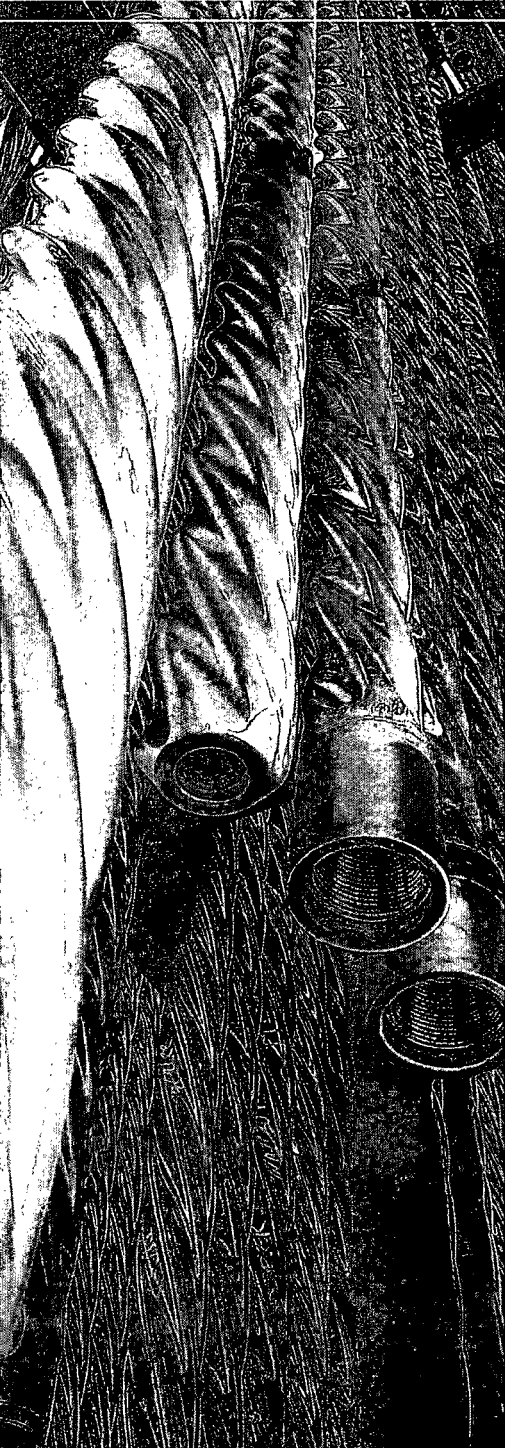


PRODIRECTIONAL



HOBBS OCD

OCT 01 2018

RECEIVED



Thistle Unit No. 111H

Lea County, NM

May 11, 2018

Job No. LNM5170118

ORIGINAL

Survey Completion Report



PRODIRECTIONAL

Survey Certification Letter

May 11, 2018



Operator Name: Devon Energy Corp.
Well Name: Thistle Unit No. 111H
County/Parish: Lea County,
State: NM
Rig Name: Cactus 126
Job Number: LNM5170118

This is to certify the surveys performed on the referenced well by Professional Directional Ent., Inc. are true and correct MWD Surveys, data provided as follows:

<u>Surveyor</u>	<u>Surveyed Depths</u>	<u>Projection to Bit</u>	<u>Dates Performed</u>	<u>Type of Survey</u>
ProDirectional	115' MD – 15,251' MD	15,310' MD	03/31/17 – 04/14/18	MWD

Sincerely,

Mike Coats
Regulatory Specialist
Professional Directional

850 Conroe Park West Drive | Conroe, TX 77303 | Phone: 936.441.7266

prodirectional.com

The Standard of Excellence in Directional Supervision



Devon Energy Corp.

