

# SOUTHWESTERN ENERGY

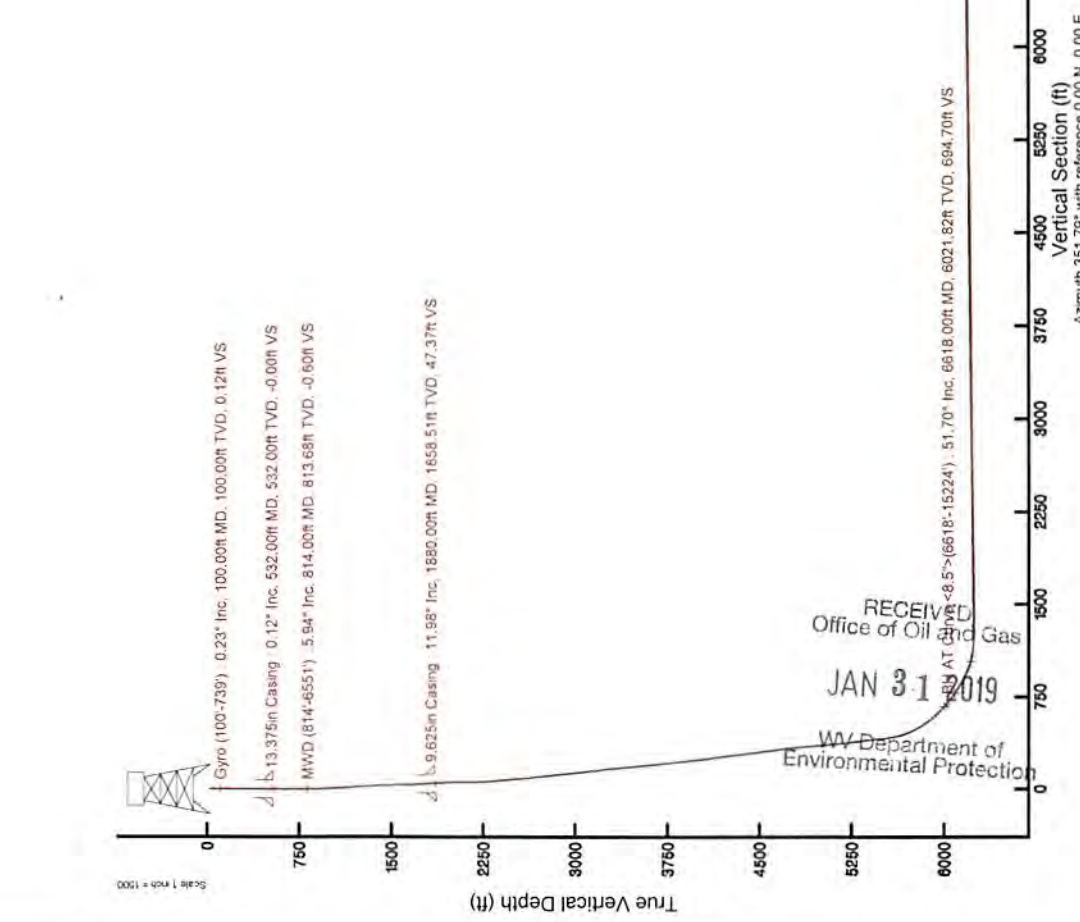
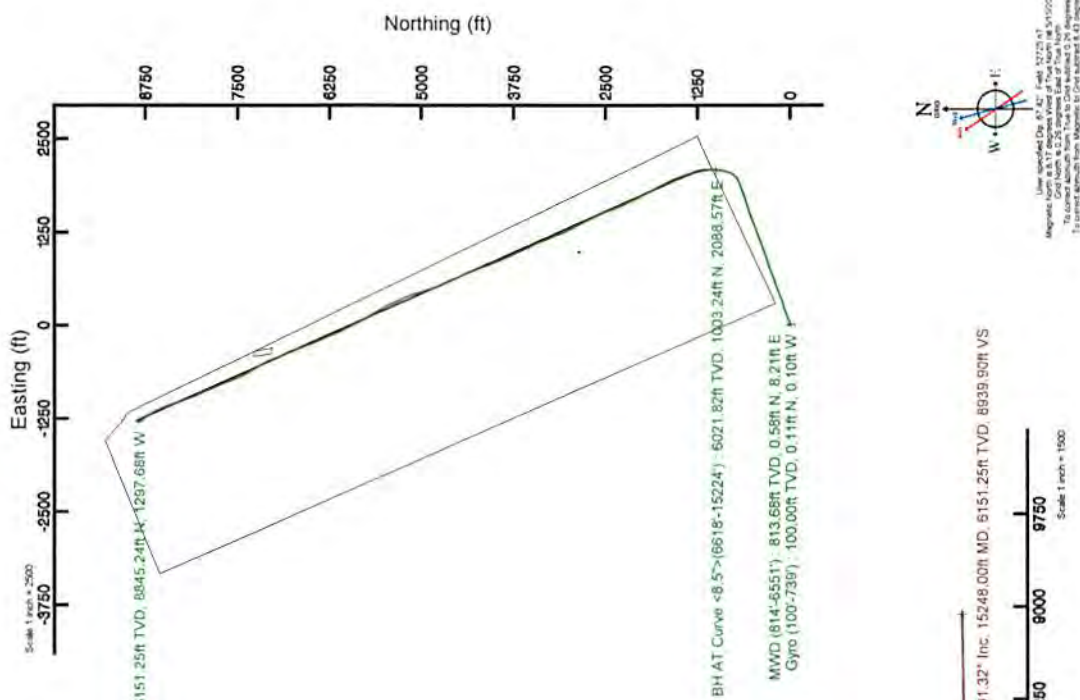
Location: Ohio County, WV  
 Field: Ohio  
 Facility: OCC A OHI Pad  
 Slot: Slot 405H  
 Well: OCC A OHI 405H  
 Wellbore: OCC A OHI 405H PWB

Plot reference wellbore is OCC A OHI 405H PWB Rev A.0
This vertical depth is referenced to SDC 41 (RRB)
Measured depths are referenced to SDC 41 (RRB)
SDC 41 (RRB) to Mean Sea Level 1121.5 feet
Mean Sea Level to Ground level (At Slot: Slot 405H) -1095.5 feet
Coordinates are in feet referenced to Slot
Grid System: NAD83 / UTM Zone 17 North, US feet
* - Wellbore was transformed from a different geocentric datum
North Reference: Grid north
Scale: True distance
Depths are in feet
Created by: thomazcc on 2018-06-04
Database: WA_Pennsylvania



