

Location: Ohio County, WV
Field: Ohio
Facility: Roth OHI Pad

Slot: 10H
Well: Roth OHI 10H
Wellbore: Roth OHI 10H AWB

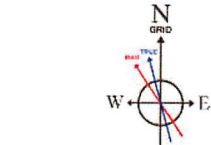
Plot reference wellpath is Roth OHI 10H AWB	Grid System: NAD83 / UTM Zone 17 North, US feet
True vertical depths are referenced to SDC40 (KB)	North Reference: Grid north
Reference wellpath measured depths are referenced to SDC40 (KB)	Scale: True distance
SDC40 (KB) to Mean Sea Level: 1029.9 feet	Coordinates are in feet referenced to Slot
Mean Sea Level to Ground level (At Slot: 10H): -1003.9 feet	Depths are in feet
Offset wellpath MDs are referenced to each path's default MD datum	Created by: scurden on 2022-11-13 Database: WA_MPL_EASTERNUS_Defn

Location Information					
Facility Name	Grid East (US ft)	Grid North (US ft)	Latitude	Longitude	
Roth OHI Pad	1727905.720	14581925.640	40°09'4.1151"N	80°41'12.8573"W	
Slot	Local N (ft)	Local E (ft)	Grid East (US ft)	Grid North (US ft)	Latitude
10H	2.37	-20.20	1727885.531	14581928.012	40°09'4.1393"N
SDC40 (KB) to Ground level (At Slot: 10H)	26ft				
Mean Sea Level to Ground level (At Slot: 10H)	-1003.9ft				
SDC40 (KB) to Mean Sea Level	1029.9ft				

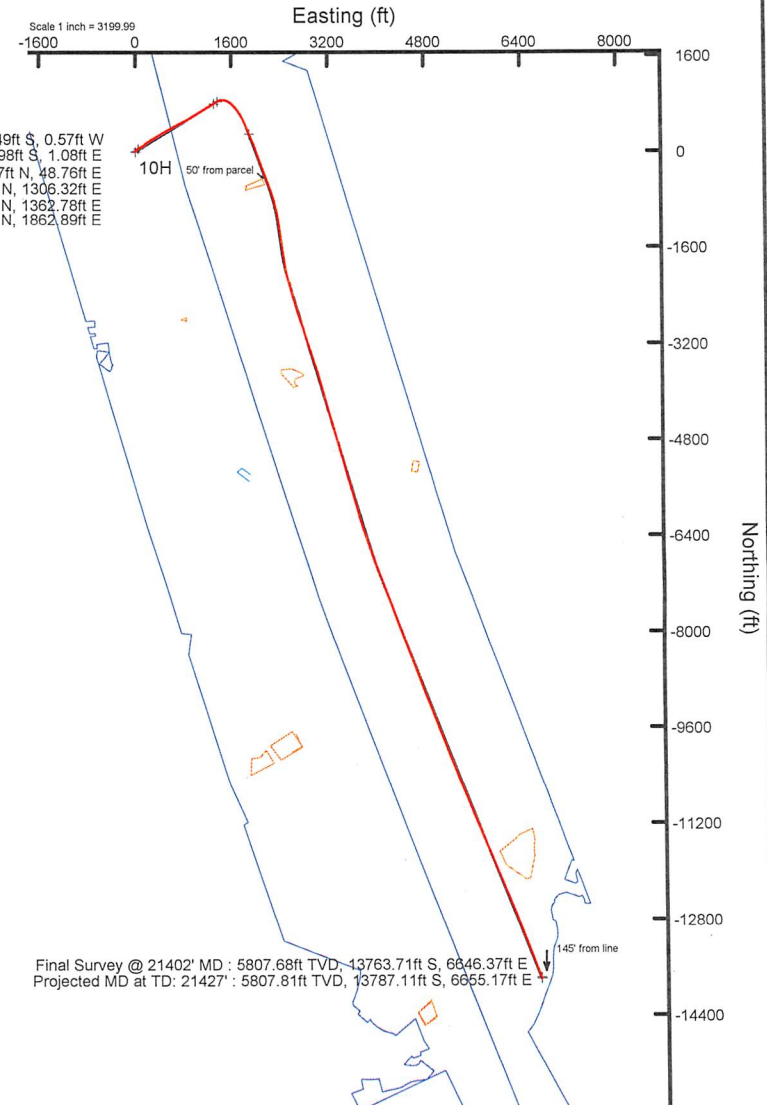
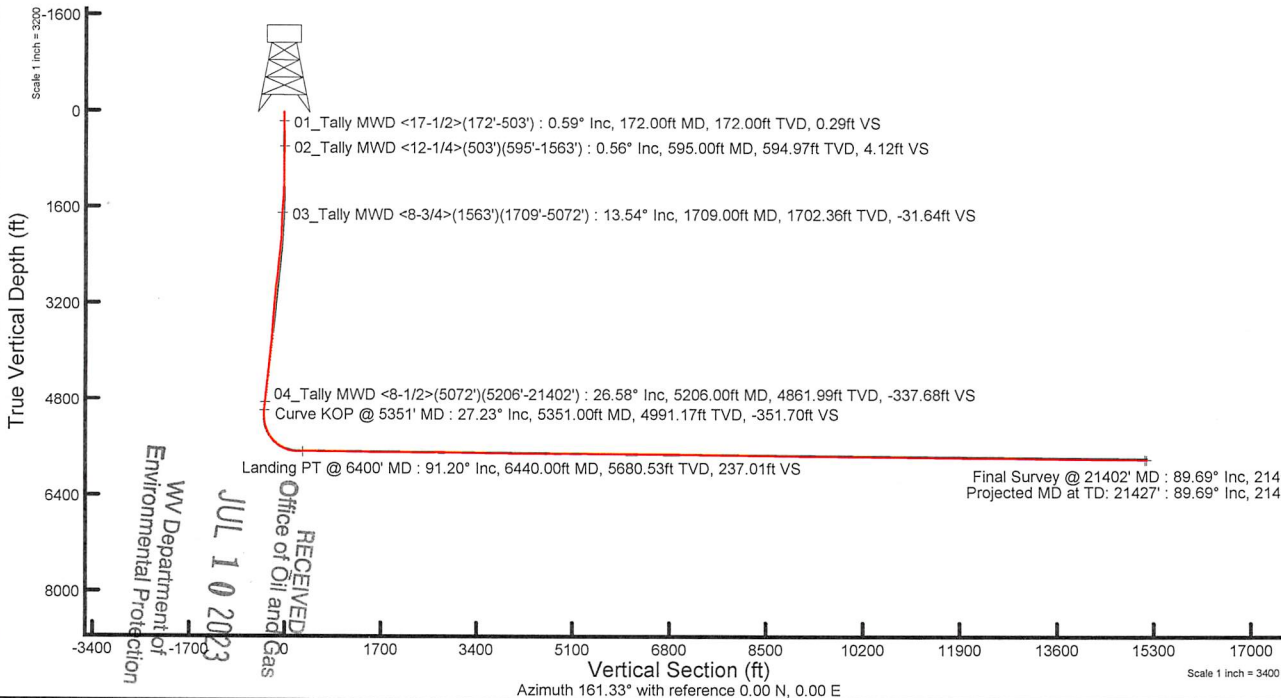
Bottom Hole Location									
MD (ft)	Inc (°)	Az (°)	TVD (ft)	Local N (ft)	Local E (ft)	Grid East (US ft)	Grid North (US ft)	Latitude	Longitude
21427.00	89.690	159.370	5807.81	-13787.11	6655.17	1734538.09	14568146.33	40°06'47.6544"N	80°39'48.0845"W

01_Tally MWD <17-1/2>(172'-503') : 172.00ft TVD, 0.49ft S, 0.57ft W
 02_Tally MWD <12-1/4>(503')(595'-1563') : 594.97ft TVD, 3.98ft S, 1.08ft E
 03_Tally MWD <8-3/4>(1563')(1709'-5072') : 1702.36ft TVD, 49.87ft N, 48.76ft E
 04_Tally MWD <8-1/2>(5072')(5206'-21402') : 4861.99ft TVD, 797.84ft N, 1306.32ft E
 Curve KOP @ 5351' MD : 4991.17ft TVD, 831.72ft N, 1362.78ft E
 Landing PT @ 6400' MD : 5680.53ft TVD, 379.29ft N, 1862.89ft E

API: 47-069-00339-0000
 BH Job #: 111588272
 Rig: SDC 40
 Duration: 12/8/2022-12/11/2022



