

OPERATOR
WELL/LEASE
COUNTY

MEWBOURNE OIL COMPANY
SAVAGE 5 EH FEDERAL 1H
EDDY

046-0093

STATE OF NEW MEXICO
DEVIATION REPORT

30-015-41897

350	1.09
651	0.76
968	1.60
1,324	1.89
1,742	2.04
2,119	2.50
2,502	2.25
2,851	2.00
3,393	3.11
3,543	2.88
3,712	1.47
3,995	1.76
4,414	1.32
4,859	0.90
5,304	3.39
5,719	2.85

STATE OF TEXAS

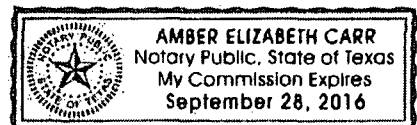
COUNTY OF MIDLAND

BY:

Steve Moore

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

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



Company Name: Mewbourne Oil Co
Savage 5 EH Federal #1H
Eddy County, New Mexico
Rig: Patterson #45
Created By: James Dawson
Date: 3/7/2014

Savage 5 EH Federal #1H
Eddy County, New Mexico
Q140082 & WT-140138
Design #2

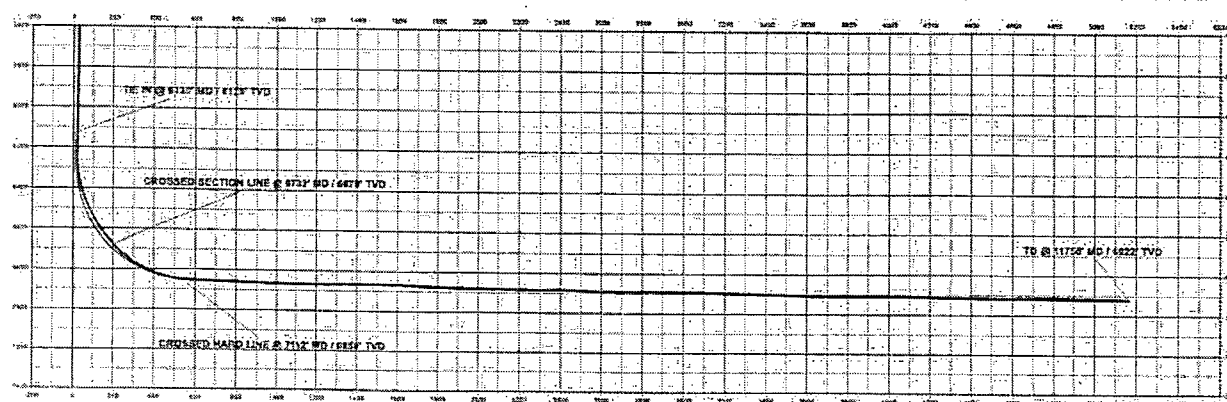
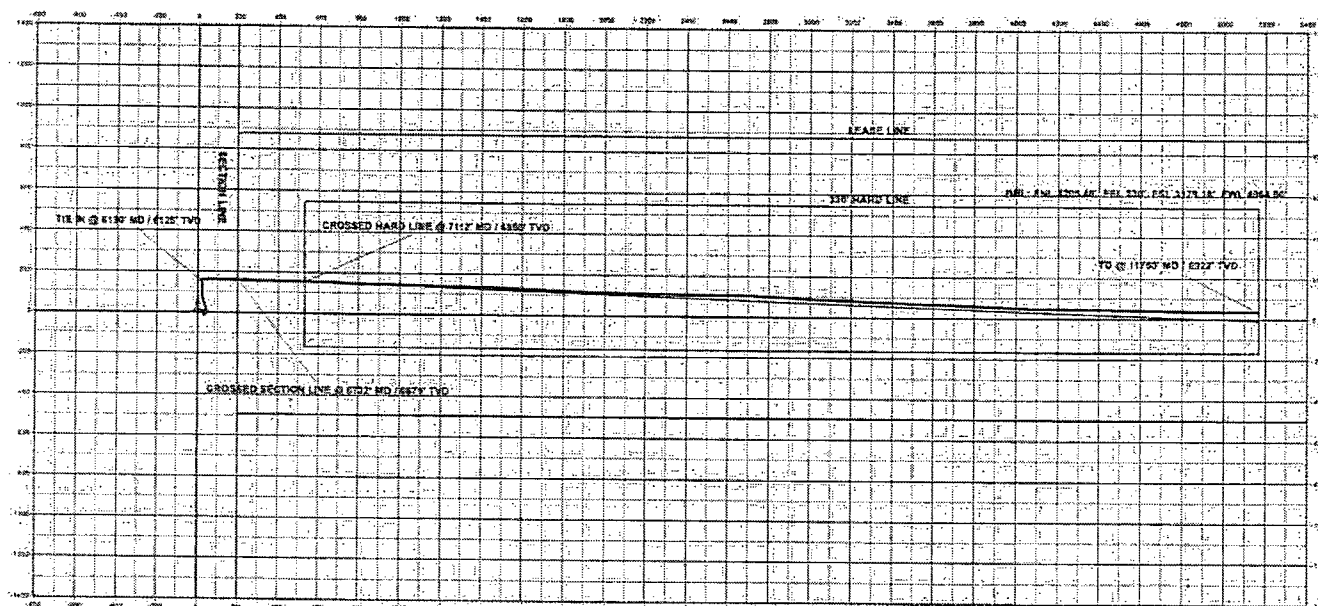
Mewbourne Oil Company



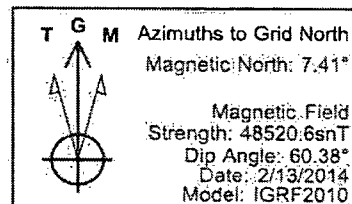
WELL DETAILS: Savage 5 EH Federal #1H			
Drilled Level:	3254.0		
+N/S	+E/W	Northing	Eastng
0.0	0.0	683446.80	670925.80
		Latitude Longitude	
		32° 36' 13.423 N 104° 5' 21.273 W	

