



PRODIRECTIONAL

HOBBS OCD

AUG 07 2018

RECEIVED



Boomslang 14-23 Fed No. 4H

Lea County, NM

August 07, 2017

Job No. LNM5143517

Survey Completion Report



PRODIRECTIONAL

Survey Certification Letter

August 07, 2017

devon

Operator Name: Devon Energy Corp.
Well Name: Boomslang 14-23 Fed No. 4H
County/Parish: Lea County,
State: NM
Rig Name: Nomac 64
Job Number: LNM5143517

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:

Surveyor	Surveyed Depths	Projection to Bit	Dates Performed	Type of Survey
ProDirectional	125' MD – 21,052' MD	21,110' MD	07/05/17 – 07/24/17	MWD

Sincerely,

Mike Coats

Mike Coats
Regulatory Specialist
Professional Directional

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

prodirectional.com



Devon Energy Corp.

Lea County, NM

Boomslang 14-23 Fed

No. 4H

OH

Survey: ProDirectional

Survey Report

07 August, 2017



Company: Devon Energy Corp.
Project: Lea County, NM (NAD83)
Site: Boomslang 14-23 Fed
Well: 4H
Wellbore: OH
Design: MWD 125'-21052', PTB 21110'

Local Co-ordinate Reference: Well 4H
TVD Reference: GL 3602'+KB 21' @ 3623.00usft (Nomac 64)
MD Reference: GL 3602'+KB 21' @ 3623.00usft (Nomac 64)
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 Boomslang 14-23 Fed

Site Position:	Northing:	446,243.13 usft	Latitude:	32.224315°N
From: Map	Easting:	786,353.47 usft	Longitude:	103.541005°W
Position Uncertainty: 0.00 usft	Slot Radius:	13-3/16 "	Grid Convergence:	0.42 °

Well 4H

Well Position	+N-S	0.00 usft	Northing:	446,243.43 usft	Latitude:	32.224315°N
	+E-W	0.00 usft	Easting:	786,403.41 usft	Longitude:	103.540843°W
Position Uncertainty		0.00 usft	Wellhead Elevation:	usft	Ground Level:	3,602.00 usft

Wellbore OH

Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	HDGM	6/14/2017	6.83	60.00	48,159.50

Design MWD 125'-21052', PTB 21110'

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	179.34

Survey Program Date 8/7/2017

From (usft)	To (usft)	Survey (Wellbore)	Tool Name	Description
125.00	21,110.00	Survey #1 (OH)	MWD+HDGM	OWSG MWD + HDGM



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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	446,243.43	786,403.41
125.00	0.20	250.70	125.00	0.07	-0.07	-0.21	0.22	250.70	446,243.36	786,403.20
Pro MWD First Survey: 125' MD										
217.00	0.20	246.10	217.00	0.18	-0.19	-0.50	0.54	249.33	446,243.24	786,402.91
309.00	0.40	219.60	309.00	0.49	-0.50	-0.86	0.99	239.57	446,242.93	786,402.55
432.00	0.50	236.00	431.99	1.12	-1.13	-1.57	1.94	234.24	446,242.30	786,401.84
523.00	0.60	239.20	522.99	1.57	-1.60	-2.31	2.81	235.33	446,241.83	786,401.10
615.00	0.40	260.90	614.99	1.86	-1.90	-3.04	3.59	238.06	446,241.53	786,400.37
707.00	0.70	257.40	706.98	2.03	-2.07	-3.91	4.42	242.09	446,241.36	786,399.50
798.00	0.80	244.80	797.97	2.40	-2.46	-5.03	5.60	243.90	446,240.97	786,398.38
890.00	0.60	252.30	889.97	2.81	-2.88	-6.07	6.72	244.59	446,240.55	786,397.34
982.00	0.70	260.40	981.96	3.04	-3.12	-7.08	7.74	246.20	446,240.31	786,396.33
1,073.00	0.90	266.00	1,072.95	3.17	-3.26	-8.34	8.96	248.62	446,240.17	786,395.07
1,168.00	0.60	259.40	1,167.94	3.30	-3.41	-9.57	10.16	250.40	446,240.02	786,393.84
1,264.00	0.80	270.60	1,263.94	3.37	-3.49	-10.74	11.29	251.98	446,239.94	786,392.67
1,363.00	0.80	266.00	1,362.93	3.40	-3.53	-12.12	12.62	253.74	446,239.90	786,391.29
1,455.00	1.00	311.00	1,454.92	2.90	-3.05	-13.37	13.71	257.13	446,240.38	786,390.04
1,550.00	1.50	331.20	1,549.89	1.25	-1.42	-14.59	14.66	264.44	446,242.01	786,388.82
1,646.00	1.40	329.50	1,645.86	-0.87	0.69	-15.79	15.81	272.51	446,244.12	786,387.62
1,741.00	1.30	339.50	1,740.84	-2.89	2.70	-16.76	16.97	279.16	446,246.13	786,386.65
1,836.00	1.30	344.80	1,835.81	-4.95	4.75	-17.42	18.05	285.26	446,248.18	786,385.99
1,931.00	1.00	338.30	1,930.79	-6.77	6.56	-18.01	19.16	290.02	446,249.99	786,385.40
2,026.00	0.80	341.50	2,025.78	-8.17	7.96	-18.52	20.16	293.26	446,251.39	786,384.89
2,121.00	0.90	345.50	2,120.77	-9.53	9.31	-18.92	21.09	296.20	446,252.74	786,384.49
2,216.00	1.00	341.00	2,215.76	-11.04	10.82	-19.38	22.19	299.17	446,254.25	786,384.03
2,311.00	0.90	333.30	2,310.75	-12.50	12.27	-19.98	23.45	301.55	446,255.70	786,383.43
2,406.00	0.80	340.20	2,405.74	-13.79	13.56	-20.54	24.61	303.43	446,256.99	786,382.87



