



**PHOENIX
TECHNOLOGY SERVICES**

November 28, 2018

Oil Conservation Division
State of New Mexico
811 S. First St.
Artesia, New Mexico 88210

Dear District 2 - Artesia

RECEIVED

Attention: Regulatory Department

DEC 12 2018

Re: Delaware Energy
Moomaw SWD 1
Eddy County, NM
API #30-025-44661
Job No. 63346

DISTRICT II-ARTESIA O.C.D.

Enclosed please find the Survey Data Certification, and the original Plat and one copy of the Survey Report performed on the above referenced Well by Phoenix Technology Services, Inc. (P-5 No. 664171). Other information required by your office is as follows:

Name & Title of Surveyor	Drain Hole Number	Surveyed Depths		Dates Performed		Type of Survey
		From	To	Start	End	
Bruce Manser	1	158	19,765	8/17/18	10/22/18	MWD

A certified plat on which the bottom hole location is oriented both to the surface location and to the lease lines (or unit lines in case of pooling) is attached to the survey report. If any other information is required, please contact the undersigned at the letterhead address and phone number.

Best Regards,

Brittany Carley

Brittany Carley
Operations Administrator

Phoenix Technology Services
SURVEY DATA CERTIFICATION



PHOENIX JOB NUMBER 63346

OPERATOR Delaware Energy

WELL NAME Moomaw SWD 1

COUNTY & STATE Eddy, NM

API WELL NUMBER 30-025-44661

PROPOSED DIRECTION 270

TIE-IN DATA						
MEASURED	VERTICAL			N-S	E-W	DATA
DEPTH	DEPTH	INCLIN	AZIMUTH	COORD	COORD	SOURCE
.00 ft	.00 ft	0.00°	0.00°	0.00 N	0.00 E	Surface

FIRST	FIRST		
SURVEY	SURVEY		
DATE	DEPTH	INCLIN	AZIMUTH
19-Aug	158 ft	1.20°	177.10°

SURVEY INSTRUMENT
TYPE
Phoenix MWD

LAST	LAST		
SURVEY	SURVEY		
DATE	DEPTH	INCLIN	AZIMUTH
22-Oct-18	19,765 ft	2.24°	305.83°

TO THE BEST OF MY KNOWLEDGE I
CERTIFY THIS SURVEY DATA TO BE
TRUE AND CORRECT.

PROJECTED	PROJECTED		
TD SURVEY	TD SURVEY		
DATE	DEPTH	INCLIN	AZIMUTH
22-Oct-18	19,820 ft	2.24°	305.83°

Bruce Manser

PRINT YOUR NAME ABOVE

Bruce Manser

SIGN YOUR NAME ABOVE

MAGNETIC DECLINATION OR TOTAL GRID

TOTAL CORRECTION USED	7.66°
DECLINATION OR GRID	GRID

22-Oct

TODAY'S DATE

MWD SUPERVISOR 1 Bruce Manser

DIRECTIONAL DRILLER 1 Troy Paradez

MWD SUPERVISOR 2 Freddie Hicks

DIRECTIONAL DRILLER 2 James Ley



PHOENIX
TECHNOLOGY SERVICES

RECEIVED

DEC 12 2018

DISTRICT II-ARTESIA O.C.D.

Delaware Energy, LLC

Eddy County, NM (NAD83)

Moomaw SWD

1

OH / 63346

Survey: Phoenix MWD Surveys

Standard Survey Report

22 October, 2018



Survey Report

Company: Delaware Energy, LLC
Project: Eddy County, NM (NAD83)
Site: Moomaw SWD
Well: 1
Wellbore: OH / 63346
Design: Surveys (Patterson 241)

Local Co-ordinate Reference: Well 1
TVD Reference: RKB @ 3408.00usft (UDI 50)
MD Reference: RKB @ 3408.00usft (UDI 50)
North Reference: Grid
Survey Calculation Method: Minimum Curvature
Database: USA Compass

Project	Eddy County, NM (NAD83)		
Map System:	US State Plane 1983	System Datum:	Mean Sea Level
Geo Datum:	North American Datum 1983		
Map Zone:	New Mexico Eastern Zone		