DESIGN TARGET DETAILS							
Name	TVD	+N/S	+E/W	Northing	Eastng	Latitude	Longitude
PSHL Savage 5 EH Federal #1H DB1	8928.8	-6.4	6156.5	583438.38	575188.44	32° 36' 13.463 N	104° 5' 20.398 W
- plus h/b target center							

ANNOTATIONS											
MD	200	ASL	TVD	+N/S	+E/W	VSed	Departure	Amplitude			
8126.0	7.14	820.65	8124.8	163.4	19.4	19.1	223.4	TIS IN @ 8127 MD / 8125 TVD			
8751.9	42.10	82.80	8678.8	189.9	199.3	199.1	413.3	CROSSED SECTION LINE @ 8737 MD / 6837 TVD			
7161.7	82.83	91.73	6848.6	155.5	329.3	329.0	148.2	CROSSED HARD LINE @ 7167 MD / 6847 TVD			
11753.0	87.89	90.30	8821.6	36.1	5184.2	5184.1	5880.2	TD @ 11759 MD / 8822 TVD			



Vertical Section at 90.09° (200 us/in)



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

Mewbourne Oil Co

Eddy County, New Mexico

Sec 6, T20S, R9E

Savage 5 EH Federal #1H

Wellbore #1

Design: Wellbore #1

DDC Survey Report

07 March, 2014



DDC
Survey Report



Company:	Mewbourne Oil Co.	Local Co-ordinate Reference:	Well Savage 5 EH Federal #1H
Project:	Eddy County, New Mexico	TVD Reference:	WELL @ 3306.0usft (Patterson #46)
Site:	Sec 6, T20S, R9E	MD Reference:	WELL @ 3306.0usft (Patterson #46)
Well:	Savage 5 EH Federal #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 6, T20S, R9E				
Site Position:		Northing:	585,555.00 usft	Latitude:	32° 36' 34.554 N
From:	Map	Easting:	568,460.40 usft	Longitude:	104° 6' 39.623 W
Position Uncertainty:	0.0 usft	Slot Radius:	13-3/16 "	Grid Convergence:	0.12 °

Well	Savage 5 EH Federal #1H					
Well Position	+N-S	0.0 usft	Northing:	583,446.80 usft	Latitude:	32° 36' 13.659 N
	+E-W	0.0 usft	Easting:	570,025.90 usft	Longitude:	104° 6' 21.373 W
Position Uncertainty		0.0 usft	Wellhead Elevation:	usft	Ground Level:	3,286.0 usft

Wellbore	Wellbore #1				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2010	2/13/2014	7.53	60.38	48,521

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	90.09	

Survey Program		Date 3/7/2014		
From (usft)	To (usft)	Survey (Wellbore)	Tool Name	Description
100.0	6,130.0	Gyro (Wellbore #1)	Good_gyro	Good Gyro
6,175.0	11,750.0	MWD (Wellbore #1)	MWD default	MWD - Standard

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	0.08	148.83	100.0	-0.1	0.0	0.0	0.08	0.08	0.00
200.0	0.28	42.63	200.0	0.1	0.2	0.2	0.31	0.20	-106.20
300.0	0.31	55.92	300.0	0.4	0.6	0.6	0.07	0.03	13.29
400.0	0.46	64.01	400.0	0.7	1.2	1.2	0.16	0.15	8.09
500.0	0.48	76.02	500.0	1.0	2.0	2.0	0.10	0.02	12.01
600.0	1.26	83.93	600.0	1.2	3.5	3.5	0.79	0.78	7.91
700.0	2.36	90.64	699.9	1.3	6.6	6.6	1.12	1.10	6.71
800.0	2.46	91.18	799.8	1.2	10.8	10.8	0.10	0.10	0.54
900.0	2.32	87.08	899.8	1.3	15.0	15.0	0.22	-0.14	-4.10

