



SOUTHWESTERN ENERGY

Location: Marion County, WV Slot: Slot #210
 Field: Marion Well: Quality Reclamation MRN 210H
 Facility: Quality Reclamation MRN Pad Wellbore: Quality Reclamation MRN 210H PWB

Plot reference wellpath is Quality Reclamation MRN 210H PWB Rev-A.0
 True vertical depths are referenced to SDC-46 (RKB)
 Measured depths are referenced to SDC-46 (RKB)
 SDC-46 (RKB) to Mean Sea Level: 1250.5 feet
 Mean Sea Level to Mud line (At Slot: Slot #210): -1224.5 feet
 Coordinates are in feet referenced to Slot

Grid System: NAD83 / UTM Zone 17 North, US feet
 * = Wellpath was transformed from a different geodetic datum
 North Reference: Grid north
 Scale: True distance
 Depths are in feet
 Created by: amarc on 2017-03-21
 Database: WA_MPL_EASTERNJS_Defn



Location Information

Facility Name	Grid East (US ft)	Grid North (US ft)	Latitude	Longitude
Quality Reclamation MRN Pad	1876813.000	14372477.000	39°34'24.018"N	80°09'39.905"W
Slot #210	Local N (ft)	Local E (ft)	Grid East (US ft)	Grid North (US ft)
Slot #210	6.49	-11.82	1876801.180	14372483.490
Comment: Previous 10H Slot				
SDC-46 (RKB) to Mud line (At Slot: Slot #210): 26ft				
Mean Sea Level to Mud line (At Slot: Slot #210): -1224.5ft				
SDC-46 (RKB) to Mean Sea Level: 1250.5ft				

Survey Program

Start MD (ft)	End MD (ft)	Tool	Model	Log Name/Comment	Wellbore
26.00	580.00	OWSG EMS rev2	OWSG EMS rev2 - Standard		Quality Reclamation MRN 210H PWB
580.00	3234.01	BH NavTrak	BH NavTrak (Asal)		Quality Reclamation MRN 210H PWB
3234.01	7465.83	BH NavTrak	BH NavTrak (Asal)		Quality Reclamation MRN 210H PWB
7465.83	18542.91	BH AutoTrak Curve	BH AutoTrak Curve (Short)		Quality Reclamation MRN 210H PWB