Lea County, NM

Thistle Unit

No. 111H

OH

Survey: ProDirectional

Survey Report

11 May, 2018





ProDirectional Survey Report



Company: Devon Energy Corp.
Project: Lea County, NM (NAD83)
Site: Thistle Unit
Well: 111H
Wellbore: OH
Design: Surveys

Local Co-ordinate Reference: Well 111H
TVD Reference: GL 3707.6'+KB 23.5' @ 3731.10usft (Cactus 126)
MD Reference: GL 3707.6'+KB 23.5' @ 3731.10usft (Cactus 126)
North Reference: Grid
Survey Calculation Method: Minimum Curvature
Database: WellPlanner1

Project Lea County, NM (NAD83)

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:	472,590.27 usft	Latitude:	32° 17' 48.5406 N
From: Map	Easting:	782,231.84 usft	Longitude:	103° 33' 13.3678 W
Position Uncertainty:	Slot Radius:	13-3/16 "	Grid Convergence:	0.42 °

Well 111H

Well Position	+N/-S	0.00 usft	Northing:	472,590.27 usft	Latitude:	32° 17' 48.5406 N
	+E/-W	0.00 usft	Easting:	782,231.84 usft	Longitude:	103° 33' 13.3678 W
Position Uncertainty		0.00 usft	Wellhead Elevation:	usft	Ground Level:	3,707.60 usft

Wellbore OH

Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	HDGM	3/22/2018	6.80	60.07	48,101.00

Design Surveys

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	179.80

Survey Program Date 5/11/2018

From (usft)	To (usft)	Survey (Wellbore)	Tool Name	Description
115.00	15,310.00	Survey #1 (OH)	MWD+HDGM	OWSG MWD + HDGM



ProDirectional Survey Report



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Survey											
MD (usft)	Inc (°)	Azi (azimuth) (°)	TVD (usft)	V. Sec (usft)	N/S (usft)	E/W (usft)	Closure Distance (usft)	Closure Azimuth (°)	Northing (usft)	Easting (usft)	
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	472,590.27	782,231.84	
115.00	0.40	221.50	115.00	0.30	-0.30	-0.27	0.40	221.50	472,589.97	782,231.57	
Pro MWD First Survey: 115' MD											
174.00	0.30	277.50	174.00	0.43	-0.43	-0.56	0.71	231.96	472,589.84	782,231.28	
243.00	0.40	277.00	243.00	0.38	-0.38	-0.97	1.05	248.59	472,589.89	782,230.87	
334.00	0.40	281.50	333.99	0.27	-0.28	-1.60	1.62	260.08	472,589.99	782,230.24	
426.00	0.40	233.50	425.99	0.40	-0.41	-2.17	2.21	259.40	472,589.86	782,229.67	
517.00	0.50	261.40	516.99	0.65	-0.66	-2.82	2.90	256.93	472,589.61	782,229.02	
609.00	0.50	259.20	608.99	0.78	-0.79	-3.61	3.70	257.66	472,589.48	782,228.23	
701.00	0.80	247.90	700.98	1.09	-1.11	-4.60	4.73	256.47	472,589.16	782,227.24	
792.00	0.50	228.10	791.97	1.59	-1.61	-5.49	5.72	253.63	472,588.66	782,226.35	
883.00	0.70	257.90	882.97	1.97	-1.99	-6.32	6.63	252.51	472,588.28	782,225.52	
975.00	0.30	216.40	974.97	2.28	-2.30	-7.02	7.39	251.82	472,587.97	782,224.82	
1,068.00	0.20	307.10	1,067.97	2.38	-2.40	-7.29	7.68	251.76	472,587.87	782,224.55	
1,160.00	0.10	342.00	1,159.97	2.20	-2.23	-7.44	7.77	253.33	472,588.04	782,224.40	
1,252.00	0.30	154.60	1,251.97	2.35	-2.37	-7.37	7.74	252.16	472,587.90	782,224.47	
1,345.00	0.40	205.40	1,344.96	2.86	-2.88	-7.40	7.94	248.71	472,587.39	782,224.44	
1,463.00	0.30	113.70	1,462.96	3.35	-3.38	-7.29	8.04	245.14	472,586.89	782,224.55	
1,555.00	0.20	135.80	1,554.96	3.57	-3.59	-6.96	7.83	242.71	472,586.68	782,224.88	
1,647.00	0.10	163.60	1,646.96	3.76	-3.78	-6.83	7.81	241.00	472,586.49	782,225.01	
1,710.00	0.20	194.90	1,709.96	3.92	-3.94	-6.84	7.90	240.04	472,586.33	782,225.00	
1,804.00	0.00	358.10	1,803.96	4.08	-4.10	-6.88	8.01	239.20	472,586.17	782,224.96	
1,897.00	0.00	339.10	1,896.96	4.08	-4.10	-6.88	8.01	239.20	472,586.17	782,224.96	
1,991.00	0.10	192.90	1,990.96	4.16	-4.18	-6.90	8.07	238.78	472,586.09	782,224.94	
2,085.00	0.10	142.40	2,084.96	4.30	-4.33	-6.87	8.12	237.79	472,585.94	782,224.97	
2,180.00	0.00	255.70	2,179.96	4.37	-4.39	-6.82	8.11	237.21	472,585.88	782,225.02	
2,274.00	0.20	127.80	2,273.96	4.47	-4.49	-6.69	8.06	236.11	472,585.78	782,225.15	



