

Results of Directional Survey

API number:	30-025-40608		
OGRID:		Operator:	MEWBOURNE OIL CO
		Property:	RED HILLS WEST 22 AP FEDERAL COM # 1H

surface	ULSTR:	A	22	T 26S	R 32E
				150 FNL	990 FEL

BH Loc	ULSTR:	P	22	T 26S	R 32E
13998 MD		9457.5	TVD	273 FSL	859 FEL
				5007 FNL	

Top Perf/OH	ULSTR:	A	22	T 26S	R 32E
9876 MD		9442.9	TVD	889 FNL	946 FEL

Bot Perf/OH	ULSTR:	P	22	T 26S	R 32E
13960 MD		9457.0	TVD	311 FSL	860 FEL
				4969 FNL	

	MD	N/S	E/W	VD
	9783	-645.90	43.50	9440
TOP PERFS/OH	9876	-738.80	43.79	9442.91
	9879	-741.80	43.80	9443.00
	13945	-4804.20	129.70	9456.80
BOT PERFS/OH	13960	-4819.17	130.15	9457.00
	13998	-4857.10	131.30	9457.50

NEXT TO LAST	13945	-4804.20	129.70	9456.80
LAST READING	13998	-4857.10	131.30	9457.50
TD	13998	-4857.10	131.30	9457.50

Surface Location	150 FNL	990 FE
Projected BHL	5007 FNL	859 FE
Location of		
Top Perfs/OH	889 FNL	946 FE
Bottom Perfs/OH	4969 FNL	860 FE

SUMMARY of Subsurface Locations

Surface Location	A-22-26S-32E	150 FNL	990 FE	Vert. Depth
Top Perfs/OH	A-22-26S-32E	889 FNL	946 FE	9442.91
Bottom Perfs/OH	P-22-26S-32E	4969 FNL	860 FE	9457.00
Projected TD	P-22-26S-32E	5007 FNL	859 FE	9457.50



Rig Name: PATTERSON 41
State/County: NEW MEXICO/LEA
Latitude: 32.03

GRID North is 0.36 Degrees East of True North
VS-Azi: 0.00 Degrees



Depth Reference : 20 FEET

DRILLOG HA GYRO SURVEY CALCULATIONS

Filename: ... west 22 ap fedcom #1 h_ed.ut

Minimum Curvature Method

Report Date/Time: 7/25/2012 / 13:01

Vaughn Energy Services

Woodward, OK

580-254-5000

Surveyor: Nick Harding

Red Hills West 22 AP Fed Com No. 001H / API 30-025-40608

SUR: A-22-26s-32e, 150/N & 990/E
BHL: P-22-26s-32e, 5007/N & 859/E
API # 30-025-40608

HOBBS OCD
SEP 21 2012
RECEIVED

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	0.25	78.91	100.00	0.04	0.22	0.04	0.22	78.91	0.25
200.00	0.45	74.59	200.00	0.19	0.81	0.19	0.83	76.88	0.20
300.00	0.75	59.50	299.99	0.63	1.75	0.63	1.86	70.32	0.34
400.00	0.76	63.31	399.98	1.26	2.91	1.26	3.17	66.61	0.05
500.00	0.96	57.43	499.97	2.01	4.21	2.01	4.67	64.50	0.21
600.00	1.35	39.81	599.95	3.37	5.68	3.37	6.60	59.31	0.53
700.00	2.10	46.18	699.91	5.55	7.76	5.55	9.54	54.43	0.77
800.00	2.02	21.34	799.84	8.45	9.72	8.45	12.88	48.98	0.89
900.00	1.53	22.18	899.80	11.33	10.86	11.33	15.69	43.80	0.49
1000.00	1.30	20.91	999.76	13.62	11.77	13.62	18.00	40.84	0.24
1100.00	1.25	28.41	1099.74	15.63	12.69	15.63	20.13	39.07	0.17
1200.00	0.80	32.59	1199.72	17.18	13.59	17.18	21.90	38.34	0.45
1300.00	0.67	49.46	1299.72	18.14	14.40	18.14	23.17	38.44	0.25
1400.00	0.33	61.85	1399.71	18.66	15.10	18.66	24.00	38.99	0.35
1500.00	0.04	131.16	1499.71	18.77	15.39	18.77	24.27	39.34	0.32
1600.00	0.02	238.67	1599.71	18.74	15.40	18.74	24.26	39.41	0.05
1700.00	0.01	232.04	1699.71	18.73	15.38	18.73	24.24	39.39	0.01
1800.00	0.14	189.44	1799.71	18.61	15.36	18.61	24.13	39.53	0.13
1900.00	0.35	198.97	1899.71	18.20	15.24	18.20	23.74	39.93	0.22
2000.00	0.81	266.58	1999.71	17.87	14.43	17.87	22.97	38.92	0.75



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State/County: NEW MEXICO/LEA
Latitude: 32.03



