Quintana Energy Services



Mewbourne Oil Company

Eddy County, New Mexico

Sec 28, T23S, R28E

Loving Townsite 21W0PA FEE #2H

Wellbore #1

Survey: MWD Surveys

QES Survey Report

24 May, 2017





Survey Report



Company: Mewbourne Oil Company
Project: Eddy County, New Mexico
Site: Sec 28, T23S, R28E
Well: Loving Townsite 21 W0PA FEE #2H
Wellbore: Wellbore #1
Design: Wellbore #1

Local Co-ordinate Reference: Well Loving Townsite 21 W0PA FEE #2H
TVD Reference: WELL @ 3062.0usft (Patterson #243)
MD Reference: WELL @ 3062.0usft (Patterson #243)
North Reference: Grid
Survey Calculation Method: Minimum Curvature
Database: EDM5002

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	Sec 28, T23S, R28E				
Site Position:		Northing:	466,637.50 usft	Latitude:	32° 16' 57.565 N
From:	Map	Easting:	577,080.40 usft	Longitude:	104° 5' 2.093 W
Position Uncertainty:	0.0 usft	Slot Radius:	13-3/16 "	Grid Convergence:	0.13 °

Well	Loving Townsite 21 W0PA FEE #2H					
Well Position	+N/-S	0.0 usft	Northing:	466,636.90 usft	Latitude:	32° 16' 57.560 N
	+E/-W	0.0 usft	Easting:	577,010.40 usft	Longitude:	104° 5' 2.909 W
Position Uncertainty		0.0 usft	Wellhead Elevation:	0.0 usft	Ground Level:	3,035.0 usft

Wellbore	Wellbore #1				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2015	3/21/2017	7.22	60.04	47,946

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	357.64	

Survey Program	Date 5/2/2017			
From (usft)	To (usft)	Survey (Wellbore)	Tool Name	Description
100.0	8,900.0	Gyros (Wellbore #1)	Good_gyro	Good Gyro
9,010.0	14,540.0	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	0.96	97.25	100.0	-0.1	0.8	-0.1	0.96	0.96	0.00
200.0	1.40	117.78	200.0	-0.8	2.7	-0.9	0.60	0.44	20.53
300.0	1.13	129.01	299.9	-2.0	4.6	-2.2	0.37	-0.27	11.23
400.0	0.97	143.70	399.9	-3.3	5.9	-3.5	0.31	-0.16	14.69
500.0	1.35	284.39	499.9	-3.7	5.2	-3.9	2.19	0.38	140.69
600.0	2.87	291.61	599.9	-2.4	1.7	-2.5	1.54	1.52	7.22
700.0	2.95	290.07	699.7	-0.6	-3.0	-0.5	0.11	0.08	-1.54
800.0	1.78	279.23	799.6	0.5	-6.9	0.8	1.25	-1.17	-10.84
900.0	1.69	282.55	899.6	1.1	-9.9	1.5	0.13	-0.09	3.32

Survey Report



Company: Mewbourne Oil Company
Project: Eddy County, New Mexico
Site: Sec 28, T23S, R28E
Well: Loving Townsite 21 W0PA FEE #2H
Wellbore: Wellbore #1
Design: Wellbore #1

Local Co-ordinate Reference: Well Loving Townsite 21 W0PA FEE #2H
TVD Reference: WELL @ 3062.0usft (Patterson #243)
MD Reference: WELL @ 3062.0usft (Patterson #243)
North Reference: Grid
Survey Calculation Method: Minimum Curvature
Database: EDM5002