DDC
Survey Report



Company:	Mowbourne Oil Co	Local Co-ordinate Reference:	Well Savage 5 EH Federal #1H
Project:	Eddy County, New Mexico	TVD Reference:	WELL @ 3306.0usft (Patterson #46)
Site:	Sec 6, T20S, R9E	MD Reference:	WELL @ 3306.0usft (Patterson #46)
Well:	Savage 5 EH Federal #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	2.11	89.87	999.7	1.4	18.9	18.9	0.24	-0.21	2.79
1,100.0	1.91	83.25	1,099.6	1.6	22.4	22.4	0.31	-0.20	-6.62
1,200.0	1.45	89.09	1,199.6	1.8	25.3	25.3	0.49	-0.46	5.84
1,300.0	1.18	88.29	1,299.5	1.9	27.6	27.6	0.27	-0.27	-0.80
1,400.0	0.95	63.47	1,399.5	2.3	29.3	29.3	0.51	-0.23	-24.82
1,500.0	0.47	323.46	1,499.5	3.0	29.8	29.8	1.13	-0.48	-100.01
1,600.0	1.52	171.63	1,599.5	2.0	29.8	29.8	1.95	1.05	-151.83
1,700.0	2.56	162.27	1,699.5	-1.4	30.7	30.7	1.09	1.04	-9.36
1,800.0	3.07	162.01	1,799.3	-6.1	32.2	32.2	0.51	0.51	-0.26
1,900.0	3.25	155.92	1,899.2	-11.3	34.2	34.2	0.38	0.18	-6.09
2,000.0	1.28	127.13	1,999.1	-14.5	36.2	36.2	2.22	-1.97	-28.79
2,100.0	1.67	15.78	2,099.1	-13.8	37.5	37.5	2.45	0.39	-111.35
2,200.0	2.74	5.47	2,199.0	-10.0	38.1	38.1	1.14	1.07	-10.31
2,300.0	2.66	6.72	2,298.9	-5.3	38.6	38.6	0.10	-0.08	1.25
2,400.0	3.16	13.28	2,398.8	-0.3	39.5	39.5	0.60	0.50	6.56
2,500.0	3.53	10.28	2,498.6	5.4	40.7	40.7	0.41	0.37	-3.00
2,600.0	3.75	8.36	2,598.4	11.6	41.7	41.7	0.25	0.22	-1.92
2,700.0	4.10	347.02	2,698.2	18.4	41.4	41.4	1.49	0.35	-21.34
2,800.0	4.74	342.01	2,797.9	25.8	39.3	39.3	0.75	0.64	-5.01
2,900.0	4.46	340.37	2,897.5	33.4	36.7	36.7	0.31	-0.28	-1.64
3,000.0	4.26	338.77	2,997.3	40.5	34.1	34.0	0.23	-0.20	-1.60
3,100.0	3.70	338.72	3,097.0	47.0	31.6	31.5	0.56	-0.56	-0.05
3,200.0	3.26	341.23	3,196.8	52.7	29.5	29.4	0.47	-0.44	2.51
3,300.0	2.81	344.57	3,296.7	57.7	27.9	27.8	0.48	-0.45	3.34
3,400.0	2.60	346.14	3,396.6	62.3	26.7	26.6	0.22	-0.21	1.57
3,500.0	2.37	346.05	3,496.5	66.5	25.7	25.6	0.23	-0.23	-0.09
3,600.0	2.25	343.86	3,596.4	70.4	24.6	24.5	0.15	-0.12	-2.19
3,700.0	1.71	345.86	3,696.3	73.7	23.7	23.6	0.54	-0.54	2.00
3,800.0	1.47	347.57	3,796.3	76.4	23.1	23.0	0.24	-0.24	1.71
3,900.0	1.38	346.72	3,896.3	78.8	22.5	22.4	0.09	-0.09	-0.85
4,000.0	1.44	350.17	3,996.2	81.2	22.0	21.9	0.10	0.06	3.45
4,100.0	1.36	359.18	4,096.2	83.7	21.8	21.7	0.23	-0.08	9.01
4,200.0	1.13	11.69	4,196.2	85.8	22.0	21.9	0.35	-0.23	12.51
4,300.0	1.11	11.88	4,296.2	87.7	22.4	22.3	0.02	-0.02	0.19
4,400.0	1.15	8.49	4,396.1	89.7	22.7	22.6	0.08	0.04	-3.39
4,500.0	1.13	9.87	4,496.1	91.6	23.1	22.9	0.03	-0.02	1.38
4,600.0	1.23	1.76	4,596.1	93.7	23.3	23.1	0.19	0.10	-8.11
4,700.0	1.37	2.20	4,696.1	95.9	23.3	23.2	0.14	0.14	0.44
4,800.0	1.57	1.48	4,796.0	98.5	23.4	23.3	0.20	0.20	-0.72
4,900.0	1.75	4.56	4,896.0	101.4	23.6	23.4	0.20	0.18	3.08
5,000.0	2.06	3.36	4,996.0	104.7	23.8	23.6	0.31	0.31	-1.20
5,100.0	2.27	3.89	5,095.9	108.5	24.0	23.9	0.21	0.21	0.53
5,200.0	2.54	4.63	5,195.8	112.7	24.4	24.2	0.27	0.27	0.74

