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Southwestern Energy®

Final Well Report

Mark Hickman OHI 6H
Ohio County, WV

Prepared for
Mr. Matt Justus

PREMIER
DIRECTIONAL DRILLING

Section One

Directional Comparison Plot

Actual vs. Proposed

SOUTHWESTERN ENERGY

Project:	Ohio County
Site:	Mark Hickman OHI Pad
Well:	6H
Wellbore:	Wellbore #1
Design:	Plan #3
Rig:	SDC 41
Job:	H18085

FINAL AS DRILLED ANNOTATIONS

MD	Inc	Azi	TVD	+N-S	+E-W	VSect	Departure	Annotation
165.0	0.16	220.92	165.0	-0.2	-0.2	0.1	0.2	First MWD @ 165' MD / 165' TVD
13569.0	88.89	154.53	6770.1	-6738.3	2184.1	7083.5	8039.6	Last MWD @ 13569' MD / 6770' TVD
13603.0	88.89	154.53	6770.7	-6768.0	2196.7	7117.2	8073.6	PTD @ 13603' MD / 6771' TVD

FINAL AS DRILLED TARGET DETAILS

Name	TVD	+N-S	+E-W	Northing	Easting	Latitude	Longitude	Shape
PTD Mark Hickman OHI 6H	6770.7	-6768.0	2196.7	1453483.63	1759281.56	40° 1' 16.297 N	80° 32' 22.958 W	Point

Azimuths to Grid North
True North: -0.29°
Magnetic North: -8.78°

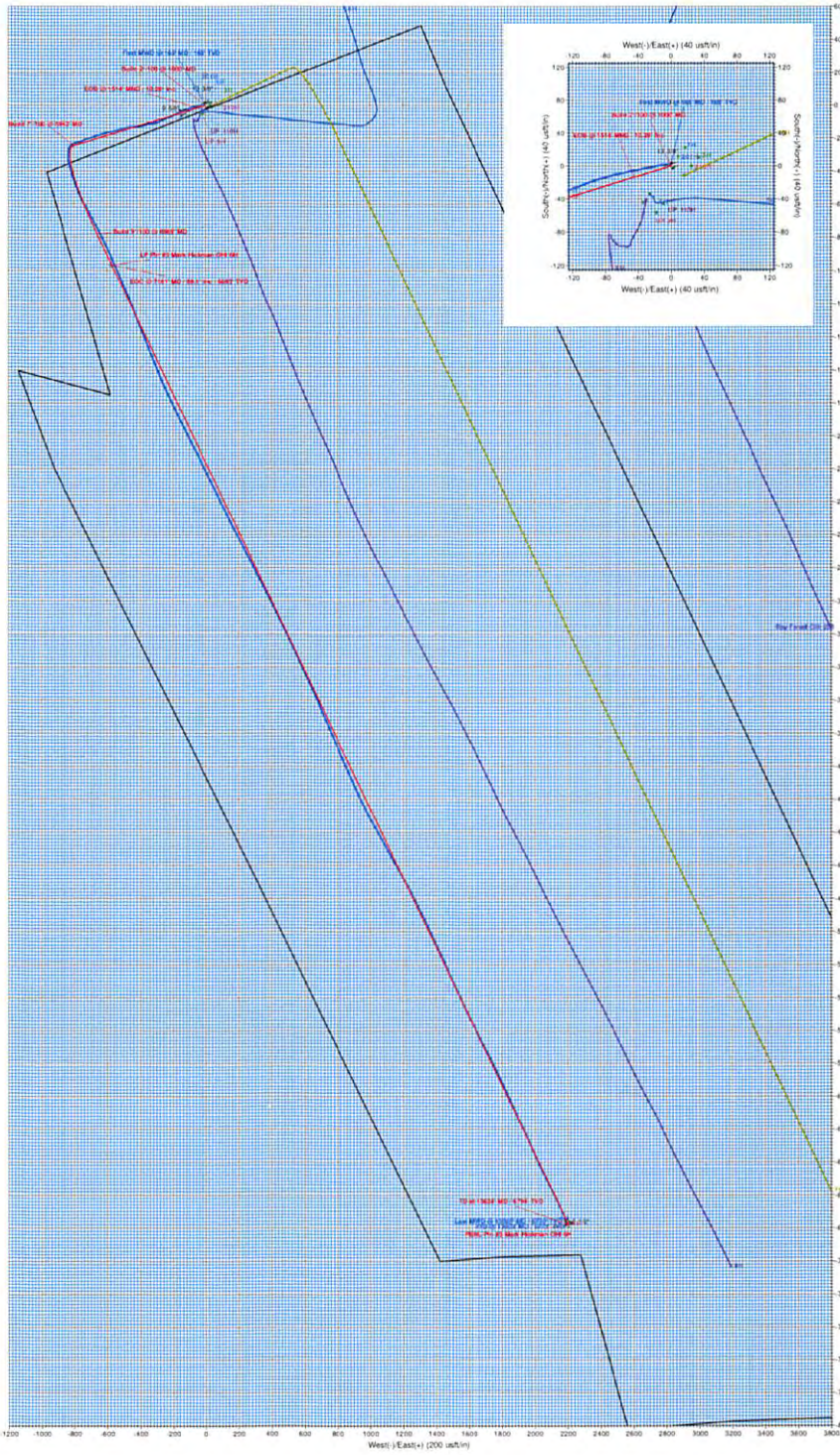
Magnetic Field
Strength: 52775.0nT
Dip Angle: 67.32°
Date: 02/19/2018
Model: HDGM