Well Profile Data

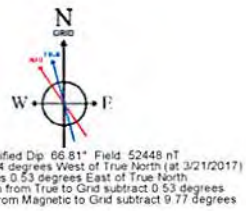
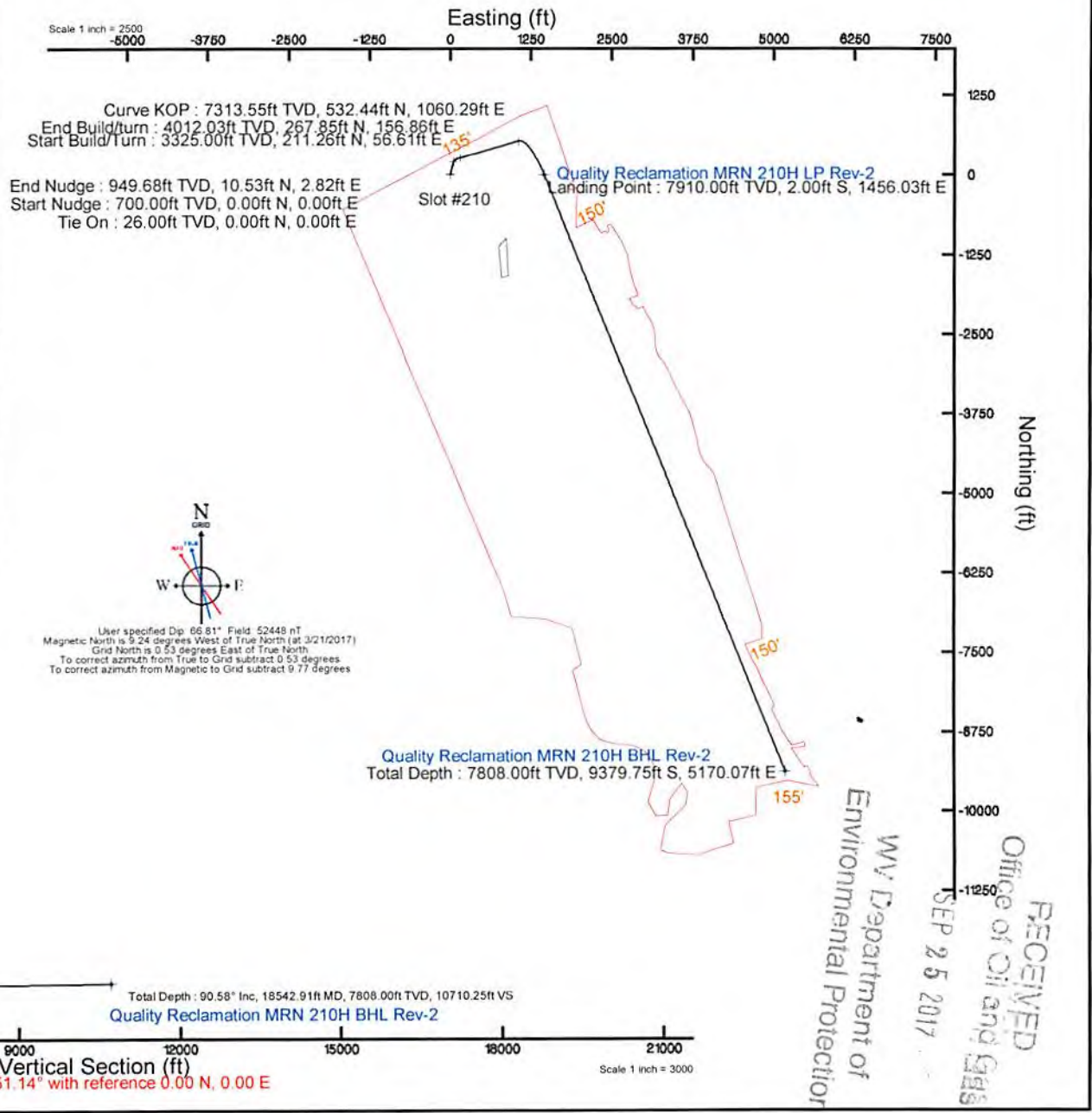
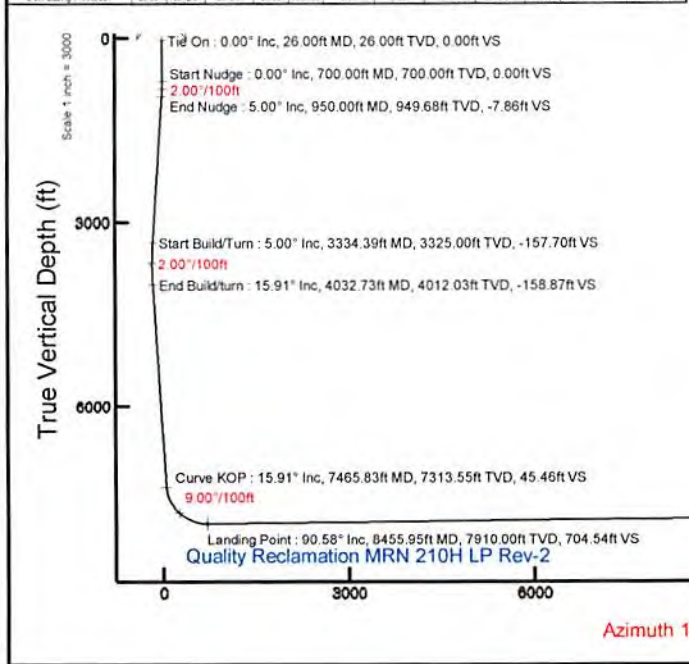
Design Comment	MD (ft)	Inc (")	Az (°)	TVD (ft)	Local N (ft)	Local E (ft)	DLS (1/100ft)	VS (ft)
Tie On	26.00	0.000	15.000	26.00	0.00	0.00	0.00	0.00
Start Nudge	700.00	0.000	15.000	700.00	0.00	0.00	0.00	0.00
End Nudge	950.00	5.000	15.000	949.68	10.53	2.82	2.00	-7.86
Start Build/Turn	3334.39	5.000	15.000	3325.00	211.26	56.61	0.00	-157.70
End Build/Turn	4032.73	15.915	73.676	4012.03	267.85	156.86	2.00	-158.87
Curve KOP	7465.83	15.915	73.676	7313.55	532.44	1060.29	0.00	45.46
Landing Point	8455.95	90.579	158.394	7910.00	-2.00	1456.03	9.00	704.54
Total Depth	18542.91	90.579	158.394	7808.00	-9379.75	5170.07	0.00	10710.25