Location Information			
Facility Name	Grid East (US ft)	Grid North (US ft)	Longitude
OCC A OHI Pad	1752836.900	14555922.760	80°35'33.184" W
Local N (ft)	Local E (ft)	Grid North (US ft)	Longitude
20.36	1752837.260	14555895.720	80°35'52.923" W
SDC 41 (RRB) to Ground level (At Slot: Slot 405H)			
Mean Sea Level to Ground level (At Slot: Slot 405H)			
SDC 41 (RRB) to Mean Sea Level			
			26ft
			-1095.5ft
			1121.5ft

**Comments**  
 API: 47-069-00269-0000  
 BH Job #: 91657/54  
 Rig: SDC 41  
 Duration: 05/21/2018 - 05/24/2018



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Users tracked on 05/24/2018 10:27:29 AM  
 Magnetic North is 8.5 degrees West of True North (8.5100218)  
 To convert Azimuth from True to Grid add/subtract 8.51 degrees  
 To convert azimuth from Magnetic to Grid add/subtract 8.03 degrees

REFERENCE WELLPATH IDENTIFICATION			
Operator	SOUTHWESTERN ENERGY	Slot	Slot 405H
Area	Ohio County, WV	Well	OCC A OHI 405H
Field	Ohio	Wellbore	OCC A OHI 405H AWB
Facility	OCC A OHI Pad		

REPORT SETUP INFORMATION			
Projection System	NAD83 / UTM Zone 17 North, US feet	Software System	WellArchitect® 5.0
North Reference	Grid	User	Thomsuzc
Scale	0.999614	Report Generated	6/4/2018 at 2:02:14 PM
Convergence at slot	0.26° East	Database/Source file	WA_Pennsylvania/OCC_A_OHI_405H_AWP_Proj__15248_MD.xml

WELLPATH LOCATION						
	Local coordinates		Grid coordinates		Geographic coordinates	
	North[ft]	East[ft]	Easting[US ft]	Northing[US ft]	Latitude	Longitude
Slot Location	-27.05	20.36	1752857.25	14555895.72	40°04'45.794"N	80°35'52.923"W
Facility Reference Pt			1752836.90	14555922.76	40°04'46.062"N	80°35'53.184"W
Field Reference Pt			0.00	0.00	0°00'00.000"	85°29'19.478"W

WELLPATH DATUM			
Calculation method	Minimum curvature	SDC 41 (RKB) to Facility Vertical Datum	1121.50ft
Horizontal Reference Pt	Slot	SDC 41 (RKB) to Mean Sea Level	1121.50ft
Vertical Reference Pt	SDC 41 (RKB)	SDC 41 (RKB) to Ground Level at Slot (Slot 405H)	26.00ft
MD Reference Pt	SDC 41 (RKB)	Section Origin	N 0.00, E 0.00 ft
Field Vertical Reference	Mean Sea Level	Section Azimuth	351.79°

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REFERENCE WELLPATH IDENTIFICATION			
Operator	SOUTHWESTERN ENERGY	Slot	Slot 405H
Area	Ohio County, WV	Well	OCC A OHI 405H
Field	Ohio	Wellbore	OCC A OHI 405H AWB
Facility	OCC A OHI Pad		

WELLPATH DATA (177 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†	0.000	316.930	0.00	0.00	0.00	0.00	1752857.25	14555895.72	40°04'45.794"N	80°35'52.923"W	0.00	0.000	0.00	0.00	0.00
26.00	0.000	316.930	26.00	0.00	0.00	0.00	1752857.25	14555895.72	40°04'45.794"N	80°35'52.923"W	0.00	0.000	0.00	0.00	0.00
100.00	0.230	316.930	100.00	0.12	0.11	-0.10	1752857.15	14555895.83	40°04'45.795"N	80°35'52.925"W	0.15	316.930	0.31	0.31	-58.20
200.00	0.270	273.790	200.00	0.34	0.27	-0.47	1752856.78	14555895.99	40°04'45.797"N	80°35'52.929"W	0.55	299.752	0.19	0.04	-43.14
300.00	0.240	250.820	300.00	0.34	0.22	-0.91	1752856.34	14555895.94	40°04'45.796"N	80°35'52.935"W	0.93	283.490	0.11	-0.03	-22.97
400.00	0.180	223.100	400.00	0.21	0.03	-1.21	1752856.04	14555895.75	40°04'45.794"N	80°35'52.939"W	1.21	271.606	0.12	-0.06	-27.72
