

OPERATOR MEWBOURNE OIL COMPANY
WELL/LEASE WILLOW LAKE 35 MD FED COM 1H
COUNTY EDDY

444-0016

STATE OF NEW MEXICO
DEVIATION REPORT

30 015 38106

242	0.77
623	1.61
679	1.90
1,021	1.50
1,306	0.90
1,586	0.60
1,870	1.30
2,628	2.73
2,815	2.70
3,100	2.10
3,387	1.80
3,639	1.90
4,143	2.00
4,616	0.45
5,090	1.16
5,563	1.83
6,038	1.30
6,512	0.83
6,987	3.10
7,368	2.08

BY:

Steve Moore

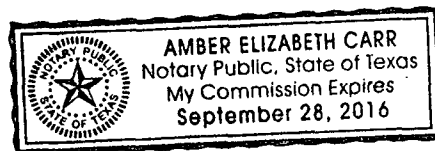
STATE OF TEXAS

COUNTY OF MIDLAND

The foregoing instrument was acknowledged before me on
Steve Moore on behalf of Patterson-UTI Drilling Company LLC.

6/30/13, by

Amber Elizabeth Carr
Notary Public for Midland County, Texas
My Commission Expires:





SURVEY CALCULATION PROGRAM

v1.00.02

OPERATOR:	MEWBOURNE OIL & GAS		Supervisors:	
WELL:	WILLOW LAKE 35 MD FED COM #1H		CLAYTON THOMAS	
LOCATION:	EDDY COUNTY, NM		SCOTT BLACKMORE	
JOB NUMBER:	WL-13543	API #:	30-015-38106	
COMMENTS:				
DISPLACEMENT OF 96.91 ft AT 118.36 DEGREES			MAG DEC.(-/+)	7.42
			GRID CORR.(-/+)	
			TOTAL CORR.(-/+)	7.42
DATE: 6/5/13		TIME: 0400		

MINIMUM CURVATURE CALCULATIONS(SPE-3362) PROPOSED DIRECTION									TARGET TRACKING						
									TO CENTER		CLOSURE	CLOSURE	BUILD	WALK	
SVY		TRUE							DLS/	ABOVE(+)	RIGHT(+)	DIR	DISTANCE	RATE/	RATE/
NUM	MD	INC	AZM	TVD	SECT	N-S	E-W	100	BELOW(-)	LEFT(-)	(DEG AZ)	(FEET)	'/100'	'/100'	
TIE															
1	100	0.33	90.91	100.00	0.00	0.00	0.29	0.3	-100.0	0.3	90.9	0.3	0.3	0.2	
2	200	0.35	113.89	200.00	-0.13	-0.13	0.86	0.1	-200.0	0.9	98.8	0.9	0.0	0.1	
3	300	1.03	88.60	299.99	-0.23	-0.23	2.03	0.7	-300.0	2.0	96.6	2.0	0.7	-0.3	
4	400	2.00	98.44	399.95	-0.47	-0.47	4.66	1.0	-400.0	4.7	95.7	4.7	1.0	0.3	
5	500	2.52	109.86	499.88	-1.47	-1.47	8.45	0.7	-499.9	8.5	99.9	8.6	0.5	0.4	
6	600	2.46	111.38	599.78	-3.00	-3.00	12.52	0.1	-599.8	12.5	103.5	12.9	-0.1	0.0	
7	700	1.80	106.93	699.71	-4.24	-4.24	16.02	0.7	-699.7	16.0	104.8	16.6	-0.7	0.0	
8	800	1.89	114.30	799.66	-5.38	-5.38	19.02	0.3	-799.7	19.0	105.8	19.8	0.1	0.0	
9	900	1.65	125.79	899.61	-6.90	-6.90	21.69	0.4	-899.6	21.7	107.6	22.8	-0.2	0.0	
10	1000	1.17	155.40	999.58	-8.67	-8.67	23.29	0.9	-999.6	23.3	110.4	24.8	-0.5	0.0	
11	1100	0.77	180.69	1099.57	-10.27	-10.27	23.70	0.6	-1099.6	23.7	113.4	25.8	-0.4	0.0	
12	1200	1.08	278.25	1199.56	-10.80	-10.80	22.76	1.4	-1199.6	22.8	115.4	25.2	0.3	0.0	
13	1300	1.13	283.07	1299.54	-10.45	-10.45	20.87	0.1	-1299.5	20.9	116.6	23.3	0.1	0.0	
14	1400	1.20	280.70	1399.52	-10.03	-10.03	18.88	0.1	-1399.5	18.9	118.0	21.4	0.1	0.0	
15	1500	0.90	272.39	1499.51	-9.80	-9.80	17.07	0.3	-1499.5	17.1	119.9	19.7	-0.3	0.0	
16	1600	0.53	263.74	1599.50	-9.82	-9.82	15.82	0.4	-1599.5	15.8	121.8	18.6	-0.4	0.0	
17	1700	0.27	275.83	1699.49	-9.85	-9.85	15.13	0.3	-1699.5	15.1	123.1	18.1	-0.3	0.0	
18	1800	0.20	177.84	1799.49	-10.00	-10.00	14.90	0.4	-1799.5	14.9	123.9	17.9	-0.1	0.0	
19	1900	1.61	107.28	1899.48	-10.59	-10.59	16.25	1.6	-1899.5	16.2	123.1	19.4	1.4	0.0	
20	2000	3.60	106.10	1999.37	-11.88	-11.88	20.61	2.0	-1999.4	20.6	120.0	23.8	2.0	0.0	
21	2100	4.65	103.69	2099.11	-13.71	-13.71	27.56	1.1	-2099.1	27.6	116.4	30.8	1.0	0.0	
22	2200	6.25	105.50	2198.66	-16.12	-16.12	36.75	1.6	-2198.7	36.7	113.7	40.1	1.6	0.0	
23	2300	6.39	107.94	2298.05	-19.29	-19.29	47.29	0.3	-2298.0	47.3	112.2	51.1	0.1	0.0	
24	2400	6.20	109.61	2397.45	-22.82	-22.82	57.67	0.3	-2397.4	57.7	111.6	62.0	-0.2	0.0	
25	2500	4.50	107.94	2497.01	-25.84	-25.84	66.49	1.7	-2497.0	66.5	111.2	71.3	-1.7	0.0	
26	2600	3.29	108.93	2596.77	-27.98	-27.98	72.93	1.2	-2596.8	72.9	111.0	78.1	-1.2	0.0	
27	2700	2.87	117.79	2696.63	-30.07	-30.07	77.86	0.6	-2696.6	77.9	111.1	83.5	-0.4	0.0	
28	2800	2.77	108.08	2796.51	-31.99	-31.99	82.37	0.5	-2796.5	82.4	111.2	88.4	-0.1	0.0	
29	2900	2.47	106.68	2896.40	-33.36	-33.36	86.74	0.3	-2896.4	86.7	111.0	92.9	-0.3	0.0	
30	3000	2.48	106.38	2996.31	-34.59	-34.59	90.88	0.0	-2996.3	90.9	110.8	97.2	0.0	0.0	
31	3100	2.42	105.39	3096.22	-35.76	-35.76	94.99	0.1	-3096.2	95.0	110.6	101.5	-0.1	0.0	
32	3200	2.40	105.19	3196.13	-36.87	-36.87	99.04	0.0	-3196.1	99.0	110.4	105.7	0.0	0.0	
33	3300	2.29	105.11	3296.05	-37.94	-37.94	102.99	0.1	-3296.0	103.0	110.2	109.8	-0.1	0.0	
34	3400	2.04	106.66	3395.98	-38.97	-38.97	106.63	0.3	-3396.0	106.6	110.1	113.5	-0.2	0.0	
35	3500	1.33	112.20	3495.93	-39.92	-39.92	109.41	0.7	-3495.9	109.4	110.0	116.5	-0.7	0.0	
36	3600	1.13	106.54	3595.91	-40.64	-40.64	111.43	0.2	-3595.9	111.4	110.0	118.6	-0.2	0.0	
37	3700	1.12	98.60	3695.89	-41.06	-41.06	113.34	0.2	-3695.9	113.3	109.9	120.5	0.0	0.0	
38	3800	1.16	78.27	3795.87	-41.00	-41.00	115.29	0.4	-3795.9	115.3	109.6	122.4	0.0	0.0	
39	3900	1.09	60.63	3895.85	-40.33	-40.33	117.11	0.4	-3895.9	117.1	109.0	123.9	-0.1	0.0	
40	4000	0.95	56.02	3995.84	-39.40	-39.40	118.63	0.2	-3995.8	118.6	108.4	125.0	-0.1	0.0	
41	4100	0.85	58.84	4095.82	-38.55	-38.55	119.95	0.1	-4095.8	120.0	107.8	126.0	-0.1	0.0	
42	4200	0.58	84.84	4195.82	-38.12	-38.12	121.09	0.4	-4195.8	121.1	107.5	127.0	-0.3	0.0	
43	4300	0.56	97.15	4295.81	-38.14	-38.14	122.08	0.1	-4295.8	122.1	107.3	127.9	0.0	0.0	
44	4400	0.57	98.60	4395.81	-38.27	-38.27	123.06	0.0	-4395.8	123.1	107.3	128.9	0.0	0.0	
45	4500	0.62	99.84	4495.80	-38.44	-38.44	124.08	0.1	-4495.8	124.1	107.2	129.9	0.0	0.0	
46	4600	0.64	110.54	4595.79	-38.73	-38.73	125.14	0.1	-4595.8	125.1	107.2	131.0	0.0	0.0	
47	4700	0.58	131.08	4695.79	-39.26	-39.26	126.04	0.2	-4695.8	126.0	107.3	132.0	-0.1	0.0	