ProDirectional Survey Report



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Wellbore: OH
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MD Reference: GL 3602'+KB 21' @ 3623.00usft (Nomac 64)
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)
2,501.00	0.80	337.90	2,500.73	-15.04	14.80	-21.02	25.70	305.15	446,258.23	786,382.39
2,596.00	0.80	324.60	2,595.72	-16.20	15.95	-21.65	26.89	306.38	446,259.38	786,381.76
2,691.00	0.80	325.50	2,690.71	-17.29	17.04	-22.41	28.15	307.25	446,260.47	786,381.00
2,786.00	0.80	313.10	2,785.70	-18.30	18.04	-23.27	29.44	307.78	446,261.47	786,380.14
2,881.00	0.80	313.90	2,880.69	-19.23	18.95	-24.23	30.76	308.03	446,262.38	786,379.18
2,977.00	0.70	315.60	2,976.68	-20.12	19.84	-25.12	32.01	308.29	446,263.27	786,378.29
3,072.00	0.70	315.30	3,071.67	-20.96	20.66	-25.94	33.16	308.54	446,264.09	786,377.47
3,167.00	0.80	313.70	3,166.67	-21.84	21.53	-26.83	34.40	308.75	446,264.96	786,376.58
3,262.00	0.60	318.70	3,261.66	-22.68	22.37	-27.63	35.55	308.98	446,265.80	786,375.78
3,357.00	0.60	321.60	3,356.65	-23.45	23.13	-28.27	36.53	309.29	446,266.56	786,375.14
3,452.00	0.40	329.70	3,451.65	-24.13	23.80	-28.75	37.32	309.63	446,267.23	786,374.66
3,546.00	0.70	327.50	3,545.65	-24.91	24.57	-29.22	38.18	310.06	446,268.00	786,374.19
3,641.00	0.60	348.00	3,640.64	-25.89	25.55	-29.64	39.13	310.76	446,268.98	786,373.77
3,737.00	0.50	331.00	3,736.64	-26.75	26.41	-29.94	39.92	311.41	446,269.84	786,373.47
3,832.00	0.40	336.60	3,831.63	-27.42	27.07	-30.28	40.62	311.80	446,270.50	786,373.13
3,927.00	0.30	333.30	3,926.63	-27.95	27.60	-30.52	41.15	312.12	446,271.03	786,372.89
4,022.00	0.30	258.00	4,021.63	-28.12	27.77	-30.88	41.53	311.97	446,271.20	786,372.53
4,117.00	0.40	216.70	4,116.63	-27.81	27.45	-31.32	41.65	311.24	446,270.88	786,372.09
4,212.00	0.30	245.60	4,211.63	-27.45	27.08	-31.74	41.73	310.47	446,270.51	786,371.67
4,307.00	0.50	221.60	4,306.62	-27.04	26.67	-32.24	41.85	309.60	446,270.10	786,371.17
4,402.00	0.30	199.80	4,401.62	-26.50	26.13	-32.60	41.78	308.71	446,269.56	786,370.81
4,497.00	0.70	138.80	4,496.62	-25.82	25.46	-32.31	41.13	308.24	446,268.89	786,371.10
4,592.00	1.10	137.30	4,591.61	-24.71	24.35	-31.30	39.66	307.88	446,267.78	786,372.11
4,687.00	1.20	140.50	4,686.59	-23.25	22.91	-30.05	37.79	307.32	446,266.34	786,373.36
4,782.00	1.70	136.10	4,781.56	-21.45	21.13	-28.44	35.43	306.61	446,264.56	786,374.97
4,877.00	2.10	130.50	4,876.50	-19.28	18.98	-26.14	32.31	305.99	446,262.41	786,377.27
4,972.00	2.70	127.30	4,971.42	-16.76	16.50	-23.04	28.34	305.60	446,259.93	786,380.37