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	2.42	294.41	999.5	2.3	-13.3	2.8	0.84	0.73	11.86
1,100.0	2.72	297.28	1,099.4	4.2	-17.3	4.9	0.33	0.30	2.87
1,200.0	2.71	294.96	1,199.3	6.3	-21.6	7.2	0.11	-0.01	-2.32
1,300.0	2.80	296.41	1,299.2	8.4	-25.9	9.4	0.11	0.09	1.45
1,400.0	2.82	297.04	1,399.1	10.6	-30.3	11.8	0.04	0.02	0.63
1,500.0	2.68	295.80	1,499.0	12.7	-34.6	14.1	0.15	-0.14	-1.24
1,600.0	2.69	296.58	1,598.9	14.8	-38.8	16.4	0.04	0.01	0.78
1,700.0	2.66	296.81	1,698.7	16.9	-42.9	18.6	0.03	-0.03	0.23
1,800.0	2.62	298.76	1,798.6	19.0	-47.0	21.0	0.10	-0.04	1.95
1,900.0	2.15	295.17	1,898.6	20.9	-50.7	23.0	0.49	-0.47	-3.59
2,000.0	1.81	288.85	1,998.5	22.2	-53.9	24.4	0.40	-0.34	-6.32
2,100.0	1.54	287.33	2,098.4	23.1	-56.7	25.5	0.27	-0.27	-1.52
2,200.0	0.96	269.60	2,198.4	23.5	-58.8	25.9	0.69	-0.58	-17.73
2,300.0	0.86	278.41	2,298.4	23.6	-60.4	26.1	0.17	-0.10	8.81
2,400.0	0.64	282.73	2,398.4	23.9	-61.7	26.4	0.23	-0.22	4.32
2,500.0	0.59	277.87	2,498.4	24.1	-62.7	26.6	0.07	-0.05	-4.86
2,600.0	0.62	275.65	2,598.4	24.2	-63.8	26.8	0.04	0.03	-2.22
2,700.0	0.64	289.40	2,698.4	24.4	-64.8	27.1	0.15	0.02	13.75
2,800.0	0.67	300.10	2,798.4	24.9	-65.9	27.6	0.13	0.03	10.70
2,900.0	0.69	297.51	2,898.4	25.5	-66.9	28.2	0.04	0.02	-2.59
3,000.0	0.68	297.23	2,998.4	26.0	-68.0	28.8	0.01	-0.01	-0.28
3,100.0	0.76	306.03	3,098.4	26.7	-69.0	29.5	0.14	0.08	8.80
3,200.0	0.82	297.06	3,198.3	27.4	-70.2	30.3	0.14	0.06	-8.97
3,300.0	0.79	297.71	3,298.3	28.1	-71.5	31.0	0.03	-0.03	0.65
3,400.0	0.64	307.52	3,398.3	28.7	-72.5	31.7	0.19	-0.15	9.81
3,500.0	0.52	314.03	3,498.3	29.4	-73.3	32.4	0.14	-0.12	6.51
3,600.0	0.60	312.95	3,598.3	30.0	-74.0	33.1	0.08	0.08	-1.08
3,700.0	0.52	312.75	3,698.3	30.7	-74.7	33.8	0.08	-0.08	-0.20
3,800.0	0.49	315.45	3,798.3	31.3	-75.3	34.4	0.04	-0.03	2.70
3,900.0	0.53	315.15	3,898.3	32.0	-76.0	35.1	0.04	0.04	-0.30
4,000.0	0.56	308.39	3,998.3	32.6	-76.7	35.7	0.07	0.03	-6.76
4,100.0	0.65	315.99	4,098.3	33.3	-77.5	36.5	0.12	0.09	7.60
4,200.0	0.51	325.80	4,198.3	34.1	-78.1	37.3	0.17	-0.14	9.81
4,300.0	0.44	302.10	4,298.3	34.6	-78.7	37.9	0.21	-0.07	-23.70
4,400.0	0.42	304.39	4,398.3	35.1	-79.3	38.3	0.03	-0.02	2.29
4,500.0	0.35	291.89	4,498.3	35.4	-79.9	38.6	0.11	-0.07	-12.50
4,600.0	0.35	291.95	4,598.3	35.6	-80.5	38.9	0.00	0.00	0.06
4,700.0	0.45	262.79	4,698.3	35.7	-81.1	39.0	0.22	0.10	-29.16
4,800.0	0.33	280.33	4,798.3	35.7	-81.8	39.0	0.17	-0.12	17.54
4,900.0	0.24	276.18	4,898.3	35.7	-82.3	39.1	0.09	-0.09	-4.15
5,000.0	0.21	332.24	4,998.3	35.9	-82.6	39.3	0.21	-0.03	56.06
5,100.0	0.22	326.08	5,098.3	36.3	-82.8	39.6	0.03	0.01	-6.16
5,200.0	0.34	328.28	5,198.3	36.7	-83.0	40.1	0.12	0.12	2.20