SURVEY CALCULATION PROGRAM

v1.00.02

OPERATOR:	MEWBORNE OIL & GAS		Supervisors:	
WELL:	WILLOW LAKE 35 MD FED COM #1H		CLAYTON THOMAS	
LOCATION:	EDDY COUNTY, NM		SCOTT BLACKMORE	
JOB NUMBER:	WL-13543	API #:	30-015-38106	
COMMENTS:				
DISPLACEMENT OF 96.91 ft AT 118.36 DEGREES			MAG DEC. (-/+)	7.42
			GRID CORR. (-/+)	
			TOTAL CORR. (-/+)	7.42
DATE: 6/5/13		TIME: 0400		

MINIMUM CURVATURE CALCULATIONS(SPE-3362) PROPOSED DIRECTION									TARGET TRACKING		CLOSURE DIR (DEG AZ)	CLOSURE DISTANCE (FEET)	BUILD RATE/ %/100'	WALK RATE/ %/100'
									TO CENTER					
SVY		TRUE			DLS/ 100	ABOVE(+) BELOW(-)		RIGHT(+) LEFT(-)						
NUM	MD	INC	AZM	TVD		SECT	N-S	E-W						
48	4800	1.09	155.23	4795.78	-40.45	-40.45	126.82	0.6	-4795.8	126.8	107.7	133.1	0.5	0.0
49	4900	1.13	151.02	4895.76	-42.18	-42.18	127.70	0.1	-4895.8	127.7	108.3	134.5	0.0	0.0
50	5000	1.12	156.65	4995.74	-43.94	-43.94	128.56	0.1	-4995.7	128.6	108.9	135.9	0.0	0.0
51	5100	1.09	155.06	5095.72	-45.70	-45.70	129.35	0.0	-5095.7	129.4	109.5	137.2	0.0	0.0
52	5200	0.91	158.82	5195.71	-47.30	-47.30	130.04	0.2	-5195.7	130.0	110.0	138.4	-0.2	0.0
53	5300	0.93	160.79	5295.69	-48.81	-48.81	130.59	0.0	-5295.7	130.6	110.5	139.4	0.0	0.0
54	5400	0.97	157.89	5395.68	-50.36	-50.36	131.18	0.1	-5395.7	131.2	111.0	140.5	0.0	0.0
55	5500	0.92	166.38	5495.67	-51.93	-51.93	131.69	0.1	-5495.7	131.7	111.5	141.6	0.0	0.0
56	5600	0.97	167.31	5595.65	-53.53	-53.53	132.06	0.1	-5595.7	132.1	112.1	142.5	0.0	0.0
57	5700	0.97	166.43	5695.64	-55.18	-55.18	132.45	0.0	-5695.6	132.4	112.6	143.5	0.0	0.0
58	5800	1.06	180.16	5795.62	-56.93	-56.93	132.64	0.3	-5795.6	132.6	113.2	144.3	0.1	0.0
59	5900	1.30	181.21	5895.60	-58.99	-58.99	132.62	0.2	-5895.6	132.6	114.0	145.1	0.2	0.0
60	6000	1.34	182.80	5995.58	-61.29	-61.29	132.54	0.1	-5995.6	132.5	114.8	146.0	0.0	0.0
61	6100	1.39	181.42	6095.55	-63.67	-63.67	132.45	0.1	-6095.5	132.4	115.7	147.0	0.0	0.0
62	6200	1.51	184.58	6195.52	-66.19	-66.19	132.31	0.1	-6195.5	132.3	116.6	147.9	0.1	0.0
63	6300	1.47	188.95	6295.48	-68.78	-68.78	132.01	0.1	-6295.5	132.0	117.5	148.9	0.0	0.0
64	6400	0.92	202.79	6395.5	-70.8	-70.8	131.5	0.6	-6395.5	131.5	118.3	149.3	-0.6	0.0
65	6500	1.18	286.42	6495.4	-71.2	-71.2	130.2	1.4	-6495.4	130.2	118.7	148.4	0.3	0.0
66	6600	1.88	307.31	6595.4	-69.9	-69.9	127.9	0.9	-6595.4	127.9	118.7	145.8	0.7	0.0
67	6700	2.09	306.29	6695.4	-67.9	-67.9	125.1	0.2	-6695.4	125.1	118.5	142.4	0.2	0.0
68	6800	3.15	306.11	6795.2	-65.2	-65.2	121.4	1.1	-6795.2	121.4	118.2	137.8	1.1	0.0
69	6900	3.61	302.30	6895.1	-61.9	-61.9	116.6	0.5	-6895.1	116.6	118.0	132.0	0.5	0.0
70	7000	3.28	299.79	6994.9	-58.8	-58.8	111.4	0.4	-6994.9	111.4	117.8	126.0	-0.3	0.0
71	7100	3.36	298.13	7094.7	-56.0	-56.0	106.4	0.1	-7094.7	106.4	117.8	120.2	0.1	0.0
72	7200	2.41	292.92	7194.6	-53.8	-53.8	101.8	1.0	-7194.6	101.8	117.8	115.2	-0.9	0.0
73	7300	2.13	287.16	7294.5	-52.4	-52.4	98.1	0.4	-7294.5	98.1	118.1	111.2	-0.3	0.0
74	7400	2.23	286.14	7394.4	-51.3	-51.3	94.5	0.1	-7394.4	94.5	118.5	107.5	0.1	0.0
75	7500	2.49	295.56	7494.4	-49.8	-49.8	90.6	0.5	-7494.4	90.6	118.8	103.4	0.3	0.0
76	7600	2.92	309.84	7594.2	-47.3	-47.3	86.7	0.8	-7594.2	86.7	118.6	98.8	0.4	0.0
77	7640	2.54	310.80	7634.2	-46.0	-46.0	85.3	1.0	-7634.2	85.3	118.4	96.9	-1.0	0.0