500.00	0.180	236.690	500.00	0.04	-0.17	-1.45	1752855.80	14555895.55	40°04'45.792"N	80°35'52.942"W	1.46	263.432	0.04	0.00	13.59
600.00	0.140	139.450	600.00	-0.13	-0.35	-1.50	1752855.75	14555895.37	40°04'45.791"N	80°35'52.943"W	1.54	257.025	0.24	-0.04	-97.24
700.00	2.090	86.660	699.97	-0.39	-0.33	0.40	1752857.65	14555895.39	40°04'45.791"N	80°35'52.918"W	0.52	129.900	2.01	1.95	-52.79
739.00	3.300	86.670	738.93	-0.54	-0.23	2.23	1752859.48	14555895.49	40°04'45.792"N	80°35'52.895"W	2.24	95.792	3.10	3.10	0.03
814.00	5.940	79.960	813.68	-0.60	0.58	8.21	1752865.45	14555896.30	40°04'45.799"N	80°35'52.818"W	8.23	85.984	3.59	3.52	-8.95
910.00	8.470	72.580	908.92	0.69	3.56	19.85	1752877.09	14555899.28	40°04'45.828"N	80°35'52.668"W	20.16	79.832	2.80	2.64	-7.69
1006.00	10.230	68.240	1003.64	3.82	8.84	34.51	1752891.75	14555904.55	40°04'45.880"N	80°35'52.479"W	35.62	75.637	1.97	1.83	-4.52
1103.00	11.540	65.520	1098.89	8.55	16.05	51.34	1752908.57	14555911.76	40°04'45.950"N	80°35'52.262"W	53.79	72.639	1.45	1.35	-2.80
1199.00	12.290	61.920	1192.82	14.72	24.84	69.09	1752926.32	14555920.55	40°04'46.036"N	80°35'52.033"W	73.42	70.227	1.10	0.78	-3.75
1295.00	12.410	67.750	1286.61	20.69	33.55	87.66	1752944.87	14555929.26	40°04'46.122"N	80°35'51.794"W	93.86	69.053	1.30	0.13	6.07
1391.00	12.580	69.960	1380.33	25.34	41.04	107.03	1752964.24	14555936.75	40°04'46.195"N	80°35'51.544"W	114.63	69.019	0.53	0.18	2.30
1487.00	12.260	71.960	1474.09	29.22	47.78	126.54	1752983.74	14555943.48	40°04'46.261"N	80°35'51.293"W	135.26	69.313	0.56	-0.33	2.08
1583.00	12.880	71.080	1567.78	32.95	54.41	146.35	1753003.55	14555950.11	40°04'46.325"N	80°35'51.037"W	156.14	69.607	0.68	0.65	-0.92
1679.00	11.410	70.100	1661.63	36.86	61.11	165.40	1753022.59	14555956.81	40°04'46.391"N	80°35'50.792"W	176.33	69.723	1.55	-1.53	-1.02
1775.00	11.510	67.420	1755.72	41.16	68.02	183.18	1753040.36	14555963.71	40°04'46.458"N	80°35'50.563"W	195.40	69.628	0.56	0.10	-2.79
1808.00	11.720	66.220	1788.04	42.88	70.64	189.28	1753046.46	14555966.33	40°04'46.484"N	80°35'50.484"W	202.03	69.536	0.97	0.64	-3.64
1880.00	11.980	62.040	1858.51	47.37	77.09	202.58	1753059.75	14555972.78	40°04'46.547"N	80°35'50.313"W	216.75	69.166	1.25	0.36	-5.81
1954.00	12.060	64.980	1930.89	52.20	83.96	216.37	1753073.53	14555979.65	40°04'46.614"N	80°35'50.135"W	232.08	68.792	0.83	0.11	3.97
2046.00	12.500	82.150	2020.81	54.92	89.38	234.94	1753092.10	14555985.07	40°04'46.667"N	80°35'49.896"W	251.37	69.171	3.98	0.48	18.66
2136.00	15.050	83.480	2108.22	54.51	92.04	256.21	1753113.36	14555987.73	40°04'46.692"N	80°35'49.622"W	272.24	70.239	2.85	2.83	1.48
2228.00	17.330	75.120	2196.58	55.75	96.92	281.32	1753138.46	14555992.60	40°04'46.739"N	80°35'49.299"W	297.55	70.991	3.54	2.48	-9.09
2323.00	18.580	69.640	2286.96	60.58	105.82	309.19	1753166.32	14556001.50	40°04'46.826"N	80°35'48.940"W	326.80	71.107	2.21	1.32	-5.77
2418.00	19.720	66.780	2376.70	67.92	117.40	338.11	1753195.23	14556013.08	40°04'46.939"N	80°35'48.567"W	357.91	70.851	1.55	1.20	-3.01
2514.00	21.720	70.210	2466.49	75.68	129.81	369.71	1753226.82	14556025.48	40°04'47.060"N	80°35'48.160"W	391.84	70.654	2.44	2.08	3.57

