



NM OIL CONSERVATION
ARTESIA DISTRICT

JUL 12 2018

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Final Directional Report

Devon Energy

Onyx PWU 29-28 10H

30-015-44363

Eddy County, NM

Prepared for Ian Norwalk



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SECTION 1
PROPOSED VS. ACTUAL PLOT



Azimuths to Grid North
 True North: -0.12°
 Magnetic North: 7.31°
 Magnetic Field
 Strength: 48199.1snT
 Dip Angle: 60.50°
 Date: 8/26/2017
 Model: HDGM

PROJECT DETAILS: Eddy County, (NAD-83)

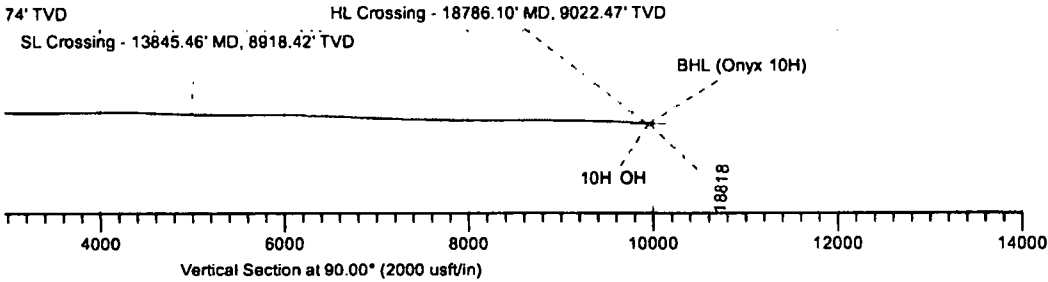
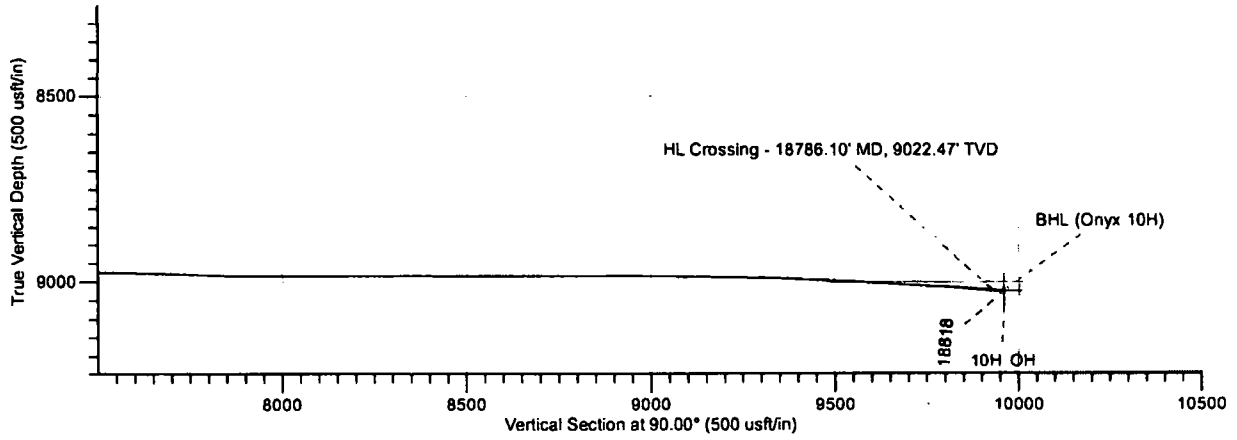
Geodetic System: US State Plane 1983
 Datum: North American Datum 1983
 Ellipsoid: GRS 1980
 Zone: New Mexico Eastern Zone



2.50usft
00

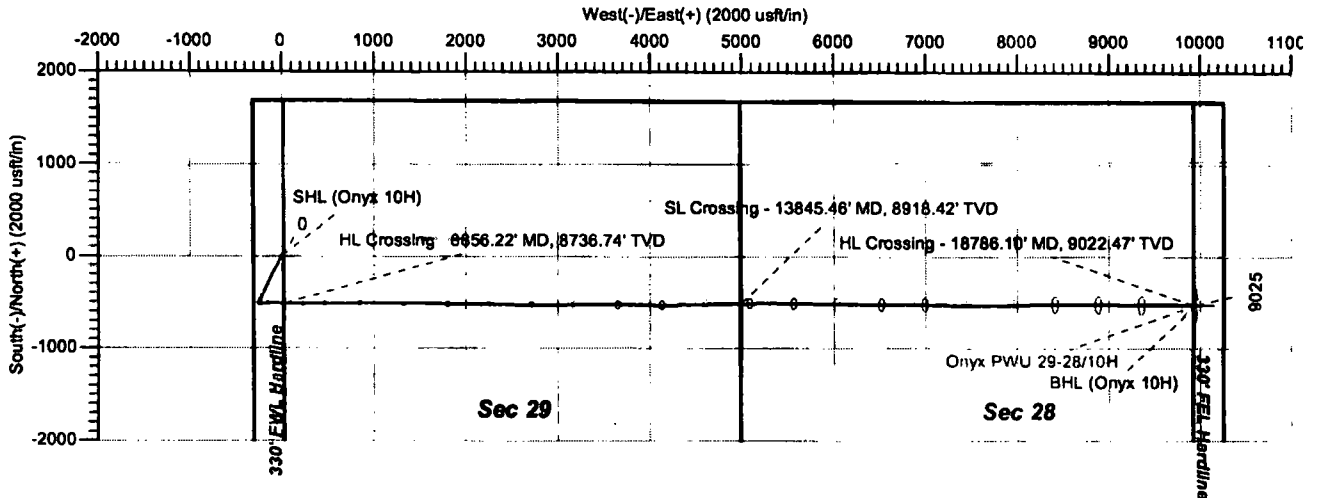
DESIGN TARGET DETAILS

Name	TVD	+N/-S	+E/-W	Latitude	Longitude
BHL (Onyx 10H)	9024.88	-525.69	9959.80	32° 37' 58.6988 N	104° 4' 20.0372 W
SHL (Onyx 10H)	0.00	0.00	0.00	32° 38' 4.1279 N	104° 6' 16.4969 W



LEAM DRILLING SYSTEMS LLC
 2010 East Davis, Conroe, Texas 77301
 Phone: 936/756-7577, Fax: 936/756-7595

Design: OH (10H/OH)
 Onyx PWU 29-28
 Created By: Dustin Ault
 Date: _____ Date: 14:51, December 04 2017
 Approved: _____ Date: _____

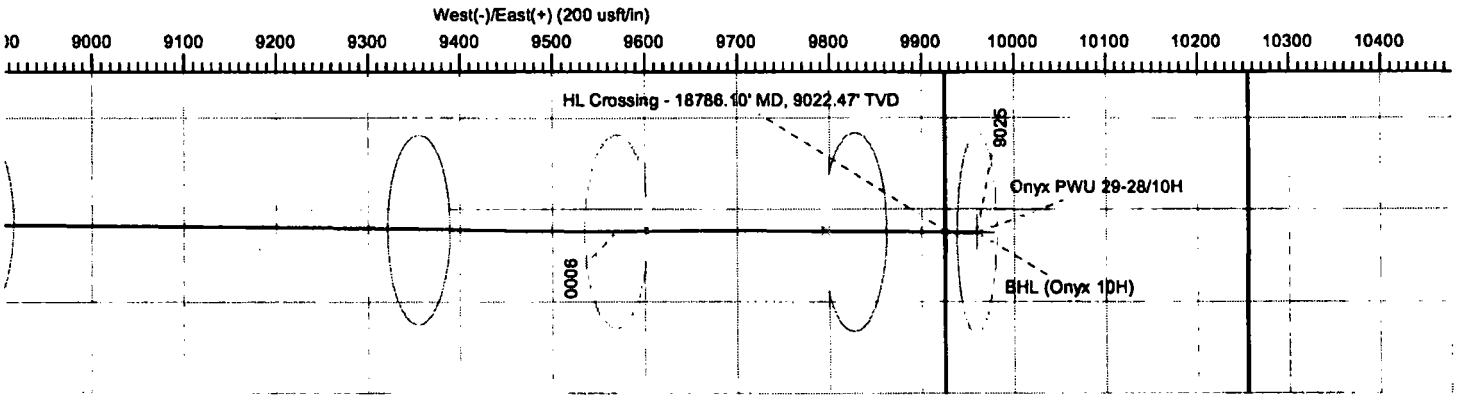


PROJECT DETAILS: Eddy County, NM (NAD-83)
 Geodetic System: US State Plane 1983
 Datum: North American Datum 1983
 Ellipsoid: GRS 1980
 Zone: New Mexico Eastern Zone

ACTUAL LINE CALLS
 SHL: 1690' FNL, 310' FWL of Sec 29
 BHL: 2210' FNL, 294' FEL of Sec 28

DESIGN TARGET DETAILS

Name	TVD	+N/-S	+E/-W	Northing	Easting	Latitude	Longitude
SHL (Onyx 10H)	0.00	0.00	0.00	594830.49	611754.97	32° 38' 4.1279 N	104° 6' 18.4869 W
BHL (Onyx 10H)	9024.88	-525.69	9959.80	594104.80	621714.77	32° 37' 58.6988 N	104° 4' 20.0372 W



LEAM DRILLING SYSTEMS LLC
 2010 East Davis, Conroe, Texas 77301
 Phone: 936/756-7577, Fax 936/756-7595

Design: OH (10H/OH)
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 Created By: Dustin Ault Date: 14:48, December 04 20
 Date: _____
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Devon Energy

Eddy County, NM (NAD-83)

Onyx PWU 29-28

10H

OH

Design: OH

Standard Survey Report

04 December, 2017

LEAM Drilling Systems LLC

Survey Report

Company: Devon Energy	Local Co-ordinate Reference: Well 10H
Project: Eddy County, NM (NAD-83)	TVD Reference: 3309.0' GE + 23.5' KB @ 3332.50usft
Site: Onyx PWU 29-28	MD Reference: 3309.0' GE + 23.5' KB @ 3332.50usft
Well: 10H	North Reference: Grid
Wellbore: OH	Survey Calculation Method: Minimum Curvature
Design: OH	Database: EDM 5000.1 Multi User Db

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

Site	Onyx PWU 29-28				
Site Position:		Northing:	596,305.26 usft	Latitude:	32° 38' 20.7014 N
From:	Map	Easting:	611,703.20 usft	Longitude:	104° 6' 17.0602 W
Position Uncertainty:	0.00 usft	Slot Radius:	13-3/16 "	Grid Convergence:	0.12 °

Well	10H					
Well Position	+N/-S	0.00 usft	Northing:	594,630.49 usft	Latitude:	32° 38' 4.1279 N
	+E/-W	0.00 usft	Easting:	611,754.97 usft	Longitude:	104° 6' 16.4969 W
Position Uncertainty	0.00 usft	Wellhead Elevation:	0.00 usft	Ground Level:	3,309.00 usft	