HDGM2022v1.0 (1990.0 to 2023.0) Dip: 67.06° Field: 52032.4 nT
 Magnetic North is 8.02 degrees West of True North (at 11/21/2022)
 Grid North is 0.20 degrees East of True North
 To correct azimuth from True to Grid subtract 0.20 degrees
 To correct azimuth from Magnetic to Grid subtract 8.22 degrees



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Well Name: Roth OHI 10H 47069003390000

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	0.00	0.00	423.00	423.00	
Top of Salt Water	1119.00	1119.00	NA	NA	
Pittsburgh Coal	179.00	179.00	184.00	184.00	
Pottsville (ss)	368.00	368.00	422.00	422.00	
Raven Cliff (ss)	685.00	685.00	931.00	931.00	
Maxton (ss)	1094.00	1094.00	1174.00	1174.00	
Big Injun (ss)	1326.00	1326.00	1484.00	1485.00	
Berea (siltstone)	1791.00	1782.00	1887.00	1875.00	
Rhinestreet (shale)	5504.00	5127.00	5794.00	5377.00	
Cashaqua (shale)	5794.00	5377.00	5851.00	5422.00	
Middlesex (shale)	5851.00	5422.00	5946.00	5493.00	
Burket (shale)	5946.00	5493.00	5968.00	5508.00	
Tully (ls)	5968.00	5508.00	6039.00	5553.00	
Mahantango (shale)	6039.00	5553.00	6189.00	5628.00	
Marcellus (shale)	6189.00	5628.00	NA	NA	GAS

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REFERENCE WELLPATH IDENTIFICATION			
Operator	SWN PRODUCTION COMPANY, LLC	Well	Roth OHI 10H
Field	Ohio	API	47-069-00339-0000
Facility	Roth OHI Pad	Wellbore	Roth OHI 10H AWB
Slot	10H		

REPORT SETUP INFORMATION			
Projection System	NAD83 / UTM Zone 17 North, US feet	Software System	WellArchitect® 6.0
North Reference	Grid	User	Scurdan
Scale	0.999609	Report Generated	12/19/2022 at 2:50:26 PM
Convergence at slot	0.20° East	Database	WA_MPL_EASTERNUS_Defn

WELLPATH LOCATION						
	Local coordinates		Grid coordinates		Geographic coordinates	
	North[ft]	East[ft]	Easting[US ft]	Northing[US ft]	Latitude	Longitude
Slot Location	2.37	-20.20	1727885.53	14581928.01	40°09'4.1393"N	80°41'13.1173"W
Facility Reference Pt			1727905.72	14581925.64	40°09'4.1151"N	80°41'12.8573"W
Field Reference Pt			0.00	0.00	0°00'0.0000"	85°29'19.4780"W

WELLPATH DATUM			
Calculation method	Minimum curvature	SDC40 (KB) to Facility Vertical Datum	1029.90ft
Horizontal Reference Pt	Slot	SDC40 (KB) to Mean Sea Level	1029.90ft
Vertical Reference Pt	SDC40 (KB)	SDC40 (KB) to Ground Level at Slot (10H)	26.00ft
MD Reference Pt	SDC40 (KB)	Section Origin	N 0.00, E 0.00 ft
Field Vertical Reference	Mean Sea Level	Section Azimuth	161.33°

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Field	Ohio	API	47-069-00339-0000
Facility	Roth OHI Pad	Wellbore	Roth OHI 10H AWB
Slot	10H		

WELLPATH DATA (230 stations) † = interpolated, ‡ = extrapolated station

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]
0.00	0.00	228.920	0.00	0.00	0.00	0.00	1727885.53	14581928.01	40°09'4.1393"N	80°41'13.1173"W	0.00	0.000	0.00	0.00	0.00
26.00	0.000	228.920	26.00	0.00	0.00	0.00	1727885.53	14581928.01	40°09'4.1393"N	80°41'13.1173"W	0.00	0.000	0.00	0.00	0.00
172.00	0.590	228.920	172.00	0.29	-0.49	-0.57	1727884.96	14581927.52	40°09'4.1344"N	80°41'13.1246"W	0.75	228.920	0.40	0.40	0.00
232.00	0.410	168.790	232.00	0.62	-0.91	-0.76	1727884.77	14581927.10	40°09'4.1303"N	80°41'13.1271"W	1.18	219.861	0.87	-0.30	-100.22
323.00	0.900	165.330	322.99	1.65	-1.92	-0.51	1727885.02	14581926.09	40°09'4.1203"N	80°41'13.1240"W	1.99	194.985	0.54	0.54	-3.80
412.00	0.820	142.380	411.98	2.95	-3.10	0.05	1727885.58	14581924.91	40°09'4.1087"N	80°41'13.1168"W	3.10	179.033	0.39	-0.09	-25.79
491.00	0.660	137.900	490.97	3.90	-3.88	0.70	1727886.23	14581924.13	40°09'4.1009"N	80°41'13.1084"W	3.95	169.750	0.22	-0.20	-5.67
503.00	0.600	153.570	502.97	4.03	-3.99	0.78	1727886.31	14581924.02	40°09'4.0998"N	80°41'13.1075"W	4.07	168.989	1.51	-0.50	130.58
595.00	0.560	11.110	594.97	4.12	-3.98	1.08	1727886.61	14581924.03	40°09'4.0999"N	80°41'13.1036"W	4.13	164.855	1.19	-0.04	-154.85
685.00	1.310	5.320	684.96	2.80	-2.53	1.26	1727886.79	14581925.49	40°09'4.1143"N	80°41'13.1012"W	2.82	153.528	0.84	0.83	-6.43
776.00	1.660	1.860	775.93	0.61	-0.17	1.40	1727886.93	14581927.84	40°09'4.1375"N	80°41'13.0993"W	1.41	97.057	0.40	0.38	-3.80
867.00	1.240	338.350	866.90	-1.61	2.06	1.08	1727886.61	14581930.07	40°09'4.1596"N	80°41'13.1033"W	2.32	27.598	0.79	-0.46	-25.84
958.00	1.070	266.590	957.88	-2.81	2.92	-0.13	1727885.40	14581930.94	40°09'4.1682"N	80°41'13.1189"W	2.93	357.360	1.50	-0.19	-78.86
1048.00	1.700	248.160	1047.86	-2.96	2.38	-2.21	1727883.32	14581930.39	40°09'4.1629"N	80°41'13.1457"W	3.25	317.056	0.85	0.70	-20.48
1140.00	0.900	245.320	1139.83	-2.81	1.57	-4.14	1727881.40	14581929.58	40°09'4.1549"N	80°41'13.1705"W	4.42	290.765	0.87	-0.87	-3.09
1230.00	1.190	42.270	1229.83	-3.19	1.96	-4.15	1727881.38	14581929.98	40°09'4.1588"N	80°41'13.1706"W	4.59	295.335	2.28	0.32	174.39
1321.00	4.110	50.590	1320.72	-4.80	4.73	-0.99	1727884.54	14581932.75	40°09'4.1861"N	80°41'13.1299"W	4.84	348.145	3.23	3.21	9.14
1412.00	7.470	48.800	1411.24	-8.23	10.70	5.98	1727891.51	14581938.71	40°09'4.2448"N	80°41'13.0398"W	12.26	29.186	3.70	3.69	-1.97
1502.00	10.380	44.450	1500.15	-14.14	20.35	16.06	1727901.59	14581948.35	40°09'4.3398"N	80°41'12.9095"W	25.92	38.285	3.32	3.23	-4.83
1563.00	12.050	44.240	1559.98	-19.52	28.83	24.35	1727909.87	14581956.83	40°09'4.4234"N	80°41'12.8024"W	37.74	40.184	2.74	2.74	-0.34
1709.00	13.540	53.700	1702.36	-31.64	49.87	48.76	1727934.27	14581977.86	40°09'4.6304"N	80°41'12.4871"W	69.75	44.355	1.76	1.02	6.48
1800.00	14.570	59.630	1790.64	-37.19	61.97	67.22	1727952.73	14581989.95	40°09'4.7493"N	80°41'12.2488"W	91.43	47.331	1.94	1.13	6.52
1890.00	14.310	62.550	1877.80	-41.18	72.82	86.86	1727972.36	14582000.80	40°09'4.8558"N	80°41'11.9954"W	113.35	50.027	0.86	-0.29	3.24
1981.00	13.070	66.180	1966.22	-43.82	82.16	106.26	1727991.75	14582010.14	40°09'4.9475"N	80°41'11.7452"W	134.31	52.289	1.66	-1.36	3.99
2071.00	12.490	59.890	2053.99	-46.66	91.15	123.99	1728009.47	14582019.13	40°09'5.0357"N	80°41'11.5165"W	153.89	53.678	1.67	-0.64	-6.99
2162.00	14.260	52.270	2142.53	-52.28	102.95	141.36	1728026.84	14582030.92	40°09'5.1517"N	80°41'11.2921"W	174.88	53.937	2.74	1.95	-8.37
2253.00	17.020	49.690	2230.15	-60.85	118.42	160.39	1728045.86	14582046.39	40°09'5.3040"N	80°41'11.0464"W	199.37	53.559	3.13	3.03	-2.84
2346.00	19.860	51.470	2318.37	-71.24	137.07	183.13	1728068.59	14582065.03	40°09'5.4875"N	80°41'10.7527"W	228.75	53.185	3.11	3.05	1.91
2437.00	23.140	55.580	2403.03	-81.35	156.82	209.98	1728095.43	14582084.77	40°09'5.6816"N	80°41'10.4060"W	262.08	53.247	3.96	3.60	4.52
2527.00	26.340	56.840	2484.76	-91.14	177.74	241.29	1728126.73	14582105.68	40°09'5.8873"N	80°41'10.0018"W	299.69	53.624	3.60	3.56	1.40

