

State of West Virginia
Department of Environmental Protection - Office of Oil and Gas
Well Operator's Report of Well Work

API 47 - 51 - 01937 County MARSHALL District LIBERTY
Quad CAMERON Pad Name TCO-MSH-PAD1 Field/Pool Name VICTORY FIELD WET
Farm name COLUMBIA GAS TRANSMISSION, LLC Well Number COLUMBIA GAS TRANSMISSION MSH 6H
Operator (as registered with the OOG) SWN PRODUCTION COMPANY, LLC
Address PO BOX 12359 City SPRING State TX Zip 77391-2359

As Drilled location NAD 83/UTM Attach an as-drilled plat, profile view, and deviation survey
Top hole Northing 4,400,581.85 Easting 532,974.46
Landing Point of Curve Northing 4,400,242.82 Easting 532,689.32
Bottom Hole Northing 4,399,040.79 Easting 534,026.30

Elevation (ft) 783.5 GL Type of Well New Existing Type of Report Interim Final
Permit Type Deviated Horizontal Horizontal 6A Vertical Depth Type Deep Shallow
Type of Operation Convert Deepen Drill Plug Back Redrilling Rework Stimulate
Well Type Brine Disposal CBM Gas Oil Secondary Recovery Solution Mining Storage Other _____
Type of Completion Single Multiple Fluids Produced Brine Gas NGL Oil Other _____
Drilled with Cable Rotary

Drilling Media Surface hole Air Mud Fresh Water Intermediate hole Air Mud Fresh Water Brine
Production hole Air Mud Fresh Water Brine
Mud Type(s) and Additive(s)
SOBM

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Date permit issued 09/01/2017 Date drilling commenced 12/04/2017 Date drilling ceased 02/12/2018
Date completion activities began 04/05/2018 Date completion activities ceased 05/17/2018
Verbal plugging (Y/N) N Date permission granted N/A Granted by N/A

Please note: Operator is required to submit a plugging application within 5 days of verbal permission to plug

Freshwater depth(s) ft 300 Open mine(s) (Y/N) depths N
Salt water depth(s) ft 629 Void(s) encountered (Y/N) depths N
Coal depth(s) ft 467 Cavern(s) encountered (Y/N) depths N
Is coal being mined in area (Y/N) N

Reviewed
Juan [Signature] 8/13/18
Reviewed by: _____

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CASING STRINGS	Hole Size	Casing Size	Depth	New or Used	Grade wt/ft	Basket Depth(s)	Did cement circulate (Y/ N) * Provide details below*
Conductor	24	20	126	NEW	J-55/94#		Y
Surface	17.5	13.375	350	NEW	J-55/54.50#	123.5'	Y, 34
Coal	SEE INTERMEDIATE						
Intermediate 1	12.25	9.625	2050	NEW	J-55/36#		Y, 45
Intermediate 2							
Intermediate 3							
Production	8.75/8.50	5.5	13043	NEW	HCP-110/20#		Y
Tubing		2.375	7127	NEW	P-110/4.7#		N
Packer type and depth set							

Comment Details _____

CEMENT DATA	Class/Type of Cement	Number of Sacks	Slurry wt (ppg)	Yield (ft ³ /sks)	Volume (ft ³)	Cement Top (MD)	WOC (hrs)
Conductor	CLASS A	GROUT TO INTERMEDIATE				SURFACE	24
Surface	CLASS A	393	15.60	1.20	471.6	SURFACE	8
Coal	SEE INTERMEDIATE						
Intermediate 1	CLASS A	785	15.60	1.20	942	SURFACE	8
Intermediate 2							
Intermediate 3							
Production	CLASS A	2,355	15.60	1.18	2778.9	SURFACE	24
Tubing							

Drillers TD (ft) 13065 Loggers TD (ft) 13065
 Deepest formation penetrated MARCELLUS Plug back to (ft) N/A
 Plug back procedure N/A

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Kick off depth (ft) 5885'

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Check all wireline logs run caliper density deviated/directional induction
 neutron resistivity gamma ray temperature

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Well cored Yes No Conventional Sidewall Were cuttings collected Yes No

DESCRIBE THE CENTRALIZER PLACEMENT USED FOR EACH CASING STRING _____

SURFACE: 7 CENTRALIZERS - EVERY THIRD JOINT OF CASING

INTERMEDIATE: 24 CENTRALIZERS - EVERY THIRD JOINT OF CASING

PRODUCTION: 181 CENTRALIZERS - EVERY THIRD JOINT FROM SURFACE TO TOP OF CURVE, THEN EVERY JOINT UNTIL TD

WAS WELL COMPLETED AS SHOT HOLE Yes No DETAILS _____

WAS WELL COMPLETED OPEN HOLE? Yes No DETAILS _____

WERE TRACERS USED Yes No TYPE OF TRACER(S) USED _____

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PERFORATION RECORD

Stage No.	Perforation date	Perforated from MD ft.	Perforated to MD ft.	Number of Perforations	Formation(s)
	SEE	ATTACHMENT 1	1		

Please insert additional pages as applicable.

STIMULATION INFORMATION PER STAGE

Complete a separate record for each stimulation stage.

Stage No.	Stimulations Date	Ave Pump Rate (BPM)	Ave Treatment Pressure (PSI)	Max Breakdown Pressure (PSI)	ISIP (PSI)	Amount of Proppant (lbs)	Amount of Water (bbls)	Amount of Nitrogen/other (units)
		SEE	ATTACHMENT 1	2				

Please insert additional pages as applicable.

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<u>PRODUCING FORMATION(S)</u>	<u>DEPTHS</u>
<u>MARCELLUS</u>	<u>6515</u> <u>TVD</u> <u>7032</u> <u>MD</u>
_____	_____
_____	_____
_____	_____

Please insert additional pages as applicable.

GAS TEST Build up Drawdown Open Flow OIL TEST Flow Pump
 SHUT-IN PRESSURE Surface 2,325 psi Bottom Hole _____ psi DURATION OF TEST _____ hrs
 OPEN FLOW Gas Oil NGL Water GAS MEASURED BY
10968 mcfpd 22 bpd _____ bpd 80 bpd Estimated Orifice Pilot

<u>LITHOLOGY/ FORMATION</u>	<u>TOP DEPTH IN FT</u>	<u>BOTTOM DEPTH IN FT</u>	<u>TOP DEPTH IN FT</u>	<u>BOTTOM DEPTH IN FT</u>	<u>DESCRIBE ROCK TYPE AND RECORD QUANTITY AND TYPE OF FLUID (FRESHWATER, BRINE, OIL, GAS, H₂S, ETC)</u>
	<u>NAME TVD</u>	<u>TVD</u>	<u>MD</u>	<u>MD</u>	
	<u>0</u>		<u>0</u>		
	<u>SEE</u>	<u>ATTACHMENT</u>	<u>3</u>		

Please insert additional pages as applicable.

Drilling Contractor SWN DRILLING COMPANY
 Address PO BOX 12359 City SPRING State TX Zip 77391-2359
 Logging Company BAKER HUGHES
 Address 9110 GROGANS MILL RD City THE WOODLANDS State TX Zip 77380
 Cementing Company SCHLUMBERGER WELL SERVICES
 Address 110 SCHLUMBERGER City SUGAR LAND State TX Zip 77478
 Stimulating Company SWN WELL SERVICES
 Address PO BOX 12359 City SPRING State TX Zip 77391-2359

Please insert additional pages as applicable.

Completed by BOBBY WILLIS Telephone 832-796-2884
 Signature _____ Title REGULATORY ANALYST Date 08/01/2018
 Submittal of Hydraulic Fracturing Chemical Disclosure Information Attach copy of FRACFOCUS Registry

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SOUTHWESTERN ENERGY

Location: Marshall County, WV

Field: Marshall

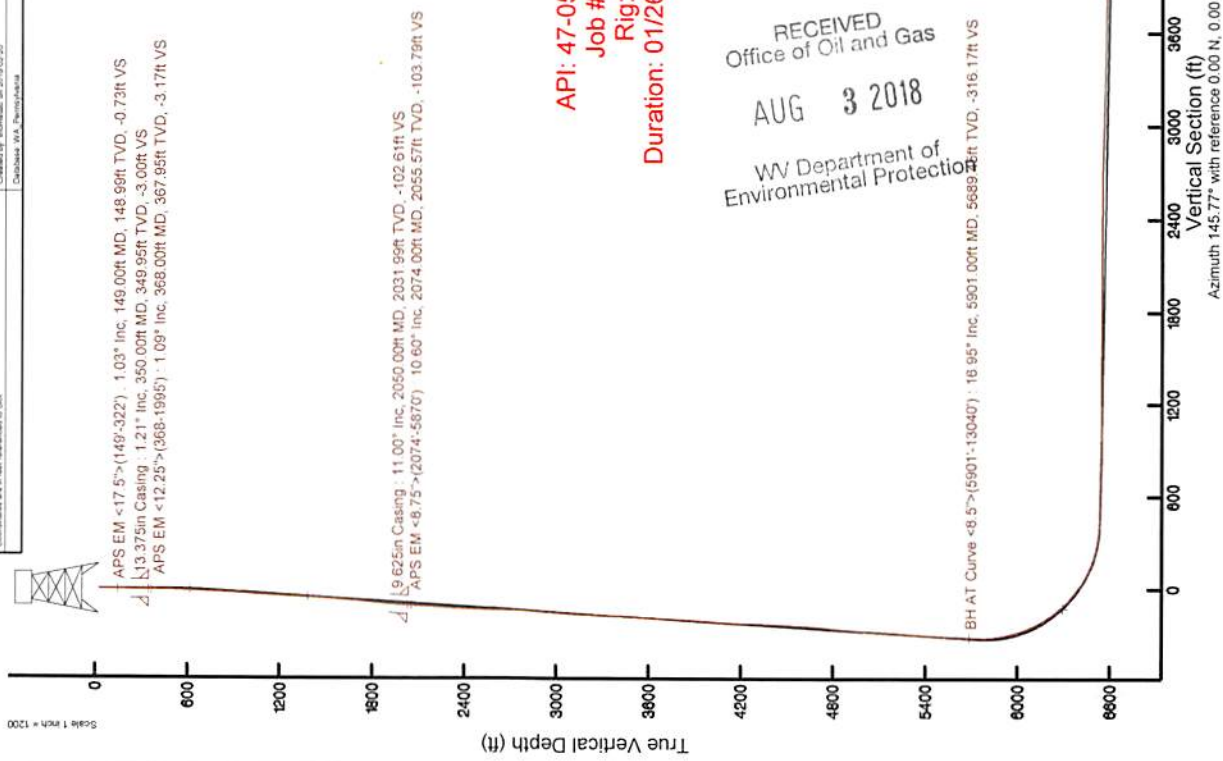
Facility: Columbia Gas Transmission MSH Pad

Slot: Slot 6H

Well: Columbia Gas Transmission MSH 6H

Wellbore: Columbia Gas Transmission MSH 6H PWB

API reference wellbore is Columbia Gas Transmission MSH 6H PWB Slot 6H	Grid System: NAD83 / UTM Zone 17 North, US Foot
True vertical depths are referenced to SDC 42 (KB)	* * * * * Wellbore was transferred from a different provider datum
Measured depths are referenced to SDC 42 (KB)	North Datum: Grid north
SDC 42 (KB) to Mean Sea Level: 809.5 ft	Scale: True distance
Mean Sea Level to Mud line (AI Slot Slot 6H): -783.5 ft	Depth are in feet
Coordinates are in feet referenced to Grid	Created by: Brownlee on 2018-02-20
	Database: WA_Pennsylvania