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Surveyor: Nick Harding

Red Hills West 22 AP Fed Com No. 001H / API 30-025-40608

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	0.25	78.91	100.00	0.04	0.22	0.04	0.22	78.91	0.25
200.00	0.45	74.59	200.00	0.19	0.81	0.19	0.83	76.88	0.20
300.00	0.75	59.50	299.99	0.63	1.75	0.63	1.86	70.32	0.34
400.00	0.76	63.31	399.98	1.26	2.91	1.26	3.17	66.61	0.05
500.00	0.96	57.43	499.97	2.01	4.21	2.01	4.67	64.50	0.21
600.00	1.35	39.81	599.95	3.37	5.68	3.37	6.60	59.31	0.53
700.00	2.10	46.18	699.91	5.55	7.76	5.55	9.54	54.43	0.77
800.00	2.02	21.34	799.84	8.45	9.72	8.45	12.88	48.98	0.89
900.00	1.53	22.18	899.80	11.33	10.86	11.33	15.69	43.80	0.49
1000.00	1.30	20.91	999.76	13.62	11.77	13.62	18.00	40.84	0.24
1100.00	1.25	28.41	1099.74	15.63	12.69	15.63	20.13	39.07	0.17
1200.00	0.80	32.59	1199.72	17.18	13.59	17.18	21.90	38.34	0.45
1300.00	0.67	49.46	1299.72	18.14	14.40	18.14	23.17	38.44	0.25
1400.00	0.33	61.85	1399.71	18.66	15.10	18.66	24.00	38.99	0.35
1500.00	0.04	131.16	1499.71	18.77	15.39	18.77	24.27	39.34	0.32
1600.00	0.02	238.67	1599.71	18.74	15.40	18.74	24.26	39.41	0.05
1700.00	0.01	232.04	1699.71	18.73	15.38	18.73	24.24	39.39	0.01
1800.00	0.14	189.44	1799.71	18.61	15.36	18.61	24.13	39.53	0.13
1900.00	0.35	198.97	1899.71	18.20	15.24	18.20	23.74	39.93	0.22
2000.00	0.81	266.58	1999.71	17.87	14.43	17.87	22.97	38.92	0.75

Depth FT	Angle Deg	Direction Deg	TVD FT	+N/-S FT	+E/-W FT	Section FT	Distance FT	Direction Deg	Severity Deg/100
2100.00	1.11	258.24	2099.69	17.64	12.78	17.64	21.78	35.94	0.33
2200.00	1.10	258.92	2199.67	17.25	10.90	17.25	20.41	32.27	0.01
2300.00	0.82	294.74	2299.66	17.37	9.30	17.37	19.70	28.17	0.65
2400.00	1.04	307.34	2399.65	18.22	7.94	18.22	19.87	23.54	0.30
2500.00	0.83	320.58	2499.63	19.33	6.75	19.33	20.47	19.27	0.29
2600.00	0.92	308.86	2599.62	20.39	5.67	20.39	21.17	15.53	0.20
2700.00	1.12	301.90	2699.61	21.41	4.21	21.41	21.82	11.13	0.24
2800.00	1.16	282.61	2799.59	22.15	2.40	22.15	22.28	6.18	0.38
2900.00	1.06	247.74	2899.57	22.02	0.56	22.02	22.03	1.46	0.67
3000.00	0.96	246.13	2999.55	21.33	-1.05	21.33	21.36	357.17	0.10
3100.00	0.41	233.95	3099.55	20.78	-2.11	20.78	20.89	354.20	0.56
3200.00	0.95	99.87	3199.54	20.43	-1.58	20.43	20.49	355.56	1.27
3300.00	1.63	68.94	3299.52	20.80	0.56	20.80	20.80	1.54	0.95
3400.00	1.62	59.79	3399.48	22.02	3.11	22.02	22.24	8.03	0.26
3500.00	1.55	64.54	3499.44	23.31	5.55	23.31	23.96	13.40	0.15
3600.00	1.22	51.22	3599.41	24.56	7.61	24.56	25.71	17.20	0.46
3700.00	1.02	77.55	3699.39	25.42	9.30	25.42	27.07	20.10	0.55
3800.00	1.21	76.42	3799.37	25.86	11.20	25.86	28.18	23.42	0.19
3900.00	1.96	82.47	3899.33	26.33	13.93	26.33	29.79	27.87	0.77
4000.00	2.12	92.72	3999.27	26.47	17.47	26.47	31.72	33.43	0.39
4100.00	2.06	113.55	4099.21	25.66	20.97	25.66	33.14	39.25	0.76
4200.00	2.76	126.67	4199.12	23.51	24.55	23.51	33.99	46.24	0.89
4300.00	2.95	117.57	4298.99	20.88	28.76	20.88	35.54	54.03	0.49
4400.00	2.22	130.97	4398.89	18.41	32.51	18.41	37.36	60.47	0.94
4500.00	2.00	140.88	4498.82	15.79	35.07	15.79	38.46	65.76	0.42
4600.00	1.56	130.73	4598.78	13.55	37.20	13.55	39.59	69.99	0.54
4700.00	1.26	145.43	4698.75	11.76	38.85	11.76	40.59	73.16	0.47
4800.00	1.25	150.26	4798.72	9.91	40.02	9.91	41.23	76.09	0.11
4900.00	1.03	163.92	4898.70	8.10	40.80	8.10	41.60	78.77	0.35
5000.00	1.18	153.94	4998.68	6.32	41.51	6.32	41.98	81.35	0.24
5100.00	0.82	151.25	5098.67	4.76	42.30	4.76	42.57	83.58	0.36
5200.00	0.75	163.56	5198.66	3.50	42.83	3.50	42.98	85.32	0.18
5300.00	0.62	177.09	5298.65	2.34	43.05	2.34	43.11	86.89	0.21
5400.00	0.45	160.87	5398.65	1.42	43.20	1.42	43.23	88.11	0.22
5500.00	0.39	211.08	5498.65	0.76	43.16	0.76	43.16	88.99	0.36
5600.00	0.35	212.01	5598.64	0.22	42.82	0.22	42.82	89.71	0.04
5700.00	0.43	227.16	5698.64	-0.29	42.39	-0.29	42.39	90.39	0.13
5800.00	0.36	230.41	5798.64	-0.75	41.87	-0.75	41.88	91.02	0.08
5900.00	0.37	214.33	5898.64	-1.21	41.45	-1.21	41.47	91.68	0.10
6000.00	0.38	217.43	5998.63	-1.74	41.06	-1.74	41.10	92.43	0.02
6100.00	0.35	208.47	6098.63	-2.27	40.72	-2.27	40.78	93.20	0.07
6200.00	0.55	199.55	6198.63	-2.99	40.41	-2.99	40.52	94.24	0.21

