

30-025-4236ce

HOBBS OCD

JUN 19 2015

RECEIVED



Mewbourne Oil Company
Project: Lea County, NM
Site: Antelope 9 B2MD State COM
Well: No. 1H
Wellbore: Original Hole
Design: Plan #2
Lat: 32° 18' 44.137 N
Long: 103° 28' 49.331 W
Pad GL: 3426.00
KB: WELL @ 3446.00usft (Patterson 444)



SECTION DETAILS								
MD	Inc	Azi	TVD	+N/-S	+E/-W	Dleg	TFace	Vsect
9755.00	0.88	307.91	9751.86	-17.29	4.85	0.00	0.00	-17.66
9936.80	0.88	307.91	9933.64	-15.58	2.65	0.00	0.00	-15.75
10689.55	90.93	354.81	10406.00	467.14	-46.61	12.00	46.89	469.45
14997.84	90.93	354.81	10336.00	4757.19	-436.33	0.00	0.00	4777.16

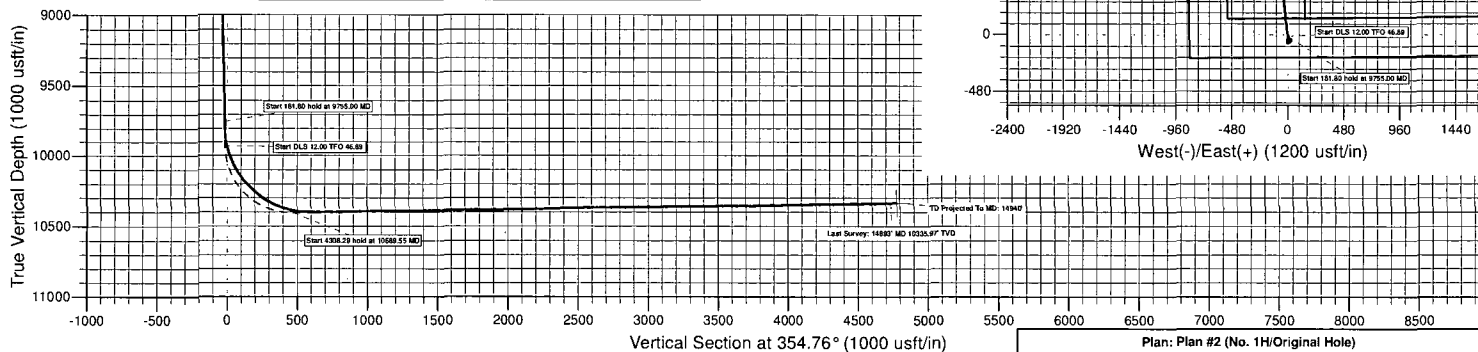
WELL DETAILS: No. 1H					
+N/-S	+E/-W	Northing	Ground Level: Easting	3426.00 Latitude	Longitude
0.00	0.00	478565.40	763518.40	32° 18' 44.137 N	103° 28' 49.331 W

DESIGN TARGET DETAILS							
Name	TVD	+N/-S	+E/-W	Northing	Easting	Latitude	Longitude
Antelope 9 No. 1H TD/PBHL	10336.00	4757.19	-436.33	483122.54	763082.07	32° 19' 31.244 N	103° 28' 53.974 W

PROJECT DETAILS: Lea County, NM
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

Azimuths to Grid North
True North: -0.46°
Magnetic North: 6.63°
Magnetic Field
Strength: 48299.4nT
Dip Angle: 60.19°
Date: 03/31/2015
Model: IGRF2010

NOTE: All Lease lines and Hard lines are estimates only and are subject to the customers' approval.



Plan: Plan #2 (No. 1H/Original Hole)
Created By: Chris LeMaster Date: 14:16, April 30 2015

JUL 01 2015

OPERATOR Mewbourne Oil Company
WELL/LEASE Antelope 9 B2MD State Com 001H
COUNTY LEA

444-0035

STATE OF NEW MEXICO
DEVIATION REPORT

328	0.20
620	1.00
1,637	1.90
3,001	2.00
3,480	1.40
4,616	0.60
5,274	0.30
5,944	0.60
6,986	0.20
6,515	0.70
7,460	0.70
7,934	0.40
8,407	0.60
8,881	1.20
9,449	1.50

STATE OF TEXAS

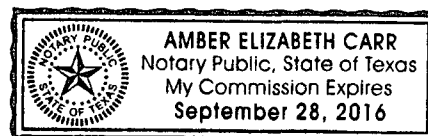
COUNTY OF MIDLAND

BY: Brianna Welch

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

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

6/11/15, by





HOBBS OCD

JUN 19 2015

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30-025-42366

Mewbourne Oil Company

Lea County, NM

Antelope 9 B2MD State COM

No. 1H

Original Hole

Design: Original Hole

EOW Report

30 April, 2015



Company: Mewbourne Oil Company
Project: Lea County, NM
Site: Antelope 9 B2MD State COM
Well: No. 1H
Wellbore: Original Hole
Design: Original Hole