Site Moomaw SWD

Site Position:
From: Map
Position Uncertainty: 0.00 usft
Northing: 434,496.30 usft
Easting: 823,081.10 usft
Slot Radius: 13-3/16 "
Latitude: 32° 11' 28.42130 N
Longitude: 103° 25' 21.24969 W
Grid Convergence: 0.49 °

Well 1

Well Position +N/-S 0.00 usft
 +E/-W 0.00 usft
Position Uncertainty 0.00 usft
Wellhead Elevation: usft
Latitude: 32° 11' 28.42130 N
Longitude: 103° 25' 21.24969 W
Ground Level: 3,380.00 usft

Wellbore OH / 63346

Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	MVHD	9/1/2018	6.70	59.86	47,895.07777421

Design Surveys (Patterson 241)

Audit Notes:

Version: 1.0 **Phase:** ACTUAL **Tie On Depth:** 0.00

Vertical Section:
Depth From (TVD) (usft) 0.00
+N/-S (usft) 0.00
+E/-W (usft) 0.00
Direction (°) 270.00

Survey Program Date 10/22/2018

From (usft)	To (usft)	Survey (Wellbore)	Tool Name	Description
158.00	19,820.00	Phoenix MWD Surveys (OH / 63346)	MWD+HDGM	OWSG Rev.2 MWD + HDGM

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)
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
158.00	1.20	177.10	157.99	-1.65	0.08	-0.08	0.76	0.76	0.00
First Phoenix MWD Survey									
216.00	1.49	183.67	215.97	-3.01	0.07	-0.07	0.57	0.50	11.33
275.00	1.77	182.64	274.95	-4.69	-0.02	0.02	0.48	0.47	-1.75
335.00	1.57	169.72	334.92	-6.42	0.08	-0.08	0.71	-0.33	-21.53
395.00	0.41	210.82	394.91	-7.41	0.12	-0.12	2.15	-1.93	68.50
452.00	0.57	238.70	451.91	-7.74	-0.23	0.23	0.50	0.28	48.91
511.00	0.87	283.31	510.91	-7.79	-0.92	0.92	1.04	0.51	75.61
569.00	1.06	287.01	568.90	-7.53	-1.86	1.86	0.34	0.33	6.38
628.00	1.07	309.55	627.89	-7.02	-2.81	2.81	0.71	0.02	38.20



Survey Report

Company: Delaware Energy, LLC
Project: Eddy County, NM (NAD83)
Site: Moomaw SWD
Well: 1
Wellbore: OH / 63346
Design: Surveys (Patterson 241)