measured Depth FT	incl Angle Deg	Drill Direction Deg	TVD FT	+N/-S FT	+E/-W FT	vertical Section FT	Closure Distance FT	Closure Direction Deg	Dogleg Severity Deg/100
6300.00	0.53	205.03	6298.62	-3.87	40.06	-3.87	40.24	95.51	0.06
6400.00	0.40	204.54	6398.62	-4.60	39.71	-4.60	39.98	96.61	0.13
6500.00	0.50	200.80	6498.62	-5.33	39.41	-5.33	39.77	97.71	0.10
6600.00	0.64	216.35	6598.61	-6.19	38.93	-6.19	39.42	99.03	0.20
6700.00	0.81	198.20	6698.61	-7.30	38.38	-7.30	39.07	100.78	0.29
6800.00	0.93	195.53	6798.59	-8.76	37.94	-8.76	38.94	103.00	0.13
6900.00	0.91	218.78	6898.58	-10.16	37.23	-10.16	38.59	105.26	0.37
7000.00	1.01	222.49	6998.57	-11.42	36.14	-11.42	37.90	107.54	0.12
7100.00	1.33	217.84	7098.55	-12.99	34.84	-12.99	37.18	110.44	0.33
7200.00	1.43	202.90	7198.52	-15.05	33.64	-15.05	36.85	114.10	0.37
7300.00	1.39	206.44	7298.49	-17.29	32.61	-17.29	36.91	117.93	0.09
7400.00	1.58	198.53	7398.45	-19.69	31.63	-19.69	37.26	121.89	0.28
7500.00	1.53	190.24	7498.42	-22.31	30.96	-22.31	38.16	125.78	0.23
7600.00	1.33	213.36	7598.39	-24.60	30.08	-24.60	38.86	129.28	0.61
7700.00	1.54	207.54	7698.36	-26.76	28.82	-26.76	39.33	132.88	0.25
7800.00	1.44	240.40	7798.32	-28.57	27.10	-28.57	39.38	136.51	0.85
7900.00	1.28	198.85	7898.30	-30.25	25.65	-30.25	39.66	139.71	0.98
8000.00	1.50	199.18	7998.27	-32.54	24.86	-32.54	40.95	142.62	0.22
8100.00	1.29	191.65	8098.24	-34.87	24.20	-34.87	42.45	145.24	0.28
8200.00	1.36	197.31	8198.21	-37.11	23.62	-37.11	43.99	147.52	0.15
8300.00	1.47	182.44	8298.18	-39.52	23.22	-39.52	45.83	149.57	0.38
8400.00	1.25	199.28	8398.15	-41.83	22.80	-41.83	47.64	151.40	0.45
8500.00	1.27	208.34	8498.13	-43.83	21.92	-43.83	49.00	153.43	0.20
8600.00	1.30	199.97	8598.11	-45.87	21.01	-45.87	50.45	155.39	0.19
8700.00	0.98	228.85	8698.09	-47.49	19.98	-47.49	51.52	157.19	0.65
8721.00	0.96	208.17	8719.08	-47.77	19.76	-47.77	51.69	157.53	1.66

Mewbourne Oil Co

Eddy County, New Mexico

Sec 22-26S-32E

Red Hills West 22 AP Fed Com #1H

Wellbore #1

Survey: MWD

SUR: A-22-26s-32e, 150/N & 990/E
BHL: P-22-26s-32e, 5007/N & 859/E
API # 30-025-40608