Wellbore	OH				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	HDGM	6/26/2017	7.43	60.50	48.199

Design	OH				
Audit Notes:					
Version:	1.0	Phase:	ACTUAL	Tie On Depth:	0.00
Vertical Section:	Depth From (TVD) (usft)	+N/-S (usft)	+E/-W (usft)	Direction (°)	
	0.00	0.00	0.00	90.00	

Survey Program	Date 12/4/2017				
From (usft)	To (usft)	Survey (Wellbore)	Tool Name	Description	
50.00	140.00	Survey #1 (OH)	GYRO		
242.00	9,270.00	Survey #2 (OH)	LEAM MWD+HDGM	MWD+HDGM	
9,317.00	18,744.00	Survey #3 - 6 Axis (OH)	MWD+IFR1+MS	MWD + IFR1 + Multi-Station Correction	
18,818.00	18,818.00	Survey #4 (OH)	Project	Projection	

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
SHL (Onyx 10H)									
50.00	0.32	5.24	50.00	0.14	0.01	0.01	0.64	0.64	0.00
100.00	0.31	37.60	100.00	0.39	0.11	0.11	0.35	-0.02	64.72
140.00	0.57	15.12	140.00	0.66	0.23	0.23	0.77	0.65	-56.20
242.00	1.00	306.00	241.99	1.68	-0.36	-0.36	0.94	0.42	-87.76
341.00	1.00	290.00	340.98	2.48	-1.87	-1.87	0.28	0.00	-16.16
439.00	0.90	284.70	438.96	2.97	-3.42	-3.42	0.14	-0.10	-5.41

LEAM Drilling Systems LLC

Survey Report

Company: Devon Energy
 Project: Eddy County, NM (NAD-83)
 Site: Onyx PWU 29-28
 Well: 10H
 Wellbore: OH
 Design: OH

Local Co-ordinate Reference: Well 10H
 TVD Reference: 3309.0' GE + 23.5' KB @ 3332.50usft
 MD Reference: 3309.0' GE + 23.5' KB @ 3332.50usft
 North Reference: Grid
 Survey Calculation Method: Minimum Curvature
 Database: EDM 5000.1 Multi 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)
529.00	0.80	287.50	528.95	3.34	-4.70	-4.70	0.12	-0.11	3.11
622.00	0.70	289.40	621.94	3.72	-5.86	-5.86	0.11	-0.11	2.04
713.00	0.40	302.80	712.94	4.08	-6.65	-6.65	0.36	-0.33	14.73
804.00	0.20	56.70	803.94	4.34	-6.78	-6.78	0.57	-0.22	125.16
895.00	0.80	85.53	894.94	4.46	-6.18	-6.18	0.48	0.44	31.68
985.00	0.60	73.60	984.93	4.63	-5.25	-5.25	0.14	0.00	-13.28
1,076.00	0.40	62.30	1,075.93	4.91	-4.52	-4.52	0.24	-0.22	-12.42
1,168.00	0.40	56.50	1,167.93	5.24	-3.98	-3.98	0.04	0.00	-6.30
1,260.00	0.40	21.90	1,259.92	5.71	-3.58	-3.58	0.26	0.00	-37.61
1,351.00	0.40	3.80	1,350.92	6.33	-3.44	-3.44	0.14	0.00	-20.11
1,442.00	0.60	351.00	1,441.92	7.11	-3.49	-3.49	0.25	0.22	-13.85
1,534.00	0.40	284.00	1,533.92	7.67	-3.88	-3.88	0.63	-0.22	-72.83
1,626.00	1.10	237.90	1,625.91	7.27	-4.94	-4.94	0.95	0.76	-50.11
1,722.00	1.00	239.30	1,721.89	6.36	-8.44	-8.44	0.11	-0.10	1.48
1,817.00	0.60	237.80	1,816.88	5.67	-7.57	-7.57	0.42	-0.42	-1.58
1,913.00	0.70	211.90	1,912.88	4.90	-8.31	-8.31	0.32	0.10	-26.98
2,008.00	0.90	203.70	2,007.87	3.73	-8.92	-8.92	0.24	0.21	-8.63
2,104.00	1.20	190.50	2,103.85	2.05	-9.40	-9.40	0.40	0.31	-13.75
2,199.00	1.80	188.40	2,198.82	-0.24	-9.78	-9.78	0.42	0.42	-2.21
2,295.00	2.20	188.50	2,294.77	-3.39	-10.25	-10.25	0.63	0.63	0.10
2,391.00	3.20	193.60	2,390.68	-7.82	-11.15	-11.15	1.07	1.04	5.31
2,486.00	3.90	200.70	2,485.48	-13.42	-12.91	-12.91	0.87	0.74	7.47
2,582.00	4.60	204.90	2,581.21	-19.96	-15.69	-15.69	0.80	0.73	4.38
2,677.00	5.60	203.70	2,675.84	-27.66	-19.15	-19.15	1.06	1.05	-1.26
2,773.00	6.40	204.20	2,771.31	-36.83	-23.23	-23.23	0.84	0.83	0.52
2,868.00	6.60	207.00	2,865.70	-46.53	-27.88	-27.88	0.39	0.21	2.95
2,964.00	6.30	206.10	2,961.09	-56.17	-32.70	-32.70	0.33	-0.31	-0.94
3,060.00	6.30	207.00	3,058.51	-65.59	-37.41	-37.41	0.10	0.00	0.84
3,155.00	6.30	209.30	3,150.94	-74.78	-42.33	-42.33	0.27	0.00	2.42
3,251.00	6.30	210.20	3,246.36	-83.93	-47.56	-47.56	0.10	0.00	0.94
3,346.00	6.30	204.70	3,340.79	-93.17	-52.36	-52.36	0.64	0.00	-5.79
3,441.00	6.20	204.00	3,435.22	-102.59	-56.62	-56.62	0.13	-0.11	-0.74
3,452.00	6.20	205.00	3,446.16	-103.67	-57.11	-57.11	0.98	0.00	9.09
3,526.00	6.10	207.20	3,519.73	-110.79	-60.60	-60.60	0.35	-0.14	2.97
3,621.00	5.30	208.40	3,614.26	-119.14	-64.99	-64.99	0.85	-0.84	1.26
3,717.00	5.50	212.40	3,709.84	-126.93	-69.57	-69.57	0.44	0.21	4.17
3,812.00	7.00	213.00	3,804.27	-135.62	-75.16	-75.16	1.58	1.58	0.63
3,908.00	6.50	215.10	3,899.80	-144.98	-81.47	-81.47	0.58	-0.52	2.19
4,003.00	5.20	213.10	3,994.11	-152.98	-86.91	-86.91	1.38	-1.37	-2.11
4,099.00	5.30	212.80	4,089.70	-160.35	-91.69	-91.69	0.11	0.10	-0.31
4,194.00	5.70	207.00	4,184.27	-168.25	-96.21	-96.21	0.72	0.42	-6.11
4,290.00	6.40	203.30	4,279.73	-177.41	-100.49	-100.49	0.83	0.73	-3.85
4,386.00	5.20	203.00	4,375.24	-186.33	-104.31	-104.31	1.25	-1.25	-0.31

LEAM Drilling Systems LLC

Survey Report

Company: Devon Energy	Local Co-ordinate Reference: Well 10H	
Project: Eddy County, NM (NAD-83)	TVD Reference: 3309.0' GE + 23.5' KB @ 3332.50usft	
Site: Onyx PWU 29-28	MD Reference: 3309.0' GE + 23.5' KB @ 3332.50usft	
Well: 10H	North Reference: Grid	
Wellbore: OH	Survey Calculation Method: Minimum Curvature	
Design: OH	Database: EDM 5000.1 Multi 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)
4,481.00	5.50	206.30	4,469.82	-194.37	-108.01	-108.01	0.45	0.32	3.47
4,577.00	6.40	203.30	4,565.31	-203.41	-112.16	-112.16	0.99	0.94	-3.13
4,672.00	6.20	207.50	4,659.73	-212.82	-116.62	-116.62	0.53	-0.21	4.42
4,767.00	7.30	204.70	4,754.07	-222.86	-121.51	-121.51	1.21	1.16	-2.95
4,863.00	6.80	207.50	4,849.35	-233.44	-126.69	-126.69	0.63	-0.52	2.92
4,959.00	6.00	208.80	4,944.75	-242.96	-131.57	-131.57	0.84	-0.83	-0.73
5,054.00	6.30	203.30	5,039.20	-252.18	-135.87	-135.87	0.51	0.32	-3.68
5,150.00	5.80	204.00	5,134.67	-261.45	-139.93	-139.93	0.53	-0.52	0.73
5,246.00	6.40	202.80	5,230.12	-270.81	-143.98	-143.98	0.64	0.63	-1.25
5,341.00	5.80	201.90	5,324.58	-280.15	-147.82	-147.82	0.64	-0.63	-0.95
5,437.00	5.10	205.60	5,420.15	-288.49	-151.47	-151.47	0.82	-0.73	3.85
5,532.00	6.10	207.70	5,514.70	-298.77	-155.64	-155.64	1.07	1.05	2.21
5,628.00	5.30	211.20	5,610.22	-305.08	-160.31	-160.31	0.91	-0.83	3.65
5,723.00	5.10	209.80	5,704.83	-312.50	-164.68	-164.68	0.25	-0.21	-1.47
5,818.00	5.90	205.10	5,800.39	-320.67	-168.90	-168.90	0.96	0.83	-4.90
5,914.00	6.30	205.20	5,894.85	-329.81	-173.19	-173.19	0.42	0.42	0.11
6,010.00	5.50	205.20	5,990.34	-338.74	-177.39	-177.39	0.83	-0.83	0.00
6,106.00	6.10	200.70	6,085.85	-347.67	-181.15	-181.15	0.78	0.63	-4.69
6,201.00	6.00	202.80	6,180.32	-356.97	-184.86	-184.86	0.26	-0.11	2.21
6,297.00	6.10	201.20	6,275.79	-366.35	-188.65	-188.65	0.20	0.10	-1.67
6,392.00	6.30	207.00	6,370.23	-375.70	-192.84	-192.84	0.69	0.21	6.11
6,488.00	6.90	208.60	6,465.59	-385.46	-197.99	-197.99	0.65	0.63	1.67
6,583.00	7.80	208.10	6,559.81	-396.15	-203.78	-203.78	0.95	0.95	-0.53
6,678.00	5.90	210.50	6,655.12	-406.15	-209.33	-209.33	2.00	-1.98	2.50
6,774.00	6.50	205.40	6,749.57	-415.22	-214.12	-214.12	0.86	0.63	-5.37
6,870.00	5.90	206.50	6,845.01	-424.54	-218.65	-218.65	0.64	-0.63	1.15
6,966.00	6.20	202.80	6,940.47	-433.74	-222.86	-222.86	0.51	0.31	-3.85
7,061.00	5.30	198.60	7,034.99	-442.62	-226.25	-226.25	1.05	-0.95	-4.42
7,157.00	5.90	202.10	7,130.53	-451.40	-229.52	-229.52	0.72	0.63	3.65
7,252.00	5.60	208.80	7,225.06	-460.06	-233.44	-233.44	0.59	-0.32	4.95
7,349.00	5.90	204.70	7,321.57	-468.81	-237.66	-237.66	0.38	0.31	-2.18
7,444.00	5.90	203.10	7,416.07	-477.74	-241.62	-241.62	0.17	0.00	-1.88
7,539.00	4.70	203.70	7,510.66	-485.79	-245.10	-245.10	1.26	-1.26	0.63
7,634.00	4.00	205.10	7,605.38	-492.36	-248.07	-248.07	0.75	-0.74	1.47
7,730.00	3.60	207.70	7,701.17	-498.08	-250.89	-250.89	0.45	-0.42	2.71
7,825.00	2.90	200.70	7,796.02	-502.95	-253.12	-253.12	0.85	-0.74	-7.37
7,921.00	2.80	200.50	7,891.90	-507.42	-254.80	-254.80	0.10	-0.10	-0.21
8,017.00	1.70	183.10	7,987.83	-511.03	-255.70	-255.70	1.34	-1.15	-18.13
8,112.00	1.80	131.60	8,082.79	-513.43	-254.66	-254.66	1.60	0.11	-54.21
8,208.00	3.00	105.40	8,178.70	-515.10	-251.11	-251.11	1.66	1.25	-27.29
8,265.00	2.42	102.91	8,235.64	-515.77	-248.50	-248.50	1.04	-1.02	-4.37
8,360.00	9.89	83.08	8,330.05	-515.25	-238.60	-238.60	7.85	7.85	-20.87
8,455.00	20.41	84.40	8,421.68	-512.66	-214.10	-214.10	11.29	11.28	1.39
8,503.00	25.92	82.47	8,465.78	-510.47	-195.36	-195.36	11.59	11.48	-4.02