Local Co-ordinate Reference: Well 1
TVD Reference: RKB @ 3408.00usft (UDI 50)
MD Reference: RKB @ 3408.00usft (UDI 50)
North Reference: Grid
Survey Calculation Method: Minimum Curvature
Database: USA 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)
687.00	0.74	292.50	686.88	-6.52	-3.58	3.58	0.72	-0.56	-28.90
745.00	1.29	314.14	744.87	-5.92	-4.40	4.40	1.14	0.95	37.31
835.00	1.02	320.05	834.85	-4.60	-5.64	5.64	0.33	-0.30	6.57
926.00	1.03	299.03	925.84	-3.59	-6.87	6.87	0.41	0.01	-23.10
1,021.00	1.01	314.12	1,020.83	-2.59	-8.22	8.22	0.28	-0.02	15.88
1,115.00	1.11	325.68	1,114.81	-1.26	-9.33	9.33	0.25	0.11	12.30
1,210.00	1.01	336.34	1,209.79	0.27	-10.18	10.18	0.23	-0.11	11.22
1,304.00	0.90	313.81	1,303.78	1.54	-11.05	11.05	0.41	-0.12	-23.97
1,398.00	0.68	307.55	1,397.77	2.39	-12.02	12.02	0.25	-0.23	-6.66
1,492.00	1.84	310.82	1,491.75	3.71	-13.61	13.61	1.24	1.23	3.48
1,586.00	3.03	316.66	1,585.66	6.51	-16.46	16.46	1.29	1.27	6.21
1,680.00	3.86	303.42	1,679.49	10.06	-20.80	20.80	1.22	0.88	-14.09
1,773.00	4.61	283.83	1,772.24	12.68	-27.04	27.04	1.74	0.81	-21.06
1,867.00	3.89	263.60	1,865.99	13.22	-33.88	33.88	1.76	-0.77	-21.52
1,961.00	2.62	229.38	1,959.84	11.47	-38.68	38.68	2.41	-1.35	-36.40
2,056.00	2.49	217.66	2,054.75	8.42	-41.59	41.59	0.57	-0.14	-12.34
2,150.00	2.30	224.62	2,148.67	5.46	-44.16	44.16	0.37	-0.20	7.40
2,245.00	2.13	228.92	2,243.60	2.95	-46.83	46.83	0.25	-0.18	4.53
2,338.00	2.40	259.49	2,336.53	1.45	-50.05	50.05	1.31	0.29	32.87
2,432.00	2.81	276.30	2,430.43	1.35	-54.28	54.28	0.92	0.44	17.88
2,526.00	2.73	276.68	2,524.32	1.86	-58.79	58.79	0.09	-0.09	0.40
2,620.00	2.66	277.18	2,618.22	2.39	-63.18	63.18	0.08	-0.07	0.53
2,714.00	2.45	279.87	2,712.12	3.01	-67.32	67.32	0.26	-0.22	2.86
2,808.00	2.27	284.51	2,806.04	3.82	-71.10	71.10	0.28	-0.19	4.94
2,902.00	2.30	283.31	2,899.97	4.72	-74.74	74.74	0.06	0.03	-1.28
2,995.00	2.20	287.75	2,992.90	5.70	-78.26	78.26	0.22	-0.11	4.77
3,090.00	2.81	283.33	3,087.81	6.79	-82.26	82.26	0.67	0.64	-4.65
3,184.00	3.14	281.00	3,181.68	7.81	-87.03	87.03	0.37	0.35	-2.48
3,279.00	2.59	254.80	3,276.56	7.75	-91.65	91.65	1.48	-0.58	-27.58
3,372.00	2.41	230.67	3,369.48	5.96	-95.19	95.19	1.14	-0.19	-25.95
3,467.00	2.07	214.97	3,464.41	3.28	-97.72	97.72	0.74	-0.36	-16.53
3,561.00	1.59	221.89	3,558.36	0.92	-99.57	99.57	0.56	-0.51	7.36
3,655.00	1.77	262.16	3,652.32	-0.25	-101.87	101.87	1.24	0.19	42.84
3,750.00	1.23	254.54	3,747.29	-0.72	-104.31	104.31	0.60	-0.57	-8.02
3,844.00	1.43	284.20	3,841.26	-0.70	-106.42	106.42	0.75	0.21	31.55
3,937.00	1.11	271.96	3,934.24	-0.39	-108.45	108.45	0.45	-0.34	-13.16
4,032.00	1.41	263.21	4,029.22	-0.49	-110.53	110.53	0.37	0.32	-9.21
4,126.00	2.28	261.53	4,123.17	-0.90	-113.52	113.52	0.93	0.93	-1.79
4,220.00	3.33	270.49	4,217.06	-1.16	-118.10	118.10	1.21	1.12	9.53
4,315.00	3.20	272.87	4,311.90	-1.00	-123.51	123.51	0.20	-0.14	2.51
4,409.00	3.56	274.73	4,405.74	-0.63	-129.04	129.04	0.40	0.38	1.98
4,504.00	2.76	281.21	4,500.59	0.06	-134.22	134.22	0.92	-0.84	6.82
4,598.00	0.57	271.03	4,594.55	0.51	-136.91	136.91	2.34	-2.33	-10.83