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Operator	SOUTHWESTERN ENERGY	Slot	Slot 405H
Area	Ohio County, WV	Well	OCC A OHI 405H
Field	Ohio	Wellbore	OCC A OHI 405H AWB
Facility	OCC A OHI Pad		

WELLPATH DATA (177 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]
2610.00	23.240	69.330	2555.19	83.33	142.51	404.15	1753261.24	14556038.17	40°04'47.184"N	80°35'47.716"W	428.54	70.577	1.62	1.58	-0.92
2707.00	24.620	66.790	2643.85	92.69	157.23	440.63	1753297.71	14556052.88	40°04'47.328"N	80°35'47.246"W	467.84	70.363	1.78	1.42	-2.62
2803.00	26.610	69.570	2730.42	102.42	172.61	479.16	1753336.22	14556068.27	40°04'47.478"N	80°35'46.749"W	509.30	70.189	2.42	2.07	2.90
2899.00	27.790	69.430	2815.80	111.76	187.98	520.26	1753377.31	14556083.63	40°04'47.628"N	80°35'46.219"W	553.18	70.134	1.23	1.23	-0.15
2996.00	27.640	71.740	2901.67	120.53	202.98	562.80	1753419.83	14556098.62	40°04'47.775"N	80°35'45.671"W	598.28	70.168	1.12	-0.15	2.38
3092.00	27.660	70.790	2986.71	128.67	217.29	604.99	1753462.00	14556112.92	40°04'47.914"N	80°35'45.128"W	642.82	70.244	0.46	0.02	-0.99
3188.00	28.160	69.060	3071.55	137.91	232.71	647.19	1753504.19	14556128.34	40°04'48.065"N	80°35'44.584"W	687.76	70.223	0.99	0.52	-1.80
3284.00	28.600	68.320	3156.01	148.25	249.30	689.70	1753546.68	14556144.92	40°04'48.227"N	80°35'44.036"W	733.37	70.127	0.59	0.46	-0.77
3380.00	29.130	68.450	3240.08	159.00	266.37	732.78	1753589.75	14556161.99	40°04'48.393"N	80°35'43.481"W	779.69	70.024	0.56	0.55	0.14
3476.00	27.490	71.200	3324.60	168.46	282.09	775.49	1753632.44	14556177.70	40°04'48.547"N	80°35'42.930"W	825.21	70.011	2.18	-1.71	2.86
3572.00	26.290	70.910	3410.22	176.55	296.19	816.56	1753673.49	14556191.79	40°04'48.684"N	80°35'42.401"W	868.62	70.063	1.26	-1.25	-0.30
3666.00	26.740	71.690	3494.33	184.18	309.64	856.31	1753713.23	14556205.24	40°04'48.816"N	80°35'41.889"W	910.57	70.120	0.61	0.48	0.83
3762.00	28.040	72.070	3579.57	191.78	323.37	898.28	1753755.19	14556218.97	40°04'48.949"N	80°35'41.348"W	954.72	70.202	1.37	1.35	0.40
3858.00	29.130	71.000	3663.86	199.97	337.93	941.85	1753798.73	14556233.52	40°04'49.091"N	80°35'40.787"W	1000.63	70.262	1.25	1.14	-1.11
3954.00	27.820	69.640	3748.25	209.06	353.33	984.94	1753841.81	14556248.91	40°04'49.241"N	80°35'40.232"W	1046.40	70.266	1.52	-1.36	-1.42
4051.00	28.600	70.220	3833.73	218.48	369.06	1028.01	1753884.86	14556264.64	40°04'49.395"N	80°35'39.677"W	1092.25	70.252	0.85	0.80	0.60
4147.00	30.030	70.890	3917.43	227.63	384.70	1072.33	1753929.17	14556280.27	40°04'49.548"N	80°35'39.106"W	1139.25	70.264	1.53	1.49	0.70
4243.00	28.610	71.210	4001.13	236.39	399.97	1116.79	1753973.61	14556295.53	40°04'49.696"N	80°35'38.533"W	1186.26	70.295	1.49	-1.48	0.33
4339.00	29.800	68.850	4084.93	245.95	415.98	1160.80	1754017.60	14556311.54	40°04'49.853"N	80°35'37.966"W	1233.09	70.285	1.72	1.24	-2.46
4435.00	29.760	68.180	4168.25	256.90	433.44	1205.17	1754061.95	14556329.00	40°04'50.023"N	80°35'37.394"W	1280.75	70.219	0.35	-0.04	-0.70
4531.00	28.880	69.000	4251.95	267.64	450.61	1248.93	1754105.70	14556346.15	40°04'50.191"N	80°35'36.830"W	1327.74	70.161	1.01	-0.92	0.85
4627.00	30.290	69.150	4335.44	278.07	467.53	1293.20	1754149.95	14556363.07	40°04'50.356"N	80°35'36.259"W	1375.12	70.123	1.47	1.47	0.16
4723.00	29.160	69.060	4418.80	288.52	484.51	1337.67	1754194.40	14556380.04	40°04'50.522"N	80°35'35.686"W	1422.72	70.089	1.18	-1.18	-0.09
4819.00	29.680	69.160	4502.42	298.87	501.32	1381.73	1754238.44	14556396.85	40°04'50.686"N	80°35'35.119"W	1469.86	70.058	0.54	0.54	0.10
4916.00	29.170	68.560	4586.91	309.53	518.51	1426.18	1754282.87	14556414.03	40°04'50.854"N	80°35'34.546"W	1517.51	70.020	0.61	-0.53	-0.62
5012.00	30.130	69.210	4670.34	320.14	535.61	1470.48	1754327.16	14556431.13	40°04'51.021"N	80°35'33.975"W	1564.99	69.986	1.05	1.00	0.68
5108.00	29.160	69.630	4753.77	330.31	552.31	1514.93	1754371.59	14556447.81	40°04'51.184"N	80°35'33.402"W	1612.47	69.969	1.03	-1.01	0.44
5205.00	28.530	72.940	4838.74	338.85	567.33	1559.23	1754415.88	14556462.83	40°04'51.330"N	80°35'32.831"W	1659.24	70.006	1.77	-0.65	3.41
5300.00	29.950	72.660	4921.64	346.11	581.05	1603.56	1754460.19	14556476.55	40°04'51.464"N	80°35'32.260"W	1705.59	70.082	1.50	1.49	-0.29
5396.00	29.020	72.550	5005.20	353.65	595.18	1648.65	1754505.26	14556490.67	40°04'51.601"N	80°35'31.679"W	1752.79	70.150	0.97	-0.97	-0.11