LEAM Drilling Systems LLC

Survey Report

Company: Devon Energy
Project: Eddy County, NM (NAD-83)
Site: Onyx PWU 28-28
Well: 10H
Wellbore: OH
Design: OH

Local Co-ordinate Reference: Well 10H
TVD Reference: 3309.0' GE + 23.5' KB @ 3332.50usft
MD Reference: 3309.0' GE + 23.5' KB @ 3332.50usft
North Reference: Grid
Survey Calculation Method: Minimum Curvature
Database: EDM 5000.1 Multi 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)
8,551.00	27.65	81.97	8,508.62	-507.54	-173.93	-173.93	3.63	3.60	-1.04
8,599.00	31.34	85.10	8,550.40	-504.92	-150.45	-150.45	8.33	7.69	6.52
8,646.00	35.64	88.58	8,589.59	-503.53	-124.57	-124.57	10.01	9.15	7.36
8,694.00	40.10	91.35	8,627.47	-503.54	-95.12	-95.12	9.95	9.29	5.81
8,742.00	44.87	92.83	8,662.86	-504.74	-62.73	-62.73	10.15	9.94	3.08
8,790.00	48.85	94.25	8,695.74	-508.91	-27.84	-27.84	8.16	7.88	2.96
8,838.00	53.05	93.72	8,726.04	-509.49	9.28	9.28	9.21	9.17	-1.10
8,858.22	55.03	93.56	8,736.74	-510.43	24.00	24.00	10.87	10.85	-0.91
HL Crossing - 8886.22' MD, 8736.74' TVD									
8,885.00	58.15	93.31	8,752.58	-511.87	47.98	47.98	10.87	10.85	-0.85
8,933.00	64.41	91.38	8,775.64	-513.57	90.02	90.02	13.51	13.04	-4.02
8,981.00	69.83	90.46	8,794.29	-514.27	134.22	134.22	11.43	11.29	-1.92
9,029.00	72.21	90.24	8,809.90	-514.55	179.60	179.60	4.88	4.96	-0.46
9,077.00	75.43	89.53	8,823.28	-514.45	225.69	225.69	6.86	6.71	-1.48
9,127.00	78.95	88.79	8,834.36	-513.73	274.44	274.44	7.19	7.04	-1.48
9,138.37	79.78	88.91	8,836.46	-513.51	285.61	285.61	7.36	7.29	1.03
LP (Onyx 10H)									
9,175.00	82.45	89.28	8,842.12	-512.94	321.79	321.79	7.36	7.29	1.02
9,222.00	84.01	89.38	8,847.66	-512.38	368.46	368.46	3.32	3.32	0.17
9,270.00	87.41	89.78	8,851.25	-512.02	416.32	416.32	7.14	7.08	0.88
9,317.00	89.49	89.98	8,852.52	-511.92	463.30	463.30	4.44	4.43	0.38
9,365.00	88.40	89.57	8,853.40	-511.72	511.29	511.29	2.41	-2.27	-0.81
9,412.00	88.62	89.35	8,854.63	-511.28	558.27	558.27	0.66	0.47	-0.47
9,507.00	88.82	88.94	8,856.75	-509.86	653.23	653.23	0.48	0.21	-0.43
9,603.00	88.96	89.51	8,858.61	-508.56	749.21	749.21	0.61	0.15	0.59
9,698.00	89.09	89.80	8,860.22	-507.99	844.19	844.19	0.33	0.14	0.31
9,794.00	88.93	89.27	8,861.88	-507.21	940.17	940.17	0.58	-0.17	-0.55
9,890.00	88.56	90.63	8,863.99	-507.13	1,036.15	1,036.15	1.47	-0.39	1.42
9,985.00	88.72	91.04	8,866.24	-508.51	1,131.11	1,131.11	0.46	0.17	0.43
10,081.00	88.49	90.67	8,868.58	-508.94	1,227.07	1,227.07	0.45	-0.24	-0.39
10,176.00	88.29	90.41	8,871.25	-510.84	1,322.03	1,322.03	0.35	-0.21	-0.27
10,272.00	87.82	89.90	8,874.51	-511.10	1,417.97	1,417.97	0.72	-0.49	-0.53
10,367.00	89.30	90.68	8,876.89	-511.58	1,512.94	1,512.94	1.76	1.56	0.82
10,463.00	89.80	91.21	8,877.65	-513.16	1,608.92	1,608.92	0.76	0.52	0.55
10,558.00	89.93	91.49	8,877.87	-515.40	1,703.90	1,703.90	0.32	0.14	0.29
10,654.00	90.20	91.95	8,877.76	-518.28	1,799.85	1,799.85	0.56	0.28	0.48
10,745.00	89.09	91.08	8,878.33	-520.69	1,890.82	1,890.82	1.55	-1.22	-0.96
10,835.00	88.12	90.66	8,880.52	-522.05	1,980.78	1,980.78	1.17	-1.08	-0.47
10,927.00	87.75	90.46	8,883.83	-522.95	2,072.71	2,072.71	0.46	-0.40	-0.22
11,019.00	87.95	90.48	8,887.28	-523.71	2,164.65	2,164.65	0.22	0.22	0.02
11,110.00	88.36	89.95	8,890.21	-524.05	2,255.60	2,255.60	0.74	0.45	-0.58
11,201.00	88.72	90.60	8,892.53	-524.49	2,346.57	2,346.57	0.82	0.40	0.71
11,291.00	89.13	91.19	8,894.22	-525.89	2,436.54	2,436.54	0.80	0.46	0.66

LEAM Drilling Systems LLC

Survey Report

Company: Devon Energy
Project: Eddy County, NM (NAD-83)
Site: Onyx PWU 29-28
Well: 10H
Wellbore: OH
Design: OH

Local Co-ordinate Reference: Well 10H
TVD Reference: 3309.0' GE + 23.5' KB @ 3332.50usft
MD Reference: 3309.0' GE + 23.5' KB @ 3332.50usft
North Reference: Grid
Survey Calculation Method: Minimum Curvature
Database: EDM 5000.1 Multi 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)
11,382.00	89.23	91.42	8,895.52	-527.96	2,527.51	2,527.51	0.28	0.11	0.25
11,474.00	88.86	91.29	8,897.06	-530.14	2,619.47	2,619.47	0.43	-0.40	-0.14
11,566.00	89.56	89.39	8,898.32	-530.68	2,711.45	2,711.45	2.20	0.76	-2.07
11,657.00	89.73	89.17	8,898.89	-528.54	2,802.44	2,802.44	0.31	0.19	-0.24
11,748.00	89.26	89.09	8,899.69	-528.16	2,893.43	2,893.43	0.52	-0.52	-0.09
11,794.65	89.11	88.99	8,900.35	-527.38	2,940.07	2,940.07	0.40	-0.33	-0.22
TGT 1 (Onyx 10H)									
11,839.00	88.96	88.89	8,901.10	-526.55	2,984.40	2,984.40	0.40	-0.33	-0.22
11,932.00	89.90	89.32	8,902.03	-525.10	3,077.39	3,077.39	1.11	1.01	0.46
12,027.00	89.90	89.61	8,902.19	-524.22	3,172.38	3,172.38	0.31	0.00	0.31
12,123.00	89.56	89.17	8,902.65	-523.19	3,268.37	3,268.37	0.58	-0.35	-0.46
12,219.00	89.13	89.00	8,903.74	-521.66	3,364.36	3,364.36	0.48	-0.45	-0.18
12,314.00	89.40	89.72	8,904.96	-520.60	3,459.34	3,459.34	0.81	0.28	0.76
12,410.00	91.14	91.07	8,904.51	-521.26	3,555.33	3,555.33	2.29	1.81	1.41
12,505.00	90.81	90.82	8,902.89	-522.83	3,650.31	3,650.31	0.44	-0.35	-0.28
12,601.00	91.01	90.64	8,901.37	-524.05	3,746.29	3,746.29	0.28	0.21	-0.19
12,697.00	90.94	90.51	8,899.74	-525.01	3,842.27	3,842.27	0.15	-0.07	-0.14
12,792.00	91.14	90.82	8,898.01	-526.12	3,937.24	3,937.24	0.39	0.21	0.33
12,888.00	91.71	91.33	8,895.62	-527.92	4,033.20	4,033.20	0.80	0.59	0.53
12,983.00	89.87	89.06	8,894.31	-528.24	4,128.18	4,128.18	3.08	-1.84	-2.39
13,079.00	90.34	89.60	8,894.14	-527.12	4,224.17	4,224.17	0.75	0.49	0.56
13,174.00	88.32	88.92	8,895.25	-525.89	4,319.15	4,319.15	2.24	-2.13	-0.72
13,270.00	87.51	88.82	8,898.74	-524.00	4,415.07	4,415.07	0.85	-0.84	-0.10
13,365.00	87.11	89.07	8,903.20	-522.25	4,509.95	4,509.95	0.50	-0.42	0.26
13,461.00	88.94	88.42	8,908.18	-520.15	4,605.79	4,605.79	0.70	-0.18	-0.68
13,556.00	88.93	88.61	8,911.61	-517.69	4,700.69	4,700.69	2.10	2.09	0.20
13,652.00	89.19	89.03	8,913.18	-515.71	4,796.66	4,796.66	0.51	0.27	0.44
13,747.00	88.45	88.87	8,915.14	-513.97	4,891.62	4,891.62	0.80	-0.78	-0.17
13,843.00	87.75	88.17	8,918.32	-511.50	4,987.54	4,987.54	1.03	-0.73	-0.73
13,845.46	87.78	88.20	8,918.42	-511.42	4,990.00	4,990.00	1.69	1.13	1.26
SL Crossing - 13846.46' MD, 8918.42' TVD									
13,938.00	88.82	89.37	8,921.16	-509.46	5,082.47	5,082.47	1.69	1.13	1.26
14,034.00	89.16	89.35	8,922.88	-508.39	5,178.45	5,178.45	0.35	0.35	-0.02
14,129.00	89.63	89.56	8,923.86	-507.48	5,273.44	5,273.44	0.54	0.49	0.22
14,225.00	89.49	90.87	8,924.60	-507.84	5,369.43	5,369.43	1.37	-0.15	1.36
14,320.00	89.80	90.65	8,925.18	-509.10	5,464.42	5,464.42	0.40	0.33	-0.23
14,416.00	89.86	90.30	8,925.47	-509.90	5,560.42	5,560.42	0.37	0.06	-0.36
14,512.00	90.23	90.48	8,925.39	-510.55	5,656.42	5,656.42	0.43	0.39	0.19
14,607.00	89.93	89.95	8,925.26	-510.91	5,751.42	5,751.42	0.64	-0.32	-0.56
14,703.00	90.43	91.25	8,924.98	-511.91	5,847.41	5,847.41	1.45	0.52	1.35
14,798.00	90.37	90.78	8,924.30	-513.60	5,942.39	5,942.39	0.50	-0.08	-0.49
14,894.00	90.16	91.55	8,923.85	-515.55	6,038.37	6,038.37	0.83	-0.22	0.80
14,989.00	88.25	90.61	8,925.17	-517.34	6,133.34	6,133.34	2.24	-2.01	-0.99
15,005.83	88.21	90.62	8,925.89	-517.52	6,150.15	6,150.15	0.22	-0.21	0.08

