

OPERATOR
WELL/LEASE
COUNTY

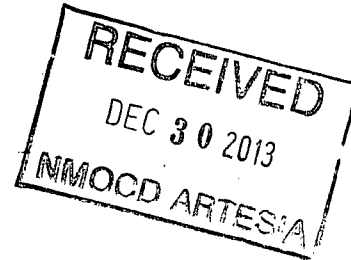
MEWBOURNE OIL COMPANY
MALAGA 13 DM FED COM 1H
EDDY

046-0090

STATE OF NEW MEXICO
DEVIATION REPORT

15-4/556

181	0.17
405	1.43
770	1.75
1,267	1.11
1,552	2.62
1,676	1.81
1,899	1.29
2,186	1.26
2,723	1.00
3,139	1.00
3,554	0.85
3,969	0.91
4,383	0.75
4,764	0.70
5,083	0.65
5,496	1.22
5,896	0.80
6,294	0.42
6,694	1.87
7,094	2.09



STATE OF TEXAS

BY:

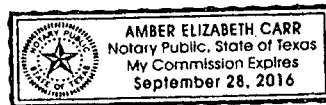
A handwritten signature in cursive script, appearing to read "Steve Moore".

COUNTY OF MIDLAND

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

12/16/13, by

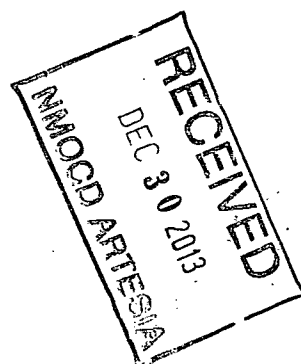
A handwritten signature in cursive script, appearing to read "Amber Elizabeth Carr".
Notary Public for Midland County, Texas
My Commission Expires:





Company: Mewbourne Oil Company
Lease/Well: Malaga 13 DM Federal Com/No. 001H

Rig Name: Patterson 46
State/County: New Mexico/Eddy
Latitude: 32.14, Longitude: -104.05
GRID North is 0.15 Degrees East of True North
VS-Azi: 0.00 Degrees



Depth Reference : RKB = 18 Feet

DRILLOG HA GYRO SURVEY CALCULATIONS

Filename: ... dm fed com 1h_gyro survey.ut

Minimum Curvature Method

Report Date/Time: 11/19/2013 / 16:24

Vaughn Energy Services

Midland, Texas

432-563-5444

Surveyor: Gene Heiss

Malagu 13 DM Federal Com No. 001H / API 30-015-41556

Measured Depth FT	Incl Angle Deg	Drift Direction Deg	TVD FT	+N/-S FT	+E/-W FT	Vertical Section FT	Closure Distance FT	Closure Direction Deg	Dogleg Severity Deg/100
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	****
100.00	0.14	219.67	100.00	-0.09	-0.08	-0.09	0.12	219.67	0.14
200.00	0.77	274.87	200.00	-0.13	-0.82	-0.13	0.83	261.25	0.70
300.00	1.21	283.83	299.98	0.18	-2.52	0.18	2.53	274.15	0.46
400.00	1.22	287.94	399.96	0.76	-4.56	0.76	4.62	279.50	0.09
500.00	1.17	274.46	499.94	1.17	-6.59	1.17	6.69	280.07	0.28
600.00	0.85	323.13	599.92	1.85	-8.06	1.85	8.26	282.90	0.88
700.00	0.96	355.84	699.91	3.28	-8.56	3.28	9.17	290.94	0.52
800.00	1.22	352.70	799.89	5.17	-8.76	5.17	10.17	300.57	0.27
900.00	1.24	347.12	899.87	7.29	-9.14	7.29	11.69	308.59	0.12
1000.00	1.83	341.62	999.83	9.86	-9.88	9.86	13.96	314.95	0.61
1100.00	1.97	328.31	1099.78	12.85	-11.29	12.85	17.10	318.69	0.46
1200.00	1.68	304.30	1199.73	15.14	-13.40	15.14	20.22	318.47	0.81
1300.00	1.52	270.80	1299.69	15.98	-15.93	15.98	22.56	315.08	0.93
1400.00	1.68	256.71	1399.65	15.66	-18.68	15.66	24.38	309.97	0.43
1500.00	1.98	249.82	1499.60	14.73	-21.74	14.73	26.25	304.12	0.37
1600.00	2.08	245.74	1599.54	13.38	-25.01	13.38	28.37	298.15	0.17
1700.00	2.29	245.55	1699.47	11.81	-28.48	11.81	30.84	292.52	0.21
1800.00	2.00	235.53	1799.40	10.00	-31.74	10.00	33.27	287.49	0.48