Survey Report

Company:	Delaware Energy, LLC	Local Co-ordinate Reference:	Well 1
Project:	Eddy County, NM (NAD83)	TVD Reference:	RKB @ 3408.00usft (UDI 50)
Site:	Moomaw SWD	MD Reference:	RKB @ 3408.00usft (UDI 50)
Well:	1	North Reference:	Grid
Wellbore:	OH / 63346	Survey Calculation Method:	Minimum Curvature
Design:	Surveys (Patterson 241)	Database:	USA 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)
4,692.00	1.29	141.79	4,688.54	-0.31	-136.72	136.72	1.82	0.77	-137.49
4,786.00	0.94	147.38	4,782.52	-1.80	-135.65	135.65	0.39	-0.37	5.95
4,881.00	0.58	112.12	4,877.51	-2.63	-134.79	134.79	0.60	-0.38	-37.12
4,975.00	0.67	147.90	4,971.51	-3.28	-134.05	134.05	0.42	0.10	38.06
5,069.00	0.50	41.62	5,065.51	-3.44	-133.49	133.49	1.00	-0.18	-113.06
5,164.00	1.14	81.98	5,160.50	-2.99	-132.28	132.28	0.87	0.67	42.48
5,258.00	0.22	356.35	5,254.49	-2.68	-131.36	131.36	1.22	-0.98	-91.10
5,352.00	1.01	271.29	5,348.48	-2.49	-132.20	132.20	1.08	0.84	-90.49
5,446.00	1.81	274.13	5,442.46	-2.36	-134.51	134.51	0.85	0.85	3.02
5,540.00	2.35	277.38	5,536.39	-2.01	-137.91	137.91	0.59	0.57	3.46
5,634.00	3.63	287.10	5,630.26	-0.88	-142.66	142.66	1.46	1.36	10.34
5,728.00	3.80	281.78	5,724.07	0.63	-148.55	148.55	0.41	0.18	-5.66
5,822.00	4.04	284.90	5,817.85	2.12	-154.80	154.80	0.34	0.26	3.32
5,917.00	3.74	282.48	5,912.63	3.65	-161.06	161.06	0.36	-0.32	-2.55
6,011.00	3.64	279.87	6,006.43	4.82	-167.00	167.00	0.21	-0.11	-2.78
6,106.00	3.42	279.17	6,101.25	5.79	-172.76	172.76	0.24	-0.23	-0.74
6,200.00	3.33	278.82	6,195.09	6.65	-178.23	178.23	0.10	-0.10	-0.37
6,294.00	4.13	277.34	6,288.89	7.50	-184.28	184.28	0.86	0.85	-1.57
6,389.00	4.04	281.59	6,383.65	8.61	-190.96	190.96	0.33	-0.09	4.47
6,483.00	4.62	282.78	6,477.38	10.12	-197.89	197.89	0.62	0.62	1.27
6,577.00	4.53	279.83	6,571.08	11.59	-205.24	205.24	0.27	-0.10	-3.14
6,671.00	4.58	280.92	6,664.78	12.93	-212.58	212.58	0.11	0.05	1.16
6,766.00	4.51	278.07	6,759.48	14.18	-220.01	220.01	0.25	-0.07	-3.00
6,860.00	4.35	278.88	6,853.20	15.24	-227.19	227.19	0.18	-0.17	0.86
6,954.00	4.23	273.70	6,946.94	16.02	-234.17	234.17	0.43	-0.13	-5.51
7,049.00	4.40	274.74	7,041.67	16.55	-241.30	241.30	0.20	0.18	1.09
7,143.00	4.29	273.38	7,135.40	17.05	-248.40	248.40	0.16	-0.12	-1.45
7,237.00	4.20	272.24	7,229.14	17.39	-255.35	255.35	0.13	-0.10	-1.21
7,331.00	3.95	268.33	7,322.91	17.43	-262.03	262.03	0.40	-0.27	-4.16
7,426.00	3.85	272.21	7,417.69	17.46	-268.48	268.48	0.30	-0.11	4.08
7,521.00	3.64	266.72	7,512.48	17.41	-274.68	274.68	0.44	-0.22	-5.78
7,615.00	3.60	268.67	7,606.30	17.17	-280.61	280.61	0.14	-0.04	2.07
7,711.00	3.40	269.13	7,702.12	17.06	-286.47	286.47	0.21	-0.21	0.48
7,805.00	3.15	264.39	7,795.96	16.76	-291.83	291.83	0.39	-0.27	-5.04
7,899.00	2.72	257.57	7,889.84	16.03	-296.58	296.58	0.59	-0.46	-7.26
7,993.00	2.29	253.99	7,983.75	15.03	-300.56	300.56	0.49	-0.46	-3.81
8,087.00	2.80	256.48	8,077.66	13.98	-304.60	304.60	0.56	0.54	2.65
8,181.00	2.54	251.63	8,171.56	12.79	-308.81	308.81	0.37	-0.28	-5.16
8,275.00	2.22	241.65	8,265.47	11.26	-312.38	312.38	0.56	-0.34	-10.62
8,369.00	2.10	245.55	8,359.41	9.69	-315.55	315.55	0.20	-0.13	4.15
8,463.00	2.17	239.27	8,453.34	8.06	-318.65	318.65	0.26	0.07	-6.68
8,557.00	2.40	248.34	8,547.27	6.43	-322.01	322.01	0.46	0.24	9.65
8,651.00	2.61	255.17	8,641.18	5.15	-325.91	325.91	0.39	0.22	7.27

