

SOUTHWESTERN ENERGY

Location: Marion County, WV
 Field: Marion
 Facility: Quality Reclamation MRN Pad/Wellbore: Quality Reclamation MRN 10H PWB



API: 47-049-02425-0000
 Job#: 8410533
 Rig: SDC-46
 Duration: 03/07/17 - 03/23/17

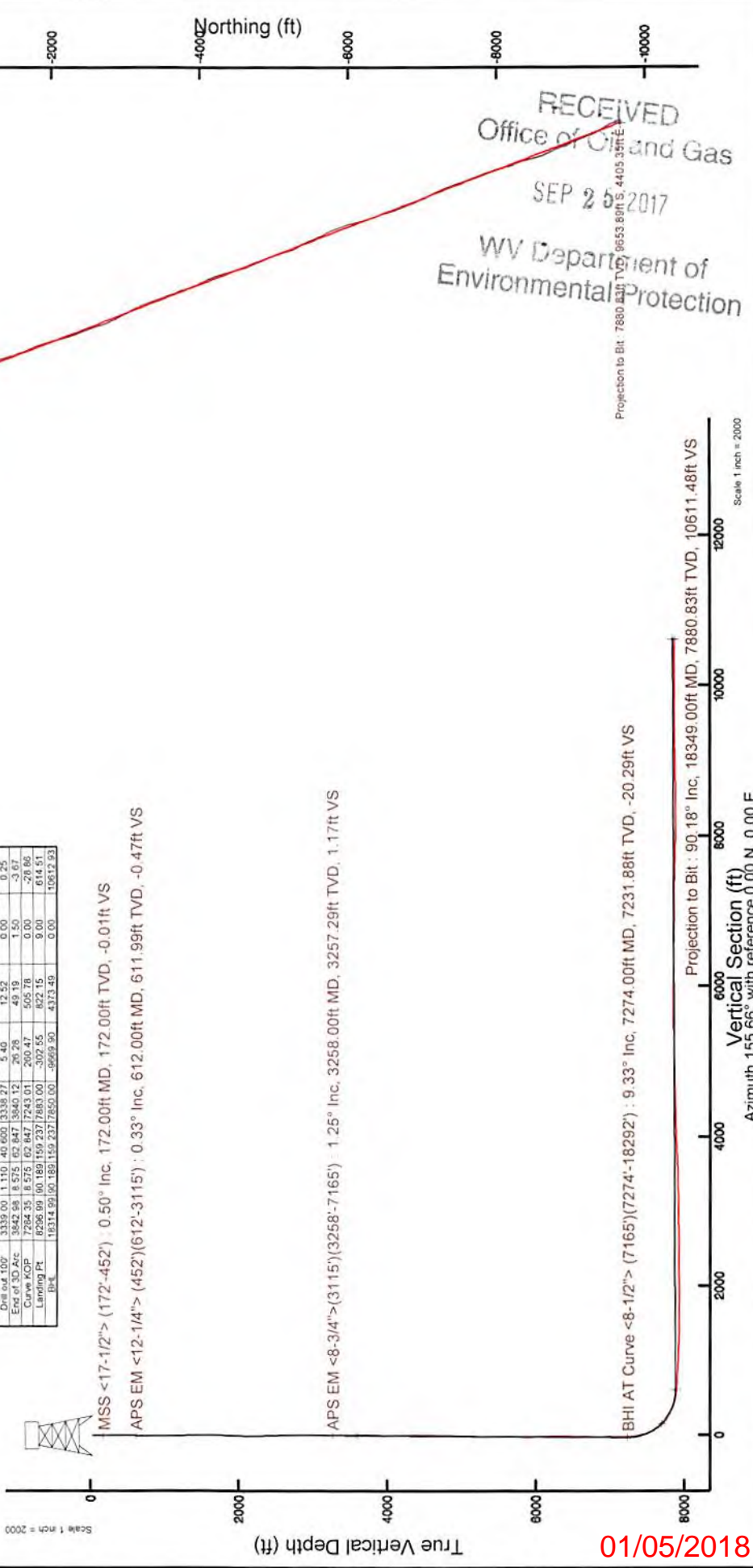
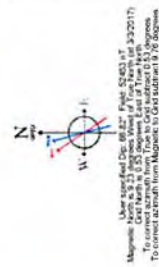
Slot: Slot #10
 Well: Quality Reclamation MRN 10H

Point reference wellpath is Quality Reclamation MRN 10H PWP Rev-C 0
 True vertical depths are referenced to Rig on Slot #10 (RKB)
 Measured depths are referenced to Rig on Slot #10 (RKB)
 Scale: True distance
 Rig on Slot #10 (RKB) to Mean Sea Level: 1250.5 feet
 Mean Sea Level to Mud line (AI Slot: Slot #10): -1224.5 feet
 Coordinates are in feet referenced to Slot
 Database: WA_MPL_EASTERNUS_Defn



Location Information			
Facility Name	Grid East (US N) (Slot North) (US N)	Latitude	Longitude
Quality Reclamation MRN Pad	1976813.000	39°34'24.0187N	80°09'39.9057W
Slot	Local N (ft) Local E (ft) Grid East (US N) Grid North (US N)	Latitude	Longitude
Slot #10	0.00 0.58 1976813.590 14372477.000	39°34'24.0187N	80°09'39.9057W
Comment	Previous OH Slot		
US on Slot #10 (RKB) to Mean Sea Level	1250.5 ft		
US on Slot #10 (RKB) to Mud line (AI Slot: Slot #10)	-1224.5 ft		
US on Slot #10 (RKB) to Mud line (AI Slot: Slot #10)	-1224.5 ft		
US on Slot #10 (RKB) to Mean Sea Level	1250.5 ft		

Well Profile Data					
Design Comment	MD (ft)	Inc (°)	Az (°)	TVDD (ft)	Local E (ft) Local N (ft) DLS: (°/100ft) VS (ft)
The On	3115.00	1.10	40.600	3114.32	2.10 0.00 0.00 2.09
Proj. To Bottom	3239.00	1.10	40.600	3238.29	3.92 11.26 0.00 1.07
Drill out 100'	3339.00	1.10	40.600	3338.27	5.40 12.52 0.00 0.25
End of 3D Arc	3542.98	8.575	62.847	3540.12	20.28 49.19 1.50 -3.67
Curve KOP	7284.35	8.575	62.847	7243.01	200.47 505.76 0.00 -28.66
Landing Pt	8298.09	0.00	189.159	2377883.00	-302.55 822.15 0.00 614.51
Bit	18314.99	0.00	189.159	2377850.00	-3669.90 4373.45 0.00 10612.93



MSS <17-1/2> (172'-452') : 0.50° Inc. 172.00ft MD, 172.00ft TVD, -0.01ft VS

APS EM <12-1/4> (452')(612'-3115') : 0.33° Inc. 612.00ft MD, 611.99ft TVD, -0.47ft VS

APS EM <8-3/4> (3115')(3258'-7165') : 1.25° Inc. 3258.00ft MD, 3257.29ft TVD, 1.17ft VS

BHI AT Curve <8-1/2> (7165')(7274'-18292') : 9.33° Inc. 7274.00ft MD, 7231.88ft TVD, -20.29ft VS

01/05/2018

Projection to Bit : 90.18° Inc, 18349.00ft MD, 7880.83ft TVD, 10611.48ft VS
 Vertical Section (ft)
 Azimuth 155.66° with reference 0.00 N, 0.00 E



Actual Wellpath Report

Quality Reclamation MRN 10H AWP Proj: 18349'
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REFERENCE WELLPATH IDENTIFICATION			
Operator	SOUTHWESTERN ENERGY	Slot	Slot #10
Area	Marion County, WV	Well	Quality Reclamation MRN 10H
Field	Marion	Wellbore	Quality Reclamation MRN 10H AWB
Facility	Quality Reclamation MRN Pad		