Survey Report



Company: Mewbourne Oil Company
Project: Eddy County, New Mexico
Site: Sec 28, T23S, R28E
Well: Loving Townsite 21 W0PA FEE #2H
Wellbore: Wellbore #1
Design: Wellbore #1

Local Co-ordinate Reference: Well Loving Townsite 21 W0PA FEE #2H
TVD Reference: WELL @ 3062.0usft (Patterson #243)
MD Reference: WELL @ 3062.0usft (Patterson #243)
North Reference: Grid
Survey Calculation Method: Minimum Curvature
Database: EDM5002

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)
5,300.0	0.32	340.56	5,298.3	37.2	-83.3	40.6	0.07	-0.02	12.28
5,400.0	0.58	300.97	5,398.3	37.7	-83.8	41.1	0.39	0.26	-39.59
5,500.0	3.11	291.04	5,498.2	38.9	-86.8	42.5	2.54	2.53	-9.93
5,600.0	3.20	289.43	5,598.1	40.8	-91.9	44.6	0.13	0.09	-1.61
5,700.0	2.91	290.21	5,697.9	42.6	-97.0	46.6	0.29	-0.29	0.78
5,800.0	2.69	286.94	5,797.8	44.2	-101.6	48.4	0.27	-0.22	-3.27
5,900.0	2.37	285.58	5,897.7	45.4	-105.8	49.8	0.33	-0.32	-1.36
6,000.0	2.13	190.07	5,997.7	44.2	-108.1	48.6	3.33	-0.24	-95.51
6,100.0	1.87	185.53	6,097.6	40.7	-108.6	45.2	0.30	-0.26	-4.54
6,200.0	1.88	178.24	6,197.5	37.5	-108.7	41.9	0.24	0.01	-7.29
6,300.0	1.46	181.06	6,297.5	34.5	-108.7	39.0	0.43	-0.42	2.82
6,400.0	1.06	190.61	6,397.5	32.4	-108.9	36.8	0.45	-0.40	9.55
6,500.0	1.09	196.01	6,497.5	30.5	-109.3	35.0	0.11	0.03	5.40
6,600.0	1.30	150.97	6,597.4	28.6	-109.0	33.1	0.94	0.21	-45.04
6,700.0	0.84	99.95	6,697.4	27.5	-107.8	31.9	1.01	-0.46	-51.02
6,800.0	0.79	97.39	6,797.4	27.3	-106.4	31.7	0.06	-0.05	-2.56
6,900.0	0.69	126.38	6,897.4	26.9	-105.2	31.2	0.38	-0.10	28.99
7,000.0	0.20	119.20	6,997.4	26.4	-104.6	30.7	0.49	-0.49	-7.18
7,100.0	0.36	188.62	7,097.4	26.0	-104.5	30.3	0.34	0.16	69.42
7,200.0	0.23	117.67	7,197.4	25.6	-104.3	29.9	0.36	-0.13	-70.95
7,300.0	0.39	69.79	7,297.4	25.6	-103.8	29.9	0.29	0.16	-47.88
7,400.0	1.21	36.97	7,397.4	26.6	-102.9	30.8	0.91	0.82	-32.82
7,500.0	1.76	37.01	7,497.3	28.7	-101.3	32.8	0.55	0.55	0.04
7,600.0	3.08	22.34	7,597.3	32.4	-99.4	36.4	1.45	1.32	-14.67
7,700.0	3.21	20.82	7,697.1	37.5	-97.4	41.5	0.15	0.13	-1.52
7,800.0	2.54	7.99	7,797.0	42.3	-96.0	46.2	0.93	-0.67	-12.83
7,900.0	2.02	22.49	7,896.9	46.1	-95.1	50.0	0.77	-0.52	14.50
8,000.0	0.79	61.94	7,996.9	48.1	-93.8	51.9	1.50	-1.23	39.45
8,100.0	0.79	161.20	8,096.9	47.7	-93.0	51.5	1.20	0.00	99.26
8,200.0	0.81	155.18	8,196.9	46.4	-92.4	50.2	0.09	0.02	-6.02
8,300.0	0.55	218.29	8,296.9	45.4	-92.4	49.2	0.75	-0.26	63.11
8,400.0	0.60	258.67	8,396.8	44.9	-93.2	48.7	0.40	0.05	40.38
8,500.0	1.16	293.46	8,496.8	45.2	-94.7	49.1	0.75	0.56	34.79
8,600.0	1.98	305.98	8,596.8	46.7	-97.0	50.6	0.88	0.82	12.52
8,700.0	1.11	323.47	8,696.8	48.5	-99.0	52.5	0.98	-0.87	17.49
8,800.0	0.29	30.49	8,796.8	49.5	-99.4	53.5	1.03	-0.82	67.02
Gyro Tie-in @ 8900' MD / 8897' TVD									
8,900.0	0.22	80.14	8,896.8	49.7	-99.1	53.7	0.22	-0.07	49.65
9,010.0	1.10	198.50	9,006.7	48.7	-99.2	52.8	1.11	0.80	107.60
9,026.0	1.10	188.50	9,022.7	48.4	-99.3	52.5	1.20	0.00	-62.50
9,058.0	1.10	195.90	9,054.7	47.8	-99.4	51.9	0.44	0.00	23.13
9,089.0	2.10	312.30	9,085.7	47.9	-100.0	52.0	8.94	3.23	375.48
9,120.0	5.70	339.80	9,116.7	49.8	-100.9	53.9	12.77	11.61	88.71