DDC
Survey Report



Company:	Mewbourne Oil Co.	Local Co-ordinate Reference:	Well Savage 5 EH Federal #1H
Project:	Eddy County, New Mexico	TVD Reference:	WELL @ 3306.0usft (Patterson #46)
Site:	Sec 6, T20S, R9E	MD Reference:	WELL @ 3306.0usft (Patterson #46)
Well:	Savage 5 EH Federal #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	2.71	0.07	5,295.7	117.2	24.5	24.4	0.27	0.17	-4.56
5,400.0	2.91	358.23	5,395.6	122.1	24.5	24.3	0.22	0.20	-1.84
5,500.0	2.97	0.46	5,495.4	127.3	24.4	24.2	0.13	0.06	2.23
5,600.0	2.85	0.53	5,595.3	132.4	24.4	24.2	0.12	-0.12	0.07
5,700.0	2.64	358.42	5,695.2	137.1	24.4	24.2	0.23	-0.21	-2.11
5,800.0	2.43	351.16	5,795.1	141.5	24.0	23.8	0.38	-0.21	-7.26
5,900.0	2.31	346.09	5,895.0	145.6	23.2	23.0	0.24	-0.12	-5.07
6,000.0	2.14	336.94	5,994.9	149.3	22.0	21.8	0.39	-0.17	-9.15
6,100.0	2.33	324.14	6,094.9	152.6	20.1	19.8	0.53	0.19	-12.80
TIE IN @ 6130' MD / 6125' TVD									
6,130.0	2.13	320.65	6,124.8	153.6	19.4	19.1	0.81	-0.67	-11.63
6,175.0	2.10	318.40	6,169.8	154.8	18.3	18.0	0.20	-0.07	-5.00
6,206.0	1.80	312.60	6,200.8	155.6	17.5	17.3	1.16	-0.97	-18.71
6,238.0	1.90	323.00	6,232.8	156.3	16.9	16.6	1.09	0.31	32.50
6,270.0	2.50	59.50	6,264.8	157.1	17.1	16.9	10.33	1.88	301.56
6,302.0	6.60	77.60	6,296.6	167.8	19.6	19.3	13.42	12.81	66.66
6,334.0	9.30	81.80	6,328.3	158.6	23.9	23.6	8.63	8.44	13.13
6,365.0	12.10	81.90	6,358.8	159.4	29.6	29.3	9.03	9.03	0.32
6,397.0	15.30	81.90	6,389.9	160.5	37.1	36.8	10.00	10.00	0.00
6,429.0	18.80	86.00	6,420.5	161.5	46.4	46.2	11.56	10.94	12.81
6,461.0	21.80	89.50	6,450.5	161.9	57.5	57.3	10.11	9.38	10.94
6,493.0	23.60	91.10	6,480.0	161.8	69.9	69.6	5.95	5.63	5.00
6,525.0	25.50	92.30	6,509.1	161.4	83.1	82.9	6.14	5.94	3.75
6,557.0	28.00	92.00	6,537.7	160.9	97.5	97.3	7.82	7.81	-0.94
6,589.0	31.10	90.40	6,564.6	160.6	112.8	112.6	10.32	10.00	-5.16
6,620.0	34.00	89.70	6,591.6	160.5	130.0	129.8	9.14	9.06	-2.19
6,652.0	36.40	90.20	6,617.8	160.6	148.5	148.2	7.55	7.50	1.56
6,684.0	39.20	91.40	6,643.0	160.3	168.1	167.8	9.05	8.75	3.75
6,716.0	41.90	92.80	6,667.4	159.5	188.9	188.6	8.90	8.44	4.38
CROSSED SECTION LINE @ 6732' MD / 6678' TVD									
6,731.5	43.10	92.90	6,678.8	159.0	199.3	199.1	7.75	7.74	0.66
6,747.0	44.30	93.00	6,690.0	158.4	210.0	209.8	7.75	7.74	0.63
6,779.0	46.50	92.30	6,712.5	157.4	232.8	232.5	7.05	6.88	-2.19
6,811.0	49.80	91.80	6,733.8	156.5	256.6	256.4	10.38	10.31	-1.56
6,843.0	53.80	90.40	6,753.6	156.1	281.7	281.5	12.96	12.50	-4.38
6,874.0	57.70	90.40	6,771.0	155.9	307.4	307.1	12.58	12.58	0.00
6,907.0	60.50	90.20	6,788.0	155.7	335.7	335.4	8.50	8.48	-0.61
6,939.0	64.00	89.90	6,802.9	155.7	364.0	363.7	10.97	10.94	-0.94
6,971.0	67.40	89.90	6,816.0	155.8	393.1	392.9	10.63	10.63	0.00
7,003.0	71.80	89.90	6,827.2	155.8	423.1	422.9	13.75	13.75	0.00
7,035.0	75.70	89.50	6,836.2	156.0	453.8	453.6	12.25	12.19	-1.25
7,066.0	79.00	90.00	6,842.9	156.1	484.1	483.8	10.76	10.65	1.61
7,098.0	82.30	91.10	6,848.1	155.8	515.7	515.4	10.86	10.31	3.44
CROSSED HARD LINE @ 7112' MD / 6850' TVD									

DDC
Survey Report



Company:	Mewbourne Oil Co.	Local Co-ordinate Reference:	Well Savage 5 EH Federal #1H
Project:	Eddy County, New Mexico	TVD Reference:	WELL @ 3306.0usft (Patterson #46)
Site:	Soc 6, T20S, R9E	MD Reference:	WELL @ 3306.0usft (Patterson #46)
Well:	Savage 5 EH Federal #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)	
7,111.7	83.83	91.73	6,849.8	155.5	529.3	529.0	12.06	11.15	4.63	
7,124.0	85.20	92.30	6,851.0	155.0	541.5	541.2	12.06	11.16	4.60	
7,218.0	89.10	91.10	6,855.6	152.3	635.3	635.1	4.34	4.15	-1.28	
7,281.0	88.60	92.20	6,856.9	150.4	698.3	698.0	1.92	-0.79	1.75	
7,312.0	88.10	92.20	6,857.8	149.2	729.2	729.0	1.61	-1.61	0.00	
7,375.0	87.60	91.80	6,860.2	147.1	792.2	791.9	1.02	-0.79	-0.63	
7,439.0	88.20	90.70	6,862.5	145.7	856.1	855.9	1.96	0.94	-1.72	
7,502.0	87.90	90.70	6,864.6	144.9	919.1	918.8	0.48	-0.48	0.00	
7,565.0	88.50	90.90	6,866.6	144.0	982.0	981.8	1.00	0.95	0.32	
7,629.0	89.00	90.90	6,868.0	143.0	1,046.0	1,045.8	0.78	0.78	0.00	
7,692.0	89.90	90.90	6,868.6	142.0	1,109.0	1,108.8	1.43	1.43	0.00	
7,756.0	88.80	90.70	6,869.4	141.1	1,173.0	1,172.7	1.75	-1.72	-0.31	
7,819.0	90.80	91.40	6,869.6	140.0	1,236.0	1,235.7	3.36	3.17	1.11	
7,882.0	90.50	91.30	6,868.9	138.5	1,298.9	1,298.7	0.50	-0.48	-0.16	
7,946.0	90.60	91.40	6,868.2	137.0	1,362.9	1,362.7	0.22	0.16	0.16	
8,009.0	90.80	91.60	6,867.5	135.3	1,425.9	1,425.7	0.45	0.32	0.32	
8,072.0	89.70	92.20	6,867.2	133.2	1,488.8	1,488.6	1.99	-1.75	0.95	
8,136.0	88.90	92.70	6,868.0	130.5	1,552.8	1,552.6	1.47	-1.25	0.78	
8,199.0	88.30	92.50	6,869.5	127.6	1,615.7	1,615.5	1.00	-0.95	-0.32	
8,262.0	87.80	92.00	6,871.7	125.2	1,678.6	1,678.4	1.12	-0.79	-0.79	
8,326.0	87.40	92.30	6,874.3	122.8	1,742.5	1,742.3	0.78	-0.63	0.47	
8,389.0	87.20	92.30	6,877.3	120.2	1,805.4	1,805.2	0.32	-0.32	0.00	
8,452.0	88.40	92.80	6,879.7	117.4	1,868.3	1,868.1	2.06	1.90	0.79	
8,516.0	89.50	92.30	6,880.9	114.6	1,932.2	1,932.0	1.89	1.72	-0.78	
8,579.0	88.50	90.60	6,882.0	113.0	1,995.2	1,995.0	3.13	-1.59	-2.70	
8,642.0	89.30	91.30	6,883.2	112.0	2,058.2	2,058.0	1.69	1.27	1.11	
8,706.0	89.30	91.30	6,884.0	110.5	2,122.1	2,122.0	0.00	0.00	0.00	
8,769.0	89.90	90.70	6,884.4	109.4	2,185.1	2,184.9	1.35	0.95	-0.95	
8,833.0	89.30	90.60	6,884.9	108.7	2,249.1	2,248.9	0.95	-0.94	-0.16	
8,896.0	90.10	91.30	6,885.2	107.6	2,312.1	2,311.9	1.69	1.27	1.11	
8,959.0	89.70	91.30	6,885.3	106.2	2,375.1	2,374.9	0.63	-0.63	0.00	
9,023.0	88.40	90.20	6,886.4	105.4	2,439.1	2,438.9	2.66	-2.03	-1.72	
9,086.0	88.10	89.50	6,888.3	105.5	2,502.0	2,501.9	1.21	-0.48	-1.11	
9,149.0	88.60	90.40	6,890.1	105.6	2,565.0	2,564.8	1.63	0.79	1.43	
9,212.0	89.10	90.60	6,891.4	105.0	2,628.0	2,627.8	0.85	0.79	0.32	
9,276.0	89.80	91.80	6,892.0	103.7	2,692.0	2,691.8	2.17	1.09	1.88	
9,339.0	90.00	91.80	6,892.1	101.7	2,754.9	2,754.8	0.32	0.32	0.00	
9,402.0	90.80	92.70	6,891.7	99.3	2,817.9	2,817.7	1.91	1.27	1.43	
9,465.0	90.50	93.20	6,891.0	96.0	2,880.8	2,880.7	0.93	-0.48	0.79	
9,529.0	89.90	93.40	6,890.7	92.3	2,944.7	2,944.6	0.99	-0.94	0.31	
9,592.0	89.10	92.70	6,891.3	89.0	3,007.6	3,007.5	1.69	-1.27	-1.11	
9,656.0	88.50	92.50	6,892.6	86.1	3,071.5	3,071.4	0.99	-0.94	-0.31	
9,719.0	87.90	92.50	6,894.6	83.3	3,134.4	3,134.3	0.95	-0.95	0.00	