Local Co-ordinate Reference: Well No. 1H
TVD Reference: WELL @ 3446.00usft (Patterson 444)
MD Reference: WELL @ 3446.00usft (Patterson 444)
North Reference: Grid
Survey Calculation Method: Minimum Curvature
Database: Inwell D

Project	Lea County, NM		
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		Using geodetic scale factor

Site	Antelope 9 B2MD State COM		
Site Position:		Northing:	478,365.40 usft
From:	Map	Easting:	763,518.40 usft
Position Uncertainty:	3.30 usft	Slot Radius:	13-3/16"
		Latitude:	32° 18' 44.137 N
		Longitude:	103° 28' 49.331 W
		Grid Convergence:	0.46 °

Well	No. 1H		
Well Position	+N/-S	0.00 usft	Northing: 478,365.40 usft
	+E/-W	0.00 usft	Easting: 763,518.40 usft
Position Uncertainty	1.10 usft	Wellhead Elevation:	usft
		Latitude:	32° 18' 44.137 N
		Longitude:	103° 28' 49.331 W
		Ground Level:	3,426.00 usft

Wellbore	Original Hole		
Magnetics	Model Name	Sample Date	Declination
	IGRF2010	03/31/15	(°)
			7.08
			Dip Angle (°)
			60.19
			Field Strength (nT)
			48,299

Design	Original Hole		
Audit Notes:			
Version:	1.0	Phase:	ACTUAL
		Tie On Depth:	0.00
Vertical Section:	Depth From (TVD)	+N/-S	+E/-W
	(usft)	(usft)	(usft)
	0.00	0.00	0.00
			Direction
			(°)
			164.33

Survey Program	Date 04/30/15		
From	To	Survey (Wellbore)	Tool Name
(usft)	(usft)		
100.00	9,755.00	MS Gyro (Original Hole)	MWD
9,781.00	14,940.00	MWD (Original Hole)	MWD
			Description
			MWD - Standard
			MWD - Standard

Survey								
MD	Inc	Azi (azimuth)	TVD	N/S	E/W	V. Sec	Build	
(usft)	(°)	(°)	(usft)	(usft)	(usft)	(usft)	(°/100usft)	
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
100.00	0.17	77.94	100.00	0.03	0.15	0.01	0.17	
200.00	0.27	79.62	200.00	0.10	0.52	0.04	0.10	
300.00	0.37	103.81	300.00	0.07	1.07	0.22	0.10	
400.00	0.53	100.55	399.99	-0.09	1.84	0.58	0.16	
500.00	0.52	112.67	499.99	-0.35	2.71	1.07	-0.01	
600.00	1.12	165.97	599.98	-1.47	3.36	2.33	0.60	
700.00	1.97	181.50	699.94	-4.14	3.56	4.95	0.85	
800.00	3.16	187.25	799.84	-8.59	3.16	9.13	1.19	
900.00	4.23	191.58	899.63	-14.94	2.08	14.95	1.07	
1,000.00	4.80	194.14	999.32	-22.61	0.31	21.86	0.57	

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MD Reference: WELL @ 3446.00usft (Patterson 444)
North Reference: Grid
Survey Calculation Method: Minimum Curvature
Database: Inwell D