REPORT SETUP INFORMATION			
Projection System	NAD83 / UTM Zone 17 North, US feet	Software System	WellArchitect® 5.0
North Reference	Grid	User	Amarcar
Scale	0.999664	Report Generated	3/27/2017 at 4:52:47 PM
Convergence at slot	0.54° East	Database/Source file	WA_MPL_EASTERNUS_Defn/Quality_Reclamation_MRN_10H_AWP_Proj__18349_.xml

WELLPATH LOCATION						
	Local coordinates		Grid coordinates		Geographic coordinates	
	North[ft]	East[ft]	Easting[US ft]	Northing[US ft]	Latitude	Longitude
Slot Location	0.00	0.58	1876813.58	14372477.00	39°34'24.018"N	80°09'39.897"W
Facility Reference Pt			1876813.00	14372477.00	39°34'24.018"N	80°09'39.905"W
Field Reference Pt			0.00	0.00	0°00'00.000"	85°29'19.478"W

WELLPATH DATUM			
Calculation method	Minimum curvature	Rig on Slot #10 (RKB) to Facility Vertical Datum	1250.50ft
Horizontal Reference Pt	Slot	Rig on Slot #10 (RKB) to Mean Sea Level	1250.50ft
Vertical Reference Pt	Rig on Slot #10 (RKB)	Rig on Slot #10 (RKB) to Mud Line at Slot (Slot #10)	26.00ft
MD Reference Pt	Rig on Slot #10 (RKB)	Section Origin	N 0.00, E 0.00 ft
Field Vertical Reference	Mean Sea Level	Section Azimuth	155.66°

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 WV Department of Environmental Protection

Actual Wellpath Report

Quality Reclamation MRN 10H AWP Proj: 18349



REFERENCE WELLPATH IDENTIFICATION

Operator	SOUTHWESTERN ENERGY
Area	Marion County, WV
Field	Marion
Facility	Quality Reclamation MRN Pad
Slot	Wellbore
Slot #10	Quality Reclamation MRN 10H
	Quality Reclamation MRN 10H AWP

WELLPATH DATA (211 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	64.740	0.00	0.00	0.00	0.00	1876813.58	14372477.00	39°34'24.018"N	80°09'39.897"W	0.00	0.00	0.00	0.00	0.00
26.00	0.00	64.740	26.00	0.00	0.00	0.00	1876813.58	14372477.00	39°34'24.018"N	80°09'39.897"W	0.00	0.00	0.00	0.00	0.00
172.00	0.500	64.740	172.00	-0.01	0.27	0.58	1876814.16	14372477.27	39°34'24.020"N	80°09'39.890"W	0.64	0.34	0.34	0.34	44.34
265.00	0.200	79.340	265.00	0.02	0.48	1.10	1876814.82	14372477.47	39°34'24.022"N	80°09'39.883"W	1.20	0.33	0.33	-0.32	15.70
362.00	0.300	353.140	362.00	-0.18	0.76	1.24	1876814.88	14372477.76	39°34'24.025"N	80°09'39.881"W	1.45	0.36	0.36	0.10	-88.87
452.00	0.200	102.340	452.00	-0.31	0.96	1.36	1876814.94	14372477.96	39°34'24.027"N	80°09'39.880"W	1.67	0.46	0.46	-0.11	121.33
612.00	0.330	20.590	611.99	-0.47	1.33	1.80	1876815.38	14372478.33	39°34'24.031"N	80°09'39.874"W	2.24	0.23	0.23	0.08	-51.09
709.00	0.420	330.120	708.99	-1.02	1.90	1.72	1876815.30	14372478.90	39°34'24.036"N	80°09'39.875"W	2.56	0.34	0.34	0.09	-52.03
797.00	0.030	20.780	796.99	-1.36	2.20	1.57	1876815.15	14372479.20	39°34'24.039"N	80°09'39.877"W	2.70	0.46	0.46	-0.44	57.57
890.00	0.280	296.230	889.99	-1.55	2.32	1.37	1876814.95	14372479.32	39°34'24.041"N	80°09'39.879"W	2.70	0.30	0.30	0.27	-90.91
982.00	0.370	60.370	981.99	-1.75	2.57	1.43	1876815.01	14372479.57	39°34'24.043"N	80°09'39.879"W	2.94	0.63	0.63	0.10	134.93
1075.00	0.760	71.100	1074.99	-1.72	2.92	2.27	1876815.85	14372479.92	39°34'24.046"N	80°09'39.868"W	3.70	0.43	0.42	0.42	11.54
1168.00	1.430	81.820	1167.97	-1.34	3.28	4.01	1876817.58	14372480.28	39°34'24.050"N	80°09'39.846"W	5.18	0.75	0.72	0.72	11.53
1261.00	1.690	82.680	1260.93	-0.62	3.62	6.51	1876820.09	14372480.62	39°34'24.053"N	80°09'39.814"W	7.45	0.28	0.28	0.28	0.92
1354.00	1.710	100.820	1353.89	0.58	3.54	9.24	1876822.81	14372480.54	39°34'24.052"N	80°09'39.779"W	9.89	0.58	0.02	0.02	19.51
1446.00	1.980	89.620	1445.85	2.02	3.29	12.18	1876825.75	14372480.29	39°34'24.049"N	80°09'39.741"W	12.61	0.49	0.29	0.29	-12.17
1539.00	1.320	76.070	1538.81	2.87	3.56	14.82	1876828.40	14372480.56	39°34'24.052"N	80°09'39.708"W	15.24	0.82	-0.71	-14.57	14.57
1632.00	0.950	29.550	1631.79	2.60	4.49	16.24	1876829.82	14372481.49	39°34'24.061"N	80°09'39.689"W	16.85	1.03	-0.40	-50.02	50.02
1725.00	1.410	7.370	1724.77	1.18	6.29	16.77	1876830.34	14372483.29	39°34'24.078"N	80°09'39.682"W	17.91	0.69	0.49	-23.85	23.85
1817.00	1.530	313.260	1816.74	-0.92	8.26	16.02	1876829.59	14372485.26	39°34'24.098"N	80°09'39.692"W	18.02	1.46	0.13	-58.82	58.82
1910.00	1.970	289.440	1909.70	-3.18	9.64	13.61	1876827.18	14372486.64	39°34'24.112"N	80°09'39.722"W	16.68	0.90	0.47	-25.61	25.61
2003.00	2.300	292.630	2002.64	-5.65	10.89	10.38	1876823.95	14372487.89	39°34'24.124"N	80°09'39.763"W	15.04	0.38	0.35	3.43	-3.43
2095.00	1.990	281.220	2094.57	-7.92	11.91	7.11	1876820.68	14372488.91	39°34'24.135"N	80°09'39.805"W	13.87	0.57	-0.34	-12.40	12.40
2188.00	1.170	248.970	2187.54	-8.92	11.89	4.64	1876818.22	14372488.88	39°34'24.135"N	80°09'39.837"W	12.76	1.27	-0.88	-34.68	34.68
2281.00	1.120	179.440	2280.52	-8.14	10.64	3.76	1876817.34	14372487.63	39°34'24.122"N	80°09'39.848"W	11.28	1.40	-0.05	-74.76	74.76
2374.00	1.690	159.800	2373.50	-5.94	8.44	4.24	1876817.82	14372485.44	39°34'24.101"N	80°09'39.842"W	9.45	0.79	0.61	-21.12	21.12
2467.00	1.990	155.980	2466.45	-2.96	5.68	5.37	1876818.95	14372482.68	39°34'24.073"N	80°09'39.828"W	7.82	0.35	0.32	-4.11	4.11
2559.00	1.910	162.420	2558.40	0.16	2.76	6.49	1876820.06	14372479.76	39°34'24.044"N	80°09'39.814"W	7.05	0.25	-0.09	7.00	-7.00
2652.00	1.690	149.110	2651.35	3.06	0.10	7.66	1876821.24	14372477.10	39°34'24.018"N	80°09'39.799"W	7.66	0.51	-0.24	-14.31	14.31
2745.00	0.270	81.910	2744.34	4.49	-1.04	8.58	1876822.16	14372475.96	39°34'24.007"N	80°09'39.788"W	8.64	1.73	-1.53	-72.26	72.26