ProDirectional
Survey Report



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Project: Lea County, NM (NAD83)
Site: Thistle Unit
Well: 111H
Wellbore: OH
Design: Surveys

Local Co-ordinate Reference: Well 111H
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North Reference: Grid
Survey Calculation Method: Minimum Curvature
Database: WellPlanner1

Survey											
MD (usft)	Inc (°)	Azi (azimuth) (°)	TVD (usft)	V. Sec (usft)	N/S (usft)	E/W (usft)	Closure Distance (usft)	Closure Azimuth (°)	Northing (usft)	Easting (usft)	
2,368.00	0.10	127.80	2,367.96	4.62	-4.64	-6.49	7.98	234.43	472,585.63	782,225.35	
2,462.00	0.20	13.40	2,461.96	4.51	-4.53	-6.39	7.84	234.64	472,585.74	782,225.45	
2,558.00	0.10	319.50	2,557.96	4.29	-4.31	-6.41	7.72	236.08	472,585.96	782,225.43	
2,650.00	0.20	316.50	2,649.96	4.11	-4.13	-6.57	7.76	237.84	472,586.14	782,225.27	
2,744.00	0.30	351.20	2,743.96	3.74	-3.77	-6.72	7.70	240.72	472,586.50	782,225.12	
2,838.00	0.30	357.60	2,837.96	3.26	-3.28	-6.77	7.52	244.15	472,586.99	782,225.07	
2,932.00	0.30	349.30	2,931.96	2.77	-2.79	-6.82	7.37	247.75	472,587.48	782,225.02	
3,026.00	0.40	340.10	3,025.95	2.22	-2.24	-6.98	7.33	252.20	472,588.03	782,224.86	
3,120.00	0.30	355.60	3,119.95	1.66	-1.69	-7.11	7.31	256.65	472,588.58	782,224.73	
3,214.00	0.40	347.00	3,213.95	1.10	-1.12	-7.20	7.29	261.15	472,589.15	782,224.64	
3,308.00	0.40	328.30	3,307.95	0.50	-0.52	-7.45	7.47	265.98	472,589.75	782,224.39	
3,402.00	0.30	14.10	3,401.95	-0.02	-0.01	-7.56	7.56	269.96	472,590.26	782,224.28	
3,496.00	0.30	349.10	3,495.95	-0.50	0.48	-7.55	7.56	273.60	472,590.75	782,224.29	
3,590.00	0.30	16.70	3,589.94	-0.98	0.95	-7.53	7.59	277.21	472,591.22	782,224.31	
3,684.00	0.30	332.90	3,683.94	-1.43	1.41	-7.57	7.70	280.53	472,591.68	782,224.27	
3,779.00	0.60	7.30	3,778.94	-2.15	2.12	-7.62	7.91	285.57	472,592.39	782,224.22	
3,872.00	0.80	2.30	3,871.93	-3.28	3.25	-7.53	8.20	293.37	472,593.52	782,224.31	
3,966.00	0.50	0.80	3,965.93	-4.35	4.32	-7.50	8.65	299.95	472,594.59	782,224.34	
4,060.00	0.30	326.60	4,059.92	-4.96	4.94	-7.63	9.08	302.91	472,595.21	782,224.21	
4,154.00	0.40	354.40	4,153.92	-5.49	5.47	-7.79	9.52	305.05	472,595.74	782,224.05	
4,248.00	0.30	314.90	4,247.92	-6.00	5.97	-8.00	9.98	306.72	472,596.24	782,223.84	
4,342.00	0.10	74.70	4,341.92	-6.19	6.16	-8.10	10.17	307.28	472,596.43	782,223.74	
4,436.00	0.60	112.00	4,435.92	-6.03	6.00	-7.56	9.65	308.44	472,596.27	782,224.28	
4,530.00	1.30	109.60	4,529.91	-5.48	5.46	-6.10	8.18	311.82	472,595.73	782,225.74	
4,624.00	1.50	109.80	4,623.88	-4.70	4.68	-3.94	6.12	319.95	472,594.95	782,227.90	
4,718.00	1.30	119.80	4,717.85	-3.74	3.74	-1.85	4.17	333.60	472,594.01	782,229.99	
4,812.00	1.90	117.10	4,811.81	-2.50	2.50	0.46	2.54	10.39	472,592.77	782,232.30	