Mewbourne Oil Co

Eddy County, New Mexico

Sec 12, T25S, R28E

Malaga 13 DM Federal Com #1H (New SHL)

Wellbore #1

Design: Wellbore #1

DDC Survey Report

19 November, 2013



DDC
Survey Report



Company:	Mewbourne Oil Co.	Local Co-ordinate Reference:	Well: Malaga 13 DM Federal Com #1H (New SHL)
Project:	Eddy County, New Mexico	TVD Reference:	WELL @ 2908.0usft (Patterson)
Site:	Sec 12, T25S, R28E	MD Reference:	WELL @ 2908.0usft (Patterson)
Well:	Malaga 13 DM Federal Com #1H (New SHL)	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. 12, T25S, R28E			
Site Position:		Northing:	414,092.17 usft	Latitude:	32° 8' 17.261 N
From:	Map	Easting:	589,199.27 usft	Longitude:	104° 2' 42.563 W
Position Uncertainty:	0.0 usft	Slot Radius:	13-3/16 "	Grid Convergence:	0.15 °

Well: Malaga 13 DM Federal Com #1H (New SHL)						
Well Position	+N/-S	0.0 usft	Northing:	414,092.17 usft	Latitude:	32° 8' 17.261 N
	+E/-W	0.0 usft	Easting:	589,199.27 usft	Longitude:	104° 2' 42.563 W
Position Uncertainty		0.0 usft	Wellhead Elevation:	usft	Ground Level:	2,888.0 usft

Wellbore					
Wellbore #1					
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2010	5/13/2013	7.56	59.98	48,325

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	188.79	

Survey Program		Date	11/19/2013	
From (usft)	To (usft)	Survey (Wellbore)	Tool Name	Description
100.0	7,690.0	Gyro (Wellbore #1)	Good_gyro	Good Gyro
7,745.0	13,305.0	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	0.14	219.67	100.0	-0.1	-0.1	0.1	0.14	0.14	0.00	
200.0	0.77	274.87	200.0	-0.1	-0.8	0.3	0.70	0.63	55.20	
300.0	1.21	283.83	300.0	0.2	-2.5	0.2	0.47	0.44	8.96	
400.0	1.22	287.94	400.0	0.8	-4.6	-0.1	0.09	0.01	4.11	
500.0	1.17	274.46	499.9	1.2	-6.6	-0.1	0.28	-0.05	-13.48	
600.0	0.85	323.13	599.9	1.8	-8.1	-0.6	0.88	-0.32	48.67	
700.0	0.96	355.84	699.9	3.3	-8.6	-1.9	0.52	0.11	32.71	
800.0	1.22	352.70	799.9	5.2	-8.8	-3.8	0.27	0.26	-3.14	

