



July 10, 2017

NM OIL CONSERVATION
ARTESIA DISTRICT

JAN 26 2018

RECEIVED

Devon Energy Production Company, LP
Well: Agate PWU 21-22 9H
County/Parish: Eddy County, NM

30-015-44116

LEAM MWD: (OH) from 293' MD – 18,290' MD
Projection: 18,389'

This Borehole Survey taken between 06/11/2017 and 06/24/2017 had been conducted and calculated according to the highest professional standards and complies with all known State and Federal requirements.

Reviewed and Approved:

Date: July 10, 2017



Survey Certification Form

State of New Mexico
Eddy County

I, Randy W. Rakowitz, certify that; I am employed by LEAM Drilling Services, that I did on the day(s) of 06/11/2017 through 06/24/2017, conduct or supervise the taking of MWD Survey from a depth of 293' MD to 18,389' MD; that the data is true, correct, complete and within the limitations of the tools as set forth by LEAM Drilling Services, that I am authorized and qualified to make this report; that this survey was conducted at the request of Devon Energy Production Company, LP for the Agate PWU 21-22 9H in Eddy County, New Mexico; and that I reviewed this report and find that it conforms to the principals and procedures as set forth by LEAM Drilling Services.

A handwritten signature in black ink, appearing to read 'RWR', is written over a solid horizontal line.

Randy W. Rakowitz
MWD Operations Coordinator

LEAM Drilling Systems LLC

Survey Report

Client: Devon Energy
Location: Eddy County, NM (NAD-83)
Well: Agate PWU 21-22
Well ID: 9H
Well Type: OH
Well Status: OH

Survey Method: Minimum Curvature
Survey Software: EDM 5000.1 MULTI User DB

Well 9H
 3334.2' GE + 23.5' KB @ 3357.70usft
 3334.2' GE + 23.5' KB @ 3357.70usft
 Grid
 Minimum Curvature
 EDM 5000.1 MULTI User DB

Project: Eddy County, NM (NAD-83)
Map System: US State Plane 1983
Geo Datum: North American Datum 1983
Map Zone: New Mexico Eastern Zone

System Datum: Mean Sea Level

Site: Agate PWU 21-22

Site Position: **From:** Map
Position Uncertainty: 0.00 usft
Northing: 601,009.77 usft
Easting: 616,495.30 usft
Slot Radius: 13-3/16"
Latitude: 32° 39' 7.149 N
Longitude: 104° 5' 20.890 W
Grid Convergence: 0.13°

Well: 9H
Well Position: **+N-S:** 0.00 usft **+E-W:** 0.00 usft
Position Uncertainty: 0.00 usft
Wellhead Elevation: 0.00 usft
Ground Level: 3,334.20 usft

Wellhead: OH

HDGM	4/11/2017	7.48	60.52	48,228
------	-----------	------	-------	--------

Design: OH

Audit Notes:
Version: 1.0 **Phase:** ACTUAL **Tie On Depth:** 0.00
 0.00 0.00 0.00 90.17

Survey Station	Depth (ft)	Survey Method	Tool Name	Description
50.00	200.00	Survey #1 (OH)	NS-GYRO-MS	North sensing gyrocompassing m/s
293.00	8,997.00	Survey #2 (OH)	LEAM MWD+HDGM	MWD+HDGM
9,016.00	18,290.00	Survey #3 (OH)	MWD+HRGM+SAG+MS	OWSG MWD + HRGM + Sag + Multi-Station Correction
18,389.00	18,389.00	Survey #4 (OH)	Project	Projection

Depth (ft)	Survey Station	Depth (ft)	Survey Station	Depth (ft)	Survey Station	Depth (ft)	Survey Station	Depth (ft)	Survey Station	Depth (ft)	Survey Station
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
50.00	0.26	51.76	50.00	0.07	0.09	0.09	0.52	0.52	0.00		
100.00	0.31	96.49	100.00	0.13	0.31	0.31	0.44	0.10	89.46		
150.00	0.19	28.71	150.00	0.18	0.49	0.49	0.59	-0.24	-135.56		
200.00	0.41	38.00	200.00	0.40	0.64	0.64	0.45	0.44	18.58		
293.00	0.30	19.30	293.00	0.89	0.92	0.92	0.17	-0.12	-20.11		
384.00	0.20	358.60	384.00	1.27	1.00	0.99	0.15	-0.11	-22.75		
445.00	0.30	32.60	444.99	1.51	1.08	1.08	0.29	0.16	55.74		