ProDirectional Survey Report



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Site: Thistle Unit
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Wellbore: OH
Design: Surveys

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Survey											
MD (usft)	Inc (°)	Azi (azimuth) (°)	TVD (usft)	V. Sec (usft)	N/S (usft)	E/W (usft)	Closure Distance (usft)	Closure Azimuth (°)	Northing (usft)	Easting (usft)	
4,906.00	2.30	112.20	4,905.75	-1.06	1.07	3.59	3.75	73.35	472,591.34	782,235.43	
5,001.00	2.70	110.80	5,000.66	0.47	-0.44	7.45	7.46	93.38	472,589.83	782,239.29	
5,095.00	2.30	114.80	5,094.57	2.06	-2.02	11.23	11.41	100.19	472,588.25	782,243.07	
5,189.00	1.90	114.40	5,188.51	3.50	-3.45	14.36	14.77	103.52	472,586.82	782,246.20	
5,255.00	1.80	113.60	5,254.47	4.38	-4.32	16.31	16.87	104.84	472,585.95	782,248.15	
5,377.00	1.30	103.80	5,376.43	5.48	-5.42	19.41	20.15	105.60	472,584.85	782,251.25	
5,471.00	1.90	82.00	5,470.39	5.53	-5.45	21.99	22.65	103.93	472,584.82	782,253.83	
5,565.00	3.00	68.60	5,564.30	4.43	-4.34	25.82	26.18	99.54	472,585.93	782,257.66	
5,659.00	4.20	72.50	5,658.12	2.52	-2.41	31.39	31.49	94.39	472,587.86	782,263.23	
5,753.00	5.30	72.30	5,751.79	0.19	-0.05	38.81	38.81	90.08	472,590.22	782,270.65	
5,847.00	5.60	69.80	5,845.37	-2.69	2.85	47.25	47.34	86.55	472,593.12	782,279.09	
5,941.00	5.60	70.10	5,938.92	-5.80	6.00	55.87	56.19	83.87	472,596.27	782,287.71	
6,035.00	5.80	69.40	6,032.45	-9.00	9.23	64.63	65.28	81.87	472,599.50	782,296.47	
6,129.00	5.50	68.20	6,126.00	-12.32	12.57	73.26	74.33	80.26	472,602.84	782,305.10	
6,223.00	5.20	68.50	6,219.59	-15.52	15.81	81.40	82.92	79.01	472,606.08	782,313.24	
6,317.00	5.10	66.90	6,313.21	-18.70	19.01	89.21	91.21	77.97	472,609.28	782,321.05	
6,411.00	5.10	67.40	6,406.84	-21.91	22.25	96.91	99.43	77.07	472,612.52	782,328.75	
6,505.00	5.10	66.10	6,500.46	-25.18	25.55	104.59	107.66	76.27	472,615.82	782,336.43	
6,599.00	5.20	65.50	6,594.08	-28.62	29.01	112.28	115.97	75.51	472,619.28	782,344.12	
6,693.00	5.40	65.30	6,687.68	-32.20	32.62	120.18	124.53	74.81	472,622.89	782,352.02	
6,787.00	5.50	64.70	6,781.26	-35.95	36.40	128.27	133.33	74.16	472,626.67	782,360.11	
6,881.00	5.60	65.30	6,874.82	-39.76	40.24	136.51	142.31	73.58	472,630.51	782,368.35	
6,975.00	5.80	73.20	6,968.35	-43.02	43.53	145.22	151.60	73.31	472,633.80	782,377.06	
7,069.00	5.20	77.70	7,061.92	-45.27	45.81	153.93	160.60	73.43	472,636.08	782,385.77	
7,163.00	5.00	79.70	7,155.55	-46.88	47.45	162.12	168.92	73.69	472,637.72	782,393.96	
7,258.00	5.10	80.60	7,250.18	-48.28	48.88	170.36	177.23	73.99	472,639.15	782,402.20	
7,352.00	5.10	76.30	7,343.81	-49.93	50.55	178.54	185.56	74.19	472,640.82	782,410.38	