LEAM Drilling Systems LLC

Survey Report

Company: Devon Energy
Project: Eddy County, NM (NAD-83)
Site: Onyx PWU 29-28
Well: 10H
Wellbore: OH
Design: OH

Local Co-ordinate Reference: Well 10H
TVD Reference: 3309.0' GE + 23.5' KB @ 3332.50usft
MD Reference: 3309.0' GE + 23.5' KB @ 3332.50usft
North Reference: Grid
Survey Calculation Method: Minimum Curvature
Database: EDM 5000.1 Multi 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)
TGT 2 (Onyx 10H)									
15,085.00	88.05	90.69	8,928.27	-518.43	6,229.28	6,229.28	0.22	-0.21	0.08
15,181.00	87.18	90.33	8,932.26	-519.28	6,325.19	6,325.19	0.98	-0.91	-0.38
15,276.00	87.45	90.24	8,936.71	-519.75	6,420.09	6,420.09	0.30	0.28	-0.09
15,372.00	87.58	90.66	8,940.88	-520.51	6,515.99	6,515.99	0.48	0.14	0.44
15,467.00	87.48	90.55	8,944.97	-521.51	6,610.90	6,610.90	0.16	-0.11	-0.12
15,563.00	87.62	89.86	8,949.07	-521.94	6,706.81	6,706.81	0.63	0.15	-0.61
15,658.00	87.45	89.71	8,953.16	-521.66	6,801.72	6,801.72	0.32	-0.18	-0.28
15,754.00	87.69	90.40	8,957.23	-521.75	6,897.64	6,897.64	0.76	0.25	0.72
15,849.00	88.22	90.59	8,960.82	-522.57	6,992.57	6,992.57	0.59	0.56	0.20
15,944.00	88.08	90.23	8,963.69	-523.25	7,087.52	7,087.52	0.41	-0.15	-0.38
16,038.00	87.72	90.70	8,967.13	-524.02	7,181.45	7,181.45	0.63	-0.38	0.50
16,133.00	88.49	91.13	8,970.27	-525.53	7,276.39	7,276.39	0.93	0.81	0.45
16,227.00	88.83	90.67	8,972.47	-527.01	7,370.35	7,370.35	0.61	0.36	-0.49
16,322.00	89.17	91.46	8,974.13	-528.77	7,465.32	7,465.32	0.91	0.38	0.83
16,416.00	89.26	91.69	8,975.42	-531.36	7,559.27	7,559.27	0.26	0.10	0.24
16,506.44	88.72	89.93	8,977.01	-532.63	7,649.89	7,649.89	2.04	-0.60	-1.95
TGT 3 (Onyx 10H)									
16,511.00	88.69	89.84	8,977.12	-532.63	7,654.25	7,654.25	2.04	-0.60	-1.95
16,606.00	87.96	89.01	8,979.89	-531.67	7,749.20	7,749.20	1.16	-0.77	-0.87
16,701.00	88.56	89.51	8,982.78	-530.45	7,844.15	7,844.15	0.82	0.63	0.53
16,795.00	89.90	88.39	8,984.04	-528.72	7,938.12	7,938.12	1.86	1.43	-1.19
16,889.00	89.87	88.07	8,984.23	-525.82	8,032.07	8,032.07	0.34	-0.03	-0.34
16,984.00	90.04	88.76	8,984.31	-523.19	8,127.04	8,127.04	0.75	0.18	0.73
17,078.00	90.17	88.61	8,984.13	-521.04	8,221.01	8,221.01	0.21	0.14	-0.16
17,173.00	90.24	89.02	8,983.79	-519.07	8,315.99	8,315.99	0.44	0.07	0.43
17,267.00	89.53	89.38	8,983.98	-517.76	8,409.98	8,409.98	0.85	-0.76	0.38
17,361.00	89.63	89.32	8,984.67	-516.69	8,503.97	8,503.97	0.12	0.11	-0.06
17,456.00	90.00	89.91	8,984.98	-516.05	8,598.97	8,598.97	0.73	0.39	0.62
17,550.00	90.27	90.50	8,984.76	-516.39	8,692.97	8,692.97	0.69	0.29	0.63
17,645.00	90.17	90.30	8,984.39	-517.05	8,787.96	8,787.96	0.24	-0.11	-0.21
17,739.00	90.71	90.14	8,983.67	-517.41	8,881.96	8,881.96	0.60	0.57	-0.17
17,834.00	89.13	90.39	8,983.80	-517.85	8,976.96	8,976.96	1.68	-1.66	0.26
17,929.00	88.90	90.58	8,985.44	-518.66	9,071.94	9,071.94	0.31	-0.24	0.20
18,024.00	88.63	90.38	8,987.48	-519.45	9,166.91	9,166.91	0.35	-0.28	-0.21
18,118.00	89.84	90.57	8,988.74	-520.23	9,260.90	9,260.90	1.30	1.29	0.20
18,212.00	88.39	91.28	8,990.19	-521.75	9,354.87	9,354.87	1.72	-1.54	0.76
18,306.00	87.31	90.75	8,993.72	-523.41	9,448.79	9,448.79	1.28	-1.15	-0.56
18,402.00	86.81	90.23	8,998.64	-524.23	9,544.66	9,544.66	0.75	-0.52	-0.54
18,496.00	86.94	89.27	9,003.76	-523.82	9,638.52	9,638.52	1.03	0.14	-1.02
18,590.00	86.64	90.62	9,009.03	-523.73	9,732.37	9,732.37	1.47	-0.32	1.44
18,685.00	86.10	89.96	9,015.04	-524.21	9,827.18	9,827.18	0.90	-0.57	-0.69
18,744.00	85.66	90.83	9,019.28	-524.62	9,886.02	9,886.02	1.65	-0.75	1.47
18,778.15	85.66	90.83	9,021.87	-525.11	9,920.07	9,920.07	0.00	0.00	0.00

LEAM Drilling Systems LLC

Survey Report

Company: Devon Energy
Project: Eddy County, NM (NAD-83)
Site: Onyx PWU 29-28
Well: 10H
Wellbore: OH
Design: OH

Local Co-ordinate Reference: Well 10H
TVD Reference: 3309.0' GE + 23.5' KB @ 3332.50usft
MD Reference: 3309.0' GE + 23.5' KB @ 3332.50usft
North Reference: Grid
Survey Calculation Method: Minimum Curvature
Database: EDM 5000.1 Multi 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)
PBHL (Onyx 10H)									
18,786.10	85.66	90.83	9,022.47	-525.23	9,928.00	9,928.00	0.00	0.00	0.00
HL Crossing - 18786.10' MD, 9022.47' TVD									
18,818.00	85.66	90.83	9,024.88	-525.69	9,959.80	9,959.80	0.00	0.00	0.00
BHL (Onyx 10H)									

Design Targets

Target Name

- hit/miss target - Shape	Dip Angle (°)	Dip Dir. (°)	TVD (usft)	+N/-S (usft)	+E/-W (usft)	Northing (usft)	Easting (usft)	Latitude	Longitude
SHL (Onyx 10H) - actual wellpath hits target center - Point	0.00	0.00	0.00	0.00	0.00	594,830.49	611,754.97	32° 38' 4.1279 N	104° 6' 16.4969 W
BHL (Onyx 10H) - actual wellpath hits target center - Point	0.00	0.00	9,024.88	-525.69	9,959.80	594,104.80	621,714.77	32° 37' 58.6988 N	104° 4' 20.0372 W

Design Annotations

Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates		Comment
		+N/-S (usft)	+E/-W (usft)	
8,856.22	8,736.74	-510.43	24.00	HL Crossing - 8856.22' MD, 8736.74' TVD
13,845.46	8,918.42	-511.42	4,990.00	SL Crossing - 13845.46' MD, 8918.42' TVD
18,786.10	9,022.47	-525.23	9,928.00	HL Crossing - 18786.10' MD, 9022.47' TVD

Checked By: _____ **Approved By:** _____ **Date:** _____

Devon Energy

Eddy County, NM (NAD-83)

Onyx PWU 29-28

10H

OH

Design: OH

Survey Report - Geographic

04 December, 2017

LEAM Drilling Systems LLC

Survey Report - Geographic

Company: Devon Energy	Local Co-ordinate Reference: Well 10H	
Project: Eddy County, NM (NAD-83)	TVD Reference: 3309.0' GE + 23.5' KB @ 3332.50usft	
Site: Onyx PWU 29-28	MD Reference: 3309.0' GE + 23.5' KB @ 3332.50usft	
Well: 10H	North Reference: Grid	
Wellbore: OH	Survey Calculation Method: Minimum Curvature	
Design: OH	Database: EDM 5000.1 Multi User Db	

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

Site	Onyx PWU 29-28				
Site Position:		Northing:	596,305.26 usft	Latitude:	32° 38' 20.7014 N
From:	Map	Easting:	611,703.20 usft	Longitude:	104° 6' 17.0602 W
Position Uncertainty:	0.00 usft	Slot Radius:	13-3/16 "	Grid Convergence:	0.12 °

Well	10H					
Well Position	+N/-S	0.00 usft	Northing:	594,630.49 usft	Latitude:	32° 38' 4.1279 N
	+E/-W	0.00 usft	Easting:	611,754.97 usft	Longitude:	104° 6' 16.4969 W
Position Uncertainty		0.00 usft	Wellhead Elevation:	0.00 usft	Ground Level:	3,309.00 usft

Wellbore	OH				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	HDGM	6/26/2017	7.43	60.50	48,199

Design	OH				
Audit Notes:					
Version:	1.0	Phase:	ACTUAL	Tie On Depth:	0.00
Vertical Section:	Depth From (TVD) (usft)	+N/-S (usft)	+E/-W (usft)	Direction (°)	
	0.00	0.00	0.00	90.00	

Survey Program	Date 12/4/2017				
From (usft)	To (usft)	Survey (Wellbore)	Tool Name	Description	
50.00	140.00	Survey #1 (OH)	GYRO		
242.00	9,270.00	Survey #2 (OH)	LEAM MWD+HDGM	MWD+HDGM	
9,317.00	18,744.00	Survey #3 - 6 Axis (OH)	MWVD+IFR1+MS	MWD + IFR1 + Multi-Station Correction	
18,818.00	18,818.00	Survey #4 (OH)	Project	Projection	

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Map Northing (usft)	Map Easting (usft)	Latitude	Longitude
0.00	0.00	0.00	0.00	0.00	0.00	594,630.49	611,754.97	32° 38' 4.1279 N	104° 6' 16.4969 W
SHL (Onyx 10H)									
50.00	0.32	5.24	50.00	0.14	0.01	594,630.63	611,754.99	32° 38' 4.1293 N	104° 6' 16.4967 W
100.00	0.31	37.60	100.00	0.39	0.11	594,630.88	611,755.08	32° 38' 4.1317 N	104° 6' 16.4956 W
140.00	0.57	15.12	140.00	0.66	0.23	594,631.16	611,755.20	32° 38' 4.1345 N	104° 6' 16.4942 W
242.00	1.00	306.00	241.99	1.68	-0.36	594,632.17	611,754.61	32° 38' 4.1445 N	104° 6' 16.5011 W
341.00	1.00	290.00	340.98	2.48	-1.87	594,632.97	611,753.10	32° 38' 4.1525 N	104° 6' 16.5187 W
439.00	0.90	284.70	438.96	2.97	-3.42	594,633.46	611,751.55	32° 38' 4.1574 N	104° 6' 16.5368 W
529.00	0.80	287.50	528.95	3.34	-4.70	594,633.83	611,750.27	32° 38' 4.1610 N	104° 6' 16.5518 W

LEAM Drilling Systems LLC
Survey Report - Geographic

Company: Devon Energy
Project: Eddy County, NM (NAD-83)
Site: Onyx PWU 29-28
Well: 10H
Wellbore: OH
Design: OH

Local Co-ordinate Reference: Well 10H
TVD Reference: 3309.0' GE + 23.5' KB @ 3332.50usft
MD Reference: 3309.0' GE + 23.5' KB @ 3332.50usft
North Reference: Grd
Survey Calculation Method: Minimum Curvature
Database: EDM 5000.1 Multi User Db

Survey										
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Map Northing (usft)	Map Easting (usft)	Latitude	Longitude	
622.00	0.70	289.40	621.94	3.72	-5.86	594,634.21	611,749.12	32° 38' 4.1648 N	104° 6' 16.5653 W	
713.00	0.40	302.80	712.94	4.08	-6.65	594,634.57	611,748.32	32° 38' 4.1684 N	104° 6' 16.5745 W	
804.00	0.20	56.70	803.94	4.34	-6.78	594,634.83	611,748.19	32° 38' 4.1710 N	104° 6' 16.5761 W	
895.00	0.60	85.53	894.94	4.48	-6.18	594,634.95	611,748.80	32° 38' 4.1722 N	104° 6' 16.5690 W	
985.00	0.60	73.60	984.93	4.63	-5.25	594,635.12	611,749.72	32° 38' 4.1738 N	104° 6' 16.5582 W	
1,076.00	0.40	62.30	1,075.93	4.91	-4.52	594,635.40	611,750.46	32° 38' 4.1766 N	104° 6' 16.5496 W	
1,168.00	0.40	56.50	1,167.93	5.24	-3.98	594,635.73	611,751.01	32° 38' 4.1798 N	104° 6' 16.5431 W	
1,260.00	0.40	21.90	1,259.92	5.71	-3.58	594,636.21	611,751.40	32° 38' 4.1845 N	104° 6' 16.5388 W	
1,351.00	0.40	3.60	1,350.92	6.33	-3.44	594,636.82	611,751.54	32° 38' 4.1906 N	104° 6' 16.5369 W	
1,442.00	0.60	351.00	1,441.82	7.11	-3.49	594,637.61	611,751.48	32° 38' 4.1984 N	104° 6' 16.5375 W	
1,534.00	0.40	284.00	1,533.92	7.67	-3.88	594,638.16	611,751.09	32° 38' 4.2039 N	104° 6' 16.5421 W	
1,626.00	1.10	237.90	1,625.91	7.27	-4.94	594,637.77	611,750.03	32° 38' 4.2000 N	104° 6' 16.5545 W	
1,722.00	1.00	239.30	1,721.89	6.36	-6.44	594,638.85	611,748.53	32° 38' 4.1910 N	104° 6' 16.5720 W	
1,817.00	0.60	237.80	1,816.88	5.67	-7.57	594,636.16	611,747.40	32° 38' 4.1842 N	104° 6' 16.5853 W	
1,913.00	0.70	211.90	1,912.88	4.90	-8.31	594,635.40	611,746.66	32° 38' 4.1766 N	104° 6' 16.5939 W	
2,008.00	0.90	203.70	2,007.87	3.73	-8.92	594,634.22	611,746.06	32° 38' 4.1650 N	104° 6' 16.6010 W	
2,104.00	1.20	190.50	2,103.85	2.05	-9.40	594,632.54	611,745.57	32° 38' 4.1484 N	104° 6' 16.6068 W	
2,199.00	1.60	188.40	2,198.82	-0.24	-9.78	594,630.25	611,745.20	32° 38' 4.1257 N	104° 6' 16.6112 W	
2,295.00	2.20	188.50	2,294.77	-3.39	-10.25	594,627.10	611,744.73	32° 38' 4.0946 N	104° 6' 16.6168 W	
2,391.00	3.20	193.80	2,390.68	-7.82	-11.15	594,622.68	611,743.83	32° 38' 4.0508 N	104° 6' 16.6274 W	
2,486.00	3.90	200.70	2,485.48	-13.42	-12.91	594,617.08	611,742.06	32° 38' 3.9954 N	104° 6' 16.6482 W	
2,582.00	4.60	204.90	2,581.21	-19.96	-15.69	594,610.53	611,739.29	32° 38' 3.9307 N	104° 6' 16.6808 W	
2,677.00	5.60	203.70	2,675.84	-27.66	-19.15	594,602.83	611,735.82	32° 38' 3.8546 N	104° 6' 16.7216 W	
2,773.00	6.40	204.20	2,771.31	-36.83	-23.23	594,593.66	611,731.74	32° 38' 3.7840 N	104° 6' 16.7695 W	
2,868.00	6.80	207.00	2,865.70	-46.53	-27.88	594,583.97	611,727.09	32° 38' 3.6681 N	104° 6' 16.8241 W	
2,964.00	6.30	206.10	2,961.09	-56.17	-32.70	594,574.32	611,722.27	32° 38' 3.5728 N	104° 6' 16.8807 W	
3,060.00	6.30	207.00	3,056.51	-65.59	-37.41	594,564.90	611,717.56	32° 38' 3.4786 N	104° 6' 16.9360 W	
3,155.00	6.30	209.30	3,150.94	-74.78	-42.33	594,555.71	611,712.65	32° 38' 3.3888 N	104° 6' 16.9938 W	
3,251.00	6.30	210.20	3,246.36	-83.93	-47.56	594,546.56	611,707.42	32° 38' 3.2984 N	104° 6' 17.0551 W	
3,346.00	6.30	204.70	3,340.79	-93.17	-52.36	594,537.32	611,702.62	32° 38' 3.2071 N	104° 6' 17.1115 W	
3,441.00	6.20	204.00	3,435.22	-102.59	-56.62	594,527.90	611,698.35	32° 38' 3.1139 N	104° 6' 17.1616 W	
3,452.00	6.20	205.00	3,446.16	-103.67	-57.11	594,526.82	611,697.86	32° 38' 3.1033 N	104° 6' 17.1674 W	
3,526.00	6.10	207.20	3,519.73	-110.79	-60.60	594,519.70	611,694.38	32° 38' 3.0329 N	104° 6' 17.2083 W	
3,621.00	5.30	208.40	3,614.26	-119.14	-64.99	594,511.35	611,689.98	32° 38' 2.9504 N	104° 6' 17.2599 W	
3,717.00	5.50	212.40	3,709.84	-128.93	-69.57	594,503.57	611,685.41	32° 38' 2.8734 N	104° 6' 17.3138 W	
3,812.00	7.00	213.00	3,804.27	-135.62	-75.16	594,494.87	611,679.81	32° 38' 2.7875 N	104° 6' 17.3792 W	
3,908.00	6.50	215.10	3,899.60	-144.98	-81.47	594,485.52	611,673.50	32° 38' 2.6951 N	104° 6' 17.4533 W	
4,003.00	5.20	213.10	3,994.11	-152.98	-88.91	594,477.51	611,668.08	32° 38' 2.6180 N	104° 6' 17.5171 W	
4,099.00	5.30	212.80	4,089.70	-160.35	-91.69	594,470.14	611,663.28	32° 38' 2.5431 N	104° 6' 17.5732 W	
4,194.00	5.70	207.00	4,184.27	-168.25	-96.21	594,462.25	611,658.76	32° 38' 2.4651 N	104° 6' 17.6262 W	
4,290.00	6.40	203.30	4,279.73	-177.41	-100.49	594,453.09	611,654.48	32° 38' 2.3745 N	104° 6' 17.6765 W	
4,386.00	5.20	203.00	4,375.24	-186.33	-104.31	594,444.17	611,650.67	32° 38' 2.2864 N	104° 6' 17.7214 W	
4,481.00	5.50	206.30	4,469.82	-194.37	-108.01	594,436.12	611,646.97	32° 38' 2.2069 N	104° 6' 17.7648 W	
4,577.00	6.40	203.30	4,565.31	-203.41	-112.16	594,427.08	611,642.81	32° 38' 2.1175 N	104° 6' 17.8136 W	
4,672.00	6.20	207.50	4,659.73	-212.82	-116.62	594,417.67	611,638.35	32° 38' 2.0244 N	104° 6' 17.8661 W	
4,767.00	7.30	204.70	4,754.07	-222.86	-121.51	594,407.64	611,633.46	32° 38' 1.9253 N	104° 6' 17.9235 W	
4,863.00	6.80	207.50	4,849.35	-233.44	-126.69	594,397.05	611,628.29	32° 38' 1.8207 N	104° 6' 17.9843 W	
4,959.00	6.00	206.80	4,944.75	-242.96	-131.57	594,387.53	611,623.40	32° 38' 1.7268 N	104° 6' 18.0417 W	
5,054.00	6.30	203.30	5,039.20	-252.18	-135.87	594,378.32	611,619.10	32° 38' 1.6354 N	104° 6' 18.0922 W	
5,150.00	5.80	204.00	5,134.67	-261.45	-139.93	594,369.05	611,615.04	32° 38' 1.5438 N	104° 6' 18.1399 W	
5,246.00	6.40	202.80	5,230.12	-270.81	-143.98	594,359.68	611,611.00	32° 38' 1.4512 N	104° 6' 18.1874 W	
5,341.00	5.80	201.80	5,324.58	-280.15	-147.82	594,350.35	611,607.15	32° 38' 1.3589 N	104° 6' 18.2326 W	
5,437.00	5.10	205.60	5,420.15	-288.49	-151.47	594,342.00	611,603.50	32° 38' 1.2764 N	104° 6' 18.2755 W	
5,532.00	6.10	207.70	5,514.70	-296.77	-155.64	594,333.72	611,599.33	32° 38' 1.1946 N	104° 6' 18.3245 W	
5,628.00	5.30	211.20	5,610.22	-305.08	-160.31	594,325.41	611,594.66	32° 38' 1.1124 N	104° 6' 18.3793 W	