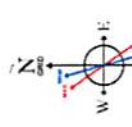


API: 47-051-01937-0000
 Job #: 8957259
 Rig: SDC 42
 Duration: 01/26/2018 - 02/09/2018

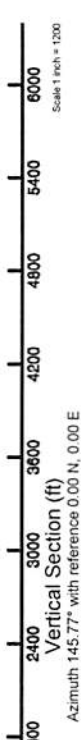
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Location Information			
Facility Name	Grid East (US ft)	Grid North (US ft)	Longitude
Columbia Gas Transmission MSH Pad	1748562.890	1443578.433	80°30'54.713"W
Slot	Local E (ft)	Local N (ft)	Local L (ft)
Slot 6H	34.97	1748600.840	1443574.890
SDC 42 (KB) to Mud line (AI Slot Slot 6H)	20ft		
Mean Sea Level to Mud line (AI Slot Slot 6H)	-783.5ft		
SDC 42 (KB) to Mean Sea Level	809.5ft		



Use specified for: 100' Grid, 4000' x 4000'
 Magnetic North is 6.31 degrees West of True North (at 100/2018)
 True North is 0.25 degrees West of True North
 To convert azimuth from Magnetic to Grid subtract 6.56 degrees



Projection to Bit: 6662.82ft TVD, 6121.56ft VS

REFERENCE WELLPATH IDENTIFICATION			
Operator	SOUTHWESTERN ENERGY	Slot	Slot 6H
Area	Marshall County, WV	Well	Columbia Gas Transmission MSH 6H
Field	Marshall	Wellbore	Columbia Gas Transmission MSH 6H AWP
Facility	Columbia Gas Transmission MSH Pad		

REPORT SETUP INFORMATION			
Projection System	NAD83 / UTM Zone 17 North, US feet	Software System	WellArchitect® 5.0
North Reference	Grid	User	Thomsuzc
Scale	0.999613	Report Generated	2/20/2018 at 7:57:24 AM
Convergence at slot	0.25° East	Database/Source file	WA_Pennsylvania/Columbia_Gas_Transmission_MSH_6H_AWP_Proj_13065_MD.xml

WELLPATH LOCATION						
	Local coordinates		Grid coordinates		Geographic coordinates	
	North[ft]	East[ft]	Easting[US ft]	Northing[US ft]	Latitude	Longitude
Slot Location	-3.45	34.97	1748600.84	14437574.98	39°45'16.236"N	80°36'54.265"W
Facility Reference Pt			1748565.88	14437578.43	39°45'16.272"N	80°36'54.713"W
Field Reference Pt			0.00	0.00	0°00'00.000"	85°29'19.478"W

WELLPATH DATUM			
Calculation method	Minimum curvature	SDC 42 (KB) to Facility Vertical Datum	809.50ft
Horizontal Reference Pt	Slot	SDC 42 (KB) to Mean Sea Level	809.50ft
Vertical Reference Pt	SDC 42 (KB)	SDC 42 (KB) to Mud Line at Slot (Slot 6H)	26.00ft
MD Reference Pt	SDC 42 (KB)	Section Origin	N 0.00, E 0.00 ft
Field Vertical Reference	Mean Sea Level	Section Azimuth	145.77°

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Actual Wellpath Report

Columbia Gas Transmission MSH 6H AWP Proj: 13065 MD

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REFERENCE WELLPATH IDENTIFICATION

Operator	SOUTHWESTERN ENERGY
Area	Marshall County, WV
Field	Marshall
Facility	Columbia Gas Transmission MSH Pad
Slot	Slot 6H
Well	Columbia Gas Transmission MSH 6H
Wellbore	Columbia Gas Transmission MSH 6H AWB

WELLPATH DATA (178 stations) † = interpolated/extrapolated station															
MD	Inclination	Azimuth	TVD	Vert Sect	North	East	Grid East	Grid North	Latitude	Longitude	Closure Dist	Closure Dir	DLS	Build Rate	Turn Rate
[ft]	[°]	[°]	[ft]	[ft]	[ft]	[ft]	[US ft]	[US ft]	[°N]	[°W]	[ft]	[°]	[°/100ft]	[°/100ft]	[°/100ft]
0.00	0.00	14.730	0.00	0.00	0.00	0.00	1748600.84	14437574.98	39°45'16.236"N	80°36'54.265"W	0.00	0.00	0.00	0.00	0.00
26.00	0.00	14.730	26.00	0.00	0.00	0.00	1748600.84	14437574.98	39°45'16.236"N	80°36'54.265"W	0.00	0.00	0.00	0.00	0.00
149.00	1.030	14.730	148.99	-0.73	1.07	0.28	1748601.12	14437576.05	39°45'16.247"N	80°36'54.262"W	1.11	14.730	0.84	0.84	11.98
209.00	1.040	17.010	208.98	-1.42	2.11	0.58	1748601.42	14437577.09	39°45'16.257"N	80°36'54.258"W	2.19	15.297	0.07	0.02	3.80
299.00	1.190	21.720	298.97	-2.46	3.76	1.16	1748602.00	14437578.74	39°45'16.273"N	80°36'54.250"W	3.94	17.175	0.20	0.17	5.23
322.00	1.390	28.840	321.96	-2.72	4.23	1.39	1748602.22	14437579.21	39°45'16.278"N	80°36'54.247"W	4.45	18.145	1.11	0.87	30.96
368.00	1.090	29.000	367.95	-3.17	5.10	1.87	1748602.71	14437580.08	39°45'16.287"N	80°36'54.241"W	5.43	20.108	0.65	-0.65	0.35
427.00	1.020	28.500	426.94	-3.66	6.05	2.39	1748603.23	14437581.03	39°45'16.296"N	80°36'54.234"W	6.51	21.547	0.12	-0.12	-0.85
518.00	2.490	12.570	517.90	-5.38	8.69	3.21	1748604.04	14437583.67	39°45'16.322"N	80°36'54.224"W	9.26	20.245	1.69	1.62	-17.51
608.00	3.500	11.520	607.77	-8.64	13.29	4.18	1748605.02	14437588.27	39°45'16.368"N	80°36'54.211"W	13.93	17.457	1.12	1.12	-1.17
692.00	3.290	15.070	691.62	-12.00	18.13	5.32	1748606.16	14437593.10	39°45'16.415"N	80°36'54.196"W	18.90	16.348	0.35	-0.25	4.23
774.00	3.270	356.290	773.49	-15.55	22.74	5.78	1748606.62	14437597.71	39°45'16.461"N	80°36'54.190"W	23.46	14.261	1.30	-0.02	-22.90
857.00	4.430	327.960	856.31	-20.79	27.82	3.93	1748604.76	14437602.79	39°45'16.511"N	80°36'54.213"W	28.09	8.032	2.64	1.40	-34.13
939.00	4.030	326.580	938.09	-26.84	32.91	0.66	1748601.50	14437607.87	39°45'16.562"N	80°36'54.255"W	32.91	1.146	0.50	-0.49	-1.68
1020.00	3.500	301.820	1018.92	-31.94	36.59	-3.01	1748597.83	14437611.55	39°45'16.598"N	80°36'54.302"W	36.71	355.296	2.09	-0.65	-30.57
1104.00	4.220	283.390	1102.73	-36.57	38.65	-8.20	1748592.65	14437613.62	39°45'16.619"N	80°36'54.368"W	39.51	348.029	1.70	0.86	-21.94
1185.00	4.860	275.780	1183.48	-40.98	39.69	-14.51	1748586.34	14437614.66	39°45'16.629"N	80°36'54.449"W	42.26	339.920	1.08	0.79	-9.40
1269.00	5.710	267.610	1267.12	-45.47	39.87	-22.22	1748578.62	14437614.84	39°45'16.631"N	80°36'54.548"W	45.65	330.866	1.35	1.01	-9.73
1353.00	7.030	262.600	1350.60	-49.99	39.04	-31.50	1748569.35	14437614.00	39°45'16.624"N	80°36'54.666"W	50.16	321.102	1.70	1.57	-5.96
1435.00	7.420	259.180	1431.95	-54.36	37.40	-41.67	1748559.18	14437612.36	39°45'16.608"N	80°36'54.797"W	55.99	311.904	0.71	0.48	-4.17
1519.00	9.450	257.980	1515.04	-59.13	34.94	-53.75	1748547.11	14437609.91	39°45'16.584"N	80°36'54.951"W	64.11	303.029	2.43	2.42	-1.43
1602.00	12.090	258.120	1596.57	-65.01	31.73	-68.92	1748531.95	14437606.70	39°45'16.553"N	80°36'55.146"W	75.88	294.724	3.18	3.18	0.17
1685.00	14.370	260.950	1677.36	-72.70	28.32	-87.60	1748513.27	14437603.29	39°45'16.520"N	80°36'55.385"W	92.07	287.918	2.85	2.75	3.41
1770.00	14.760	259.690	1759.63	-81.57	24.73	-108.67	1748492.21	14437599.70	39°45'16.485"N	80°36'55.655"W	111.45	282.819	0.59	0.46	-1.48
1854.00	14.870	256.960	1840.84	-89.81	20.38	-129.70	1748471.19	14437595.35	39°45'16.443"N	80°36'55.925"W	131.29	278.930	0.84	0.13	-3.25
1938.00	12.750	252.870	1922.40	-96.43	15.22	-149.06	1748451.84	14437590.19	39°45'16.393"N	80°36'56.173"W	149.83	275.829	2.78	-2.52	-4.87
1995.00	11.910	250.610	1978.09	-99.79	11.41	-160.62	1748440.28	14437586.39	39°45'16.356"N	80°36'56.321"W	161.02	274.064	1.70	-1.47	-3.96
2074.00	10.600	251.080	2055.57	-103.79	6.35	-175.18	1748425.73	14437581.33	39°45'16.307"N	80°36'56.508"W	175.30	272.076	1.66	-1.66	0.59
2116.00	10.600	251.100	2096.85	-105.83	3.85	-182.49	1748418.42	14437578.82	39°45'16.282"N	80°36'56.602"W	182.53	271.207	0.01	0.00	0.05
2199.00	13.610	250.530	2178.00	-110.34	-1.88	-198.93	1748401.99	14437573.10	39°45'16.226"N	80°36'56.812"W	198.93	269.458	3.63	3.63	-0.69

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Actual Wellpath Report

Columbia Gas Transmission MSH 6H AWP Proj: 13065'MD
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REFERENCE WELLPATH IDENTIFICATION			
Operator	SOUTHWESTERN ENERGY	Slot	Slot 6H
Area	Marshall County, WV	Well	Columbia Gas Transmission MSH 6H
Field	Marshall	Wellbore	Columbia Gas Transmission MSH 6H AWB
Facility	Columbia Gas Transmission MSH Pad		