DDC
Survey Report



Company:	Mewbourne Oil Co	Local Co-ordinate Reference:	Well Savage 5 EH Federal #1H
Project:	Eddy County, New Mexico	TVD Reference:	WELL @ 3306.0usft (Patterson #46)
Site:	Sec 6, T20S, R9E	MD Reference:	WELL @ 3306.0usft (Patterson #46)
Well:	Savage 5 EH Federal #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)
9,782.0	88.60	92.30	6,896.5	80.7	3,197.4	3,197.2	1.16	1.11	-0.32
9,846.0	88.80	92.50	6,898.0	78.0	3,261.3	3,261.2	0.44	0.31	0.31
9,909.0	88.80	92.00	6,899.3	75.5	3,324.2	3,324.1	0.79	0.00	-0.79
9,972.0	88.30	91.60	6,900.9	73.6	3,387.2	3,387.0	1.02	-0.79	-0.63
10,036.0	88.20	92.00	6,902.8	71.5	3,451.1	3,451.0	0.64	-0.16	0.63
10,099.0	88.30	91.80	6,904.8	69.5	3,514.0	3,513.9	0.35	0.16	-0.32
10,162.0	87.70	91.60	6,907.0	67.6	3,577.0	3,576.9	1.00	-0.95	-0.32
10,225.0	88.10	91.80	6,909.3	65.7	3,639.9	3,639.8	0.71	0.63	0.32
10,288.0	89.70	92.30	6,910.5	63.5	3,702.9	3,702.7	2.66	2.54	0.79
10,351.0	90.30	92.70	6,910.5	60.7	3,765.8	3,765.7	1.14	0.95	0.63
10,415.0	90.40	92.30	6,910.1	57.9	3,829.7	3,829.6	0.64	0.16	-0.63
10,478.0	90.70	92.30	6,909.5	55.4	3,892.7	3,892.6	0.48	0.48	0.00
10,541.0	90.30	92.80	6,908.9	52.6	3,955.6	3,955.5	1.02	-0.63	0.79
10,604.0	90.00	92.30	6,908.8	49.8	4,018.5	4,018.5	0.93	-0.48	-0.79
10,668.0	89.10	90.90	6,909.3	48.0	4,082.5	4,082.4	2.60	-1.41	-2.19
10,731.0	88.40	89.70	6,910.7	47.7	4,145.5	4,145.4	2.20	-1.11	-1.90
10,794.0	88.90	89.90	6,912.1	47.9	4,208.5	4,208.4	0.85	0.79	0.32
10,857.0	89.50	91.10	6,913.0	47.4	4,271.5	4,271.4	2.13	0.95	1.90
10,920.0	89.00	91.10	6,913.8	46.1	4,334.5	4,334.4	0.79	-0.79	0.00
10,984.0	88.40	90.70	6,915.3	45.1	4,398.4	4,398.4	1.13	-0.94	-0.63
11,047.0	88.60	90.60	6,916.9	44.4	4,461.4	4,461.3	0.35	0.32	-0.16
11,110.0	90.60	90.60	6,917.4	43.8	4,524.4	4,524.3	3.17	3.17	0.00
11,173.0	91.10	91.10	6,916.4	42.8	4,587.4	4,587.3	1.12	0.79	0.79
11,237.0	91.00	91.10	6,915.3	41.6	4,651.4	4,651.3	0.16	-0.16	0.00
11,332.0	90.60	91.10	6,913.9	39.8	4,746.3	4,746.3	0.42	-0.42	0.00
11,427.0	89.80	90.90	6,913.6	38.1	4,841.3	4,841.3	0.87	-0.84	-0.21
11,522.0	88.80	90.20	6,914.8	37.2	4,936.3	4,936.2	1.28	-1.05	-0.74
11,617.0	88.60	90.40	6,916.9	36.7	5,031.3	5,031.2	0.30	-0.21	0.21
11,695.0	88.10	90.20	6,919.2	36.3	5,109.2	5,109.2	0.69	-0.64	-0.26
TD @ 11750' MD / 6922' TVD									
11,750.0	87.00	90.20	6,921.5	36.1	5,164.2	5,164.1	2.00	-2.00	0.00