LEAM Drilling Systems LLC

Survey Report - Geographic

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Project: Eddy County, NM (NAD-83)
Site: Onyx PWU 29-28
Well: 10H
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Local Co-ordinate Reference: Well 10H
TVD Reference: 3309.0' GE + 23.5' KB @ 3332.50usft
MD Reference: 3309.0' GE + 23.5' KB @ 3332.50usft
North Reference: Grid
Survey Calculation Method: Minimum Curvature
Database: EDM 5000.1 Multi User Db

Survey

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Map Northing (usft)	Map Easting (usft)	Latitude	Longitude
5,723.00	5.10	209.80	5,704.83	-312.50	-164.68	594,318.00	611,590.29	32° 38' 1.0391 N	104° 6' 18.4306 W
5,819.00	5.90	205.10	5,800.39	-320.67	-168.90	594,309.82	611,586.08	32° 38' 0.9584 N	104° 6' 18.4801 W
5,914.00	6.30	205.20	5,894.85	-329.81	-173.19	594,300.69	611,581.79	32° 38' 0.8680 N	104° 6' 18.5305 W
6,010.00	5.50	205.20	5,990.34	-338.74	-177.39	594,291.76	611,577.59	32° 38' 0.7798 N	104° 6' 18.5799 W
6,106.00	6.10	200.70	6,085.85	-347.67	-181.15	594,282.82	611,573.82	32° 38' 0.6915 N	104° 6' 18.6241 W
6,201.00	6.00	202.80	6,180.32	-356.97	-184.86	594,273.52	611,570.12	32° 38' 0.5995 N	104° 6' 18.6677 W
6,297.00	6.10	201.20	6,275.79	-366.35	-188.65	594,264.14	611,566.33	32° 38' 0.5068 N	104° 6' 18.7122 W
6,392.00	6.30	207.00	6,370.23	-375.70	-192.84	594,254.79	611,562.13	32° 38' 0.4143 N	104° 6' 18.7615 W
6,488.00	6.90	208.60	6,465.59	-385.46	-197.99	594,245.04	611,558.98	32° 38' 0.3179 N	104° 6' 18.8220 W
6,583.00	7.80	208.10	6,559.81	-396.15	-203.76	594,234.34	611,551.21	32° 38' 0.2122 N	104° 6' 18.8897 W
6,679.00	5.90	210.50	6,655.12	-406.15	-209.33	594,224.34	611,545.64	32° 38' 0.1134 N	104° 6' 18.9551 W
6,774.00	6.50	205.40	6,749.57	-415.22	-214.12	594,215.28	611,540.86	32° 38' 0.0238 N	104° 6' 19.0113 W
6,870.00	5.90	208.50	6,845.01	-424.54	-218.65	594,205.95	611,536.32	32° 37' 59.9318 N	104° 6' 19.0645 W
6,966.00	6.20	202.80	6,940.47	-433.74	-222.86	594,196.76	611,532.11	32° 37' 59.8407 N	104° 6' 19.1140 W
7,061.00	5.30	198.60	7,034.99	-442.82	-226.25	594,187.87	611,528.73	32° 37' 59.7528 N	104° 6' 19.1538 W
7,157.00	5.90	202.10	7,130.53	-451.40	-229.52	594,179.10	611,525.46	32° 37' 59.6661 N	104° 6' 19.1923 W
7,252.00	5.60	208.80	7,225.06	-460.06	-233.44	594,170.43	611,521.53	32° 37' 59.5804 N	104° 6' 19.2384 W
7,348.00	5.90	204.70	7,321.57	-468.81	-237.66	594,161.88	611,517.31	32° 37' 59.4939 N	104° 6' 19.2880 W
7,444.00	5.90	203.10	7,416.07	-477.74	-241.62	594,152.75	611,513.36	32° 37' 59.4057 N	104° 6' 19.3345 W
7,539.00	4.70	203.70	7,510.66	-485.79	-245.10	594,144.70	611,509.88	32° 37' 59.3260 N	104° 6' 19.3754 W
7,634.00	4.00	205.10	7,605.38	-492.36	-248.07	594,138.13	611,506.91	32° 37' 59.2611 N	104° 6' 19.4103 W
7,730.00	3.60	207.70	7,701.17	-498.06	-250.89	594,132.43	611,504.08	32° 37' 59.2048 N	104° 6' 19.4434 W
7,825.00	2.90	200.70	7,798.02	-502.95	-253.12	594,127.54	611,501.85	32° 37' 59.1565 N	104° 6' 19.4697 W
7,921.00	2.80	200.50	7,891.90	-507.42	-254.80	594,123.08	611,500.17	32° 37' 59.1123 N	104° 6' 19.4894 W
8,017.00	1.70	183.10	7,987.83	-511.03	-255.70	594,119.46	611,499.27	32° 37' 59.0765 N	104° 6' 19.5000 W
8,112.00	1.80	131.60	8,082.79	-513.43	-254.66	594,117.06	611,500.31	32° 37' 59.0527 N	104° 6' 19.4879 W
8,208.00	3.00	105.40	8,178.70	-515.10	-251.11	594,115.39	611,503.86	32° 37' 59.0382 N	104° 6' 19.4484 W
8,265.00	2.42	102.91	8,235.64	-515.77	-248.50	594,114.73	611,506.47	32° 37' 59.0295 N	104° 6' 19.4159 W
8,360.00	9.69	83.08	8,330.05	-515.25	-238.60	594,115.24	611,516.38	32° 37' 59.0344 N	104° 6' 19.3001 W
8,455.00	20.41	84.40	8,421.66	-512.66	-214.10	594,117.83	611,540.87	32° 37' 59.0595 N	104° 6' 19.0136 W
8,503.00	25.92	82.47	8,465.78	-510.47	-195.36	594,120.02	611,559.62	32° 37' 59.2080 N	104° 6' 18.9434 W
8,551.00	27.65	81.97	8,508.62	-507.54	-173.93	594,122.95	611,581.05	32° 37' 59.1094 N	104° 6' 18.5436 W
8,599.00	31.34	85.10	8,550.40	-504.92	-150.45	594,125.58	611,604.52	32° 37' 59.1348 N	104° 6' 18.2690 W
8,646.00	35.64	88.56	8,589.59	-503.53	-124.57	594,126.97	611,630.40	32° 37' 59.1480 N	104° 6' 17.9663 W
8,694.00	40.10	91.35	8,627.47	-503.54	-95.12	594,126.95	611,659.86	32° 37' 59.1472 N	104° 6' 17.8219 W
8,742.00	44.87	92.83	8,662.86	-504.74	-62.73	594,125.75	611,692.24	32° 37' 59.1347 N	104° 6' 17.2432 W
8,790.00	48.65	94.25	8,695.74	-506.91	-27.84	594,123.58	611,727.13	32° 37' 59.1124 N	104° 6' 16.8352 W
8,838.00	53.05	93.72	8,728.04	-509.49	9.28	594,121.00	611,764.28	32° 37' 59.0861 N	104° 6' 16.4011 W
8,856.22	55.03	93.56	8,738.74	-510.43	24.00	594,120.08	611,778.97	32° 37' 59.0765 N	104° 6' 16.2291 W
HL Crossing - 8856.22' MD, 8738.74' TVD									
8,885.00	58.15	93.31	8,752.58	-511.87	47.98	594,118.63	611,802.95	32° 37' 59.0618 N	104° 6' 15.9487 W
8,933.00	64.41	91.38	8,775.84	-513.57	90.02	594,116.93	611,844.99	32° 37' 59.0441 N	104° 6' 15.4571 W
8,981.00	69.83	90.46	8,794.29	-514.27	134.22	594,116.22	611,889.19	32° 37' 59.0362 N	104° 6' 14.9403 W
9,029.00	72.21	90.24	8,809.90	-514.55	179.60	594,115.95	611,934.58	32° 37' 59.0325 N	104° 6' 14.4095 W
9,077.00	75.43	89.53	8,823.28	-514.45	225.69	594,116.04	611,980.67	32° 37' 59.0324 N	104° 6' 13.8705 W
9,127.00	78.95	88.79	8,834.36	-513.73	274.44	594,116.76	612,029.41	32° 37' 59.0385 N	104° 6' 13.3005 W
9,138.37	79.78	88.91	8,838.46	-513.51	285.61	594,116.98	612,040.58	32° 37' 59.0405 N	104° 6' 13.1698 W
LP (Onyx 10H)									
9,175.00	82.45	89.28	8,842.12	-512.94	321.79	594,117.56	612,076.77	32° 37' 59.0454 N	104° 6' 12.7467 W
9,222.00	84.01	89.36	8,847.66	-512.38	368.46	594,118.11	612,123.43	32° 37' 59.0498 N	104° 6' 12.2009 W
9,270.00	87.41	89.78	8,851.25	-512.02	416.32	594,118.47	612,171.29	32° 37' 59.0524 N	104° 6' 11.6412 W
9,317.00	89.49	89.96	8,852.52	-511.92	463.30	594,118.58	612,218.27	32° 37' 59.0524 N	104° 6' 11.0918 W
9,365.00	88.40	89.57	8,853.40	-511.72	511.29	594,118.77	612,266.26	32° 37' 59.0533 N	104° 6' 10.5306 W
9,412.00	88.82	89.35	8,854.63	-511.28	558.27	594,119.22	612,313.24	32° 37' 59.0567 N	104° 6' 9.9812 W
9,507.00	88.82	88.94	8,856.75	-509.86	653.23	594,120.63	612,408.21	32° 37' 59.0687 N	104° 6' 8.8708 W