Survey Report

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Site:	Moomaw SWD	MD Reference:	RKB @ 3408.00usft (UDI 50)
Well:	1	North Reference:	Grid
Wellbore:	OH / 63346	Survey Calculation Method:	Minimum Curvature
Design:	Surveys (Patterson 241)	Database:	USA 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)
8,745.00	2.64	259.34	8,735.08	4.21	-330.11	330.11	0.21	0.03	4.44
8,840.00	1.85	255.47	8,830.01	3.42	-333.74	333.74	0.85	-0.83	-4.07
8,934.00	1.80	255.68	8,923.96	2.67	-336.64	336.64	0.05	-0.05	0.22
9,029.00	1.67	270.05	9,018.92	2.30	-339.47	339.47	0.48	-0.14	15.13
9,123.00	1.45	262.71	9,112.88	2.15	-342.02	342.02	0.32	-0.23	-7.81
9,217.00	1.08	259.47	9,206.86	1.84	-344.07	344.07	0.40	-0.39	-3.45
9,313.00	0.99	264.00	9,302.84	1.59	-345.78	345.78	0.13	-0.09	4.72
9,408.00	0.90	271.15	9,397.83	1.52	-347.35	347.35	0.16	-0.09	7.53
9,503.00	1.37	272.04	9,492.81	1.57	-349.23	349.23	0.50	0.49	0.94
9,597.00	1.37	267.75	9,586.78	1.57	-351.47	351.47	0.11	0.00	-4.56
9,691.00	1.33	274.96	9,680.76	1.62	-353.68	353.68	0.19	-0.04	7.67
9,787.00	1.47	279.23	9,776.73	1.91	-356.01	356.01	0.18	0.15	4.45
9,881.00	1.85	276.56	9,870.69	2.28	-358.71	358.71	0.41	0.40	-2.84
9,975.00	2.07	282.75	9,964.63	2.83	-361.87	361.87	0.32	0.23	6.59
10,070.00	2.03	297.39	10,059.57	3.98	-365.04	365.04	0.55	-0.04	15.41
10,163.00	2.09	298.59	10,152.51	5.55	-367.99	367.99	0.08	0.06	1.29
10,268.00	2.01	318.13	10,257.45	7.84	-370.90	370.90	0.67	-0.08	18.61
10,361.00	2.15	318.81	10,350.39	10.36	-373.14	373.14	0.15	0.15	0.73
10,454.00	1.70	327.79	10,443.33	12.84	-375.02	375.02	0.58	-0.48	9.66
10,553.00	1.25	354.62	10,542.30	15.16	-375.90	375.90	0.82	-0.45	27.10
10,647.00	1.18	20.55	10,636.28	17.09	-375.66	375.66	0.58	-0.07	27.59
10,742.00	0.65	5.70	10,731.27	18.54	-375.26	375.26	0.61	-0.56	-15.63
10,836.00	0.44	320.72	10,825.27	19.35	-375.44	375.44	0.49	-0.22	-47.85
10,930.00	0.67	321.73	10,919.26	20.06	-376.01	376.01	0.24	0.24	1.07
11,024.00	0.59	315.29	11,013.26	20.84	-376.69	376.69	0.11	-0.09	-6.85
11,118.00	0.78	281.24	11,107.25	21.31	-377.66	377.66	0.47	0.20	-36.22
11,213.00	0.61	300.33	11,202.24	21.69	-378.73	378.73	0.30	-0.18	20.09
11,308.00	0.86	334.66	11,297.24	22.59	-379.47	379.47	0.52	0.26	36.14
11,401.00	0.90	6.79	11,390.22	23.94	-379.68	379.68	0.53	0.04	34.55
11,496.00	0.98	37.47	11,485.21	25.33	-379.10	379.10	0.53	0.08	32.29
12,070.00	1.57	56.11	12,059.07	33.61	-369.58	369.58	0.12	0.10	3.25
12,162.00	1.41	56.33	12,151.04	34.94	-367.60	367.60	0.17	-0.17	0.24
12,257.00	1.44	55.84	12,246.01	36.26	-365.64	365.64	0.03	0.03	-0.52
12,352.00	1.43	49.87	12,340.98	37.69	-363.74	363.74	0.16	-0.01	-6.28
12,446.00	1.50	47.21	12,434.95	39.28	-361.94	361.94	0.10	0.07	-2.83
12,540.00	1.61	53.79	12,528.91	40.90	-359.97	359.97	0.22	0.12	7.00
12,635.00	1.55	61.53	12,623.88	42.30	-357.77	357.77	0.23	-0.06	8.15
12,729.00	1.69	64.46	12,717.84	43.50	-355.40	355.40	0.17	0.15	3.12
12,823.00	2.31	64.78	12,811.78	44.91	-352.43	352.43	0.66	0.66	0.34
12,917.00	2.29	62.46	12,905.71	46.59	-349.06	349.06	0.10	-0.02	-2.47
13,010.00	2.31	51.19	12,998.63	48.62	-345.95	345.95	0.49	0.02	-12.12
13,104.00	2.42	54.72	13,092.55	50.95	-342.85	342.85	0.19	0.12	3.76
13,199.00	2.55	52.66	13,187.46	53.39	-339.53	339.53	0.17	0.14	-2.17
13,293.00	2.75	49.78	13,281.36	56.12	-336.15	336.15	0.26	0.21	-3.06