Mewbourne Oil Co

Eddy County, New Mexico

Sec 35, T24S, R28E

Willow Lake 35 MD Federal Com #1H

Wellbore #1

Design: Wellbore #1

DDC Survey Report

17 June, 2013



DDC Survey Report



Company:	Mewbourne Oil Co.	Local Co-ordinate Reference:	Well Willow Lake 35 MD Federal Com #1H
Project:	Eddy County New Mexico	TVD Reference:	WELL @ 3001.0usft (Patterson)
Site:	Sec 35 T24S R28E	MD Reference:	WELL @ 3001.0usft (Patterson)
Well:	Willow Lake 35 MD Federal Com #1H	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	
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 35, T24S, R28E			
Site Position:		Northing:	424,702.85 usft	Latitude:	32° 10' 2.424 N
From:	Map	Easting:	583,091.86 usft	Longitude:	104° 3' 53.288 W
Position Uncertainty:	0.0 usft	Slot Radius:	13-3/16 "	Grid Convergence:	0.14 °

Well	Willow Lake 35 MD Federal Com #1H					
Well Position	+N-S	0.0 usft	Northing:	424,702.85 usft	Latitude:	32° 10' 2.424 N
	+E-W	0.0 usft	Easting:	583,091.86 usft	Longitude:	104° 3' 53.288 W
Position Uncertainty	0.0 usft	Wellhead Elevation:	usft	Ground Level:	2,981.0 usft	

Wellbore	Wellbore #1				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2010	5/31/2013	7.57	60.00	48.335

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	359.41

Survey Program		Date 6/17/2013		
From (usft)	To (usft)	Survey (Wellbore)	Tool Name	Description
100.0	7,640.0	GYRO (Wellbore #1)	Good_gyro	Good Gyro
7,684.0	12,790.0	MWD (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	0.33	90.91	100.0	0.0	0.3	0.0	0.33	0.33	0.00
	200.0	0.35	113.89	200.0	-0.1	0.9	-0.1	0.14	0.02	22.98
	300.0	1.03	88.60	300.0	-0.2	2.0	-0.3	0.73	0.68	-25.29
	400.0	2.00	98.44	400.0	-0.5	4.7	-0.5	1.00	0.97	9.84
	500.0	2.52	109.86	499.9	-1.5	8.5	-1.6	0.69	0.52	11.42
	600.0	2.46	111.38	599.8	-3.0	12.5	-3.1	0.09	-0.06	1.52
	700.0	1.80	106.93	699.7	-4.2	16.0	-4.4	0.68	-0.66	-4.45
	800.0	1.89	114.30	799.7	-5.4	19.0	-5.6	0.25	0.09	7.37
	900.0	1.65	125.79	899.6	-6.9	21.7	-7.1	0.43	-0.24	11.49

DDC Survey Report



Company:	Mewbourne Oil Co	Local Co-ordinate Reference:	Well Willow Lake 35 MD Federal Com #1H
Project:	Eddy County New Mexico	TVD Reference:	WELL @ 3001.0usft (Patterson)
Site:	Sec 35 T24S R28E	MD Reference:	WELL @ 3001.0usft (Patterson)
Well:	Willow Lake 35 MD Federal Com #1H	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)
1,000.0	1.17	155.40	999.6	-8.7	23.3	-8.9	0.86	-0.48	29.61
1,100.0	0.77	180.69	1,099.6	-10.3	23.7	-10.5	0.58	-0.40	25.29
1,200.0	1.08	278.25	1,199.6	-10.8	22.8	-11.0	1.41	0.31	97.56
1,300.0	1.13	283.07	1,299.5	-10.4	20.9	-10.7	0.11	0.05	4.82
1,400.0	1.20	280.70	1,399.5	-10.0	18.9	-10.2	0.08	0.07	-2.37
1,500.0	0.90	272.39	1,499.5	-9.8	17.1	-10.0	0.34	-0.30	-8.31
1,600.0	0.53	263.74	1,599.5	-9.8	15.8	-10.0	0.38	-0.37	-8.65
1,700.0	0.27	275.83	1,699.5	-9.8	15.1	-10.0	0.27	-0.26	12.09
1,800.0	0.20	177.84	1,799.5	-10.0	14.9	-10.1	0.36	-0.07	-97.99
1,900.0	1.61	107.28	1,899.5	-10.6	16.2	-10.8	1.55	1.41	-70.56
2,000.0	3.60	106.10	1,999.4	-11.9	20.6	-12.1	1.99	1.99	-1.18
2,100.0	4.65	103.69	2,099.1	-13.7	27.6	-14.0	1.06	1.05	-2.41
2,200.0	6.25	105.50	2,198.7	-16.1	36.7	-16.5	1.61	1.60	1.81
2,300.0	6.39	107.94	2,298.0	-19.3	47.3	-19.8	0.30	0.14	2.44
2,400.0	6.20	109.61	2,397.4	-22.8	57.7	-23.4	0.26	-0.19	1.67
2,500.0	4.50	107.94	2,497.0	-25.8	66.5	-26.5	1.71	-1.70	-1.67
2,600.0	3.29	108.93	2,596.8	-28.0	72.9	-28.7	1.21	-1.21	0.99
2,700.0	2.87	117.79	2,696.6	-30.1	77.9	-30.9	0.63	-0.42	8.86
2,800.0	2.77	108.08	2,796.5	-32.0	82.4	-32.8	0.49	-0.10	-9.71
2,900.0	2.47	106.68	2,896.4	-33.4	86.7	-34.3	0.31	-0.30	-1.40
3,000.0	2.48	106.38	2,996.3	-34.6	90.9	-35.5	0.02	0.01	-0.30
3,100.0	2.42	105.39	3,096.2	-35.8	95.0	-36.7	0.07	-0.06	-0.99
3,200.0	2.40	105.19	3,196.1	-36.9	99.0	-37.9	0.02	-0.02	-0.20
3,300.0	2.29	105.11	3,296.0	-37.9	103.0	-39.0	0.11	-0.11	-0.08
3,400.0	2.04	106.66	3,396.0	-39.0	106.6	-40.1	0.26	-0.25	1.55
3,500.0	1.33	112.20	3,495.9	-39.9	109.4	-41.0	0.73	-0.71	5.54
3,600.0	1.13	106.54	3,595.9	-40.6	111.4	-41.8	0.23	-0.20	-5.66
3,700.0	1.12	98.60	3,695.9	-41.1	113.3	-42.2	0.16	-0.01	-7.94
3,800.0	1.16	78.27	3,795.9	-41.0	115.3	-42.2	0.40	0.04	-20.33
3,900.0	1.09	60.63	3,895.9	-40.3	117.1	-41.5	0.35	-0.07	-17.64
4,000.0	0.95	56.02	3,995.8	-39.4	118.6	-40.6	0.16	-0.14	-4.61
4,100.0	0.85	58.84	4,095.8	-38.6	120.0	-39.8	0.11	-0.10	2.82
4,200.0	0.58	84.84	4,195.8	-38.1	121.1	-39.4	0.42	-0.27	26.00
4,300.0	0.56	97.15	4,295.8	-38.1	122.1	-39.4	0.12	-0.02	12.31
4,400.0	0.57	98.60	4,395.8	-38.3	123.1	-39.5	0.02	0.01	1.45
4,500.0	0.62	99.84	4,495.8	-38.4	124.1	-39.7	0.05	0.05	1.24
4,600.0	0.64	110.54	4,595.8	-38.7	125.1	-40.0	0.12	0.02	10.70
4,700.0	0.58	131.08	4,695.8	-39.3	126.0	-40.6	0.23	-0.06	20.54
4,800.0	1.09	155.23	4,795.8	-40.5	126.8	-41.8	0.61	0.51	24.15
4,900.0	1.13	151.02	4,895.8	-42.2	127.7	-43.5	0.09	0.04	-4.21
5,000.0	1.12	156.65	4,995.7	-43.9	128.6	-45.3	0.11	-0.01	5.63
5,100.0	1.09	155.06	5,095.7	-45.7	129.4	-47.0	0.04	-0.03	-1.59
5,200.0	0.91	158.82	5,195.7	-47.3	130.0	-48.6	0.19	-0.18	3.76