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7,446.00	4.90	75.50	7,437.45	-51.89	52.55	186.49	193.75	74.26	472,642.82	782,418.33	
7,540.00	4.70	75.70	7,531.12	-53.82	54.50	194.11	201.61	74.32	472,644.77	782,425.95	
7,634.00	4.60	75.30	7,624.81	-55.71	56.41	201.48	209.23	74.36	472,646.68	782,433.32	
7,728.00	4.60	77.20	7,718.51	-57.47	58.20	208.81	216.77	74.43	472,648.47	782,440.65	
7,822.00	4.20	65.50	7,812.23	-59.71	60.46	215.61	223.93	74.34	472,650.73	782,447.45	
7,916.00	4.50	66.50	7,905.96	-62.59	63.36	222.13	230.99	74.08	472,653.63	782,453.97	
8,010.00	4.60	67.30	7,999.67	-65.49	66.29	228.99	238.39	73.86	472,656.56	782,460.83	
8,103.00	4.30	69.40	8,092.39	-68.13	68.95	235.69	245.57	73.69	472,659.22	782,467.53	
8,197.00	3.90	70.60	8,186.14	-70.41	71.25	242.01	252.28	73.59	472,661.52	782,473.85	
8,291.00	3.30	68.70	8,279.96	-72.43	73.30	247.54	258.17	73.51	472,663.57	782,479.38	
8,385.00	3.20	67.50	8,373.81	-74.40	75.29	252.49	263.47	73.40	472,665.56	782,484.33	
8,479.00	2.90	71.30	8,467.67	-76.15	77.05	257.16	268.46	73.32	472,667.32	782,489.00	
8,573.00	2.90	74.90	8,561.55	-77.52	78.43	261.71	273.21	73.32	472,668.70	782,493.55	
8,667.00	2.60	78.00	8,655.45	-78.57	79.50	266.09	277.71	73.37	472,669.77	782,497.93	
8,761.00	2.50	81.40	8,749.35	-79.30	80.25	270.20	281.87	73.46	472,670.52	782,502.04	
8,856.00	2.20	78.10	8,844.27	-79.97	80.93	274.04	285.74	73.55	472,671.20	782,505.88	
8,950.00	2.00	84.50	8,938.21	-80.49	81.46	277.43	289.15	73.64	472,671.73	782,509.27	
9,044.00	1.80	88.00	9,032.16	-80.69	81.67	280.54	292.19	73.77	472,671.94	782,512.38	
9,138.00	1.00	78.30	9,126.13	-80.90	81.89	282.82	294.44	73.85	472,672.16	782,514.66	
9,232.00	0.20	10.60	9,220.12	-81.22	82.22	283.66	295.33	73.84	472,672.49	782,515.50	
9,326.00	0.40	296.00	9,314.12	-81.53	82.52	283.39	295.16	73.76	472,672.79	782,515.23	
9,420.00	0.60	227.10	9,408.12	-81.34	82.33	282.73	294.48	73.77	472,672.60	782,514.57	
9,514.00	0.60	223.70	9,502.11	-80.65	81.64	282.03	293.61	73.86	472,671.91	782,513.87	
9,608.00	0.90	218.90	9,596.11	-79.73	80.71	281.23	292.58	73.99	472,670.98	782,513.07	
9,702.00	1.10	208.00	9,690.09	-78.36	79.34	280.34	291.35	74.20	472,669.61	782,512.18	
9,796.00	1.20	208.40	9,784.07	-76.70	77.67	279.45	290.05	74.47	472,667.94	782,511.29	
9,890.00	1.10	210.80	9,878.05	-75.06	76.03	278.52	288.71	74.73	472,666.30	782,510.36	