Survey Report

Company: Delaware Energy, LLC
Project: Eddy County, NM (NAD83)
Site: Moomaw SWD
Well: 1
Wellbore: OH / 63346
Design: Surveys (Patterson 241)

Local Co-ordinate Reference: Well 1
TVD Reference: RKB @ 3408.00usft (UDI 50)
MD Reference: RKB @ 3408.00usft (UDI 50)
North Reference: Grid
Survey Calculation Method: Minimum Curvature
Database: USA 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)
13,388.00	2.87	46.41	13,376.25	59.23	-332.69	332.69	0.21	0.13	-3.55
13,482.00	2.72	42.30	13,470.14	62.50	-329.48	329.48	0.27	-0.16	-4.37
13,575.00	2.34	46.27	13,563.05	65.45	-326.62	326.62	0.45	-0.41	4.27
13,671.00	2.41	50.06	13,658.96	68.10	-323.66	323.66	0.18	0.07	3.95
13,765.00	2.34	54.90	13,752.88	70.47	-320.58	320.58	0.23	-0.07	5.15
13,859.00	2.53	53.63	13,846.80	72.80	-317.33	317.33	0.21	0.20	-1.35
13,953.00	2.60	51.73	13,940.70	75.35	-313.99	313.99	0.12	0.07	-2.02
14,049.00	0.24	21.43	14,036.67	76.89	-312.21	312.21	2.50	-2.46	-31.56
14,145.00	0.34	309.74	14,132.67	77.26	-312.35	312.35	0.36	0.10	-74.68
14,240.00	0.54	345.95	14,227.66	77.87	-312.68	312.68	0.35	0.21	38.12
14,335.00	1.12	352.92	14,322.65	79.23	-312.90	312.90	0.62	0.61	7.34
14,430.00	1.16	0.31	14,417.64	81.11	-313.01	313.01	0.16	0.04	7.78
14,524.00	0.31	62.45	14,511.63	82.18	-312.78	312.78	1.12	-0.90	66.11
14,618.00	0.75	92.91	14,605.62	82.27	-311.94	311.94	0.54	0.47	32.40
14,712.00	1.01	91.01	14,699.61	82.22	-310.50	310.50	0.28	0.28	-2.02
14,806.00	0.62	66.68	14,793.60	82.41	-309.20	309.20	0.55	-0.41	-25.88
14,901.00	0.66	52.62	14,888.60	82.94	-308.30	308.30	0.17	0.04	-14.80
14,996.00	0.85	29.74	14,983.59	83.89	-307.51	307.51	0.37	0.20	-24.08
15,089.00	0.95	18.96	15,076.58	85.22	-306.92	306.92	0.21	0.11	-11.59
15,183.00	0.90	358.53	15,170.57	86.69	-306.68	306.68	0.35	-0.05	-21.73
15,278.00	1.12	2.03	15,265.55	88.36	-306.67	306.67	0.24	0.23	3.68
15,372.00	0.93	0.93	15,359.54	90.04	-306.63	306.63	0.20	-0.20	-1.17
15,466.00	1.24	15.80	15,453.52	91.79	-306.34	306.34	0.44	0.33	15.82
15,559.00	1.77	13.02	15,546.49	94.15	-305.74	305.74	0.58	0.57	-2.99
15,653.00	1.78	17.48	15,640.44	96.96	-304.97	304.97	0.15	0.01	4.74
15,747.00	1.67	11.14	15,734.40	99.70	-304.27	304.27	0.23	-0.12	-6.74
15,842.00	1.67	12.96	15,829.36	102.40	-303.69	303.69	0.06	0.00	1.92
15,936.00	2.00	7.50	15,923.31	105.37	-303.17	303.17	0.40	0.35	-5.81
16,030.00	1.85	13.10	16,017.26	108.47	-302.61	302.61	0.26	-0.16	5.96
16,125.00	1.82	15.37	16,112.21	111.42	-301.87	301.87	0.08	-0.03	2.39
16,219.00	2.02	11.55	16,206.16	114.48	-301.14	301.14	0.25	0.21	-4.06
16,313.00	1.77	19.43	16,300.11	117.47	-300.32	300.32	0.38	-0.27	8.38
16,408.00	2.18	17.20	16,395.05	120.58	-299.30	299.30	0.44	0.43	-2.35
16,501.00	1.77	14.51	16,487.99	123.66	-298.42	298.42	0.45	-0.44	-2.89
16,596.00	1.65	18.74	16,582.95	126.38	-297.61	297.61	0.18	-0.13	4.45
16,690.00	2.04	19.66	16,676.90	129.23	-296.61	296.61	0.42	0.41	0.98
16,785.00	1.89	20.81	16,771.85	132.29	-295.49	295.49	0.16	-0.16	1.21
16,881.00	2.07	18.93	16,867.79	135.41	-294.36	294.36	0.20	0.19	-1.96
16,975.00	2.18	9.61	16,961.72	138.78	-293.51	293.51	0.39	0.12	-9.91
17,070.00	2.39	12.84	17,056.65	142.49	-292.77	292.77	0.26	0.22	3.40
17,164.00	2.48	358.01	17,150.56	146.44	-292.41	292.41	0.68	0.10	-15.78
17,258.00	2.59	358.85	17,244.47	150.59	-292.52	292.52	0.12	0.12	0.89
17,353.00	2.64	3.97	17,339.37	154.92	-292.41	292.41	0.25	0.05	5.39