DDC
Survey Report



Company:	Mewbourne Oil Co.	Local Co-ordinate Reference:	Well: Malaga 13 DM Federal Com #1H (New SHL)
Project:	Eddy County New Mexico	TVD Reference:	WELL @ 2908.0usft (Patterson)
Site:	Sec 12, T25S, R28E	MD Reference:	WELL @ 2908.0usft (Patterson)
Well:	Malaga 13 DM Federal Com #1H (New SHL)	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)	
900.0	1.24	347.12	899.9	7.3	-9.1	-5.8	0.12	0.02	-5.58	
1,000.0	1.83	341.62	999.8	9.8	-9.9	-8.2	0.61	0.59	-5.50	
1,100.0	1.97	328.31	1,099.8	12.8	-11.3	-10.9	0.46	0.14	-13.31	
1,200.0	1.68	304.30	1,199.7	15.1	-13.4	-12.9	0.81	-0.29	-24.01	
1,300.0	1.52	270.80	1,299.7	16.0	-15.9	-13.3	0.93	-0.16	-33.50	
1,400.0	1.68	256.71	1,399.7	15.6	-18.7	-12.6	0.42	0.16	-14.09	
1,500.0	1.98	249.82	1,499.6	14.7	-21.7	-11.2	0.37	0.30	-6.89	
1,600.0	2.08	245.74	1,599.5	13.4	-25.0	-9.4	0.18	0.10	-4.08	
1,700.0	2.29	245.55	1,699.5	11.8	-28.5	-7.3	0.21	0.21	-0.19	
1,800.0	2.00	235.53	1,799.4	10.0	-31.7	-5.0	0.47	-0.29	-10.02	
1,900.0	1.47	216.27	1,899.4	7.9	-33.9	-2.7	0.78	-0.53	-19.26	
2,000.0	1.11	183.77	1,999.3	5.9	-34.8	-0.6	0.80	-0.36	-32.50	
2,100.0	1.01	164.23	2,099.3	4.1	-34.6	1.2	0.37	-0.10	-19.54	
2,200.0	1.62	131.54	2,199.3	2.3	-33.3	2.8	0.94	0.61	-32.69	
2,300.0	2.37	114.00	2,299.2	0.6	-30.3	4.1	0.96	0.75	-17.54	
2,400.0	3.28	117.25	2,399.1	-1.6	-25.9	5.5	0.92	0.91	3.25	
2,500.0	2.50	119.91	2,499.0	-4.0	-21.5	7.2	0.79	-0.78	2.66	
2,600.0	1.53	125.38	2,598.9	-5.8	-18.5	8.6	0.99	-0.97	5.47	
2,700.0	1.17	127.52	2,698.9	-7.2	-16.6	9.7	0.36	-0.36	2.14	
2,800.0	1.07	119.86	2,798.9	-8.3	-15.0	10.5	0.18	-0.10	-7.66	
2,900.0	1.12	120.18	2,898.8	-9.3	-13.3	11.2	0.05	0.05	0.32	
3,000.0	0.89	124.31	2,998.8	-10.2	-11.8	11.9	0.24	-0.23	4.13	
3,100.0	0.61	127.26	3,098.8	-11.0	-10.8	12.5	0.28	-0.28	2.95	
3,200.0	0.61	121.71	3,198.8	-11.6	-9.9	12.9	0.06	0.00	-5.55	
3,300.0	0.76	133.41	3,298.8	-12.3	-9.0	13.5	0.20	0.15	11.70	
3,400.0	0.85	152.78	3,398.8	-13.4	-8.1	14.5	0.29	0.09	19.37	
3,500.0	0.62	172.49	3,498.8	-14.6	-7.7	15.6	0.34	-0.23	19.71	
3,600.0	0.54	174.86	3,598.8	-15.6	-7.6	16.6	0.08	-0.08	2.37	
3,700.0	0.53	173.83	3,698.8	-16.5	-7.5	17.5	0.01	-0.01	-1.03	
3,800.0	0.60	186.48	3,798.8	-17.5	-7.5	18.5	0.14	0.07	12.65	
3,900.0	0.57	188.16	3,898.8	-18.5	-7.7	19.5	0.03	-0.03	1.68	
4,000.0	0.54	201.98	3,998.8	-19.5	-7.9	20.5	0.14	-0.03	13.82	
4,100.0	0.58	206.68	4,098.8	-20.4	-8.3	21.4	0.06	0.04	4.70	
4,200.0	0.62	215.25	4,198.8	-21.3	-8.9	22.4	0.10	0.04	8.57	
4,300.0	0.70	223.73	4,298.8	-22.1	-9.6	23.3	0.13	0.08	8.48	
4,400.0	0.83	212.40	4,398.7	-23.2	-10.4	24.5	0.20	0.13	-11.33	
4,500.0	0.95	209.01	4,498.7	-24.5	-11.2	25.9	0.13	0.12	-3.39	
4,600.0	1.01	208.24	4,598.7	-26.0	-12.0	27.6	0.06	0.06	-0.77	
4,700.0	1.02	204.41	4,698.7	-27.6	-12.8	29.2	0.07	0.01	-3.83	
4,800.0	1.24	192.34	4,798.7	-29.5	-13.4	31.2	0.32	0.22	-12.07	
4,900.0	1.43	191.76	4,898.7	-31.8	-13.9	33.5	0.19	0.19	-0.58	
5,000.0	1.45	190.38	4,998.6	-34.2	-14.4	36.0	0.04	0.02	-1.38	