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REFERENCE WELLPATH IDENTIFICATION

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Field	Ohio	API	47-069-00339-0000
Facility	Roth OHI Pad	Wellbore	Roth OHI 10H AWB
Slot	10H		

WELLPATH DATA (230 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]
2619.00	28.200	59.500	2566.53	-100.71	199.94	277.11	1728162.53	14582127.87	40°09'6.1054"N	80°41'9.5395"W	341.71	54.189	2.42	2.02	2.89
2709.00	28.820	61.040	2645.62	-108.94	221.23	314.42	1728199.82	14582149.16	40°09'6.3146"N	80°41'9.0582"W	384.45	54.868	1.07	0.69	1.71
2800.00	29.630	60.330	2725.03	-117.15	242.99	353.15	1728238.55	14582170.91	40°09'6.5282"N	80°41'8.5583"W	428.67	55.470	0.97	0.89	-0.78
2890.00	31.190	58.350	2802.65	-126.63	266.23	392.33	1728277.70	14582194.14	40°09'6.7565"N	80°41'8.0528"W	474.13	55.839	2.06	1.73	-2.20
2981.00	30.560	57.420	2880.76	-137.49	291.06	431.88	1728317.24	14582218.95	40°09'7.0004"N	80°41'7.5423"W	520.80	56.023	0.87	-0.69	-1.02
3072.00	28.630	57.820	2959.88	-148.14	315.13	469.83	1728355.18	14582243.01	40°09'7.2370"N	80°41'7.0525"W	565.72	56.149	2.13	-2.12	0.44
3162.00	26.770	62.630	3039.57	-156.25	335.93	506.09	1728391.42	14582263.81	40°09'7.4413"N	80°41'6.5846"W	607.43	56.424	3.23	-2.07	5.34
3254.00	27.560	60.840	3121.43	-163.26	355.83	543.07	1728428.39	14582283.70	40°09'7.6366"N	80°41'6.1074"W	649.26	56.767	1.24	0.86	-1.95
3344.00	26.740	59.520	3201.51	-171.19	376.24	578.70	1728464.01	14582304.11	40°09'7.8371"N	80°41'5.6476"W	690.26	56.970	1.13	-0.91	-1.47
3438.00	25.100	62.000	3286.05	-178.75	396.33	614.54	1728499.83	14582324.19	40°09'8.0344"N	80°41'5.1852"W	731.26	57.181	2.09	-1.74	2.64
3528.00	24.850	60.640	3367.64	-185.36	414.57	647.87	1728533.15	14582342.42	40°09'8.2134"N	80°41'4.7550"W	769.16	57.385	0.70	-0.28	-1.51
3619.00	24.650	60.360	3450.28	-192.51	433.33	681.03	1728566.30	14582361.17	40°09'8.3976"N	80°41'4.3271"W	807.20	57.532	0.25	-0.22	-0.31
3709.00	24.630	62.480	3532.08	-198.97	451.27	713.98	1728599.23	14582379.11	40°09'8.5738"N	80°41'3.9021"W	844.64	57.705	0.98	-0.02	2.36
3800.00	25.330	62.850	3614.57	-204.76	468.92	748.12	1728633.35	14582396.75	40°09'8.7470"N	80°41'3.4616"W	882.93	57.921	0.79	0.77	0.41
3891.00	27.740	63.370	3695.98	-210.56	487.30	784.37	1728669.60	14582415.12	40°09'8.9273"N	80°41'2.9938"W	923.42	58.149	2.66	2.65	0.57
3981.00	29.470	62.510	3774.99	-216.86	506.91	822.74	1728707.95	14582434.72	40°09'9.1198"N	80°41'2.4988"W	966.36	58.362	1.98	1.92	-0.96
4072.00	29.610	60.080	3854.17	-224.68	528.45	862.08	1728747.28	14582456.26	40°09'9.3313"N	80°41'1.9912"W	1011.16	58.492	1.33	0.15	-2.67
4162.00	29.450	59.550	3932.48	-233.53	550.76	900.43	1728785.61	14582478.55	40°09'9.5503"N	80°41'1.4963"W	1055.51	58.548	0.34	-0.18	-0.59
4253.00	26.830	60.000	4012.71	-242.14	572.37	937.50	1728822.67	14582500.15	40°09'9.7626"N	80°41'1.0179"W	1098.42	58.595	2.89	-2.88	0.49
4344.00	26.450	57.180	4094.05	-251.12	593.62	972.32	1728857.47	14582521.40	40°09'9.9714"N	80°41'0.5685"W	1139.21	58.595	1.45	-0.42	-3.10
4437.00	26.470	58.560	4177.31	-260.77	615.66	1007.41	1728892.55	14582543.43	40°09'10.1879"N	80°41'0.1156"W	1180.64	58.570	0.66	0.02	1.48
4527.00	26.730	59.280	4257.79	-269.43	636.46	1041.93	1728927.05	14582564.22	40°09'10.3923"N	80°40'59.6702"W	1220.94	58.581	0.46	0.29	0.80
4620.00	26.560	57.500	4340.91	-278.76	658.31	1077.44	1728962.55	14582586.07	40°09'10.6070"N	80°40'59.2118"W	1262.64	58.575	0.88	-0.18	-1.91
4710.00	27.070	57.910	4421.23	-288.33	680.00	1111.76	1728996.86	14582607.75	40°09'10.8201"N	80°40'58.7688"W	1303.23	58.548	0.60	0.57	0.46
4801.00	27.220	59.280	4502.21	-297.48	701.64	1147.20	1729032.28	14582629.37	40°09'11.0327"N	80°40'58.3115"W	1344.75	58.550	0.71	0.16	1.51
4892.00	26.910	57.710	4583.25	-306.67	723.27	1182.50	1729067.56	14582651.00	40°09'11.2452"N	80°40'57.8558"W	1386.15	58.548	0.86	-0.34	-1.73
4982.00	27.850	58.360	4663.16	-316.19	745.18	1217.61	1729102.66	14582672.90	40°09'11.4604"N	80°40'57.4026"W	1427.54	58.533	1.10	1.04	0.72
5072.00	27.760	60.110	4742.77	-324.98	766.65	1253.68	1729138.72	14582694.36	40°09'11.6714"N	80°40'56.9371"W	1469.51	58.553	0.91	-0.10	1.94
5206.00	26.580	58.560	4861.99	-337.68	797.84	1306.32	1729191.33	14582725.54	40°09'11.9777"N	80°40'56.2578"W	1530.69	58.585	1.03	-0.88	-1.16
5260.00	27.030	59.340	4910.19	-342.90	810.40	1327.18	1729212.19	14582738.09	40°09'12.1011"N	80°40'55.9885"W	1555.04	58.591	1.06	0.83	1.44

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Actual Wellpath Report

Roth OHI 10H AWP Proj:21427'

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REFERENCE WELLPATH IDENTIFICATION

Operator	SWN PRODUCTION COMPANY, LLC	Well	Roth OHI 10H
Field	Ohio	API	47-069-00339-0000
Facility	Roth OHI Pad	Wellbore	Roth OHI 10H AWB
Slot	10H		