WELLPATH DATA (178 stations)															
MD [ft]	Inclination [°]	Azimuth [°]	TVD [ft]	Vert Sect [ft]	North [ft]	East [ft]	Grid East [US ft]	Grid North [US ft]	Latitude	Longitude	Closure Dist [ft]	Closure Dir [°]	DLS [°/100ft]	Build Rate [°/100ft]	Turn Rate [°/100ft]
2281.00	17.370	249.280	2257.00	-115.66	-9.43	-219.48	1748381.45	14437565.55	39°45'16.152"N	80°36'57.076"W	219.68	267.539	4.60	4.59	-1.52
2364.00	19.760	246.930	2335.68	-121.27	-19.32	-243.98	1748356.96	14437555.67	39°45'16.056"N	80°36'57.390"W	244.74	265.473	3.02	2.88	-2.83
2448.00	20.940	245.380	2414.44	-126.53	-31.13	-270.69	1748330.26	14437543.86	39°45'15.940"N	80°36'57.733"W	272.47	263.439	1.54	1.40	-1.85
2532.00	22.440	241.310	2492.49	-130.58	-45.08	-298.40	1748302.55	14437529.91	39°45'15.803"N	80°36'58.088"W	301.79	261.408	2.53	1.79	-4.85
2615.00	21.870	239.610	2569.36	-133.14	-60.51	-325.63	1748275.33	14437514.49	39°45'15.652"N	80°36'58.438"W	331.21	259.473	1.03	-0.69	-2.05
2699.00	21.300	238.620	2647.47	-134.95	-76.37	-352.15	1748248.82	14437498.64	39°45'15.497"N	80°36'58.778"W	360.34	257.764	0.81	-0.68	-1.18
2781.00	21.310	239.520	2723.87	-136.67	-91.68	-377.71	1748223.28	14437483.33	39°45'15.346"N	80°36'59.106"W	388.68	256.356	0.40	0.01	1.10
2864.00	22.250	244.910	2800.95	-140.15	-106.00	-404.94	1748196.06	14437469.02	39°45'15.206"N	80°36'59.456"W	418.58	255.331	2.66	1.13	6.49
2946.00	22.310	246.160	2876.83	-145.42	-118.87	-433.24	1748167.77	14437456.16	39°45'15.080"N	80°36'59.819"W	449.25	254.657	0.58	0.07	1.52
3029.00	21.970	245.960	2953.71	-151.01	-131.56	-461.83	1748139.19	14437443.47	39°45'14.956"N	80°37'00.186"W	480.20	254.099	0.42	-0.41	-0.24
3111.00	20.140	245.230	3030.23	-156.04	-143.73	-488.66	1748112.37	14437431.31	39°45'14.837"N	80°37'00.530"W	509.35	253.610	2.25	-2.23	-0.89
3196.00	17.800	247.050	3110.61	-160.99	-154.93	-513.91	1748087.13	14437420.11	39°45'14.727"N	80°37'00.854"W	536.76	253.224	2.84	-2.75	2.14
3280.00	17.320	246.070	3190.70	-165.74	-165.00	-537.16	1748063.89	14437410.04	39°45'14.628"N	80°37'01.152"W	561.93	252.924	0.67	-0.57	-1.17
3364.00	16.870	243.660	3270.99	-169.65	-175.48	-559.51	1748041.54	14437399.56	39°45'14.526"N	80°37'01.439"W	586.39	252.587	1.00	-0.54	-2.87
3449.00	16.360	245.210	3352.44	-173.30	-185.98	-581.44	1748019.63	14437389.08	39°45'14.423"N	80°37'01.720"W	610.45	252.263	0.79	-0.60	1.82
3533.00	16.430	245.930	3433.02	-177.34	-195.78	-603.02	1747998.05	14437379.27	39°45'14.327"N	80°37'01.997"W	634.01	252.013	0.26	0.08	0.86
3616.00	17.290	248.130	3512.45	-182.05	-205.16	-625.19	1747975.90	14437369.90	39°45'14.235"N	80°37'02.281"W	657.99	251.832	1.29	1.04	2.65
3698.00	18.990	246.860	3590.38	-187.23	-214.95	-648.77	1747952.33	14437360.12	39°45'14.140"N	80°37'02.584"W	683.45	251.669	2.13	2.07	-1.55
3781.00	18.290	245.310	3669.02	-191.98	-225.69	-673.02	1747928.08	14437349.37	39°45'14.034"N	80°37'02.895"W	709.85	251.461	1.03	-0.84	-1.87
3864.00	17.160	246.230	3748.08	-196.36	-236.07	-696.06	1747905.05	14437339.00	39°45'13.933"N	80°37'03.190"W	735.00	251.265	1.40	-1.36	1.11
3947.00	16.490	245.290	3827.53	-200.54	-245.93	-717.96	1747883.16	14437329.15	39°45'13.836"N	80°37'03.471"W	758.92	251.092	0.87	-0.81	-1.13
4030.00	16.480	248.660	3907.12	-205.11	-255.14	-739.63	1747861.50	14437319.94	39°45'13.746"N	80°37'03.749"W	782.40	250.968	1.15	-0.01	4.06
4114.00	18.300	249.570	3987.28	-210.91	-264.08	-763.09	1747838.05	14437311.00	39°45'13.659"N	80°37'04.050"W	807.49	250.911	2.19	2.17	1.08
4195.00	17.600	247.430	4064.33	-216.42	-273.22	-786.31	1747814.83	14437301.87	39°45'13.570"N	80°37'04.348"W	832.43	250.839	1.19	-0.86	-2.64
4279.00	17.530	244.110	4144.42	-220.82	-283.62	-809.42	1747791.73	14437291.47	39°45'13.468"N	80°37'04.644"W	857.67	250.690	1.20	-0.08	-3.95
4361.00	19.020	242.790	4222.28	-224.25	-295.12	-832.42	1747768.75	14437279.98	39°45'13.355"N	80°37'04.939"W	883.18	250.479	1.89	1.82	-1.61
4447.00	18.600	241.200	4303.69	-227.26	-308.13	-856.90	1747744.27	14437266.97	39°45'13.227"N	80°37'05.254"W	910.62	250.222	0.77	-0.49	-1.85
4530.00	19.840	241.980	4382.06	-230.04	-321.13	-880.93	1747720.25	14437253.98	39°45'13.100"N	80°37'05.562"W	937.64	249.972	1.53	1.49	0.94
4613.00	21.460	245.090	4459.73	-234.02	-334.14	-907.14	1747694.05	14437240.97	39°45'12.973"N	80°37'05.898"W	966.72	249.779	2.36	1.95	3.75
4695.00	21.530	243.530	4536.03	-238.48	-347.17	-934.21	1747666.99	14437227.95	39°45'12.845"N	80°37'06.246"W	996.63	249.614	0.70	0.09	-1.90

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Actual Wellpath Report

Columbia Gas Transmission MSH 6H AWP Proj: 13065.MD



REFERENCE WELLPATH IDENTIFICATION

Operator	SOUTHWESTERN ENERGY
Area	Marshall County, WV
Field	Marshall
Facility	Columbia Gas Transmission MSH Pad
Slot	Slot 6H
	Columbia Gas Transmission MSH 6H
	Well
	Wellbore
	Columbia Gas Transmission MSH 6H AWB

WELLPATH DATA (178 stations)

MD	Inclination	Azimuth	TVD	Vent Sect	North	East	Grid East	Grid North	Latitude	Longitude	Closure Dist	Closure Dir	DLS	Build Rate	Turn Rate
(ft)	(°)	(°)	(ft)	(ft)	(ft)	(ft)	(US ft)	(US ft)	(ft)	(ft)	(ft)	(°)	(%/100ft)	(%/100ft)	(%/100ft)
4779.00	20.150	243.370	4614.53	-242.47	-360.52	-960.95	1747640.27	14437214.60	39°45'12.714"N	80°37'06.589"W	1026.35	249.435	1.64	-1.64	-0.19
4863.00	17.450	250.910	4694.05	-247.68	-371.13	-985.79	1747615.43	14437204.00	39°45'12.610"N	80°37'06.907"W	1053.34	249.370	4.32	-3.21	8.98
4948.00	16.550	256.960	4775.34	-255.38	-378.03	-1009.63	1747591.60	14437197.10	39°45'12.543"N	80°37'07.213"W	1078.08	249.473	2.33	-1.06	7.12
5032.00	16.140	255.710	4855.95	-263.69	-383.61	-1032.60	1747568.64	14437191.52	39°45'12.489"N	80°37'07.507"W	1101.55	249.620	0.64	-0.49	-1.49
5116.00	14.600	253.090	4936.94	-270.82	-389.57	-1054.04	1747547.21	14437185.56	39°45'12.431"N	80°37'07.782"W	1123.73	249.716	2.01	-1.83	-3.12
5199.00	15.210	250.430	5017.15	-276.69	-396.26	-1074.31	1747526.95	14437178.87	39°45'12.366"N	80°37'08.042"W	1145.06	249.753	1.10	0.73	-3.20
5283.00	15.870	249.170	5098.08	-282.14	-404.04	-1095.43	1747505.84	14437171.10	39°45'12.290"N	80°37'08.313"W	1167.57	249.754	0.88	0.79	-1.50
5367.00	15.850	249.540	5178.88	-287.54	-412.13	-1116.91	1747484.36	14437163.01	39°45'12.211"N	80°37'08.588"W	1190.52	249.746	0.12	-0.02	0.44
5450.00	16.820	249.680	5258.53	-293.12	-420.26	-1138.79	1747462.49	14437154.88	39°45'12.131"N	80°37'08.869"W	1213.87	249.744	1.17	1.17	0.17
5533.00	16.580	249.660	5338.03	-298.85	-428.55	-1161.16	1747440.13	14437146.60	39°45'12.050"N	80°37'09.156"W	1237.72	249.742	0.29	-0.29	-0.02
5617.00	17.380	246.820	5418.37	-304.13	-437.65	-1183.93	1747417.37	14437137.50	39°45'11.961"N	80°37'09.448"W	1262.23	249.713	1.37	0.95	-3.38
5701.00	17.570	244.620	5498.49	-308.49	-448.03	-1206.92	1747394.39	14437127.13	39°45'11.860"N	80°37'09.743"W	1287.39	249.634	0.82	0.23	-2.62
5784.00	17.350	242.720	5577.67	-311.91	-459.07	-1229.24	1747372.08	14437116.09	39°45'11.751"N	80°37'10.029"W	1312.16	249.521	0.74	-0.27	-2.29
5870.00	17.120	242.870	5659.81	-315.03	-470.72	-1251.90	1747349.43	14437104.44	39°45'11.637"N	80°37'10.320"W	1337.47	249.394	0.27	-0.27	0.17
5901.00	16.950	243.090	5689.45	-316.17	-474.84	-1259.99	1747341.34	14437100.32	39°45'11.597"N	80°37'10.424"W	1346.49	249.350	0.59	-0.55	0.71
5943.00	16.860	243.550	5729.63	-317.77	-480.33	-1270.90	1747330.43	14437094.84	39°45'11.543"N	80°37'10.564"W	1358.64	249.296	0.38	-0.21	1.10
5983.00	19.310	239.250	5767.66	-318.96	-486.29	-1281.78	1747319.56	14437088.87	39°45'11.485"N	80°37'10.703"W	1370.93	249.224	6.97	6.12	-10.75
6026.00	19.370	227.500	5808.24	-318.37	-494.75	-1293.15	1747308.19	14437080.42	39°45'11.402"N	80°37'10.849"W	1384.56	249.064	9.04	0.14	-27.33
6068.00	19.370	213.980	5847.89	-314.78	-505.24	-1302.18	1747299.16	14437069.94	39°45'11.298"N	80°37'10.966"W	1396.76	248.794	10.65	0.00	-32.19
6110.00	19.380	204.100	5887.52	-308.53	-517.38	-1308.92	1747282.42	14437057.80	39°45'11.179"N	80°37'11.052"W	1407.47	248.433	7.80	0.02	-23.52
6152.00	19.390	196.360	5927.14	-300.44	-530.44	-1313.73	1747284.77	14437044.76	39°45'11.050"N	80°37'11.115"W	1416.78	248.013	6.11	0.02	-18.43
6194.00	19.300	187.270	5966.78	-290.82	-544.01	-1316.58	1747284.72	14437031.18	39°45'10.916"N	80°37'11.152"W	1424.54	247.550	7.17	-0.21	-21.64
6235.00	20.920	178.800	6005.29	-279.60	-558.05	-1317.28	1747284.07	14437017.15	39°45'10.777"N	80°37'11.162"W	1430.61	247.041	8.12	3.95	-20.66
6276.00	23.840	171.030	6043.21	-265.97	-573.56	-1315.84	1747285.52	14437001.64	39°45'10.624"N	80°37'11.144"W	1435.41	246.448	10.12	7.12	-18.95
6316.00	26.030	167.450	6079.48	-250.50	-590.11	-1312.67	1747288.68	14436985.09	39°45'10.460"N	80°37'11.104"W	1439.21	245.794	6.65	5.48	-8.95
6357.00	27.760	165.350	6116.04	-233.14	-608.14	-1308.30	1747293.05	14436967.08	39°45'10.282"N	80°37'11.049"W	1442.73	245.070	4.81	4.22	-5.12
6398.00	30.870	163.590	6151.79	-214.13	-627.47	-1302.91	1747298.44	14436947.76	39°45'10.090"N	80°37'10.981"W	1446.13	244.285	7.87	7.59	-4.29
6441.00	33.040	160.310	6188.27	-192.27	-649.09	-1295.84	1747305.50	14436926.14	39°45'09.876"N	80°37'10.892"W	1449.32	243.394	6.46	5.05	-7.63
6483.00	35.660	156.650	6222.95	-169.16	-671.12	-1287.13	1747314.21	14436904.12	39°45'09.658"N	80°37'10.782"W	1451.59	242.462	7.94	6.24	-8.71
6525.00	39.170	153.360	6256.31	-143.98	-694.22	-1276.33	1747325.01	14436881.03	39°45'09.429"N	80°37'10.645"W	1452.91	241.457	9.61	8.36	-7.83