Survey

MD (usft)	Inc (°)	Azi (azimuth) (°)	TVD (usft)	N/S (usft)	E/W (usft)	V. Sec (usft)	Build (°/100usft)
1,100.00	4.85	193.73	1,098.97	-30.77	-1.71	29.17	0.05
1,200.00	4.79	195.45	1,198.61	-38.91	-3.83	36.43	-0.06
1,300.00	4.27	190.65	1,298.30	-46.59	-5.63	43.34	-0.52
1,400.00	3.41	184.01	1,398.08	-53.21	-6.52	49.47	-0.86
1,500.00	2.74	172.56	1,497.93	-58.55	-6.42	54.64	-0.67
1,600.00	2.09	151.99	1,597.85	-62.53	-5.26	58.79	-0.65
1,700.00	1.13	127.38	1,697.81	-64.74	-3.62	61.36	-0.96
1,800.00	0.38	101.05	1,797.80	-65.40	-2.51	62.29	-0.75
1,900.00	0.48	46.94	1,897.79	-65.18	-1.88	62.25	0.10
2,000.00	0.57	47.75	1,997.79	-64.56	-1.20	61.83	0.09
2,100.00	0.69	49.98	2,097.78	-63.84	-0.37	61.36	0.12
2,200.00	0.38	348.90	2,197.78	-63.13	0.02	60.78	-0.31
2,300.00	0.07	159.53	2,297.78	-62.86	-0.02	60.52	-0.31
2,400.00	0.13	243.40	2,397.78	-62.96	-0.10	60.60	0.06
2,500.00	0.14	25.58	2,497.78	-62.91	-0.15	60.53	0.01
2,600.00	0.58	89.95	2,597.78	-62.79	0.41	60.57	0.44
2,700.00	0.98	75.14	2,697.77	-62.58	1.74	60.72	0.40
2,800.00	1.14	62.82	2,797.75	-61.90	3.46	60.53	0.16
2,900.00	1.87	45.82	2,897.72	-60.31	5.51	59.56	0.73
3,000.00	1.91	48.14	2,997.66	-58.06	7.92	58.04	0.04
3,100.00	1.37	67.94	3,097.62	-56.50	10.27	57.17	-0.54
3,200.00	1.83	70.09	3,197.58	-55.51	12.88	56.92	0.46
3,300.00	1.89	72.75	3,297.53	-54.47	15.96	56.76	0.06
3,400.00	1.74	59.13	3,397.48	-53.21	18.84	56.32	-0.15
3,500.00	1.16	27.05	3,497.45	-51.53	20.60	55.17	-0.58
3,600.00	1.35	28.56	3,597.43	-49.59	21.62	53.59	0.19
3,700.00	1.78	20.61	3,697.39	-47.10	22.73	51.49	0.43
3,800.00	0.87	49.79	3,797.36	-45.16	23.86	49.92	-0.91
3,900.00	0.59	58.30	3,897.35	-44.40	24.88	49.47	-0.28
4,000.00	0.39	151.39	3,997.35	-44.42	25.48	49.66	-0.20
4,100.00	0.22	75.74	4,097.35	-44.68	25.83	49.99	-0.17
4,200.00	0.27	79.05	4,197.35	-44.58	26.24	50.02	0.05
4,300.00	0.89	88.85	4,297.34	-44.52	27.25	50.23	0.62
4,400.00	1.11	51.05	4,397.33	-43.90	28.78	50.04	0.22
4,500.00	1.07	296.65	4,497.32	-42.87	28.70	49.03	-0.04
4,600.00	0.89	307.29	4,597.30	-41.98	27.25	47.78	-0.18
4,700.00	0.79	218.35	4,697.30	-42.05	26.20	47.57	-0.10
4,800.00	0.46	118.84	4,797.29	-42.79	26.13	48.25	-0.33
4,900.00	0.70	107.20	4,897.29	-43.16	27.06	48.87	0.24
5,000.00	0.58	155.94	4,997.28	-43.80	27.85	49.70	-0.12
5,100.00	0.35	157.59	5,097.28	-44.55	28.17	50.50	-0.23
5,200.00	0.49	138.41	5,197.28	-45.15	28.57	51.19	0.14
5,300.00	0.47	166.05	5,297.27	-45.87	28.96	51.99	-0.02
5,400.00	0.47	177.13	5,397.27	-46.68	29.08	52.80	0.00

Company: Mewbourne Oil Company
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Well: No. 1H
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Design: Original Hole

Local Co-ordinate Reference:
TVD Reference:
MD Reference:
North Reference:
Survey Calculation Method:
Database:

Well No. 1H
WELL @ 3446.00usft (Patterson 444)
WELL @ 3446.00usft (Patterson 444)
Grid
Minimum Curvature
Inwell D