LEAM Drilling Systems LLC

Survey Report

3334.2' GE + 23.5' KB @ 3357.70usft
 3334.2' GE + 23.5' KB @ 3357.70usft
 Grid
 Minimum Curvature
 EDM 5000.1 MULTI User DB

Devon Energy
 Eddy County, NM (NAD-83)
 Agate PWU 21-22
 9H
 OH
 OH

Local Coordinate Reference
 WGS 84
 NAD 83
 North Reference
 Survey Calculation Method
 Minimum Curvature

Well 9H
 3334.2' GE + 23.5' KB @ 3357.70usft
 3334.2' GE + 23.5' KB @ 3357.70usft
 Grid
 Minimum Curvature
 EDM 5000.1 MULTI User DB

Station	Offset	Station	Offset	Station	Offset	Station	Offset	Station	Offset
537.00	0.20	530	536.99	1.88	1.23	1.22	0.17	-0.11	-29.67
628.00	0.30	15.60	627.99	2.26	1.30	1.30	0.12	0.11	11.32
719.00	0.30	17.30	718.99	2.72	1.44	1.43	0.01	0.00	1.87
812.00	0.30	44.80	811.99	3.13	1.68	1.67	0.15	0.00	29.57
903.00	0.30	52.40	902.99	3.44	2.04	2.03	0.04	0.00	8.35
995.00	0.30	44.20	994.99	3.76	2.40	2.39	0.05	0.00	-8.91
1,087.00	0.20	36.90	1,086.99	4.06	2.66	2.65	0.11	-0.11	-7.93
1,178.00	0.20	29.50	1,177.99	4.33	2.84	2.82	0.03	0.00	-8.13
1,270.00	0.20	328.20	1,269.99	4.60	2.83	2.82	0.22	0.00	-66.63
1,361.00	0.40	306.50	1,360.99	4.93	2.49	2.48	0.25	0.22	-23.85
1,456.00	0.40	291.10	1,455.98	5.24	1.92	1.90	0.11	0.00	-16.21
1,552.00	0.60	293.70	1,551.98	5.57	1.14	1.13	0.21	0.21	2.71
1,648.00	0.70	304.90	1,647.97	6.10	0.20	0.18	0.17	0.10	11.67
1,743.00	0.60	315.60	1,742.97	6.79	-0.62	-0.64	0.17	-0.11	11.26
1,839.00	0.70	318.20	1,838.96	7.59	-1.37	-1.39	0.11	0.10	2.71
1,934.00	0.70	317.50	1,933.95	8.45	-2.14	-2.17	0.01	0.00	-0.74
2,030.00	0.80	321.90	2,029.95	9.41	-2.95	-2.98	0.12	0.10	4.58
2,125.00	0.80	324.10	2,124.94	10.47	-3.75	-3.78	0.03	0.00	2.32
2,221.00	0.80	334.00	2,220.93	11.61	-4.44	-4.47	0.14	0.00	10.31
2,317.00	0.80	330.30	2,316.92	12.80	-5.06	-5.10	0.05	0.00	-3.85
2,412.00	0.70	332.50	2,411.91	13.89	-5.66	-5.70	0.11	-0.11	2.32
2,508.00	0.80	334.30	2,507.90	15.01	-6.22	-6.27	0.11	0.10	1.88
2,603.00	0.80	339.40	2,602.89	16.23	-6.74	-6.79	0.07	0.00	5.37
2,699.00	1.00	16.30	2,698.88	17.66	-6.74	-6.80	0.63	0.21	38.44
2,795.00	1.70	41.50	2,794.85	19.53	-5.57	-5.62	0.94	0.73	26.25
2,890.00	2.50	52.30	2,889.79	21.85	-2.99	-3.06	0.94	0.84	11.37
2,985.00	3.40	56.30	2,984.66	24.68	0.99	0.92	0.97	0.95	4.21
3,081.00	4.00	57.90	3,080.46	28.04	6.20	6.11	0.63	0.63	1.67
3,176.00	4.70	59.40	3,175.19	31.78	12.35	12.26	0.75	0.74	1.58
3,272.00	5.10	60.50	3,270.84	35.89	19.45	19.35	0.43	0.42	1.15
3,367.00	5.10	60.70	3,365.46	40.03	26.81	26.69	0.02	0.00	0.21
3,411.00	5.10	61.10	3,409.29	41.94	30.23	30.10	0.08	0.00	0.91
3,545.00	4.90	60.20	3,542.78	47.66	40.41	40.27	0.16	-0.15	-0.67
3,640.00	4.60	59.60	3,637.45	51.60	47.21	47.06	0.32	-0.32	-0.63
3,736.00	4.80	57.10	3,733.13	55.73	53.91	53.74	0.30	0.21	-2.60
3,831.00	5.20	58.90	3,827.77	60.11	60.93	60.75	0.45	0.42	1.89
3,927.00	4.50	57.80	3,923.42	64.37	67.84	67.65	0.74	-0.73	-1.15
4,023.00	5.10	59.60	4,019.09	68.53	74.71	74.51	0.64	0.63	1.88
4,118.00	6.00	66.60	4,113.64	72.64	82.91	82.69	1.18	0.95	7.37
4,214.00	6.20	69.00	4,209.10	76.49	92.35	92.12	0.34	0.21	2.50
4,310.00	6.10	71.90	4,304.54	79.94	102.04	101.80	0.34	-0.10	3.02
4,405.00	5.80	62.10	4,399.03	83.75	111.08	110.83	1.11	-0.32	-10.32
4,501.00	4.50	54.10	4,494.65	88.23	118.42	118.16	1.54	-1.35	-8.33