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Actual Wellpath Report

Columbia Gas Transmission MSH 6H AWP Proj: 13065'MD
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REFERENCE WELLPATH IDENTIFICATION			
Operator	SOUTHWESTERN ENERGY	Slot	Slot 6H
Area	Marshall County, WV	Well	Columbia Gas Transmission MSH 6H
Field	Marshall	Wellbore	Columbia Gas Transmission MSH 6H AWB
Facility	Columbia Gas Transmission MSH Pad		

WELLPATH DATA (178 stations)															
MD [ft]	Inclination [°]	Azimuth [°]	TVD [ft]	Vert Sect [ft]	North [ft]	East [ft]	Grid East [US ft]	Grid North [US ft]	Latitude	Longitude	Closure Dist [ft]	Closure Dir [°]	DLS [°/100ft]	Build Rate [°/100ft]	Turn Rate [°/100ft]
6567.00	42.000	150.580	6288.20	-116.82	-718.33	-1263.47	1747337.86	14436856.93	39°45'09.191"N	80°37'10.481"W	1453.39	240.380	8.00	6.74	-6.62
6609.00	45.330	148.100	6318.58	-87.89	-743.25	-1248.67	1747352.65	14436832.02	39°45'08.944"N	80°37'10.293"W	1453.14	239.237	8.91	7.93	-5.90
6650.00	48.470	145.400	6346.60	-57.96	-768.27	-1232.25	1747369.07	14436807.01	39°45'08.696"N	80°37'10.084"W	1452.13	238.058	9.04	7.66	-6.59
6691.00	51.510	143.410	6372.95	-26.58	-793.79	-1213.96	1747387.35	14436781.49	39°45'08.443"N	80°37'09.852"W	1450.45	236.820	8.29	7.41	-4.85
6733.00	54.630	141.250	6398.19	6.93	-820.36	-1193.44	1747407.86	14436754.94	39°45'08.179"N	80°37'09.590"W	1448.20	235.496	8.49	7.43	-5.14
6774.00	58.400	140.130	6420.80	40.98	-846.80	-1171.78	1747429.52	14436728.51	39°45'07.917"N	80°37'09.314"W	1445.73	234.146	9.47	9.20	-2.73
6816.00	61.030	139.340	6441.98	77.05	-874.47	-1148.34	1747452.95	14436700.85	39°45'07.643"N	80°37'09.016"W	1443.39	232.710	6.47	6.26	-1.88
6858.00	65.240	138.880	6460.96	114.25	-902.79	-1123.81	1747477.46	14436672.54	39°45'07.362"N	80°37'08.703"W	1441.52	231.224	10.07	10.02	-1.10
6899.00	68.910	138.920	6476.93	151.74	-931.24	-1098.99	1747502.27	14436644.10	39°45'07.080"N	80°37'08.387"W	1440.48	229.723	8.95	8.95	0.10
6941.00	71.210	138.920	6491.25	190.93	-961.00	-1073.05	1747528.21	14436614.35	39°45'06.784"N	80°37'08.057"W	1440.47	228.153	5.48	5.48	0.00
6983.00	74.490	138.350	6503.63	230.75	-991.11	-1046.53	1747554.72	14436584.25	39°45'06.486"N	80°37'07.719"W	1441.37	226.558	7.92	7.81	-1.36
7025.00	77.720	138.510	6513.72	271.18	-1021.61	-1019.48	1747581.75	14436553.76	39°45'06.183"N	80°37'07.374"W	1443.27	224.940	7.70	7.69	0.38
7067.00	81.910	138.510	6521.14	312.18	-1052.57	-992.10	1747609.12	14436522.82	39°45'05.876"N	80°37'07.025"W	1446.43	223.306	9.98	9.98	0.00
7110.00	83.280	136.760	6526.68	354.39	-1084.08	-963.37	1747637.84	14436491.33	39°45'05.564"N	80°37'06.659"W	1450.28	221.626	5.14	3.19	-4.07
7150.00	85.130	134.620	6530.72	393.56	-1112.55	-935.57	1747665.63	14436462.86	39°45'05.281"N	80°37'06.305"W	1453.64	220.061	7.05	4.62	-5.35
7192.00	87.600	134.100	6533.39	434.65	-1141.85	-905.61	1747695.58	14436433.57	39°45'04.990"N	80°37'05.923"W	1457.38	218.418	6.01	5.88	-1.24
7276.00	88.920	133.630	6535.94	516.80	-1200.03	-845.07	1747756.09	14436375.41	39°45'04.413"N	80°37'05.151"W	1467.73	215.154	1.67	1.57	-0.56
7359.00	88.890	132.240	6537.52	597.71	-1256.56	-784.32	1747816.82	14436318.91	39°45'03.851"N	80°37'04.376"W	1481.25	211.972	1.67	-0.04	-1.67
7441.00	88.800	128.910	6539.18	676.82	-1309.87	-722.06	1747879.06	14436265.61	39°45'03.322"N	80°37'03.582"W	1495.71	208.865	4.06	-0.11	-4.06
7523.00	88.580	129.090	6541.05	755.31	-1361.47	-658.35	1747942.75	14436214.04	39°45'02.809"N	80°37'02.769"W	1512.29	205.807	0.35	-0.27	0.22
7606.00	88.490	129.910	6543.17	834.96	-1414.24	-594.33	1748006.75	14436161.29	39°45'02.285"N	80°37'01.952"W	1534.05	202.794	0.99	-0.11	0.99
7688.00	90.220	134.430	6544.10	914.63	-1469.27	-533.57	1748067.47	14436106.28	39°45'01.739"N	80°37'01.177"W	1563.16	199.959	5.90	2.11	5.51
7772.00	89.880	137.500	6544.02	997.39	-1529.65	-475.19	1748125.83	14436045.92	39°45'01.139"N	80°37'00.433"W	1601.76	197.258	3.68	-0.40	3.65
7855.00	90.120	138.960	6544.02	1079.67	-1591.56	-419.90	1748181.10	14435984.04	39°45'00.525"N	80°36'59.729"W	1646.02	194.780	1.78	0.29	1.76
7939.00	91.350	132.800	6542.94	1162.38	-1651.82	-361.46	1748239.52	14435923.80	39°44'59.927"N	80°36'58.984"W	1690.91	192.343	7.48	1.46	-7.33
8022.00	90.280	129.110	6541.76	1242.59	-1706.21	-298.80	1748302.16	14435869.43	39°44'59.387"N	80°36'58.184"W	1732.18	189.933	4.63	-1.29	-4.45
8106.00	89.910	127.470	6541.62	1322.71	-1758.26	-232.87	1748368.06	14435817.40	39°44'58.870"N	80°36'57.343"W	1773.61	187.544	2.00	-0.44	-1.95
8190.00	89.780	126.170	6541.85	1402.16	-1808.60	-165.62	1748435.28	14435767.08	39°44'58.370"N	80°36'56.485"W	1816.17	185.232	1.56	-0.15	-1.55
8272.00	89.750	125.000	6542.19	1479.12	-1856.31	-98.94	1748501.94	14435719.39	39°44'57.895"N	80°36'55.634"W	1858.95	183.051	1.43	-0.04	-1.43
8356.00	89.820	124.950	6542.50	1557.65	-1904.46	-30.11	1748570.74	14435671.26	39°44'57.416"N	80°36'54.755"W	1904.70	180.906	0.10	0.08	-0.06

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Area	Marshall County, WV
Field	Marshall
Facility	Columbia Gas Transmission MSH Pad
Slot	Slot 6H
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Wellbore	Columbia Gas Transmission MSH 6H AWP

WELLPATH DATA (178 stations)