Actual Wellpath Report

Quality Reclamation MRN 10H AWP Proj: 18349



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Operator	SOUTHWESTERN ENERGY
Area	Marion County, WV
Field	Marion
Facility	Quality Reclamation MRN Pad
Slot	Wellbore
Slot #10	Quality Reclamation MRN 10H
	Quality Reclamation MRN 10H AWP

WELLPATH DATA (211 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]			[ft]	[°]	["/100ft]	["/100ft]	[°/100ft]
2837.00	0.450	21.190	2836.33	4.29	-0.68	8.92	1876822.50	14372476.32	39°34'24.010"N	80°09'39.783"W	8.95	94.330	0.43	0.20	-66.00
2930.00	0.480	341.660	2929.33	3.65	0.03	8.93	1876822.51	14372477.03	39°34'24.017"N	80°09'39.783"W	8.93	89.778	0.34	0.03	-42.51
3023.00	0.660	16.820	3022.33	2.86	0.92	8.97	1876822.54	14372477.92	39°34'24.026"N	80°09'39.783"W	9.01	84.160	0.41	0.19	37.81
3115.00	1.110	40.600	3114.32	2.08	2.10	9.70	1876823.28	14372479.10	39°34'24.038"N	80°09'39.773"W	9.92	77.778	0.62	0.49	25.85
3258.00	1.250	53.990	3257.29	1.17	4.08	11.85	1876825.43	14372481.08	39°34'24.057"N	80°09'39.745"W	12.54	70.993	0.21	0.10	8.94
3304.00	1.280	51.910	3303.27	0.94	4.70	12.66	1876826.24	14372481.70	39°34'24.063"N	80°09'39.735"W	13.50	69.637	0.10	0.07	-3.22
3397.00	4.290	69.790	3396.16	0.94	6.54	16.74	1876830.32	14372483.54	39°34'24.081"N	80°09'39.683"W	17.98	68.658	3.33	3.24	19.23
3490.00	6.160	66.810	3488.76	1.29	9.71	24.59	1876838.17	14372486.71	39°34'24.111"N	80°09'39.582"W	26.44	68.458	2.03	2.01	-3.20
3583.00	6.860	65.230	3581.16	1.35	14.00	34.22	1876847.79	14372491.00	39°34'24.153"N	80°09'39.458"W	36.98	67.751	0.78	0.75	-1.70
3675.00	7.210	63.250	3672.47	1.07	18.90	44.37	1876857.93	14372495.89	39°34'24.200"N	80°09'39.328"W	48.23	66.926	0.46	0.38	-2.15
3768.00	6.900	63.960	3764.77	0.65	23.98	54.60	1876868.16	14372500.97	39°34'24.250"N	80°09'39.197"W	59.63	66.289	0.35	-0.33	0.76
3861.00	6.410	60.190	3857.14	-0.01	29.01	64.12	1876877.68	14372506.00	39°34'24.299"N	80°09'39.075"W	70.38	65.655	0.71	-0.53	-4.05
3954.00	8.140	61.520	3949.39	-0.98	34.73	74.42	1876887.97	14372511.72	39°34'24.354"N	80°09'38.943"W	82.12	64.979	1.87	1.86	1.43
4046.00	9.160	57.210	4040.34	-2.52	41.81	86.30	1876899.85	14372518.79	39°34'24.423"N	80°09'38.790"W	95.89	64.152	1.31	1.11	-4.68
4139.00	8.870	65.780	4132.20	-3.60	48.76	99.06	1876912.61	14372525.74	39°34'24.490"N	80°09'38.626"W	110.41	63.794	1.48	-0.31	9.22
4232.00	8.910	75.170	4224.09	-2.39	53.54	112.56	1876926.10	14372530.52	39°34'24.536"N	80°09'38.453"W	124.65	64.561	1.56	0.04	10.10
4325.00	7.340	71.980	4316.15	-0.55	57.22	125.17	1876938.71	14372537.76	39°34'24.572"N	80°09'38.292"W	137.63	65.432	1.76	-1.69	-3.43
4418.00	6.900	67.600	4408.51	0.45	60.78	135.45	1876948.98	14372543.20	39°34'24.606"N	80°09'38.160"W	148.46	65.832	1.38	-1.34	-2.56
4510.00	7.040	67.850	4499.91	1.00	64.61	145.24	1876958.77	14372544.59	39°34'24.643"N	80°09'38.035"W	158.96	66.019	1.06	1.03	-1.90
4603.00	9.060	61.160	4591.99	0.64	70.29	156.94	1876970.46	14372544.27	39°34'24.698"N	80°09'37.885"W	171.96	65.873	2.39	2.17	-7.19
4696.00	10.200	57.320	4693.68	-1.13	78.27	170.28	1876983.81	14372555.24	39°34'24.775"N	80°09'37.713"W	187.41	65.315	1.41	1.23	-4.13
4789.00	10.290	54.460	4775.19	-3.94	87.54	183.97	1876997.49	14372564.51	39°34'24.866"N	80°09'37.537"W	203.74	64.553	0.56	0.10	-3.08
4882.00	9.180	57.790	4866.85	-6.57	96.32	197.01	1877010.52	14372573.29	39°34'24.951"N	80°09'37.370"W	219.30	63.944	1.34	-1.19	3.58
4974.00	9.130	56.470	4957.68	-8.74	104.27	209.30	1877022.81	14372581.23	39°34'25.029"N	80°09'37.212"W	233.84	63.519	0.23	0.05	-1.43
5067.00	9.740	53.540	5049.42	-11.57	113.02	221.78	1877035.29	14372589.98	39°34'25.114"N	80°09'37.052"W	248.92	62.997	0.83	0.66	-3.15
5160.00	8.790	59.340	5141.21	-14.00	121.32	234.22	1877047.72	14372598.28	39°34'25.195"N	80°09'36.892"W	263.78	62.617	1.43	-1.02	6.24
5252.00	8.210	64.720	5232.20	-14.88	127.71	246.21	1877059.70	14372604.66	39°34'25.257"N	80°09'36.738"W	277.36	62.584	1.07	-0.63	5.88
5348.00	8.860	63.000	5327.14	-15.34	133.99	258.99	1877072.49	14372616.95	39°34'25.318"N	80°09'36.574"W	291.60	62.645	0.73	-0.68	-1.79
5441.00	9.050	57.800	5419.01	-16.67	141.14	271.56	1877085.05	14372628.09	39°34'25.387"N	80°09'36.413"W	306.05	62.538	0.89	0.20	-5.59
5533.00	7.810	62.570	5510.01	-18.00	147.88	283.24	1877096.72	14372624.83	39°34'25.453"N	80°09'36.263"W	319.51	62.431	1.55	-1.35	5.18

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Southwestern Energy

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Quality Reclamation MRN 10H AWP Proj: 18349



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Area	Marion County, WV
Field	Marion
Facility	Quality Reclamation MRN Pad
Slot	Wellbore
Slot #10	Quality Reclamation MRN 10H
	Quality Reclamation MRN 10H AWP