LEAM Drilling Systems LLC

Survey Report

Devon Energy
Eddy County, NM (NAD-83)
Agate PWU 21-22
9H
OH
OH

Local Coordinates Reference
TBM Reference
BM Reference
Block Reference
Survey Instrument Model
Reference

Well 9H
3334.2' GE + 23.5' KB @ 3357.70usft
3334.2' GE + 23.5' KB @ 3357.70usft
Grid
Minimum Curvature
EDM 5000.1 MULTI User DB

Station	Dist	Angle	Dist	Angle	Dist	Angle	Dist	Angle	Dist
4,596.00	4.30	52.30	4,589.37	92.59	124.26	123.98	0.26	-0.21	-1.89
4,692.00	4.70	53.20	4,685.07	97.15	130.25	129.96	0.42	0.42	0.94
4,787.00	5.00	56.00	4,779.73	101.80	136.80	136.50	0.40	0.32	2.95
4,883.00	5.00	63.30	4,875.37	106.01	144.01	143.69	0.66	0.00	7.60
4,978.00	4.60	61.60	4,970.03	109.69	151.06	150.73	0.45	-0.42	-1.79
5,074.00	4.30	65.30	5,065.74	113.02	157.71	157.38	0.43	-0.31	3.85
5,169.00	4.70	62.80	5,160.45	116.29	164.41	164.06	0.47	0.42	-2.63
5,265.00	4.70	64.20	5,256.13	119.80	171.45	171.09	0.12	0.00	1.46
5,361.00	4.90	60.50	5,351.79	123.53	178.56	178.19	0.38	0.21	-3.85
5,456.00	4.40	56.70	5,446.48	127.53	185.14	184.76	0.62	-0.53	-4.00
5,552.00	4.50	56.80	5,542.19	131.61	191.36	190.97	0.10	0.10	0.10
5,648.00	4.80	61.40	5,637.87	135.60	198.04	197.64	0.50	0.31	4.79
5,743.00	4.00	60.00	5,732.59	139.16	204.40	203.99	0.85	-0.84	-1.47
5,839.00	4.10	59.00	5,828.35	142.60	210.24	209.82	0.13	0.10	-1.04
5,935.00	5.00	66.00	5,924.05	146.07	217.01	216.57	1.10	0.94	7.29
6,030.00	4.70	67.80	6,018.71	149.22	224.39	223.95	0.35	-0.32	1.89
6,126.00	4.00	66.40	6,114.43	152.05	231.10	230.65	0.74	-0.73	-1.46
6,222.00	3.50	65.90	6,210.23	154.58	236.85	236.39	0.52	-0.52	-0.52
6,317.00	3.30	58.90	6,305.06	157.18	241.83	241.37	0.48	-0.21	-7.37
6,413.00	4.00	58.00	6,400.86	160.38	247.04	246.56	0.73	0.73	-0.94