Design Annotations				
Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates		Comment
		+N/-S (usft)	+E/-W (usft)	
6,130.0	6,124.8	153.6	19.4	TIE IN @ 6130' MD / 6125' TVD
6,731.5	6,678.8	159.0	199.3	CROSSED SECTION LINE @ 6732' MD / 6679' TVD
7,111.7	6,849.8	155.5	529.3	CROSSED HARD LINE @ 7112' MD / 6850' TVD
11,750.0	6,921.5	36.1	5,164.2	TD @ 11750' MD / 6922' TVD

Checked By: _____	Approved By: _____	Date: _____
-------------------	--------------------	-------------

Operating Company Mewbourne Oil Co.
Well Name & Number SAVAGE 5 EH FED 1H
Sales Ticket Number 6207439
Date 3/4/2014

Company Rep LARRY SUTTON
Field 0
BOT Service Rep Anthony Thomas
District Location Odessa, TX



	Size	Weight	Grade	ID	Drift	Thread	Capacity	Length	Burst	Collapse		
Casing	7.000	26.00	830000	6.276	6.151	LTC / 8RD	0.03826	7,170.00	9,960	6,230		
Top Liner	4.000	13.50	0	3.920	3.795	LTC / 8RD	0.01493	4,772.81	12,410	10,680		
Bott Liner	0.000	0.00	0	0.000	0.000	0	0.00000	-	-	-		
TVD		6921.00		KOP		6165.00		Open Hole		6.125	Casing Vol. (bbl)	265.7
Carry Fluid Weight (ppg)			8.4		Propan Content (ppa)					Max Drill Out Size		0

	Comm. Number	Description	Depth	Length	OD	ID	Ball Seat ID	Shear Press	Max Rate (BPM)	Displ (BBL)
Liner Top	1	10292414	JR SETTING SLEEVE	6944.13	4.00	5.750	3.938			

Zone Length

H409400010	S3 CASING HANGING PACKER	6948.13	4.62	5.875	3.875		1670		
H409400010	4.5 VAMTOP x 4.5 LT&C XO	6952.75	0.98	5.000	3.875				
H299900281	4.5 LT&C x 4.4 LT&C CLR	6953.73	0.69	5.000	NA				
H29910014	4.5 LT&C 13.5# NIPPLE	6954.32	5.43	4.500	3.875				
	(7) 4.5 LT&C 13.5# P110 CSG/JNTS	6959.75	278.96	4.500	3.875				
H10090200	3.500" EXPress Sleeve	7238.71	2.40	5.750	3.845	3.400	2286	289	266
	(3) 4.5 LT&C 13.5# P110 JNTS/CSG	7241.11	121.13	4.500	3.875				
H409360006	582 OH PACKER	7362.24	3.89	5.820	3.875		2154		
	(3) 4.5 LT&C 13.5# P110 JNTS/CSG	7366.13	119.17	4.500	3.875				
H10090199	3.438" EXPress Sleeve	7485.30	2.40	5.750	3.845	3.385	2286	286	266
	(3) 4.5 LT&C 13.5# P110 JNTS/CSG	7487.70	119.09	4.500	3.875				
H409360006	582 OH PACKER	7606.79	3.89	5.820	3.875		2154		
	(3) 4.5 LT&C 13.5# P110 JNTS/CSG	7610.68	118.28	4.500	3.875				
H10090198	3.375" EXPress Sleeve	7728.96	2.40	5.750	3.845	3.323	2286	276	266
	(3) 4.5 LT&C 13.5# P110 JNTS/CSG	7731.36	117.79	4.500	3.875				
H409360006	582 OH PACKER	7849.15	3.89	5.820	3.875		2154		
	(2) 4.5 LT&C 13.5# P110 JNTS/CSG	7853.04	81.75	4.500	3.875				
	3.313" EXPress Sleeve	7934.79	2.40	5.750	3.845	3.260	2286	265	266
	(3) 4.5 LT&C 13.5# P110 JNTS/CSG	7937.19	119.32	4.500	3.875				
H409360006	582 OH PACKER	8056.51	3.89	5.820	3.875		2154		
	(3) 4.5 LT&C 13.5# P110 JNTS/CSG	8060.40	122.06	4.500	3.875				
	3.25" EXPress Sleeve	8182.46	2.40	5.750	3.845	3.198	2286	255	266

Operating Company Mewbourne Oil Co.
Well Name & Number SAVAGE 5 EH FED 1H
Sales Ticket Number 6207439
Date 3/4/2014

Company Rep LARRY SUTTON
Field 0
BOT Service Rep Anthony Thomas
District Location Odessa, TX