Survey Report



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Project: Eddy County, New Mexico
Site: Sec 28, T23S, R28E
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Wellbore: Wellbore #1
Design: Wellbore #1

Local Co-ordinate Reference: Well Loving Townsite 21 W0PA FEE #2H
TVD Reference: WELL @ 3062.0usft (Patterson #243)
MD Reference: WELL @ 3062.0usft (Patterson #243)
North Reference: Grid
Survey Calculation Method: Minimum Curvature
Database: EDM5002

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)
9,152.0	9.70	342.00	9,148.4	53.8	-102.3	58.0	12.53	12.50	6.88
9,183.0	10.30	349.00	9,178.9	59.0	-103.6	63.2	4.37	1.94	22.58
9,214.0	13.80	344.90	9,209.2	65.3	-105.1	69.6	11.62	11.29	-13.23
9,245.0	17.90	344.40	9,239.0	73.5	-107.4	77.8	13.23	13.23	-1.61
9,277.0	22.00	341.10	9,269.1	83.9	-110.6	88.4	13.28	12.81	-10.31
9,308.0	25.90	338.60	9,297.4	95.7	-115.0	100.3	13.00	12.58	-8.06
9,339.0	30.80	337.60	9,324.7	109.3	-120.5	114.2	15.88	15.81	-3.23
9,370.0	36.00	338.80	9,350.6	125.2	-126.8	130.3	16.91	16.77	3.87
9,401.0	41.00	341.30	9,374.8	143.3	-133.4	148.7	16.89	16.13	8.06
9,433.0	42.80	342.80	9,398.6	163.7	-139.9	169.3	6.44	5.63	4.69
9,464.0	44.40	345.50	9,421.1	184.2	-145.8	190.1	7.92	5.16	8.71
9,495.0	45.30	347.20	9,443.1	205.5	-150.9	211.5	4.84	2.90	5.48
Crossed Lease Line @ 9514' MD / 9456' TVD									
9,514.0	47.50	349.08	9,456.2	218.9	-153.7	225.1	13.60	11.56	9.89
9,526.0	48.90	350.20	9,464.2	227.7	-155.4	233.9	13.60	11.69	9.33
9,558.0	51.40	352.70	9,484.7	252.0	-159.0	258.3	9.85	7.81	7.81
9,589.0	54.50	355.00	9,503.3	276.6	-161.6	283.0	11.62	10.00	7.42
9,620.0	58.70	355.70	9,520.4	302.4	-163.7	308.9	13.68	13.55	2.26
9,651.0	63.70	354.80	9,535.3	329.5	-166.0	336.0	16.33	16.13	-2.90
9,682.0	68.30	353.50	9,547.9	357.6	-168.9	364.3	15.32	14.84	-4.19
9,714.0	72.60	352.70	9,558.7	387.6	-172.5	394.3	13.64	13.44	-2.50
9,745.0	78.50	352.30	9,566.4	417.3	-176.4	424.2	19.07	19.03	-1.29