DDC
Survey Report



Company:	Mewbourne Oil Co	Local Co-ordinate Reference:	Well Willow Lake 35 MD Federal Com #1H
Project:	Eddy County New Mexico	TVD/Reference:	WELL @ 3001.0usft (Patterson)
Site:	Sec 35 T24S R28E	MD/Reference:	WELL @ 3001.0usft (Patterson)
Well:	Willow Lake 35 MD Federal Com #1H	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)	
5,300.0	0.93	160.79	5,295.7	-48.8	130.6	-50.2	0.04	0.02	1.97	
5,400.0	0.97	157.89	5,395.7	-50.4	131.2	-51.7	0.06	0.04	-2.90	
5,500.0	0.92	166.38	5,495.7	-51.9	131.7	-53.3	0.15	-0.05	8.49	
5,600.0	0.97	167.31	5,595.7	-53.5	132.1	-54.9	0.05	0.05	0.93	
5,700.0	0.97	166.43	5,695.6	-55.2	132.4	-56.5	0.01	0.00	-0.88	
5,800.0	1.06	180.16	5,795.6	-56.9	132.6	-58.3	0.26	0.09	13.73	
5,900.0	1.30	181.21	5,895.6	-59.0	132.6	-60.3	0.24	0.24	1.05	
6,000.0	1.34	182.80	5,995.6	-61.3	132.5	-62.7	0.05	0.04	1.59	
6,100.0	1.39	181.42	6,095.5	-63.7	132.4	-65.0	0.06	0.05	-1.38	
6,200.0	1.51	184.58	6,195.5	-66.2	132.3	-67.6	0.14	0.12	3.16	
6,300.0	1.47	188.95	6,295.5	-68.8	132.0	-70.1	0.12	-0.04	4.37	
6,400.0	0.92	202.79	6,395.5	-70.8	131.5	-72.1	0.62	-0.55	13.84	
6,500.0	1.18	286.42	6,495.4	-71.2	130.2	-72.6	1.41	0.26	83.63	
6,600.0	1.88	307.31	6,595.4	-69.9	127.9	-71.3	0.88	0.70	20.89	
6,700.0	2.09	306.29	6,695.4	-67.9	125.1	-69.2	0.21	0.21	-1.02	
6,800.0	3.15	306.11	6,795.2	-65.2	121.4	-66.4	1.06	1.06	-0.18	
6,900.0	3.61	302.30	6,895.1	-61.9	116.6	-63.1	0.51	0.46	-3.81	
7,000.0	3.28	299.79	6,994.9	-58.8	111.4	-59.9	0.36	-0.33	-2.51	
7,100.0	3.36	298.13	7,094.7	-56.0	106.4	-57.1	0.13	0.08	-1.66	
7,200.0	2.41	292.92	7,194.6	-53.8	101.8	-54.8	0.98	-0.95	-5.21	
7,300.0	2.13	287.16	7,294.5	-52.4	98.1	-53.4	0.36	-0.28	-5.76	
7,400.0	2.23	286.14	7,394.4	-51.3	94.5	-52.3	0.11	0.10	-1.02	
7,500.0	2.49	295.56	7,494.4	-49.8	90.6	-50.8	0.47	0.26	9.42	
7,600.0	2.92	309.84	7,594.2	-47.3	86.7	-48.2	0.80	0.43	14.28	
TIE IN @ 7640' MD / 7634.2' TVD										
7,640.0	2.54	310.80	7,634.2	-46.0	85.3	-46.9	0.96	-0.95	2.40	
7,684.0	2.60	307.80	7,678.2	-44.8	83.7	-45.6	0.33	0.14	-6.82	
7,716.0	3.20	318.70	7,710.1	-43.7	82.6	-44.5	2.54	1.88	34.06	
7,747.0	5.30	343.20	7,741.0	-41.6	81.6	-42.5	8.81	6.77	79.03	
7,777.0	9.20	358.10	7,770.8	-37.9	81.1	-38.8	14.33	13.00	49.67	
7,811.0	13.60	357.20	7,804.1	-31.2	80.8	-32.0	12.95	12.94	-2.65	
7,842.0	16.50	356.00	7,834.0	-23.2	80.4	-24.0	9.41	9.35	-3.87	
7,874.0	19.00	353.40	7,864.5	-13.5	79.4	-14.3	8.19	7.81	-8.13	
7,905.0	22.40	2.30	7,893.5	-2.5	79.1	-3.4	14.91	10.97	28.71	
CROSSED HARDLINE @ 7911.4' MD / 7899.4' TVD										
7,911.4	22.76	1.85	7,899.4	-0.1	79.2	-0.9	6.19	5.59	-6.95	
7,937.0	24.20	0.20	7,922.9	10.1	79.4	9.3	6.19	5.63	-6.46	
7,968.0	25.60	354.90	7,951.0	23.1	78.8	22.3	8.49	4.52	-17.10	
8,000.0	28.80	352.60	7,979.5	37.7	77.2	36.9	10.52	10.00	-7.19	
8,032.0	32.40	352.50	8,007.0	53.8	75.1	53.0	11.25	11.25	-0.31	
8,063.0	34.70	354.90	8,032.9	70.8	73.2	70.1	8.56	7.42	7.74	
8,095.0	38.40	355.80	8,058.6	89.8	71.7	89.1	11.68	11.56	2.81	
8,126.0	42.00	357.20	8,082.2	109.8	70.4	109.1	11.97	11.61	4.52	
8,158.0	44.70	356.70	8,105.5	131.7	69.3	131.0	8.51	8.44	-1.56	