DDC
Survey Report



Company:	Mewbourne Oil Co.	Local Co-ordinate Reference:	Well: Malaga 13 DM Federal Com #1H (New SHL)
Project:	Eddy County, New Mexico	TVD Reference:	WELL @ 2908.0usft (Patterson)
Site:	Sec. 12 T25S R28E	MD Reference:	WELL @ 2908.0usft (Patterson)
Well:	Malaga 13 DM Federal Com #1H (New SHL)	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)
5,100.0	1.54	188.98	5,098.6	-36.8	-14.8	38.6	0.10	0.09	-1.40
5,200.0	1.19	186.52	5,198.6	-39.2	-15.1	41.0	0.35	-0.35	-2.46
5,300.0	1.25	186.93	5,298.5	-41.3	-15.4	43.1	0.06	0.06	0.41
5,400.0	1.22	187.03	5,398.5	-43.4	-15.6	45.3	0.03	-0.03	0.10
5,500.0	1.32	194.55	5,498.5	-45.6	-16.1	47.5	0.19	0.10	7.52
5,600.0	1.36	187.74	5,598.5	-47.9	-16.5	49.8	0.16	0.04	-6.81
5,700.0	1.38	190.55	5,698.4	-50.2	-16.9	52.2	0.07	0.02	2.81
5,800.0	1.33	189.51	5,798.4	-52.6	-17.3	54.6	0.06	-0.05	-1.04
5,900.0	0.94	174.15	5,898.4	-54.5	-17.4	56.5	0.49	-0.39	-15.36
6,000.0	1.03	175.11	5,998.4	-56.2	-17.2	58.2	0.09	0.09	0.96
6,100.0	0.90	174.64	6,098.4	-57.9	-17.1	59.8	0.13	-0.13	-0.47
6,200.0	0.91	173.73	6,198.3	-59.5	-16.9	61.4	0.02	0.01	-0.91
6,300.0	0.90	173.81	6,298.3	-61.1	-16.8	62.9	0.01	-0.01	0.08
6,400.0	0.94	172.25	6,398.3	-62.6	-16.6	64.4	0.05	0.04	-1.56
6,500.0	0.54	243.64	6,498.3	-63.7	-16.9	65.5	0.92	-0.40	71.39
6,600.0	1.04	271.18	6,598.3	-63.9	-18.2	65.9	0.61	0.50	27.54
6,700.0	2.87	279.94	6,698.2	-63.4	-21.6	66.0	1.85	1.83	8.76
6,800.0	3.32	288.75	6,798.1	-62.0	-26.8	65.4	0.65	0.45	8.81
6,900.0	2.05	294.72	6,898.0	-60.4	-31.2	64.4	1.30	-1.27	5.97
7,000.0	2.12	305.41	6,997.9	-58.5	-34.3	63.1	0.39	0.07	10.69
7,100.0	1.63	314.30	7,097.9	-56.5	-36.8	61.4	0.57	-0.49	8.89
7,200.0	1.25	346.95	7,197.8	-54.4	-38.1	59.6	0.89	-0.38	32.65
7,300.0	1.16	10.10	7,297.8	-52.4	-38.1	57.6	0.49	-0.09	23.15
7,400.0	1.21	5.18	7,397.8	-50.3	-37.9	55.5	0.11	0.05	-4.92
7,500.0	1.26	16.17	7,497.8	-48.2	-37.5	53.4	0.24	0.05	10.99
7,600.0	0.58	57.32	7,597.8	-46.9	-36.7	51.9	0.91	-0.68	41.15
Tie In @ 7690' MD / 7688' TVD									
7,690.0	0.96	65.87	7,687.7	-46.3	-35.7	51.2	0.44	0.42	9.50
7,745.0	6.10	186.50	7,742.6	-49.0	-35.6	53.9	12.07	9.35	219.33
7,777.0	11.10	190.60	7,774.3	-53.8	-36.3	58.7	15.73	15.63	12.81
7,808.0	15.90	192.80	7,804.4	-60.8	-37.8	65.9	15.57	15.48	7.10
7,840.0	20.80	194.90	7,834.8	-70.6	-40.3	75.9	15.45	15.31	6.56
7,872.0	24.40	195.10	7,864.3	-82.5	-43.4	88.2	11.25	11.25	0.63
7,904.0	27.00	197.10	7,893.1	-95.8	-47.3	101.9	8.56	8.13	6.25
7,935.0	28.10	197.10	7,920.6	-109.5	-51.5	116.1	3.55	3.55	0.00
7,967.0	30.00	198.60	7,948.6	-124.3	-56.3	131.5	6.36	5.94	4.69
7,999.0	33.10	199.90	7,975.9	-140.1	-61.8	147.9	9.92	9.69	4.06
8,031.0	36.40	202.30	8,002.2	-157.1	-68.4	165.7	11.16	10.31	7.50
8,062.0	40.30	203.70	8,026.5	-174.8	-75.9	184.4	12.89	12.58	4.52
8,094.0	43.80	205.50	8,050.2	-194.3	-84.8	205.0	11.57	10.94	5.63
8,126.0	47.20	206.60	8,072.7	-214.8	-94.9	226.8	10.90	10.63	3.44
8,158.0	51.10	207.40	8,093.6	-236.4	-105.9	249.8	12.33	12.19	2.50
8,189.0	54.70	209.50	8,112.3	-258.1	-117.7	273.0	12.81	11.61	6.77