WV Department of Environmental Protection

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Office of Oil and Gas





# Actual Wellpath Report

OCC A OHI 405H AWP Proj: 15248'MD  
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REFERENCE WELLPATH IDENTIFICATION			
Operator	SOUTHWESTERN ENERGY	Slot	Slot 405H
Area	Ohio County, WV	Well	OCC A OHI 405H
Field	Ohio	Wellbore	OCC A OHI 405H AWB
Facility	OCC A OHI Pad		

WELLPATH DATA (177 stations)															
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5493.00	27.100	71.760	5090.80	361.27	609.15	1692.08	1754548.68	14556504.63	40°04'51.738"N	80°35'31.120"W	1798.39	70.201	2.02	-1.98	-0.81
5589.00	27.340	71.290	5176.16	369.10	623.07	1733.73	1754590.31	14556518.54	40°04'51.873"N	80°35'30.583"W	1842.29	70.233	0.34	0.25	-0.49
5686.00	28.270	67.840	5261.97	378.70	638.88	1776.11	1754632.67	14556534.35	40°04'52.028"N	80°35'30.037"W	1887.52	70.216	1.92	0.96	-3.56
5782.00	28.110	68.550	5346.58	389.36	655.72	1818.21	1754674.76	14556551.19	40°04'52.192"N	80°35'29.494"W	1932.84	70.169	0.39	-0.17	0.74
5878.00	29.500	71.010	5430.70	398.96	671.69	1861.61	1754718.14	14556567.15	40°04'52.348"N	80°35'28.935"W	1979.08	70.160	1.90	1.45	2.56
5974.00	29.400	70.420	5514.30	408.03	687.27	1906.17	1754762.68	14556582.73	40°04'52.500"N	80°35'28.361"W	2026.28	70.173	0.32	-0.10	-0.61
6022.00	29.420	64.970	5556.12	413.76	696.21	1927.95	1754784.45	14556591.66	40°04'52.587"N	80°35'28.080"W	2049.81	70.145	5.57	0.04	-11.35
6071.00	29.600	60.310	5598.77	421.68	707.30	1949.37	1754805.87	14556602.74	40°04'52.696"N	80°35'27.804"W	2073.72	70.057	4.70	0.37	-9.51
6119.00	30.740	55.070	5640.28	431.54	720.20	1969.73	1754826.22	14556615.64	40°04'52.822"N	80°35'27.541"W	2097.27	69.916	5.98	2.37	-10.92
6167.00	32.040	48.390	5681.26	444.06	735.68	1989.32	1754845.79	14556631.12	40°04'52.974"N	80°35'27.288"W	2120.99	69.705	7.73	2.71	-13.92
6215.00	33.570	40.910	5721.62	459.77	754.17	2007.53	1754864.01	14556649.60	40°04'53.156"N	80°35'27.053"W	2144.52	69.410	9.02	3.19	-15.58
6263.00	35.220	34.770	5761.24	478.58	775.58	2024.13	1754880.59	14556671.00	40°04'53.367"N	80°35'26.838"W	2167.63	69.035	8.00	3.44	-12.79
6316.00	36.920	27.610	5804.10	502.69	802.26	2040.23	1754896.69	14556697.66	40°04'53.630"N	80°35'26.629"W	2192.29	68.534	8.57	3.21	-13.51
6360.00	38.020	22.100	5839.03	525.11	826.53	2051.45	1754907.91	14556721.93	40°04'53.869"N	80°35'26.484"W	2211.70	68.056	8.02	2.50	-12.52
6408.00	40.780	17.000	5876.13	552.06	855.23	2061.60	1754918.05	14556750.62	40°04'54.153"N	80°35'26.351"W	2231.95	67.470	8.86	5.75	-10.62
6456.00	42.590	14.030	5911.98	581.29	885.98	2070.12	1754926.57	14556781.36	40°04'54.456"N	80°35'26.240"W	2251.75	66.830	5.58	3.77	-6.19
6504.00	45.630	10.890	5946.44	612.54	918.60	2077.31	1754933.75	14556813.96	40°04'54.778"N	80°35'26.146"W	2271.35	66.145	7.80	6.33	-6.54
6551.00	47.990	8.810	5978.61	645.12	952.36	2083.16	1754939.60	14556847.71	40°04'55.111"N	80°35'26.068"W	2290.53	65.432	5.97	5.02	-4.43
6618.00	51.700	3.490	6021.82	694.70	1003.24	2088.57	1754945.01	14556898.57	40°04'55.614"N	80°35'25.996"W	2317.03	64.343	8.21	5.54	-7.94
6663.00	54.170	2.030	6048.95	729.95	1039.10	2090.29	1754946.73	14556934.41	40°04'55.968"N	80°35'25.971"W	2334.32	63.568	6.07	5.49	-3.24
6715.00	54.830	0.990	6079.14	771.68	1081.42	2091.41	1754947.85	14556976.72	40°04'56.386"N	80°35'25.954"W	2354.45	62.658	2.06	1.27	-2.00
6753.00	55.830	359.510	6100.76	802.59	1112.67	2091.54	1754947.98	14557007.96	40°04'56.695"N	80°35'25.951"W	2369.09	61.988	4.15	2.63	-3.89
6810.00	59.900	355.680	6131.08	850.59	1160.87	2089.48	1754945.92	14557056.14	40°04'57.172"N	80°35'25.975"W	2390.30	60.944	9.13	7.14	-6.72
6855.00	62.490	350.710	6152.77	889.99	1200.00	2084.79	1754941.23	14557095.25	40°04'57.559"N	80°35'26.033"W	2405.48	60.075	11.26	5.76	-11.04
6905.00	65.060	345.630	6174.88	934.72	1243.87	2075.58	1754932.02	14557139.11	40°04'57.993"N	80°35'26.149"W	2419.76	59.066	10.46	5.14	-10.16
6954.00	69.710	342.560	6193.72	979.53	1287.34	2063.17	1754919.62	14557182.57	40°04'58.423"N	80°35'26.306"W	2431.86	58.037	11.11	9.49	-6.27
7001.00	74.490	340.910	6208.16	1023.55	1329.80	2049.15	1754905.60	14557225.00	40°04'58.843"N	80°35'26.483"W	2442.82	57.018	10.70	10.17	-3.51
7046.00	77.160	340.660	6219.18	1066.37	1370.99	2034.79	1754891.25	14557266.18	40°04'59.251"N	80°35'26.666"W	2453.57	56.029	5.96	5.93	-0.56
7097.00	79.860	340.650	6229.34	1115.41	1418.15	2018.23	1754874.70	14557313.32	40°04'59.717"N	80°35'26.876"W	2466.66	54.906	5.29	5.29	-0.02
7143.00	82.290	340.380	6236.47	1159.97	1460.98	2003.08	1754859.55	14557356.14	40°05'00.141"N	80°35'27.068"W	2479.27	53.894	5.31	5.28	-0.59