6,514.00	4.70	58.00	6,501.57	164.44	253.54	253.05	0.69	0.69	0.00
6,610.00	3.70	59.70	6,597.31	168.09	259.55	259.05	1.05	-1.04	1.77
6,706.00	3.20	73.20	6,693.14	170.43	264.79	264.28	0.99	-0.52	14.06
6,801.00	4.40	70.40	6,787.93	172.42	270.76	270.24	1.28	1.26	-2.95
6,897.00	5.00	55.30	6,883.61	176.03	277.67	277.14	1.43	0.63	-15.73
6,993.00	4.40	50.70	6,979.29	180.75	283.95	283.42	0.74	-0.63	-4.79
7,088.00	4.20	56.80	7,074.02	184.96	289.69	289.14	0.53	-0.21	6.42
7,184.00	4.40	66.20	7,169.75	188.37	296.00	295.44	0.76	0.21	9.79
7,279.00	4.70	76.30	7,264.45	190.76	303.11	302.55	0.90	0.32	10.63
7,375.00	3.60	88.70	7,360.20	191.76	309.95	309.38	1.47	-1.15	12.92
7,470.00	4.10	87.80	7,454.99	191.96	316.32	315.75	0.53	0.53	-0.95
7,566.00	3.30	74.70	7,550.79	192.82	322.42	321.84	1.21	-0.83	-13.65
7,661.00	2.50	67.20	7,645.67	194.35	326.96	326.39	0.93	-0.84	-7.89
7,757.00	1.20	57.70	7,741.62	195.70	329.74	329.16	1.39	-1.35	-9.90
7,853.00	0.80	38.30	7,837.60	196.76	331.01	330.42	0.54	-0.42	-20.21
7,948.00	1.20	40.00	7,932.59	198.04	332.06	331.47	0.42	0.42	1.79
8,044.00	2.00	50.90	8,028.55	199.87	334.01	333.41	0.89	0.83	11.35
8,100.00	1.90	43.40	8,084.52	201.16	335.40	334.80	0.49	-0.18	-13.39
8,167.00	2.88	66.95	8,151.46	202.62	337.71	337.11	2.04	1.46	35.15
8,215.00	7.11	80.47	8,199.27	203.59	341.76	341.15	9.09	8.81	28.17
8,262.00	9.76	86.54	8,245.75	204.31	348.60	347.99	5.94	5.64	12.91
8,310.00	13.80	87.86	8,292.73	204.77	358.39	357.78	8.43	8.42	2.75
8,358.00	17.14	89.41	8,338.99	205.06	371.19	370.58	7.01	6.96	3.23
8,406.00	20.35	94.18	8,384.44	204.52	386.59	385.98	7.41	6.69	9.94

LEAM Drilling Systems LLC

Survey Report

Company: Devon Energy
Location: Eddy County, NM (NAD-83)
Well: Agate PWU 21-22
Well ID: 9H
Well Type: OH
Well Status: OH