DDC
Survey Report



Company:	Mewbourne Oil Co.	Local Co-ordinate Reference:	Well: Malaga-13 DM: Federal Com #1H (New SHL)
Project:	Eddy County, New Mexico	TVD Reference:	WELL @ 2908.0usft (Patterson)
Site:	Sec 12-T25S-R28E	MD Reference:	WELL @ 2908.0usft (Patterson)
Well:	Malaga-13 DM: Federal Com #1H (New SHL)	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)
8,221.0	57.70	209.90	8,130.1	-281.2	-130.8	297.9	9.43	9.38	1.25
Crossed Lease Line @ 8243' MD / 8142' TVD									
8,243.4	59.38	210.04	8,141.8	-297.7	-140.4	315.7	7.52	7.50	0.63
8,253.0	60.10	210.10	8,146.6	-304.9	-144.5	323.4	7.52	7.50	0.61
8,285.0	63.10	209.40	8,161.8	-329.3	-158.5	349.7	9.57	9.38	-2.19
8,316.0	65.90	209.90	8,175.2	-353.7	-172.3	375.8	9.15	9.03	1.61
8,348.0	68.20	208.30	8,187.6	-379.4	-186.7	403.5	8.54	7.19	-5.00
8,380.0	69.50	208.70	8,199.2	-405.6	-200.9	431.6	4.23	4.06	1.25
8,412.0	71.10	207.30	8,210.0	-432.2	-215.0	460.0	6.48	5.00	-4.38
8,443.0	72.20	207.40	8,219.7	-458.4	-228.6	487.9	3.56	3.55	0.32
8,475.0	73.30	206.00	8,229.2	-485.7	-242.3	517.0	5.41	3.44	-4.38
8,507.0	74.90	205.70	8,238.0	-513.4	-255.7	546.4	5.08	5.00	-0.94
8,539.0	76.80	204.40	8,245.8	-541.5	-268.8	576.2	7.13	5.94	-4.06
8,570.0	78.90	201.30	8,252.3	-569.4	-280.6	605.6	11.89	6.77	-10.00
8,602.0	81.20	200.80	8,257.9	-598.8	-291.9	636.4	7.35	7.19	-1.56
Crossed Hard Line @ 8630' MD / 8262' TVD									
8,630.4	83.15	199.47	8,261.7	-625.2	-301.6	664.0	8.30	6.87	-4.69
8,634.0	83.40	199.30	8,262.2	-628.6	-302.8	667.5	8.30	6.88	-4.67
8,666.0	84.80	197.20	8,265.5	-658.8	-312.8	698.9	7.86	4.38	-6.56
8,697.0	85.60	194.30	8,268.0	-688.5	-321.1	729.5	9.67	2.58	-9.35
8,729.0	86.40	191.60	8,270.3	-719.7	-328.3	761.4	8.78	2.50	-8.44
8,760.0	86.40	189.30	8,272.2	-750.1	-333.9	792.3	7.40	0.00	-7.42
8,792.0	86.10	188.40	8,274.3	-781.6	-338.8	824.2	2.96	-0.94	-2.81
8,824.0	88.20	185.30	8,275.9	-813.4	-342.6	856.2	11.69	6.56	-9.69
8,856.0	89.40	184.60	8,276.6	-845.2	-345.4	888.1	4.34	3.75	-2.19
8,888.0	89.90	184.90	8,276.8	-877.1	-348.0	920.0	1.82	1.56	0.94
8,919.0	90.10	186.00	8,276.8	-908.0	-351.0	950.9	3.61	0.65	3.55
8,951.0	90.80	186.20	8,276.5	-939.8	-354.4	982.9	2.28	2.19	0.63
8,983.0	91.50	185.80	8,275.9	-971.6	-357.7	1,014.9	2.52	2.19	-1.25
9,006.0	91.30	186.70	8,275.3	-994.5	-360.2	1,037.8	4.01	-0.87	3.91
9,070.0	88.70	188.10	8,275.3	-1,057.9	-368.5	1,101.8	4.61	-4.06	2.19
9,134.0	87.10	188.60	8,277.7	-1,121.2	-377.8	1,165.8	2.62	-2.50	0.78
9,197.0	87.00	188.60	8,280.9	-1,183.4	-387.2	1,228.7	0.16	-0.16	0.00
9,260.0	87.80	187.40	8,283.8	-1,245.7	-395.9	1,291.6	2.29	1.27	-1.90
9,324.0	88.40	186.70	8,285.9	-1,309.2	-403.8	1,355.5	1.44	0.94	-1.09
9,387.0	88.50	186.30	8,287.6	-1,371.8	-410.9	1,418.5	0.65	0.16	-0.63
9,451.0	88.60	186.00	8,289.2	-1,435.4	-417.8	1,482.4	0.49	0.16	-0.47
9,514.0	89.00	185.30	8,290.5	-1,498.1	-424.0	1,545.3	1.28	0.63	-1.11
9,578.0	88.60	186.20	8,291.9	-1,561.7	-430.4	1,609.2	1.54	-0.63	1.41
9,641.0	88.00	187.40	8,293.7	-1,624.3	-437.8	1,672.1	2.13	-0.95	1.90
9,705.0	88.40	187.70	8,295.7	-1,687.7	-446.2	1,736.1	0.78	0.63	0.47
9,768.0	88.40	187.00	8,297.5	-1,750.1	-454.3	1,799.0	1.11	0.00	-1.11
9,832.0	88.70	186.70	8,299.1	-1,813.7	-461.9	1,863.0	0.66	0.47	-0.47