Survey Report

Company: Delaware Energy, LLC	Local Co-ordinate Reference: Well 1
Project: Eddy County, NM (NAD83)	TVD Reference: RKB @ 3408.00usft (UDI 50)
Site: Moomaw SWD	MD Reference: RKB @ 3408.00usft (UDI 50)
Well: 1	North Reference: Grid
Wellbore: OH / 63346	Survey Calculation Method: Minimum Curvature
Design: Surveys (Patterson 241)	Database: USA 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)
17,448.00	2.77	4.29	17,434.27	159.39	-292.09	292.09	0.14	0.14	0.34
17,542.00	2.61	2.03	17,528.16	163.80	-291.84	291.84	0.20	-0.17	-2.40
17,635.00	2.80	0.10	17,621.06	168.18	-291.76	291.76	0.23	0.20	-2.08
17,729.00	2.75	359.41	17,714.95	172.73	-291.78	291.78	0.06	-0.05	-0.73
17,822.00	2.85	358.82	17,807.84	177.28	-291.85	291.85	0.11	0.11	-0.63
17,916.00	2.88	357.97	17,901.72	181.97	-291.99	291.99	0.06	0.03	-0.90
18,081.00	2.44	353.57	18,066.54	189.61	-292.53	292.53	0.29	-0.27	-2.67
18,176.00	2.82	353.67	18,161.44	193.94	-293.01	293.01	0.40	0.40	0.11
18,270.00	3.28	350.14	18,255.31	198.89	-293.73	293.73	0.53	0.49	-3.76
18,364.00	2.49	351.55	18,349.19	203.56	-294.49	294.49	0.84	-0.84	1.50
18,459.00	1.97	337.27	18,444.12	207.10	-295.42	295.42	0.80	-0.55	-15.03
18,553.00	2.00	320.88	18,538.06	209.87	-297.08	297.08	0.60	0.03	-17.44
18,648.00	2.20	319.49	18,633.00	212.54	-299.31	299.31	0.22	0.21	-1.46
18,742.00	1.47	289.58	18,726.95	214.31	-301.62	301.62	1.26	-0.78	-31.82
18,837.00	1.37	288.39	18,821.92	215.08	-303.84	303.84	0.11	-0.11	-1.25
18,933.00	1.31	294.35	18,917.90	215.90	-305.93	305.93	0.16	-0.06	6.21
19,027.00	1.26	298.16	19,011.87	216.83	-307.82	307.82	0.11	-0.05	4.05
19,121.00	2.27	323.19	19,105.83	218.80	-309.85	309.85	1.33	1.07	26.63
19,166.00	2.30	328.96	19,150.79	220.29	-310.85	310.85	0.52	0.07	12.82
19,310.00	2.45	2.79	19,294.68	225.84	-312.19	312.19	0.96	0.10	23.49
19,405.00	2.01	350.26	19,389.61	229.51	-312.37	312.37	0.69	-0.46	-13.19
19,499.00	1.83	343.96	19,483.55	232.58	-313.07	313.07	0.29	-0.19	-6.70