WELLPATH DATA (211 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)	(ft)	(ft)	(ft)	(°)	(%/100ft)	(%/100ft)	(%/100ft)
5626.00	7.570	65.730	5602.18	-18.33	153.31	294.43	1877107.91	14372630.25	39°34'25.506"N	80°09'36.119"W	331.95	62.495	0.52	-0.26	3.40
5719.00	8.650	63.810	5694.24	-18.55	158.91	306.29	1877119.76	14372635.86	39°34'25.560"N	80°09'35.967"W	345.06	62.579	1.20	1.16	-2.06
5812.00	10.450	59.130	5785.95	-19.73	166.32	319.80	1877133.28	14372643.27	39°34'25.632"N	80°09'35.793"W	360.47	62.522	2.11	1.94	-5.03
5904.00	10.380	62.250	5876.44	-21.18	174.46	334.30	1877147.77	14372651.41	39°34'25.711"N	80°09'35.607"W	377.09	62.441	0.62	-0.08	3.39
5997.00	9.860	59.680	5968.00	-20.77	180.80	349.30	1877162.76	14372657.74	39°34'25.772"N	80°09'35.415"W	393.32	62.633	1.95	-0.56	10.68
6090.00	9.290	81.110	6059.71	-17.87	184.40	364.30	1877177.75	14372661.34	39°34'25.806"N	80°09'35.223"W	408.31	63.152	1.71	-0.61	9.60
6183.00	7.750	61.100	6151.68	-14.20	186.53	377.91	1877191.36	14372663.47	39°34'25.826"N	80°09'35.049"W	421.44	63.730	1.66	-1.66	-0.01
6275.00	6.680	66.610	6242.96	-12.46	189.61	388.95	1877202.40	14372666.55	39°34'25.856"N	80°09'34.908"W	432.71	64.011	2.29	-1.16	-15.75
6368.00	8.410	66.380	6335.15	-12.28	194.49	400.14	1877213.59	14372671.42	39°34'25.903"N	80°09'34.764"W	444.91	64.078	1.86	1.86	-0.25
6461.00	8.200	59.800	6427.17	-12.86	200.54	412.11	1877225.55	14372677.47	39°34'25.962"N	80°09'34.611"W	458.32	64.052	1.03	-0.23	-6.97
6554.00	6.760	53.460	6519.38	-14.68	207.12	422.25	1877235.69	14372684.05	39°34'26.026"N	80°09'34.480"W	470.31	63.871	1.79	-1.56	-6.92
6647.00	7.000	54.430	6611.71	-16.94	213.68	431.26	1877244.69	14372690.61	39°34'26.090"N	80°09'34.365"W	481.29	63.643	0.29	0.26	1.04
6740.00	8.540	53.640	6703.86	-19.49	221.07	441.43	1877254.86	14372698.00	39°34'26.162"N	80°09'34.234"W	493.69	63.398	1.66	1.66	-0.85
6832.00	8.860	62.880	6794.80	-21.25	228.35	453.24	1877266.66	14372705.27	39°34'26.233"N	80°09'34.082"W	507.51	63.260	1.56	0.35	10.04
6925.00	8.080	69.280	6886.79	-21.19	233.93	465.72	1877279.15	14372710.85	39°34'26.287"N	80°09'33.922"W	521.17	63.330	1.31	-0.84	6.88
7018.00	8.870	69.490	6978.77	-20.29	238.75	478.55	1877291.97	14372715.67	39°34'26.333"N	80°09'33.758"W	534.80	63.485	0.85	0.85	0.23
7111.00	8.610	66.210	7070.69	-19.75	244.07	491.64	1877305.05	14372720.99	39°34'26.384"N	80°09'33.590"W	548.89	63.598	0.60	-0.28	-3.53
7165.00	8.020	61.270	7124.13	-20.00	247.51	498.64	1877312.05	14372724.43	39°34'26.418"N	80°09'33.500"W	556.69	63.601	1.71	-1.09	-9.15
7274.00	9.330	67.540	7231.88	-20.29	254.54	513.47	1877326.88	14372731.46	39°34'26.486"N	80°09'33.310"W	573.10	63.631	1.48	1.20	5.75
7317.00	9.140	82.730	7274.33	-19.17	256.31	520.08	1877333.49	14372733.22	39°34'26.503"N	80°09'33.225"W	579.81	63.765	5.67	-0.44	35.33
7363.00	10.570	99.250	7319.66	-15.77	266.09	527.88	1877341.28	14372733.01	39°34'26.500"N	80°09'33.126"W	586.72	64.120	6.86	3.11	35.91
7410.00	13.120	115.340	7365.66	-9.31	253.12	536.95	1877350.35	14372730.03	39°34'26.470"N	80°09'33.010"W	593.62	64.761	8.83	5.43	34.23
7456.00	15.220	123.680	7410.27	-0.21	247.53	546.70	1877360.10	14372724.45	39°34'26.413"N	80°09'32.886"W	600.13	65.640	6.06	4.57	18.13
7502.00	18.170	133.010	7454.33	11.54	239.29	556.97	1877370.37	14372716.21	39°34'26.331"N	80°09'32.756"W	606.20	66.751	8.65	6.41	20.28
7549.00	21.080	139.380	7498.60	26.42	227.87	567.84	1877381.23	14372704.79	39°34'26.217"N	80°09'32.619"W	611.85	68.135	7.68	6.19	13.55
7595.00	25.480	145.470	7540.85	44.11	213.43	578.84	1877392.22	14372690.36	39°34'26.074"N	80°09'32.480"W	616.93	69.760	10.89	9.57	13.24
7642.00	29.420	147.960	7582.55	65.51	195.31	590.70	1877404.08	14372672.24	39°34'25.893"N	80°09'32.331"W	622.15	71.704	8.73	8.38	5.30
7688.00	34.590	149.050	7621.55	89.69	174.52	603.42	1877416.79	14372651.46	39°34'25.667"N	80°09'32.171"W	628.15	73.869	11.37	11.24	12.37
7734.00	37.590	150.650	7658.72	116.65	151.09	617.01	1877430.38	14372628.03	39°34'25.454"N	80°09'32.000"W	635.24	76.241	6.84	6.52	8.48
7781.00	41.690	151.610	7694.90	146.53	124.83	631.48	1877444.84	14372601.79	39°34'25.193"N	80°09'31.818"W	643.70	78.818	8.82	8.72	12.04

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Southwestern Energy

Actual Wellpath Report

Quality Reclamation MRN 10H AWP Proj: 18349



REFERENCE WELLPATH IDENTIFICATION

Operator	SOUTHWESTERN ENERGY
Area	Marion County, WV
Field	Marion
Facility	Quality Reclamation MRN Pad
Slot	Wellbore
Slot #10	Well
	Quality Reclamation MRN 10H
	Quality Reclamation MRN 10H AWP