Local Coordinate Reference: Well 9H
TVD Reference: 3334.2' GE + 23.5' KB @ 3357.70usft
MD Reference: 3334.2' GE + 23.5' KB @ 3357.70usft
North Reference: Grid
Survey Calculation Method: Minimum Curvature
Database: EDM 5000.1 MULTI User DB

Station	True Northing	True Easting	True Elevation	True Northing	True Easting	True Elevation	Delta Northing	Delta Easting	Delta Elevation
8,454.00	24.15	92.98	8,428.86	203.40	404.72	404.12	7.97	7.92	-2.50
8,502.00	26.39	92.43	8,472.26	202.44	425.19	424.59	4.69	4.67	-1.15
8,549.00	29.97	91.70	8,513.68	201.65	447.37	446.77	7.65	7.62	-1.55
8,581.00	31.48	91.90	8,541.19	201.13	463.71	463.11	4.73	4.72	0.63
8,613.00	33.81	92.93	8,568.13	200.40	480.95	480.36	7.49	7.28	3.22
8,644.00	34.51	94.00	8,593.79	199.35	498.33	497.73	2.98	2.26	3.45
8,679.00	38.05	92.96	8,622.00	198.10	519.00	518.41	10.27	10.11	-2.97
8,711.00	40.87	93.33	8,646.70	196.98	539.30	538.71	8.84	8.81	1.16
8,742.00	44.20	92.88	8,669.54	195.85	560.22	559.64	10.79	10.74	-1.45
8,774.00	47.90	92.69	8,691.75	194.73	583.23	582.65	11.57	11.56	-0.59
8,838.00	54.90	90.16	8,731.65	193.54	633.20	632.62	11.36	10.94	-3.95
8,870.00	57.08	90.29	8,749.55	193.44	659.72	659.14	6.82	6.81	0.41
8,934.00	65.13	90.41	8,780.45	193.09	715.70	715.13	12.58	12.58	0.19
8,965.00	69.52	90.40	8,792.40	192.89	744.30	743.73	14.16	14.16	-0.03
8,997.00	73.64	90.56	8,802.51	192.64	774.65	774.08	12.88	12.88	0.50
9,016.00	75.71	89.59	8,807.53	192.61	792.98	792.40	11.96	10.89	-5.11
9,047.00	80.15	90.09	8,814.01	192.70	823.28	822.71	14.41	14.32	1.61
9,079.00	81.18	90.87	8,819.20	192.43	854.86	854.28	4.02	3.22	2.44
9,111.00	83.47	91.01	8,823.47	191.91	886.57	885.99	7.17	7.16	0.44
9,143.00	85.10	91.17	8,826.66	191.31	918.40	917.83	5.12	5.09	0.50
9,175.00	85.70	90.94	8,829.23	190.72	950.29	949.72	2.01	1.88	-0.72
9,223.00	85.72	90.47	8,832.82	190.13	998.15	997.58	0.98	0.04	-0.98
9,270.00	85.57	90.61	8,836.39	189.69	1,045.01	1,044.45	0.44	-0.32	0.30
9,366.00	85.60	91.35	8,843.78	188.05	1,140.72	1,140.15	0.77	0.03	0.77
9,462.00	87.05	91.95	8,849.93	185.29	1,236.47	1,235.92	1.63	1.51	0.63
9,557.00	87.46	91.95	8,854.48	182.06	1,331.31	1,330.76	0.43	0.43	0.00
9,653.00	88.87	91.33	8,857.55	179.32	1,427.22	1,426.68	1.60	1.47	-0.65
9,748.00	89.00	90.84	8,859.32	177.52	1,522.19	1,521.65	0.53	0.14	-0.52
9,844.00	89.07	90.74	8,860.94	176.20	1,618.16	1,617.63	0.13	0.07	-0.10
9,939.00	89.71	90.23	8,861.95	175.39	1,713.15	1,712.63	0.86	0.67	-0.54
10,035.00	89.57	89.60	8,862.55	175.53	1,809.15	1,808.62	0.67	-0.15	-0.66
10,130.00	89.67	89.42	8,863.18	176.35	1,904.15	1,903.61	0.22	0.11	-0.19
10,226.00	89.20	89.49	8,864.13	177.26	2,000.14	1,999.60	0.49	-0.49	0.07
10,322.00	89.74	89.58	8,865.01	178.04	2,096.13	2,095.59	0.57	0.56	0.09
10,417.00	90.51	89.06	8,864.81	179.17	2,191.12	2,190.58	0.98	0.81	-0.55
10,509.00	90.24	89.61	8,864.21	180.23	2,283.11	2,282.57	0.67	-0.29	0.60
10,600.00	90.61	88.83	8,863.53	181.47	2,374.10	2,373.55	0.95	0.41	-0.86
10,692.00	89.97	89.36	8,863.06	182.92	2,466.09	2,465.53	0.90	-0.70	0.58
10,783.00	90.75	88.93	8,862.49	184.28	2,557.07	2,556.52	0.98	0.86	-0.47
10,875.00	90.72	89.20	8,861.31	185.78	2,649.05	2,648.49	0.30	-0.03	0.29
10,966.00	90.88	89.38	8,860.04	186.91	2,740.04	2,739.47	0.26	0.18	0.20
11,058.00	91.02	89.21	8,858.52	188.04	2,832.02	2,831.45	0.24	0.15	-0.18
11,150.00	91.05	89.30	8,856.85	189.24	2,924.00	2,923.42	0.10	0.03	0.10