9,760.0	81.30	352.50	9,569.0	431.9	-178.4	438.9	18.71	18.67	1.33
9,807.0	89.60	353.00	9,572.7	478.4	-184.3	485.6	17.69	17.66	1.06
Crossed Hard Line @ 9878' MD / 9572' TVD									
9,877.6	90.95	354.50	9,572.4	548.6	-192.0	556.0	2.86	1.91	2.13
9,901.0	91.40	355.00	9,571.9	571.8	-194.1	579.4	2.86	1.91	2.13
9,994.0	91.60	354.80	9,569.5	664.4	-202.4	672.2	0.30	0.22	-0.22
10,088.0	89.80	357.40	9,568.3	758.2	-208.8	766.2	3.36	-1.91	2.77
10,182.0	89.20	357.40	9,569.2	852.1	-213.0	860.2	0.64	-0.64	0.00
10,276.0	90.20	358.00	9,569.6	946.0	-216.8	954.2	1.24	1.06	0.64
10,370.0	90.60	358.10	9,569.0	1,040.0	-220.0	1,048.2	0.44	0.43	0.11
10,464.0	90.00	0.40	9,568.5	1,134.0	-221.2	1,142.1	2.53	-0.64	2.45
10,558.0	90.20	1.50	9,568.3	1,227.9	-219.7	1,236.0	1.19	0.21	1.17
10,651.0	88.40	1.80	9,569.5	1,320.9	-217.0	1,328.7	1.96	-1.94	0.32
10,745.0	89.70	2.00	9,571.0	1,414.8	-213.9	1,422.4	1.40	1.38	0.21
10,839.0	87.30	1.30	9,573.5	1,508.8	-211.2	1,516.2	2.66	-2.55	-0.74
10,932.0	89.90	1.60	9,575.8	1,601.7	-208.8	1,608.9	2.81	2.80	0.32
11,026.0	90.20	2.70	9,575.7	1,695.6	-205.3	1,702.6	1.21	0.32	1.17
11,120.0	87.80	2.20	9,577.3	1,789.5	-201.3	1,796.3	2.61	-2.55	-0.53
11,213.0	89.30	2.90	9,579.7	1,882.4	-197.1	1,888.9	1.78	1.61	0.75
11,306.0	93.00	2.20	9,577.8	1,975.3	-193.0	1,981.5	4.05	3.98	-0.75
11,400.0	90.90	1.50	9,574.6	2,069.1	-190.0	2,075.2	2.35	-2.23	-0.74
11,494.0	90.60	0.40	9,573.4	2,163.1	-188.4	2,169.0	1.21	-0.32	-1.17

Survey Report



Company: Mewbourne Oil Company
Project: Eddy County, New Mexico
Site: Sec 28, T23S, R28E
Well: Loving Townsite 21 WOPA FEE #2H
Wellbore: Wellbore #1
Design: Wellbore #1

Local Co-ordinate Reference: Well Loving Townsite 21 WOPA FEE #2H
TVD Reference: WELL @ 3062.0usft (Patterson #243)
MD Reference: WELL @ 3062.0usft (Patterson #243)
North Reference: Grid
Survey Calculation Method: Minimum Curvature
Database: EDM5002