Survey

MD (usft)	Inc (°)	Azi (azimuth) (°)	TVD (usft)	N/S (usft)	E/W (usft)	V. Sec (usft)	Build (°/100usft)
5,500.00	0.39	190.13	5,497.27	-47.42	29.04	53.50	-0.08
5,600.00	0.55	214.92	5,597.26	-48.15	28.70	54.11	0.16
5,700.00	0.51	252.71	5,697.26	-48.68	28.00	54.43	-0.04
5,800.00	0.36	264.55	5,797.26	-48.84	27.26	54.39	-0.15
5,900.00	0.48	263.91	5,897.25	-48.91	26.54	54.26	0.12
6,000.00	0.44	289.71	5,997.25	-48.83	25.76	53.97	-0.04
6,100.00	0.61	277.77	6,097.25	-48.62	24.87	53.54	0.17
6,200.00	0.80	281.81	6,197.24	-48.41	23.66	53.00	0.19
6,300.00	0.71	295.99	6,297.23	-48.00	22.42	52.27	-0.09
6,400.00	0.71	277.95	6,397.22	-47.64	21.25	51.61	0.00
6,500.00	0.65	295.11	6,497.22	-47.31	20.12	50.99	-0.06
6,600.00	0.35	294.45	6,597.21	-46.95	19.33	50.42	-0.30
6,700.00	0.34	266.35	6,697.21	-46.84	18.75	50.16	-0.01
6,800.00	0.42	294.60	6,797.21	-46.70	18.12	49.86	0.08
6,900.00	0.24	265.03	6,897.21	-46.57	17.58	49.59	-0.18
7,000.00	0.37	249.93	6,997.21	-46.70	17.07	49.57	0.13
7,100.00	0.44	254.32	7,097.20	-46.91	16.40	49.60	0.07
7,200.00	0.44	276.71	7,197.20	-46.97	15.65	49.45	0.00
7,300.00	0.73	269.07	7,297.19	-46.94	14.63	49.14	0.29
7,400.00	0.55	275.31	7,397.19	-46.90	13.51	48.81	-0.18
7,500.00	0.77	276.17	7,497.18	-46.79	12.37	48.39	0.22
7,600.00	0.64	294.61	7,597.17	-46.48	11.19	47.78	-0.13
7,700.00	0.72	291.04	7,697.17	-46.02	10.10	47.04	0.08
7,800.00	0.81	297.25	7,797.16	-45.47	8.88	46.18	0.09
7,900.00	0.63	309.92	7,897.15	-44.80	7.83	45.25	-0.18
8,000.00	0.53	315.42	7,997.15	-44.12	7.09	44.39	-0.10
8,100.00	0.56	334.05	8,097.14	-43.35	6.55	43.50	0.03
8,200.00	0.56	341.06	8,197.14	-42.45	6.18	42.54	0.00
8,300.00	0.45	330.03	8,297.13	-41.64	5.82	41.67	-0.11
8,400.00	0.44	332.88	8,397.13	-40.96	5.45	40.91	-0.01
8,500.00	0.42	340.63	8,497.13	-40.27	5.15	40.17	-0.02
8,600.00	0.48	322.44	8,597.12	-39.60	4.78	39.41	0.06
8,700.00	0.45	319.15	8,697.12	-38.97	4.26	38.67	-0.03
8,800.00	0.70	4.26	8,797.12	-38.06	4.05	37.74	0.25
8,900.00	1.02	12.07	8,897.10	-36.58	4.28	36.38	0.32
9,000.00	1.43	17.82	8,997.08	-34.52	4.85	34.55	0.41
9,100.00	1.64	25.10	9,097.04	-32.04	5.84	32.43	0.21
9,200.00	1.48	19.19	9,197.01	-29.52	6.87	30.28	-0.16
9,300.00	1.59	354.98	9,296.97	-26.92	7.18	27.86	0.11
9,400.00	1.59	337.97	9,396.94	-24.25	6.53	25.12	0.00
9,500.00	1.18	0.84	9,496.91	-21.94	6.03	22.75	-0.41
9,600.00	1.31	355.40	9,596.88	-19.77	5.95	20.64	0.13
9,700.00	0.94	327.91	9,696.86	-17.93	5.42	18.73	-0.37
9,755.00	0.88	307.91	9,751.86	-17.29	4.85	17.96	-0.11
9,781.00	1.10	317.60	9,777.85	-16.99	4.53	17.58	0.85