WELLPATH DATA (230 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]
5351.00	27.230	58.830	4991.17	-351.70	831.72	1362.78	1729247.78	14582759.40	40°09'12.3105"N	80°40'55.5291"W	1596.54	58.604	0.34	0.22	-0.56
5441.00	27.250	70.270	5071.25	-356.54	849.34	1399.82	1729284.80	14582777.02	40°09'12.4834"N	80°40'55.0513"W	1637.34	58.753	5.81	0.02	12.71
5532.00	27.610	85.220	5152.11	-351.86	858.15	1440.49	1729325.46	14582785.82	40°09'12.5689"N	80°40'54.5271"W	1676.73	59.216	7.56	0.40	16.43
5623.00	29.280	99.470	5232.22	-336.29	856.24	1483.51	1729368.46	14582783.91	40°09'12.5486"N	80°40'53.9732"W	1712.88	60.008	7.66	1.84	15.66
5714.00	31.700	113.360	5310.73	-309.75	843.08	1527.47	1729412.40	14582770.76	40°09'12.4170"N	80°40'53.4076"W	1744.69	61.104	8.17	2.66	15.26
5805.00	35.950	121.980	5386.35	-273.04	819.43	1572.12	1729457.04	14582747.12	40°09'12.1816"N	80°40'52.8337"W	1772.86	62.470	7.03	4.67	9.47
5895.00	40.510	134.640	5457.14	-226.40	784.82	1615.42	1729500.32	14582712.53	40°09'11.8382"N	80°40'52.2776"W	1795.98	64.088	10.05	5.07	14.07
5986.00	49.750	138.310	5521.28	-167.90	738.01	1659.65	1729544.53	14582665.74	40°09'11.3740"N	80°40'51.7102"W	1816.34	66.026	10.55	10.15	4.03
6076.00	57.620	144.480	5574.57	-99.76	681.31	1704.67	1729589.53	14582609.06	40°09'10.8121"N	80°40'51.1330"W	1835.78	68.215	10.34	8.74	6.86
6167.00	63.110	147.430	5619.56	-23.53	615.78	1748.88	1729633.73	14582543.55	40°09'10.1629"N	80°40'50.5667"W	1854.12	70.603	6.66	6.03	3.24
6259.00	70.980	152.800	5655.44	59.49	542.36	1790.94	1729675.77	14582470.16	40°09'9.4359"N	80°40'50.0285"W	1871.26	73.152	10.10	8.55	5.84
6353.00	83.280	157.680	5676.35	150.42	459.29	1829.15	1729713.96	14582387.13	40°09'8.6137"N	80°40'49.5403"W	1885.93	75.905	14.03	13.09	5.19
6440.00	91.200	156.590	5680.53	237.01	379.29	1862.89	1729747.69	14582307.15	40°09'7.8219"N	80°40'49.1095"W	1901.11	78.492	9.19	9.10	-1.25
6531.00	91.480	156.710	5678.40	327.68	295.77	1898.95	1729783.73	14582223.66	40°09'6.9952"N	80°40'48.6490"W	1921.84	81.147	0.33	0.31	0.13
6621.00	89.660	156.580	5677.51	417.37	213.15	1934.62	1729819.39	14582141.08	40°09'6.1775"N	80°40'48.1934"W	1946.33	83.713	2.03	-2.02	-0.14
6712.00	89.480	158.610	5678.19	508.17	129.02	1969.30	1729854.06	14582056.98	40°09'5.3450"N	80°40'47.7506"W	1973.52	86.251	2.24	-0.20	2.23
6802.00	89.290	159.750	5679.16	598.10	44.91	2001.29	1729886.03	14581972.90	40°09'4.5126"N	80°40'47.3426"W	2001.79	88.715	1.28	-0.21	1.27
6893.00	89.480	160.030	5680.13	689.07	-40.54	2032.58	1729917.31	14581887.49	40°09'3.6671"N	80°40'46.9437"W	2032.98	91.143	0.37	0.21	0.31
6983.00	89.690	160.000	5680.79	779.04	-125.12	2063.33	1729948.05	14581802.94	40°09'2.8302"N	80°40'46.5515"W	2067.12	93.470	0.24	0.23	-0.03
7074.00	89.350	159.770	5681.55	870.01	-210.56	2094.63	1729979.34	14581717.53	40°09'1.9847"N	80°40'46.1525"W	2105.19	95.740	0.45	-0.37	-0.25
7165.00	89.290	159.560	5682.63	960.97	-295.89	2126.25	1730010.94	14581632.24	40°09'1.1404"N	80°40'45.7492"W	2146.74	97.922	0.24	-0.07	-0.23
7256.00	89.260	159.590	5683.78	1051.92	-381.16	2158.00	1730042.69	14581547.00	40°09'0.2966"N	80°40'45.3442"W	2191.41	100.017	0.05	-0.03	0.03
7347.00	89.200	158.870	5685.00	1142.85	-466.24	2190.27	1730074.94	14581461.96	40°08'59.4547"N	80°40'44.9327"W	2239.34	102.017	0.79	-0.07	-0.79
7438.00	89.570	158.970	5685.98	1233.76	-551.14	2223.00	1730107.66	14581377.09	40°08'58.6145"N	80°40'44.5152"W	2290.30	103.924	0.42	0.41	0.11
7535.00	89.630	163.040	5686.66	1330.74	-642.84	2254.56	1730139.21	14581285.43	40°08'57.7073"N	80°40'44.1129"W	2344.42	105.914	4.20	0.06	4.20
7631.00	88.430	161.610	5688.28	1426.70	-734.29	2283.71	1730168.34	14581194.01	40°08'56.8025"N	80°40'43.7419"W	2398.85	107.824	1.94	-1.25	-1.49
7728.00	89.850	166.030	5689.74	1523.57	-827.41	2310.72	1730195.35	14581100.93	40°08'55.8813"N	80°40'43.3983"W	2454.40	109.701	4.79	1.46	4.56
7825.00	88.800	164.690	5690.88	1620.32	-921.25	2335.24	1730219.85	14581007.12	40°08'54.9531"N	80°40'43.0870"W	2510.39	111.529	1.75	-1.08	-1.38
7921.00	89.600	169.810	5692.22	1715.77	-1014.84	2356.42	1730241.02	14580913.57	40°08'54.0275"N	80°40'42.8187"W	2565.66	113.300	5.40	0.83	5.33
8017.00	88.980	170.090	5693.41	1810.68	-1109.36	2373.17	1730257.76	14580819.08	40°08'53.0928"N	80°40'42.6074"W	2619.66	115.054	0.71	-0.65	0.29

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REFERENCE WELLPATH IDENTIFICATION

Operator	SWN PRODUCTION COMPANY, LLC	Well	Roth OHI 10H
Field	Ohio	API	47-069-00339-0000
Facility	Roth OHI Pad	Wellbore	Roth OHI 10H AWB
Slot	10H		