19,687.00	1.34	290.21	19,671.49	236.22	-315.96	315.96	0.80	-0.26	-28.59
19,765.00	2.24	305.83	19,749.45	237.43	-318.05	318.05	1.30	1.15	20.03
Final Phoenix MWD Survey									
19,820.00	2.24	305.83	19,804.41	238.69	-319.79	319.79	0.00	0.00	0.00
Projection to TD									

Survey Annotations

Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates		Comment
		+N/-S (usft)	+E/-W (usft)	
158.00	157.99	-1.65	0.08	First Phoenix MWD Survey
19,765.00	19,749.45	237.43	-318.05	Final Phoenix MWD Survey
19,820.00	19,804.41	238.69	-319.79	Projection to TD

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Form C-102

Revised August 1, 2011

DISTRICT I

1625 N. French Dr., Hobbs, NM 88240
Phone (575) 333-6181 Fax: (575) 333-0720

DISTRICT II

811 S. First St., Artesia, NM 88210
Phone (575) 748-1223 Fax: (575) 748-0720

DISTRICT III

1000 Rio Bravos Rd., Asteo, NM 87410
Phone (505) 834-6178 Fax: (505) 834-6170

DISTRICT IV

1220 S. St. Francis Dr., Santa Fe, NM 87505
Phone (505) 470-5460 Fax: (505) 470-5462State of New Mexico
Energy, Minerals and Natural Resources DepartmentOIL CONSERVATION DIVISION
1220 South St. Francis Dr.
Santa Fe, New Mexico 87505DISTRICT II-ARTESIA O.C.D.
DEC 12 2018Submit one copy to appropriate
District Office

DISTRICT II-ARTESIA O.C.D.

☐ AMENDED REPORT

WELL LOCATION AND ACREAGE DEDICATION PLAT

API Number	Pool Code	Pool Name
Property Code	Property Name MOOMAW SWD	Well Number 1
OGRID No.	Operator Name DELAWARE ENERGY	Elevation 3380'

Surface Location

UL or lot No.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County
G	25	24 S	34 E		1646	NORTH	2294	EAST	EDDY

Bottom Hole Location If Different From Surface

UL or lot No.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County
Dedicated Acres	Joint or Infill	Consolidation Code	Order No.						

NO ALLOWABLE WILL BE ASSIGNED TO THIS COMPLETION UNTIL ALL INTERESTS HAVE BEEN CONSOLIDATED
OR A NON-STANDARD UNIT HAS BEEN APPROVED BY THE DIVISION