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Database: WellPlanner1

Survey											
MD (usft)	Inc (°)	Azi (azimuth) (°)	TVD (usft)	V. Sec (usft)	N/S (usft)	E/W (usft)	Closure Distance (usft)	Closure Azimuth (°)	Northing (usft)	Easting (usft)	
10,013.00	1.10	216.40	10,001.03	-73.10	74.07	277.22	286.94	75.04	472,664.34	782,509.06	
10,078.00	2.80	192.90	10,065.99	-71.05	72.02	276.49	285.72	75.40	472,662.29	782,508.33	
10,172.00	14.30	189.50	10,158.79	-57.33	58.29	274.05	280.18	77.99	472,648.56	782,505.89	
10,266.00	23.50	189.10	10,247.63	-27.33	28.27	269.16	270.64	84.01	472,618.54	782,501.00	
10,360.00	31.60	198.50	10,330.94	14.59	-13.68	258.36	258.72	93.03	472,576.59	782,490.20	
10,454.00	39.50	197.20	10,407.36	66.52	-65.68	241.68	250.45	105.20	472,524.59	782,473.52	
10,548.00	49.40	189.90	10,474.42	130.39	-129.59	226.66	261.09	119.76	472,460.68	782,458.50	
10,642.00	62.20	186.60	10,527.16	207.13	-206.38	215.70	298.53	133.74	472,383.89	782,447.54	
10,736.00	70.70	180.10	10,564.72	293.01	-292.28	210.83	360.38	144.20	472,297.99	782,442.67	
10,830.00	77.20	175.90	10,590.70	383.23	-382.48	214.03	438.30	150.77	472,207.79	782,445.87	
10,924.00	80.60	176.10	10,608.80	475.25	-474.49	220.46	523.20	155.08	472,115.78	782,452.30	
11,018.00	86.90	177.30	10,619.03	568.51	-567.72	225.83	610.99	158.31	472,022.55	782,457.67	
11,042.00	90.30	177.00	10,619.61	592.47	-591.68	227.03	633.74	159.01	471,998.59	782,458.87	
11,136.00	90.30	176.40	10,619.12	686.33	-685.53	232.44	723.86	161.27	471,904.74	782,464.28	
11,230.00	88.70	175.60	10,619.94	780.12	-779.29	238.99	815.11	162.95	471,810.98	782,470.83	
11,324.00	89.30	175.30	10,621.58	873.83	-872.98	246.45	907.10	164.24	471,717.29	782,478.29	
11,418.00	89.40	174.90	10,622.65	967.51	-966.63	254.48	999.57	165.25	471,623.64	782,486.32	
11,512.00	88.80	176.10	10,624.12	1,061.23	-1,060.33	261.85	1,092.18	166.13	471,529.94	782,493.69	
11,607.00	88.60	177.90	10,626.28	1,156.09	-1,155.17	266.82	1,185.58	166.99	471,435.10	782,498.66	
11,701.00	89.00	178.10	10,628.25	1,250.02	-1,249.09	270.10	1,277.96	167.80	471,341.18	782,501.94	
11,795.00	88.80	177.80	10,630.05	1,343.96	-1,343.01	273.47	1,370.57	168.49	471,247.26	782,505.31	
11,889.00	89.50	179.10	10,631.45	1,437.92	-1,436.96	276.01	1,463.23	169.13	471,153.31	782,507.85	
11,982.00	88.50	178.70	10,633.07	1,530.89	-1,529.93	277.79	1,554.95	169.71	471,060.34	782,509.63	
12,076.00	89.50	180.40	10,634.71	1,624.87	-1,623.91	278.53	1,647.62	170.27	470,966.36	782,510.37	
12,170.00	89.00	179.90	10,635.94	1,718.86	-1,717.90	278.28	1,740.29	170.80	470,872.37	782,510.12	
12,265.00	89.60	180.10	10,637.10	1,813.85	-1,812.89	278.28	1,834.13	171.27	470,777.38	782,510.12	
12,359.00	89.40	179.60	10,637.92	1,907.85	-1,906.89	278.53	1,927.12	171.69	470,683.38	782,510.37	