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Well: 4H
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Local Co-ordinate Reference:
TVD Reference:
MD Reference:
North Reference:
Survey Calculation Method:
Database:

Well 4H
GL 3602'+KB 21' @ 3623.00usft (Nomac 64)
GL 3602'+KB 21' @ 3623.00usft (Nomac 64)
Grid
Minimum Curvature
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)
5,067.00	2.20	127.60	5,066.33	-14.25	14.03	-19.81	24.28	305.30	446,257.46	786,383.60
5,162.00	1.90	127.50	5,161.27	-12.15	11.96	-17.12	20.88	304.93	446,255.39	786,386.29
5,227.00	1.80	121.30	5,226.24	-10.95	10.77	-15.39	18.79	304.98	446,254.20	786,388.02
5,322.00	1.50	97.20	5,321.20	-9.99	9.84	-12.88	16.21	307.37	446,253.27	786,390.53
5,417.00	2.20	47.30	5,416.16	-11.04	10.92	-10.31	15.02	316.65	446,254.35	786,393.10
5,512.00	2.60	21.50	5,511.07	-14.26	14.16	-8.18	16.36	329.99	446,257.59	786,395.23
5,607.00	3.40	350.60	5,605.95	-19.04	18.95	-7.85	20.51	337.49	446,262.38	786,395.56
5,702.00	3.90	349.80	5,700.76	-25.01	24.91	-8.88	26.44	340.37	446,268.34	786,394.53
5,797.00	4.50	349.70	5,795.50	-31.87	31.75	-10.12	33.33	342.32	446,275.18	786,393.29
5,892.00	5.70	347.60	5,890.12	-40.16	40.03	-11.80	41.73	343.57	446,283.46	786,391.61
5,987.00	6.40	346.30	5,984.59	-49.94	49.78	-14.07	51.73	344.22	446,293.21	786,389.34
6,082.00	6.00	342.60	6,079.04	-59.85	59.66	-16.81	61.98	344.27	446,303.09	786,386.60
6,177.00	5.40	344.00	6,173.57	-68.91	68.70	-19.52	71.42	344.13	446,312.13	786,383.89
6,272.00	5.60	342.80	6,268.13	-77.67	77.42	-22.13	80.52	344.05	446,320.85	786,381.28
6,367.00	5.80	355.10	6,362.66	-86.90	86.63	-23.91	89.87	344.57	446,330.06	786,379.50
6,462.00	5.80	356.10	6,457.18	-96.48	96.20	-24.64	99.31	345.63	446,339.63	786,378.77
6,557.00	5.80	355.80	6,551.69	-106.06	105.78	-25.32	108.77	346.54	446,349.21	786,378.09
6,653.00	5.80	356.40	6,647.20	-115.75	115.46	-25.98	118.35	347.32	446,358.89	786,377.43
6,748.00	6.00	357.50	6,741.70	-125.50	125.21	-26.50	127.98	348.05	446,368.64	786,376.91
6,843.00	5.50	355.90	6,836.22	-135.01	134.71	-27.04	137.40	348.65	446,378.14	786,376.37
6,938.00	4.70	352.90	6,930.84	-143.42	143.11	-27.85	145.80	348.99	446,386.54	786,375.56
7,033.00	3.00	343.50	7,025.63	-149.68	149.36	-29.04	152.16	349.00	446,392.79	786,374.37
7,128.00	1.50	358.30	7,120.55	-153.32	152.99	-29.78	155.86	348.99	446,396.42	786,373.63
7,223.00	1.30	9.50	7,215.52	-155.62	155.29	-29.64	158.10	349.19	446,398.72	786,373.77
7,318.00	1.00	17.80	7,310.50	-157.47	157.15	-29.21	159.84	349.47	446,400.58	786,374.20
7,413.00	1.20	17.90	7,405.49	-159.20	158.88	-28.65	161.44	349.78	446,402.31	786,374.76
7,508.00	0.90	30.00	7,500.47	-160.78	160.47	-27.97	162.89	350.11	446,403.90	786,375.44