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# Actual Wellpath Report

OCC A OHI 405H AWP Proj: 15248'MD  
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REFERENCE WELLPATH IDENTIFICATION			
Operator	SOUTHWESTERN ENERGY	Slot	Slot 405H
Area	Ohio County, WV	Well	OCC A OHI 405H
Field	Ohio	Wellbore	OCC A OHI 405H AWP
Facility	OCC A OHI Pad		

WELLPATH DATA (177 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]
7193.00	84.050	339.730	6242.42	1208.57	1507.65	1986.14	1754842.62	14557402.78	40°05'00.603"N	80°35'27.284"W	2493.55	52.798	3.75	3.52	-1.30
7239.00	87.010	338.020	6246.00	1253.27	1550.42	1969.62	1754826.10	14557445.54	40°05'01.027"N	80°35'27.494"W	2506.63	51.791	7.43	6.43	-3.72
7289.00	90.680	336.380	6247.01	1301.63	1596.49	1950.25	1754806.74	14557491.60	40°05'01.483"N	80°35'27.740"W	2520.37	50.696	8.04	7.34	-3.28
7385.00	90.520	333.460	6246.00	1393.49	1683.43	1909.56	1754766.07	14557578.50	40°05'02.344"N	80°35'28.258"W	2545.66	48.601	3.05	-0.17	-3.04
7480.00	90.650	333.600	6245.04	1483.70	1768.47	1867.22	1754723.75	14557663.50	40°05'03.186"N	80°35'28.798"W	2571.77	46.556	0.20	0.14	0.15
7576.00	90.650	332.620	6243.95	1574.64	1854.08	1823.80	1754680.35	14557749.08	40°05'04.034"N	80°35'29.352"W	2600.74	44.528	1.02	0.00	-1.02
7672.00	90.740	332.130	6242.78	1665.17	1939.13	1779.29	1754635.85	14557834.10	40°05'04.877"N	80°35'29.919"W	2631.75	42.539	0.52	0.09	-0.51
7768.00	90.620	332.270	6241.64	1755.61	2024.04	1734.52	1754591.10	14557918.98	40°05'05.718"N	80°35'30.490"W	2665.58	40.595	0.19	-0.12	0.15
7864.00	90.890	333.190	6240.38	1846.33	2109.36	1690.54	1754547.14	14558004.27	40°05'06.563"N	80°35'31.051"W	2703.21	38.710	1.00	0.28	0.96
7959.00	90.830	333.600	6238.95	1936.47	2194.30	1648.00	1754504.61	14558089.17	40°05'07.404"N	80°35'31.593"W	2744.24	36.908	0.44	-0.06	0.43
8055.00	90.800	338.430	6237.58	2028.82	2281.97	1608.99	1754465.62	14558176.81	40°05'08.272"N	80°35'32.090"W	2792.18	35.187	5.03	-0.03	5.03
8151.00	90.950	339.100	6236.12	2122.34	2371.44	1574.23	1754430.87	14558266.24	40°05'09.158"N	80°35'32.532"W	2846.39	33.577	0.72	0.16	0.70
8248.00	90.340	338.060	6235.03	2216.76	2461.73	1538.81	1754395.46	14558356.50	40°05'10.052"N	80°35'32.982"W	2903.11	32.009	1.24	-0.63	-1.07
8344.00	90.920	337.670	6233.97	2309.93	2550.65	1502.64	1754359.30	14558445.39	40°05'10.932"N	80°35'33.442"W	2960.36	30.503	0.73	0.60	-0.41
8441.00	90.920	334.850	6232.41	2403.37	2639.43	1463.60	1754320.28	14558534.12	40°05'11.811"N	80°35'33.940"W	3018.06	29.009	2.91	0.00	-2.91
8536.00	90.860	332.660	6230.94	2493.69	2724.62	1421.59	1754278.29	14558619.28	40°05'12.655"N	80°35'34.475"W	3073.18	27.554	2.31	-0.06	-2.31
8633.00	90.830	334.760	6229.51	2585.88	2811.57	1378.64	1754235.35	14558706.20	40°05'13.516"N	80°35'35.022"W	3131.38	26.121	2.16	-0.03	2.16
8729.00	90.030	331.660	6228.79	2676.86	2897.25	1335.37	1754192.11	14558791.85	40°05'14.365"N	80°35'35.574"W	3190.19	24.745	3.33	-0.83	-3.23
8824.00	90.580	332.510	6228.28	2766.30	2981.19	1290.90	1754147.65	14558875.76	40°05'15.196"N	80°35'36.141"W	3248.68	23.413	1.07	0.58	0.89
8920.00	90.550	336.470	6227.33	2857.93	3067.81	1249.57	1754106.33	14558962.35	40°05'16.054"N	80°35'36.688"W	3312.54	22.162	4.12	-0.03	4.13
9016.00	90.430	338.920	6226.51	2951.03	3156.62	1213.14	1754069.92	14559051.12	40°05'16.934"N	80°35'37.132"W	3381.71	21.022	2.56	-0.12	2.55
9112.00	90.580	339.360	6225.67	3044.70	3246.32	1178.95	1754035.75	14559140.79	40°05'17.822"N	80°35'37.566"W	3453.77	19.959	0.48	0.16	0.46
9209.00	90.550	338.050	6224.71	3139.17	3336.70	1143.73	1754000.53	14559231.12	40°05'18.716"N	80°35'38.014"W	3527.27	18.920	1.35	-0.03	-1.35
9305.00	90.460	336.060	6223.86	3232.01	3425.09	1106.31	1753963.13	14559319.48	40°05'19.591"N	80°35'38.490"W	3599.33	17.900	2.07	-0.09	-2.07
9401.00	90.490	334.230	6223.07	3323.98	3512.19	1065.96	1753922.79	14559406.55	40°05'20.454"N	80°35'39.004"W	3670.39	16.883	1.91	0.03	-1.91
9496.00	90.520	334.780	6222.23	3414.68	3597.94	1025.07	1753881.92	14559492.26	40°05'21.303"N	80°35'39.525"W	3741.11	15.902	0.58	0.03	0.58
9592.00	90.280	335.230	6221.56	3506.59	3684.95	984.51	1753841.37	14559579.24	40°05'22.165"N	80°35'40.042"W	3814.19	14.958	0.53	-0.25	0.47
9689.00	90.620	335.040	6220.80	3599.52	3772.95	943.72	1753800.60	14559667.21	40°05'23.036"N	80°35'40.562"W	3889.19	14.043	0.40	0.35	-0.20
9785.00	90.280	336.000	6220.04	3691.67	3860.32	903.94	1753760.84	14559754.54	40°05'23.901"N	80°35'41.068"W	3964.74	13.179	1.06	-0.35	1.00
9880.00	90.430	338.080	6219.46	3783.53	3947.78	866.89	1753723.80	14559841.97	40°05'24.767"N	80°35'41.540"W	4041.84	12.385	2.20	0.16	2.19

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# Actual Wellpath Report

OCC A OHI 405H AWP Proj: 15248'MD  
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REFERENCE WELLPATH IDENTIFICATION			
Operator	SOUTHWESTERN ENERGY	Slot	Slot 405H
Area	Ohio County, WV	Well	OCC A OHI 405H
Field	Ohio	Wellbore	OCC A OHI 405H AWB
Facility	OCC A OHI Pad		