ProDirectional
Survey Report



Company: Devon Energy Corp.
Project: Lea County, NM (NAD83)
Site: Thistle Unit
Well: 111H
Wellbore: OH
Design: Surveys

Local Co-ordinate Reference: Well 111H
TVD Reference: GL 3707.6'+KB 23.5' @ 3731.10usft (Cactus 126)
MD Reference: GL 3707.6'+KB 23.5' @ 3731.10usft (Cactus 126)
North Reference: Grid
Survey Calculation Method: Minimum Curvature
Database: WellPlanner1

Survey											
MD (usft)	Inc (°)	Azi (azimuth) (°)	TVD (usft)	V. Sec (usft)	N/S (usft)	E/W (usft)	Closure Distance (usft)	Closure Azimuth (°)	Northing (usft)	Easting (usft)	
12,453.00	90.00	180.50	10,638.41	2,001.85	-2,000.89	278.45	2,020.17	172.08	470,589.38	782,510.29	
12,547.00	89.80	179.80	10,638.58	2,095.84	-2,094.89	278.20	2,113.28	172.44	470,495.38	782,510.04	
12,641.00	89.30	179.40	10,639.32	2,189.84	-2,188.88	278.86	2,206.57	172.74	470,401.39	782,510.70	
12,735.00	88.40	179.00	10,641.20	2,283.81	-2,282.85	280.17	2,299.98	173.00	470,307.42	782,512.01	
12,829.00	90.30	180.20	10,642.27	2,377.80	-2,376.84	280.83	2,393.37	173.26	470,213.43	782,512.67	
12,923.00	89.70	180.20	10,642.27	2,471.80	-2,470.83	280.50	2,486.71	173.52	470,119.44	782,512.34	
13,017.00	89.90	179.70	10,642.60	2,565.80	-2,564.83	280.58	2,580.14	173.76	470,025.44	782,512.42	
13,111.00	89.30	179.10	10,643.25	2,659.79	-2,658.83	281.56	2,673.69	173.96	469,931.44	782,513.40	
13,205.00	89.30	179.60	10,644.40	2,753.78	-2,752.81	282.63	2,767.28	174.14	469,837.46	782,514.47	
13,299.00	90.70	179.70	10,644.40	2,847.78	-2,846.81	283.21	2,860.86	174.32	469,743.46	782,515.05	
13,393.00	89.80	178.50	10,643.99	2,941.77	-2,940.79	284.68	2,954.54	174.47	469,649.48	782,516.52	
13,486.00	92.00	180.20	10,642.53	3,034.75	-3,033.77	285.74	3,047.19	174.62	469,556.50	782,517.58	
13,580.00	93.20	181.40	10,638.27	3,128.63	-3,127.66	284.43	3,140.56	174.80	469,462.61	782,516.27	
13,674.00	91.30	181.20	10,634.58	3,222.52	-3,221.56	282.30	3,233.90	174.99	469,368.71	782,514.14	
13,768.00	89.10	179.40	10,634.25	3,316.51	-3,315.54	281.80	3,327.50	175.14	469,274.73	782,513.64	
13,862.00	88.50	178.20	10,636.22	3,410.47	-3,409.50	283.77	3,421.29	175.24	469,180.77	782,515.61	
13,956.00	87.90	177.90	10,639.17	3,504.38	-3,503.40	286.97	3,515.13	175.32	469,086.87	782,518.81	
14,050.00	88.50	179.90	10,642.12	3,598.32	-3,597.33	288.77	3,608.90	175.41	468,992.94	782,520.61	
14,144.00	89.50	180.20	10,643.76	3,692.30	-3,691.32	288.69	3,702.59	175.53	468,898.95	782,520.53	
14,238.00	87.90	180.90	10,645.89	3,786.26	-3,785.28	287.79	3,796.21	175.65	468,804.99	782,519.63	
14,325.00	88.20	181.10	10,648.86	3,873.20	-3,872.22	286.27	3,882.79	175.77	468,718.05	782,518.11	
14,419.00	88.80	181.60	10,651.32	3,967.13	-3,966.16	284.06	3,976.32	175.90	468,624.11	782,515.90	
14,513.00	88.10	179.60	10,653.86	4,061.08	-4,060.12	283.07	4,069.97	176.01	468,530.15	782,514.91	
14,607.00	89.10	179.80	10,656.16	4,155.05	-4,154.08	283.56	4,163.75	176.09	468,436.19	782,515.40	
14,701.00	90.10	180.00	10,656.81	4,249.05	-4,248.08	283.73	4,257.55	176.18	468,342.19	782,515.57	
14,795.00	91.10	180.20	10,655.83	4,343.04	-4,342.07	283.56	4,351.32	176.26	468,248.20	782,515.40	
14,889.00	88.80	179.70	10,655.91	4,437.03	-4,436.07	283.65	4,445.13	176.34	468,154.20	782,515.49	