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)			(ft)	(°)	(ft)	(%/100ft)	(%/100ft)
7827.00	46.400	151.940	7727.96	178.43	96.66	646.59	1877459.95	14372573.62	39°34'24.913"N	80°09'31.629"W	653.78	81.498	10.25	10.24	0.72
7874.00	52.620	151.940	7758.46	214.08	65.13	663.40	1877476.75	14372542.11	39°34'24.600"N	80°09'31.418"W	666.59	84.393	13.23	13.23	0.00
7909.00	56.970	152.000	7778.63	242.61	39.89	676.83	1877490.19	14372516.88	39°34'24.349"N	80°09'31.249"W	678.01	86.627	12.43	12.43	0.17
7955.00	61.940	152.120	7802.00	282.14	4.90	695.39	1877508.73	14372481.90	39°34'24.002"N	80°09'31.017"W	695.41	89.596	10.81	10.80	0.26
8001.00	64.440	152.750	7822.75	323.12	-31.49	714.38	1877527.72	14372445.52	39°34'23.641"N	80°09'30.778"W	715.08	92.524	5.57	5.43	1.37
8048.00	67.840	153.610	7841.76	366.06	-69.84	733.77	1877547.10	14372407.18	39°34'23.260"N	80°09'30.535"W	737.09	95.437	7.42	7.23	1.83
8094.00	70.740	154.710	7858.03	409.07	-108.57	752.52	1877565.84	14372368.47	39°34'22.875"N	80°09'30.301"W	760.31	98.209	6.69	6.30	2.39
8140.00	73.570	156.200	7872.12	452.85	-148.39	770.70	1877584.02	14372328.66	39°34'22.480"N	80°09'30.073"W	784.86	100.899	6.88	6.15	3.24
8187.00	75.770	157.520	7884.55	498.16	-190.07	788.51	1877601.82	14372286.99	39°34'22.066"N	80°09'29.851"W	811.10	103.553	5.41	4.68	2.81
8233.00	78.180	158.600	7894.91	542.94	-231.64	805.25	1877618.56	14372245.44	39°34'21.654"N	80°09'29.642"W	837.91	106.048	5.72	5.24	2.35
8280.00	81.600	159.910	7903.16	589.11	-274.90	821.64	1877634.94	14372202.19	39°34'21.225"N	80°09'29.438"W	866.41	108.499	7.78	7.28	2.79
8325.00	85.500	160.160	7908.22	633.68	-316.92	836.90	1877650.20	14372160.18	39°34'20.808"N	80°09'29.248"W	894.90	110.741	8.68	8.67	0.56
8372.00	87.290	159.420	7911.17	680.47	-360.94	853.10	1877666.40	14372116.18	39°34'20.372"N	80°09'29.046"W	926.32	112.933	4.12	3.81	-1.57
8465.00	87.290	163.280	7915.57	772.89	-448.94	882.81	1877696.09	14372028.21	39°34'19.499"N	80°09'28.677"W	990.40	116.955	4.15	4.15	0.00
8558.00	87.720	165.960	7919.62	864.66	-538.52	907.45	1877720.72	14371938.66	39°34'18.612"N	80°09'28.374"W	1055.21	120.687	2.92	0.46	2.88
8650.00	87.260	164.810	7923.65	955.25	-627.45	930.64	1877743.90	14371849.76	39°34'17.731"N	80°09'28.088"W	1122.40	123.989	1.35	-0.50	-1.25
8743.00	87.480	160.810	7927.92	1047.41	-716.19	958.09	1877771.34	14371761.05	39°34'16.851"N	80°09'27.748"W	1196.18	126.779	4.30	0.24	-4.30
8836.00	89.140	160.060	7930.66	1140.04	-803.78	989.22	1877802.46	14371673.50	39°34'15.983"N	80°09'27.361"W	1274.60	129.095	1.96	1.78	-0.81
8929.00	89.010	156.490	7932.16	1232.92	-890.15	1023.63	1877836.86	14371587.16	39°34'15.126"N	80°09'26.932"W	1356.53	131.010	3.84	-0.14	-3.84
9021.00	85.960	148.780	7936.21	1324.62	-971.70	1066.83	1877879.05	14371505.63	39°34'14.316"N	80°09'26.403"W	1442.29	132.356	9.00	-3.32	-8.38
9114.00	89.970	150.330	7939.51	1417.01	-1051.81	1112.92	1877926.12	14371425.54	39°34'13.520"N	80°09'25.811"W	1531.30	133.383	4.62	4.31	1.67
9207.00	89.820	152.360	7939.68	1509.74	-1133.42	1157.51	1877970.70	14371343.97	39°34'12.710"N	80°09'25.252"W	1620.02	134.397	2.19	-0.16	2.18
9299.00	89.970	156.030	7939.85	1601.70	-1216.23	1197.55	1878010.73	14371261.18	39°34'11.888"N	80°09'24.750"W	1706.85	135.443	3.99	0.16	3.99
9392.00	90.120	163.020	7939.77	1694.43	-1303.30	1230.06	1878043.23	14371174.14	39°34'11.024"N	80°09'24.345"W	1792.11	136.656	7.52	0.16	7.52
9485.00	89.970	164.100	7939.70	1786.54	-1392.50	1256.38	1878069.54	14371084.98	39°34'10.140"N	80°09'24.020"W	1875.51	137.942	1.17	-0.16	1.16
9578.00	90.060	162.800	7939.68	1878.68	-1481.64	1282.87	1878096.02	14370995.86	39°34'09.257"N	80°09'23.692"W	1959.85	139.112	0.10	0.10	-1.40
9671.00	90.400	162.180	7939.30	1971.02	-1570.33	1310.85	1878123.99	14370907.20	39°34'08.378"N	80°09'23.346"W	2045.55	140.146	0.76	0.37	-0.67
9764.00	90.310	156.160	7938.73	2063.80	-1657.21	1343.91	1878157.03	14370820.35	39°34'07.516"N	80°09'22.934"W	2133.64	140.960	6.47	-0.10	-6.47
9857.00	90.550	155.590	7938.03	2156.80	-1742.08	1381.92	1878195.03	14370735.50	39°34'06.674"N	80°09'22.459"W	2223.64	141.577	0.67	0.26	-0.61
9949.00	90.490	159.240	7937.19	2248.74	-1827.01	1417.25	1878230.35	14370650.61	39°34'05.831"N	80°09'22.018"W	2312.26	142.199	3.97	-0.07	3.97

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Actual Wellpath Report

Quality Reclamation MRN 10H AWP Proj: 18349



REFERENCE WELLPATH IDENTIFICATION

Operator	SOUTHWESTERN ENERGY
Area	Marion County, WV
Field	Marion
Facility	Quality Reclamation MRN Pad
	Wellbore
	Quality Reclamation MRN 10H AWP
	Well
	Quality Reclamation MRN 10H
	Slot
	Slot #10