LEAM Drilling Systems LLC

Survey Report

Devon Energy
Eddy County, NM (NAD-83)
Agate PWU 21-22
9H
OH
OH

Local Coordinate Reference
FWD Reference
BWD Reference
Grid Reference
Survey Stationing Method
Datum

Well 9H
3334.2' GE + 23.5' KB @ 3357.70usft
3334.2' GE + 23.5' KB @ 3357.70usft
Grid
Minimum Curvature
EDM 5000.1 MULTI User DB

Station	1	2	3	4	5	6	7	8	9
11,243.00	88.97	89.42	8,856.84	190.28	3,016.98	3,016.41	2.24	-2.24	0.13
11,333.00	88.67	89.02	8,858.69	191.50	3,106.96	3,106.37	0.56	-0.33	-0.44
11,424.00	88.49	89.61	8,860.95	192.59	3,197.92	3,197.34	0.68	-0.20	0.65
11,516.00	88.70	90.07	8,863.20	192.85	3,289.89	3,289.31	0.55	0.23	0.50
11,546.00	88.09	90.84	8,864.04	192.61	3,319.88	3,319.29	3.27	-2.03	2.57
11,608.00	88.06	90.74	8,866.13	191.75	3,381.84	3,381.26	0.17	-0.05	-0.16
11,700.00	87.86	90.76	8,869.40	190.55	3,473.77	3,473.19	0.22	-0.22	0.02
11,792.00	87.96	90.40	8,872.76	189.62	3,565.71	3,565.13	0.41	0.11	-0.39
11,887.00	88.30	91.51	8,875.86	188.04	3,660.64	3,660.07	1.22	0.36	1.17
11,983.00	89.87	92.98	8,877.39	184.28	3,756.55	3,755.99	2.24	1.64	1.53
12,078.00	89.71	91.85	8,877.74	180.28	3,851.46	3,850.91	1.20	-0.17	-1.19
12,174.00	90.18	91.35	8,877.83	177.59	3,947.43	3,946.88	0.71	0.49	-0.52
12,269.00	90.14	91.45	8,877.56	175.27	4,042.40	4,041.86	0.11	-0.04	0.11
12,365.00	89.77	92.24	8,877.64	172.18	4,138.35	4,137.82	0.91	-0.39	0.82
12,461.00	90.18	92.49	8,877.68	168.22	4,234.26	4,233.75	0.50	0.43	0.26
12,556.00	90.85	91.53	8,876.83	164.89	4,329.20	4,328.69	1.23	0.71	-1.01
12,652.00	91.60	90.60	8,874.78	163.11	4,425.16	4,424.66	1.24	0.78	-0.97
12,747.00	91.05	91.53	8,872.58	161.34	4,520.12	4,519.62	1.14	-0.58	0.98
12,843.00	91.32	90.95	8,870.59	159.26	4,616.07	4,615.58	0.67	0.28	-0.60
12,938.00	90.01	89.50	8,869.49	158.89	4,711.06	4,710.57	2.06	-1.38	-1.53
13,034.00	89.14	88.46	8,870.20	160.60	4,807.04	4,806.54	1.41	-0.91	-1.08
13,129.00	88.97	87.14	8,871.77	164.25	4,901.96	4,901.45	1.40	-0.18	-1.39