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Survey

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7,603.00	0.70	43.20	7,595.46	-161.84	161.54	-27.20	163.82	350.44	446,404.97	786,376.21
7,698.00	0.90	41.80	7,690.45	-162.81	162.52	-26.30	164.64	350.81	446,405.95	786,377.11
7,793.00	1.00	88.50	7,785.44	-163.38	163.10	-24.98	165.00	351.29	446,406.53	786,378.43
7,888.00	1.00	81.10	7,880.42	-163.51	163.25	-23.33	164.91	351.87	446,406.68	786,380.08
7,983.00	1.10	106.40	7,975.41	-163.36	163.12	-21.64	164.55	352.44	446,406.55	786,381.77
8,078.00	1.20	99.40	8,070.39	-162.92	162.70	-19.78	163.90	353.07	446,406.13	786,383.63
8,173.00	1.40	93.60	8,165.37	-162.66	162.47	-17.64	163.42	353.80	446,405.90	786,385.77
8,268.00	0.60	114.50	8,260.35	-162.36	162.19	-16.03	162.98	354.36	446,405.62	786,387.38
8,363.00	0.90	148.90	8,355.34	-161.50	161.34	-15.19	162.06	354.62	446,404.77	786,388.22
8,458.00	1.00	138.30	8,450.33	-160.24	160.08	-14.26	160.72	354.91	446,403.51	786,389.15
8,553.00	1.30	133.40	8,545.31	-158.86	158.72	-12.92	159.25	355.35	446,402.15	786,390.49
8,648.00	1.20	128.00	8,640.29	-157.49	157.37	-11.35	157.78	355.87	446,400.80	786,392.06
8,743.00	1.00	105.20	8,735.27	-156.64	156.54	-9.77	156.85	356.43	446,399.97	786,393.64
8,838.00	0.90	108.40	8,830.26	-156.17	156.09	-8.26	156.31	356.97	446,399.52	786,395.15
8,933.00	1.30	71.40	8,925.24	-156.26	156.20	-6.53	156.33	357.61	446,399.63	786,396.88
9,028.00	1.40	69.30	9,020.22	-156.99	156.95	-4.43	157.01	358.38	446,400.38	786,398.98
9,123.00	0.40	75.70	9,115.20	-157.47	157.44	-3.02	157.47	358.90	446,400.87	786,400.39
9,218.00	0.60	2.80	9,210.20	-158.04	158.02	-2.67	158.04	359.03	446,401.45	786,400.74
9,313.00	1.00	9.60	9,305.19	-159.35	159.34	-2.51	159.36	359.10	446,402.77	786,400.90
9,409.00	1.80	10.40	9,401.16	-161.66	161.64	-2.10	161.66	359.26	446,405.07	786,401.31
9,504.00	0.70	146.90	9,496.15	-162.63	162.63	-1.51	162.63	359.47	446,406.06	786,401.90
9,599.00	1.50	143.60	9,591.13	-161.13	161.14	-0.46	161.14	359.84	446,404.57	786,402.95
9,694.00	1.00	150.60	9,686.11	-159.40	159.42	0.69	159.42	0.25	446,402.85	786,404.10
9,789.00	0.70	126.70	9,781.10	-158.32	158.35	1.56	158.36	0.56	446,401.78	786,404.97
9,884.00	1.30	75.60	9,876.08	-158.22	158.27	3.07	158.30	1.11	446,401.70	786,406.48
9,979.00	1.90	94.70	9,971.05	-158.33	158.41	5.68	158.51	2.05	446,401.84	786,409.09
10,074.00	0.70	95.20	10,066.02	-158.13	158.23	7.83	158.42	2.83	446,401.66	786,411.24



ProDirectional Survey Report



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Project: Lea County, NM (NAD83)
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Well: 4H
Wellbore: OH
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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)
10,169.00	1.00	113.30	10,161.01	-157.73	157.85	9.17	158.11	3.32	446,401.28	786,412.58
10,264.00	1.40	96.40	10,255.99	-157.25	157.39	11.08	157.78	4.03	446,400.82	786,414.49
10,360.00	1.30	71.00	10,351.96	-157.45	157.61	13.28	158.17	4.82	446,401.04	786,416.69
10,384.00	1.70	60.60	10,375.95	-157.71	157.88	13.85	158.48	5.01	446,401.31	786,417.26
10,479.00	3.70	123.10	10,470.86	-156.68	156.89	17.64	157.88	6.42	446,400.32	786,421.05
10,550.00	8.50	163.20	10,541.46	-150.36	150.61	21.08	152.08	7.97	446,394.04	786,424.49
10,597.00	13.10	167.90	10,587.62	-141.80	142.07	23.20	143.96	9.28	446,385.50	786,426.61
10,645.00	18.50	173.20	10,633.79	-128.89	129.18	25.25	131.63	11.06	446,372.61	786,428.66
10,692.00	24.20	178.10	10,677.55	-111.83	112.14	26.45	115.21	13.27	446,355.57	786,429.86
10,740.00	28.30	181.40	10,720.59	-90.61	90.92	26.50	94.70	16.25	446,334.35	786,429.91
10,787.00	31.70	183.00	10,761.29	-67.14	67.44	25.58	72.13	20.77	446,310.87	786,428.99
10,835.00	34.90	184.20	10,801.41	-40.87	41.15	23.91	47.59	30.16	446,284.58	786,427.32
10,882.00	38.80	183.40	10,839.01	-12.77	13.03	22.06	25.61	59.43	446,256.46	786,425.47
10,930.00	42.90	183.30	10,875.31	18.54	-18.31	20.22	27.28	132.16	446,225.12	786,423.63
10,977.00	47.00	183.60	10,908.57	51.65	-51.45	18.22	54.58	160.50	446,191.98	786,421.63
11,026.00	50.20	184.60	10,940.97	88.27	-88.10	15.59	89.47	169.97	446,155.33	786,419.00
11,073.00	53.80	182.90	10,969.90	125.19	-125.05	13.18	125.74	173.98	446,118.38	786,416.59
11,121.00	56.90	179.50	10,997.19	164.65	-164.52	12.37	164.98	175.70	446,078.91	786,415.78
11,168.00	60.00	178.60	11,021.78	204.69	-204.56	13.04	204.97	176.35	446,038.87	786,416.45
11,216.00	63.80	179.30	11,044.39	247.03	-246.88	13.81	247.27	176.80	445,996.55	786,417.22
11,263.00	67.40	179.50	11,063.80	289.82	-289.68	14.26	290.03	177.18	445,953.75	786,417.67
11,311.00	71.30	180.10	11,080.72	334.73	-334.58	14.41	334.89	177.53	445,908.85	786,417.82
11,358.00	74.90	180.50	11,094.38	379.68	-379.55	14.18	379.81	177.86	445,863.88	786,417.59
11,406.00	77.20	181.50	11,105.96	426.24	-426.12	13.36	426.33	178.20	445,817.31	786,416.77
11,453.00	80.80	182.30	11,114.92	472.33	-472.22	11.83	472.37	178.56	445,771.21	786,415.24
11,504.00	84.90	182.20	11,121.27	522.85	-522.78	9.84	522.87	178.92	445,720.65	786,413.25
11,543.00	85.20	182.10	11,124.63	561.66	-561.60	8.39	561.67	179.14	445,681.83	786,411.80



ProDirectional
Survey Report



Company: Devon Energy Corp.
Project: Lea County, NM (NAD83)
Site: Boomslang 14-23 Fed
Well: 4H
Wellbore: OH
Design: MWD 125'-21052', PTB 21110'

Local Co-ordinate Reference: Well 4H
TVD Reference: GL 3602'+KB 21' @ 3623.00usft (Nomac 64)
MD Reference: GL 3602'+KB 21' @ 3623.00usft (Nomac 64)
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)
11,635.00	84.70	182.10	11,132.73	653.20	-653.18	5.03	653.20	179.56	445,590.25	786,408.44
11,726.00	84.90	180.40	11,140.98	743.77	-743.78	3.05	743.79	179.76	445,499.65	786,406.46
11,787.00	85.10	179.70	11,146.30	804.53	-804.55	3.00	804.56	179.79	445,438.88	786,406.41
11,879.00	87.50	179.00	11,152.23	896.33	-896.35	4.04	896.36	179.74	445,347.08	786,407.45
11,972.00	86.90	178.40	11,156.78	989.22	-989.21	6.15	989.23	179.64	445,254.22	786,409.56
12,064.00	88.70	178.10	11,160.31	1,081.13	-1,081.10	8.96	1,081.13	179.53	445,162.33	786,412.37
12,157.00	89.80	177.60	11,161.53	1,174.09	-1,174.02	12.44	1,174.09	179.39	445,069.41	786,415.85
12,284.00	88.90	176.90	11,162.97	1,300.99	-1,300.86	18.54	1,301.00	179.18	444,942.57	786,421.95
12,379.00	87.70	176.00	11,165.78	1,395.83	-1,395.64	24.42	1,395.85	179.00	444,847.79	786,427.83
12,474.00	88.00	175.40	11,169.35	1,490.57	-1,490.30	31.53	1,490.64	178.79	444,753.13	786,434.94
12,569.00	90.20	177.40	11,170.84	1,585.42	-1,585.09	37.50	1,585.54	178.64	444,658.34	786,440.91
12,664.00	90.40	178.10	11,170.34	1,680.38	-1,680.02	41.23	1,680.52	178.59	444,563.41	786,444.64
12,759.00	90.50	179.60	11,169.60	1,775.37	-1,774.99	43.13	1,775.52	178.61	444,468.44	786,446.54
12,854.00	90.20	179.30	11,169.02	1,870.37	-1,869.99	44.05	1,870.51	178.65	444,373.44	786,447.46
12,950.00	90.20	179.60	11,168.68	1,966.37	-1,965.98	44.97	1,966.50	178.69	444,277.45	786,448.38
13,045.00	88.80	178.50	11,169.51	2,061.36	-2,060.96	46.54	2,061.49	178.71	444,182.47	786,449.95
13,140.00	90.90	180.80	11,169.76	2,156.35	-2,155.95	47.12	2,156.46	178.75	444,087.48	786,450.53
13,236.00	91.00	181.20	11,168.17	2,252.29	-2,251.92	45.45	2,252.38	178.84	443,991.51	786,448.86
13,331.00	90.40	181.30	11,167.01	2,347.23	-2,346.89	43.38	2,347.29	178.94	443,896.54	786,446.79
13,426.00	90.10	181.20	11,166.59	2,442.18	-2,441.87	41.30	2,442.22	179.03	443,801.56	786,444.71
13,521.00	89.90	181.60	11,166.59	2,537.12	-2,536.84	38.98	2,537.14	179.12	443,706.59	786,442.39
13,616.00	89.30	181.40	11,167.26	2,632.05	-2,631.80	36.49	2,632.06	179.21	443,611.63	786,439.90
13,712.00	89.30	182.00	11,168.43	2,727.96	-2,727.75	33.65	2,727.96	179.29	443,515.68	786,437.06
13,807.00	89.00	181.80	11,169.84	2,822.85	-2,822.69	30.50	2,822.85	179.38	443,420.74	786,433.91
13,902.00	89.00	181.90	11,171.50	2,917.75	-2,917.63	27.43	2,917.75	179.46	443,325.80	786,430.84
13,997.00	88.20	182.00	11,173.82	3,012.62	-3,012.54	24.20	3,012.64	179.54	443,230.89	786,427.61
14,092.00	87.80	180.80	11,177.13	3,107.50	-3,107.45	21.88	3,107.53	179.60	443,135.98	786,425.29



ProDirectional
Survey Report



Company: Devon Energy Corp.
Project: Lea County, NM (NAD83)
Site: Boomslang 14-23 Fed
Well: 4H
Wellbore: OH
Design: MWD 125'-21052', PTB 21110'

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

Well 4H
GL 3602'+KB 21' @ 3623.00usft (Nomac 64)
GL 3602'+KB 21' @ 3623.00usft (Nomac 64)
Grid
Minimum Curvature
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)
14,188.00	87.10	180.40	11,181.40	3,203.38	-3,203.35	20.88	3,203.42	179.63	443,040.08	786,424.29
14,283.00	87.80	179.20	11,185.83	3,298.28	-3,298.26	21.21	3,298.32	179.63	442,945.17	786,424.82
14,378.00	89.40	178.50	11,187.95	3,393.25	-3,393.20	23.11	3,393.28	179.61	442,850.23	786,426.52
14,473.00	89.90	178.90	11,188.53	3,488.24	-3,488.18	25.27	3,488.27	179.58	442,755.25	786,428.68
14,568.00	89.30	178.70	11,189.20	3,583.23	-3,583.15	27.26	3,583.26	179.56	442,660.28	786,430.67
14,664.00	89.70	178.90	11,190.03	3,679.22	-3,679.13	29.27	3,679.25	179.54	442,564.30	786,432.68
14,759.00	89.70	178.90	11,190.53	3,774.22	-3,774.11	31.09	3,774.24	179.53	442,469.32	786,434.50
14,854.00	90.60	178.80	11,190.28	3,869.21	-3,869.09	33.00	3,869.23	179.51	442,374.34	786,436.41
14,949.00	90.70	178.60	11,189.20	3,964.20	-3,964.06	35.15	3,964.21	179.49	442,279.37	786,438.56
15,044.00	90.50	177.80	11,188.21	4,059.18	-4,059.01	38.14	4,059.19	179.46	442,184.42	786,441.55
15,139.00	90.80	178.00	11,187.13	4,154.14	-4,153.94	41.62	4,154.14	179.43	442,089.49	786,445.03
15,234.00	89.90	178.20	11,186.55	4,249.11	-4,248.88	44.77	4,249.12	179.40	441,994.55	786,448.18
15,329.00	90.10	179.00	11,186.55	4,344.11	-4,343.85	47.09	4,344.11	179.38	441,899.58	786,450.50
15,424.00	89.40	179.30	11,186.97	4,439.10	-4,438.84	48.50	4,439.10	179.37	441,804.59	786,451.91
15,519.00	88.00	178.90	11,189.12	4,534.08	-4,533.80	49.99	4,534.08	179.37	441,709.63	786,453.40
15,614.00	87.80	180.00	11,192.60	4,629.01	-4,628.73	50.90	4,629.01	179.37	441,614.70	786,454.31
15,709.00	87.70	180.60	11,196.33	4,723.92	-4,723.66	50.40	4,723.93	179.39	441,519.77	786,453.81
15,804.00	86.10	180.60	11,201.47	4,818.76	-4,818.51	49.41	4,818.76	179.41	441,424.92	786,452.82
15,899.00	85.30	180.50	11,208.59	4,913.47	-4,913.24	48.50	4,913.48	179.43	441,330.19	786,451.91
15,994.00	86.70	179.20	11,215.22	5,008.23	-5,008.00	48.75	5,008.24	179.44	441,235.43	786,452.16
16,089.00	88.70	178.60	11,219.03	5,103.15	-5,102.90	50.57	5,103.15	179.43	441,140.53	786,453.98
16,184.00	88.90	177.90	11,221.02	5,198.11	-5,197.84	53.47	5,198.11	179.41	441,045.59	786,456.88
16,279.00	88.40	177.30	11,223.26	5,293.04	-5,292.72	57.45	5,293.04	179.38	440,950.71	786,460.86
16,374.00	90.30	177.50	11,224.34	5,387.97	-5,387.62	61.76	5,387.97	179.34	440,855.81	786,465.17
16,469.00	90.30	177.50	11,223.84	5,482.92	-5,482.52	65.90	5,482.92	179.31	440,760.91	786,469.31
16,564.00	90.20	177.00	11,223.42	5,577.86	-5,577.41	70.46	5,577.86	179.28	440,666.02	786,473.87
16,659.00	88.50	176.50	11,224.50	5,672.75	-5,672.25	75.85	5,672.76	179.23	440,571.18	786,479.26



ProDirectional Survey Report



Company: Devon Energy Corp.
Project: Lea County, NM (NAD83)
Site: Boomsiang 14-23 Fed
Well: 4H
Wellbore: OH
Design: MWD 125'-21052', PTB 21110'

Local Co-ordinate Reference: Well 4H
TVD Reference: GL 3602'+KB 21' @ 3623.00usft (Nomac 64)
MD Reference: GL 3602'+KB 21' @ 3623.00usft (Nomac 64)
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)
16,754.00	90.00	178.00	11,225.75	5,767.67	-5,767.13	80.40	5,767.69	179.20	440,476.30	786,483.81
16,849.00	92.00	178.90	11,224.09	5,862.64	-5,862.07	82.97	5,862.66	179.19	440,381.36	786,486.38
16,945.00	92.00	178.60	11,220.74	5,958.58	-5,957.99	85.07	5,958.60	179.18	440,285.44	786,488.48
17,040.00	91.70	179.50	11,217.67	6,053.52	-6,052.93	86.64	6,053.55	179.18	440,190.50	786,490.05
17,134.00	89.50	180.20	11,216.69	6,147.51	-6,146.92	86.89	6,147.53	179.19	440,096.51	786,490.30
17,228.00	91.30	180.30	11,216.03	6,241.49	-6,240.91	86.48	6,241.51	179.21	440,002.52	786,489.89
17,323.00	90.40	180.90	11,214.82	6,336.46	-6,335.89	85.48	6,336.47	179.23	439,907.54	786,488.89
17,419.00	87.20	180.90	11,216.63	6,432.39	-6,431.85	83.97	6,432.40	179.25	439,811.58	786,487.38
17,514.00	88.40	180.60	11,220.28	6,527.29	-6,526.77	82.73	6,527.29	179.27	439,716.66	786,486.14
17,609.00	88.00	181.00	11,223.26	6,622.21	-6,621.71	81.41	6,622.21	179.30	439,621.72	786,484.82
17,704.00	86.40	180.40	11,227.90	6,717.07	-6,716.59	80.25	6,717.07	179.32	439,526.84	786,483.66
17,799.00	87.00	180.30	11,233.37	6,811.89	-6,811.43	79.67	6,811.89	179.33	439,432.00	786,483.08
17,894.00	87.70	180.40	11,237.76	6,906.78	-6,906.32	79.09	6,906.78	179.34	439,337.11	786,482.50
17,989.00	88.80	180.00	11,240.66	7,001.72	-7,001.28	78.76	7,001.72	179.36	439,242.15	786,482.17
18,084.00	90.80	179.80	11,241.00	7,096.71	-7,096.27	78.92	7,096.71	179.36	439,147.16	786,482.33
18,180.00	92.10	179.60	11,238.57	7,192.67	-7,192.24	79.42	7,192.68	179.37	439,051.19	786,482.83
18,275.00	89.70	181.10	11,237.07	7,287.64	-7,287.21	78.84	7,287.64	179.38	438,956.22	786,482.25
18,373.00	88.80	180.90	11,238.36	7,385.59	-7,385.19	77.13	7,385.59	179.40	438,858.24	786,480.54
18,468.00	86.70	179.40	11,242.09	7,480.50	-7,480.11	76.88	7,480.50	179.41	438,763.32	786,480.29
18,563.00	87.10	179.30	11,247.22	7,575.36	-7,574.96	77.96	7,575.36	179.41	438,668.47	786,481.37
18,658.00	88.10	179.60	11,251.20	7,670.27	-7,669.87	78.87	7,670.28	179.41	438,573.56	786,482.28
18,752.00	89.60	179.90	11,253.09	7,764.25	-7,763.85	79.28	7,764.26	179.41	438,479.58	786,482.69
18,846.00	87.90	178.30	11,255.14	7,858.22	-7,857.81	80.76	7,858.22	179.41	438,385.62	786,484.17
18,940.00	88.40	178.30	11,258.17	7,952.15	-7,951.72	83.54	7,952.16	179.40	438,291.71	786,486.95
19,034.00	89.00	178.80	11,260.31	8,046.12	-8,045.66	85.92	8,046.12	179.39	438,197.77	786,489.33
19,129.00	89.40	179.30	11,261.63	8,141.11	-8,140.64	87.50	8,141.11	179.38	438,102.79	786,490.91
19,223.00	91.40	179.60	11,260.98	8,235.10	-8,234.63	88.40	8,235.10	179.38	438,008.80	786,491.81