DDC Survey Report



Company:	Mowbourn Oil Co.	Local Co-ordinate Reference:	Well Willow Lake 35 MD Federal Com #1H
Project:	Eddy County, New Mexico	TVD Reference:	WELL @ 3001.0usft (Patterson)
Site:	Sec 35, T24S, R28E	MD Reference:	WELL @ 3001.0usft (Patterson)
Well:	Willow Lake 35 MD Federal Com #1H	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)
8,189.0	47.30	357.00	8,127.0	154.0	68.1	153.3	8.42	8.39	0.97
8,221.0	50.30	354.60	8,148.1	178.0	66.3	177.3	10.94	9.38	-7.50
8,253.0	52.90	355.60	8,168.0	203.0	64.1	202.3	8.49	8.13	3.13
8,284.0	55.40	354.80	8,186.1	228.0	62.0	227.4	8.33	8.06	-2.58
8,316.0	57.70	354.40	8,203.8	254.6	59.5	254.0	7.26	7.19	-1.25
8,347.0	59.60	349.70	8,219.9	280.8	55.8	280.2	14.32	6.13	-15.16
8,379.0	63.00	351.80	8,235.3	308.5	51.3	308.0	12.08	10.63	6.56
8,410.0	66.90	352.10	8,248.4	336.3	47.4	335.8	12.61	12.58	0.97
8,442.0	69.90	351.30	8,260.2	365.7	43.1	365.3	9.66	9.38	-2.50
8,473.0	73.60	352.50	8,269.9	394.9	39.0	394.5	12.49	11.94	3.87
8,505.0	76.00	355.30	8,278.3	425.6	35.7	425.2	11.29	7.50	8.75
8,535.0	76.80	357.80	8,285.3	454.7	33.9	454.3	8.53	2.67	8.33
8,568.0	80.20	357.00	8,291.9	487.0	32.5	486.6	10.57	10.30	-2.42
8,598.0	84.10	356.90	8,296.0	516.7	30.9	516.3	13.00	13.00	-0.33
8,660.0	90.70	0.00	8,298.8	578.5	29.2	578.2	11.76	10.65	5.00
8,692.0	90.60	0.90	8,298.5	610.5	29.5	610.2	2.83	-0.31	2.81
8,723.0	90.40	0.90	8,298.2	641.5	30.0	641.2	0.65	-0.65	0.00
8,818.0	89.90	359.20	8,297.9	736.5	30.0	736.2	1.87	-0.53	-1.79
8,912.0	89.50	0.60	8,298.4	830.5	29.9	830.2	1.55	-0.43	1.49
9,007.0	90.00	0.00	8,298.9	925.5	30.4	925.2	0.82	0.53	-0.63
9,102.0	89.30	359.30	8,299.4	1,020.5	29.8	1,020.2	1.04	-0.74	-0.74
9,197.0	90.20	359.30	8,299.8	1,115.5	28.6	1,115.2	0.95	0.95	0.00
9,292.0	89.30	357.30	8,300.3	1,210.5	25.8	1,210.1	2.31	-0.95	-2.11
9,387.0	89.50	359.00	8,301.3	1,305.4	22.8	1,305.1	1.80	0.21	1.79
9,482.0	91.50	358.60	8,300.4	1,400.4	20.8	1,400.1	2.15	2.11	-0.42
9,577.0	91.60	358.50	8,297.9	1,495.3	18.4	1,495.0	0.15	0.11	-0.11
9,672.0	91.80	357.90	8,295.0	1,590.2	15.4	1,590.0	0.67	0.21	-0.63
9,766.0	90.80	357.80	8,292.9	1,684.1	11.9	1,683.9	1.07	-1.06	-0.11
9,861.0	90.80	358.60	8,291.6	1,779.1	8.9	1,778.9	0.84	0.00	0.84
9,955.0	91.20	357.80	8,289.9	1,873.0	5.9	1,872.8	0.95	0.43	-0.85
10,050.0	90.80	358.30	8,288.3	1,967.9	2.7	1,967.8	0.67	-0.42	0.53
10,145.0	90.60	357.80	8,287.1	2,062.9	-0.5	2,062.8	0.57	-0.21	-0.53
10,239.0	89.00	357.60	8,287.5	2,156.8	-4.3	2,156.7	1.72	-1.70	-0.21
10,334.0	87.80	356.70	8,290.1	2,251.6	-9.0	2,251.6	1.58	-1.26	-0.95
10,429.0	87.30	358.80	8,294.2	2,346.5	-12.8	2,346.5	2.27	-0.53	2.21
10,523.0	88.50	0.20	8,297.6	2,440.4	-13.6	2,440.4	1.96	1.28	1.49
10,618.0	90.70	0.60	8,298.3	2,535.4	-12.9	2,535.4	2.35	2.32	0.42
10,714.0	91.10	1.60	8,296.8	2,631.4	-11.1	2,631.3	1.12	0.42	1.04
10,809.0	89.20	1.30	8,296.5	2,726.3	-8.7	2,726.3	2.02	-2.00	-0.32
10,903.0	90.30	359.20	8,296.9	2,820.3	-8.3	2,820.2	2.52	1.17	-2.23
10,998.0	90.70	358.80	8,296.1	2,915.3	-9.9	2,915.2	0.60	0.42	-0.42
11,093.0	90.70	358.80	8,294.9	3,010.3	-11.9	3,010.2	0.00	0.00	0.00
11,189.0	90.60	358.10	8,293.8	3,106.2	-14.5	3,106.2	0.74	-0.10	-0.73