WELLPATH DATA (230 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]
8114.00	91.260	171.940	5693.21	1906.28	-1205.16	2388.31	1730272.91	14580723.32	40°08'52.1456"N	80°40'42.4168"W	2675.16	116.776	3.03	2.35	1.91
8211.00	89.380	171.370	5692.67	2001.71	-1301.13	2402.39	1730286.98	14580627.39	40°08'51.1967"N	80°40'42.2400"W	2732.11	118.440	2.03	-1.94	-0.59
8308.00	90.250	173.520	5692.98	2096.88	-1397.28	2415.14	1730299.72	14580531.28	40°08'50.2461"N	80°40'42.0802"W	2790.22	120.052	2.39	0.90	2.22
8404.00	88.770	169.360	5693.80	2191.36	-1492.18	2429.43	1730314.00	14580436.41	40°08'49.3078"N	80°40'41.9007"W	2851.09	121.559	4.60	-1.54	-4.33
8501.00	89.200	174.450	5695.52	2286.67	-1588.17	2443.08	1730327.65	14580340.47	40°08'48.3587"N	80°40'41.7294"W	2913.92	123.027	5.27	0.44	5.25
8597.00	90.580	171.790	5695.71	2380.63	-1683.47	2454.58	1730339.14	14580245.21	40°08'47.4166"N	80°40'41.5858"W	2976.41	124.444	3.12	1.44	-2.77
8693.00	88.490	169.570	5696.48	2475.34	-1778.19	2470.12	1730354.68	14580150.52	40°08'46.4800"N	80°40'41.3900"W	3043.59	125.749	3.18	-2.18	-2.31
8790.00	90.340	173.390	5697.48	2570.80	-1874.09	2484.49	1730369.04	14580054.66	40°08'45.5318"N	80°40'41.2095"W	3112.06	127.028	4.38	1.91	3.94
8887.00	92.000	168.470	5695.49	2666.39	-1969.82	2499.77	1730384.32	14579958.96	40°08'44.5852"N	80°40'41.0172"W	3182.62	128.238	5.35	1.71	-5.07
8987.00	89.630	167.350	5694.07	2765.71	-2067.59	2520.71	1730405.25	14579861.24	40°08'43.6184"N	80°40'40.7521"W	3260.20	129.360	2.62	-2.37	-1.12
9083.00	88.770	163.120	5695.41	2861.46	-2160.39	2545.17	1730429.70	14579768.47	40°08'42.7005"N	80°40'40.4415"W	3338.44	130.325	4.50	-0.90	-4.41
9179.00	88.860	163.300	5697.40	2957.38	-2252.27	2572.89	1730457.41	14579676.62	40°08'41.7914"N	80°40'40.0887"W	3419.43	131.198	0.21	0.09	0.19
9276.00	89.320	164.690	5698.94	3054.26	-2345.50	2599.64	1730484.14	14579583.43	40°08'40.8692"N	80°40'39.7488"W	3501.35	132.058	1.51	0.47	1.43
9372.00	89.110	164.130	5700.25	3150.11	-2437.96	2625.43	1730509.93	14579491.01	40°08'39.9546"N	80°40'39.4209"W	3582.81	132.880	0.62	-0.22	-0.58
9469.00	89.260	164.300	5701.63	3246.98	-2531.29	2651.82	1730536.31	14579397.72	40°08'39.0313"N	80°40'39.0855"W	3666.00	133.668	0.23	0.15	0.18
9566.00	90.340	163.040	5701.97	3343.90	-2624.38	2679.09	1730563.57	14579304.67	40°08'38.1105"N	80°40'38.7387"W	3750.32	134.409	1.71	1.11	-1.30
9662.00	88.460	162.130	5702.98	3439.86	-2715.96	2707.82	1730592.28	14579213.12	40°08'37.2044"N	80°40'38.3730"W	3835.20	135.086	2.18	-1.96	-0.95
9759.00	88.830	161.920	5705.27	3536.83	-2808.20	2737.74	1730622.20	14579120.91	40°08'36.2918"N	80°40'37.9920"W	3921.89	135.728	0.44	0.38	-0.22
9855.00	88.860	160.640	5707.21	3632.81	-2899.11	2768.55	1730652.99	14579030.05	40°08'35.3924"N	80°40'37.5996"W	4008.70	136.320	1.33	0.03	-1.33
9952.00	89.600	164.310	5708.51	3729.76	-2991.58	2797.75	1730682.18	14578937.61	40°08'34.4776"N	80°40'37.2279"W	4095.97	136.918	3.86	0.76	3.78
10049.00	89.780	160.130	5709.03	3826.73	-3083.92	2827.36	1730711.78	14578845.30	40°08'33.5639"N	80°40'36.8510"W	4183.84	137.485	4.31	0.19	-4.31
10145.00	88.830	163.410	5710.20	3922.70	-3175.08	2857.39	1730741.79	14578754.18	40°08'32.6620"N	80°40'36.4686"W	4271.51	138.015	3.56	-0.99	3.42
10242.00	90.120	160.700	5711.09	4019.68	-3267.35	2887.27	1730771.66	14578661.95	40°08'31.7491"N	80°40'36.0882"W	4360.26	138.534	3.09	1.33	-2.79
10338.00	88.830	162.340	5711.97	4115.67	-3358.39	2917.70	1730802.08	14578570.94	40°08'30.8484"N	80°40'35.7006"W	4448.79	139.017	2.17	-1.34	1.71
10435.00	89.570	161.750	5713.32	4212.65	-3450.66	2947.59	1730831.97	14578478.71	40°08'29.9355"N	80°40'35.3200"W	4538.21	139.496	0.98	0.76	-0.61
10531.00	90.430	163.240	5713.32	4308.63	-3542.21	2976.47	1730860.83	14578387.20	40°08'29.0298"N	80°40'34.9525"W	4626.73	139.960	1.79	0.90	1.55
10627.00	89.320	160.270	5713.53	4404.61	-3633.37	3006.52	1730890.87	14578296.07	40°08'28.1279"N	80°40'34.5698"W	4715.99	140.393	3.30	-1.16	-3.09
10724.00	89.140	165.320	5714.84	4501.54	-3725.99	3035.20	1730919.54	14578203.49	40°08'27.2115"N	80°40'34.2049"W	4805.77	140.834	5.21	-0.19	5.21
10820.00	89.290	165.000	5716.15	4597.32	-3818.78	3059.79	1730944.11	14578110.73	40°08'26.2937"N	80°40'33.8927"W	4893.40	141.297	0.37	0.16	-0.33
10916.00	90.770	163.580	5716.10	4693.19	-3911.19	3085.78	1730970.10	14578018.36	40°08'25.3796"N	80°40'33.5623"W	4981.91	141.728	2.14	1.54	-1.48

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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]
11012.00	88.370	163.370	5716.82	4789.11	-4003.22	3113.08	1730997.39	14577926.37	40°08'24.4692"N	80°40'33.2151"W	5071.19	142.130	2.51	-2.50	-0.22
11109.00	91.320	166.490	5717.08	4885.89	-4096.86	3138.30	1731022.59	14577832.77	40°08'23.5429"N	80°40'32.8948"W	5160.73	142.547	4.43	3.04	3.22
11206.00	90.680	161.990	5715.39	4982.73	-4190.17	3164.63	1731048.92	14577739.49	40°08'22.6198"N	80°40'32.5601"W	5250.95	142.938	4.69	-0.66	-4.64
11302.00	87.200	164.500	5717.17	5078.64	-4282.06	3192.30	1731076.57	14577647.64	40°08'21.7108"N	80°40'32.2082"W	5341.05	143.295	4.47	-3.63	2.61
11399.00	90.980	166.080	5718.71	5175.37	-4375.85	3216.92	1731101.18	14577553.89	40°08'20.7831"N	80°40'31.8956"W	5431.08	143.678	4.22	3.90	1.63
11495.00	91.450	161.740	5716.67	5271.23	-4468.04	3243.51	1731127.77	14577461.72	40°08'19.8711"N	80°40'31.5576"W	5521.21	144.023	4.55	0.49	-4.52
11591.00	89.110	166.200	5716.20	5367.10	-4560.28	3270.01	1731154.26	14577369.52	40°08'18.9586"N	80°40'31.2207"W	5611.52	144.357	5.25	-2.44	4.65
11688.00	88.490	162.380	5718.23	5463.93	-4653.62	3296.26	1731180.50	14577276.22	40°08'18.0353"N	80°40'30.8870"W	5702.77	144.689	3.99	-0.64	-3.94
11785.00	90.250	165.850	5719.30	5560.79	-4746.89	3322.81	1731207.03	14577182.99	40°08'17.1126"N	80°40'30.5497"W	5794.31	145.008	4.01	1.81	3.58
11881.00	89.720	161.780	5719.32	5656.68	-4839.07	3349.56	1731233.77	14577090.85	40°08'16.2008"N	80°40'30.2096"W	5885.25	145.309	4.28	-0.55	-4.24
11977.00	88.890	165.360	5720.49	5752.58	-4931.12	3376.71	1731260.91	14576998.83	40°08'15.2901"N	80°40'29.8644"W	5976.47	145.598	3.83	-0.86	3.73
12074.00	91.750	163.720	5719.95	5849.41	-5024.60	3402.56	1731286.75	14576905.39	40°08'14.3654"N	80°40'29.5359"W	6068.28	145.895	3.40	2.95	-1.69
12171.00	88.490	161.680	5719.74	5946.37	-5117.19	3431.40	1731315.58	14576812.83	40°08'13.4494"N	80°40'29.1689"W	6161.18	146.156	3.96	-3.36	-2.10
12267.00	89.570	166.650	5721.37	6042.20	-5209.51	3457.58	1731341.75	14576720.55	40°08'12.5362"N	80°40'28.8362"W	6252.51	146.428	5.30	1.12	5.18
12363.00	91.290	162.840	5720.65	6138.01	-5302.10	3482.83	1731367.00	14576627.99	40°08'11.6202"N	80°40'28.5154"W	6343.69	146.700	4.35	1.79	-3.97
12460.00	88.310	164.350	5720.99	6234.92	-5395.14	3510.23	1731394.38	14576534.99	40°08'10.6998"N	80°40'28.1671"W	6436.55	146.951	3.44	-3.07	1.56
12557.00	89.230	162.710	5723.07	6331.82	-5488.13	3537.72	1731421.86	14576442.04	40°08'9.7799"N	80°40'27.8175"W	6529.55	147.194	1.94	0.95	-1.69
12653.00	89.820	166.210	5723.87	6427.66	-5580.61	3563.43	1731447.56	14576349.60	40°08'8.8651"N	80°40'27.4908"W	6621.27	147.440	3.70	0.61	3.65
12749.00	90.370	161.870	5723.71	6523.53	-5672.88	3589.82	1731473.94	14576257.36	40°08'7.9523"N	80°40'27.1554"W	6713.30	147.674	4.56	0.57	-4.52
12846.00	89.690	164.640	5723.66	6620.46	-5765.76	3617.77	1731501.88	14576164.52	40°08'7.0335"N	80°40'26.8000"W	6806.78	147.893	2.94	-0.70	2.86
12942.00	89.480	164.640	5724.35	6716.30	-5858.33	3643.20	1731527.29	14576071.99	40°08'6.1178"N	80°40'26.4770"W	6898.76	148.123	0.22	-0.22	0.00
13039.00	89.420	164.290	5725.28	6813.15	-5951.78	3669.17	1731553.26	14575978.57	40°08'5.1934"N	80°40'26.1469"W	6991.89	148.347	0.37	-0.06	-0.36
13136.00	89.630	163.920	5726.09	6910.03	-6045.07	3695.74	1731579.82	14575885.32	40°08'4.2705"N	80°40'25.8093"W	7085.29	148.560	0.44	0.22	-0.38
13232.00	89.200	164.110	5727.07	7005.92	-6137.35	3722.17	1731606.24	14575793.07	40°08'3.3576"N	80°40'25.4733"W	7177.86	148.764	0.49	-0.45	0.20
13329.00	89.140	163.040	5728.47	7102.84	-6230.38	3749.60	1731633.66	14575700.08	40°08'2.4373"N	80°40'25.1247"W	7271.67	148.959	1.10	-0.06	-1.10
13426.00	88.950	161.280	5730.09	7199.81	-6322.70	3779.31	1731663.35	14575607.80	40°08'1.5239"N	80°40'24.7465"W	7366.12	149.132	1.82	-0.20	-1.81
13522.00	89.170	161.380	5731.66	7295.80	-6413.64	3810.04	1731694.07	14575516.90	40°08'0.6242"N	80°40'24.3552"W	7459.97	149.287	0.25	0.23	0.10
13619.00	88.520	161.990	5733.62	7392.77	-6505.70	3840.51	1731724.53	14575424.87	40°07'59.7133"N	80°40'23.9672"W	7554.72	149.445	0.92	-0.67	0.63
13715.00	89.230	161.880	5735.51	7488.75	-6596.95	3870.28	1731754.28	14575333.65	40°07'58.8104"N	80°40'23.5883"W	7648.45	149.601	0.75	0.74	-0.11
13812.00	89.450	161.400	5736.62	7585.74	-6689.01	3900.83	1731784.82	14575241.63	40°07'57.8996"N	80°40'23.1993"W	7743.34	149.751	0.54	0.23	-0.49