DDC Survey Report

02 August, 2012



DDC Survey Report



Company: Mewbourne Oil Co
Project: Eddy County, New Mexico
Site: Sec 22-26S-32E
Well: Red Hills West 22 AP Fed Com #1H
Wellbore: Wellbore #1
Design: Wellbore #1

Local Co-ordinate Reference: Well Red Hills West 22 AP Fed Com #1H
TVD Reference: WELL @ 3176.0usft (Patterson #41)
MD Reference: WELL @ 3176.0usft (Patterson #41)
North Reference: Grid
Survey Calculation Method: Minimum Curvature
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 22-26S-32E

Site Position: **From:** Map **Northing:** 377,122.80 usft **Latitude:** 32° 2' 6.200 N
Easting: 707,577.80 usft **Longitude:** 103° 39' 48.484 W
Position Uncertainty: 0.0 usft **Slot Radius:** 13-3/16" **Grid Convergence:** 0.36°

Well: Red Hills West 22 AP Fed Com #1H

Well Position **+N/-S** 0.0 usft **Northing:** 377,139.10 usft **Latitude:** 32° 2' 6.237 N
+E/-W 0.0 usft **Easting:** 709,606.20 usft **Longitude:** 103° 39' 24.919 W
Position Uncertainty 0.0 usft **Wellhead Elevation:** usft **Ground Level:** 3,156.0 usft

Wellbore: Wellbore #1

Magnetics **Model Name** **Sample Date** **Declination** **Dip Angle** **Field Strength**
 (°) (°) (nT)
 IGRF2010 7/9/2012 7.48 59.97 48,388

Design: Wellbore #1

Audit Notes:

Version: 1.0 **Phase:** ACTUAL **Tie On Depth:** 0.0

Vertical Section **Depth From (TVD)** **+N/-S** **+E/-W** **Direction**
 (usft) (usft) (°)
 0.0 0.0 0.0 179.26

Survey Program **Date:** 8/2/2012

From (usft)	To (usft)	Survey (Wellbore)	Tool Name	Description
100.0	8,721.0	Gyro (Wellbore #1)	Good_gyro	Good Gyro
8,807.0	13,998.0	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)
TIE IN @ 8721' MD / 8719' TVD									
8,721.0	0.96	208.17	8,719.1	-47.8	19.7	48.1	0.00	0.00	0.00
8,807.0	0.60	233.30	8,805.1	-48.7	19.0	49.0	0.57	-0.42	29.22
8,839.0	0.60	210.50	8,837.1	-49.0	18.8	49.2	0.74	0.00	-71.25
8,871.0	1.40	134.80	8,869.1	-49.4	19.0	49.6	4.31	2.50	-236.56
8,902.0	4.80	180.40	8,900.0	-50.9	19.2	51.2	12.74	10.97	147.10
8,934.0	7.80	188.90	8,931.8	-54.4	18.9	54.7	9.79	9.38	26.56
8,965.0	10.50	191.00	8,962.4	-59.3	18.0	59.5	8.77	8.71	6.77
8,996.0	12.90	191.30	8,992.8	-65.5	16.8	65.7	7.74	7.74	0.97
9,028.0	16.20	190.10	9,023.8	-73.4	15.3	73.5	10.35	10.31	-3.75

DDC Survey Report



Company: Mewbourne Oil Co
Project: Eddy County, New Mexico
Site: Sec 22-26S-32E
Well: Red Hills West 22 AP Fed Com #1H
Wellbore: Wellbore #1
Design: Wellbore #1