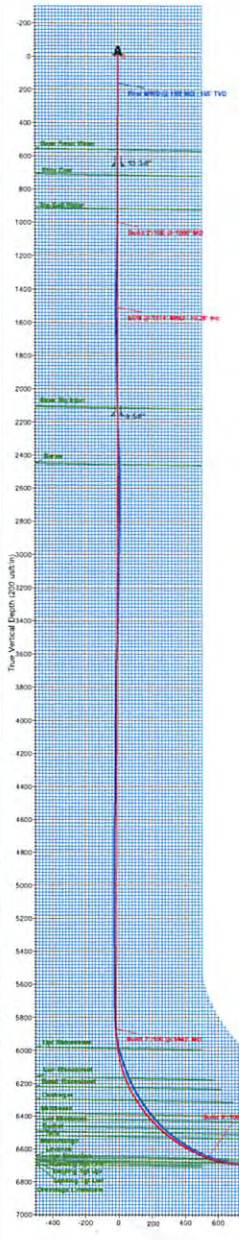
CASING DETAILS

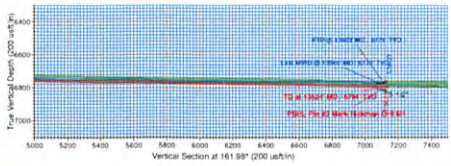
MD	TVD	Name	Size
663.0	663.0	13 3/8"	13-3/8
2175.4	2153.0	9 5/8"	9-5/8
13623.6	6794.0	5 1/2"	5-1/2