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REFERENCE WELLPATH IDENTIFICATION			
Operator	SWN PRODUCTION COMPANY, LLC	Well	Roth OHI 10H
Field	Ohio	API	47-069-00339-0000
Facility	Roth OHI Pad	Wellbore	Roth OHI 10H AWB
Slot	10H		

WELLPATH DATA (230 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]
13909.00	89.600	162.720	5737.43	7682.73	-6781.29	3930.70	1731814.69	14575149.39	40°07'56.9867"N	80°40'22.8191"W	7838.13	149.902	1.37	0.15	1.36
14006.00	89.020	160.410	5738.59	7779.71	-6873.30	3961.37	1731845.35	14575057.42	40°07'56.0763"N	80°40'22.4286"W	7933.14	150.043	2.46	-0.60	-2.38
14103.00	89.140	157.980	5740.15	7876.63	-6963.95	3995.82	1731879.78	14574966.80	40°07'55.1792"N	80°40'21.9894"W	8028.90	150.153	2.51	0.12	-2.51
14199.00	89.350	158.720	5741.42	7972.49	-7053.17	4031.23	1731915.18	14574877.61	40°07'54.2962"N	80°40'21.5377"W	8123.92	150.250	0.80	0.22	0.77
14296.00	89.600	158.290	5742.31	8069.37	-7143.42	4066.77	1731950.71	14574787.40	40°07'53.4031"N	80°40'21.0844"W	8219.92	150.347	0.51	0.26	-0.44
14393.00	89.850	160.320	5742.77	8166.30	-7234.16	4101.05	1731984.97	14574696.70	40°07'52.5052"N	80°40'20.6474"W	8315.75	150.451	2.11	0.26	2.09
14489.00	88.740	159.470	5743.95	8262.26	-7324.30	4134.05	1732017.95	14574606.59	40°07'51.6132"N	80°40'20.2269"W	8410.45	150.558	1.46	-1.16	-0.89
14586.00	88.740	158.650	5746.09	8359.16	-7414.87	4168.71	1732052.60	14574516.06	40°07'50.7169"N	80°40'19.7850"W	8506.37	150.655	0.85	0.00	-0.85
14682.00	89.420	158.130	5747.63	8455.02	-7504.11	4204.06	1732087.93	14574426.85	40°07'49.8338"N	80°40'19.3341"W	8601.50	150.741	0.89	0.71	-0.54
14779.00	90.490	160.160	5747.70	8551.94	-7594.75	4238.59	1732122.45	14574336.25	40°07'48.9368"N	80°40'18.8939"W	8697.46	150.834	2.37	1.10	2.09
14876.00	88.950	159.370	5748.18	8648.90	-7685.76	4272.13	1732155.99	14574245.28	40°07'48.0362"N	80°40'18.4663"W	8793.29	150.932	1.78	-1.59	-0.81
14972.00	88.800	158.660	5750.06	8744.80	-7775.37	4306.51	1732190.34	14574155.70	40°07'47.1494"N	80°40'18.0281"W	8888.33	151.019	0.76	-0.16	-0.74
15069.00	89.320	158.070	5751.65	8841.66	-7865.53	4342.27	1732226.09	14574065.58	40°07'46.2572"N	80°40'17.5720"W	8984.53	151.099	0.81	0.54	-0.61
15166.00	89.820	159.530	5752.38	8938.56	-7955.96	4377.34	1732261.15	14573975.18	40°07'45.3623"N	80°40'17.1248"W	9080.66	151.181	1.59	0.52	1.51
15263.00	89.380	159.150	5753.06	9035.50	-8046.72	4411.56	1732295.36	14573884.46	40°07'44.4641"N	80°40'16.6885"W	9176.68	151.267	0.60	-0.45	-0.39
15360.00	89.690	159.710	5753.85	9132.44	-8137.53	4445.64	1732329.43	14573793.68	40°07'43.5655"N	80°40'16.2541"W	9272.71	151.352	0.66	0.32	0.58
15456.00	89.420	159.000	5754.59	9228.38	-8227.36	4479.49	1732363.26	14573703.89	40°07'42.6765"N	80°40'15.8226"W	9367.78	151.433	0.79	-0.28	-0.74
15553.00	89.480	159.270	5755.52	9325.30	-8317.99	4514.04	1732397.79	14573613.29	40°07'41.7796"N	80°40'15.3822"W	9463.91	151.512	0.29	0.06	0.28
15650.00	89.320	158.770	5756.54	9422.22	-8408.56	4548.76	1732432.51	14573522.76	40°07'40.8834"N	80°40'14.9395"W	9560.08	151.588	0.54	-0.16	-0.52
15746.00	89.380	159.080	5757.63	9518.13	-8498.13	4583.28	1732467.01	14573433.22	40°07'39.9970"N	80°40'14.4993"W	9655.29	151.661	0.33	0.06	0.32
15843.00	89.510	158.980	5758.57	9615.05	-8588.70	4618.00	1732501.71	14573342.69	40°07'39.1007"N	80°40'14.0568"W	9751.50	151.734	0.17	0.13	-0.10
15940.00	90.150	159.700	5758.86	9711.99	-8679.46	4652.22	1732535.92	14573251.96	40°07'38.2025"N	80°40'13.6206"W	9847.65	151.809	0.99	0.66	0.74
16036.00	89.290	159.320	5759.32	9807.94	-8769.39	4685.82	1732569.51	14573162.07	40°07'37.3126"N	80°40'13.1923"W	9942.79	151.883	0.98	-0.90	-0.40
16133.00	89.750	159.450	5760.14	9904.88	-8860.17	4719.97	1732603.65	14573071.32	40°07'36.4143"N	80°40'12.7569"W	10038.96	151.955	0.49	0.47	0.13
16230.00	89.600	159.410	5760.69	10001.82	-8950.99	4754.05	1732637.71	14572980.55	40°07'35.5156"N	80°40'12.3226"W	10135.15	152.026	0.16	-0.15	-0.04
16326.00	89.350	159.250	5761.57	10097.76	-9040.80	4787.94	1732671.59	14572890.76	40°07'34.6268"N	80°40'11.8906"W	10230.37	152.095	0.31	-0.26	-0.17
16423.00	89.480	158.710	5762.56	10194.67	-9131.34	4822.73	1732706.36	14572800.26	40°07'33.7308"N	80°40'11.4471"W	10326.67	152.159	0.57	0.13	-0.56
16519.00	89.450	158.730	5763.45	10290.57	-9220.79	4857.57	1732741.19	14572710.84	40°07'32.8455"N	80°40'11.0029"W	10422.04	152.219	0.04	-0.03	0.02
16616.00	89.450	158.780	5764.38	10387.47	-9311.20	4892.72	1732776.32	14572620.48	40°07'31.9509"N	80°40'10.5547"W	10518.42	152.280	0.05	0.00	0.05
16712.00	89.200	158.310	5765.52	10483.35	-9400.54	4927.83	1732811.42	14572531.17	40°07'31.0667"N	80°40'10.1070"W	10613.84	152.336	0.55	-0.26	-0.49