Local Co-ordinate Reference: Well Red Hills West 22 AP Fed Com #1H
TVD Reference: WELL @ 3176.0usft (Patterson #41)
MD Reference: WELL @ 3176.0usft (Patterson #41)
North Reference: Grd
Survey Calculation Method: Minimum Curvature
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)
9,059.0	19 90	187 60	9,053.2	-82.8	13.8	83.0	12.19	11.94	-8.06
9,091.0	23 30	184.10	9,083.0	-94.6	12.7	94.7	11.36	10.63	-10.94
9,122.0	27 10	179.80	9,111.0	-107.7	12.3	107.9	13.60	12.26	-13.87
9,154.0	30.80	177.00	9,139.0	-123.2	12.7	123.4	12.31	11.56	-8.75
9,186.0	33.90	175.40	9,166.0	-140.3	13.9	140.5	10.05	9.69	-5.00
9,217.0	36 00	174.90	9,191.5	-158.0	15.4	158.2	6.84	6.77	-1.61
9,249.0	38.80	174.30	9,216.9	-177.3	17.2	177.5	8.82	8.75	-1.88
CROSSED HARD LINE @ 9254' MD / 9220' TVD									
9,253.5	39.37	174.18	9,220.4	-180.2	17.5	180.4	12.69	12.57	-2.76
9,280.0	42 70	173.50	9,240.4	-197.5	19.4	197.7	12.69	12.58	-2.55
9,312.0	47.10	173.90	9,263.0	-219.9	21.8	220.2	13.78	13.75	1.25
9,343.0	50 30	173.90	9,283.5	-243.1	24.3	243.3	10.32	10.32	0.00
9,375.0	53 20	174.00	9,303.3	-268.0	27.0	268.4	9.07	9.06	0.31
9,406.0	56.20	174.60	9,321.2	-293.2	29.5	293.6	9.81	9.68	1.94
9,437.0	58.60	175.80	9,337.9	-319.2	31.6	319.6	8.40	7.74	3.87
9,469.0	61 00	177.20	9,354.0	-346.8	33.3	347.2	8.40	7.50	4.38
9,501.0	63.70	177.90	9,368.8	-375.2	34.5	375.6	8.66	8.44	2.19
9,532.0	66.10	178.10	9,382.0	-403.2	35.5	403.6	7.76	7.74	0.65
9,564.0	68.90	177.70	9,394.2	-432.7	36.6	433.2	8.83	8.75	-1.25
9,595.0	71.40	177.10	9,404.8	-461.9	37.9	462.3	8.27	8.06	-1.94
9,627.0	74.20	177.90	9,414.2	-492.4	39.3	492.9	9.07	8.75	2.50
9,658.0	76.80	177.60	9,422.0	-522.4	40.4	522.9	8.44	8.39	-0.97
9,690.0	79.40	178.20	9,428.6	-553.7	41.6	554.2	8.33	8.13	1.88
9,721.0	81.40	178.90	9,433.7	-584.2	42.4	584.7	6.82	6.45	2.26
9,753.0	84.60	178.70	9,437.6	-616.0	43.0	616.5	10.02	10.00	-0.63
9,783.0	86.30	179.30	9,440.0	-645.9	43.5	646.4	6.01	5.67	2.00
9,879.0	90.20	180.40	9,443.0	-741.8	43.8	742.3	4.22	4.06	1.15
9,911.0	90.30	180.30	9,442.8	-773.8	43.6	774.3	0.44	0.31	-0.31
9,974.0	88.20	178.50	9,443.6	-836.8	44.3	837.3	4.39	-3.33	-2.86
10,006.0	86.60	178.20	9,445.1	-868.8	45.2	869.3	5.09	-5.00	-0.94
10,070.0	86.70	178.70	9,448.8	-932.6	46.9	933.2	0.80	0.16	0.78
10,133.0	87.20	178.90	9,452.2	-995.5	48.2	996.1	0.85	0.79	0.32
10,196.0	88.30	178.80	9,454.7	-1,058.5	49.5	1,059.0	1.75	1.75	-0.16
10,260.0	89.20	179.10	9,456.1	-1,122.4	50.7	1,123.0	1.48	1.41	0.47
10,323.0	90.00	178.20	9,456.5	-1,185.4	52.1	1,186.0	1.91	1.27	-1.43
10,387.0	93.80	178.60	9,454.4	-1,249.3	53.9	1,249.9	5.97	5.94	0.63
10,450.0	92.90	178.40	9,450.7	-1,312.2	55.6	1,312.8	1.46	-1.43	-0.32
10,513.0	92.70	178.80	9,447.6	-1,375.1	57.1	1,375.7	0.71	-0.32	0.63
10,545.0	92.30	178.30	9,446.2	-1,407.1	57.9	1,407.7	2.00	-1.25	-1.56
10,577.0	90.50	177.50	9,445.4	-1,439.0	59.1	1,439.7	6.16	-5.63	-2.50
10,609.0	88.80	177.10	9,445.6	-1,471.0	60.6	1,471.7	5.46	-5.31	-1.25
10,640.0	88.50	176.80	9,446.4	-1,502.0	62.2	1,502.6	1.37	-0.97	-0.97
10,672.0	89.50	177.10	9,446.9	-1,533.9	63.9	1,534.6	3.26	3.13	0.94

DDC Survey Report



Company: Mewbourne Oil Co
Project: Eddy County, New Mexico
Site: Sec 22-26S-32E
Well: Red Hills West 22 AP Fed Com #1H
Wellbore: Wellbore #1
Design: Wellbore #1