DDC Survey Report



Company:	Mewbourne Oil Co	Local Co-ordinate Reference:	Well Willow Lake 35 MD Federal Com #1H
Project:	Eddy County, New Mexico	TVD Reference:	WELL @ 3001.0usft (Patterson)
Site:	Sec 35, T24S, R28E	MD Reference:	WELL @ 3001.0usft (Patterson)
Well:	Willow Lake 35 MD Federal Com #1H	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)
11,284.0	90.80	359.20	8,292.7	3,201.2	-16.7	3,201.2	1.18	0.21	1.16
11,378.0	90.50	357.00	8,291.6	3,295.1	-19.9	3,295.2	2.36	-0.32	-2.34
11,473.0	89.80	357.00	8,291.4	3,390.0	-24.8	3,390.1	0.74	-0.74	0.00
11,568.0	90.30	357.80	8,291.3	3,484.9	-29.1	3,485.0	0.99	0.53	0.84
11,663.0	90.30	358.60	8,290.8	3,579.8	-32.1	3,580.0	0.84	0.00	0.84
11,758.0	90.50	0.60	8,290.1	3,674.8	-32.8	3,675.0	2.12	0.21	2.11
11,853.0	90.70	359.70	8,289.1	3,769.8	-32.5	3,770.0	0.97	0.21	-0.95
11,948.0	90.80	359.00	8,287.9	3,864.8	-33.6	3,865.0	0.74	0.11	-0.74
12,044.0	90.90	359.00	8,286.5	3,960.8	-35.3	3,960.9	0.10	0.10	0.00
12,138.0	90.00	359.00	8,285.7	4,054.8	-36.9	4,054.9	0.96	-0.96	0.00
12,233.0	89.30	359.20	8,286.3	4,149.8	-38.4	4,149.9	0.77	-0.74	0.21
12,328.0	89.30	358.60	8,287.5	4,244.7	-40.3	4,244.9	0.63	0.00	-0.63
12,423.0	89.40	356.90	8,288.5	4,339.7	-44.0	4,339.9	1.79	0.11	-1.79
12,518.0	89.50	357.40	8,289.5	4,434.5	-48.7	4,434.8	0.54	0.11	0.53
12,613.0	89.30	357.00	8,290.5	4,529.4	-53.3	4,529.7	0.47	-0.21	-0.42
12,708.0	89.60	356.50	8,291.4	4,624.3	-58.7	4,624.6	0.61	0.32	-0.53
TD @ 12790' MD / 8291.9' TVD									
12,790.0	89.60	356.50	8,291.9	4,706.1	-63.7	4,706.5	0.00	0.00	0.00

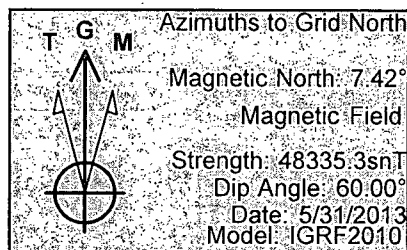
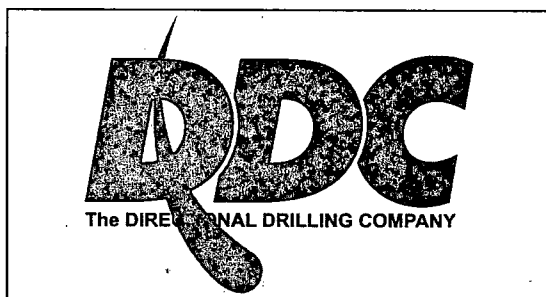
Design Annotations				
Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates		Comment
		+N/-S (usft)	+E/-W (usft)	
7,640.0	7,634.2	-46.0	85.3	TIE IN @ 7640' MD / 7634.2' TVD
7,911.4	7,899.4	-0.1	79.2	CROSSED HARDLINE @ 7911.4' MD / 7899.4' TVD
12,790.0	8,291.9	4,706.1	-63.7	TD @ 12790' MD / 8291.9' TVD

Checked By: _____ Approved By: _____ Date: _____

Company Name: Mewbourne Oil Co
Willow Lake 35 MD Federal Com #1H
Eddy County, New Mexico
Rig: Patterson #415
Created By: TIFFANI MIZELL
Date: 6/17/2013

Willow Lake 35 MD Federal Com #1H
Eddy County, New Mexico
Q130027 & WT-13441
Design #2

Mewbourne Oil Company



PROJECT DETAILS: Eddy County, New Mexico

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

WELL DETAILS: Willow Lake 35 MD Federal Com #1H

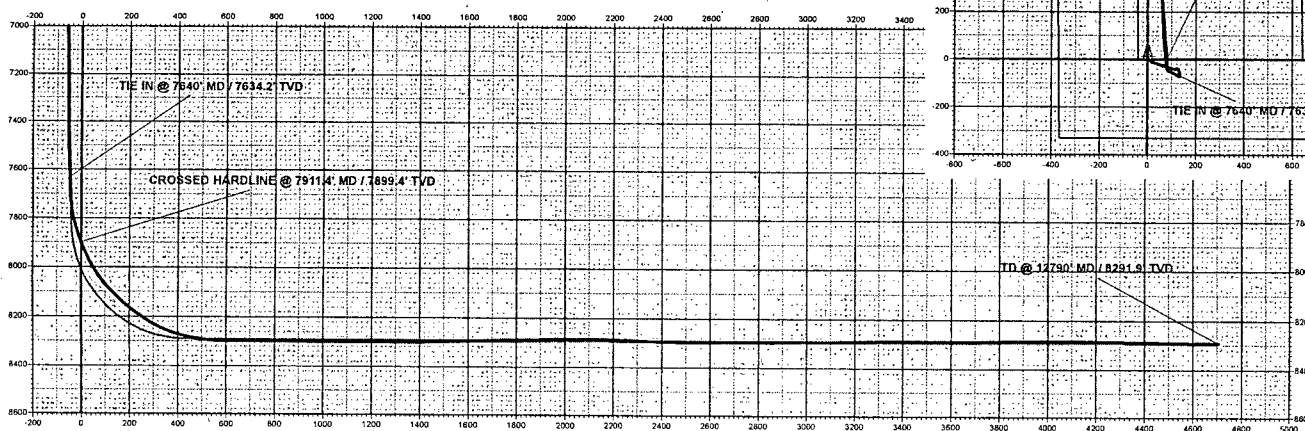
		Ground Level:	2981.0		
N/S	E/W	Northing	Easting	Latitude	Longitude
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DESIGN TARGET DETAILS