WELLPATH DATA (177 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]
9977.00	90.460	340.020	6218.70	3878.14	4038.37	832.21	1753689.13	14559932.52	40°05'25.664"N	80°35'41.981"W	4123.22	11.644	2.00	0.03	2.00
10073.00	90.460	339.130	6217.93	3971.96	4128.33	798.71	1753655.65	14560022.45	40°05'26.555"N	80°35'42.407"W	4204.88	10.950	0.93	0.00	-0.93
10169.00	90.650	339.030	6217.00	4065.60	4217.99	764.43	1753621.38	14560112.08	40°05'27.442"N	80°35'42.842"W	4286.70	10.272	0.22	0.20	-0.10
10264.00	90.490	338.390	6216.06	4158.13	4306.51	729.94	1753586.90	14560200.56	40°05'28.319"N	80°35'43.281"W	4367.93	9.620	0.69	-0.17	-0.67
10361.00	90.460	337.910	6215.25	4252.39	4396.53	693.84	1753550.82	14560290.55	40°05'29.210"N	80°35'43.740"W	4450.95	8.968	0.50	-0.03	-0.49
10456.00	90.400	334.990	6214.54	4344.00	4483.61	655.89	1753512.88	14560377.59	40°05'30.072"N	80°35'44.224"W	4531.33	8.322	3.07	-0.06	-3.07
10553.00	90.550	333.790	6213.74	4436.55	4571.07	613.96	1753470.97	14560465.02	40°05'30.938"N	80°35'44.758"W	4612.12	7.650	1.25	0.15	-1.24
10648.00	90.430	335.160	6212.92	4527.24	4656.80	573.03	1753430.05	14560550.71	40°05'31.787"N	80°35'45.280"W	4691.92	7.015	1.45	-0.13	1.44
10744.00	90.430	338.340	6212.20	4619.94	4744.99	535.14	1753392.18	14560638.87	40°05'32.660"N	80°35'45.762"W	4775.07	6.435	3.31	0.00	3.31
10840.00	90.550	341.040	6211.38	4713.79	4835.01	501.82	1753358.88	14560728.85	40°05'33.551"N	80°35'46.185"W	4860.98	5.925	2.82	0.12	2.81
10937.00	90.520	344.720	6210.47	4809.60	4927.69	473.27	1753330.34	14560821.50	40°05'34.469"N	80°35'46.547"W	4950.36	5.486	3.79	-0.03	3.79
11033.00	90.830	343.440	6209.34	4904.73	5020.00	446.94	1753304.02	14560913.77	40°05'35.382"N	80°35'46.881"W	5039.86	5.088	1.37	0.32	-1.33
11130.00	91.200	340.570	6207.63	5000.29	5112.23	416.98	1753274.07	14561005.97	40°05'36.295"N	80°35'47.261"W	5129.21	4.663	2.98	0.38	-2.96
11226.00	90.800	336.730	6205.95	5093.74	5201.61	382.05	1753239.15	14561095.32	40°05'37.180"N	80°35'47.705"W	5215.62	4.201	4.02	-0.42	-4.00
11322.00	90.800	336.280	6204.61	5186.34	5289.64	343.78	1753200.89	14561183.31	40°05'38.051"N	80°35'48.192"W	5300.80	3.718	0.47	0.00	-0.47
11418.00	90.710	335.480	6203.34	5278.65	5377.25	304.55	1753161.68	14561270.89	40°05'38.919"N	80°35'48.692"W	5385.87	3.242	0.84	-0.09	-0.83
11514.00	90.800	333.050	6202.08	5370.18	5463.72	262.87	1753120.02	14561357.32	40°05'39.775"N	80°35'49.223"W	5470.04	2.755	2.53	0.09	-2.53
11610.00	90.680	330.220	6200.84	5460.29	5548.18	217.27	1753074.44	14561441.75	40°05'40.612"N	80°35'49.805"W	5552.43	2.243	2.95	-0.12	-2.95
11707.00	90.550	329.000	6199.80	5550.10	5631.84	168.21	1753025.39	14561525.38	40°05'41.441"N	80°35'50.431"W	5634.35	1.711	1.26	-0.13	-1.26
11803.00	90.370	329.800	6199.03	5638.86	5714.47	119.34	1752976.54	14561607.98	40°05'42.259"N	80°35'51.055"W	5715.72	1.196	0.85	-0.19	0.83
11899.00	90.280	330.900	6198.48	5728.22	5797.90	71.85	1752929.07	14561691.37	40°05'43.086"N	80°35'51.662"W	5798.34	0.710	1.15	-0.09	1.15
11995.00	90.310	333.140	6197.99	5818.55	5882.67	26.81	1752884.05	14561776.11	40°05'43.926"N	80°35'52.236"W	5882.73	0.261	2.33	0.03	2.33
12091.00	90.340	333.090	6197.44	5909.49	5968.29	-16.60	1752840.66	14561861.70	40°05'44.774"N	80°35'52.790"W	5968.32	359.841	0.06	0.03	-0.05
12187.00	90.430	332.970	6196.80	6000.39	6053.85	-60.13	1752797.14	14561947.22	40°05'45.621"N	80°35'53.345"W	6054.15	359.431	0.16	0.09	-0.12
12283.00	90.310	335.880	6196.18	6092.01	6140.43	-101.57	1752755.72	14562033.77	40°05'46.479"N	80°35'53.873"W	6141.27	359.052	3.03	-0.12	3.03
12380.00	90.370	337.050	6195.60	6185.55	6229.36	-140.30	1752717.00	14562122.67	40°05'47.359"N	80°35'54.366"W	6230.94	358.710	1.21	0.06	1.21
12476.00	90.340	336.940	6195.01	6278.37	6317.72	-177.82	1752679.50	14562211.00	40°05'48.234"N	80°35'54.844"W	6320.23	358.388	0.12	-0.03	-0.11
12572.00	90.490	337.410	6194.31	6371.26	6406.20	-215.06	1752642.27	14562299.44	40°05'49.110"N	80°35'55.318"W	6409.81	358.077	0.51	0.16	0.49
12669.00	90.430	338.800	6193.53	6465.50	6496.20	-251.23	1752606.12	14562389.40	40°05'50.001"N	80°35'55.778"W	6501.06	357.785	1.43	-0.06	1.43
12765.00	90.460	339.640	6192.79	6559.20	6585.95	-285.29	1752572.07	14562479.12	40°05'50.890"N	80°35'56.211"W	6592.13	357.520	0.88	0.03	0.87

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Area	Ohio County, WV	Well	OCC A OHI 405H
Field	Ohio	Wellbore	OCC A OHI 405H AWB
Facility	OCC A OHI Pad		