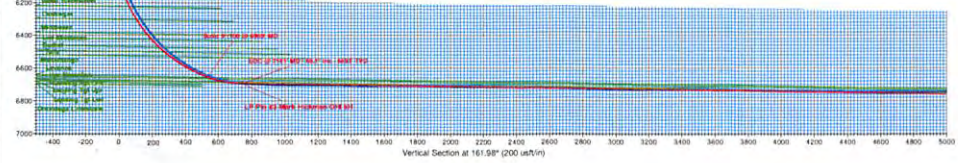
FORMATION TOP DETAILS

MDPath	TVDPath	Formation	DipAngle	
564.0	564.0	Base Fresh Water	0.90	161.98
714.0	714.0	Pitts Coal	0.90	161.98
919.0	919.0	Top Salt Water	0.90	161.98
2128.3	2114.0	Base Big Injun	0.90	161.98
2475.1	2456.9	Berea	0.90	161.98
6063.8	5967.9	Upr Rhinestreet	0.90	161.98
6230.4	6156.5	Lwr Rhinestreet	0.90	161.98
6314.2	6235.0	Basal Rhinestreet	0.90	161.98
6407.3	6326.7	Cashaqua	0.90	161.98
6511.7	6391.7	Middlesex	0.90	161.98
6536.9	6426.1	Lwr Middlesex	0.90	161.98
6621.9	6472.0	Burket	0.90	161.98
6668.9	6504.4	Tully	0.90	161.98
6711.0	6530.9	Mahantango	0.90	161.98
6977.0	6657.5	Lewanna	0.90	161.98
7011.6	6668.1	Upr Marcellus	0.90	161.98
7077.4	6683.0	Landing Tgt Upr	0.90	161.98
7115.2	6688.6	Landing Tgt Cntr	0.90	161.98









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SOUTHWESTERN ENERGY

Ohio County
Mark Hickman OHI Pad
6H

Wellbore #1

Design: Wellbore #1

Standard Survey Report

04 April, 2018

Company:	SOUTHWESTERN ENERGY	**Local Co-ordinate Reference:**	Well 6H
Project:	Ohio County	**TVD Reference:**	1281.8+26 @ 1307.8usft
Site:	Mark Hickman OHI Pad	**MD Reference:**	1281.8+26 @ 1307.8usft
Well:	6H	**North Reference:**	Grid
Wellbore:	Wellbore #1	**Survey Calculation Method:**	Minimum Curvature
Design:	Wellbore #1	**Database:**	EDM 5000 14 Multi User

Project	Ohio County		
Map System:	Universal Transverse Mercator (US Survey Fee	**System Datum:**	Mean Sea Level
Geo Datum:	NAD83 West Virginia - HARN		
Map Zone:	Zone 17N (84 W to 78 W)		

Site	Mark Hickman OHI Pad				
Site Position:		**Northing:**	14,541,552.86 usft	**Latitude:**	40° 2' 23.327 N
From:	Lat/Long	**Easting:**	1,767,082.84 usft	**Longitude:**	80° 32' 50.788 W
Position Uncertainty:	0.0 usft	**Slot Radius:**	13-3/16 "	**Grid Convergence:**	0.29 °

Well	6H						
Well Position	**+N/-S**	0.0 usft	**Northing:**	14,541,552.85 usft	**Latitude:**	40° 2' 23.327 N
	+E/-W	0.0 usft	**Easting:**	1,767,082.84 usft	**Longitude:**	80° 32' 50.788 W
Position Uncertainty		0.0 usft	**Wellhead Elevation:**	usft	**Ground Level:**	1,281.8 usft

Wellbore	Wellbore #1				
Magnetics	**Model Name**	**Sample Date**	**Declination (°)**	**Dip Angle (°)**	**Field Strength (nT)**
	HDGM	02/19/18	-8.47	67.32	52,775.00000000

Design	Wellbore #1				
Audit Notes:					
Version:	1.0	**Phase:**	ACTUAL	**Tie On Depth:**	0.0

Vertical Section:	**Depth From (TVD) (usft)**	**+N/-S (usft)**	**+E/-W (usft)**	**Direction (°)**
	0.0	0.0	0.0	161.98

Survey Program	**Date** 04/04/18		
From (usft)	**To (usft)**	**Survey (Wellbore)**	**Tool Name**	**Description**
165.0	13,603.0	Survey #1 (Wellbore #1)	MWD+HRGM	OWSG MWD + HRGM

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)
0.0	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00	0.00
165.0	0.16	220.92	165.0	-0.2	-0.2	0.1	0.10	0.10	0.00
First MWD @ 165' MD / 165' TVD									
226.0	0.19	239.22	226.0	-0.3	-0.3	0.2	0.10	0.05	30.00
318.0	0.15	318.07	318.0	-0.3	-0.5	0.1	0.24	-0.04	85.71
409.0	0.04	23.76	409.0	-0.2	-0.6	0.0	0.15	-0.12	72.19
499.0	0.09	239.38	499.0	-0.2	-0.6	0.0	0.14	0.06	-160.42
589.0	0.27	288.93	589.0	-0.1	-0.9	-0.1	0.25	0.20	55.06
680.0	0.24	332.88	680.0	0.1	-1.2	-0.5	0.21	-0.03	48.30
764.0	0.34	304.71	764.0	0.4	-1.5	-0.8	0.20	0.12	-33.54
875.0	0.34	314.61	875.0	0.8	-2.0	-1.4	0.05	0.00	8.92