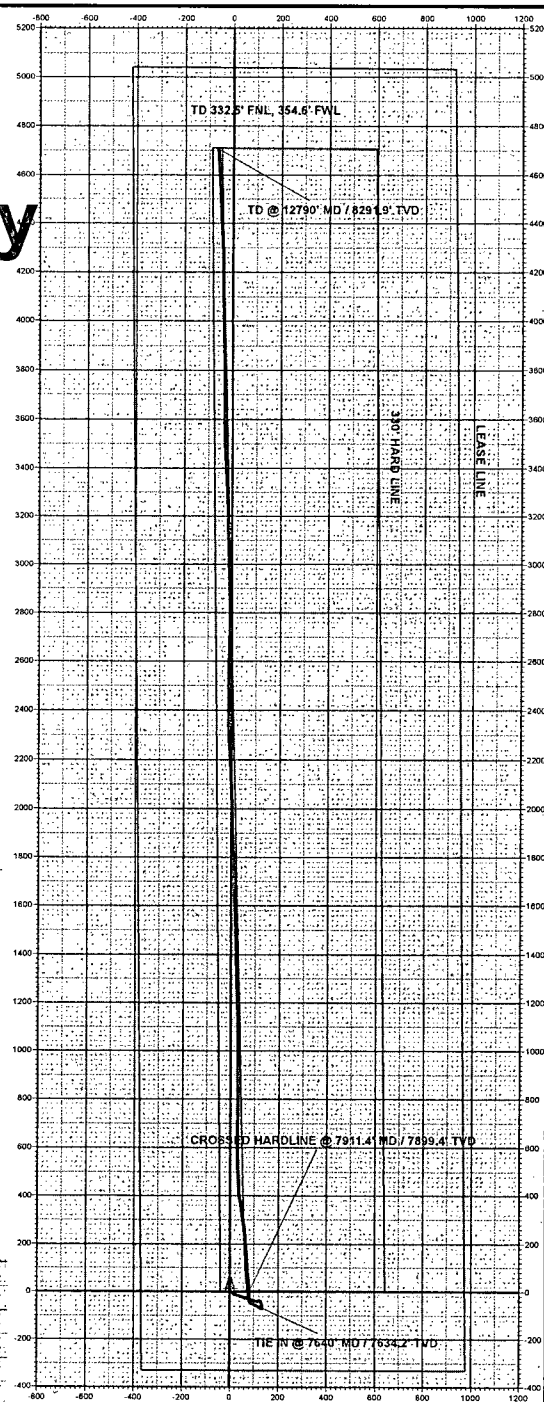
Name	TVD	+N/-S	+E/-W	Northing	Easting	Latitude	Longitude
PBHL Willow Lake 35 MD Federal Com #1H Design #1	8291.0	4708.5	-48.4	429411.47	583043.41	32° 10' 49.024 N	104° 3' 53.715 W
- plan hits target center							

ANNOTATIONS

MD	Inc	Azi	TVD	+N/-S	+E/-W	V Sect	Departure	Annotation
7640.0	2.64	310.80	7634.2	-46.9	85.3	-46.9	241.0	TIE IN @ 7640' MD / 7634.2' TVD
7911.4	22.76	1.85	7899.4	-0.1	79.2	-0.8	281.7	CROSSED HARDLINE @ 7911.4' MD / 7899.4' TVD
12790.0	89.60	356.50	8291.9	4706.1	-43.7	4706.5	4999.5	TD @ 12790' MD / 8291.9' TVD



Vertical Section at 359.41° (200 usf/in)



Company Rep	Dave
Well #	#1H
BOT Service Rep	Joseph Haynes
District Location	Odessa, Texas, USA



	Size	Weight	Grade	ID	Drift	Thread	Capacity	Length	Burst	Collapse			
Casing	7.000	26.00	110000	6.276	6.151	LT&C	0.03826	8,648.00	9,955	6,230			
Top Liner	4.500	13.50	110000	3.920	3.795	LT&C	0.01492	4,337.11	12,405	10,680			
Bott Liner													
TVD		8,290.00		KOP		7,714.00		Open Hole	6.125	Casing Vol. (bbl)	322.0		
Carry Fluid Weight (ppg)			8.6		Propan Content (ppa)				Max Drill Out Size		3.625		
	Comm. Number		Description			Depth	Length	OD	ID	Ball Seat ID	Shear Press.	Max Rate (BPM)	Displ (BBL)
Liner Top	1	10292414	JR Setting Sleeve_RH Profile			8412.89	4.00	5.750	4.000				322

H4090400008	JR Sleeve_S3 Hyd Set Packer	8416.89	4.65	5.875	3.875		1670		
10825400	4-1/2-13.5 LTC Nipple	8421.54	4.76	4.500	3.920				
	10 Joints of 4-1/2-13.5 LTC Casing	8426.30	341.65	4.500	3.920				
H809870074	3:625 EX Frac Sleeve	8767.95	2.40	5.750		3.525	2286		327
	3 Joints of 4-1/2-13.5 LTC Casing	8770.35	112.80	4.500	3.920				
H409360008	Baker Open Hole Packer	8883.15	3.89	5.820	3.875		2154		
	2 Joints of 4-1/2-13.5 LTC Casing	8887.04	77.22	4.500	3.920				
H809870016	3:500 EX Frac Sleeve	8964.26	2.40	5.750		3.400	2286		330
	3 Joints of 4-1/2-13.5 LTC Casing	8966.66	113.33	4.500	3.920				
H409360008	Baker Open Hole Packer	9079.99	3.89	5.820	3.875		2154		
	3 Joints of 4-1/2-13.5 LTC Casing	9083.88	74.03	4.500	3.920				
H809870073	3:375 EX Frac Sleeve	9157.91	2.40	5.750		3.275	2286		333
	3 Joints of 4-1/2-13.5 LTC Casing	9160.31	115.43	4.500	3.920				
H409360008	Baker Open Hole Packer	9275.74	3.89	5.820	3.875		2154		
	2 Joints of 4-1/2-13.5 LTC Casing	9279.63	75.68	4.500	3.920				
H809870072	3:250 EX Frac Sleeve	9355.31	2.40	5.750		3.150	2286		336
	3 Joints of 4-1/2-13.5 LTC Casing	9357.71	113.08	4.500	3.920				
H409360008	Baker Open Hole Packer	9470.76	3.89	5.820	3.875		2154		
	3 Joints of 4-1/2-13.5 LTC Casing	9474.68	75.81	4.500	3.920				
H809870070	3:125 EX Frac Sleeve	9550.49	2.40	5.750		3.025	2286		339
	3 Joints of 4-1/2-13.5 LTC Casing	9552.89	113.97	4.500	3.920				
H409360008	Baker Open Hole Packer	9666.86	3.89	5.820	3.875		2154		
	2 Joints of 4-1/2-13.5 LTC Casing	9670.75	75.43	4.500	3.920				

Operating Company Mewbourne
Well Name WillowLake 35MD FedCom
Sales Ticket Number 5584720
Date 6/18/2013

Company Rep Dave
Well # 1H
BOT Service Rep Joseph Haynes
District Location Odessa, Texas, USA



	Size	Weight	Grade	ID	Drift	Thread	Capacity	Length	Burst	Collapse	
Casing	7.000	26.00	110000	6.276	6.151	LT&C	0.03826	8,648.00	9,955	6,230	
Top Liner	4.500	13.50	110000	3.920	3.795	LT&C	0.01492	4,337.11	12,405	10,680	
Bott Liner											
TVD		8,290.00		KOP		7,714.00		Open Hole	6.125	Casing Vol. (bbl)	322.0
Carry Fluid Weight (ppg)			8.6		Propan Content (ppa)				Max Drill Out Size		3.625

