



NABORS DRILLING TECHNOLOGIES USA, INC.
515 West Greens Road
Houston, TX 77067
Phone: 281.874.0035
Fax: 281.872.5205

Monday, April 09, 2018

State of New Mexico
County of Lea County

HOBBS OCD

OCT 01 2018

RECEIVED

Subject: **Survey Certification Letter**

Survey Company: **NABORS DRILLING TECH USA, INC.**

Job Number: **T4424**

Survey Job Type: **Nabors MWD**

Customer: **Devon Energy Corporation**

Well Name: **Thistle Unit 127H**

Rig Name: **Nabors X20**

Surface: **32 17 47.54194 N 103 33 26.06486 W**

A.P.I. No: **30-025-44421**

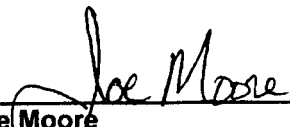
Location: **Lea County, New Mexico**

RKB Height: **32'**

Distance to Bit: **68'**

Surveyor Name	Surveyor Title	Borehole Number	Start Depth	End Depth	Start Date	End Date	Type of	TD Straight Line Projection
Joe Moore	MWD Supervisor	OH	1500'	17438'	03/23/18	04/09/18	MWD	17506'

The data and calculations for this survey have been checked by me and conform to the calibration standards and operational procedures set forth by NABORS DRILLING TECHNOLOGIES USA, INC. I am authorized and qualified to review the data, calculations and these reports; the reports represents true and correct Directional Surveys of this well based on the original data, the minimum curvature method, corrected to Grid North and obtained at the well site.



Joe Moore
MWD Supervisor
NABORS DRILLING TECHNOLOGIES USA, INC.



Devon Energy Corporation

**Lea Co., NM
Thistle Unit
127H
OH**

Design: Surveys

Completion Report

10 April, 2018

**HOBBS OCD
OCT 01 2018
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devon

WELL DETAILS: 127H

Ground Elevation: 3713.20
RKB Elevation: KB-32' (Nabors X20) @ 3745.20ft (Nabors X20)
Rig Name: Nabors X20

+N-S	+E-W	Northing	Easting	Latitude	Longitude
0.00	0.00	472481.440	781142.750 32° 17' 47.541940 N	103° 33' 29.064858 W	



Azimuths to Grid North
True North: -0.41°
Magnetic North: 6.45°

Magnetic Field
Strength: 48139.8nT
Dip Angle: 60.08°
Date: 3/21/2018
Model: USER DEFINED