MD	Inclination	Azimuth	TVD	Vert Sect	North	East	Grid East	Grid North	Latitude	Longitude	Closure Dist	Closure Dir	DLS	Build Rate	Turn Rate
[ft]	[°]	[°]	[ft]	[ft]	[ft]	[ft]	[US ft]	[US ft]	[NAD 83]	[NAD 83]	[ft]	[°]	[ft/100ft]	[ft/100ft]	[°/100ft]
8439.00	89.940	129.840	6542.68	1636.39	-1954.86	35.81	1748636.64	14435620.88	39°44'56.916"N	80°36'53.914"W	1955.18	178.951	5.89	0.14	5.89
8520.00	89.690	133.540	6542.94	1714.94	-2008.72	96.29	1748697.09	14435667.04	39°44'56.381"N	80°36'53.143"W	2011.03	177.256	4.58	-0.31	4.57
8600.00	89.940	134.400	6543.20	1793.25	-2064.26	153.86	1748754.64	14435511.52	39°44'55.829"N	80°36'52.409"W	2069.99	175.737	1.12	0.31	1.08
8683.00	89.880	136.230	6543.33	1874.87	-2123.27	212.23	1748812.98	14435452.54	39°44'55.244"N	80°36'51.665"W	2133.85	174.292	2.21	-0.07	2.20
8766.00	90.030	139.210	6543.39	1957.04	-2184.67	268.06	1748868.79	14435391.16	39°44'54.635"N	80°36'50.954"W	2201.06	173.005	3.59	0.18	3.59
8849.00	89.720	139.970	6543.57	2039.56	-2247.87	321.86	1748922.58	14435327.98	39°44'54.008"N	80°36'50.268"W	2270.80	171.851	0.99	-0.37	0.92
8933.00	89.720	132.370	6543.98	2122.32	-2308.42	379.99	1748980.68	14435267.46	39°44'53.407"N	80°36'49.527"W	2339.49	170.652	9.05	0.00	-9.05
9013.00	89.690	127.250	6544.40	2199.21	-2359.62	441.42	1749042.09	14435216.27	39°44'52.898"N	80°36'48.744"W	2400.56	169.404	6.40	-0.04	-6.40
9097.00	89.540	123.180	6544.96	2277.85	-2408.05	510.03	1749110.68	14435167.87	39°44'52.417"N	80°36'47.868"W	2461.47	168.041	4.85	-0.18	-4.85
9181.00	89.380	124.110	6545.75	2355.66	-2454.59	579.66	1749180.57	14435121.35	39°44'51.954"N	80°36'46.975"W	2522.17	166.706	1.12	-0.19	1.11
9265.00	89.600	125.630	6546.50	2434.12	-2502.61	648.87	1749249.46	14435073.34	39°44'51.476"N	80°36'46.096"W	2585.36	165.465	1.83	0.26	1.81
9348.00	89.450	128.660	6547.19	2512.76	-2552.72	715.02	1749315.58	14435023.25	39°44'50.978"N	80°36'45.252"W	2650.97	164.352	3.65	-0.18	3.65
9431.00	89.600	134.070	6547.88	2593.12	-2607.55	777.29	1749377.83	14434968.45	39°44'50.434"N	80°36'44.447"W	2720.93	163.401	6.52	0.18	6.52
9514.00	88.400	135.120	6549.33	2674.50	-2665.81	836.38	1749436.90	14434910.21	39°44'49.855"N	80°36'43.704"W	2793.94	162.581	1.92	-1.45	1.27
9598.00	88.370	137.930	6551.69	2757.40	-2726.74	894.15	1749494.64	14434849.30	39°44'49.251"N	80°36'42.968"W	2869.60	161.845	3.34	-0.04	3.35
9682.00	88.520	140.750	6553.97	2840.83	-2790.43	948.85	1749549.33	14434855.64	39°44'48.619"N	80°36'42.271"W	2947.34	161.220	3.36	0.18	3.36
9764.00	88.370	138.430	6556.20	2922.32	-2852.84	1001.99	1749602.44	14434723.25	39°44'48.000"N	80°36'41.594"W	3023.68	160.647	2.83	-0.18	-2.83
9847.00	88.250	141.370	6558.65	3004.84	-2916.29	1055.42	1749655.85	14434659.82	39°44'47.371"N	80°36'40.914"W	3101.40	160.105	3.54	-0.14	3.54
9930.00	89.450	136.750	6560.31	3087.23	-2978.96	1109.78	1749710.19	14434597.18	39°44'46.749"N	80°36'40.221"W	3178.96	159.568	5.75	1.45	-5.57
10015.00	87.540	135.600	6562.55	3171.01	-3040.26	1168.62	1749769.00	14434535.90	39°44'46.141"N	80°36'39.471"W	3257.12	158.974	2.62	-2.25	-1.35
10097.00	88.370	131.560	6565.47	3251.09	-3096.74	1227.97	1749828.33	14434479.45	39°44'45.580"N	80°36'38.715"W	3331.32	158.370	5.03	1.01	-4.93
10181.00	89.020	129.330	6567.39	3332.08	-3151.21	1291.87	1749892.21	14434424.99	39°44'45.039"N	80°36'37.900"W	3405.74	157.708	2.76	0.77	-2.65
10263.00	88.770	130.410	6568.97	3410.93	-3203.77	1354.80	1749955.11	14434372.46	39°44'44.517"N	80°36'37.097"W	3478.45	157.078	1.35	-0.30	1.32
10348.00	89.080	128.660	6570.56	3492.52	-3257.86	1420.34	1750020.63	14434318.38	39°44'43.979"N	80°36'36.261"W	3554.01	156.444	2.09	0.36	-2.06
10431.00	88.830	128.210	6572.08	3571.73	-3309.45	1485.34	1750085.60	14434266.82	39°44'43.467"N	80°36'35.432"W	3627.49	155.829	0.62	-0.30	-0.54
10515.00	88.860	128.420	6573.77	3651.85	-3361.52	1551.24	1750151.47	14434214.77	39°44'42.949"N	80°36'34.591"W	3702.18	155.228	0.25	0.04	0.25
10598.00	88.800	128.370	6575.47	3731.05	-3413.05	1616.27	1750216.49	14434163.25	39°44'42.437"N	80°36'33.761"W	3776.41	154.660	0.09	-0.07	-0.06
10680.00	88.710	128.360	6577.25	3809.27	-3463.94	1680.55	1750280.74	14434112.39	39°44'41.932"N	80°36'32.941"W	3850.08	154.119	0.11	-0.11	-0.01
10763.00	88.800	127.980	6579.05	3888.37	-3515.22	1745.79	1750345.95	14434061.13	39°44'41.422"N	80°36'32.109"W	3924.86	153.589	0.47	0.11	-0.46
10846.00	88.920	130.210	6580.70	3967.86	-3567.55	1810.19	1750410.33	14434008.82	39°44'40.902"N	80°36'31.287"W	4000.52	153.097	2.69	0.14	2.69

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REFERENCE WELLPATH IDENTIFICATION

Operator	SOUTHWESTERN ENERGY	
Area	Marshall County, WV	
Field	Marshall	
Facility	Columbia Gas Transmission MSH Pad	
Slot	Wellbore	Columbia Gas Transmission MSH 6H AWP
Slot 6H	Well	Columbia Gas Transmission MSH 6H

WELLPATH DATA (178 stations)

MD	Inclination	Azimuth	TVD	Vert Sect	North	East	Grid East	Grid North	Latitude	Longitude	Closure Dist	Closure Dir	DLS	Build Rate	Turn Rate
(ft)	(°)	(°)	(ft)	(ft)	(ft)	(ft)	(US ft)	(US ft)	(°N)	(°W)	(ft)	(°)	(ft)	(ft/100ft)	(°/100ft)
10928.00	88.370	132.460	6582.64	4047.24	-3621.68	1871.74	1750471.85	14433954.70	39°44'40.36"N	80°36'30.502"W	4076.76	152.669	2.82	-0.67	2.74
11010.00	88.220	133.550	6585.08	4127.18	-3677.59	1931.68	1750531.77	14433898.82	39°44'39.809"N	80°36'29.738"W	4154.04	152.289	1.34	-0.18	1.33
11093.00	88.830	135.520	6587.22	4208.56	-3735.78	1990.82	1750590.89	14433840.65	39°44'39.232"N	80°36'28.984"W	4233.13	151.947	2.48	0.73	2.37
11176.00	88.830	137.440	6588.91	4290.45	-3795.95	2047.96	1750648.00	14433780.51	39°44'38.635"N	80°36'28.256"W	4313.16	151.653	2.31	0.00	2.31
11260.00	88.310	137.420	6591.01	4373.53	-3857.79	2104.77	1750704.79	14433718.69	39°44'38.021"N	80°36'27.533"W	4394.61	151.384	0.62	-0.62	-0.02
11343.00	87.810	137.170	6593.82	4455.58	-3918.75	2161.03	1750761.03	14433667.75	39°44'37.416"N	80°36'26.816"W	4475.11	151.125	0.67	-0.60	-0.30
11427.00	87.850	135.820	6597.00	4538.22	-3979.63	2218.81	1750818.79	14433596.90	39°44'36.812"N	80°36'26.079"W	4556.38	150.859	1.61	0.05	-1.61
11511.00	87.820	134.020	6600.17	4620.86	-4038.90	2278.25	1750878.20	14433537.65	39°44'36.224"N	80°36'25.322"W	4637.14	150.574	2.14	-0.04	-2.14
11592.00	87.880	132.310	6603.21	4699.84	-4094.27	2337.28	1750937.21	14433482.30	39°44'35.674"N	80°36'24.569"W	4714.44	150.279	2.11	0.07	-2.11
11677.00	87.850	129.800	6606.38	4781.99	-4150.05	2401.33	1751001.24	14433426.54	39°44'35.120"N	80°36'23.752"W	4794.72	149.946	2.95	-0.04	-2.95
11757.00	87.780	129.260	6609.43	4858.74	-4200.93	2462.99	1751062.87	14433375.68	39°44'34.614"N	80°36'22.966"W	4869.72	149.617	0.68	-0.09	-0.68
11840.00	87.880	129.240	6612.57	4938.26	-4253.41	2527.22	1751127.07	14433323.22	39°44'34.093"N	80°36'22.147"W	4947.56	149.283	0.12	0.12	-0.02
11924.00	87.690	129.780	6615.82	5018.84	-4306.81	2591.97	1751191.81	14433269.84	39°44'33.562"N	80°36'21.321"W	5026.63	148.969	0.68	-0.23	0.64
12008.00	87.660	129.210	6619.23	5099.41	-4360.19	2656.74	1751256.55	14433216.48	39°44'33.032"N	80°36'20.495"W	5105.84	148.645	0.68	-0.04	-0.68
12091.00	87.850	129.460	6622.48	5178.96	-4412.76	2720.89	1751320.67	14433163.93	39°44'32.510"N	80°36'19.676"W	5184.18	148.342	0.38	0.23	0.30
12175.00	87.820	130.380	6625.65	5259.70	-4466.63	2785.27	1751385.02	14433110.09	39°44'31.974"N	80°36'18.855"W	5263.88	148.053	1.10	-0.04	1.10
12260.00	87.720	131.810	6628.96	5341.87	-4522.46	2849.27	1751449.01	14433054.28	39°44'31.420"N	80°36'18.039"W	5345.18	147.788	1.69	-0.12	1.68
12342.00	87.720	131.960	6632.22	5421.41	-4577.16	2910.27	1751509.98	14432999.60	39°44'30.877"N	80°36'17.261"W	5424.03	147.551	0.18	0.00	0.18
12426.00	87.750	132.000	6635.54	5502.92	-4633.30	2972.67	1751572.35	14432943.48	39°44'30.319"N	80°36'16.466"W	5504.93	147.316	0.06	0.04	0.05
12510.00	87.780	131.200	6638.82	5584.30	-4689.03	3035.43	1751635.09	14432887.78	39°44'29.766"N	80°36'15.665"W	5585.77	147.083	0.95	0.04	-0.95
12594.00	87.850	131.620	6642.02	5665.62	-4744.55	3098.39	1751698.02	14432832.28	39°44'29.214"N	80°36'14.863"W	5666.63	146.854	0.51	0.08	0.50
12675.00	87.720	131.500	6645.15	5744.08	-4798.24	3158.95	1751758.56	14432778.60	39°44'28.681"N	80°36'14.090"W	5744.75	146.641	0.22	-0.16	-0.15
12758.00	87.820	132.290	6648.38	5824.60	-4853.63	3220.69	1751820.28	14432723.24	39°44'28.131"N	80°36'13.303"W	5824.99	146.433	0.96	0.12	0.95
12843.00	87.780	132.550	6651.64	5907.24	-4910.92	3283.39	1751882.95	14432665.97	39°44'27.562"N	80°36'12.504"W	5907.43	146.234	0.31	-0.05	0.31
12927.00	87.020	130.460	6655.45	5988.56	-4966.53	3346.23	1751945.77	14432610.38	39°44'27.010"N	80°36'11.702"W	5988.62	146.030	2.65	-0.90	-2.49
13010.00	86.920	130.620	6659.84	6068.54	-5020.40	3409.22	1752008.73	14432555.53	39°44'26.475"N	80°36'10.899"W	6068.54	145.821	0.23	-0.12	0.19
13040.00	86.890	130.710	6661.46	6097.46	-5039.92	3431.94	1752031.44	14432507.02	39°44'26.281"N	80°36'10.609"W	6097.46	145.747	0.32	-0.10	0.30
13065.00	86.890	130.710	6662.82	6121.56	-5056.20	3450.86	1752050.36	14432502.74	39°44'26.119"N	80°36'10.368"W	6121.57	145.686	0.00	0.00	0.00