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Survey

MD (usft)	Inc (°)	Azi (azimuth) (°)	TVD (usft)	N/S (usft)	E/W (usft)	V. Sec (usft)	Build (°/100usft)
9,800.00	1.10	316.40	9,796.85	-16.72	4.28	17.25	0.00
9,831.00	2.50	335.60	9,827.83	-15.89	3.79	16.32	4.52
9,863.00	5.50	342.40	9,859.75	-13.79	3.04	14.10	9.37
9,895.00	8.70	343.90	9,891.50	-10.00	1.91	10.14	10.00
9,926.00	12.80	347.90	9,921.95	-4.39	0.53	4.37	13.23
9,958.00	15.90	349.90	9,952.95	3.39	-0.98	-3.53	9.69
9,990.00	18.20	349.20	9,983.54	12.62	-2.68	-12.88	7.19
10,021.00	21.10	349.90	10,012.73	22.87	-4.57	-23.25	9.35
10,053.00	24.50	351.10	10,042.23	35.10	-6.61	-35.58	10.62
10,085.00	27.20	352.30	10,071.03	48.91	-8.61	-49.41	8.44
10,116.00	30.60	353.00	10,098.16	63.76	-10.52	-64.24	10.97
10,148.00	34.30	353.60	10,125.16	80.81	-12.52	-81.19	11.56
10,180.00	37.30	354.00	10,151.11	99.42	-14.54	-99.65	9.37
10,211.00	40.80	355.10	10,175.18	118.86	-16.39	-118.87	11.29
10,243.00	43.80	355.50	10,198.85	140.32	-18.15	-140.01	9.37
10,275.00	45.60	356.30	10,221.59	162.77	-19.76	-162.06	5.62
10,306.00	47.20	354.70	10,242.97	185.15	-21.52	-184.08	5.16
10,338.00	48.90	354.80	10,264.36	208.85	-23.70	-207.48	5.31
10,370.00	52.00	354.40	10,284.73	233.41	-26.02	-231.76	9.69
10,401.00	56.90	354.10	10,302.75	258.50	-28.55	-256.60	15.81
10,433.00	60.40	354.40	10,319.40	285.68	-31.29	-283.51	10.94
10,465.00	62.60	354.30	10,334.67	313.67	-34.06	-311.20	6.87
10,496.00	66.50	354.50	10,347.99	341.52	-36.79	-338.76	12.58
10,528.00	69.50	354.30	10,359.97	371.04	-39.68	-367.97	9.37
10,560.00	71.60	355.50	10,370.63	401.10	-42.36	-397.63	6.56
10,592.00	74.10	356.20	10,380.06	431.59	-44.57	-427.59	7.81
10,623.00	78.00	355.90	10,387.53	461.60	-46.65	-457.04	12.58
10,655.00	81.80	356.10	10,393.15	493.02	-48.84	-487.89	11.87
10,687.00	85.30	356.40	10,396.74	524.74	-50.92	-518.99	10.94
10,713.00	87.30	356.40	10,398.42	550.64	-52.55	-544.36	7.69
10,814.00	90.60	354.00	10,400.27	651.24	-61.00	-643.51	3.27
10,846.00	90.60	354.00	10,399.93	683.07	-64.35	-675.06	0.00
10,941.00	90.60	353.40	10,398.94	777.49	-74.77	-768.78	0.00
11,036.00	91.50	352.60	10,397.20	871.76	-86.35	-862.68	0.95
11,131.00	91.60	353.40	10,394.63	966.02	-97.92	-956.56	0.11
11,226.00	90.90	354.00	10,392.56	1,060.42	-108.34	-1,050.27	-0.74
11,321.00	89.80	354.80	10,391.97	1,154.96	-117.61	-1,143.80	-1.16
11,416.00	90.40	355.80	10,391.81	1,249.64	-125.40	-1,237.06	0.63
11,511.00	91.10	355.50	10,390.57	1,344.36	-132.60	-1,330.20	0.74
11,606.00	91.70	355.10	10,388.24	1,439.01	-140.38	-1,423.44	0.63
11,701.00	90.70	355.70	10,386.25	1,533.68	-148.00	-1,516.65	-1.05
11,796.00	90.70	355.60	10,385.09	1,628.40	-155.20	-1,609.79	0.00
11,892.00	90.00	355.50	10,384.51	1,724.11	-162.65	-1,703.95	-0.73
11,987.00	90.50	355.90	10,384.09	1,818.84	-169.78	-1,797.09	0.53

Company: Mewbourne Oil Company
Project: Lea County, NM
Site: Antelope 9 B2MD State COM
Well: No. 1H
Wellbore: Original Hole
Design: Original Hole

Local Co-ordinate Reference: Well No. 1H
TVD Reference: WELL @ 3446.00usft (Patterson 444)
MD Reference: WELL @ 3446.00usft (Patterson 444)
North Reference: Grid
Survey Calculation Method: Minimum Curvature
Database: Inwell D

MD (usft)	Inc (°)	Azi (azimuth) (°)	TVD (usft)	N/S (usft)	E/W (usft)	V. Sec (usft)	Build (°/100usft)
12,082.00	90.50	356.10	10,383.26	1,913.61	-176.40	-1,890.12	0.00
12,177.00	90.10	356.40	10,382.77	2,008.40	-182.62	-1,983.07	-0.42
12,272.00	91.00	358.30	10,381.85	2,103.29	-187.01	-2,075.61	0.95
12,367.00	92.00	356.90	10,379.37	2,198.17	-190.98	-2,168.04	1.05
12,462.00	92.60	355.50	10,375.56	2,292.88	-197.27	-2,260.93	0.63
12,557.00	92.30	354.80	10,371.49	2,387.46	-205.30	-2,354.16	-0.32
12,652.00	91.00	353.50	10,368.76	2,481.92	-214.98	-2,447.72	-1.37
12,747.00	90.20	354.00	10,367.76	2,576.35	-225.32	-2,541.43	-0.84
12,842.00	91.50	354.00	10,366.35	2,670.82	-235.25	-2,635.07	1.37
12,938.00	89.80	353.90	10,365.27	2,766.27	-245.37	-2,729.71	-1.77
13,033.00	90.00	352.40	10,365.43	2,860.59	-256.70	-2,823.58	0.21
13,128.00	90.60	353.60	10,364.93	2,954.88	-268.27	-2,917.49	0.63
13,223.00	91.40	355.30	10,363.28	3,049.41	-277.46	-3,011.00	0.84
13,318.00	91.70	354.80	10,360.71	3,144.03	-285.65	-3,104.30	0.32
13,413.00	90.40	354.00	10,358.97	3,238.55	-294.92	-3,197.82	-1.37
13,507.00	90.90	353.60	10,357.90	3,332.00	-305.07	-3,290.53	0.53
13,602.00	91.20	354.40	10,356.16	3,426.46	-315.00	-3,384.17	0.32
13,698.00	89.90	354.40	10,355.24	3,521.99	-324.37	-3,478.68	-1.35
13,793.00	89.80	354.30	10,355.49	3,616.53	-333.72	-3,572.23	-0.11
13,888.00	90.70	354.70	10,355.07	3,711.09	-342.83	-3,665.74	0.95
13,983.00	91.40	355.10	10,353.33	3,805.70	-351.27	-3,759.11	0.74
14,078.00	92.00	354.40	10,350.51	3,900.26	-359.96	-3,852.50	0.63
14,173.00	90.60	354.90	10,348.36	3,994.82	-368.81	-3,945.93	-1.47
14,268.00	91.60	355.40	10,346.53	4,089.46	-376.84	-4,039.22	1.05
14,363.00	90.40	355.10	10,344.87	4,184.12	-384.71	-4,132.49	-1.26
14,458.00	91.20	355.60	10,343.55	4,278.79	-392.41	-4,225.72	0.84
14,553.00	90.30	355.00	10,342.30	4,373.47	-400.19	-4,318.98	-0.95
14,648.00	91.30	355.90	10,340.98	4,468.15	-407.73	-4,412.18	1.05
14,743.00	90.90	354.80	10,339.15	4,562.82	-415.43	-4,505.41	-0.42
14,839.00	91.50	353.70	10,337.14	4,658.32	-425.05	-4,599.95	0.62
14,893.00	91.00	353.60	10,335.97	4,711.97	-431.02	-4,653.23	-0.93
14,940.00	91.00	353.60	10,335.15	4,758.67	-436.25	-4,699.61	0.00