13,225.00	88.60	87.60	8,873.81	168.65	4,997.83	4,997.31	0.61	-0.39	0.48
13,321.00	88.13	86.92	8,876.54	173.24	5,093.68	5,093.15	0.86	-0.49	-0.71
13,416.00	87.93	86.12	8,879.81	179.00	5,188.45	5,187.90	0.87	-0.21	-0.84
13,512.00	88.16	84.61	8,883.09	186.75	5,284.08	5,283.50	1.59	0.24	-1.57
13,608.00	88.23	84.55	8,886.11	195.82	5,379.60	5,379.00	0.10	0.07	-0.06
13,703.00	87.75	85.86	8,889.44	203.75	5,474.21	5,473.58	1.47	-0.51	1.38
13,799.00	87.93	87.38	8,893.06	209.41	5,569.97	5,569.33	1.59	0.19	1.58
13,895.00	89.00	88.34	8,895.63	212.99	5,665.87	5,665.21	1.50	1.11	1.00
13,991.00	89.50	87.68	8,896.89	216.32	5,761.80	5,761.13	0.86	0.52	-0.69
14,086.00	89.81	87.32	8,897.46	220.47	5,856.71	5,856.03	0.50	0.33	-0.38
14,182.00	89.57	87.62	8,897.98	224.71	5,952.61	5,951.92	0.40	-0.25	0.31
14,277.00	89.40	89.23	8,898.83	227.32	6,047.57	6,046.87	1.70	-0.18	1.69
14,373.00	90.28	91.24	8,899.10	226.92	6,143.56	6,142.86	2.29	0.92	2.09
14,468.00	90.55	91.55	8,898.41	224.61	6,238.53	6,237.84	0.43	0.28	0.33
14,564.00	89.66	91.64	8,898.24	221.94	6,334.49	6,333.81	0.93	-0.93	0.09
14,659.00	89.61	93.13	8,898.84	217.98	6,429.41	6,428.73	1.57	-0.05	1.57
14,755.00	90.08	92.57	8,899.10	213.21	6,525.29	6,524.63	0.76	0.49	-0.58
14,849.00	90.58	90.17	8,898.56	210.96	6,619.25	6,618.60	2.61	0.53	-2.55
14,945.00	90.00	88.56	8,898.07	212.03	6,715.24	6,714.58	1.78	-0.60	-1.68
15,040.00	89.64	90.28	8,898.37	212.99	6,810.23	6,809.57	1.85	-0.38	1.81
15,136.00	89.90	89.81	8,898.76	212.91	6,906.23	6,905.57	0.56	0.27	-0.49

LEAM Drilling Systems LLC

Survey Report

Company: Devon Energy
Project: Eddy County, NM (NAD-83)
Well: Agate PWU 21-22
Well ID: 9H
Well Type: OH
Well Status: OH

Local Coordinate Reference:
True North:
Magnetic North:
Grid North:
Survey Calculation Method:
Reference:

Well 9H
 3334.2' GE + 23.5' KB @ 3357.70usft
 3334.2' GE + 23.5' KB @ 3357.70usft
 Grid
 Minimum Curvature
 EDM 5000.1 MULTI User DB