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Actual Wellpath Report

Columbia Gas Transmission MSH 6H AWP Proj: 13065'MD
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REFERENCE WELLPATH IDENTIFICATION

Operator	SOUTHWESTERN ENERGY	Slot	Slot 6H
Area	Marshall County, WV	Well	Columbia Gas Transmission MSH 6H
Field	Marshall	Wellbore	Columbia Gas Transmission MSH 6H AWB
Facility	Columbia Gas Transmission MSH Pad		

HOLE & CASING SECTIONS

- Ref Wellbore: Columbia Gas Transmission MSH 6H AWB Ref Wellpath: Columbia Gas Transmission MSH 6H AWP Proj: 13065'MD

String/Diameter	Start MD [ft]	End MD [ft]	Interval [ft]	Start TVD [ft]	End TVD [ft]	Start N/S [ft]	Start E/W [ft]	End N/S [ft]	End E/W [ft]
17.5in Open Hole	126.00	369.00	243.00	126.00	368.95	0.71	0.19	5.11	1.88
13.375in Casing	26.00	350.00	324.00	26.00	349.95	0.00	0.00	4.78	1.69
12.25in Open Hole	369.00	2069.00	1700.00	368.95	2050.65	5.11	1.88	6.65	-174.31
9.625in Casing	26.00	2050.00	2024.00	26.00	2031.99	0.00	0.00	7.81	-170.93
8.75in Open Hole	2069.00	5898.00	3829.00	2050.65	5686.58	6.65	-174.31	-474.45	-1259.21
8.5in Open Hole	5898.00	13065.00	7167.00	5686.58	6662.82	-474.45	-1259.21	-5056.20	3450.86

TARGETS

Name	TVD [ft]	North [ft]	East [ft]	Grid East [US ft]	Grid North [US ft]	Latitude	Longitude	Shape
Columbia Gas Transmission MSH 6H LP Rev-2	6532.00	-1119.76	-924.50	1747676.70	14436455.66	39°45'05.209"N	80°37'06.163"W	point
Columbia Gas Transmission MSH 6H BHL Rev-2	6638.00	-5060.40	3442.82	1752042.32	14432516.55	39°44'26.078"N	80°36'10.471"W	point

WELLPATH COMPOSITION - Ref Wellbore: Columbia Gas Transmission MSH 6H AWB Ref Wellpath: Columbia Gas Transmission MSH 6H AWP Proj: 13065'MD

Start MD [ft]	End MD [ft]	Positional Uncertainty Model	Log Name/Comment	Wellbore
26.00	322.00	BHI NaviTrak (Axial)	01_APS EM <17.5"> (149'-322')	Columbia Gas Transmission MSH 6H AWB
322.00	1995.00	BHI NaviTrak (Axial)	02_APS EM <12.25">(322')(368'-1995')	Columbia Gas Transmission MSH 6H AWB
1995.00	5870.00	BHI NaviTrak (Axial)	03_APS EM <8-3/4"> (1995')(2074'-5870')	Columbia Gas Transmission MSH 6H AWB
5870.00	13040.00	BHI AutoTrak Curve (Short)	04_BH AT Curve <8.5">(5870')(5901'-13040')	Columbia Gas Transmission MSH 6H AWB
13040.00	13065.00	Blind Drilling (std)	Projection to bit	Columbia Gas Transmission MSH 6H AWB

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REFERENCE WELLPATH IDENTIFICATION			
Operator	SOUTHWESTERN ENERGY	Slot	Slot 6H
Area	Marshall County, WV	Well	Columbia Gas Transmission MSH 6H
Field	Marshall	Wellbore	Columbia Gas Transmission MSH 6H AWB
Facility	Columbia Gas Transmission MSH Pad		

COMMENTS
<p>Wellpath general comments API: 47-051-01937-0000 Job #: 8957259 Rig: SDC 42 Duration: 01/26/2018 - 02/09/2018</p>

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**COLUMBIA GAS TRANSMISSION MSH 6H
ATTACHMENT 1
PERF REPORT**

STAGE NUM	Perf Date	Perf Top MD	Perf Bottom MD	# SHOTS PER STG
1	4/5/2018	12,960	12,865	36
2	4/5/2018	12,831	12,759	33
3	4/6/2018	12,726	12,654	33
4	4/6/2018	12,621	12,549	33
5	4/6/2018	12,516	12,444	33
6	4/7/2018	12,411	12,339	33
7	4/7/2018	12,306	12,234	33
8	4/8/2018	12,201	12,129	33
9	4/8/2018	12,096	12,024	33
10	4/8/2018	11,991	11,919	33
11	4/9/2018	11,886	11,814	33
12	4/9/2018	11,781	11,709	33
13	4/10/2018	11,676	11,604	33
14	4/11/2018	11,571	11,499	33
15	4/11/2018	11,466	11,394	33
16	4/12/2018	11,361	11,289	33
17	4/13/2018	11,256	11,184	33
18	4/13/2018	11,151	11,079	33
19	4/14/2018	11,046	10,974	33
20	4/15/2018	10,941	10,869	33
21	4/15/2018	10,836	10,764	33
22	4/16/2018	10,731	10,659	33
23	4/16/2018	10,626	10,554	33
24	4/17/2018	10,521	10,449	33
25	4/17/2018	10,414	10,344	33
26	4/18/2018	10,311	10,239	33
27	4/18/2018	10,206	10,134	33
28	4/19/2018	10,103	10,029	33
29	4/19/2018	9,996	9,924	33
30	4/20/2018	9,891	9,823	33
31	4/20/2018	9,786	9,714	33
32	4/20/2018	9,681	9,607	33
33	4/21/2018	9,576	9,504	33
34	4/21/2018	9,471	9,399	33
35	4/22/2018	9,366	9,294	33
36	4/22/2018	9,261	9,189	33
37	4/22/2018	9,156	9,084	33
38	4/23/2018	9,051	8,979	33
39	4/23/2018	8,946	8,874	33
40	4/24/2018	8,841	8,769	33
41	4/25/2018	8,736	8,666	33
42	4/25/2018	8,631	8,559	33
43	4/25/2018	8,526	8,454	33

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**COLUMBIA GAS TRANSMISSION MSH 6H
ATTACHMENT 1
PERF REPORT**

STAGE NUM	Perf Date	Perf Top MD	Perf Bottom MD	# SHOTS PER STG
44	4/26/2018	8,421	8,349	33
45	4/26/2018	8,316	8,244	33
46	4/26/2018	8,211	8,139	33
47	4/27/2018	8,106	8,034	33
48	4/27/2018	8,001	7,929	33
49	4/28/2018	7,896	7,824	33
50	4/28/2018	7,791	7,719	33
51	4/28/2018	7,686	7,614	33
52	4/28/2018	7,581	7,509	33
53	4/28/2018	7,476	7,404	33
54	4/29/2018	7,371	7,299	33
55	4/29/2018	7,266	7,194	33
56	4/29/2018	7,161	7,089	33

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COLUMBIA GAS TRANSMISSION MSH 6H
ATTACHMENT 2
STIM REPORT

STAGE NUM	Stim Date	Ave Pump Rate (BPM)	Ave Treatment Pressure (PSI)	Max Breakdown Pressure (PSI)	ISIP (PSI)	Amount of Proppant (lbs)	Amount of water bbls	Amount of nitrogen/other
1	4/5/2018	64	7,419	6,307	4,500	194,540	4,744	0
2	4/5/2018	66	8,023	6,346	5,131	193,540	4,166	0
3	4/6/2018	60	8,042	6,687	4,968	193,180	3,648	0
4	4/6/2018	68	7,986	6,202	6,056	192,300	3,755	0
5	4/7/2018	65	7,920	6,532	6,747	195,080	3,723	0
6	4/7/2018	68	8,018	6,549	5,976	192,580	3,687	0
7	4/7/2018	69	8,183	6,620	4,975	194,380	3,648	0
8	4/8/2018	71	8,159	6,102	5,909	192,700	3,419	0
9	4/8/2018	72	8,009	6,124	5,282	191,420	3,466	0
10	4/9/2018	69	8,221	6,463	5,573	192,620	3,413	0
11	4/9/2018	63	7,682	6,170	4,867	192,960	3,475	0
12	4/9/2018	68	7,950	6,070	5,049	191,420	3,492	0
13	4/10/2018	72	8,103	6,444	5,304	212,670	3,624	0
14	4/11/2018	66	8,003	6,294	5,870	212,145	3,682	0
15	4/12/2018	72	8,158	6,141	6,276	214,145	3,567	0
16	4/13/2018	75	8,050	6,077	6,337	213,505	3,558	0
17	4/13/2018	70	8,202	7,991	5,948	215,545	3,602	0
18	4/13/2018	73	7,742	6,133	5,590	211,463	4,298	0
19	4/15/2018	76	7,840	6,747	5,670	213,795	3,606	0
20	4/15/2018	69	7,727	6,596	4,431	215,975	3,539	0
21	4/15/2018	68	7,678	6,270	4,770	208,540	3,701	0
22	4/16/2018	63	7,787	6,585	5,095	210,480	3,453	0
23	4/17/2018	64	7,967	6,908	5,826	205,700	4,316	0
24	4/17/2018	66	7,861	6,537	4,809	207,320	3,407	0
25	4/18/2018	70	7,971	6,247	4,769	207,260	3,501	0
26	4/18/2018	71	7,980	6,060	5,061	210,060	3,422	0
27	4/19/2018	74	7,920	6,259	4,753	209,560	3,426	0
28	4/19/2018	70	7,951	5,871	4,940	215,060	3,436	0
29	4/19/2018	74	7,747	6,206	5,528	209,280	3,510	0
30	4/20/2018	73	7,801	6,030	5,844	206,280	3,468	0
31	4/20/2018	69	7,825	6,447	6,073	209,820	3,412	0
32	4/21/2018	72	7,848	6,738	4,898	206,480	3,433	0
33	4/21/2018	73	7,831	5,985	4,989	206,920	3,414	0
34	4/21/2018	72	7,853	6,121	5,072	205,000	3,351	0
35	4/22/2018	74	7,779	6,111	4,884	206,580	3,419	0
36	4/22/2018	75	7,771	6,314	5,110	206,900	3,404	0
37	4/22/2018	73	7,518	6,209	4,784	206,580	3,343	0
38	4/23/2018	69	7,461	6,060	5,226	206,320	3,577	0
39	4/24/2018	74	7,887	6,969	4,983	204,860	3,287	0
40	4/24/2018	71	7,506	6,139	5,638	135,800	4,708	0
41	4/25/2018	73	7,558	6,221	5,286	207,620	3,330	0
42	4/25/2018	74	7,772	6,647	6,335	205,250	3,288	0
43	4/26/2018	75	7,832	6,608	5,829	208,120	3,218	0
44	4/26/2018	77	7,708	6,054	4,667	205,720	3,188	0
45	4/26/2018	78	7,845	6,037	4,859	210,420	3,213	0
46	4/27/2018	73	7,723	6,393	4,866	207,760	3,299	0
47	4/27/2018	75	7,880	5,860	4,917	209,740	3,263	0
48	4/27/2018	76	7,836	6,210	5,366	206,100	3,192	0
49	4/28/2018	75	7,820	6,365	5,763	206,080	3,253	0
50	4/28/2018	70	7,806	6,402	5,958	205,260	3,208	0
51	4/28/2018	75	7,554	6,755	4,646	204,120	3,225	0
52	4/28/2018	74	7,424	6,534	4,820	209,200	3,155	0
53	4/29/2018	77	7,820	6,041	4,905	210,900	3,204	0
54	4/29/2018	76	7,597	5,960	4,462	210,020	3,223	0
55	4/29/2018	75	7,704	6,380	4,809	208,440	3,186	0
56	4/29/2018	76	7,387	6,046	5,129	209,960	3,345	0