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Facility	Roth OHI Pad	Wellbore	Roth OHI 10H AWB
Slot	10H		

WELLPATH DATA (230 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]
16809.00	89.350	159.170	5766.74	10580.24	-9490.93	4963.00	1732846.58	14572440.81	40°07'30.1722"N	80°40'9.6586"W	10710.23	152.394	0.90	0.15	0.89
16905.00	89.230	159.710	5767.93	10676.18	-9580.81	4996.71	1732880.27	14572350.97	40°07'29.2828"N	80°40'9.2289"W	10805.51	152.456	0.58	-0.12	0.56
17001.00	89.380	158.630	5769.10	10772.10	-9670.52	5030.84	1732914.39	14572261.29	40°07'28.3949"N	80°40'8.7938"W	10900.85	152.515	1.14	0.16	-1.13
17098.00	90.280	158.100	5769.39	10868.97	-9760.69	5066.60	1732950.14	14572171.16	40°07'27.5026"N	80°40'8.3378"W	10997.34	152.567	1.08	0.93	-0.55
17194.00	89.630	159.960	5769.46	10964.89	-9850.33	5100.96	1732984.48	14572081.56	40°07'26.6155"N	80°40'7.8998"W	11092.73	152.623	2.05	-0.68	1.94
17291.00	89.010	159.230	5770.61	11061.83	-9941.23	5134.78	1733018.29	14571990.69	40°07'25.7159"N	80°40'7.4689"W	11189.01	152.683	0.99	-0.64	-0.75
17387.00	89.570	159.050	5771.80	11157.76	-10030.93	5168.96	1733052.46	14571901.02	40°07'24.8283"N	80°40'7.0332"W	11284.40	152.738	0.61	0.58	-0.19
17484.00	89.600	159.060	5772.50	11254.68	-10121.52	5203.63	1733087.12	14571810.47	40°07'23.9318"N	80°40'6.5912"W	11380.82	152.792	0.03	0.03	0.01
17580.00	89.420	157.680	5773.32	11350.54	-10210.76	5239.02	1733122.49	14571721.27	40°07'23.0487"N	80°40'6.1400"W	11476.36	152.838	1.45	-0.19	-1.44
17677.00	89.080	158.840	5774.59	11447.39	-10300.85	5274.94	1733158.40	14571631.22	40°07'22.1571"N	80°40'5.6818"W	11572.92	152.884	1.25	-0.35	1.20
17773.00	89.200	158.350	5776.04	11543.27	-10390.22	5309.97	1733193.42	14571541.88	40°07'21.2726"N	80°40'5.2352"W	11668.44	152.930	0.53	0.12	-0.51
17870.00	89.510	158.410	5777.13	11640.14	-10480.39	5345.71	1733229.14	14571451.75	40°07'20.3802"N	80°40'4.7795"W	11764.99	152.975	0.33	0.32	0.06
17966.00	89.110	157.870	5778.28	11735.98	-10569.48	5381.45	1733264.87	14571362.69	40°07'19.4985"N	80°40'4.3237"W	11860.60	153.017	0.70	-0.42	-0.56
18062.00	89.630	158.440	5779.34	11831.83	-10658.58	5417.17	1733300.57	14571273.63	40°07'18.6167"N	80°40'3.8682"W	11956.21	153.058	0.80	0.54	0.59
18159.00	89.510	158.230	5780.07	11928.69	-10748.72	5452.98	1733336.37	14571183.52	40°07'17.7246"N	80°40'3.4116"W	12052.80	153.101	0.25	-0.12	-0.22
18256.00	89.780	157.660	5780.67	12025.52	-10838.62	5489.40	1733372.77	14571093.65	40°07'16.8348"N	80°40'2.9471"W	12149.45	153.139	0.65	0.28	-0.59
18353.00	89.910	158.500	5780.93	12122.36	-10928.61	5525.61	1733408.97	14571003.70	40°07'15.9443"N	80°40'2.4853"W	12246.10	153.178	0.88	0.13	0.87
18449.00	89.540	158.360	5781.39	12218.24	-11017.88	5560.91	1733444.25	14570914.46	40°07'15.0607"N	80°40'2.0353"W	12341.69	153.219	0.41	-0.39	-0.15
18546.00	89.750	158.210	5781.99	12315.10	-11108.00	5596.79	1733480.12	14570824.38	40°07'14.1689"N	80°40'1.5777"W	12438.32	153.259	0.27	0.22	-0.15
18642.00	89.170	156.980	5782.90	12410.89	-11196.75	5633.38	1733516.70	14570735.67	40°07'13.2905"N	80°40'1.1110"W	12534.04	153.292	1.42	-0.60	-1.28
18739.00	89.850	157.930	5783.73	12507.66	-11286.33	5670.57	1733553.87	14570646.12	40°07'12.4039"N	80°40'0.6366"W	12630.78	153.324	1.20	0.70	0.98
18836.00	89.850	157.290	5783.98	12604.46	-11376.01	5707.52	1733590.80	14570556.47	40°07'11.5162"N	80°40'0.1653"W	12727.51	153.356	0.66	0.00	-0.66
18932.00	89.820	158.040	5784.26	12700.26	-11464.81	5744.00	1733627.27	14570467.71	40°07'10.6374"N	80°39'59.7000"W	12823.24	153.389	0.78	-0.03	0.78
19029.00	89.510	157.660	5784.82	12797.08	-11554.65	5780.57	1733663.83	14570377.91	40°07'9.7482"N	80°39'59.2336"W	12919.94	153.422	0.51	-0.32	-0.39
19125.00	89.570	157.400	5785.59	12892.87	-11643.36	5817.26	1733700.50	14570289.23	40°07'8.8703"N	80°39'58.7656"W	13015.70	153.452	0.28	0.06	-0.27
19222.00	89.110	158.260	5786.71	12989.68	-11733.18	5853.86	1733737.09	14570199.45	40°07'7.9813"N	80°39'58.2988"W	13112.41	153.485	1.01	-0.47	0.89
19318.00	88.920	158.260	5788.36	13085.53	-11822.34	5889.41	1733772.63	14570110.32	40°07'7.0989"N	80°39'57.8455"W	13208.06	153.519	0.20	-0.20	0.00
19415.00	88.800	157.900	5790.29	13182.35	-11912.31	5925.62	1733808.82	14570020.39	40°07'6.2085"N	80°39'57.3838"W	13304.74	153.553	0.39	-0.12	-0.37
19511.00	89.260	157.220	5791.92	13278.13	-12001.03	5962.26	1733845.44	14569931.70	40°07'5.3304"N	80°39'56.9165"W	13400.49	153.581	0.86	0.48	-0.71
19608.00	89.380	158.370	5793.07	13374.94	-12090.82	5998.91	1733882.08	14569841.94	40°07'4.4416"N	80°39'56.4491"W	13497.22	153.612	1.19	0.12	1.19

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WELLPATH DATA (230 stations) † = interpolated, ‡ = extrapolated station