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)			(ft)	[°]	(ft)	(ft/100ft)	(°/100ft)
10042.00	90.460	163.830	7936.42	2341.22	-1915.20	1446.69	1878259.78	14370562.45	39°34'04.957"N	80°09'21.653"W	2400.19	142.934	4.94	-0.03	4.94
10135.00	90.590	164.300	7935.57	2433.22	-2004.62	1472.22	1878285.31	14370473.06	39°34'04.071"N	80°09'21.337"W	2487.15	143.706	0.52	0.14	0.51
10228.00	90.650	165.420	7934.56	2525.01	-2094.38	1496.51	1878309.59	14370383.32	39°34'03.181"N	80°09'21.038"W	2574.10	144.453	1.21	0.06	1.20
10320.00	90.590	165.410	7933.57	2615.68	-2183.41	1519.68	1878332.74	14370294.32	39°34'02.299"N	80°09'20.753"W	2660.21	145.162	0.07	-0.07	-0.01
10413.00	90.460	160.940	7932.72	2707.85	-2272.41	1546.59	1878359.64	14370205.36	39°34'01.417"N	80°09'20.420"W	2748.78	145.761	4.81	-0.14	-4.81
10506.00	90.460	157.050	7931.97	2800.67	-2359.21	1579.92	1878392.96	14370118.59	39°34'00.556"N	80°09'20.005"W	2839.37	146.191	4.18	0.00	-4.18
10599.00	90.740	158.880	7930.99	2893.59	-2445.41	1614.80	1878427.84	14370032.42	39°33'59.701"N	80°09'19.569"W	2930.46	146.562	1.99	0.30	1.97
10691.00	91.050	161.930	7929.56	2985.25	-2532.06	1645.65	1878458.67	14369945.80	39°33'58.842"N	80°09'19.186"W	3019.85	146.979	3.33	0.34	3.32
10781.00	91.110	163.640	7927.86	3074.54	-2618.01	1672.28	1878485.30	14369859.88	39°33'57.990"N	80°09'18.856"W	3106.52	147.431	1.90	0.07	1.90
10874.00	90.680	162.600	7926.41	3166.74	-2706.99	1699.28	1878512.29	14369770.93	39°33'57.108"N	80°09'18.522"W	3196.14	147.882	1.21	-0.46	-1.12
10966.00	90.710	156.160	7925.29	3256.49	-2793.04	1731.66	1878544.66	14369684.90	39°33'56.255"N	80°09'18.119"W	3286.29	148.201	7.00	0.03	-7.00
11059.00	90.550	152.110	7924.27	3351.43	-2876.70	1772.22	1878585.20	14369601.27	39°33'55.424"N	80°09'17.611"W	3378.79	148.364	4.36	-0.17	-4.35
11152.00	91.360	151.090	7922.72	3444.18	-2958.50	1816.45	1878629.41	14369519.50	39°33'54.612"N	80°09'17.056"W	3471.63	148.451	1.40	0.87	-1.10
11245.00	91.450	151.430	7920.44	3536.88	-3040.02	1861.15	1878674.10	14369438.01	39°33'53.802"N	80°09'16.495"W	3564.49	148.524	0.38	0.10	0.37
11338.00	92.400	154.280	7917.31	3629.71	-3122.72	1903.55	1878716.49	14369355.34	39°33'52.981"N	80°09'15.964"W	3657.17	148.634	3.23	1.02	3.06
11430.00	92.400	157.990	7913.46	3721.61	-3206.76	1940.74	1878753.66	14369271.32	39°33'52.147"N	80°09'15.499"W	3748.30	148.818	4.03	0.00	4.03
11523.00	92.250	160.070	7909.69	3814.36	-3293.53	1973.99	1878786.90	14369184.59	39°33'51.286"N	80°09'15.085"W	3839.78	149.063	2.24	-0.16	2.24
11616.00	92.650	161.140	7905.71	3906.93	-3381.17	2004.85	1878817.75	14369096.22	39°33'50.417"N	80°09'14.702"W	3930.86	149.334	1.23	0.43	1.15
11709.00	92.220	160.610	7901.76	3999.46	-3468.95	2035.29	1878848.18	14369009.27	39°33'49.547"N	80°09'14.323"W	4021.94	149.599	0.73	-0.46	-0.57
11801.00	91.420	158.920	7898.84	4091.18	-3555.23	2067.09	1878879.97	14368922.97	39°33'48.691"N	80°09'13.928"W	4112.48	149.825	2.03	-0.87	-1.84
11894.00	91.260	159.250	7896.66	4183.98	-3642.08	2100.28	1878913.15	14368836.16	39°33'47.830"N	80°09'13.514"W	4204.27	150.029	0.39	-0.17	0.35
11987.00	91.480	160.430	7894.44	4276.71	-3729.35	2132.32	1878945.18	14368748.91	39°33'46.965"N	80°09'13.116"W	4295.91	150.240	1.29	0.24	1.27
12079.00	91.480	161.380	7892.06	4368.29	-3816.26	2162.41	1878975.26	14368662.03	39°33'46.103"N	80°09'12.742"W	4386.33	150.463	1.03	0.00	1.03
12172.00	91.790	158.250	7889.41	4461.00	-3903.50	2194.48	1879007.32	14368574.82	39°33'45.238"N	80°09'12.343"W	4478.07	150.656	3.38	-0.45	-3.37
12264.00	91.380	155.880	7886.86	4552.93	-3988.19	2230.32	1879043.14	14368490.16	39°33'44.397"N	80°09'11.896"W	4569.46	150.785	2.61	-0.45	-2.58
12357.00	91.230	153.140	7884.74	4645.88	-4072.11	2270.32	1879083.14	14368406.27	39°33'43.564"N	80°09'11.395"W	4662.24	150.859	2.95	-0.16	-2.95
12449.00	92.620	156.730	7881.65	4737.80	-4155.38	2309.27	1879122.07	14368323.02	39°33'42.738"N	80°09'10.908"W	4753.94	150.938	4.18	1.51	3.90
12542.00	92.590	161.490	7877.42	4830.51	-4242.15	2342.39	1879155.18	14368236.28	39°33'41.877"N	80°09'10.495"W	4845.89	151.094	5.11	-0.03	5.12
12635.00	92.560	164.960	7873.24	4922.59	-4331.09	2369.21	1879181.99	14368147.38	39°33'40.996"N	80°09'10.164"W	4936.75	151.320	3.72	-0.03	3.72
12728.00	90.620	167.190	7870.66	5014.02	-4421.31	2391.58	1879204.36	14368057.19	39°33'40.102"N	80°09'09.889"W	5026.69	151.590	3.19	-2.09	2.41



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REFERENCE WELLPATH IDENTIFICATION			
Operator	SOUTHWESTERN ENERGY	Slot	Slot #10
Area	Marion County, WV	Well	Quality Reclamation MRN 10H
Field	Marion	Wellbore	Quality Reclamation MRN 10H AWB
Facility	Quality Reclamation MRN Pad		