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12861.00	90.770	337.540	6191.76	6652.65	6675.32	-320.33	1752537.05	14562568.45	40°05'51.774"N	80°35'56.657"W	6683.00	357.253	2.21	0.32	-2.19
12957.00	90.680	337.470	6190.54	6745.67	6764.01	-357.05	1752500.34	14562657.11	40°05'52.652"N	80°35'57.125"W	6773.42	356.978	0.12	-0.09	-0.07
13053.00	90.740	338.520	6189.35	6838.90	6853.01	-393.02	1752464.38	14562746.07	40°05'53.533"N	80°35'57.582"W	6864.27	356.718	1.10	0.06	1.09
13149.00	90.680	338.850	6188.16	6932.39	6942.43	-427.91	1752429.50	14562835.46	40°05'54.419"N	80°35'58.026"W	6955.61	356.473	0.35	-0.06	0.34
13245.00	90.520	339.770	6187.16	7026.11	7032.23	-461.83	1752395.60	14562925.23	40°05'55.308"N	80°35'58.457"W	7047.38	356.243	0.97	-0.17	0.96
13342.00	90.740	335.100	6186.09	7120.05	7121.78	-499.04	1752358.41	14563014.74	40°05'56.194"N	80°35'58.931"W	7139.24	355.992	4.82	0.23	-4.81
13438.00	90.710	328.780	6184.88	7210.30	7206.44	-544.17	1752313.29	14563099.37	40°05'57.033"N	80°35'59.507"W	7226.96	355.682	6.58	-0.03	-6.58
13534.00	90.550	328.540	6183.82	7298.57	7288.43	-594.10	1752263.38	14563181.33	40°05'57.845"N	80°36'00.144"W	7312.61	355.340	0.30	-0.17	-0.25
13630.00	90.620	329.700	6182.84	7387.15	7370.82	-643.36	1752214.13	14563263.68	40°05'58.662"N	80°36'00.774"W	7398.84	355.012	1.21	0.07	1.21
13726.00	90.650	334.660	6181.77	7477.55	7455.69	-688.15	1752169.37	14563348.52	40°05'59.502"N	80°36'01.345"W	7487.38	354.727	5.17	0.03	5.17
13822.00	90.650	339.220	6180.69	7570.31	7543.99	-725.74	1752131.79	14563436.79	40°06'00.377"N	80°36'01.824"W	7578.82	354.505	4.75	0.00	4.75
13919.00	90.800	339.460	6179.46	7665.02	7634.75	-759.96	1752097.58	14563527.51	40°06'01.275"N	80°36'02.259"W	7672.48	354.316	0.29	0.15	0.25
14015.00	90.830	337.190	6178.09	7758.37	7723.94	-795.41	1752062.15	14563616.67	40°06'02.158"N	80°36'02.710"W	7764.79	354.120	2.36	0.03	-2.36
14112.00	91.110	337.070	6176.45	7852.20	7813.30	-833.11	1752024.47	14563706.00	40°06'03.043"N	80°36'03.190"W	7857.59	353.914	0.31	0.29	-0.12
14205.00	91.260	335.730	6174.53	7941.84	7898.51	-870.33	1751987.26	14563791.17	40°06'03.886"N	80°36'03.664"W	7946.31	353.712	1.45	0.16	-1.44
14301.00	91.350	335.930	6172.34	8034.12	7986.07	-909.63	1751947.98	14563878.69	40°06'04.753"N	80°36'04.164"W	8037.70	353.502	0.23	0.09	0.21
14398.00	91.200	338.270	6170.18	8127.92	8075.39	-947.36	1751910.26	14563967.98	40°06'05.638"N	80°36'04.645"W	8130.77	353.309	2.42	-0.15	2.41
14494.00	91.200	339.210	6168.17	8221.42	8164.84	-982.16	1751875.47	14564057.40	40°06'06.523"N	80°36'05.088"W	8223.70	353.141	0.98	0.00	0.98
14590.00	91.260	340.120	6166.11	8315.25	8254.84	-1015.51	1751842.13	14564147.36	40°06'07.414"N	80°36'05.512"W	8317.07	352.987	0.95	0.06	0.95
14686.00	91.170	341.400	6164.07	8409.45	8345.45	-1047.14	1751810.52	14564237.94	40°06'08.311"N	80°36'05.913"W	8410.89	352.848	1.34	-0.09	1.33
14782.00	91.260	341.380	6162.04	8503.86	8436.41	-1077.77	1751779.90	14564328.86	40°06'09.211"N	80°36'06.302"W	8504.98	352.720	0.10	0.09	-0.02
14878.00	91.380	337.150	6159.83	8597.53	8526.15	-1111.74	1751745.94	14564418.56	40°06'10.099"N	80°36'06.734"W	8598.32	352.571	4.41	0.12	-4.41
14975.00	91.290	331.920	6157.56	8690.10	8613.67	-1153.42	1751704.28	14564506.05	40°06'10.966"N	80°36'07.266"W	8690.55	352.373	5.39	-0.09	-5.39
15071.00	91.420	327.610	6155.29	8779.05	8696.57	-1201.74	1751655.98	14564588.92	40°06'11.787"N	80°36'07.883"W	8779.21	352.132	4.49	0.14	-4.49
15167.00	91.230	326.050	6153.07	8866.06	8776.90	-1254.24	1751603.49	14564669.22	40°06'12.584"N	80°36'08.554"W	8866.07	351.867	1.64	-0.20	-1.63
15224.00	91.320	328.380	6151.81	8917.88	8824.81	-1285.10	1751572.65	14564717.11	40°06'13.058"N	80°36'08.948"W	8917.89	351.715	4.09	0.16	4.09
15248.00	91.320	328.380	6151.25	8939.90	8845.24	-1297.68	1751560.07	14564737.53	40°06'13.261"N	80°36'09.109"W	8939.92	351.654	0.00	0.00	0.00

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## REFERENCE WELLPATH IDENTIFICATION

Operator	SOUTHWESTERN ENERGY	Slot	Slot 405H
Area	Ohio County, WV	Well	OCC A OHI 405H
Field	Ohio	Wellbore	OCC A OHI 405H AWB
Facility	OCC A OHI Pad		

## HOLE & CASING SECTIONS - Ref Wellbore: OCC A OHI 405H AWB Ref Wellpath: OCC A OHI 405H AWP Proj: 15248'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	26.00	26.00	0.00	26.00	26.00	0.00	0.00	0.00	0.00
13.375in Casing	26.00	532.00	506.00	26.00	532.00	0.00	0.00	-0.22	-1.51
12.25in Open Hole	532.00	1880.00	1348.00	532.00	1858.51	-0.22	-1.51	77.09	202.58
9.625in Casing	26.00	1880.00	1854.00	26.00	1858.51	0.00	0.00	77.09	202.58
8.75in Open Hole	1880.00	6635.00	4755.00	1858.51	6032.25	77.09	202.58	1016.64	2089.32
8.5in Open Hole	6635.00	15248.00	8613.00	6032.25	6151.25	1016.64	2089.32	8845.24	-1297.68

## TARGETS

Name	TVD [ft]	North [ft]	East [ft]	Grid East [US ft]	Grid North [US ft]	Latitude	Longitude	Shape
OCC A OHI 405H BHL Rev-2	6157.00	8868.96	-1279.18	1751578.57	14564761.24	40°06'13.494"N	80°36'08.869"W	point
OCC A OHI 405H LP Rev-3	6240.00	1487.09	1979.57	1754836.05	14557382.24	40°05'00.400"N	80°35'27.369"W	point
OCC A OHI 405H LP Rev-4	6240.00	1511.10	1968.80	1754825.29	14557406.23	40°05'00.638"N	80°35'27.506"W	point

## WELLPATH COMPOSITION - Ref Wellbore: OCC A OHI 405H AWB Ref Wellpath: OCC A OHI 405H AWP Proj: 15248'MD

Start MD [ft]	End MD [ft]	Positional Uncertainty Model	Log Name/Comment	Wellbore
26.00	739.00	BHI Generic gyro - continuous (Standard)	01_Gyro (100'-739')	OCC A OHI 405H AWB
739.00	6551.00	OWSG MWD rev2 + HRGM	02_Premier MWD (814'-6551')	OCC A OHI 405H AWB
6551.00	15224.00	BHI AutoTrak Curve (Short)	03_BH AT Curve <8.5">(6618'-15224')	OCC A OHI 405H AWB
15224.00	15248.00	Blind Drilling (std)	Projection to bit	OCC A OHI 405H AWB

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REFERENCE WELLPATH IDENTIFICATION			
Operator	SOUTHWESTERN ENERGY	Slot	Slot 405H
Area	Ohio County, WV	Well	OCC A OHI 405H
Field	Ohio	Wellbore	OCC A OHI 405H AWB
Facility	OCC A OHI Pad		

COMMENTS
<p><b>Wellpath general comments</b>            API: 47-069-00269-0000            BH Job #: 9165754            Rig: SDC 41            Duration: 05/21/02018 - 05/24/2018</p>

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