	Size	Weight	Grade	ID	Drift	Thread	Capacity	Length	Burst	Collapse	
Casing	7.000	26.00	830000	6.276	6.151	LTC / 8RD	0.03826	7,170.00	9,960	6,230	
Top Liner	4.000	13.50	0	3.920	3.795	LTC / 8RD	0.01493	4,772.81	12,410	10,680	
Bott Liner	0.000	0.00	0	0.000	0.000	0	0.00000	-	-	-	
TVD		6921.00		KOP		6165.00		Open Hole	6.125	Casing Vol. (bbl)	265.7
Carry Fluid Weight (ppg)			8.4		Propan Content (ppa)				Max Drill Out Size		0

Comm. Number	Description	Depth	Length	OD	ID	Ball Seal ID	Shear Press	Max Rate (BPM)	Disp (BBL)
	(3) 4.5 LT&C 13.5# P110 JNTS/CSG	8184.86	120.49	4.500	3.875				
H409360008	582 OH PACKER	8305.35	3.89	5.820	3.875		2154		
	(3) 4.5 LT&C 13.5# P110 JNTS/CSG	8309.24	120.25	4.500	3.875				
	3.25" EXPress Sleeve	8429.49	2.40	5.750	3.845	3.135	2286	245	266
	(3) 4.5 LT&C 13.5# P110 JNTS/CSG	8431.89	122.26	4.500	3.875				
H409360008	582 OH PACKER	8554.15	3.89	5.820	3.875		2154		
	(2) 4.5 LT&C 13.5# P110 JNTS/CSG	8558.04	79.25	4.500	3.875				
	3.125" EXPress Sleeve	8637.29	2.40	5.750	3.845	3.073	2286	236	266
	(3) 4.5 LT&C 13.5# P110 JNTS/CSG	8639.69	117.14	4.500	3.875				
H409360008	582 OH PACKER	8756.83	3.89	5.820	3.875		2154		
	(3) 4.5 LT&C 13.5# P110 JNTS/CSG	8760.72	120.05	4.500	3.875				
	3.063" EXPress Sleeve	8880.77	2.40	5.750	3.845	3.010	2286	226	266
	(3) 4.5 LT&C 13.5# P110 JNTS/CSG	8883.17	119.89	4.500	3.875				
H409360008	582 OH PACKER	9003.06	3.89	5.820	3.875		2154		
	(3) 4.5 LT&C 13.5# P110 JNTS/CSG	9006.95	118.29	4.500	3.875				
	3.000" EXPress Sleeve	9125.24	2.40	5.750	3.845	2.948	2286	217	266
	(3) 4.5 LT&C 13.5# P110 JNTS/CSG	9127.64	118.27	4.500	3.875				
H409360008	582 OH PACKER	9245.91	3.89	5.820	3.875		2154		
	(3) 4.5 LT&C 13.5# P110 JNTS/CSG	9249.80	119.59	4.500	3.875				
	2.938" EXPress Sleeve	9369.39	2.40	5.750	3.845	2.885	2286	208	266
	(2) 4.5 LT&C 13.5# P110 JNTS/CSG	9371.79	80.93	4.500	3.875				
H409360008	582 OH PACKER	9452.72	3.89	5.820	3.875		2154		
	(3) 4.5 LT&C 13.5# P110 JNTS/CSG	9456.61	121.68	4.500	3.875				
	2.875" EXPress Sleeve	9578.29	2.40	5.750	3.845	2.823	2286	199	266
	(3) 4.5 LT&C 13.5# P110 JNTS/CSG	9580.69	119.86	4.500	3.875				
H409360008	582 OH PACKER	9700.55	3.89	5.820	3.875		2154		

Operating Company Mewbourne Oil Co.
Well Name & Number SAVAGE 5 EH FED 1H
Sales Ticket Number 6207439
Date 3/4/2014

Company Rep LARRY SUTTON
Field 0
BOT Service Rep Anthony Thomas
District Location Odessa, TX



	Size	Weight	Grade	ID	Drift	Thread	Capacity	Length	Burst	Collapse	
Casing	7.000	26.00	830000	6.276	6.151	LTC / 8RD	0.03826	7,170.00	9,960	6,230	
Top Liner	4.000	13.50	0	3.920	3.795	LTC / 8RD	0.01493	4,772.81	12,410	10,680	
Bott Liner	0.000	0.00	0	0.000	0.000	0	0.00000	-	-	-	
TVD		6921.00		KOP		6165.00		Open Hole	6.125	Casing Vol. (bbl)	265.7
Carry Fluid Weight (ppg)			8.4		Propan Content (ppa)				Max Drill Out Size		0