Local Co-ordinate Reference: Well Red Hills West 22 AP Fed Com #1H
TVD Reference: WELL @ 3176.0usft (Patterson #41)
MD Reference: WELL @ 3176.0usft (Patterson #41)
North Reference: Grid
Survey Calculation Method: Minimum Curvature
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)
10,704.0	89.80	177.50	9,447.1	-1,565.9	65.5	1,566.6	1.56	0.94	1.25
10,736.0	89.90	177.70	9,447.2	-1,597.8	66.8	1,598.6	0.70	0.31	0.63
10,767.0	88.10	178.10	9,447.7	-1,628.8	67.9	1,629.6	5.95	-5.81	1.29
10,799.0	88.10	178.40	9,448.8	-1,660.8	68.9	1,661.5	0.94	0.00	0.94
10,831.0	87.90	178.60	9,449.9	-1,692.8	69.7	1,693.5	0.88	-0.63	0.63
10,862.0	87.50	178.40	9,451.2	-1,723.7	70.6	1,724.5	1.44	-1.29	-0.65
10,894.0	88.40	179.00	9,452.3	-1,755.7	71.3	1,756.5	3.38	2.81	1.88
10,926.0	89.30	179.60	9,453.0	-1,787.7	71.7	1,788.5	3.38	2.81	1.88
10,957.0	89.20	179.30	9,453.4	-1,818.7	72.0	1,819.5	1.02	-0.32	-0.97
10,989.0	88.60	180.30	9,454.0	-1,850.7	72.1	1,851.4	3.64	-1.88	3.13
11,021.0	88.50	179.80	9,454.8	-1,882.7	72.1	1,883.4	1.59	-0.31	-1.56
11,053.0	88.30	179.00	9,455.7	-1,914.6	72.4	1,915.4	2.58	-0.63	-2.50
11,084.0	88.00	178.90	9,456.7	-1,945.6	73.0	1,946.4	1.02	-0.97	-0.32
11,116.0	88.50	178.90	9,457.7	-1,977.6	73.6	1,978.4	1.56	1.56	0.00
11,148.0	88.60	178.90	9,458.5	-2,009.6	74.2	2,010.4	0.31	0.31	0.00
11,180.0	87.20	178.30	9,459.6	-2,041.6	75.0	2,042.4	4.76	-4.38	-1.88
11,212.0	88.80	178.90	9,460.8	-2,073.5	75.7	2,074.3	5.34	5.00	1.88
11,244.0	91.10	180.40	9,460.8	-2,105.5	75.9	2,106.3	8.58	7.19	4.69
11,275.0	92.70	180.40	9,459.8	-2,136.5	75.7	2,137.3	5.16	5.16	0.00
11,307.0	92.60	179.80	9,458.3	-2,168.5	75.7	2,169.3	1.90	-0.31	-1.88
11,339.0	92.30	179.60	9,456.9	-2,200.4	75.8	2,201.2	1.13	-0.94	-0.63
11,371.0	91.10	178.50	9,456.0	-2,232.4	76.4	2,233.2	5.09	-3.75	-3.44
11,402.0	89.80	178.30	9,455.7	-2,263.4	77.2	2,264.2	4.24	-4.19	-0.65
11,433.0	89.80	178.40	9,455.8	-2,294.4	78.1	2,295.2	0.32	0.00	0.32
11,465.0	89.30	179.00	9,456.1	-2,326.4	78.9	2,327.2	2.44	-1.56	1.88
11,497.0	89.10	179.30	9,456.5	-2,358.4	79.3	2,359.2	1.13	-0.63	0.94
11,560.0	89.40	177.60	9,457.3	-2,421.3	81.0	2,422.2	2.74	0.48	-2.70
11,623.0	89.30	177.60	9,458.1	-2,484.3	83.7	2,485.2	0.16	-0.16	0.00
11,686.0	89.50	178.70	9,458.7	-2,547.2	85.7	2,548.1	1.77	0.32	1.75
11,750.0	90.40	179.30	9,458.8	-2,611.2	86.8	2,612.1	1.69	1.41	0.94
11,813.0	88.30	178.20	9,459.5	-2,674.2	88.2	2,675.1	3.76	-3.33	-1.75
11,845.0	87.50	177.70	9,460.7	-2,706.2	89.3	2,707.1	2.95	-2.50	-1.56
11,877.0	88.40	179.10	9,461.8	-2,738.1	90.2	2,739.1	5.20	2.81	4.38
11,909.0	89.10	178.70	9,462.5	-2,770.1	90.8	2,771.1	2.52	2.19	-1.25
11,940.0	89.00	178.80	9,463.0	-2,801.1	91.5	2,802.1	0.46	-0.32	0.32
11,972.0	91.60	179.40	9,462.9	-2,833.1	92.0	2,834.1	8.34	8.13	1.88
12,004.0	93.00	179.00	9,461.6	-2,865.1	92.5	2,866.0	4.55	4.38	-1.25
12,036.0	93.30	178.90	9,459.8	-2,897.0	93.1	2,898.0	0.99	0.94	-0.31
12,068.0	93.10	177.40	9,458.0	-2,929.0	94.1	2,929.9	4.72	-0.63	-4.69
12,099.0	93.20	178.30	9,456.3	-2,959.9	95.2	2,960.9	2.92	0.32	2.90
12,131.0	93.50	178.70	9,454.4	-2,991.8	96.1	2,992.8	1.56	0.94	1.25
12,163.0	91.90	178.10	9,452.9	-3,023.8	97.0	3,024.8	5.34	-5.00	-1.88
12,195.0	91.10	177.80	9,452.1	-3,055.7	98.1	3,056.7	2.67	-2.50	-0.94
12,227.0	90.80	178.10	9,451.6	-3,087.7	99.3	3,088.7	1.33	-0.94	0.94