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]
19704.00	89.450	158.430	5794.05	13470.81	-12180.08	6034.25	1733917.41	14569752.72	40°07'3.5583"N	80°39'55.9985"W	13592.88	153.645	0.10	0.07	0.06
19801.00	89.140	158.280	5795.24	13567.67	-12270.23	6070.03	1733953.17	14569662.61	40°07'2.6661"N	80°39'55.5424"W	13689.55	153.679	0.36	-0.32	-0.15
19898.00	89.170	156.850	5796.67	13664.44	-12359.88	6107.04	1733990.17	14569572.99	40°07'1.7788"N	80°39'55.0703"W	13786.32	153.706	1.47	0.03	-1.47
19994.00	89.450	157.860	5797.83	13760.21	-12448.47	6144.00	1734027.11	14569484.44	40°07'0.9020"N	80°39'54.5989"W	13882.12	153.731	1.09	0.29	1.05
20091.00	89.450	158.520	5798.76	13857.05	-12538.52	6180.04	1734063.14	14569394.42	40°07'0.0107"N	80°39'54.1394"W	13978.82	153.762	0.68	0.00	0.68
20187.00	89.600	158.610	5799.56	13952.94	-12627.88	6215.12	1734098.20	14569305.10	40°06'59.1264"N	80°39'53.6922"W	14074.48	153.795	0.18	0.16	0.09
20284.00	89.480	158.150	5800.33	14049.81	-12718.05	6250.86	1734133.93	14569214.96	40°06'58.2340"N	80°39'53.2366"W	14171.17	153.826	0.49	-0.12	-0.47
20380.00	89.600	159.570	5801.11	14145.71	-12807.59	6285.48	1734168.54	14569125.46	40°06'57.3479"N	80°39'52.7953"W	14266.80	153.860	1.48	0.12	1.48
20477.00	89.630	159.070	5801.76	14242.65	-12898.33	6319.73	1734202.78	14569034.75	40°06'56.4499"N	80°39'52.3588"W	14363.36	153.897	0.52	0.03	-0.52
20573.00	89.540	159.080	5802.45	14338.57	-12988.00	6354.02	1734237.05	14568945.12	40°06'55.5625"N	80°39'51.9219"W	14458.96	153.931	0.09	-0.09	0.01
20669.00	89.600	159.720	5803.17	14434.52	-13077.86	6387.79	1734270.81	14568855.30	40°06'54.6733"N	80°39'51.4915"W	14554.53	153.967	0.67	0.06	0.67
20766.00	89.170	159.430	5804.21	14531.46	-13168.75	6421.64	1734304.65	14568764.44	40°06'53.7738"N	80°39'51.0602"W	14651.06	154.004	0.53	-0.44	-0.30
20863.00	89.540	159.320	5805.31	14628.40	-13259.53	6455.81	1734338.80	14568673.69	40°06'52.8754"N	80°39'50.6249"W	14747.63	154.039	0.40	0.38	-0.11
20959.00	89.720	159.880	5805.93	14724.36	-13349.51	6489.27	1734372.25	14568583.75	40°06'51.9850"N	80°39'50.1986"W	14843.18	154.075	0.61	0.19	0.58
21056.00	89.820	159.060	5806.32	14821.30	-13440.35	6523.29	1734406.25	14568492.95	40°06'51.0861"N	80°39'49.7652"W	14939.75	154.110	0.85	0.10	-0.85
21152.00	89.910	159.000	5806.54	14917.23	-13529.99	6557.64	1734440.59	14568403.35	40°06'50.1990"N	80°39'49.3273"W	15035.40	154.142	0.11	0.09	-0.06
21249.00	89.660	159.260	5806.91	15014.15	-13620.62	6592.20	1734475.14	14568312.75	40°06'49.3020"N	80°39'48.8870"W	15132.03	154.174	0.37	-0.26	0.27
21346.00	89.750	159.230	5807.41	15111.09	-13711.33	6626.57	1734509.50	14568222.08	40°06'48.4044"N	80°39'48.4490"W	15228.65	154.206	0.10	0.09	-0.03
21402.00	89.690	159.370	5807.68	15167.05	-13763.71	6646.37	1734529.28	14568169.71	40°06'47.8860"N	80°39'48.1968"W	15284.43	154.225	0.27	-0.11	0.25
21427.00†	89.690	159.370	5807.81	15192.04	-13787.11	6655.17	1734538.09	14568146.33	40°06'47.6544"N	80°39'48.0845"W	15309.33	154.233	0.00	0.00	0.00

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Actual Wellpath Report

Roth OHI 10H AWP Proj:21427'

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REFERENCE WELLPATH IDENTIFICATION

Operator	SWN PRODUCTION COMPANY, LLC	Well	Roth OHI 10H
Field	Ohio	API	47-069-00339-0000
Facility	Roth OHI Pad	Wellbore	Roth OHI 10H AWB
Slot	10H		

HOLE & CASING SECTIONS - Ref Wellbore: Roth OHI 10H AWB Ref Wellpath: Roth OHI 10H AWP Proj:21427'

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]
20in Conductor	26.00	136.00	110.00	26.00	136.00	0.00	0.00	-0.28	-0.32
17.5in Open Hole	136.00	540.00	404.00	136.00	539.97	-0.28	-0.32	-4.20	0.93
13.375in Casing Surface	26.00	466.00	440.00	26.00	465.97	0.00	0.00	-3.66	0.51
12.25in Open Hole	540.00	1634.00	1094.00	539.97	1629.33	-4.20	0.93	39.26	35.44
9.625in Casing Intermediate	26.00	1612.00	1586.00	26.00	1607.86	0.00	0.00	36.07	31.84
8.75in Open Hole	1634.00	5229.00	3595.00	1629.33	4882.54	39.26	35.44	803.20	1315.14
8.5in Open Hole	5229.00	21427.00	16198.00	4882.54	5807.81	803.20	1315.14	-13787.11	6655.17
5.5in Casing Production	26.00	21427.00	21401.00	26.00	5807.81	0.00	0.00	-13787.11	6655.17

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Field	Ohio	API	47-069-00339-0000
Facility	Roth OHI Pad	Wellbore	Roth OHI 10H AWB
Slot	10H		

TARGETS

Name	TVD [ft]	North [ft]	East [ft]	Grid East [US ft]	Grid North [US ft]	Latitude	Longitude	Shape
Roth OHI 10 wp1 hl 4-R8-4.07	5667.90	-439.95	2164.40	1730049.08	14581488.24	40°08'59.7155"N	80°40'45.2646"W	point
Roth OHI 10 wp2 hl 4-R8-4.07	5667.90	-532.02	2203.83	1730088.49	14581396.20	40°08'58.8042"N	80°40'44.7612"W	point
Roth OHI 10 wp3	5667.90	-1498.67	2350.48	1730235.09	14580429.93	40°08'49.2465"N	80°40'42.9176"W	point
Roth OHI 10LP Rev 1	5667.90	388.69	1857.70	1729742.50	14582316.55	40°09'7.9150"N	80°40'49.1758"W	point
Roth OHI 10LP Rev 2	5675.00	388.69	1857.70	1729742.50	14582316.55	40°09'7.9150"N	80°40'49.1758"W	point
Roth OHI 10 wp4	5728.05	-6822.25	3948.12	1731832.10	14575108.44	40°07'56.5812"N	80°40'22.5968"W	point
Roth OHI 10 BHL rev 1	5787.90	-13788.75	6649.34	1734532.26	14568144.68	40°06'47.6384"N	80°39'48.1596"W	point
Roth OHI 10 BHL rev 2	5795.00	-13788.75	6649.34	1734532.26	14568144.68	40°06'47.6384"N	80°39'48.1596"W	point

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Field	Ohio	API	47-069-00339-0000
Facility	Roth OHI Pad	Wellbore	Roth OHI 10H AWB
Slot	10H		

WELLPATH COMPOSITION - Ref Wellbore: Roth OHI 10H AWB Ref Wellpath: Roth OHI 10H AWP Proj:21427'

Start MD [ft]	End MD [ft]	Positional Uncertainty Model	Log Name/Comment	Wellbore	Survey Date
26.00	503.00	OWSG MWD rev2 + HRGM	01_Tally MWD <17-1/2>(172'-503')	Roth OHI 10H AWB	12/8/2022
503.00	1563.00	OWSG MWD rev2 + HRGM	02_Tally MWD <12-1/4>(503')(595'-1563')	Roth OHI 10H AWB	12/12/2022
1563.00	5072.00	OWSG MWD rev2 + HRGM	03_Tally MWD <8-3/4>(1563')(1709'-5072')	Roth OHI 10H AWB	12/12/2022
5072.00	21427.00	BH AutoTrak Curve/eXpress (2019) (HRGM, Short spacing)	04_BH AT Curve <8-1/2>(5072')(5206'-21402')	Roth OHI 10H AWB	12/12/2022

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Field	Ohio	API	47-069-00339-0000
Facility	Roth OHI Pad	Wellbore	Roth OHI 10H AWB
Slot	10H		

COMMENTS

Wellpath general comments
 API: 47-069-00339-0000
 BH Job #: 111588272
 Rig: SDC 40
 Duration: 12/8/2022-12/11/2022
 01_Tally MWD <17-1/2>(172'-503')
 02_Tally MWD <12-1/4>(503')(595'-1563')
 03_Tally MWD <8-3/4>(1563')(1709'-5072')
 04_BH AT Curve <8-1/2>(5072')(5206'-21402')
 Projection MD at TD: 21427'

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