WELLPATH DATA (211 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]
12821.00	90.800	163.690	7869.51	5105.64	-4511.30	2414.96	1879227.72	14367967.22	39°33'39.210"N	80°09'09.601"W	5117.02	151.839	3.77	0.19	-3.76
12913.00	90.710	163.540	7868.30	5196.75	-4599.56	2440.91	1879253.66	14367879.00	39°33'38.336"N	80°09'09.280"W	5207.11	152.046	0.19	-0.10	-0.16
13006.00	90.740	158.100	7867.12	5289.33	-4687.36	2471.45	1879284.19	14367791.23	39°33'37.465"N	80°09'08.901"W	5299.00	152.199	5.85	0.03	-5.85
13099.00	90.950	156.290	7865.75	5382.28	-4773.07	2507.49	1879320.22	14367705.54	39°33'36.615"N	80°09'08.451"W	5391.63	152.285	1.96	0.23	-1.95
13192.00	90.740	156.570	7864.38	5475.27	-4858.30	2544.67	1879357.39	14367620.34	39°33'35.769"N	80°09'07.987"W	5484.39	152.355	0.38	-0.23	0.30
13284.00	90.770	158.450	7863.17	5567.21	-4943.30	2579.86	1879392.57	14367535.37	39°33'34.926"N	80°09'07.548"W	5576.01	152.440	2.04	0.03	2.04
13377.00	90.740	159.410	7861.94	5660.05	-5030.07	2613.29	1879425.99	14367448.63	39°33'34.065"N	80°09'07.131"W	5668.41	152.547	1.03	-0.03	1.03
13470.00	90.770	164.260	7860.71	5752.47	-5118.40	2642.27	1879454.96	14367360.33	39°33'33.190"N	80°09'06.772"W	5760.18	152.696	5.21	0.03	5.22
13563.00	90.550	163.410	7859.64	5844.52	-5207.72	2668.16	1879480.84	14367271.04	39°33'32.304"N	80°09'06.452"W	5851.45	152.872	0.94	-0.24	-0.91
13656.00	89.600	153.790	7859.52	5937.29	-5294.20	2702.06	1879514.72	14367184.59	39°33'31.447"N	80°09'06.030"W	5943.88	152.961	10.39	-1.02	-10.34
13748.00	90.340	148.870	7859.57	6028.99	-5374.90	2746.18	1879558.83	14367103.92	39°33'30.645"N	80°09'05.476"W	6035.81	152.936	5.41	0.80	-5.35
13841.00	90.030	156.590	7859.27	6121.80	-5457.50	2788.76	1879601.40	14367021.35	39°33'29.825"N	80°09'04.942"W	6128.74	152.933	8.31	-0.33	8.30
13934.00	90.180	159.190	7859.10	6214.72	-5543.65	2823.76	1879636.39	14366935.22	39°33'28.970"N	80°09'04.506"W	6221.39	153.007	2.80	0.16	2.80
14026.00	88.430	155.080	7860.21	6306.66	-5628.40	2859.50	1879672.11	14366850.51	39°33'28.129"N	80°09'04.060"W	6313.13	153.067	4.86	-1.90	-4.47
14119.00	89.050	150.480	7862.26	6399.50	-5711.05	2902.01	1879714.61	14366767.88	39°33'27.308"N	80°09'03.527"W	6406.08	153.063	4.99	0.67	-4.95
14212.00	89.450	157.670	7863.48	6492.39	-5794.63	2942.64	1879755.23	14366684.33	39°33'26.479"N	80°09'03.018"W	6498.99	153.078	7.74	0.43	7.73
14305.00	88.520	160.320	7865.13	6585.21	-5881.43	2975.97	1879788.54	14366597.56	39°33'25.618"N	80°09'02.603"W	6591.48	153.161	3.02	-1.00	2.85
14397.00	88.580	161.580	7867.45	6676.79	-5968.36	3005.99	1879818.55	14366510.66	39°33'24.756"N	80°09'02.231"W	6682.61	153.268	1.37	0.07	1.37
14490.00	88.710	166.000	7869.65	6768.80	-6057.62	3031.93	1879844.49	14366421.43	39°33'23.871"N	80°09'01.910"W	6774.02	153.411	4.75	0.14	4.75
14583.00	88.340	167.740	7872.05	6860.00	-6148.15	3053.05	1879865.60	14366330.93	39°33'22.975"N	80°09'01.651"W	6864.47	153.592	1.91	-0.40	1.87
14675.00	89.510	163.310	7873.78	6950.60	-6237.19	3076.04	1879888.58	14366241.92	39°33'22.093"N	80°09'01.369"W	6954.47	153.749	4.98	1.27	-4.82
14768.00	89.630	160.260	7874.47	7043.05	-6325.52	3105.11	1879917.64	14366153.62	39°33'21.217"N	80°09'01.008"W	7046.55	153.854	3.28	0.13	-3.28
14861.00	89.380	160.040	7875.28	7135.76	-6412.99	3136.68	1879949.20	14366066.18	39°33'20.350"N	80°09'00.616"W	7138.99	153.936	0.36	-0.27	-0.24
14954.00	89.420	161.850	7876.25	7228.36	-6500.89	3167.04	1879979.55	14365978.31	39°33'19.478"N	80°09'00.239"W	7231.30	154.026	1.95	0.04	1.95
15047.00	89.600	163.320	7877.05	7320.67	-6589.62	3194.88	1880007.37	14365889.61	39°33'18.599"N	80°08'59.894"W	7323.27	154.134	1.59	0.19	1.58
15140.00	88.610	159.740	7878.50	7413.16	-6677.80	3224.33	1880036.82	14365801.46	39°33'17.724"N	80°08'59.529"W	7415.48	154.227	3.99	-1.06	-3.85
15233.00	88.310	157.560	7881.00	7505.99	-6764.38	3258.17	1880070.65	14365714.90	39°33'16.866"N	80°08'59.107"W	7508.17	154.281	2.37	-0.32	-2.34
15325.00	88.490	157.730	7883.57	7597.90	-6849.43	3293.15	1880105.62	14365629.88	39°33'16.022"N	80°08'58.671"W	7599.97	154.322	0.27	0.20	0.18
15418.00	88.180	158.440	7886.27	7690.78	-6935.68	3327.85	1880140.30	14365543.67	39°33'15.166"N	80°08'58.238"W	7692.74	154.368	0.83	-0.33	0.76
15510.00	88.580	157.940	7888.87	7782.65	-7021.06	3362.01	1880174.46	14365458.32	39°33'14.319"N	80°08'57.812"W	7784.50	154.413	0.70	0.43	-0.54

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REFERENCE WELLPATH IDENTIFICATION			
Operator	SOUTHWESTERN ENERGY	Slot	Slot #10
Area	Marion County, WV	Well	Quality Reclamation MRN 10H
Field	Marion	Wellbore	Quality Reclamation MRN 10H AWB
Facility	Quality Reclamation MRN Pad		

WELLPATH DATA (211 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]
15603.00	88.680	152.660	7891.10	7875.59	-7105.49	3400.85	1880213.28	14365373.91	39°33'13.481"N	80°08'57.327"W	7877.43	154.423	5.68	0.11	-5.68
15696.00	88.590	155.440	7893.31	7968.52	-7189.09	3441.53	1880253.95	14365290.34	39°33'12.651"N	80°08'56.818"W	7970.39	154.419	2.99	-0.10	2.99
15789.00	88.490	156.660	7895.68	8061.48	-7274.05	3479.27	1880291.67	14365205.41	39°33'11.808"N	80°08'56.346"W	8063.32	154.438	1.32	-0.11	1.31
15882.00	89.690	159.030	7897.16	8154.40	-7360.16	3514.33	1880326.72	14365119.32	39°33'10.954"N	80°08'55.909"W	8156.14	154.476	2.86	1.29	2.55
15974.00	89.720	160.500	7897.63	8246.16	-7446.48	3546.15	1880358.53	14365033.03	39°33'10.098"N	80°08'55.513"W	8247.75	154.535	1.60	0.03	1.60
16067.00	89.660	161.090	7898.14	8338.78	-7534.31	3576.74	1880389.11	14364945.24	39°33'09.227"N	80°08'55.133"W	8340.20	154.605	0.64	-0.06	0.63
16160.00	90.150	160.030	7898.29	8431.44	-7622.00	3607.70	1880420.06	14364857.57	39°33'08.357"N	80°08'54.749"W	8432.70	154.671	1.26	0.53	-1.14
16252.00	90.740	159.170	7897.58	8523.22	-7708.23	3639.76	1880452.11	14364771.38	39°33'07.502"N	80°08'54.350"W	8524.36	154.724	1.13	0.64	-0.93
16345.00	91.910	158.130	7895.43	8616.06	-7794.82	3673.61	1880485.95	14364684.81	39°33'06.643"N	80°08'53.928"W	8617.11	154.766	1.68	1.26	-1.12
16438.00	91.850	161.130	7892.37	8708.78	-7881.95	3705.96	1880518.29	14364597.72	39°33'05.779"N	80°08'53.525"W	8709.72	154.818	3.22	-0.06	3.23
16531.00	91.790	162.430	7889.42	8801.20	-7970.24	3735.02	1880547.34	14364509.46	39°33'04.904"N	80°08'53.165"W	8801.99	154.891	1.40	-0.06	1.40
16623.00	90.980	164.980	7887.20	8892.26	-8058.51	3760.83	1880573.14	14364421.22	39°33'04.029"N	80°08'52.846"W	8892.88	154.982	2.91	-0.88	2.77
16716.00	90.340	162.830	7886.12	8984.29	-8147.85	3786.61	1880598.91	14364331.90	39°33'03.144"N	80°08'52.528"W	8984.76	155.074	2.41	-0.69	-2.31
16809.00	90.430	159.250	7885.50	9076.86	-8235.79	3816.82	1880629.11	14364243.99	39°33'02.272"N	80°08'52.153"W	9077.24	155.135	3.85	0.10	-3.85
16902.00	90.060	159.520	7885.10	9169.66	-8322.83	3849.56	1880661.84	14364156.98	39°33'01.409"N	80°08'51.746"W	9169.99	155.178	0.49	-0.40	0.29
16994.00	90.000	165.660	7885.05	9260.95	-8410.58	3877.07	1880689.34	14364069.27	39°33'00.539"N	80°08'51.405"W	9261.18	155.251	6.67	-0.07	6.67
17087.00	90.220	166.470	7884.87	9352.42	-8500.84	3899.47	1880711.73	14363979.03	39°32'59.645"N	80°08'51.130"W	9352.55	155.358	0.90	0.24	0.87
17180.00	90.090	161.050	7884.62	9444.46	-8590.10	3925.47	1880737.72	14363889.81	39°32'58.760"N	80°08'50.809"W	9444.52	155.441	5.83	-0.14	-5.83
17272.00	90.220	155.980	7884.37	9536.31	-8675.67	3959.15	1880771.40	14363804.26	39°32'57.911"N	80°08'50.389"W	9536.36	155.470	5.51	0.14	-5.51
17365.00	90.060	154.070	7884.15	9629.30	-8759.97	3998.42	1880810.65	14363719.99	39°32'57.075"N	80°08'49.898"W	9629.36	155.466	2.06	-0.17	-2.05
17458.00	90.120	156.240	7884.00	9722.29	-8844.36	4037.49	1880849.71	14363635.63	39°32'56.237"N	80°08'49.410"W	9722.35	155.463	2.33	0.06	2.33
17550.00	90.090	157.320	7883.83	9814.27	-8928.91	4073.76	1880885.97	14363551.11	39°32'55.398"N	80°08'48.957"W	9814.32	155.475	1.17	-0.03	1.17
17643.00	90.310	158.720	7883.51	9907.19	-9015.15	4108.57	1880920.76	14363464.90	39°32'54.543"N	80°08'48.523"W	9907.23	155.499	1.52	0.24	1.51
17736.00	90.340	156.310	7882.98	10000.13	-9101.07	4144.13	1880956.31	14363379.01	39°32'53.690"N	80°08'48.079"W	10000.16	155.518	2.59	0.03	-2.59
17829.00	90.310	157.360	7882.45	10093.11	-9186.57	4180.72	1880992.88	14363293.54	39°32'52.842"N	80°08'47.623"W	10093.14	155.530	1.13	-0.03	1.13
17921.00	90.340	159.000	7881.93	10185.02	-9271.97	4214.91	1881027.07	14363208.16	39°32'51.994"N	80°08'47.197"W	10185.03	155.554	1.78	0.03	1.78
18014.00	90.220	154.650	7881.48	10277.97	-9357.45	4251.50	1881063.64	14363122.72	39°32'51.146"N	80°08'46.740"W	10277.99	155.566	4.68	-0.13	-4.68
18107.00	89.970	145.020	7881.32	10370.39	-9437.76	4298.18	1881110.30	14363042.43	39°32'50.348"N	80°08'46.154"W	10370.42	155.514	10.36	-0.27	-10.35
18200.00	90.120	152.140	7881.25	10462.62	-9517.07	4346.63	1881158.74	14362963.15	39°32'49.560"N	80°08'45.545"W	10462.68	155.453	7.66	0.16	7.66
18292.00	90.180	158.840	7881.01	10554.56	-9600.73	4384.77	1881196.87	14362879.52	39°32'48.729"N	80°08'45.068"W	10554.63	155.453	7.28	0.07	7.28