Comm. Number	Description	Depth	Length	OD	ID	Ball Seat ID	Shear Press.	Max. Rate (BPM)	Displ. (BBL)
	(3) 4.5 LT&C 13.5# P110 JNTS/CSG	9704.44	120.17	4.500	3.875				
	2.813" EXPress Sleeve	9824.61	2.40	5.750	3.845	2.760	2286	190	266
	(3) 4.5 LT&C 13.5# P110 JNTS/CSG	9827.01	116.45	4.500	3.875				
H409360008	582 OH PACKER	9943.46	3.89	5.820	3.875		2154		
	(3) 4.5 LT&C 13.5# P110 JNTS/CSG	9947.35	119.42	4.500	3.875				
	2.75" EXPress Sleeve	10066.77	2.40	5.750	3.845	2.698	2286	182	266
	(3) 4.5 LT&C 13.5# P110 JNTS/CSG	10069.17	120.77	4.500	3.875				
H409360008	582 OH PACKER	10189.94	3.89	5.820	3.875		2154		
	(3) 4.5 LT&C 13.5# P110 JNTS/CSG	10193.83	120.44	4.500	3.875				
	2.688" EXPress Sleeve	10314.27	2.40	5.750	3.845	2.635	2286	173	266
	(3) 4.5 LT&C 13.5# P110 JNTS/CSG	10316.67	77.64	4.500	3.875				
H409360008	582 OH PACKER	10394.31	3.89	5.820	3.875		2154		
	(3) 4.5 LT&C 13.5# P110 JNTS/CSG	10398.20	119.66	4.500	3.875				
	2.625" EXPress Sleeve	10517.86	2.40	5.750	3.845	2.525	2286	159	266
	(3) 4.5 LT&C 13.5# P110 JNTS/CSG	10520.26	120.95	4.500	3.875				
H409360008	582 OH PACKER	10641.21	3.89	5.820	3.875		2154		
	(3) 4.5 LT&C 13.5# P110 JNTS/CSG	10645.10	119.71	4.500	3.875				
	2.563" EXPress Sleeve	10764.81	2.40	5.750	3.845	2.510	2286	157	266
	(4) 4.5 LT&C 13.5# P110 JNTS/CSG	10767.21	157.93	4.500	3.875				
H409360008	582 OH PACKER	10925.14	3.89	5.820	3.875		2154		
	(2) 4.5 LT&C 13.5# P110 JNTS/CSG	10929.03	78.11	4.500	3.875				
	2.500" EXPress Sleeve	11007.14	2.40	5.750	3.845	2.400	2286	144	266
	(3) 4.5 LT&C 13.5# P110 JNTS/CSG	11009.54	118.31	4.500	3.875				
H409360008	582 OH PACKER	11127.85	3.89	5.820	3.875		2154		
	(3) 4.5 LT&C 13.5# P110 JNTS/CSG	11131.74	117.32	4.500	3.875				
	2.438" EXPress Sleeve	11249.06	2.40	5.750	3.845	2.385	2286	142	266

Company Rep	LARRY SUTTON
Field	0
BOT Service Rep	Anthony Thomas
District Location	Odessa, TX



	Size	Weight	Grade	ID	Drift	Thread	Capacity	Length	Burst	Collapse
Casing	7.000	26.00	830000	6.276	6.151	LTC / 8RD	0.03826	7,170.00	9,960	6,230
Top Liner	4.000	13.50	0	3.920	3.795	LTC / 8RD	0.01493	4,772.81	12,410	10,680
Bott Liner	0.000	0.00	0	0.000	0.000	0	0.00000	-	-	-
TVD		6921.00	KOP		6165.00	Open Hole		6.125	Casing Vol. (bbl)	265.7
Carry Fluid Weight (ppg)			8.4	Propan Content (ppa)				Max Drill Out Size		0

[illegible]

Frac-Point



Alpha Sleeve Performance Calculator

Date of Analysis: 6-Feb-14
 Engineer: Paul Nuseff
 Customer: Mewbourne
 Well Name: Savage 5 EH Fed #1H
 Field:
 End Connections: 4.5" 13.5# P110 LTC

Well Parameters

Static BHT: 120 deg F

Total Vertical Depth (TVD) @ Alpha Sleeve: 6,925 ft

RIH Completion Fluid Wt.: 8.5 ppg

Cement Wt.: NA ppg

Displacement Completion Fluid Wt.: 8.5 ppg

* Note - this is used to determine the opening pressure

Test and Shift Pressures

Approximate Casing Test Pressure: 7,000 psi

Min. Desired Shift Pressure: 7,000 psi

Max. Topside Pressure **: 8,000 psi

** Note - wellhead or casing pressure limit

Operational Pressures

Circulation Max Pressure: 1,000 psi

Max. Cementation Pumping Pressure: 0 psi

Max. Displacement Pressure: 2,000 psi

Additional Plug Bump Pressure: 0 psi

Notes:

Uncemented installation.
 In-tallic Ball Seat option.



Rev. L (11/13)

Option 1 18 Lower Pressure

Min Surface Pressure: 6,346 psi
 Nominal Surface Pressure: 6,738 psi
 Maximum Surface Pressure: 7,129 psi
 Min Absolute Pressure: 9,407 psi
 Nominal Absolute Pressure: 9,799 psi
 Maximum Absolute Pressure: 10,191 psi

RIH Circulation Buffer: 5,346 psi
 Cementation Buffer: #VALUE! psi
 Displacement Buffer: 4,346 psi

Testing Percentage of Nominal: 89%
 Approx. Casing Test Pressure should be under 90%

Max. Req. Pressure Percentage of Max. Allowable Topside Pressure: 89%

Max. Casing Test Pressure: 6,064 psi

Activator Part Number: 10412243

Option 2 19 Closest Selection

Min Surface Pressure: 6,841 psi
 Nominal Surface Pressure: 7,253 psi
 Maximum Surface Pressure: 7,666 psi
 Min Absolute Pressure: 9,902 psi
 Nominal Absolute Pressure: 10,315 psi
 Maximum Absolute Pressure: 10,727 psi

RIH Circulation Buffer: 5,841 psi
 Cementation Buffer: #VALUE! psi
 Displacement Buffer: 4,841 psi

Testing Percentage of Nominal: 90%
 Approx. Casing Test Pressure should be under 90%

Max. Req. Pressure Percentage of Max. Allowable Topside Pressure: 90%

Max. Casing Test Pressure: 6,528 psi

Activator Part Number: 10412244

Option 3 20 Higher Pressure

Min Surface Pressure: 7,336 psi
 Nominal Surface Pressure: 7,769 psi
 Maximum Surface Pressure: 8,202 psi
 Min Absolute Pressure: 10,397 psi
 Nominal Absolute Pressure: 10,830 psi
 Maximum Absolute Pressure: 11,264 psi

RIH Circulation Buffer: #VALUE! psi
 Cementation Buffer: #VALUE! psi
 Displacement Buffer: #VALUE! psi

Testing Percentage of Nominal: 90%
 Approx. Casing Test Pressure should be under 90%

Max. Req. Pressure Percentage of Max. Allowable Topside Pressure: 90%

Max. Casing Test Pressure: 6,992 psi

Activator Part Number: 10412245

Company Representative: X

Baker Hughes Representative: X

Date:

Date: