



Mewbourne Oil Company

Lea County, New Mexico

Sec 9, T23S , R34E

Antelope 9 B3PA State Com #1H

Wellbore #1

Survey: MWD

DDC Survey Report

02 September, 2015

SL: 185 FSL & 750 FEL

LP: 549 FSL & 832 FEL

BHL: 333 FNL & 961 FEL

Oil Conservation Division
Case No.
Exhibit No.



The Directional Drilling Company

11390 FM 830
Willis, TX 77318
Phone: (936) 856-4332
Fax: (936) 856-8678



Survey Certification Sheet

Company	Job Number	Date
Mewbourne Oil Company	WT-150545	9/2/2015

Lease	Well Name	County & State
Sec9, T23S, R34E	Antelope 9 B3PA State #1H	Lea, NM

API No.	Survey Depth Range	Survey Type
30-025-42651	10280 feet to 15980 feet MD	MWD

Sidetrack Information	Directional Supervisor/Surveyor
N/A	Brad Reed

Certification Statement

The data and calculations for this survey have been checked by me and conform to the standards and procedures set forth by The Directional Drilling Company (DDC). This report represents a true and correct directional survey of this well based on the original data obtained at the well site.

Wellbore coordinates are calculated using minimum curvature.

Christopher Hughes

Digitally signed by Christopher Hughes
DN: cn=Christopher Hughes, o=DDC, ou,
email=Chrish@directionaldrillers.com, c=US
Date: 2015.09.04 07:26:01 -05'00'

Christopher Hughes
MWD Compliance Manager
The Directional Drilling Company

Company:	Mewbourne Oil Company	Local Co-ordinate Reference:	Well Antelope 9 B3PA State Com #1H
Project:	Lea County, New Mexico	TVD Reference:	Well @ 3436.0usft (Patterson #204)
Site:	Sec 9, T23S, R34E	MD Reference:	Well @ 3436.0usft (Patterson #204)
Well:	Antelope 9 B3PA State Com #1H	North Reference:	Grid
Wellbore:	Wellbore #1	Survey Calculation Method:	Minimum Curvature
Design:	Wellbore #1	Database:	Compass

Project	Lea 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 9, T23S, R34E		
Site Position:		Northing:	478,399.00 usft
From:	Map	Easting:	767,202.40 usft
Position Uncertainty:	0.0 usft	Slot Radius:	13-3/16 "
		Latitude:	32° 18' 44.178 N
		Longitude:	103° 28' 6.404 W
		Grid Convergence:	0.46 °

Well	Antelope 9 B3PA State Com #1H		
Well Position	+N/-S	0.0 usft	Northing:
	+E/-W	0.0 usft	Easting:
Position Uncertainty	0.0 usft	Wellhead Elevation:	0.0 usft
		Latitude:	32° 18' 44.178 N
		Longitude:	103° 28' 6.404 W
		Ground Level:	3,409.0 usft

Wellbore	Wellbore #1		
Magnetics	Model Name	Sample Date	Declination
			(°)
	IGRF2015	7/16/2015	7.12
			Dip Angle
			(°)
			60.19
			Field Strength
			(nT)
			48,200

Design	Wellbore #1		
Audit Notes:			
Version:	1.0	Phase:	ACTUAL
		Tie On Depth:	0.0
Vertical Section:	Depth From (TVD)	+N/-S	+E/-W
	(usft)	(usft)	(usft)
	0.0	0.0	0.0
			Direction
			(°)
			359.50

Survey Program	Date 8/25/2015		
From	To	Survey (Wellbore)	Tool Name
(usft)	(usft)		
100.0	10,280.0	Gyro (Wellbore #1)	Good_gyro
10,466.0	15,980.0	MWD (Wellbore #1)	MWD default
			Description
			Good Gyro
			MWD - Standard

Survey									
Measured	Inclination	Azimuth	Vertical	+N/-S	+E/-W	Vertical	Dogleg	Build	Turn
Depth	(°)	(°)	Depth	(usft)	(usft)	Section	Rate	Rate	Rate
(usft)			(usft)			(usft)	(°/100usft)	(°/100usft)	(°/100usft)
Tie Into Gyro @ 10280' MD / 10275' TVD									
10,280.0	3.78	334.95	10,274.9	-36.7	-80.6	-36.0	0.00	0.00	0.00
10,466.0	2.30	327.10	10,460.7	-28.0	-85.2	-27.3	0.82	-0.80	-4.22
10,561.0	2.00	316.00	10,555.6	-25.2	-87.4	-24.5	0.54	-0.32	-11.68
10,655.0	3.10	293.20	10,649.5	-23.0	-90.9	-22.3	1.57	1.17	-24.26
10,750.0	3.50	291.30	10,744.4	-21.0	-95.9	-20.1	0.44	0.42	-2.00
10,781.0	3.60	296.20	10,775.3	-20.2	-97.7	-19.4	1.03	0.32	15.81
10,817.0	4.80	306.20	10,811.2	-18.8	-99.9	-17.9	3.89	3.33	27.78
10,848.0	4.90	317.80	10,842.1	-17.1	-101.8	-16.2	3.17	0.32	37.42
10,879.0	7.00	352.30	10,872.9	-14.2	-103.0	-13.3	13.08	6.77	111.29

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Well:	Antelope 9 B3PA State Com #1H	North Reference:	Grid
Wellbore:	Wellbore #1	Survey Calculation Method:	Minimum Curvature
Design:	Wellbore #1	Database:	Compass

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)
10,911.0	9.50	0.90	10,904.6	-9.6	-103.2	-8.7	8.69	7.81	26.88
10,943.0	10.90	0.50	10,936.1	-4.0	-103.1	-3.1	4.38	4.38	-1.25
10,974.0	13.40	355.60	10,966.4	2.5	-103.4	3.4	8.72	8.06	-15.81
11,006.0	15.60	357.70	10,997.4	10.5	-103.9	11.4	7.07	6.88	6.56
11,037.0	16.30	5.30	11,027.2	19.0	-103.6	19.9	7.10	2.26	24.52
11,101.0	17.90	11.40	11,088.4	37.6	-100.8	38.5	3.75	2.50	9.53
11,132.0	19.40	14.90	11,117.7	47.3	-98.6	48.1	6.04	4.84	11.29
11,164.0	21.80	9.50	11,147.7	58.3	-96.2	59.1	9.56	7.50	-16.88
11,191.0	24.60	10.40	11,172.5	68.7	-94.4	69.6	10.45	10.37	3.33
11,222.0	26.10	11.10	11,200.5	81.8	-91.9	82.6	4.93	4.84	2.26
11,254.0	30.30	4.00	11,228.7	96.7	-90.0	97.5	16.78	13.13	-22.19
11,285.0	36.80	2.40	11,254.5	113.8	-89.1	114.6	21.16	20.97	-5.16
11,317.0	42.80	2.80	11,279.1	134.3	-88.1	135.1	18.77	18.75	1.25
11,348.0	50.20	3.70	11,300.4	156.7	-86.8	157.5	23.96	23.87	2.90
11,380.0	56.80	4.60	11,319.5	182.4	-85.0	183.1	20.75	20.63	2.81
11,411.0	62.40	2.40	11,335.2	209.0	-83.4	209.8	19.07	18.06	-7.10
11,443.0	69.10	2.80	11,348.3	238.2	-82.0	238.9	20.97	20.94	1.25
11,474.0	75.60	3.10	11,357.7	267.7	-80.5	268.4	20.99	20.97	0.97
11,508.0	83.30	0.50	11,363.9	301.0	-79.5	301.7	23.86	22.65	-7.65
11,571.0	93.30	354.70	11,365.8	363.9	-82.1	364.6	18.34	15.87	-9.21
11,665.0	93.40	355.20	11,360.3	457.3	-90.4	458.1	0.54	0.11	0.53
11,760.0	91.20	356.10	11,356.5	552.0	-97.6	552.8	2.50	-2.32	0.95
11,854.0	90.70	354.70	11,354.9	645.7	-105.1	646.5	1.58	-0.53	-1.49
11,949.0	90.80	354.70	11,353.7	740.2	-113.9	741.2	0.11	0.11	0.00
12,043.0	90.90	354.00	11,352.3	833.8	-123.1	834.8	0.75	0.11	-0.74
12,133.0	91.00	353.50	11,350.8	923.2	-132.9	924.3	0.57	0.11	-0.56
12,233.0	91.10	352.60	11,348.9	1,022.5	-145.0	1,023.7	0.91	0.10	-0.90
12,328.0	90.30	351.90	11,347.8	1,116.6	-157.8	1,117.9	1.12	-0.84	-0.74
12,422.0	88.50	349.80	11,348.8	1,209.4	-172.8	1,210.8	2.94	-1.91	-2.23
12,517.0	89.70	351.90	11,350.3	1,303.2	-187.9	1,304.7	2.55	1.26	2.21
12,612.0	90.90	353.60	11,349.8	1,397.4	-199.9	1,399.1	2.19	1.26	1.79
12,706.0	91.10	353.10	11,348.1	1,490.7	-210.8	1,492.5	0.57	0.21	-0.53
12,801.0	91.30	353.00	11,346.1	1,585.0	-222.2	1,586.9	0.24	0.21	-0.11
12,895.0	91.10	354.70	11,344.2	1,678.5	-232.3	1,680.4	1.82	-0.21	1.81
12,990.0	92.30	354.70	11,341.3	1,773.0	-241.1	1,775.0	1.26	1.26	0.00
13,084.0	93.80	354.70	11,336.3	1,866.5	-249.8	1,868.6	1.60	1.60	0.00
13,179.0	91.50	357.50	11,332.0	1,961.1	-256.2	1,963.3	3.81	-2.42	2.95
13,274.0	91.50	356.30	11,329.5	2,056.0	-261.3	2,058.2	1.26	0.00	-1.26
13,368.0	90.30	0.30	11,328.0	2,149.9	-264.1	2,152.1	4.44	-1.28	4.26
13,463.0	91.90	359.80	11,326.2	2,244.9	-264.0	2,247.1	1.76	1.68	-0.53
13,558.0	92.20	359.30	11,322.8	2,339.8	-264.8	2,342.0	0.61	0.32	-0.53
13,652.0	92.40	357.50	11,319.0	2,433.7	-267.4	2,435.9	1.93	0.21	-1.91
13,747.0	92.20	357.50	11,315.2	2,528.5	-271.6	2,530.8	0.21	-0.21	0.00