ProDirectional Survey Report



Company: Devon Energy Corp.
Project: Lea County, NM (NAD83)
Site: Thistle Unit
Well: 111H
Wellbore: OH
Design: Surveys

Local Co-ordinate Reference: Well 111H
TVD Reference: GL 3707.6'+KB 23.5' @ 3731.10usft (Cactus 126)
MD Reference: GL 3707.6'+KB 23.5' @ 3731.10usft (Cactus 126)
North Reference: Grid
Survey Calculation Method: Minimum Curvature
Database: WellPlanner1

Survey										
MD (usft)	Inc (°)	Azi (azimuth) (°)	TVD (usft)	V. Sec (usft)	N/S (usft)	E/W (usft)	Closure Distance (usft)	Closure Azimuth (°)	Northing (usft)	Easting (usft)
14,983.00	89.10	180.10	10,657.63	4,531.01	-4,530.05	283.81	4,538.93	176.42	468,060.22	782,515.65
15,077.00	89.60	180.50	10,658.70	4,625.00	-4,624.04	283.32	4,632.72	176.49	467,966.23	782,515.16
15,171.00	90.00	180.60	10,659.03	4,719.00	-4,718.04	282.42	4,726.48	176.57	467,872.23	782,514.26
15,251.00	90.70	180.50	10,658.54	4,798.99	-4,798.03	281.65	4,806.29	176.64	467,792.24	782,513.49
Final Survey: 15251' MD										
15,310.00	90.70	180.50	10,657.82	4,857.98	-4,857.03	281.13	4,865.16	176.69	467,733.24	782,512.97
Final TD: 15310' MD										

Design Annotations				
Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates		Comment
		+N/-S (usft)	+E/-W (usft)	
115.00	115.00	-0.30	-0.27	Pro MWD First Survey: 115' MD
15,251.00	10,658.54	-4,798.03	281.65	Final Survey: 15251' MD
15,310.00	10,657.82	-4,857.03	281.13	Final TD: 15310' MD