ProDirectional Survey Report



Company: Devon Energy Corp.
Project: Lea County, NM (NAD83)
Site: Boomslang 14-23 Fed
Well: 4H
Wellbore: OH
Design: MWD 125'-21052', PTB 21110'

Local Co-ordinate Reference: Well 4H
TVD Reference: GL 3602'+KB 21' @ 3623.00usft (Nomac 64)
MD Reference: GL 3602'+KB 21' @ 3623.00usft (Nomac 64)
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)
19,318.00	89.20	178.90	11,260.48	8,330.09	-8,329.61	89.64	8,330.10	179.38	437,913.82	786,493.05
19,413.00	89.10	178.50	11,261.89	8,425.08	-8,424.58	91.80	8,425.08	179.38	437,818.85	786,495.21
19,508.00	89.80	178.40	11,262.80	8,520.06	-8,519.54	94.37	8,520.06	179.37	437,723.89	786,497.78
19,602.00	90.50	178.10	11,262.56	8,614.04	-8,613.49	97.24	8,614.04	179.35	437,629.94	786,500.65
19,696.00	91.30	178.10	11,261.08	8,708.01	-8,707.43	100.35	8,708.01	179.34	437,536.00	786,503.76
19,790.00	90.30	179.30	11,259.77	8,801.99	-8,801.39	102.49	8,801.99	179.33	437,442.04	786,505.90
19,884.00	87.50	179.20	11,261.57	8,895.96	-8,895.36	103.72	8,895.96	179.33	437,348.07	786,507.13
19,979.00	87.90	179.10	11,265.38	8,990.89	-8,990.27	105.12	8,990.89	179.33	437,253.16	786,508.53
20,074.00	89.40	179.40	11,267.62	9,085.86	-9,085.23	106.37	9,085.86	179.33	437,158.20	786,509.78
20,169.00	87.70	179.30	11,270.03	9,180.82	-9,180.19	107.44	9,180.82	179.33	437,063.24	786,510.85
20,264.00	87.80	178.90	11,273.75	9,275.75	-9,275.11	108.94	9,275.75	179.33	436,968.32	786,512.35
20,359.00	87.80	178.20	11,277.40	9,370.67	-9,370.01	111.34	9,370.67	179.32	436,873.42	786,514.75
20,455.00	88.40	178.50	11,280.58	9,466.60	-9,465.92	114.10	9,466.60	179.31	436,777.51	786,517.51
20,550.00	89.10	178.80	11,282.66	9,561.57	-9,560.87	116.34	9,561.57	179.30	436,682.56	786,519.75
20,645.00	90.20	179.60	11,283.24	9,656.57	-9,655.85	117.66	9,656.57	179.30	436,587.58	786,521.07
20,739.00	90.80	179.90	11,282.42	9,750.56	-9,749.85	118.07	9,750.56	179.31	436,493.58	786,521.48
20,834.00	90.20	180.30	11,281.59	9,845.55	-9,844.84	117.91	9,845.55	179.31	436,398.59	786,521.32
20,929.00	91.50	180.70	11,280.18	9,940.52	-9,939.83	117.08	9,940.52	179.33	436,303.60	786,520.49
21,024.00	92.00	181.10	11,277.28	10,035.44	-10,034.77	115.59	10,035.44	179.34	436,208.66	786,519.00
21,052.00	92.00	181.00	11,276.30	10,063.41	-10,062.75	115.08	10,063.41	179.34	436,180.68	786,518.49
Final Survey: 21052' MD										
21,110.00	92.00	181.00	11,274.28	10,121.35	-10,120.70	114.06	10,121.35	179.35	436,122.73	786,517.47
Final TD: 21110' MD										



ProDirectional
Survey Report



Company: Devon Energy Corp.
Project: Lea County, NM (NAD83)
Site: Boomsiang 14-23 Fed
Well: 4H
Wellbore: OH
Design: MWD 125'-21052', PTB 21110'

Local Co-ordinate Reference: Well 4H
TVD Reference: GL 3602'+KB 21' @ 3623.00usft (Nomac 64)
MD Reference: GL 3602'+KB 21' @ 3623.00usft (Nomac 64)
North Reference: Grid
Survey Calculation Method: Minimum Curvature
Database: WellPlanner1

Design Annotations

Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates		Comment
		+N-S (usft)	+E-W (usft)	
125.00	125.00	-0.07	-0.21	Pro MWD First Survey: 125' MD
21,052.00	11,276.30	-10,062.75	115.08	Final Survey: 21052' MD
21,110.00	11,274.28	-10,120.70	114.06	Final TD: 21110' MD