LEAM Drilling Systems LLC

Survey Report - Geographic

Company: Devon Energy	Local Co-ordinate Reference: Well 10H	
Project: Eddy County, NM (NAD-83)	TVD Reference: 3309.0' GE + 23.5' KB @ 3332.50usft	
Site: Onyx PWU 29-28	MD Reference: 3309.0' GE + 23.5' KB @ 3332.50usft	
Well: 10H	North Reference: Grid	
Wellbore: OH	Survey Calculation Method: Minimum Curvature	
Design: OH	Database: EDM 5000.1 Multi User Db	

Survey

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Map Northing (usft)	Map Easting (usft)	Latitude	Longitude
9,603.00	88.96	89.51	8,858.61	-508.56	749.21	594,121.93	612,504.18	32° 37' 59.0795 N	104° 6' 7.7482 W
9,698.00	88.09	89.80	8,860.22	-507.99	844.19	594,122.50	612,599.17	32° 37' 59.0831 N	104° 6' 6.6374 W
9,794.00	88.93	89.27	8,861.88	-507.21	940.17	594,123.28	612,695.15	32° 37' 59.0887 N	104° 6' 5.5150 W
9,890.00	88.56	90.63	8,863.99	-507.13	1,036.15	594,123.37	612,791.12	32° 37' 59.0875 N	104° 6' 4.3926 W
9,985.00	88.72	91.04	8,866.24	-508.51	1,131.11	594,121.98	612,886.08	32° 37' 59.0717 N	104° 6' 3.2821 W
10,081.00	88.49	90.67	8,868.58	-509.94	1,227.07	594,120.55	612,982.05	32° 37' 59.0555 N	104° 6' 2.1599 W
10,176.00	88.29	90.41	8,871.25	-510.84	1,322.03	594,119.65	613,077.00	32° 37' 59.0446 N	104° 6' 1.0495 W
10,272.00	87.82	89.90	8,874.51	-511.10	1,417.97	594,119.39	613,172.95	32° 37' 59.0399 N	104° 5' 59.9275 W
10,367.00	88.30	90.68	8,876.89	-511.58	1,512.94	594,118.91	613,267.91	32° 37' 59.0331 N	104° 5' 58.8170 W
10,463.00	88.80	91.21	8,877.65	-513.16	1,608.92	594,117.33	613,363.90	32° 37' 59.0153 N	104° 5' 57.6945 W
10,558.00	88.93	91.49	8,877.87	-515.40	1,703.90	594,115.09	613,458.87	32° 37' 58.9911 N	104° 5' 56.5840 W
10,654.00	90.20	91.95	8,877.76	-518.28	1,799.85	594,112.21	613,554.83	32° 37' 58.9605 N	104° 5' 55.4619 W
10,745.00	89.09	91.08	8,878.33	-520.69	1,890.82	594,109.81	613,645.79	32° 37' 58.9347 N	104° 5' 54.3982 W
10,835.00	88.12	90.66	8,880.52	-522.05	1,980.78	594,108.44	613,735.75	32° 37' 58.9192 N	104° 5' 53.3462 W
10,927.00	87.75	90.46	8,883.83	-522.95	2,072.71	594,107.54	613,827.69	32° 37' 58.9083 N	104° 5' 52.2711 W
11,019.00	87.95	90.48	8,887.28	-523.71	2,164.65	594,106.79	613,919.62	32° 37' 58.8988 N	104° 5' 51.1960 W
11,110.00	88.36	89.95	8,890.21	-524.05	2,255.60	594,106.44	614,010.57	32° 37' 58.8935 N	104° 5' 50.1324 W
11,201.00	88.72	90.80	8,892.53	-524.49	2,346.57	594,106.01	614,101.54	32° 37' 58.8871 N	104° 5' 49.0686 W
11,291.00	88.13	91.19	8,894.22	-525.89	2,436.54	594,104.60	614,191.51	32° 37' 58.8712 N	104° 5' 48.0165 W
11,382.00	88.23	91.42	8,895.52	-527.98	2,527.51	594,102.53	614,282.48	32° 37' 58.8487 N	104° 5' 46.9527 W
11,474.00	88.86	91.29	8,897.06	-530.14	2,619.47	594,100.38	614,374.44	32° 37' 58.8252 N	104° 5' 45.8774 W
11,566.00	89.56	89.39	8,898.32	-530.68	2,711.45	594,099.81	614,466.43	32° 37' 58.8177 N	104° 5' 44.8017 W
11,657.00	89.73	89.17	8,898.89	-529.54	2,802.44	594,100.95	614,557.42	32° 37' 58.8270 N	104° 5' 43.7376 W
11,748.00	89.26	89.09	8,899.89	-528.16	2,893.43	594,102.33	614,648.40	32° 37' 58.8387 N	104° 5' 42.6735 W
11,794.65	89.11	88.99	8,900.35	-527.38	2,940.07	594,103.12	614,695.04	32° 37' 58.8454 N	104° 5' 42.1281 W
TGT 1 (Onyx 10H)									
11,839.00	88.96	88.89	8,901.10	-526.55	2,984.40	594,103.94	614,739.38	32° 37' 58.8526 N	104° 5' 41.6096 W
11,932.00	89.90	89.32	8,902.03	-525.10	3,077.39	594,105.39	614,832.36	32° 37' 58.8849 N	104° 5' 40.5222 W
12,027.00	89.90	89.81	8,902.19	-524.22	3,172.38	594,108.28	614,927.36	32° 37' 58.8715 N	104° 5' 39.4113 W
12,123.00	89.56	89.17	8,902.65	-523.19	3,268.37	594,107.30	615,023.35	32° 37' 58.8795 N	104° 5' 38.2887 W
12,219.00	89.13	89.00	8,903.74	-521.68	3,364.36	594,108.83	615,119.33	32° 37' 58.8925 N	104° 5' 37.1682 W
12,314.00	89.40	89.72	8,904.96	-520.60	3,459.34	594,109.89	615,214.32	32° 37' 58.9009 N	104° 5' 36.0554 W
12,410.00	91.14	91.07	8,904.51	-521.26	3,555.33	594,109.23	615,310.31	32° 37' 58.8922 N	104° 5' 34.9328 W
12,505.00	90.81	90.82	8,902.89	-522.83	3,650.31	594,107.67	615,405.28	32° 37' 58.8746 N	104° 5' 33.8222 W
12,601.00	91.01	90.64	8,901.37	-524.05	3,746.29	594,106.44	615,501.26	32° 37' 58.8603 N	104° 5' 32.6998 W
12,697.00	90.94	90.51	8,899.74	-525.01	3,842.27	594,105.48	615,597.24	32° 37' 58.8486 N	104° 5' 31.5774 W
12,792.00	91.14	90.82	8,898.01	-526.12	3,937.24	594,104.38	615,692.22	32° 37' 58.8356 N	104° 5' 30.4668 W
12,888.00	91.71	91.33	8,895.62	-527.92	4,033.20	594,102.58	615,788.17	32° 37' 58.8158 N	104° 5' 29.3447 W
12,983.00	89.87	89.06	8,894.31	-528.24	4,128.18	594,102.25	615,883.15	32° 37' 58.8103 N	104° 5' 28.2340 W
13,079.00	90.34	89.60	8,894.14	-527.12	4,224.17	594,103.38	615,979.14	32° 37' 58.8192 N	104° 5' 27.1114 W
13,174.00	88.32	88.92	8,895.25	-525.89	4,319.15	594,104.60	616,074.12	32° 37' 58.8292 N	104° 5' 26.0006 W
13,270.00	87.51	88.82	8,898.74	-524.00	4,415.07	594,106.49	616,170.04	32° 37' 58.8458 N	104° 5' 24.8789 W
13,365.00	87.11	89.07	8,903.20	-522.25	4,509.95	594,108.24	616,264.92	32° 37' 58.8609 N	104° 5' 23.7693 W
13,461.00	86.94	88.42	8,908.18	-520.15	4,605.79	594,110.34	616,360.77	32° 37' 58.8795 N	104° 5' 22.6484 W
13,556.00	88.93	88.81	8,911.61	-517.89	4,700.69	594,112.80	616,455.67	32° 37' 58.9017 N	104° 5' 21.5385 W
13,652.00	89.19	89.03	8,913.18	-515.71	4,796.66	594,114.78	616,551.63	32° 37' 58.9191 N	104° 5' 20.4162 W
13,747.00	88.45	88.87	8,915.14	-513.97	4,891.62	594,116.52	616,646.60	32° 37' 58.9341 N	104° 5' 19.3056 W
13,843.00	87.75	88.17	8,918.32	-511.50	4,987.54	594,119.00	616,742.51	32° 37' 58.9565 N	104° 5' 18.1839 W
13,845.46	87.78	88.20	8,918.42	-511.42	4,990.00	594,119.08	616,744.97	32° 37' 58.9572 N	104° 5' 18.1552 W
SL Crossing - 13845.46' MD, 8918.42' TVD									
13,938.00	88.82	89.37	8,921.16	-509.46	5,082.47	594,121.04	616,837.44	32° 37' 58.9745 N	104° 5' 17.0737 W
14,034.00	89.16	89.35	8,922.86	-508.39	5,178.45	594,122.11	616,933.42	32° 37' 58.9829 N	104° 5' 15.9513 W
14,129.00	89.63	89.56	8,923.88	-507.48	5,273.44	594,123.01	617,028.41	32° 37' 58.9897 N	104° 5' 14.8404 W
14,225.00	89.49	90.87	8,924.60	-507.84	5,369.43	594,122.65	617,124.41	32° 37' 58.9839 N	104° 5' 13.7178 W
14,320.00	89.80	90.65	8,925.18	-509.10	5,464.42	594,121.39	617,219.40	32° 37' 58.9892 N	104° 5' 12.6070 W

LEAM Drilling Systems LLC

Survey Report - Geographic

Company: Devon Energy
Project: Eddy County, NM (NAD-83)
Site: Onyx PWU 28-28
Well: 10H
Wellbore: OH
Design: OH

Local Co-ordinate Reference: Well 10H
TVD Reference: 3309.0' GE + 23.5' KB @ 3332.50usft
MD Reference: 3309.0' GE + 23.5' KB @ 3332.50usft
North Reference: Grid
Survey Calculation Method: Minimum Curvature
Database: EDM 5000.1 Multi User Db