Design Annotations

Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates		Comment
		+N/-S (usft)	+E/-W (usft)	
14,893.00	10,335.97	4,711.97	-431.02	Last Survey: 14893' MD 10335.97' TVD
14,940.00	10,335.15	4,758.67	-436.25	TD Projected To MD: 14940'

Checked By: _____ Approved By: _____ Date: _____

30-025-42366



Job Number: SVMO-150308
 Company: Mewbourne Oil & Gas
 Lease/Well: Antelope 9 B2MD State Com 1H
 Location: Lea County, NM
 Rig Name: Patterson #444
 RKB: 23'
 G.L. or M.S.L.: GL

State/Country: New Mexico/USA
 Declination: 6.70°
 Grid: East To Grid North
 File name: S:\2015SU-1\MEWBOU-1\MO\ANTELOPE9B2MDS-1\1H.SVY
 Date/Time: 22-Apr-15 / 14:48
 Curve Name: Surface - 9755' M.D. (Rate Gyro)

HOBBS OCD
 JUN 19 2015
 RECEIVED

MS Survey

WINSERVE SURVEY CALCULATIONS
 Minimum Curvature Method
 Vertical Section Plane 354.76
 Vertical Section Referenced to Wellhead
 Rectangular Coordinates Referenced to Wellhead

We hereby certify that our survey data from
 Surface MD to 9755' MD is, to the best of
 our knowledge a true and accurate account of the
 well bore.
 Harley Patterson 4/22/15
 MS Energy Services Date

Measured Depth FT	Incl Angle Deg	Drift Direction Deg	True Vertical Depth	N-S FT	E-W FT	Vertical Section FT	CLOSURE		Dogleg Severity Deg/100
							Distance FT	Direction Deg	
.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
100.00	.17	77.94	100.00	.03	.15	.02	.15	77.94	.17
200.00	.27	79.62	200.00	.10	.52	.06	.53	78.68	.10
300.00	.37	103.81	300.00	.07	1.07	-.03	1.07	86.26	.17
400.00	.53	100.55	399.99	-.09	1.84	-.26	1.84	92.87	.16
500.00	.52	112.67	499.99	-.35	2.71	-.60	2.73	97.39	.11
600.00	1.12	165.97	599.98	-1.47	3.36	-1.78	3.67	113.67	.91
700.00	1.97	181.50	699.94	-4.14	3.56	-4.45	5.46	139.34	.94
800.00	3.16	187.25	799.84	-8.59	3.16	-8.85	9.16	159.79	1.22
900.00	4.23	191.58	899.63	-14.94	2.08	-15.07	15.08	172.09	1.11
1000.00	4.80	194.14	999.32	-22.61	.31	-22.55	22.61	179.21	.60
1100.00	4.85	193.73	1098.97	-30.77	-1.71	-30.49	30.82	183.18	.06
1200.00	4.79	195.45	1198.61	-38.91	-3.83	-38.39	39.09	185.62	.16