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)
11,587.0	86.80	359.40	9,575.5	2,256.1	-188.6	2,261.9	4.23	-4.09	-1.08
11,681.0	87.20	0.10	9,580.4	2,350.0	-189.0	2,355.7	0.86	0.43	0.74
11,775.0	86.50	0.40	9,585.6	2,443.8	-188.6	2,449.5	0.81	-0.74	0.32
11,869.0	87.40	1.10	9,590.6	2,537.7	-187.3	2,543.2	1.21	0.96	0.74
11,962.0	89.10	359.70	9,593.4	2,630.6	-186.7	2,636.1	2.37	1.83	-1.51
12,057.0	89.70	359.90	9,594.4	2,725.6	-187.0	2,731.0	0.67	0.63	0.21
12,152.0	90.30	0.10	9,594.4	2,820.6	-187.0	2,825.9	0.67	0.63	0.21
12,246.0	91.20	0.60	9,593.2	2,914.6	-186.4	2,919.8	1.10	0.96	0.53
12,340.0	91.40	0.60	9,591.0	3,008.6	-185.5	3,013.7	0.21	0.21	0.00
12,434.0	92.60	1.10	9,587.8	3,102.5	-184.1	3,107.4	1.38	1.28	0.53
12,528.0	89.20	0.40	9,586.3	3,196.5	-182.8	3,201.3	3.69	-3.62	-0.74
12,623.0	89.40	1.10	9,587.5	3,291.4	-181.6	3,296.1	0.77	0.21	0.74
12,718.0	89.10	1.50	9,588.7	3,386.4	-179.4	3,390.9	0.53	-0.32	0.42
12,811.0	90.50	1.60	9,589.0	3,479.4	-176.9	3,483.7	1.51	1.51	0.11
12,905.0	89.80	2.20	9,588.8	3,573.3	-173.8	3,577.5	0.98	-0.74	0.64
12,999.0	90.30	2.70	9,588.7	3,667.2	-169.8	3,671.1	0.75	0.53	0.53
13,093.0	89.70	0.40	9,588.7	3,761.2	-167.3	3,764.9	2.53	-0.64	-2.45
13,186.0	90.10	0.80	9,588.9	3,854.2	-166.3	3,857.8	0.61	0.43	0.43
13,281.0	90.60	1.60	9,588.3	3,949.2	-164.3	3,952.6	0.99	0.53	0.84
13,374.0	87.90	0.60	9,589.5	4,042.1	-162.5	4,045.4	3.10	-2.90	-1.08
13,468.0	85.90	358.80	9,594.6	4,136.0	-163.0	4,139.2	2.86	-2.13	-1.91
13,561.0	86.30	359.50	9,600.9	4,228.8	-164.4	4,231.9	0.87	0.43	0.75
13,655.0	86.10	359.40	9,607.1	4,322.5	-165.3	4,325.7	0.24	-0.21	-0.11
13,748.0	89.20	358.10	9,610.9	4,415.4	-167.3	4,418.6	3.61	3.33	-1.40
13,842.0	92.60	359.20	9,609.5	4,509.4	-169.5	4,512.5	3.80	3.62	1.17
13,936.0	89.30	359.50	9,607.9	4,603.4	-170.6	4,606.5	3.53	-3.51	0.32
14,029.0	89.40	359.50	9,609.0	4,696.3	-171.4	4,699.4	0.11	0.11	0.00
14,123.0	90.80	0.80	9,608.8	4,790.3	-171.1	4,793.3	2.03	1.49	1.38
14,217.0	89.20	0.80	9,608.8	4,884.3	-169.8	4,887.2	1.70	-1.70	0.00
14,311.0	87.60	359.70	9,611.4	4,978.3	-169.4	4,981.0	2.07	-1.70	-1.17
14,405.0	83.00	0.10	9,619.1	5,071.9	-169.6	5,074.6	4.91	-4.89	0.43
14,485.0	84.40	359.40	9,627.9	5,151.5	-169.9	5,154.1	1.95	1.75	-0.88
TD @ 14540' MD / 9633' TVD									
14,540.0	84.40	359.40	9,633.3	5,206.2	-170.5	5,208.8	0.00	0.00	0.00

Design Annotations

Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates		Comment
		+N/-S (usft)	+E/-W (usft)	
8,900.0	8,896.8	49.7	-99.1	Gyro Tie-in @ 8900' MD / 8897' TVD
9,514.0	9,456.2	218.9	-153.7	Crossed Lease Line @ 9514' MD / 9456' TVD
9,877.6	9,572.4	548.6	-192.0	Crossed Hard Line @ 9878' MD / 9572' TVD
14,540.0	9,633.3	5,206.2	-170.5	TD @ 14540' MD / 9633' TVD



Survey Report



Company: Mewbourne Oil Company
Project: Eddy County, New Mexico
Site: Sec 28, T23S, R28E
Well: Loving Townsite 21 W0PA FEE #2H
Wellbore: Wellbore #1
Design: Wellbore #1

Local Co-ordinate Reference: Well Loving Townsite 21 W0PA FEE #2H
TVD Reference: WELL @ 3062.0usft (Patterson #243)
MD Reference: WELL @ 3062.0usft (Patterson #243)
North Reference: Grid
Survey Calculation Method: Minimum Curvature
Database: EDM5002

Checked By: _____	Approved By: _____	Date: _____
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