Survey

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Map Northing (usft)	Map Easting (usft)	Latitude	Longitude
14,416.00	89.86	90.30	8,925.47	-509.90	5,560.42	594,120.59	617,315.39	32° 37' 58.9592 N	104° 5' 11.4844 W
14,512.00	90.23	90.48	8,925.39	-510.55	5,656.42	594,119.94	617,411.39	32° 37' 58.9505 N	104° 5' 10.3618 W
14,607.00	89.83	89.95	8,925.26	-510.91	5,751.42	594,119.58	617,508.39	32° 37' 58.9448 N	104° 5' 9.2509 W
14,703.00	90.43	91.25	8,924.98	-511.91	5,847.41	594,118.58	617,602.38	32° 37' 58.9326 N	104° 5' 8.1284 W
14,798.00	90.37	90.78	8,924.30	-513.60	5,942.39	594,116.90	617,697.36	32° 37' 58.9138 N	104° 5' 7.0176 W
14,894.00	90.16	91.55	8,923.85	-515.55	6,038.37	594,114.85	617,793.34	32° 37' 58.8922 N	104° 5' 5.8953 W
14,989.00	88.25	90.61	8,925.17	-517.34	6,133.34	594,113.15	617,888.31	32° 37' 58.8723 N	104° 5' 4.7848 W
15,005.83	88.21	90.62	8,925.69	-517.52	6,150.15	594,112.97	617,905.13	32° 37' 58.8701 N	104° 5' 4.5881 W
TGT 2 (Onyx 10H)									
15,085.00	88.05	90.69	8,928.27	-518.43	6,229.28	594,112.07	617,984.25	32° 37' 58.8593 N	104° 5' 3.6628 W
15,181.00	87.18	90.33	8,932.26	-519.28	6,325.19	594,111.21	618,080.17	32° 37' 58.8487 N	104° 5' 2.5412 W
15,276.00	87.45	90.24	8,936.71	-519.75	6,420.09	594,110.74	618,175.06	32° 37' 58.8418 N	104° 5' 1.4315 W
15,372.00	87.58	90.66	8,940.88	-520.51	6,515.99	594,109.99	618,270.97	32° 37' 58.8321 N	104° 5' 0.3099 W
15,467.00	87.48	90.55	8,944.97	-521.51	6,610.90	594,108.98	618,365.87	32° 37' 58.8200 N	104° 4' 59.2001 W
15,563.00	87.62	89.96	8,949.07	-521.94	6,706.81	594,108.56	618,461.79	32° 37' 58.8135 N	104° 4' 58.0785 W
15,658.00	87.45	89.71	8,953.16	-521.66	6,801.72	594,108.83	618,556.70	32° 37' 58.8140 N	104° 4' 58.9686 W
15,754.00	87.69	90.40	8,957.23	-521.75	6,897.64	594,108.74	618,652.81	32° 37' 58.8108 N	104° 4' 55.8469 W
15,849.00	88.22	90.59	8,960.62	-522.57	6,992.57	594,107.92	618,747.55	32° 37' 58.8005 N	104° 4' 54.7368 W
15,944.00	88.08	90.23	8,963.69	-523.25	7,087.52	594,107.24	618,842.49	32° 37' 58.7916 N	104° 4' 53.6264 W
16,038.00	87.72	90.70	8,967.13	-524.02	7,181.45	594,106.48	618,936.43	32° 37' 58.7818 N	104° 4' 52.5280 W
16,133.00	88.49	91.13	8,970.27	-525.53	7,276.39	594,104.96	619,031.36	32° 37' 58.7846 N	104° 4' 51.4178 W
16,227.00	88.83	90.87	8,972.47	-527.01	7,370.35	594,103.48	619,125.32	32° 37' 58.7478 N	104° 4' 50.3190 W
16,322.00	89.17	91.46	8,974.13	-528.77	7,465.32	594,101.72	619,220.29	32° 37' 58.7280 N	104° 4' 49.2085 W
16,416.00	89.28	91.89	8,975.42	-531.36	7,559.27	594,099.14	619,314.25	32° 37' 58.7003 N	104° 4' 48.1098 W
16,506.44	88.72	89.93	8,977.01	-532.63	7,649.69	594,097.86	619,404.66	32° 37' 58.6855 N	104° 4' 47.0525 W
TGT 3 (Onyx 10H)									
16,511.00	88.69	89.84	8,977.12	-532.63	7,654.25	594,097.87	619,409.22	32° 37' 58.6855 N	104° 4' 48.9992 W
16,606.00	87.96	89.01	8,979.89	-531.67	7,749.20	594,098.82	619,504.17	32° 37' 58.6927 N	104° 4' 45.8888 W
16,701.00	88.56	89.51	8,982.78	-530.45	7,844.15	594,100.05	619,599.12	32° 37' 58.7025 N	104° 4' 44.7784 W
16,795.00	89.90	88.39	8,984.04	-528.72	7,938.12	594,101.77	619,693.09	32° 37' 58.7174 N	104° 4' 43.6794 W
16,889.00	89.87	88.07	8,984.23	-525.82	8,032.07	594,104.67	619,787.05	32° 37' 58.7439 N	104° 4' 42.5808 W
16,984.00	90.04	88.76	8,984.31	-523.19	8,127.04	594,107.30	619,882.01	32° 37' 58.7676 N	104° 4' 41.4700 W
17,078.00	90.17	88.61	8,984.13	-521.04	8,221.01	594,109.46	619,975.99	32° 37' 58.7867 N	104° 4' 40.3710 W
17,173.00	90.24	89.02	8,983.79	-519.07	8,315.99	594,111.42	620,070.98	32° 37' 58.8039 N	104° 4' 39.2602 W
17,267.00	89.53	89.38	8,983.98	-517.76	8,409.98	594,112.73	620,164.95	32° 37' 58.8147 N	104° 4' 38.1610 W
17,361.00	89.63	89.32	8,984.67	-516.89	8,503.97	594,113.80	620,258.95	32° 37' 58.8230 N	104° 4' 37.0618 W
17,456.00	90.00	89.91	8,984.98	-516.05	8,598.97	594,114.44	620,353.94	32° 37' 58.8270 N	104° 4' 35.9509 W
17,550.00	90.27	90.50	8,984.76	-516.39	8,692.97	594,114.10	620,447.94	32° 37' 58.8214 N	104° 4' 34.8517 W
17,645.00	90.17	90.30	8,984.39	-517.05	8,787.98	594,113.44	620,542.94	32° 37' 58.8126 N	104° 4' 33.7408 W
17,739.00	90.71	90.14	8,983.67	-517.41	8,881.96	594,113.08	620,636.93	32° 37' 58.8068 N	104° 4' 32.6416 W
17,834.00	89.13	90.39	8,983.80	-517.85	8,976.96	594,112.64	620,731.93	32° 37' 58.8001 N	104° 4' 31.5307 W
17,929.00	88.90	90.58	8,985.44	-518.66	9,071.94	594,111.84	620,826.91	32° 37' 58.7999 N	104° 4' 30.4199 W
18,024.00	88.63	90.38	8,987.48	-519.45	9,166.91	594,111.04	620,921.89	32° 37' 58.7797 N	104° 4' 29.3093 W
18,118.00	89.84	90.57	8,988.74	-520.23	9,260.90	594,110.26	621,015.87	32° 37' 58.7698 N	104° 4' 28.2102 W
18,212.00	88.39	91.28	8,990.19	-521.75	9,354.87	594,108.74	621,109.85	32° 37' 58.7525 N	104° 4' 27.1113 W
18,306.00	87.31	90.75	8,993.72	-523.41	9,448.79	594,107.08	621,203.76	32° 37' 58.7338 N	104° 4' 26.0131 W
18,402.00	86.81	90.23	8,998.64	-524.23	9,544.66	594,106.26	621,299.63	32° 37' 58.7233 N	104° 4' 24.9120 W
18,498.00	86.94	89.27	9,003.76	-523.82	9,638.52	594,108.67	621,393.49	32° 37' 58.7251 N	104° 4' 23.7943 W
18,590.00	86.64	90.62	9,009.03	-523.73	9,732.37	594,108.76	621,487.34	32° 37' 58.7237 N	104° 4' 22.6968 W
18,685.00	86.10	89.96	9,015.04	-524.21	9,827.18	594,108.28	621,582.15	32° 37' 58.7167 N	104° 4' 21.5881 W
18,744.00	85.66	90.83	9,019.28	-524.62	9,886.02	594,105.87	621,640.99	32° 37' 58.7112 N	104° 4' 20.9000 W
18,778.15	85.66	90.83	9,021.87	-525.11	9,920.07	594,105.38	621,675.04	32° 37' 58.7055 N	104° 4' 20.5018 W
PBHL (Onyx 10H)									

LEAM Drilling Systems LLC

Survey Report - Geographic

Company: Devon Energy	Local Co-ordinate Reference: Well 10H	
Project: Eddy County, NM (NAD-83)	TVD Reference: 3309.0' GE + 23.5' KB @ 3332.50usft	
Site: Onyx PWU 29-28	MD Reference: 3309.0' GE + 23.5' KB @ 3332.50usft	
Well: 10H	North Reference: Grid	
Wellbore: OH	Survey Calculation Method: Minimum Curvature	
Design: OH	Database: EDM 5000.1 Multi User Db	

Survey										
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Map Northing (usft)	Map Easting (usft)	Latitude	Longitude	
18,786.10	85.66	90.83	9,022.47	-525.23	9,928.00	594,105.27	621,682.97	32° 37' 58.7042 N	104° 4' 20.4091 W	
HL Crossing - 18786.10' MD, 9022.47' TVD										
18,818.00	85.66	90.83	9,024.88	-525.69	9,959.80	594,104.80	621,714.77	32° 37' 58.6989 N	104° 4' 20.0372 W	
BHL (Onyx 10H)										

Design Targets										
Target Name	Dip Angle (°)	Dip Dir. (°)	TVD (usft)	+N/-S (usft)	+E/-W (usft)	Northing (usft)	Easting (usft)	Latitude	Longitude	
- hit/miss target										
- Shape										
SHL (Onyx 10H)	0.00	0.00	0.00	0.00	0.00	594,630.49	611,754.97	32° 38' 4.1279 N	104° 6' 16.4969 W	
- actual wellpath hits target center										
- Point										
BHL (Onyx 10H)	0.00	0.00	9,024.88	-525.69	9,959.80	594,104.80	621,714.77	32° 37' 58.6988 N	104° 4' 20.0372 W	
- actual wellpath hits target center										
- Point										

Design Annotations					
Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates		Comment	
		+N/-S (usft)	+E/-W (usft)		
8,856.22	8,736.74	-510.43	24.00	HL Crossing - 8856.22' MD, 8736.74' TVD	
13,845.46	8,918.42	-511.42	4,990.00	SL Crossing - 13845.46' MD, 8918.42' TVD	
18,786.10	9,022.47	-525.23	9,928.00	HL Crossing - 18786.10' MD, 9022.47' TVD	

Checked By: _____	Approved By: _____	Date: _____
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SECTION 2
DAILY DRILLING REPORTS