Targets

Name	MD (ft)	TVD (ft)	Local N (ft)	Local E (ft)	Grid East (US ft)	Grid North (US ft)	Latitude	Longitude
Quality Reclamation MRN 210H BHL Rev-2	18542.91	7808.00	8379.75	5170.07	14372483.49	14372477.00	39°34'24.018"N	80°09'39.905"W
Quality Reclamation MRN 210H LP Rev-2	8455.95	7910.00	-2.00	1456.03	1876801.18	14372483.49	39°34'24.018"N	80°09'39.905"W

Hole and Casing Sections

Name	Start MD (ft)	End MD (ft)	Interval (ft)	Start TVD (ft)	End TVD (ft)	Start Local N (ft)	End Local N (ft)	Start Local E (ft)	End Local E (ft)	Wellbore
17 5/8 Open Hole	39.00	985.00	946.00	26.00	949.68	0.00	10.53	0.00	2.82	Quality Reclamation MRN 210H PWB
13 5/8 Casing Surface	39.00	985.00	946.00	26.00	949.68	0.00	10.53	0.00	2.82	Quality Reclamation MRN 210H PWB
12 1/2 Open Hole	985.00	3234.01	2249.01	949.68	3225.00	10.53	211.26	2.82	56.61	Quality Reclamation MRN 210H PWB
9 5/8 Casing Intermediate	985.00	3234.01	2249.01	949.68	3225.00	10.53	211.26	2.82	56.61	Quality Reclamation MRN 210H PWB
8 7/8 Open Hole	3234.01	7465.83	4231.82	3225.00	7313.55	211.26	532.44	56.61	1060.29	Quality Reclamation MRN 210H PWB
8 5/8 Open Hole	1465.83	18542.91	17077.08	7313.55	7808.00	532.44	1060.29	1060.29	5170.07	Quality Reclamation MRN 210H PWB
5 1/2 Casing Production	26.00	18542.91	18516.91	26.00	7808.00	0.00	5170.07	5170.07	5170.07	Quality Reclamation MRN 210H PWB



REFERENCE WELLPATH IDENTIFICATION			
Operator	SOUTHWESTERN ENERGY	Slot	Slot #210
Area	Marion County, WV	Well	Quality Reclamation MRN 210H
Field	Marion	Wellbore	Quality Reclamation MRN 210H 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	Edsaryar
Scale	0.999664	Report Generated	12/Apr/2017 at 12:45
Convergence at slot	0.54° East	Database/Source file	WA_MPL_EASTERNUS_Defn/Quality_Reclamation_MRN_210H_AWP_Proj_18587_.xml

WELLPATH LOCATION						
	Local coordinates		Grid coordinates		Geographic coordinates	
	North[ft]	East[ft]	Easting[US ft]	Northing[US ft]	Latitude	Longitude
Slot Location	6.49	-11.82	1876801.18	14372483.49	39°34'24.083"N	80°09'40.055"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	SDC-46 (RKB) to Facility Vertical Datum	1250.50ft
Horizontal Reference Pt	Slot	SDC-46 (RKB) to Mean Sea Level	1250.50ft
Vertical Reference Pt	SDC-46 (RKB)	SDC-46 (RKB) to Mud Line at Slot (Slot #210)	26.00ft
MD Reference Pt	SDC-46 (RKB)	Section Origin	N 0.00, E 0.00 ft
Field Vertical Reference	Mean Sea Level	Section Azimuth	151.14°