DDC
Survey Report



Company:	Mewbourne Oil Co.	Local Co-ordinate Reference:	Well, Malaga 13 DM Federal Com #1H (New SHL)
Project:	Eddy County, New Mexico	TVD Reference:	WELL @ 2908.0usft (Patterson)
Site:	Sec 12, T25S, R28E	MD Reference:	WELL @ 2908.0usft (Patterson)
Well:	Malaga 13 DM Federal Com #1H (New SHL)	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)
9,896.0	89.10	186.50	8,300.4	-1,877.2	-469.3	1,926.9	0.70	0.63	-0.31
9,960.0	89.50	186.50	8,301.1	-1,940.8	-476.5	1,990.8	0.63	0.63	0.00
10,023.0	90.00	186.20	8,301.4	-2,003.4	-483.5	2,053.8	0.93	0.79	-0.48
10,087.0	90.30	186.00	8,301.2	-2,067.1	-490.3	2,117.7	0.56	0.47	-0.31
10,151.0	90.60	186.00	8,300.7	-2,130.7	-497.0	2,181.6	0.47	0.47	0.00
10,215.0	90.40	187.20	8,300.2	-2,194.3	-504.3	2,245.6	1.90	-0.31	1.88
10,278.0	89.70	188.40	8,300.1	-2,256.7	-512.9	2,308.6	2.21	-1.11	1.90
10,342.0	89.80	188.60	8,300.4	-2,320.0	-522.3	2,372.6	0.35	0.16	0.31
10,405.0	90.30	188.80	8,300.4	-2,382.3	-531.9	2,435.6	0.85	0.79	0.32
10,469.0	88.70	188.30	8,300.9	-2,445.6	-541.4	2,499.6	2.62	-2.50	-0.78
10,532.0	87.60	187.60	8,302.9	-2,507.9	-550.1	2,562.5	2.07	-1.75	-1.11
10,596.0	88.30	185.60	8,305.2	-2,571.4	-557.5	2,626.4	3.31	1.09	-3.13
10,660.0	90.30	183.40	8,306.0	-2,635.2	-562.5	2,690.2	4.65	3.13	-3.44
10,724.0	91.40	182.60	8,305.1	-2,699.1	-565.8	2,753.9	2.13	1.72	-1.25
10,788.0	91.70	182.50	8,303.3	-2,763.1	-568.7	2,817.5	0.49	0.47	-0.16
10,852.0	90.70	183.90	8,302.0	-2,826.9	-572.2	2,881.2	2.69	-1.56	2.19
10,916.0	89.20	185.50	8,302.1	-2,890.7	-577.5	2,945.0	3.43	-2.34	2.50
10,980.0	89.60	185.30	8,302.7	-2,954.4	-583.5	3,008.9	0.70	0.63	-0.31
11,043.0	90.20	184.80	8,302.8	-3,017.2	-589.0	3,071.8	1.24	0.95	-0.79
11,107.0	90.60	185.10	8,302.4	-3,080.9	-594.6	3,135.6	0.78	0.63	0.47
11,171.0	90.30	186.30	8,301.9	-3,144.6	-600.9	3,199.5	1.93	-0.47	1.88
11,234.0	89.70	187.00	8,301.9	-3,207.2	-608.2	3,262.5	1.46	-0.95	1.11
11,298.0	90.00	186.90	8,302.1	-3,270.7	-616.0	3,326.4	0.49	0.47	-0.16
11,362.0	90.80	186.50	8,301.6	-3,334.3	-623.4	3,390.4	1.40	1.25	-0.63
11,425.0	90.00	187.60	8,301.2	-3,396.8	-631.2	3,453.4	2.16	-1.27	1.75
11,489.0	90.30	187.00	8,301.0	-3,460.3	-639.3	3,517.3	1.05	0.47	-0.94
11,552.0	90.10	188.60	8,300.8	-3,522.7	-647.8	3,580.3	2.56	-0.32	2.54
11,615.0	90.30	189.30	8,300.6	-3,584.9	-657.6	3,643.3	1.16	0.32	1.11