	Comm. Number	Description	Depth	Length	OD	ID	Ball Seat ID	Shear Press	Max Rate (BPM)	Displ (BBL)
15	H809870069	3.000 EX Frac Sleeve	9746.18	2.40	5.750		2.900	2286		341
		3 Joints of 4-1/2-13.5 LTC Casing	9748.58	150.11	4.500	3.920				
	H409360008	Baker Open Hole Packer	9888.69	3.89	5.820	3.875		2154		
14		2 Joints of 4-1/2-13.5 LTC Casing	9902.58	110.42	4.500	3.920				
	H809870068	2.875 EX Frac sleeve	10013.00	2.40	5.750		2.775	2286		345
		3 Joints of 4-1/2-13.5 LTC Casing	10015.40	112.96	4.500	3.920				
13	H409360008	Baker Open Hole Packer	10128.36	3.89	5.820	3.875		2154		
		3 Joints of 4-1/2-13.5 LTC Casing	10132.25	73.61	4.500	3.920				
	H809870067	2.750 EX Frac Sleeve	10205.86	2.40	5.750		2.650	2286		348
12		3 Joint of 4-1/2-13.5 LTC Casing	10208.26	113.55	4.500	3.920				
	H409360008	Baker Open Hole Packer	10321.31	3.89	5.820	3.875		2154		
		2 Joints of 4-1/2-13.5 LTC Casing	10325.70	110.48	4.500	3.920				
11	H809870066	2.625 EX Frac Sleeve	10436.18	2.40	5.750		2.525	2286		352
		3 Joints of 4-1/2-13.5 LTC Casing	10438.58	75.76	4.500	3.920				
	H409360008	Baker Open Hole Packer	10514.34	3.89	5.820	3.875		2154		
10		2 Joints of 4-1/2-13.5 LTC Casing	10518.23	76.19	4.500	3.920				
	H809870065	2.500 EX Frac Sleeve	10594.42	2.40	5.750		2.400	2286		354
		3 Joints of 4-1/2-13.5 LTC Casing	10596.82	110.43	4.500	3.920				
9	H409360008	Baker Open Hole Packer	10707.25	3.89	5.820	3.875		2154		
		3 Joints of 4-1/2-13.5 LTC Casing	10711.14	111.09	4.500	3.920				
	H809870063	2.375 EX Frac Sleeve	10822.23	2.40	5.750		2.275	2286		358
		3 Joints of 4-1/2-13.5 LTC Casing	10824.63	149.99	4.500	3.920				
	H409360008	Baker Open Hole Packer	10974.62	3.89	5.820	3.875		2154		
		2 Joints of 4-1/2-13.5 LTC Casing	10978.51	74.65	4.500	3.920				
	H809870054	2.250 EX Frac Sleeve	11053.16	2.40	5.750		2.150	2286		361
		3 Joints of 4-1/2-13.5 LTC Casing	11055.56	72.77	4.500	3.920				
	H409360008	Baker Open Hole Packer	11128.38	3.89	5.820	3.875		2154		

Operating Company Mewbourne
 Well Name WillowLake 35MD FedCom
 Sales Ticket Number 5584720
 Date 6/18/2013

Company Rep Dave
 Well # #1H
 BOT Service Rep Joseph Haynes
 District Location Odessa, Texas, USA



	Size	Weight	Grade	ID	Drift	Thread	Capacity	Length	Burst	Collapse	
Casing	7.000	26.00	110000	6.276	6.151	LT&C	0.03826	8,648.00	9,955	6,230	
Top Liner	4.500	13.50	110000	3.920	3.795	LT&C	0.01492	4,337.11	12,405	10,680	
Bott Liner											
TVD		8,290.00		KOP		7,714.00		Open Hole	6.125	Casing Vol. (bbl)	322.0
Carry Fluid Weight (ppg)			8.6		Propan Content (ppa)				Max Drill Out Size		3.625

	Comm. Number	Description	Depth	Length	OD	ID	Ball Seat ID	Shear Press.	Max Rate (BPM)	Displ (BBL)
8		2 Joints of 4-1/2-13.5 LTC Casing	11132.22	109.10	4.500	3.920				
	H809870047	2.125 EX Frac Sleeve	11241.32	2.40	5.750		2.025	2286		364
		3 Joints of 4-1/2-13.5 LTC Casing	11243.72	146.64	4.500	3.920				
7	H409360008	Baker Open Hole Packer	11390.36	3.89	5.820	3.875		2154		
		3 Joints of 4-1/2-13.5 LTC Casing	11394.25	111.15	4.500	3.920				
	H809870042	2.000 EX Frac Sleeve	11505.40	2.40	5.750		1.900	2286		368
6		3 Joints of 4-1/2-13.5 LTC Casing	11507.80	75.11	4.500	3.920				
	H409360008	Baker Open Hole Packer	11582.91	3.89	5.820	3.875		2154		
		2 Joints of 4-1/2-13.5 LTC Casing	11586.80	114.02	4.500	3.920				
5	H809870088	1.875 EX Frac Sleeve	11700.82	2.40	5.750		1.775	2286		371
		3 Joints of 4-1/2-13.5 LTC Casing	11703.22	74.32	4.500	3.920				
	H409360008	Baker Open Hole Packer	11777.54	3.89	5.820	3.875		2154		
4		3 Joints of 4-1/2-13.5 LTC Casing	11781.43	76.12	4.500	3.920				
	H809870087	1.750 EX Frac Sleeve	11857.55	2.40	5.750		1.650	2286		373
		3 Joints of 4-1/2-13.5 LTC Casing	11859.95	150.66	4.500	3.920				
3	H409360008	Baker Open Hole Packer	12010.51	3.80	5.820	3.875		2154		
		2 Joints of 4-1/2-13.5 LTC Casing	12014.50	111.96	4.500	3.920				
	H809870086	1.625 EX Frac Sleeve	12126.46	2.40	5.750		1.525	2286		377
2		7 Joints of 4-1/2-13.5 LTC Casing	12128.86	75.44	4.500	3.920				
	H409360008	Baker Open Hole Packer	12204.30	3.89	5.820	3.875		2154		
		7 Joints of 4-1/2-13.5 LTC Casing	12208.19	73.99	4.500	3.920				
1	H809870085	1.500 DBL Frac Sleeve	12282.18	2.40	5.750		1.400	2286		380
		3 Joints of 4-1/2-13.5 LTC Casing	12284.58	111.98	4.500	3.920				
	H409360008	Baker Open Hole Packer	12398.56	3.89	5.820	3.875		2154		
0		2 Joints of 4-1/2-13.5 LTC Casing	12400.45	112.45	4.500	3.920				
	H809160007	1.375 DBL Frac Sleeve	12512.90	2.40	5.750		1.275	2286		383
		2 Joints of 4-1/2-13.5 LTC Casing	12515.30	110.57	4.500	3.920				

Company Rep	Dave
Well #	#1H
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District Location	Odessa, Texas, USA



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Bott Liner											
TVD	8,290.00			KOP		7,714.00	Open Hole		6.125	Casing Vol. (bbl)	322.0
Carry Fluid Weight (ppg)			8.6		Proppant Content (ppa)				Max Drill Out Size		3.625

[illegible]