SECTION DETAILS

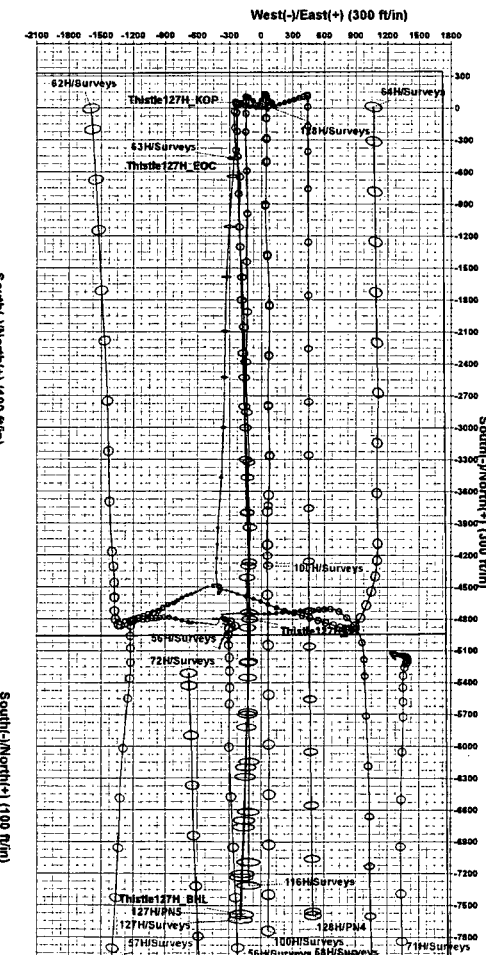
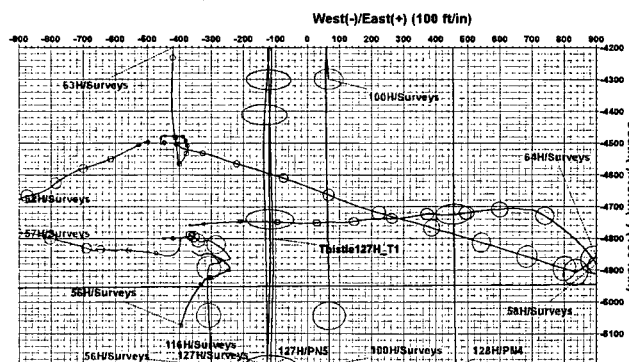
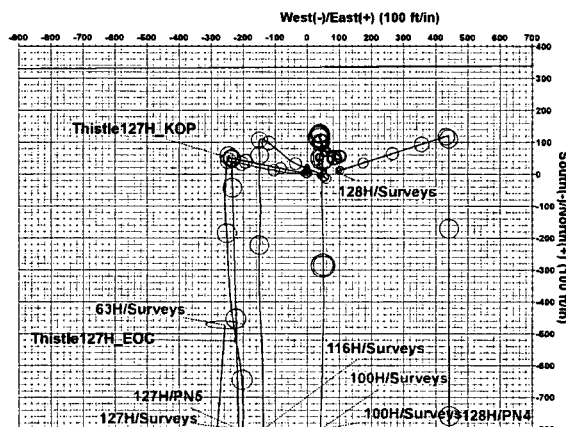
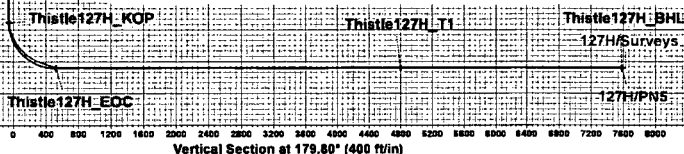
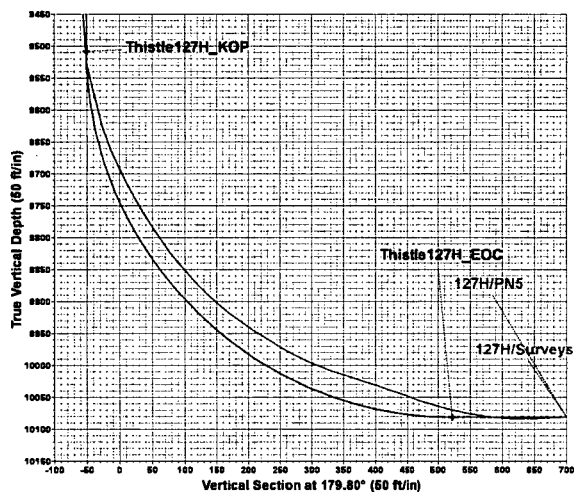
MD	Inc	Azi	TVD	+N-S	+E-W	Dleg	TFace	VFact	
5557.00	1.88	289.40	5556.79	4.16	2.02	0.00	0.00	-4.14	
6024.54	6.36	281.59	6023.03	7.95	-30.92	1.00	30.89	-4.05	
7585.33	6.38	281.59	7584.14	42.91	-201.43	0.00	0.00	-43.81	
8231.55	0.00	0.00	8219.06	50.00	-236.00	1.00	180.00	-50.82	
8520.63	0.00	0.00	8508.04	50.00	-236.00	0.00	0.00	-50.82	Thistle127H_KOP
10429.53	90.00	178.49	10081.00	-522.76	-220.88	10.00	178.49	521.98	Thistle127H_T1
14658.40	90.00	181.63	10081.00	-4957.12	-108.16	2.00	90.00	4958.71	Thistle127H_BHL
17482.87	90.00	181.63	10081.00	-7582.63	-182.92	0.00	0.00	7581.94	

PROJECT DETAILS: Lea Co., NM
Geodetic System: US State Plane 1983
Datum: North American Datum 1983
Ellipsoid: GRS 1980
Zone: New Mexico Eastern Zone
System Datum: Mean Sea Level
Local North: Grid

Project: Lea Co., NM
Site: Thistle Unit
Well: 127H
Wellbore: OH
Plan: PN5 (127H/OH)

WELLBORE TARGET DETAILS (MAP CO-ORDINATES)

Name	TVD	+N-S	+E-W	Northing	Easting
Thistle127H_BHL	10081.00	-7582.63	-182.92	464898.930	780959.830
Thistle127H_EOC	10081.00	-522.88	-227.31	471858.551	780915.441
Thistle127H_KOP	8508.04	50.00	-236.00	472831.440	780906.781
Thistle127H_T1	10081.00	-4800.00	-108.00	467881.450	781034.750





Nabors
Completion Report



Company: Devon Energy Corporation
Project: Lea Co., NM
Site: Thistle Unit
Well: 127H
Wellbore: OH
Design: Surveys

Local Co-ordinate Reference: Well 127H
TVD Reference: KB=32' (Nabors X20) @ 3745.20ft (Nabors X20)
MD Reference: KB=32' (Nabors X20) @ 3745.20ft (Nabors X20)
North Reference: Grid
Survey Calculation Method: Minimum Curvature
Database: RyanUSA_ODBC_32Bit

Project Lea Co., NM
Map System: US State Plane 1983
Geo Datum: North American Datum 1983
Map Zone: New Mexico Eastern Zone

System Datum: Mean Sea Level

Site Thistle Unit

Site Position:	Northing:	472,481.790 usft	Latitude:	32° 17' 47.543254 N
From: Map	Easting:	781,172.750 usft	Longitude:	103° 33' 25.715331 W
Position Uncertainty: 0.00 ft	Slot Radius:	13-3/16 "	Grid Convergence:	0.41 °

Well 127H

Well Position	+N-S	0.00 ft	Northing:	472,481.440 usft	Latitude:	32° 17' 47.541940 N
	+E-W	0.00 ft	Easting:	781,142.750 usft	Longitude:	103° 33' 26.064858 W
Position Uncertainty		0.00 ft	Wellhead Elevation:	ft	Ground Level:	3,713.20 ft

Wellbore OH

Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	User Defined	3/21/2018	6.87	60.08	48,139.80000000

Design Surveys

Audit Notes:

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

Vertical Section:	Depth From (TVD) (ft)	+N-S (ft)	+E-W (ft)	Direction (°)
	0.00	0.00	0.00	179.80

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Survey Calculation Method: Minimum Curvature
Database: RyanUSA_ODBC_32Bit

Survey Program **Date** 4/10/2018

From (ft)	To (ft)	Survey (Wellbore)	Tool Name	Description
32.00	1,416.00	Survey #1 - VES (OH)	VES GyroFlex	
1,500.00	17,506.00	Survey #2 NDS Surveys (OH)	MWD+HRGM	OWSG MWD + HRGM

Survey

MD (ft)	Inc (")	Azi (azimuth) (")	TVD (ft)	V. Sec (ft)	N/S (ft)	E/W (ft)	Closure Distance (ft)	Closure Azimuth (")	DLeg ("/100ft)
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
32.00	0.00	0.00	32.00	0.00	0.00	0.00	0.00	0.00	0.00
132.00	0.19	266.00	132.00	0.01	-0.01	-0.17	0.17	266.00	0.19
232.00	0.23	236.18	232.00	0.13	-0.13	-0.50	0.52	254.84	0.11
332.00	0.30	202.03	332.00	0.49	-0.49	-0.76	0.91	237.31	0.17
432.00	0.19	193.12	432.00	0.89	-0.89	-0.90	1.27	225.16	0.12
532.00	0.16	194.88	532.00	1.19	-1.19	-0.97	1.54	219.24	0.03
632.00	0.13	94.54	632.00	1.33	-1.33	-0.89	1.61	213.85	0.22
732.00	0.16	79.68	732.00	1.32	-1.32	-0.64	1.47	206.05	0.05
832.00	0.15	60.94	832.00	1.23	-1.23	-0.39	1.29	197.70	0.05
932.00	0.19	300.29	932.00	1.08	-1.08	-0.42	1.16	201.27	0.30
1,032.00	0.16	170.60	1,032.00	1.13	-1.14	-0.54	1.26	205.48	0.32
1,132.00	0.14	155.69	1,132.00	1.38	-1.39	-0.47	1.46	198.68	0.04
1,232.00	0.15	60.62	1,231.99	1.43	-1.43	-0.30	1.46	191.98	0.21
1,332.00	0.14	64.84	1,331.99	1.32	-1.32	-0.08	1.32	183.45	0.01
1,416.00	0.34	82.27	1,415.99	1.24	-1.24	0.26	1.27	168.13	0.25
1,500.00	0.19	297.72	1,499.99	1.14	-1.14	0.38	1.20	161.39	0.60
1,592.00	0.31	330.77	1,591.99	0.85	-0.85	0.13	0.86	171.49	0.20
1,682.00	0.38	316.53	1,681.99	0.42	-0.42	-0.20	0.47	204.91	0.12
1,807.00	0.31	324.79	1,806.99	-0.16	0.15	-0.68	0.69	282.80	0.07
1,900.00	0.25	341.14	1,899.99	-0.55	0.55	-0.89	1.04	301.85	0.11

Company: Devon Energy Corporation
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Well: 127H
Wellbore: OH
Design: Surveys

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

Well 127H
 KB=32' (Nabors X20) @ 3745.20ft (Nabors X20)
 KB=32' (Nabors X20) @ 3745.20ft (Nabors X20)
 Grid
 Minimum Curvature
 RyanUSA_ODBC_32Bit

Survey

MD (ft)	Inc (°)	Azi (azimuth) (°)	TVD (ft)	V. Sec (ft)	N/S (ft)	E/W (ft)	Closure Distance (ft)	Closure Azimuth (°)	DLeg (°/100ft)
1,994.00	0.25	357.13	1,993.99	-0.95	0.95	-0.96	1.35	314.59	0.07
2,089.00	0.25	9.26	2,088.99	-1.36	1.36	-0.94	1.66	325.35	0.06
2,182.00	0.25	0.30	2,181.98	-1.77	1.76	-0.91	1.98	332.79	0.04
2,277.00	0.25	346.94	2,276.98	-2.18	2.17	-0.95	2.37	336.33	0.06
2,371.00	0.25	331.47	2,370.98	-2.56	2.55	-1.10	2.78	336.75	0.07
2,465.00	0.25	340.96	2,464.98	-2.93	2.93	-1.26	3.19	336.68	0.04
2,559.00	0.25	215.45	2,558.98	-2.96	2.95	-1.45	3.29	333.89	0.47
2,654.00	0.25	329.01	2,653.98	-2.97	2.96	-1.67	3.40	330.53	0.44
2,747.00	0.19	312.66	2,746.98	-3.25	3.24	-1.89	3.75	329.72	0.09
2,841.00	0.25	289.81	2,840.98	-3.42	3.42	-2.20	4.06	327.22	0.11
2,935.00	0.31	300.18	2,934.98	-3.62	3.61	-2.61	4.46	324.13	0.08
3,028.00	0.31	302.47	3,027.98	-3.89	3.88	-3.04	4.93	321.87	0.01
3,123.00	0.25	312.49	3,122.98	-4.17	4.15	-3.41	5.38	320.60	0.08
3,218.00	0.31	297.90	3,217.98	-4.43	4.41	-3.79	5.82	319.33	0.10
3,312.00	0.25	287.52	3,311.97	-4.61	4.59	-4.21	6.23	317.48	0.08
3,406.00	0.19	289.46	3,405.97	-4.72	4.71	-4.56	6.55	315.95	0.06
3,501.00	0.13	274.87	3,500.97	-4.79	4.77	-4.81	6.78	314.76	0.08
3,595.00	0.13	9.09	3,594.97	-4.90	4.88	-4.90	6.92	314.91	0.20
3,690.00	0.19	28.42	3,689.97	-5.15	5.13	-4.81	7.03	316.85	0.08
3,785.00	0.50	30.71	3,784.97	-5.64	5.62	-4.52	7.22	321.20	0.33
3,879.00	0.38	24.56	3,878.97	-6.28	6.26	-4.18	7.53	326.25	0.14
3,973.00	0.19	43.72	3,972.97	-6.67	6.66	-3.95	7.74	329.34	0.22
4,067.00	0.13	39.32	4,066.97	-6.87	6.85	-3.77	7.82	331.18	0.07
4,161.00	0.19	70.26	4,160.97	-7.00	6.99	-3.56	7.84	333.03	0.11
4,256.00	0.25	61.29	4,255.97	-7.15	7.14	-3.23	7.83	335.68	0.07
4,349.00	0.56	77.99	4,348.96	-7.34	7.33	-2.60	7.78	340.45	0.35
4,444.00	1.25	95.75	4,443.95	-7.33	7.32	-1.12	7.41	351.32	0.78



Nabors
Completion Report



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Survey

MD (ft)	Inc (°)	Azi (azimuth) (°)	TVD (ft)	V. Sec (ft)	N/S (ft)	E/W (ft)	Closure Distance (ft)	Closure Azimuth (°)	DLeg (°/100ft)
4,538.00	1.38	102.60	4,537.93	-6.97	6.97	1.01	7.05	8.21	0.22
4,632.00	0.69	96.10	4,631.91	-6.66	6.67	2.67	7.18	21.85	0.74
4,726.00	1.13	107.70	4,725.90	-6.31	6.33	4.12	7.55	33.07	0.51
4,820.00	0.81	119.65	4,819.88	-5.70	5.72	5.58	7.99	44.31	0.40
4,914.00	0.75	120.36	4,913.88	-5.05	5.08	6.69	8.40	52.80	0.06
5,009.00	1.25	111.57	5,008.86	-4.35	4.38	8.19	9.29	61.85	0.55
5,103.00	0.63	237.07	5,102.85	-3.69	3.72	8.71	9.47	66.85	1.80
5,197.00	1.00	262.91	5,196.84	-3.31	3.34	7.46	8.17	65.88	0.55
5,249.00	0.50	273.64	5,248.84	-3.28	3.30	6.78	7.54	64.07	0.99
5,368.00	0.75	297.72	5,367.83	-3.67	3.69	5.58	6.69	56.48	0.30
5,462.00	0.94	287.17	5,461.82	-4.19	4.21	4.29	6.01	45.59	0.26
5,557.00	1.88	259.40	5,556.79	-4.14	4.15	2.02	4.62	25.93	1.20
5,651.00	4.13	266.08	5,650.66	-3.65	3.64	-2.87	4.64	321.67	2.42
5,745.00	4.88	269.07	5,744.37	-3.38	3.34	-10.25	10.78	288.05	0.84
5,840.00	5.19	266.61	5,839.00	-3.09	3.02	-18.58	18.82	279.23	0.40
5,934.00	6.56	274.69	5,932.51	-3.31	3.21	-28.18	28.36	276.50	1.70
6,029.00	6.50	273.29	6,026.89	-4.10	3.96	-38.95	39.15	275.81	0.18
6,123.00	6.19	269.59	6,120.32	-4.40	4.23	-49.33	49.51	274.90	0.55
6,217.00	5.94	272.58	6,213.79	-4.62	4.41	-59.26	59.42	274.26	0.43
6,311.00	7.00	281.37	6,307.19	-6.00	5.76	-69.73	69.97	274.72	1.54
6,405.00	7.38	282.25	6,400.45	-8.45	8.17	-81.25	81.66	275.74	0.42
6,499.00	7.19	281.02	6,493.69	-10.90	10.58	-92.92	93.52	276.49	0.26
6,593.00	7.06	279.79	6,586.97	-13.05	12.68	-104.39	105.16	276.93	0.21
6,688.00	6.69	280.32	6,681.28	-15.07	14.67	-115.59	116.51	277.23	0.40
6,781.00	6.81	276.80	6,773.64	-16.73	16.29	-126.39	127.44	277.34	0.46
6,875.00	6.69	284.01	6,866.99	-18.75	18.28	-137.24	138.45	277.59	0.91
6,970.00	6.44	283.66	6,961.37	-21.39	20.87	-147.78	149.25	278.04	0.27



Nabors
Completion Report



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Survey

MD (ft)	Inc (")	Azi (azimuth) (")	TVD (ft)	V. Sec (ft)	N/S (ft)	E/W (ft)	Closure Distance (ft)	Closure Azimuth (")	DLeg ("/100ft)
7,065.00	6.31	283.13	7,055.78	-23.87	23.32	-158.04	159.76	278.39	0.15
7,159.00	6.13	281.37	7,149.23	-26.07	25.48	-168.00	169.92	278.62	0.28
7,253.00	5.88	280.67	7,242.71	-27.98	27.36	-177.65	179.74	278.76	0.28
7,348.00	5.88	285.06	7,337.21	-30.18	29.53	-187.13	189.44	278.97	0.47
7,442.00	5.81	284.89	7,430.72	-32.69	32.00	-196.38	198.97	279.26	0.08
7,536.00	5.13	281.55	7,524.29	-34.78	34.06	-205.09	207.90	279.43	0.80
7,631.00	4.63	282.78	7,618.95	-36.51	35.76	-212.99	215.97	279.53	0.54
7,725.00	3.75	288.23	7,712.70	-38.33	37.56	-219.61	222.80	279.71	1.03
7,819.00	2.06	295.61	7,806.57	-40.04	39.26	-224.06	227.47	279.94	1.84
7,912.00	2.06	271.88	7,899.52	-40.83	40.03	-227.23	230.73	279.99	0.91
8,007.00	2.63	244.46	7,994.44	-39.96	39.15	-230.91	234.20	279.62	1.31
8,101.00	2.81	268.89	8,088.34	-39.00	38.17	-235.16	238.24	279.22	1.24
8,196.00	2.69	283.13	8,183.23	-39.47	38.64	-239.66	242.75	279.16	0.73
8,290.00	1.94	283.66	8,277.15	-40.36	39.51	-243.35	246.54	279.22	0.80
8,384.00	1.56	301.41	8,371.11	-41.41	40.56	-245.99	249.31	279.36	0.70
8,478.00	1.69	8.74	8,465.08	-43.45	42.59	-246.87	250.52	279.79	1.92
8,572.00	1.81	25.96	8,559.03	-46.16	45.30	-246.01	250.14	280.43	0.57
8,666.00	1.56	22.80	8,652.99	-48.67	47.81	-244.86	249.49	281.05	0.28
8,759.00	1.25	18.05	8,745.96	-50.79	49.94	-244.06	249.12	281.57	0.36
8,853.00	1.25	19.99	8,839.94	-52.73	51.88	-243.39	248.86	282.03	0.05
8,947.00	0.94	6.10	8,933.93	-54.46	53.61	-242.96	248.80	282.44	0.43
9,042.00	0.81	356.43	9,028.91	-55.90	55.06	-242.92	249.08	282.77	0.21
9,137.00	0.88	349.93	9,123.90	-57.29	56.45	-243.09	249.55	283.07	0.12
9,231.00	0.63	332.17	9,217.90	-58.46	57.61	-243.45	250.18	283.31	0.36
9,325.00	0.56	294.38	9,311.89	-59.11	58.26	-244.11	250.97	283.42	0.42
9,419.00	0.81	270.30	9,405.88	-59.31	58.45	-245.20	252.07	283.41	0.40

Company: Devon Energy Corporation
Project: Lea Co., NM
Site: Thistle Unit
Well: 127H
Wellbore: OH
Design: Surveys

Local Co-ordinate Reference: Well 127H
TVD Reference: KB=32' (Nabors X20) @ 3745.20ft (Nabors X20)
MD Reference: KB=32' (Nabors X20) @ 3745.20ft (Nabors X20)
North Reference: Grid
Survey Calculation Method: Minimum Curvature
Database: RyanUSA_ODBC_32Bit

Survey

MD (ft)	Inc (°)	Azi (azimuth) (°)	TVD (ft)	V. Sec (ft)	N/S (ft)	E/W (ft)	Closure Distance (ft)	Closure Azimuth (°)	DLeg (°/100ft)
9,521.27	7.24	199.12	9,507.86	-53.22	52.36	-248.03	253.50	281.92	6.87
Thistle127H_KOP									
9,547.00	9.00	197.88	9,533.34	-49.78	48.91	-249.18	253.94	281.11	6.87
9,640.00	19.13	184.52	9,623.46	-27.61	26.73	-252.63	254.04	276.04	11.37
9,685.00	21.50	182.76	9,665.65	-12.03	11.14	-253.61	253.85	272.52	5.44
9,734.00	27.38	182.06	9,710.24	8.21	-9.10	-254.44	254.61	267.95	12.01
9,779.00	29.88	182.58	9,749.74	29.75	-30.65	-255.32	257.15	263.16	5.58
9,829.00	33.19	183.29	9,792.35	55.86	-56.76	-256.67	262.87	257.53	6.66
9,874.00	37.75	179.95	9,828.99	81.95	-82.85	-257.36	270.37	252.16	11.01
9,922.00	42.94	177.31	9,865.57	113.00	-113.89	-256.58	280.72	246.06	11.38
9,967.00	48.25	175.55	9,897.04	145.07	-145.96	-254.56	293.44	240.17	12.13
10,016.00	54.56	176.25	9,927.59	183.26	-184.14	-251.83	311.97	233.82	12.93
10,061.00	57.38	178.01	9,952.78	220.51	-221.39	-249.97	333.91	228.47	7.05
10,110.00	61.31	178.01	9,977.76	262.64	-263.50	-248.51	362.20	223.32	8.02
10,155.00	67.25	176.78	9,997.28	303.12	-303.98	-246.66	391.47	219.06	13.43
10,204.00	72.38	175.73	10,014.18	349.01	-349.86	-243.65	426.34	214.85	10.66
10,249.00	72.63	175.02	10,027.71	391.80	-392.64	-240.19	460.28	211.46	1.60
10,323.00	70.31	170.81	10,051.23	461.43	-462.24	-231.55	517.00	206.61	6.24
10,368.00	74.50	170.81	10,064.83	503.79	-504.58	-224.70	552.35	204.00	9.31
10,388.79	76.86	170.73	10,069.97	523.68	-524.46	-221.47	569.30	202.89	11.35
Thistle127H_EOC									
10,417.00	80.06	170.63	10,075.62	550.97	-551.73	-217.00	592.87	201.47	11.35
10,462.00	85.25	170.98	10,081.37	595.04	-595.77	-209.87	631.66	199.41	11.56
10,511.00	91.31	174.85	10,082.84	643.63	-644.35	-203.84	675.82	197.55	14.67
10,606.00	93.31	181.18	10,079.01	738.46	-739.16	-200.55	765.88	195.18	6.98
10,700.00	90.06	182.93	10,076.24	832.33	-833.04	-203.92	857.64	193.75	3.93
10,794.00	89.13	182.41	10,076.91	926.20	-926.94	-208.29	950.05	192.66	1.13

Company: Devon Energy Corporation
Project: Lea Co., NM
Site: Thistle Unit
Well: 127H
Wellbore: OH
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North Reference: Grid
Survey Calculation Method: Minimum Curvature
Database: RyanUSA_ODBC_32Bit

Survey

MD (ft)	Inc. (°)	Azi (azimuth) (°)	TVD (ft)	V. Sec. (ft)	N/S (ft)	E/W (ft)	Closure Distance (ft)	Closure Azimuth (°)	DLeg (°/100ft)
10,888.00	87.25	179.77	10,079.88	1,020.12	-1,020.86	-210.08	1,042.25	191.63	3.45
10,982.00	88.44	178.19	10,083.41	1,114.04	-1,114.77	-208.41	1,134.09	190.59	2.10
11,077.00	88.06	177.84	10,086.31	1,208.95	-1,209.67	-205.12	1,226.94	189.62	0.54
11,171.00	89.63	176.96	10,088.21	1,302.84	-1,303.55	-200.86	1,318.94	188.76	1.91
11,265.00	92.25	176.08	10,086.66	1,396.67	-1,397.36	-195.15	1,410.92	187.95	2.94
11,359.00	89.06	176.78	10,085.59	1,490.49	-1,491.16	-189.30	1,503.12	187.23	3.47
11,454.00	92.31	177.66	10,084.45	1,585.37	-1,586.02	-184.69	1,596.74	186.64	3.54
11,548.00	91.56	177.31	10,081.28	1,679.24	-1,679.88	-180.57	1,689.56	186.14	0.88
11,643.00	91.19	176.96	10,079.00	1,774.11	-1,774.73	-175.83	1,783.42	185.66	0.54
11,737.00	91.44	176.43	10,076.84	1,867.95	-1,868.55	-170.41	1,876.31	185.21	0.62
11,831.00	92.00	178.72	10,074.02	1,961.83	-1,962.42	-166.43	1,969.46	184.85	2.51
11,925.00	90.19	179.95	10,072.22	2,055.80	-2,056.39	-165.34	2,063.03	184.60	2.33
12,019.00	89.38	179.77	10,072.58	2,149.80	-2,150.39	-165.11	2,156.72	184.39	0.88
12,113.00	89.63	179.59	10,073.39	2,243.79	-2,244.38	-164.59	2,250.41	184.19	0.33
12,208.00	88.94	180.12	10,074.58	2,338.79	-2,339.37	-164.35	2,345.14	184.02	0.92
12,302.00	88.31	179.95	10,076.83	2,432.76	-2,433.35	-164.40	2,438.89	183.87	0.69
12,397.00	88.69	179.42	10,079.32	2,527.72	-2,528.31	-163.88	2,533.62	183.71	0.69
12,491.00	89.06	178.54	10,081.16	2,621.70	-2,622.28	-162.21	2,627.29	183.54	1.02
12,585.00	89.25	178.89	10,082.55	2,715.67	-2,716.24	-160.10	2,720.96	183.37	0.42
12,679.00	89.50	178.72	10,083.57	2,809.65	-2,810.22	-158.14	2,814.66	183.22	0.32
12,773.00	89.19	177.66	10,084.65	2,903.60	-2,904.16	-155.17	2,908.31	183.06	1.17
12,868.00	89.06	177.66	10,086.10	2,998.53	-2,999.07	-151.29	3,002.89	182.89	0.14
12,962.00	89.88	177.84	10,086.97	3,092.46	-3,093.00	-147.60	3,096.52	182.73	0.89
13,056.00	89.88	177.84	10,087.17	3,186.41	-3,186.93	-144.06	3,190.18	182.59	0.00
13,150.00	89.75	177.49	10,087.47	3,280.34	-3,280.85	-140.23	3,283.85	182.45	0.40
13,245.00	89.94	177.84	10,087.73	3,375.27	-3,375.77	-136.36	3,378.52	182.31	0.42
13,338.00	89.75	177.66	10,087.98	3,468.21	-3,468.70	-132.71	3,471.24	182.19	0.28

Company: Devon Energy Corporation
Project: Lea Co., NM
Site: Thistle Unit
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Wellbore: OH
Design: Surveys

Local Co-ordinate Reference: Well 127H
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North Reference: Grid
Survey Calculation Method: Minimum Curvature
Database: RyanUSA_ODBC_32Bit

Survey

MD (ft)	Inc (°)	Azi (azimuth) (°)	TVD (ft)	V. Sec (ft)	N/S (ft)	E/W (ft)	Closure Distance (ft)	Closure Azimuth (°)	DLeg (°/100ft)
13,433.00	90.19	177.49	10,088.03	3,563.14	-3,563.61	-128.69	3,565.94	182.07	0.50
13,528.00	88.81	176.96	10,088.86	3,658.04	-3,658.50	-124.09	3,660.60	181.94	1.56
13,621.00	91.31	176.78	10,088.76	3,750.91	-3,751.35	-119.01	3,753.24	181.82	2.70
13,716.00	92.81	176.43	10,085.35	3,845.70	-3,846.12	-113.39	3,847.79	181.69	1.62
13,810.00	94.19	178.19	10,079.61	3,939.43	-3,939.83	-108.99	3,941.34	181.58	2.38
13,904.00	94.50	182.06	10,072.48	4,033.14	-4,033.54	-109.19	4,035.02	181.55	4.12
13,999.00	93.56	183.64	10,065.81	4,127.77	-4,128.19	-113.90	4,129.76	181.58	1.93
14,093.00	87.88	184.34	10,064.62	4,221.47	-4,221.91	-120.44	4,223.63	181.63	6.09
14,187.00	87.75	185.04	10,068.21	4,315.06	-4,315.53	-128.12	4,317.43	181.70	0.76
14,282.00	88.25	182.93	10,071.52	4,409.74	-4,410.24	-134.72	4,412.29	181.75	2.28
14,376.00	88.50	180.82	10,074.19	4,503.64	-4,504.14	-137.79	4,506.25	181.75	2.26
14,470.00	90.13	178.19	10,075.31	4,597.62	-4,598.12	-136.98	4,600.16	181.71	3.29
14,564.00	89.44	178.36	10,075.67	4,691.58	-4,692.08	-134.15	4,694.00	181.64	0.76
14,657.00	89.56	178.89	10,076.48	4,784.56	-4,785.05	-131.92	4,786.87	181.58	0.58
14,672.47	89.60	178.86	10,076.59	4,800.03	-4,800.52	-131.62	4,802.32	181.57	0.32
Thistle127H_T1									
14,752.00	89.81	178.72	10,077.00	4,879.54	-4,880.03	-129.94	4,881.76	181.53	0.32
14,847.00	90.31	179.07	10,076.90	4,974.53	-4,975.01	-128.11	4,976.66	181.48	0.64
14,940.00	90.38	179.24	10,076.34	5,067.52	-5,068.00	-126.73	5,069.58	181.43	0.20
15,034.00	91.00	179.59	10,075.21	5,161.51	-5,161.98	-125.77	5,163.52	181.40	0.76
15,128.00	89.94	180.30	10,074.44	5,255.51	-5,255.98	-125.68	5,257.48	181.37	1.36
15,222.00	90.31	180.47	10,074.23	5,349.50	-5,349.98	-126.32	5,351.47	181.35	0.43
15,317.00	91.13	180.12	10,073.04	5,444.49	-5,444.97	-126.81	5,446.44	181.33	0.94
15,410.00	89.56	181.53	10,072.48	5,537.47	-5,537.95	-128.14	5,539.43	181.33	2.27
15,504.00	89.44	181.70	10,073.30	5,631.42	-5,631.91	-130.79	5,633.43	181.33	0.22
15,598.00	90.06	181.70	10,073.71	5,725.36	-5,725.87	-133.58	5,727.42	181.34	0.66
15,692.00	90.75	181.70	10,073.05	5,819.31	-5,819.82	-136.37	5,821.42	181.34	0.73

Company: Devon Energy Corporation
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Survey

MD (ft)	Inc (°)	Azi (azimuth) (°)	TVD (ft)	V. Sec (ft)	N/S (ft)	E/W (ft)	Closure Distance (ft)	Closure Azimuth (°)	DLeg (°/100ft)
15,786.00	91.31	181.70	10,071.36	5,913.24	-5,913.76	-139.16	5,915.40	181.35	0.60
15,881.00	89.38	181.70	10,070.78	6,008.18	-6,008.72	-141.98	6,010.39	181.35	2.03
15,975.00	89.00	181.53	10,072.11	6,102.13	-6,102.67	-144.63	6,104.38	181.36	0.44
16,069.00	89.31	181.35	10,073.50	6,196.08	-6,196.63	-146.99	6,198.37	181.36	0.38
16,163.00	90.06	181.70	10,074.02	6,290.03	-6,290.59	-149.49	6,292.37	181.36	0.88
16,258.00	87.75	181.53	10,075.83	6,384.96	-6,385.53	-152.17	6,387.35	181.37	2.44
16,352.00	87.50	181.53	10,079.73	6,478.84	-6,479.42	-154.67	6,481.26	181.37	0.27
16,446.00	88.00	181.18	10,083.42	6,572.73	-6,573.32	-156.90	6,575.19	181.37	0.65
16,540.00	88.56	181.53	10,086.24	6,666.65	-6,667.25	-159.12	6,669.15	181.37	0.70
16,635.00	90.81	182.41	10,086.76	6,761.58	-6,762.19	-162.38	6,764.13	181.38	2.54
16,729.00	91.75	182.76	10,084.66	6,855.44	-6,856.07	-166.62	6,858.09	181.39	1.07
16,823.00	90.13	182.41	10,083.12	6,949.31	-6,949.95	-170.86	6,952.05	181.41	1.76
16,918.00	90.19	181.88	10,082.85	7,044.23	-7,044.89	-174.42	7,047.04	181.42	0.56
17,013.00	90.38	183.11	10,082.38	7,139.13	-7,139.79	-178.55	7,142.03	181.43	1.31
17,107.00	88.44	181.88	10,083.35	7,233.01	-7,233.69	-182.64	7,236.00	181.45	2.44
17,201.00	89.13	181.18	10,085.34	7,326.95	-7,327.64	-185.15	7,329.98	181.45	1.05
17,296.00	89.56	181.18	10,086.43	7,421.91	-7,422.61	-187.11	7,424.97	181.44	0.45
17,389.00	90.06	181.35	10,086.74	7,514.88	-7,515.59	-189.16	7,517.97	181.44	0.57
17,438.00	90.50	181.35	10,086.50	7,563.86	-7,564.57	-190.32	7,566.97	181.44	0.90
Thistle127H_BHL									
17,506.00	90.50	181.35	10,085.90	7,631.83	-7,632.55	-191.92	7,634.96	181.44	0.00

PTB



Nabors
Completion Report

NABORS

Company: Devon Energy Corporation
Project: Lea Co., NM
Site: Thistle Unit
Well: 127H
Wellbore: OH
Design: Surveys

Local Co-ordinate Reference: Well 127H
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Design Annotations				
Measured Depth (ft)	Vertical Depth (ft)	Local Coordinates		Comment
		+N/-S (ft)	+E/-W (ft)	
17,506.00	10,085.90	-7,632.55	-191.92	PTB

Checked By: _____ Approved By: _____ Date: _____