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REFERENCE WELLPATH IDENTIFICATION			
Operator	SOUTHWESTERN ENERGY	Slot	Slot #10
Area	Marion County, WV	Well	Quality Reclamation MRN 10H
Field	Marion	Wellbore	Quality Reclamation MRN 10H AWB
Facility	Quality Reclamation MRN Pad		

WELLPATH DATA (211 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]
18349.00	90.180	158.840	7880.83	10611.48	-9653.89	4405.35	1881217.44	14362826.38	39°32'48.202"N	80°08'44.812"W	10611.53	155.471	0.00	0.00	0.00

HOLE & CASING SECTIONS - Ref Wellbore: Quality Reclamation MRN 10H AWB Ref Wellpath: Quality Reclamation MRN 10H AWP Proj: 18349'									
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	610.00	584.00	26.00	609.99	0.00	0.00	1.32	1.79
13.375in Casing Surface	26.00	590.00	564.00	26.00	589.99	0.00	0.00	1.22	1.75
12.25in Open Hole	610.00	3239.00	2629.00	609.99	3238.29	1.32	1.79	3.83	11.53
9.625in Open Hole	26.00	3219.00	3193.00	26.00	3218.29	0.00	0.00	3.57	11.20
8.75in Open Hole	3239.00	7244.00	4005.00	3238.29	7202.26	3.83	11.53	252.67	509.09
8.5in Open Hole	7244.00	18349.00	11105.00	7202.26	7880.83	252.67	509.09	-9653.89	4405.35

TARGETS								
Name	TVD [ft]	North [ft]	East [ft]	Grid East [US ft]	Grid North [US ft]	Latitude	Longitude	Shape
Quality Reclamation MRN 10H BHL Rev-3	7850.00	-9669.90	4373.49	1881185.59	14362810.37	39°32'48.047"N	80°08'45.221"W	point
Quality Reclamation MRN 10H LP Rev-2	7883.00	-302.55	822.15	1877635.45	14372174.55	39°34'20.952"N	80°09'29.435"W	point

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REFERENCE WELLPATH IDENTIFICATION			
Operator	SOUTHWESTERN ENERGY	Slot	Slot #10
Area	Marion County, WV	Well	Quality Reclamation MRN 10H
Field	Marion	Wellbore	Quality Reclamation MRN 10H AWB
Facility	Quality Reclamation MRN Pad		

WELLPATH COMPOSITION - Ref Wellbore: Quality Reclamation MRN 10H AWB Ref Wellpath: Quality Reclamation MRN 10H AWP Proj: 18349'				
Start MD [ft]	End MD [ft]	Positional Uncertainty Model	Log Name/Comment	Wellbore
26.00	452.00	OWSG EMS rev2 - Standard	01 MSS <17-1/2"> (172'-452')	Quality Reclamation MRN 10H AWB
452.00	3115.00	BHI NaviTrak (Axial)	02 APS EM <12-1/4"> (452')(612'-3115')	Quality Reclamation MRN 10H AWB
3115.00	7165.00	BHI NaviTrak (Axial)	03 APS EM <8-3/4">(3115')(3258'-7165')	Quality Reclamation MRN 10H AWB
7165.00	18292.00	BHI AutoTrak Curve (Short)	04 BHI AT Curve <8-1/2"> (7165')(7274'-18292')	Quality Reclamation MRN 10H AWB
18292.00	18349.00	Blind Drilling (std)	Projection to bit	Quality Reclamation MRN 10H AWB

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REFERENCE WELLPATH IDENTIFICATION			
Operator	SOUTHWESTERN ENERGY	Slot	Slot #10
Area	Marion County, WV	Well	Quality Reclamation MRN 10H
Field	Marion	Wellbore	Quality Reclamation MRN 10H AWB
Facility	Quality Reclamation MRN Pad		

WELLPATH COMMENTS				
MD [ft]	Inclination [°]	Azimuth [°]	TVD [ft]	Comment
172.00	0.500	64.740	172.00	MSS <17-1/2"> (172'-452')
612.00	0.330	20.590	611.99	APS EM <12-1/4"> (452')(612'-3115')
3258.00	1.250	53.390	3257.29	APS EM <8-3/4">(3115')(3258'-7165')
7274.00	9.330	67.540	7231.88	BHI AT Curve <8-1/2"> (7165')(7274'-18292')
18349.00	90.180	158.840	7880.83	Projection to Bit

COMMENTS
<p>Wellpath general comments API: 47-049-02425-0000 Job#: 8410533 Rig: SDC-46 Duration: 03/07/17 - 03/23/17</p>

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