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Attachment 3

Well Name: Columbia Gas Transmission MSH 6H

47051019370000

LITHOLOGY/FORMATION	TOP DEPTH, MD (FT)	TOP DEPTH, TVD (FT)	BOTTOM DEPTH, MD (FT)	BOTTOM DEPTH, TVD (FT)	QUANTITY AND TYPE OF FLUID
Base of Fresh Water	300.00	300.00			
Top of Salt Water	629.00	629.00	NA	NA	
Pittsburgh Coal	467.00	467.00	NA	NA	
Pottsville (ss)	628.00	628.00	648.00	648.00	
Mauch Chunk (shale)	780.00	780.00	1589.00	1589.00	
Raven Cliff (ss)	1137.00	1137.00	1362.00	1362.00	
Maxton (ss)	1362.00	1362.00	1589.00	1589.00	
Greenbriar (ls)	1589.00	1589.00	1641.00	1641.00	
Big Injun (ss)	1641.00	1641.00	2203.00	2203.00	
Berea (siltstone)	2203.00	2203.00	5996.00	5835.00	
Rhinestreet (shale)	6056.00	5836.00	6391.00	6145.00	
Cashaqua (shale)	6391.00	6145.00	6531.00	6261.00	
Middlesex (shale)	6531.00	6261.00	6666.00	6357.00	
Burket (shale)	6666.00	6357.00	6708.00	6383.00	
Tully (ls)	6708.00	6383.00	6748.00	6406.00	
Mahantango (shale)	6748.00	6406.00	7032.00	6515.00	
Marcellus (shale)	7032.00	6515.00	NA	NA	GAS

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Hydraulic Fracturing Fluid Product Component Information Disclosure

Job Start Date:	4/5/2018
Job End Date:	4/29/2018
State:	West Virginia
County:	Marshall
API Number:	47-051-01937-00-00
Operator Name:	Southwestern Energy
Well Name and Number:	Columbia Gas Transmission MSH 6
Latitude:	39.75451009
Longitude:	-80.61507365
Datum:	NAD83
Federal Well:	NO
Indian Well:	NO
True Vertical Depth:	6,578
Total Base Water Volume (gal):	8,137,254
Total Base Non Water Volume:	0



Hydraulic Fracturing Fluid Composition:

Trade Name	Supplier	Purpose	Ingredients	Chemical Abstract Service Number (CAS #)	Maximum Ingredient Concentration in Additive (% by mass)**	Maximum Ingredient Concentration in HF Fluid (% by mass)**	Comments
Ecopol-FEAC	SWN Well Services	Iron Control					
				Listed Below			
Econo-CI200	SWN Well Services	Corrosion Inhibitor					
				Listed Below			

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BIOC11219A	Nalco	Biocide					
				Listed Below			
Base Water	Operator	Base Fluid					
				Listed Below			
HCL	SWN Well Services	Solvent					
				Listed Below			
Sand	SWN Well Services	Proppant					
				Listed Below			
FLOJET DR 9000LPP	SWN Well Services	Friction Reducer					
				Listed Below			
SCAL16486A	Nalco	Scale Inhibitor					
				Listed Below			

Items above are Trade Names with the exception of Base Water . Items below are the individual ingredients.

			Water	7732-18-5	100.00000	84.23670	Density = 8.345
			Crystalline Silica, quartz	14808-60-7	100.00000	14.18572	
			Water	7732-18-5	85.00000	1.28057	
			Hydrochloric Acid	7647-01-0	15.00000	0.21932	
			Petroleum Distillates, Hydrotreated	64742-47-8	45.00000	0.03425	
			Methanol	67-56-1	60.00000	0.01244	
			Ethylene glycol	107-21-1	10.00000	0.01019	
			Benzyl-(C12-C16 Alky)-Dimethyl-Ammonium	68424-85-1	30.00000	0.00622	

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			Acetic Acid	64-19-7	37.50000	0.00292	
			Amine Triphosphate	Proprietary	30.00000	0.00258	
			Chloride Glutaraldehyde	111-30-8	10.00000	0.00207	
			Methanol	67-56-1	80.00000	0.00179	
			Citric Acid	77-92-9	22.50000	0.00175	
			Alcohols, C12- C16, Ethoxylated propoxylated	68213-24-1	2.00000	0.00152	
			Fatty alcohols ethoxylated	Proprietary	2.00000	0.00152	
			Oxyalkylated fatty acid	68951-67-7	9.67400	0.00022	
			Fatty acids	61790-12-3	5.02700	0.00011	
			Modified thiourea polymer	68527-49-1	4.74600	0.00011	
			Potassium acetate	127-08-2	0.02200	0.00000	
			Formaldehyde	50-00-0	0.00400	0.00000	

* Total Water Volume sources may include various types of water including fresh water, produced water, and recycled water

** Information is based on the maximum potential for concentration and thus the total may be over 100%

*** If you are calculating a percentage of total ingredients do not add the water volume below the green line to the water volume above the green line

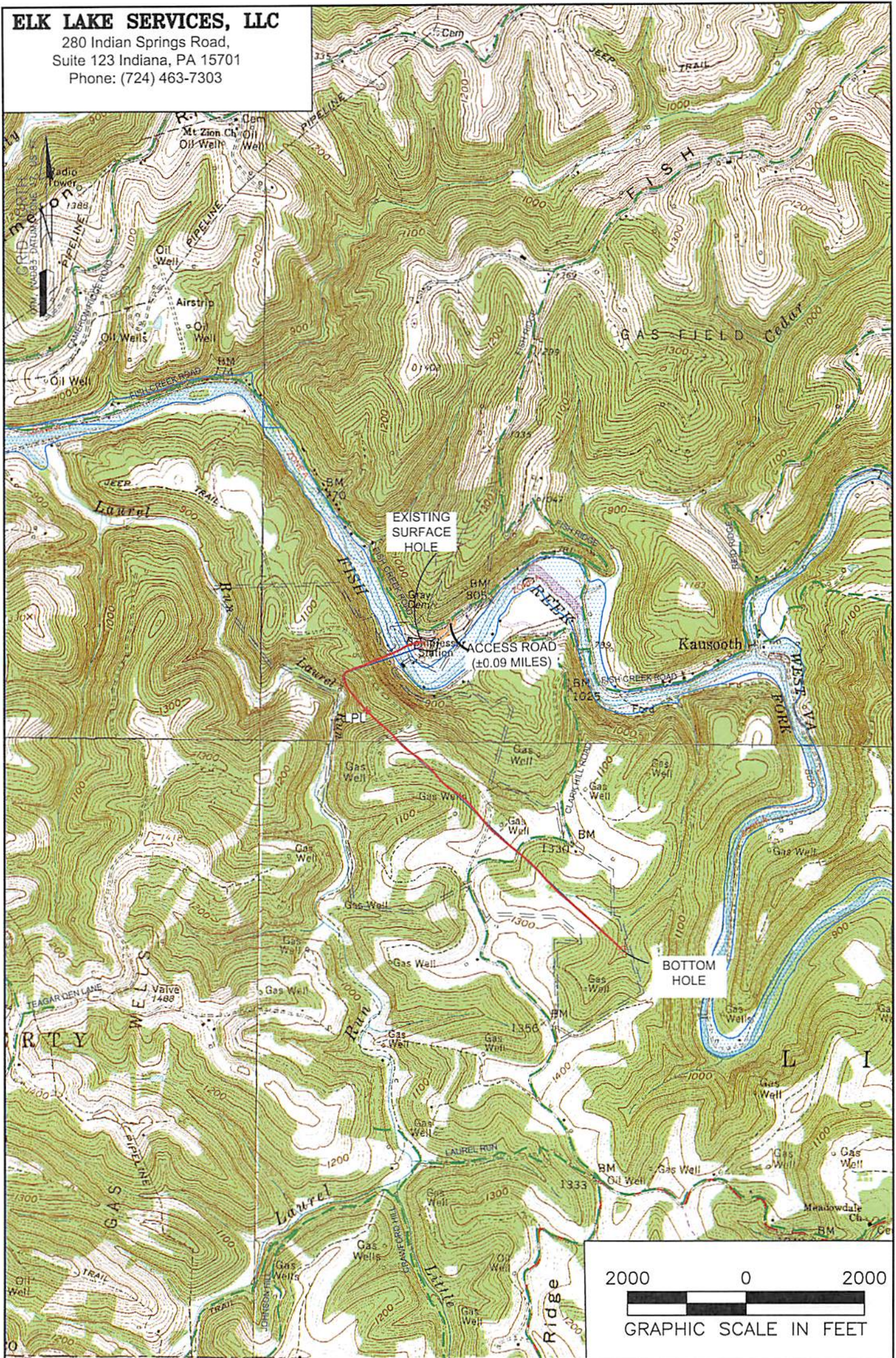
Note: For Field Development Products (products that begin with FDP), MSDS level only information has been provided.

Ingredient information for chemicals subject to 29 CFR 1910.1200(i) and Appendix D are obtained from suppliers Material Safety Data Sheets (MSDS)

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ELK LAKE SERVICES, LLC

280 Indian Springs Road,
Suite 123 Indiana, PA 15701
Phone: (724) 463-7303



NOTES ON SURVEY

1. SURFACE AND ROYALTY OWNER INFORMATION AND THEIR BOUNDARIES SHOWN HEREON WERE PLOTTED FROM DEEDS AND/OR TAX PARCEL MAPS PROVIDED BY CLIENT AND/OR FIELD LOCATIONS.
2. THIS PLAT DOES NOT REPRESENT A BOUNDARY SURVEY OF THE PARCELS SHOWN HEREON.
3. ALL INSETS ARE GRID NORTH UNLESS OTHERWISE DEPICTED.