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Wellbore:	Wellbore #1	Survey Calculation Method:	Minimum Curvature
Design:	Wellbore #1	Database:	Compass

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)
13,840.0	92.10	356.60	11,311.7	2,621.3	-276.3	2,623.6	0.97	-0.11	-0.97
13,935.0	92.80	359.10	11,307.6	2,716.2	-279.9	2,718.5	2.73	0.74	2.63
14,030.0	94.00	1.20	11,302.0	2,811.0	-279.7	2,813.3	2.54	1.26	2.21
14,125.0	92.00	2.40	11,297.0	2,905.8	-276.7	2,908.1	2.45	-2.11	1.26
14,220.0	89.50	1.70	11,295.8	3,000.7	-273.3	3,003.0	2.73	-2.63	-0.74
14,314.0	89.60	1.60	11,296.5	3,094.7	-270.6	3,096.9	0.15	0.11	-0.11
14,409.0	89.20	1.20	11,297.5	3,189.7	-268.2	3,191.9	0.60	-0.42	-0.42
14,504.0	89.20	1.20	11,298.8	3,284.6	-266.3	3,286.8	0.00	0.00	0.00
14,599.0	89.00	0.50	11,300.3	3,379.6	-264.8	3,381.8	0.77	-0.21	-0.74
14,694.0	89.20	3.50	11,301.8	3,474.5	-261.5	3,476.7	3.16	0.21	3.16
14,788.0	89.90	2.40	11,302.6	3,568.4	-256.7	3,570.5	1.39	0.74	-1.17
14,883.0	89.70	2.30	11,302.9	3,663.3	-252.8	3,665.4	0.24	-0.21	-0.11
14,978.0	88.90	1.60	11,304.1	3,758.3	-249.6	3,760.3	1.12	-0.84	-0.74
15,073.0	89.10	0.70	11,305.7	3,853.2	-247.7	3,855.2	0.97	0.21	-0.95
15,167.0	89.30	0.20	11,307.0	3,947.2	-246.9	3,949.2	0.57	0.21	-0.53
15,262.0	90.00	359.50	11,307.6	4,042.2	-247.2	4,044.2	1.04	0.74	-0.74
15,357.0	90.40	359.50	11,307.3	4,137.2	-248.0	4,139.2	0.42	0.42	0.00
15,452.0	89.30	359.30	11,307.5	4,232.2	-249.0	4,234.2	1.18	-1.16	-0.21
15,546.0	89.00	359.10	11,308.9	4,326.2	-250.3	4,328.2	0.38	-0.32	-0.21
15,641.0	88.80	357.20	11,310.7	4,421.1	-253.4	4,423.1	2.01	-0.21	-2.00
15,736.0	92.30	359.30	11,309.8	4,516.0	-256.3	4,518.1	4.30	3.68	2.21
15,830.0	91.80	1.00	11,306.5	4,610.0	-256.0	4,612.0	1.88	-0.53	1.81
15,930.0	93.20	1.40	11,302.1	4,709.8	-253.9	4,711.9	1.46	1.40	0.40
TD @ 15980' MD / 11299' TVD									
15,980.0	93.20	1.40	11,299.3	4,759.8	-252.7	4,761.8	0.00	0.00	0.00