Measured Depth FT	Incl Angle Deg	Drift Direction Deg	True Vertical Depth	N-S FT	E-W FT	Vertical Section FT	C L O S U R E		Dogleg Severity Deg/100
							Distance FT	Direction Deg	
1300.00	4.27	190.65	1298.30	-46.59	-5.63	-45.88	46.93	186.89	.64
1400.00	3.41	184.01	1398.08	-53.21	-6.52	-52.40	53.61	186.99	.97
1500.00	2.74	172.56	1497.93	-58.55	-6.42	-57.72	58.90	186.26	.91
1600.00	2.09	151.99	1597.85	-62.53	-5.26	-61.79	62.75	184.81	1.07
1700.00	1.13	127.38	1697.81	-64.74	-3.62	-64.14	64.84	183.20	1.16
1800.00	.38	101.05	1797.80	-65.40	-2.51	-64.90	65.45	182.20	.81
1900.00	.48	46.94	1897.79	-65.18	-1.88	-64.74	65.21	181.65	.40
2000.00	.57	47.75	1997.79	-64.56	-1.20	-64.18	64.57	181.07	.09
2100.00	.69	49.98	2097.78	-63.84	-.37	-63.54	63.84	180.33	.12
2200.00	.38	348.90	2197.78	-63.13	.02	-62.86	63.13	179.98	.61
2300.00	.07	159.53	2297.78	-62.86	-.02	-62.59	62.86	180.02	.45
2400.00	.13	243.40	2397.78	-62.96	-.10	-62.69	62.96	180.09	.14
2500.00	.14	25.58	2497.78	-62.91	-.15	-62.63	62.91	180.13	.26
2600.00	.58	89.95	2597.78	-62.79	.41	-62.57	62.80	179.62	.53
2700.00	.98	75.14	2697.77	-62.58	1.74	-62.47	62.60	178.40	.44
2800.00	1.14	62.82	2797.75	-61.90	3.46	-61.96	62.00	176.80	.28
2900.00	1.87	45.82	2897.72	-60.31	5.51	-60.56	60.56	174.78	.85
3000.00	1.91	48.14	2997.66	-58.06	7.92	-58.54	58.60	172.23	.09
3100.00	1.37	67.94	3097.62	-56.50	10.27	-57.20	57.43	169.70	.78
3200.00	1.83	70.09	3197.58	-55.51	12.88	-56.45	56.98	166.94	.46
3300.00	1.89	72.75	3297.53	-54.47	15.96	-55.70	56.76	163.67	.11
3400.00	1.74	59.13	3397.48	-53.21	18.84	-54.70	56.44	160.51	.46
3500.00	1.16	27.05	3497.45	-51.53	20.60	-53.19	55.49	158.21	.98
3600.00	1.35	28.56	3597.43	-49.59	21.62	-51.36	54.10	156.44	.19
3700.00	1.78	20.61	3697.39	-47.10	22.73	-48.98	52.30	154.24	.48
3800.00	.87	49.79	3797.36	-45.16	23.86	-47.15	51.07	152.15	1.11
3900.00	.59	58.30	3897.35	-44.40	24.88	-46.48	50.89	150.74	.30
4000.00	.39	151.39	3997.35	-44.42	25.48	-46.57	51.21	150.17	.72
4100.00	.22	75.74	4097.35	-44.68	25.83	-46.85	51.60	149.97	.40
4200.00	.27	79.05	4197.35	-44.58	26.24	-46.79	51.73	149.52	.05
4300.00	.89	88.85	4297.34	-44.52	27.25	-46.83	52.20	148.53	.63
4400.00	1.11	51.05	4397.33	-43.90	28.78	-46.34	52.49	146.75	.68
4500.00	1.07	296.65	4497.32	-42.87	28.70	-45.31	51.59	146.20	1.83
4600.00	.89	307.29	4597.30	-41.98	27.25	-44.30	50.05	147.02	.26