DDC Survey Report



Company:	Mewbourne Oil Co	Local Co-ordinate Reference:	Well Red Hills West 22 AP Fed Com #1H
Project:	Eddy County, New Mexico	TVD Reference:	WELL @ 3176.0usft (Patterson #41)
Site:	Sec 22-26S-32E	MD Reference:	WELL @ 3176.0usft (Patterson #41)
Well:	Red Hills West 22 AP Fed 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)
12,259.0	90.00	177.10	9,451.3	-3,119.7	100.6	3,120.7	4.00	-2.50	-3.13
12,291.0	88.10	177.30	9,451.9	-3,151.6	102.2	3,152.7	5.97	-5.94	0.63
12,322.0	87.20	177.10	9,453.2	-3,182.6	103.7	3,183.6	2.97	-2.90	-0.65
12,354.0	86.70	176.80	9,454.9	-3,214.5	105.4	3,215.6	1.82	-1.56	-0.94
12,386.0	86.60	177.40	9,456.7	-3,246.4	107.0	3,247.5	1.90	-0.31	1.88
12,418.0	88.50	178.20	9,458.1	-3,278.3	108.2	3,279.5	6.44	5.94	2.50
12,450.0	87.20	179.00	9,459.3	-3,310.3	109.0	3,311.4	4.77	-4.06	2.50
12,481.0	87.60	179.60	9,460.7	-3,341.3	109.4	3,342.4	2.32	1.29	1.94
12,513.0	89.80	180.30	9,461.4	-3,373.3	109.4	3,374.4	7.21	6.88	2.19
12,545.0	91.30	180.90	9,461.1	-3,405.3	109.1	3,406.4	5.05	4.69	1.88
12,577.0	91.90	180.40	9,460.2	-3,437.2	108.7	3,438.4	2.44	1.88	-1.56
12,609.0	92.20	180.50	9,459.1	-3,469.2	108.5	3,470.3	0.99	0.94	0.31
12,641.0	92.30	180.10	9,457.8	-3,501.2	108.3	3,502.3	1.29	0.31	-1.25
12,673.0	91.90	180.40	9,456.6	-3,533.2	108.2	3,534.3	1.56	-1.25	0.94
12,705.0	91.30	179.50	9,455.8	-3,565.2	108.2	3,566.3	3.38	-1.88	-2.81
12,737.0	90.20	179.40	9,455.3	-3,597.1	108.5	3,598.3	3.45	-3.44	-0.31
12,769.0	89.80	179.70	9,455.3	-3,629.1	108.7	3,630.3	1.56	-1.25	0.94
12,801.0	89.50	179.50	9,455.5	-3,661.1	109.0	3,662.2	1.13	-0.94	-0.63
12,832.0	89.80	176.20	9,455.7	-3,692.1	110.1	3,693.2	10.69	0.97	-10.65
12,864.0	89.60	179.00	9,455.9	-3,724.1	111.5	3,725.2	8.77	-0.63	8.75
12,895.0	89.20	180.00	9,456.2	-3,755.1	111.7	3,756.2	3.47	-1.29	3.23
12,927.0	88.90	180.00	9,456.7	-3,787.1	111.7	3,788.2	0.94	-0.94	0.00
12,959.0	89.50	180.50	9,457.2	-3,819.1	111.6	3,820.2	2.44	1.88	1.56
12,991.0	90.20	180.90	9,457.3	-3,851.1	111.2	3,852.2	2.52	2.19	1.25
13,022.0	91.70	181.70	9,456.8	-3,882.1	110.5	3,883.2	5.48	4.84	2.58
13,054.0	91.80	182.70	9,455.8	-3,914.0	109.3	3,915.1	3.14	0.31	3.13
13,087.0	91.80	183.10	9,454.7	-3,947.0	107.6	3,948.0	1.21	0.00	1.21
13,118.0	91.20	182.70	9,453.9	-3,977.9	106.0	3,979.0	2.33	-1.94	-1.29
13,150.0	90.20	181.40	9,453.5	-4,009.9	104.9	4,010.9	5.13	-3.13	-4.06
13,182.0	90.20	181.80	9,453.4	-4,041.9	104.0	4,042.9	1.25	0.00	1.25
13,214.0	90.40	181.70	9,453.3	-4,073.9	103.0	4,074.9	0.70	0.63	-0.31
13,245.0	92.10	179.90	9,452.6	-4,104.8	102.6	4,105.8	7.99	5.48	-5.81
13,277.0	91.30	179.10	9,451.6	-4,136.8	102.9	4,137.8	3.53	-2.50	-2.50
13,309.0	90.30	179.10	9,451.2	-4,168.8	103.4	4,169.8	3.13	-3.13	0.00
13,341.0	89.40	178.80	9,451.3	-4,200.8	104.0	4,201.8	2.96	-2.81	-0.94
13,373.0	89.60	178.70	9,451.6	-4,232.8	104.7	4,233.8	0.70	0.63	-0.31
13,404.0	89.10	178.20	9,451.9	-4,263.8	105.5	4,264.8	2.28	-1.61	-1.61
13,436.0	89.10	177.60	9,452.4	-4,295.8	106.7	4,296.8	1.87	0.00	-1.88
13,468.0	89.30	177.70	9,452.9	-4,327.7	108.0	4,328.8	0.70	0.63	0.31
13,500.0	89.20	177.20	9,453.3	-4,359.7	109.4	4,360.8	1.59	-0.31	-1.56
13,532.0	89.00	176.80	9,453.8	-4,391.7	111.1	4,392.7	1.40	-0.63	-1.25
13,564.0	88.70	176.50	9,454.4	-4,423.6	113.0	4,424.7	1.33	-0.94	-0.94
13,595.0	88.60	176.50	9,455.2	-4,454.5	114.8	4,455.6	0.32	-0.32	0.00