LEGEND:

- PROPOSED SURFACE HOLE / BOTTOM HOLE
- ✱ EXISTING / PRODUCING WELLHEAD
- ✱ LPL
- FLOOD PLAIN
- ACCESS ROAD
- - - PUBLIC ROAD
- ACCESS ROAD TO PREV. SITE
- = = = = LEASE BOUNDARY
- EXISTING PATH
- PROPOSED PATH

WELL OPERATOR:
SWN PRODUCTION COMPANY, LLC
ADDRESS:
P.O. BOX 1300 JANE LEW, WV 26378
SURFACE OWNER:
COLUMBIA GAS TRANSMISSION, LLC

WELL (FARM) NAME: COLUMBIA GAS TRANSMISSION MSH	WELL # 6H	SERIAL # XXXX
COUNTY MARSHALL COUNTY - 51	DISTRICT: LIBERTY	
USGS 7 1/2 QUADRANGLE MAP NAME CAMERON, WV		

Latitude: 39°47'30"

SURFACE HOLE 8924'

ELK LAKE SERVICES, LLC

280 Indian Springs Road, Suite 123 Indiana, PA 15701 Phone: (724) 463-7303

Latitude: 39°45'00" BOTTOM HOLE

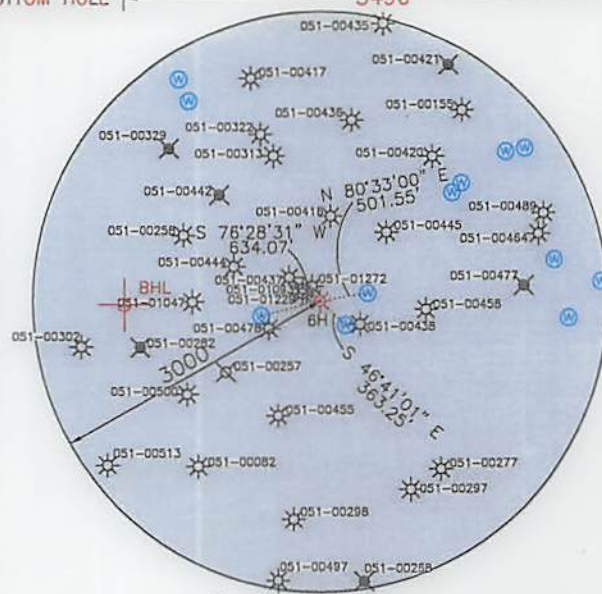
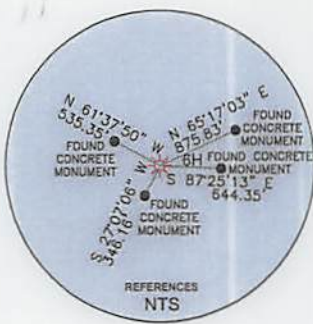
5496'

Longitude: 80°35'00" BOTTOM HOLE 3433'

Longitude: 80°35'00" SURFACE HOLE 13,535'

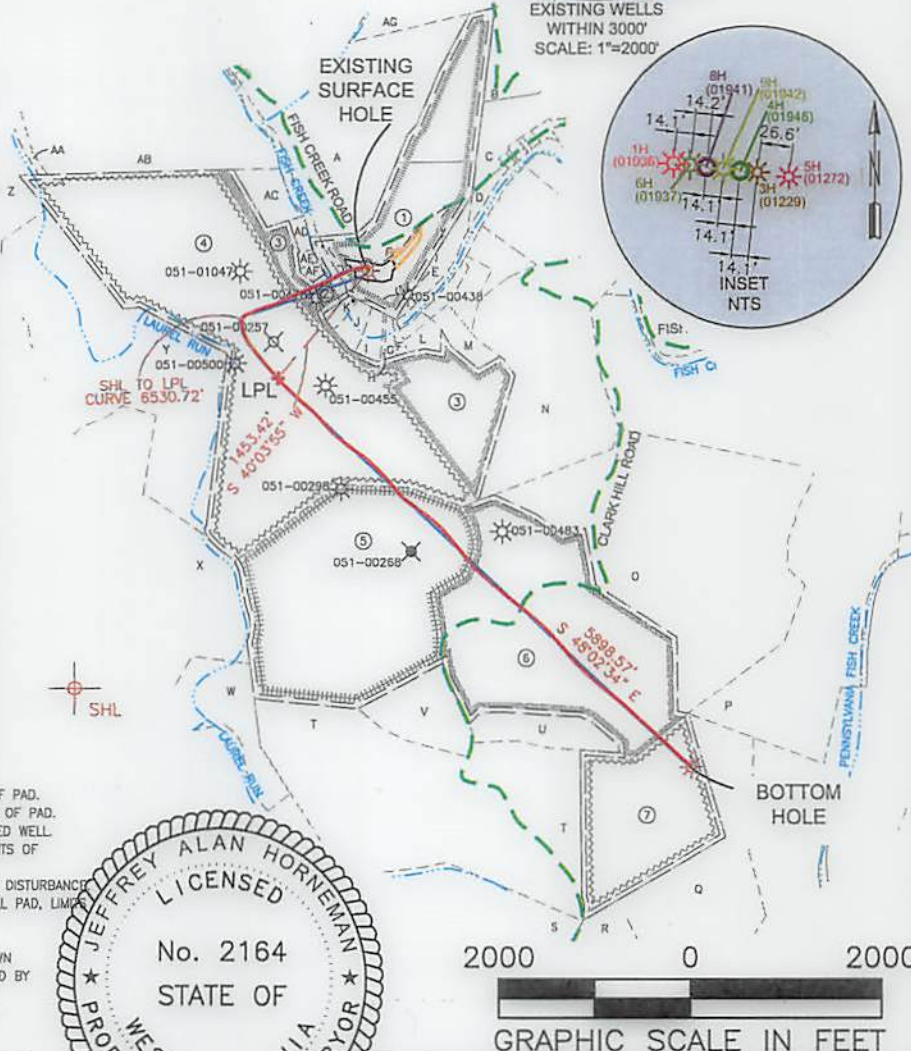
Table with 2 columns: Location Type (SHL, LPL, BHL) and UTM Coordinates (NORTHING, EASTING).

GRID NORTH UTM, NAD83 DATUM, ZONE 17, US FT



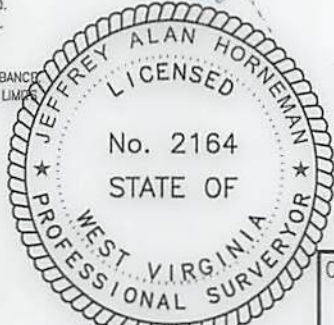
WELL BONE TABLE FOR SURFACE / ROYALTY OWNERS with columns: TRACT, SURFACE OWNER (S), ROYALTY OWNER (R), TAX PARCEL, ACRES.

ADJOINING OWNERS TABLE with columns: TRACT, SURFACE OWNER, TAX PARCEL, ACRES.



- WELL RESTRICTIONS: 1. NO OCCUPIED DWELLINGS > 2500 SQ. FT. WITHIN 525 FEET OF CENTER OF PAD. 2. NO AGRICULTURE BUILDINGS > 2500 SQ. FT. WITHIN 525 FEET OF CENTER OF PAD. 3. WATER WELLS OR DEVELOPED SPRINGS ARE WITHIN 364 FEET OF PROPOSED WELL. 4. PERENNIAL STREAMS, LAKES, PONDS, OR RESERVOIRS ARE WITHIN THE LIMITS OF DISTURBANCE. 5. NO NATURALLY PRODUCING TROUT STREAM WITHIN 300 FEET OF LIMITS OF DISTURBANCE. 6. NO GROUND INTAKE OR PUBLIC WATER SUPPLY WITHIN 1000 FEET OF WELL PAD, LIMITS OF DISTURBANCE, E & S CONTROLS OR PUBLIC WATER SUPPLY.

NOTES ON SURVEY: 1. SURFACE AND ROYALTY OWNER INFORMATION AND THEIR BOUNDARIES SHOWN HEREIN WERE PLOTTED FROM DEEDS AND/OR TAX PARCEL MAPS PROVIDED BY CLIENT AND/OR FIELD LOCATIONS. 2. THIS PLAT DOES NOT REPRESENT A BOUNDARY SURVEY OF THE PARCELS SHOWN HEREIN. 3. ALL INSETS ARE GRID NORTH UNLESS OTHERWISE DEPICTED. I, THE UNDERSIGNED, HEREBY CERTIFY THAT THIS PLAT IS CORRECT TO THE BEST OF MY KNOWLEDGE AND BELIEF AND SHOWS ALL THE INFORMATION REQUIRED BY LAW AND REGULATIONS ISSUED AND PRESCRIBED BY THE DEPARTMENT OF ENVIRONMENTAL PROTECTION.



P.S. 2164 (+) DENOTES LOCATION OF WELL ON UNITED STATES TOPOGRAPHIC MAPS WVDEP OFFICE OF OIL & GAS 601 57TH STREET CHARLESTON, WV 25034

MINIMUM DEGREE OF ACCURACY: 1/200 PROVEN SURVEY SOURCE OF ELEVATION: GRADE GPS (NAVD 88, US FT)

COMPANY: SWN Production Company, LLC COLUMBIA GAS TRANSMISSION MSH OPERATOR'S WELL #: 6H API WELL #: 47 051 01937 STATE COUNTY PERMIT

WELL TYPE: OIL [] WASTE DISPOSAL [] PRODUCTION [x] DEEP [] GAS [x] LIQUID INJECTION [] STORAGE [] SHALLOW [x] WATERSHED: UPPER OHIO SOUTH DISTRICT: LIBERTY COUNTY: MARSHALL COUNTY SURFACE OWNER: COLUMBIA GAS TRANSMISSION, LLC OIL & GAS ROYALTY OWNER: WILMA M GATTEN, F/K/A WILMA G KESTNER, A WIDOW DRILL [] DRILL DEEPER [] REDRILL [] FRACTURE OR STIMULATE [] PLUG OFF OLD FORMATION [] PERFORATE NEW FORMATION [] CONVERT [] PLUG & ABANDON [] CLEAN OUT & REPLUG [] OTHER CHANGE [x] (SPECIFY) AS-DRILLED TARGET FORMATION: MARCELLUS ESTIMATED DEPTH: 6,662' TVD 13,065' TMD

WELL OPERATOR: SWN PRODUCTION COMPANY, LLC DESIGNATED AGENT: BRITTANY WOODY ADDRESS: P.O. BOX 1300 CITY: JANE LEW STATE: WV ZIP CODE: 26378

LEGEND: PROPOSED SURFACE HOLE / BOTTOM HOLE, EXISTING / PRODUCING WELLHEAD, ABANDONED WELL, PLUGGED & ABANDONED WELL, LPL: LANDING POINT LOCATION, SURVEYED BOUNDARY, DRILLING UNIT, LEASE BOUNDARY, EXISTING PATH, PROPOSED PATH, EXISTING WATER WELL, EXISTING SPRING, REVISIONS, DATE: 07-27-2018, FILE NO: 16-54, DRAWN BY: JMB, SCALE: 1" = 2000', DRAWING NO: 1, WELL LOCATION PLAT 1