Measured Depth FT	Incl Angle Deg	Drift Direction Deg	True Vertical Depth	N-S FT	E-W FT	Vertical Section FT	C L O S U R E		Dogleg Severity Deg/100
							Distance FT	Direction Deg	
4700.00	.79	218.35	4697.30	-42.05	26.20	-44.27	49.55	148.07	1.18
4800.00	.46	118.84	4797.29	-42.79	26.13	-44.99	50.13	148.59	.98
4900.00	.70	107.20	4897.29	-43.16	27.06	-45.45	50.94	147.91	.27
5000.00	.58	155.94	4997.28	-43.80	27.85	-46.16	51.91	147.55	.54
5100.00	.35	157.59	5097.28	-44.55	28.17	-46.94	52.71	147.69	.23
5200.00	.49	138.41	5197.28	-45.15	28.57	-47.57	53.43	147.67	.20
5300.00	.47	166.05	5297.27	-45.87	28.96	-48.32	54.24	147.74	.23
5400.00	.47	177.13	5397.27	-46.68	29.08	-49.14	54.99	148.08	.09
5500.00	.39	190.13	5497.27	-47.42	29.04	-49.87	55.60	148.52	.13
5600.00	.55	214.92	5597.26	-48.15	28.70	-50.57	56.06	149.20	.26
5700.00	.51	252.71	5697.26	-48.68	28.00	-51.03	56.16	150.09	.35
5800.00	.36	264.55	5797.26	-48.84	27.26	-51.12	55.93	150.83	.17
5900.00	.48	263.91	5897.25	-48.91	26.54	-51.13	55.65	151.52	.12
6000.00	.44	289.71	5997.25	-48.83	25.76	-50.97	55.20	152.19	.21
6100.00	.61	277.77	6097.25	-48.62	24.87	-50.69	54.62	152.91	.20
6200.00	.80	281.81	6197.24	-48.41	23.66	-50.37	53.88	153.96	.20
6300.00	.71	295.99	6297.23	-48.00	22.42	-49.84	52.97	154.96	.21
6400.00	.71	277.95	6397.22	-47.64	21.25	-49.38	52.16	155.96	.22
6500.00	.65	295.11	6497.22	-47.31	20.12	-48.95	51.41	156.96	.21
6600.00	.35	294.45	6597.21	-46.95	19.33	-48.51	50.77	157.62	.30
6700.00	.34	266.35	6697.21	-46.84	18.75	-48.35	50.45	158.18	.17
6800.00	.42	294.60	6797.21	-46.70	18.12	-48.16	50.10	158.79	.20
6900.00	.24	265.03	6897.21	-46.57	17.58	-47.98	49.78	159.32	.24
7000.00	.37	249.93	6997.21	-46.70	17.07	-48.06	49.72	159.92	.15
7100.00	.44	254.32	7097.20	-46.91	16.40	-48.21	49.70	160.73	.08
7200.00	.44	276.71	7197.20	-46.97	15.65	-48.20	49.51	161.58	.17
7300.00	.73	269.07	7297.19	-46.94	14.63	-48.08	49.16	162.69	.30
7400.00	.55	275.31	7397.19	-46.90	13.51	-47.94	48.81	163.93	.19
7500.00	.77	276.17	7497.18	-46.79	12.37	-47.72	48.39	165.19	.22
7600.00	.64	294.61	7597.17	-46.48	11.19	-47.31	47.81	166.46	.26
7700.00	.72	291.04	7697.17	-46.02	10.10	-46.75	47.12	167.62	.09
7800.00	.81	297.25	7797.16	-45.47	8.88	-46.10	46.33	168.95	.12
7900.00	.63	309.92	7897.15	-44.80	7.83	-45.33	45.48	170.08	.24
8000.00	.53	315.42	7997.15	-44.12	7.09	-44.58	44.68	170.87	.11

Measured Depth FT	Incl Angle Deg	Drift Direction Deg	True Vertical Depth	N-S FT	E-W FT	Vertical Section FT	C L O S U R E		Dogleg Severity Deg/100
							Distance FT	Direction Deg	
8100.00	.56	334.05	8097.14	-43.35	6.55	-43.76	43.84	171.41	.18
8200.00	.56	341.06	8197.14	-42.45	6.18	-42.83	42.89	171.72	.07
8300.00	.45	330.03	8297.13	-41.64	5.82	-42.00	42.05	172.04	.15
8400.00	.44	332.88	8397.13	-40.96	5.45	-41.29	41.32	172.42	.02
8500.00	.42	340.63	8497.13	-40.27	5.15	-40.58	40.60	172.71	.06
8600.00	.48	322.44	8597.12	-39.60	4.78	-39.87	39.88	173.12	.15
8700.00	.45	319.15	8697.12	-38.97	4.26	-39.19	39.20	173.75	.04
8800.00	.70	4.26	8797.12	-38.06	4.05	-38.27	38.28	173.92	.50
8900.00	1.02	12.07	8897.10	-36.58	4.28	-36.82	36.83	173.32	.34
9000.00	1.43	17.82	8997.08	-34.52	4.85	-34.82	34.86	172.00	.43
9100.00	1.64	25.10	9097.04	-32.04	5.84	-32.44	32.57	169.67	.29
9200.00	1.48	19.19	9197.01	-29.52	6.87	-30.03	30.31	166.90	.23
9300.00	1.59	354.98	9296.97	-26.92	7.18	-27.46	27.86	165.08	.65
9400.00	1.59	337.97	9396.94	-24.25	6.53	-24.75	25.12	164.92	.47
9500.00	1.18	.84	9496.91	-21.94	6.03	-22.40	22.75	164.63	.68
9600.00	1.31	355.40	9596.88	-19.77	5.95	-20.23	20.65	163.24	.18
9700.00	.94	327.91	9696.86	-17.93	5.42	-18.35	18.74	163.17	.64
Last Survey Depth Recorded									
9755.00	.88	307.91	9751.86	-17.29	4.85	-17.66	17.96	164.33	.58