11,679.0	88.80	189.50	8,301.1	-3,648.1	-668.1	3,707.3	2.36	-2.34	0.31
11,742.0	87.10	188.30	8,303.3	-3,710.3	-677.8	3,770.3	3.30	-2.70	-1.90
11,806.0	87.50	185.30	8,306.3	-3,773.7	-685.4	3,834.2	4.72	0.63	-4.69
11,869.0	89.30	184.20	8,308.1	-3,836.5	-690.6	3,897.0	3.35	2.86	-1.75
11,933.0	90.10	183.90	8,308.4	-3,900.3	-695.1	3,960.8	1.33	1.25	-0.47
11,996.0	90.50	183.40	8,308.1	-3,963.2	-699.2	4,023.5	1.02	0.63	-0.79
12,060.0	90.60	183.00	8,307.5	-4,027.1	-702.7	4,087.2	0.64	0.16	-0.63
12,123.0	91.70	183.80	8,306.2	-4,090.0	-706.5	4,149.9	2.16	1.75	1.27
12,187.0	92.10	184.20	8,304.1	-4,153.8	-710.9	4,213.6	0.88	0.63	0.63
12,250.0	92.70	185.10	8,301.5	-4,216.5	-716.0	4,276.4	1.72	0.95	1.43
12,314.0	91.70	186.00	8,299.0	-4,280.2	-722.2	4,340.3	2.10	-1.56	1.41
12,377.0	88.60	186.70	8,298.8	-4,342.8	-729.2	4,403.2	5.04	-4.92	1.11
12,441.0	88.10	186.20	8,300.7	-4,406.4	-736.4	4,467.1	1.10	-0.78	-0.78
12,504.0	89.00	186.20	8,302.3	-4,469.0	-743.2	4,530.0	1.43	1.43	0.00

DDC
Survey Report



Company:	Mewbourne Oil Co.	Local Co-ordinate Reference:	Well: Malaga 13 DM Federal Com #1H (New SHL)
Project:	Eddy County, New Mexico	TVD Reference:	WELL @ 2908.0usft (Patterson)
Site:	Sec 12, T25S, R28E	MD Reference:	WELL @ 2908.0usft (Patterson)
Well:	Malaga 13 DM Federal Com #1H (New SHL)	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)	
12,568.0	89.50	186.30	8,303.1	-4,532.6	-750.1	4,594.0	0.80	0.78	0.16	
12,631.0	90.10	186.50	8,303.3	-4,595.2	-757.2	4,656.9	1.00	0.95	0.32	
12,694.0	89.00	186.00	8,303.8	-4,657.8	-764.0	4,719.9	1.92	-1.75	-0.79	
12,758.0	89.30	186.00	8,304.8	-4,721.4	-770.7	4,783.8	0.47	0.47	0.00	
12,821.0	89.30	184.20	8,305.5	-4,784.2	-776.3	4,846.6	2.86	0.00	-2.86	
12,885.0	90.20	184.10	8,305.8	-4,848.0	-780.9	4,910.4	1.41	1.41	-0.16	
12,948.0	91.00	184.10	8,305.2	-4,910.9	-785.4	4,973.2	1.27	1.27	0.00	
13,011.0	89.30	183.90	8,305.0	-4,973.7	-789.8	5,036.0	2.72	-2.70	-0.32	
13,075.0	89.00	183.70	8,305.9	-5,037.6	-794.1	5,099.7	0.56	-0.47	-0.31	
13,139.0	89.90	184.20	8,306.6	-5,101.4	-798.5	5,163.5	1.61	1.41	0.78	
13,202.0	90.60	183.70	8,306.3	-5,164.2	-802.8	5,226.3	1.37	1.11	-0.79	
13,254.0	91.10	183.50	8,305.5	-5,216.1	-806.1	5,278.1	1.04	0.96	-0.38	
TD @ 13305' MD / 8305' TVD										
13,305.0	91.10	183.50	8,304.5	-5,267.0	-809.2	5,328.8	0.00	0.00	0.00	