Company:	SOUTHWESTERN ENERGY	**Local Co-ordinate Reference:**	Well 6H
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Wellbore:	Wellbore #1	**Survey Calculation Method:**	Minimum Curvature
Design:	Wellbore #1	**Database:**	EDM 5000 14 Multi User

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)
971.0	0.80	295.64	971.0	1.3	-2.8	-2.1	0.51	0.48	-19.76
1,065.0	3.56	268.15	1,064.9	1.5	-6.3	-3.4	3.06	2.94	-29.24
1,161.0	7.31	259.04	1,160.5	0.2	-15.3	-5.0	4.00	3.91	-9.49
1,257.0	11.07	258.00	1,255.2	-2.8	-30.3	-6.7	3.92	3.92	-1.08
1,354.0	14.42	258.71	1,349.8	-7.1	-51.2	-9.1	3.46	3.45	0.73
1,450.0	16.59	255.65	1,442.3	-12.9	-76.2	-11.3	2.41	2.26	-3.19
1,546.0	13.91	249.98	1,534.9	-20.2	-100.4	-11.8	3.19	-2.79	-5.91
1,642.0	13.50	246.95	1,628.2	-28.6	-121.5	-10.4	0.86	-0.43	-3.16
1,738.0	9.29	248.09	1,722.3	-35.8	-139.0	-8.9	4.39	-4.39	1.19
1,834.0	8.65	247.49	1,817.1	-41.5	-152.9	-7.8	0.67	-0.67	-0.63
1,930.0	11.16	247.30	1,911.7	-47.8	-168.1	-6.5	2.61	2.61	-0.20
2,026.0	12.92	247.31	2,005.6	-55.6	-186.6	-4.9	1.83	1.83	0.01
2,116.0	11.13	246.64	2,093.6	-62.9	-203.9	-3.2	1.99	-1.99	-0.74
2,218.0	10.96	244.80	2,193.7	-70.9	-221.7	-1.1	0.38	-0.17	-1.80
2,315.0	10.72	241.57	2,289.0	-79.2	-237.9	1.7	0.67	-0.25	-3.33
2,410.0	9.57	239.62	2,382.5	-87.4	-252.5	5.0	1.26	-1.21	-2.05
2,506.0	9.47	244.31	2,477.2	-94.8	-266.5	7.7	0.81	-0.10	4.89
2,603.0	9.30	252.17	2,572.9	-100.7	-281.2	8.8	1.33	-0.18	8.10
2,699.0	9.00	251.21	2,667.6	-105.5	-295.7	8.8	0.35	-0.31	-1.00
2,794.0	8.65	253.67	2,761.5	-109.9	-309.6	8.7	0.54	-0.37	2.59
2,890.0	8.85	258.95	2,856.4	-113.3	-323.7	7.6	0.86	0.21	5.50
2,987.0	8.90	262.63	2,952.2	-115.7	-338.5	5.3	0.59	0.05	3.79
3,082.0	8.09	258.10	3,046.2	-118.0	-352.3	3.2	1.11	-0.85	-4.77
3,178.0	8.15	253.71	3,141.2	-121.3	-365.5	2.3	0.65	0.06	-4.57
3,275.0	8.73	257.13	3,237.2	-124.9	-379.3	1.5	0.79	0.60	3.53
3,370.0	8.47	259.15	3,331.1	-127.8	-393.2	-0.1	0.42	-0.27	2.13
3,466.0	8.62	261.94	3,426.1	-130.2	-407.2	-2.2	0.46	0.16	2.91
3,562.0	9.90	264.95	3,520.8	-131.9	-422.6	-5.3	1.43	1.33	3.14
3,658.0	9.68	263.63	3,615.4	-133.5	-438.8	-8.8	0.33	-0.23	-1.38
3,755.0	8.89	262.57	3,711.1	-135.4	-454.3	-11.8	0.83	-0.81	-1.09
3,851.0	7.96	261.45	3,806.1	-137.3	-468.3	-14.3	0.98	-0.97	-1.17
3,947.0	8.72	259.56	3,901.1	-139.6	-482.0	-16.3	0.84	0.79	-1.97
4,043.0	9.26	257.06	3,995.9	-142.7	-496.7	-18.0	0.69	0.56	-2.60
4,140.0	7.59	250.34	4,091.8	-146.6	-510.3	-18.5	2.00	-1.72	-6.93
4,236.0	8.21	254.44	4,186.9	-150.6	-522.9	-18.6	0.87	0.65	4.27
4,332.0	7.49	253.82	4,282.0	-154.2	-535.5	-19.1	0.76	-0.75	-0.65
4,428.0	6.57	254.76	4,377.3	-157.3	-546.8	-19.5	0.97	-0.96	0.98
4,525.0	8.01	259.39	4,473.5	-160.0	-558.8	-20.7	1.60	1.48	4.77
4,621.0	9.41	262.69	4,568.4	-162.3	-573.2	-23.0	1.55	1.46	3.44
4,716.0	10.00	258.56	4,662.1	-164.9	-589.0	-25.4	0.96	0.62	-4.35
4,813.0	9.92	253.06	4,757.6	-169.0	-605.2	-26.5	0.98	-0.08	-5.67
4,909.0	11.74	251.27	4,851.9	-174.5	-622.4	-26.5	1.93	1.90	-1.86
5,006.0	13.97	253.32	4,946.5	-181.1	-642.9	-26.7	2.35	2.30	2.11