Survey Annotations

Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates		Comment
		+N/-S (usft)	+E/-W (usft)	
10,280.0	10,274.9	-36.7	-80.6	Tie Into Gyro @ 10280' MD / 10275' TVD
15,980.0	11,299.3	4,759.8	-252.7	TD @ 15980' MD / 11299' TVD

Checked By: _____ Approved By: _____ Date: _____

Company Name: Mewbourne Oil Company
Antelope 9 B3PA State Com #1H
Lea County, New Mexico
Rig: Patterson 8204
Created By: Sam Keys
Date: 8/25/2015

Antelope 9 B3PA State Com #1H
Lea County, New Mexico
Q150589 & WT-150509
Design #3 (Tie-In)

Mewbourne Oil Company



Azimuths to Grid North

Correction: 6.66°

Magnetic Field

Strength: 48199.8nT

Dip Angle: 60.19°

Date: 8/11/2015

Model: IGRF2015

DEMON TARGET DETAILS

Name	TVD	+M-S	+M-W	Northing	Easting	Latitude	Longitude
PEIS: Antelope 9 B3PA State 1H - gas hit target center	11271.0	4784.2	-11.4	483187.73	767586.00	37° 18' 31.324 N	103° 23' 0.425 W

ANNOTATIONS

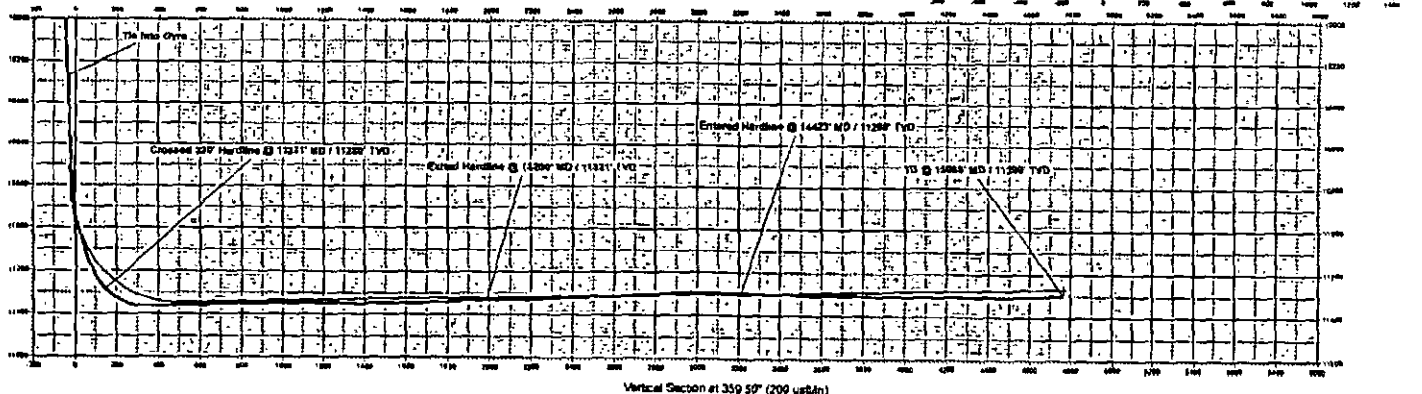
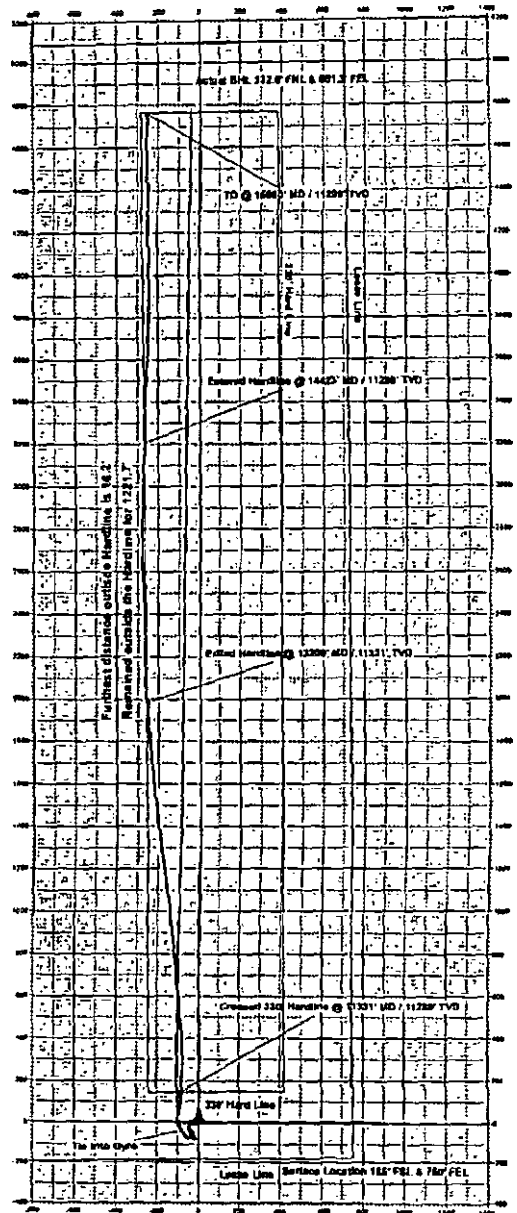
ID	SPC	Act	TVD	+M-S	+M-W	Vibed	Depth	Annotation
15286.8	3.78	234.86	18774.8	-38.7	-48.6	-38.8	235.7	The New Gym
15331.5	48.21	3.74	11288.3	146.3	-47.6	146.3	48.5	Entered 327 Hardline @ 11351' MD / 11288' TVD
15380.2	81.50	367.25	11291.4	1982.3	-267.2	1984.8	2297.5	Entered Hardline @ 11288' MD / 11291' TVD
15422.2	89.40	5.78	11291.7	2302.8	-268.0	2308.1	1819.7	Entered Hardline @ 14422' MD / 11288' TVD
15468.6	93.28	1.46	11296.3	4368.3	-253.7	4375.9	5675.2	TD @ 15965' MD / 11288' TVD

PROJECT DETAILS: Lea County, New Mexico

Geodetic System: US State Plane 1927 (Exact solution)
Datum: NAD 1927 (NADCON CONUS)
Ellipsoid: Clarke 1886
Zone: New Mexico East 3001
System Datum: Mean Sea Level

WELL DETAILS: Antelope 9 B3PA State Com #1H

+M-S	+M-W	Northing	Easting	Latitude	Longitude
0.0	0.0	478388.80	757382.00	37° 18' 46.128 N	103° 23' 0.464 W



Vertical Section at 359.50° (200 usdIn)

OCT 07 2015