Station	North	East	Depth	True	Magnetic	Grid	True	Magnetic	Grid
15,231.00	89.77	89.48	8,899.03	213.50	7,001.23	7,000.56	0.37	-0.14	-0.35
15,327.00	90.21	88.88	8,899.05	214.88	7,097.22	7,096.55	0.78	0.46	-0.63
15,423.00	90.71	88.18	8,898.28	217.34	7,193.18	7,192.51	0.90	0.52	-0.73
15,518.00	90.61	88.28	8,897.18	220.27	7,288.13	7,287.45	0.15	-0.11	0.11
15,614.00	89.57	88.71	8,897.03	222.80	7,384.10	7,383.40	1.17	-1.08	0.45
15,709.00	89.77	88.43	8,897.58	225.17	7,479.06	7,478.36	0.36	0.21	-0.29
15,805.00	88.22	89.19	8,899.26	227.16	7,575.03	7,574.32	1.80	-1.61	0.79
15,900.00	87.89	90.37	8,902.49	227.52	7,669.97	7,669.26	1.29	-0.35	1.24
15,996.00	87.78	89.00	8,906.12	228.05	7,765.90	7,765.19	1.43	-0.11	-1.43
16,092.00	87.38	90.84	8,910.17	228.19	7,861.81	7,861.09	1.96	-0.42	1.92
16,187.00	87.52	90.66	8,914.40	226.94	7,956.70	7,956.00	0.24	0.15	-0.19
16,283.00	87.65	90.26	8,918.44	226.17	8,052.62	8,051.91	0.44	0.14	-0.42
16,378.00	88.02	89.74	8,922.03	226.17	8,147.55	8,146.84	0.67	0.39	-0.55
16,474.00	89.12	88.72	8,924.43	227.46	8,243.51	8,242.79	1.56	1.15	-1.06
16,570.00	89.07	91.40	8,925.94	227.36	8,339.48	8,338.77	2.79	-0.05	2.79
16,665.00	89.50	90.46	8,927.13	225.82	8,434.46	8,433.76	1.09	0.45	-0.99
16,760.00	89.54	90.68	8,927.92	224.88	8,529.46	8,528.75	0.24	0.04	0.23
16,856.00	90.26	90.06	8,928.09	224.26	8,625.45	8,624.75	0.99	0.75	-0.65
16,951.00	90.98	89.76	8,927.06	224.41	8,720.45	8,719.74	0.82	0.76	-0.32
17,047.00	90.88	90.17	8,925.51	224.46	8,816.43	8,815.73	0.44	-0.10	0.43
17,142.00	89.30	91.41	8,925.36	223.15	8,911.42	8,910.72	2.11	-1.66	1.31
17,238.00	89.34	91.53	8,926.50	220.69	9,007.38	9,006.69	0.13	0.04	0.13
17,334.00	89.74	91.56	8,927.27	218.10	9,103.34	9,102.66	0.42	0.42	0.03
17,429.00	89.27	90.70	8,928.09	216.23	9,198.32	9,197.64	1.03	-0.49	-0.91
17,525.00	88.39	90.81	8,930.05	214.96	9,294.29	9,293.61	0.92	-0.92	0.11
17,620.00	88.18	90.91	8,932.89	213.54	9,389.24	9,388.56	0.24	-0.22	0.11
17,716.00	89.00	90.34	8,935.25	212.49	9,485.20	9,484.53	1.04	0.85	-0.59
17,812.00	88.82	89.91	8,937.08	212.28	9,581.18	9,580.51	0.49	-0.19	-0.45
17,907.00	89.19	91.25	8,938.73	211.32	9,676.16	9,675.49	1.46	0.39	1.41
18,003.00	89.54	91.81	8,939.79	208.76	9,772.12	9,771.46	0.69	0.36	0.58
18,098.00	90.24	91.49	8,939.97	206.02	9,867.08	9,866.43	0.81	0.74	-0.34
18,194.00	90.24	91.72	8,939.57	203.33	9,963.04	9,962.39	0.24	0.00	0.24
18,290.00	91.22	90.94	8,938.35	201.11	10,059.01	10,058.37	1.30	1.02	-0.81
18,389.00	91.22	90.94	8,936.24	199.48	10,157.97	10,157.33	0.00	0.00	0.00
Projection									