DDC Survey Report



Company:	Mewbourne Oil Co	Local Co-ordinate Reference:	Well Red Hills West 22 AP Fed Com #1H
Project:	Eddy County, New Mexico	TVD/Reference:	WELL @ 3176.0usft (Patterson #41)
Site:	Sec 22-26S-32E	MD Reference:	WELL @ 3176.0usft (Patterson #41)
Well:	Red Hills West 22 AP Fed 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)
13,627.0	89.90	176.40	9,455.6	-4,486.5	116.8	4,487.6	4.07	4.06	-0.31
13,659.0	89.90	176.20	9,455.6	-4,518.4	118.9	4,519.6	0.62	0.00	-0.63
13,691.0	90.00	177.40	9,455.7	-4,550.3	120.7	4,551.5	3.76	0.31	3.75
13,723.0	90.20	177.40	9,455.6	-4,582.3	122.1	4,583.5	0.63	0.63	0.00
13,755.0	89.80	178.30	9,455.6	-4,614.3	123.3	4,615.5	3.08	-1.25	2.81
13,786.0	89.60	178.50	9,455.8	-4,645.3	124.2	4,646.5	0.91	-0.65	0.65
13,818.0	90.20	178.30	9,455.8	-4,677.3	125.1	4,678.5	1.98	1.88	-0.63
13,850.0	89.50	177.60	9,455.9	-4,709.2	126.2	4,710.5	3.09	-2.19	-2.19
13,882.0	89.50	177.90	9,456.2	-4,741.2	127.5	4,742.5	0.94	0.00	0.94
13,913.0	89.40	178.00	9,456.5	-4,772.2	128.6	4,773.5	0.46	-0.32	0.32
13,945.0	89.30	178.20	9,456.8	-4,804.2	129.7	4,805.5	0.70	-0.31	0.63
TD @ 13998' MD / 9458' TVD									
13,998.0	89.30	178.20	9,457.5	-4,857.1	131.3	4,858.4	0.00	0.00	0.00

Survey Annotations

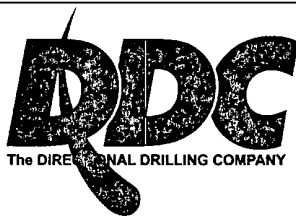
Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates		Comment
		+N/-S (usft)	+E/-W (usft)	
8,721.0	8,719.1	-47.8	19.7	TIE IN @ 8721' MD / 8719' TVD
9,253.5	9,220.4	-180.2	17.5	CROSSED HARD LINE @ 9254' MD / 9220' TVD
13,998.0	9,457.5	-4,857.1	131.3	TD @ 13998' MD / 9458' TVD

Checked By: _____	Approved By: _____	Date: _____
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Company Name: Mewbourne Oil Co
 Red Hills West 22 AP Fed Com #1H
 Eddy County, New Mexico
 Rig Patterson #41
 Created By DINA CHANCE
 Date 8/2/2012

Red Hills West 22 AP Fed Com #1H
 Eddy County, New Mexico
 Q120116 & WT-12491
 Design #2

Mewbourne Oil Company



Azimuths to Grid North

Magnetic North 7.12°

Magnetic Field

Strength 48388.1nT

Dip Angle 59.97°

Date 7/9/2012

Model: IGRF2010

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 Red Hills West 22 AP Fed Com #1H

Ground Level 3156.0
 +N-S +E-W Northing Easting Latitude Longitude
 0.0 0.0 377139.10 709606.20 32° 2' 6.237 N 103° 39' 24.919 W

ANNOTATIONS

MD	Inc	Azi	TVD	+N-S	+E-W	V-Sect	Departure	Annotation
8721.0	0.96	208.17	8719.1	-47.8	19.7	48.1	161.4	TIE IN @ 8721' MD / 8719' TVD
9255.5	59.27	174.18	9220.4	-189.2	17.6	180.4	295.3	CROSSED HARD LINE @ 9254' MD / 9220' TVD
13998.0	69.30	178.20	9487.5	-4857.1	131.3	4858.4	4975.1	TD @ 13998' MD / 9458' TVD

DESIGN TARGET DETAILS

Name	TVD	+N-S	+E-W	Northing	Eastng	Latitude	Longitude
PBHL Red Hills West 22 AP Fed Com #1H Design #2	9458.0	-4871.7	61.0	372257.40	709605.20	32° 1' 18.022 N	103° 39' 24.642 W

- plan hits target center