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Wellbore:	Wellbore #1	**Survey Calculation Method:**	Minimum Curvature
Design:	Wellbore #1	**Database:**	EDM 5000 14 Multi User

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)
5,102.0	14.07	250.76	5,039.6	-188.2	-665.1	-26.7	0.65	0.10	-2.67
5,198.0	13.59	251.78	5,132.8	-195.6	-686.8	-26.4	0.56	-0.50	1.06
5,294.0	13.09	252.59	5,226.2	-202.4	-707.9	-26.5	0.56	-0.52	0.84
5,391.0	11.48	246.92	5,321.0	-209.5	-727.2	-25.8	2.07	-1.66	-5.85
5,487.0	10.19	250.46	5,415.3	-216.1	-744.0	-24.7	1.51	-1.34	3.69
5,583.0	10.67	253.33	5,509.7	-221.4	-760.5	-24.7	0.74	0.50	2.99
5,679.0	10.43	251.04	5,604.1	-226.8	-777.3	-24.8	0.50	-0.25	-2.39
5,775.0	10.10	248.97	5,698.5	-232.7	-793.4	-24.2	0.52	-0.34	-2.16
5,872.0	9.63	245.75	5,794.1	-239.0	-808.7	-22.8	0.75	-0.48	-3.32
5,920.0	10.07	232.69	5,841.4	-243.2	-815.7	-21.0	4.73	0.92	-27.21
5,967.0	11.54	216.64	5,887.6	-249.5	-821.8	-16.9	7.09	3.13	-34.15
6,015.0	13.82	203.32	5,934.4	-258.6	-826.9	-9.9	7.70	4.75	-27.75
6,063.0	15.77	193.92	5,980.8	-270.2	-830.7	0.0	6.43	4.06	-19.58
6,111.0	18.06	187.28	6,026.8	-283.9	-833.3	12.2	6.23	4.77	-13.83
6,160.0	20.34	182.77	6,073.0	-300.0	-834.6	27.1	5.55	4.65	-9.20
6,208.0	21.83	179.42	6,117.8	-317.2	-834.9	43.4	3.99	3.10	-6.98
6,256.0	22.59	173.65	6,162.3	-335.3	-833.8	60.9	4.81	1.58	-12.02
6,304.0	25.04	167.35	6,206.2	-354.4	-830.6	80.1	7.35	5.10	-13.13
6,352.0	27.98	164.46	6,249.1	-375.2	-825.3	101.5	6.69	6.13	-6.02
6,400.0	30.83	164.40	6,290.9	-397.9	-819.0	125.0	5.94	5.94	-0.13
6,449.0	33.83	162.61	6,332.3	-423.0	-811.6	151.2	6.43	6.12	-3.65
6,497.0	36.83	160.82	6,371.5	-449.3	-802.8	178.9	6.61	6.25	-3.73
6,545.0	39.81	160.42	6,409.2	-477.4	-793.0	208.7	6.23	6.21	-0.83
6,593.0	42.80	158.51	6,445.2	-507.1	-781.8	240.3	6.76	6.23	-3.98
6,641.0	46.05	156.97	6,479.5	-538.2	-769.1	273.8	7.13	6.77	-3.21
6,689.0	51.08	153.35	6,511.2	-570.8	-753.9	309.5	11.90	10.48	-7.54
6,737.0	54.55	151.52	6,540.3	-604.7	-736.2	347.2	7.84	7.23	-3.81
6,785.0	56.75	150.47	6,567.3	-639.3	-717.0	386.1	4.93	4.58	-2.19
6,833.0	59.43	151.10	6,592.7	-674.9	-697.1	426.1	5.69	5.58	1.31
6,881.0	63.22	152.13	6,615.7	-711.9	-677.1	467.5	8.12	7.90	2.15
6,929.0	67.31	152.81	6,635.8	-750.6	-657.0	510.5	8.62	8.52	1.42
6,977.0	71.78	152.79	6,652.6	-790.6	-636.4	554.9	9.31	9.31	-0.04
7,026.0	74.44	154.03	6,666.8	-832.5	-615.5	601.3	5.94	5.43	2.53
7,079.0	77.76	155.07	6,679.5	-878.9	-593.4	652.3	6.55	6.26	1.96
7,122.0	81.10	156.31	6,687.4	-917.4	-576.0	694.3	8.27	7.77	2.88
7,219.0	87.33	155.92	6,697.2	-1,005.6	-536.9	790.2	6.44	6.42	-0.40
7,270.0	87.31	156.29	6,699.6	-1,052.2	-516.3	840.9	0.73	-0.04	0.73
7,365.0	88.08	156.80	6,703.4	-1,139.3	-478.5	935.4	0.97	0.81	0.54
7,462.0	90.47	159.76	6,704.6	-1,229.4	-442.6	1,032.2	3.92	2.46	3.05
7,557.0	90.27	157.99	6,704.0	-1,318.0	-408.4	1,127.0	1.87	-0.21	-1.86
7,653.0	89.99	157.75	6,703.8	-1,406.9	-372.2	1,222.8	0.38	-0.29	-0.25
7,749.0	88.82	158.35	6,704.8	-1,496.0	-336.3	1,318.5	1.37	-1.22	0.63
7,845.0	88.47	158.40	6,707.1	-1,585.2	-300.9	1,414.3	0.37	-0.36	0.05

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7,940.0	90.08	156.87	6,708.3	-1,673.0	-264.8	1,509.0	2.34	1.69	-1.61
8,037.0	91.09	154.69	6,707.3	-1,761.5	-225.0	1,605.5	2.48	1.04	-2.25
8,132.0	90.56	153.50	6,705.9	-1,846.9	-183.5	1,699.6	1.37	-0.56	-1.25
8,228.0	88.82	153.59	6,706.4	-1,932.9	-140.8	1,794.5	1.81	-1.81	0.09
8,324.0	89.15	153.31	6,708.1	-2,018.7	-97.8	1,889.4	0.45	0.34	-0.29
8,421.0	89.37	153.68	6,709.4	-2,105.5	-54.6	1,985.4	0.44	0.23	0.38
8,517.0	89.00	153.81	6,710.8	-2,191.6	-12.1	2,080.4	0.41	-0.39	0.14
8,614.0	88.80	153.30	6,712.6	-2,278.4	31.1	2,176.3	0.56	-0.21	-0.53
8,710.0	88.82	154.65	6,714.6	-2,364.7	73.2	2,271.3	1.41	0.02	1.41
8,806.0	88.93	153.34	6,716.5	-2,450.9	115.3	2,366.4	1.37	0.11	-1.36
8,901.0	88.89	153.66	6,718.3	-2,536.0	157.7	2,460.3	0.34	-0.04	0.34
8,997.0	88.69	152.97	6,720.3	-2,621.7	200.8	2,555.2	0.75	-0.21	-0.72
9,093.0	88.60	152.37	6,722.6	-2,707.0	244.8	2,649.9	0.63	-0.09	-0.63
9,189.0	88.58	153.80	6,725.0	-2,792.5	288.3	2,744.7	1.49	-0.02	1.49
9,286.0	88.85	152.49	6,727.1	-2,879.1	332.1	2,840.6	1.38	0.28	-1.35
9,382.0	88.74	153.28	6,729.2	-2,964.5	375.8	2,935.3	0.83	-0.11	0.82
9,478.0	88.77	153.58	6,731.2	-3,050.3	418.8	3,030.2	0.31	0.03	0.31
9,574.0	88.63	153.93	6,733.4	-3,136.4	461.2	3,125.2	0.39	-0.15	0.36
9,670.0	90.01	154.27	6,734.6	-3,222.8	503.1	3,220.3	1.48	1.44	0.35
9,766.0	90.16	155.50	6,734.4	-3,309.7	543.9	3,315.6	1.29	0.16	1.28
9,861.0	90.25	155.26	6,734.1	-3,396.0	583.4	3,409.9	0.27	0.09	-0.25
9,957.0	89.68	155.31	6,734.1	-3,483.2	623.6	3,505.3	0.60	-0.59	0.05
10,053.0	89.29	155.54	6,735.0	-3,570.5	663.5	3,600.7	0.47	-0.41	0.24
10,149.0	89.29	157.44	6,736.2	-3,658.6	701.8	3,696.2	1.98	0.00	1.98
10,245.0	89.35	156.15	6,737.3	-3,746.8	739.6	3,791.8	1.35	0.06	-1.34
10,342.0	89.66	156.57	6,738.2	-3,835.6	778.5	3,888.3	0.54	0.32	0.43
10,437.0	89.53	156.28	6,738.8	-3,922.7	816.5	3,982.9	0.33	-0.14	-0.31
10,533.0	89.51	155.85	6,739.6	-4,010.5	855.5	4,078.4	0.45	-0.02	-0.45
10,629.0	89.53	155.95	6,740.5	-4,098.1	894.7	4,173.8	0.11	0.02	0.10
10,725.0	89.55	155.22	6,741.2	-4,185.5	934.3	4,269.2	0.76	0.02	-0.76
10,821.0	89.44	152.46	6,742.1	-4,271.7	976.6	4,364.2	2.88	-0.11	-2.88
10,917.0	89.53	150.85	6,742.9	-4,356.1	1,022.2	4,458.7	1.68	0.09	-1.68
11,013.0	89.55	150.47	6,743.7	-4,439.8	1,069.3	4,552.8	0.40	0.02	-0.40
11,109.0	89.75	151.70	6,744.3	-4,523.9	1,115.7	4,647.1	1.30	0.21	1.28
11,206.0	88.27	149.12	6,746.0	-4,608.2	1,163.6	4,742.1	3.07	-1.53	-2.66
11,302.0	90.19	151.79	6,747.3	-4,691.7	1,210.9	4,836.1	3.43	2.00	2.78
11,399.0	89.84	153.78	6,747.2	-4,777.9	1,255.2	4,931.9	2.08	-0.36	2.05
11,495.0	88.34	152.75	6,748.8	-4,863.7	1,298.4	5,026.8	1.90	-1.56	-1.07
11,591.0	88.58	155.27	6,751.3	-4,949.9	1,340.5	5,121.8	2.64	0.25	2.63
11,686.0	89.68	155.43	6,752.8	-5,036.2	1,380.1	5,216.1	1.17	1.16	0.17
11,782.0	90.56	153.15	6,752.6	-5,122.7	1,421.7	5,311.3	2.55	0.92	-2.38
11,877.0	90.47	157.66	6,751.7	-5,209.1	1,461.3	5,405.6	4.75	-0.09	4.75
11,973.0	89.13	155.10	6,752.1	-5,297.0	1,499.7	5,501.1	3.01	-1.40	-2.67
12,069.0	88.32	154.98	6,754.2	-5,384.0	1,540.2	5,596.4	0.85	-0.84	-0.13

swn Southwestern Energy®

PDD
Survey Report

Company:	SOUTHWESTERN ENERGY	**Local Co-ordinate Reference:**	Well 6H
Project:	Ohio County	**TVD Reference:**	1281.8+26 @ 1307.8usft
Site:	Mark Hickman OHI Pad	**MD Reference:**	1281.8+26 @ 1307.8usft
Well:	6H	**North Reference:**	Grid
Wellbore:	Wellbore #1	**Survey Calculation Method:**	Minimum Curvature
Design:	Wellbore #1	**Database:**	EDM 5000 14 Multi User

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)
12,165.0	88.89	155.14	6,756.5	-5,471.1	1,580.7	5,691.7	0.62	0.59	0.17
12,260.0	88.76	152.99	6,758.5	-5,556.5	1,622.2	5,785.8	2.27	-0.14	-2.26
12,356.0	89.02	153.05	6,760.3	-5,642.0	1,665.8	5,880.6	0.28	0.27	0.06
12,452.0	88.91	153.08	6,762.1	-5,727.6	1,709.3	5,975.4	0.12	-0.11	0.03
12,548.0	88.58	152.97	6,764.2	-5,813.1	1,752.8	6,070.2	0.36	-0.34	-0.11
12,643.0	89.31	156.40	6,765.9	-5,899.0	1,793.4	6,164.4	3.69	0.77	3.61
12,738.0	89.81	153.97	6,766.7	-5,985.2	1,833.3	6,258.7	2.61	0.53	-2.56
12,834.0	89.84	157.30	6,766.9	-6,072.6	1,872.9	6,354.1	3.47	0.03	3.47
12,931.0	89.75	154.34	6,767.3	-6,161.1	1,912.6	6,450.6	3.05	-0.09	-3.05
13,027.0	89.92	154.85	6,767.6	-6,247.8	1,953.8	6,545.8	0.56	0.18	0.53
13,123.0	89.88	157.52	6,767.7	-6,335.6	1,992.5	6,641.3	2.78	-0.04	2.78
13,219.0	89.86	153.86	6,768.0	-6,423.1	2,032.0	6,736.7	3.81	-0.02	-3.81
13,315.0	89.79	153.82	6,768.2	-6,509.3	2,074.4	6,831.7	0.08	-0.07	-0.04
13,411.0	90.08	153.89	6,768.4	-6,595.5	2,116.7	6,926.7	0.31	0.30	0.07
13,507.0	89.13	155.33	6,769.0	-6,682.2	2,157.8	7,021.9	1.80	-0.99	1.50
13,569.0	88.89	154.53	6,770.1	-6,738.3	2,184.1	7,083.5	1.35	-0.39	-1.29
Last MWD @ 13569' MD / 6770' TVD									
13,603.0	88.89	154.53	6,770.7	-6,769.0	2,198.7	7,117.2	0.00	0.00	0.00
PTD @ 13603' MD / 6771' TVD									

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
PTD Mark Hickman C	0.00	0.00	6,770.7	-6,769.0	2,198.7	14,534,783.83	1,769,281.56	40° 1' 16.297 N	80° 32' 22.958 W
- actual wellpath misses target center by 0.1usft at 13603.0usft MD (6770.7 TVD, -6769.0 N, 2198.7 E)									
- Point									

Design Annotations

Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates +N/-S (usft)	Local Coordinates +E/-W (usft)	Comment
165.0	165.0	-0.2	-0.2	First MWD @ 165' MD / 165' TVD
13,569.0	6,770.1	-6,738.3	2,184.1	Last MWD @ 13569' MD / 6770' TVD
13,603.0	6,770.7	-6,769.0	2,198.7	PTD @ 13603' MD / 6771' TVD

Checked By: _____ Approved By: _____ Date: _____

09/07/2018