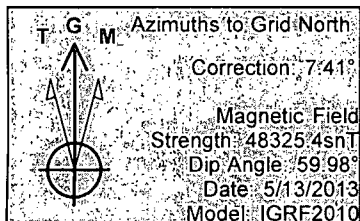
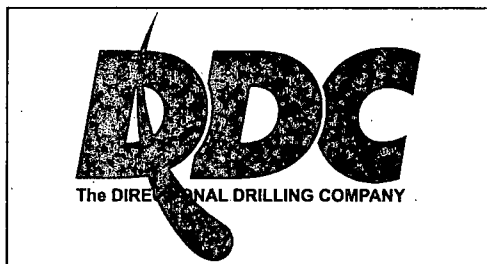
Design Annotations				
Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates		Comment
		+N/-S (usft)	+E/-W (usft)	
7,690.0	7,687.7	-46.3	-35.7	Tie In @ 7690' MD / 7688' TVD
8,243.4	8,141.8	-297.7	-140.4	Crossed Lease Line @ 8243' MD / 8142' TVD
8,630.4	8,261.7	-625.2	-301.6	Crossed Hard Line @ 8630' MD / 8262' TVD
13,305.0	8,304.5	-5,267.0	-809.2	TD @ 13305' MD / 8305' TVD

Checked By: _____ Approved By: _____ Date: _____

Company Name: Mewbourne Oil Co
 Malaga 13 DM Federal Com #1H (New SHL)
 Eddy County, New Mexico
 Rig: Patterson #46
 Created By: James Dawson
 Date: 11/19/2013

Malaga 13 DM Federal Com #1H (New SHL)
 Eddy County, New Mexico
 Q120835 & WT-13811
 Design #6 (Tie-In)

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: Malaga 13 DM Federal Com #1H (New SHL)

Ground Level:		2888.0	
+N/-S	+E/-W	Northing	Easting
9.0	0.0	414052.17	589199.27
		32° 8' 17.261 N	104° 2' 42.563 W

DESIGN TARGET DETAILS

Name	TVD	+N/-S	+E/-W	Northing	Easting	Latitude	Longitude
LP Malaga 13 DM Federal Com #1H Design #6	8278.0	-529.5	-217.0	413562.57	588992.27	32° 8' 12.026 N	104° 2' 45.104 W
- plan misses target center by 51.8m at 8590.0m MD (5278.0 TVD, -407.1 N, -255.6 E)							
PBHL Malaga 13 DM Federal Com #1H Design #6 8278.0	-5271.7	-616.0	-408520.47	588994.27	32° 7' 25.111 N	104° 2' 52.205 W	
- plan hits target center							

ANNOTATIONS

MD	Inc	Asl	TVD	+N/-S	+E/-W	Vsect	Departure	Tie In	Annotation
7690.0	0.96	65.87	7687.3	-46.3	-35.7	51.2	186.7	Tie In @ 7690' MD / 7688' TVD	
8243.4	69.38	210.04	8141.8	-297.7	-140.4	315.7	443.3	Crossed Lease Line @ 8243' MD / 8142' TVD	
8530.4	53.15	188.47	8351.7	-425.2	-201.6	654.0	508.9	Crossed Hard Line @ 8630' MD / 8282' TVD	
13305.0	81.10	183.50	8304.8	-5287.0	-205.2	6328.8	6481.9	Tie In @ 13305' MD / 8305' TVD	