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Actual Wellpath Report

Quality Reclamation MRN 210H AWP Proj: 18587'
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REFERENCE WELLPATH IDENTIFICATION

Operator	SOUTHWESTERN ENERGY	Slot	Slot #210
Area	Marion County, WV	Well	Quality Reclamation MRN 210H
Field	Marion	Wellbore	Quality Reclamation MRN 210H AWB
Facility	Quality Reclamation MRN Pad		

WELLPATH DATA (223 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	340.700	0.00	0.00	0.00	0.00	1876801.18	14372483.49	39°34'24.083"N	80°09'40.055"W	0.00	0.000	0.00	0.00	0.00
26.00	0.000	340.700	26.00	0.00	0.00	0.00	1876801.18	14372483.49	39°34'24.083"N	80°09'40.055"W	0.00	0.000	0.00	0.00	0.00
50.00	0.420	340.700	50.00	-0.09	0.08	-0.03	1876801.15	14372483.57	39°34'24.084"N	80°09'40.055"W	0.09	340.700	1.75	1.75	-80.42
100.00	0.240	328.360	100.00	-0.37	0.35	-0.14	1876801.04	14372483.84	39°34'24.086"N	80°09'40.057"W	0.37	337.271	0.39	-0.36	-24.68
150.00	0.140	327.660	150.00	-0.54	0.49	-0.23	1876800.95	14372483.98	39°34'24.088"N	80°09'40.058"W	0.54	334.459	0.20	-0.20	-1.40
200.00	0.210	318.660	200.00	-0.69	0.61	-0.33	1876800.85	14372484.10	39°34'24.089"N	80°09'40.059"W	0.69	331.779	0.15	0.14	-18.00
250.00	0.140	237.960	250.00	-0.77	0.64	-0.44	1876800.74	14372484.13	39°34'24.089"N	80°09'40.060"W	0.78	325.744	0.47	-0.14	-161.40
300.00	0.150	198.120	300.00	-0.73	0.55	-0.51	1876800.67	14372484.04	39°34'24.088"N	80°09'40.061"W	0.75	317.071	0.20	0.02	-79.68
350.00	0.240	216.460	350.00	-0.64	0.40	-0.59	1876800.59	14372483.89	39°34'24.087"N	80°09'40.062"W	0.72	304.137	0.22	0.18	36.68
400.00	0.170	150.490	400.00	-0.52	0.25	-0.62	1876800.56	14372483.74	39°34'24.086"N	80°09'40.063"W	0.67	292.250	0.46	-0.14	-131.94
450.00	0.320	175.710	450.00	-0.32	0.05	-0.57	1876800.61	14372483.54	39°34'24.084"N	80°09'40.062"W	0.57	274.913	0.36	0.30	50.44
500.00	0.090	199.810	500.00	-0.17	-0.13	-0.57	1876800.61	14372483.36	39°34'24.082"N	80°09'40.062"W	0.59	257.516	0.48	-0.46	48.20
550.00	0.150	173.780	550.00	-0.08	-0.23	-0.58	1876800.60	14372483.26	39°34'24.081"N	80°09'40.062"W	0.62	248.453	0.16	0.12	-52.06
584.00	0.270	174.940	584.00	0.03	-0.35	-0.57	1876800.61	14372483.14	39°34'24.080"N	80°09'40.062"W	0.67	238.144	0.35	0.35	3.41
611.00	0.610	174.080	611.00	0.23	-0.56	-0.55	1876800.63	14372482.93	39°34'24.078"N	80°09'40.062"W	0.78	224.401	1.26	1.26	-3.19
703.00	0.450	165.490	702.99	1.03	-1.40	-0.41	1876800.77	14372482.09	39°34'24.069"N	80°09'40.060"W	1.45	196.245	0.19	-0.17	-9.34
796.00	0.390	53.230	795.99	1.34	-1.56	-0.06	1876801.12	14372481.93	39°34'24.068"N	80°09'40.056"W	1.56	182.268	0.75	-0.06	-120.71
889.00	0.980	10.440	888.98	0.68	-0.59	0.34	1876801.52	14372482.90	39°34'24.077"N	80°09'40.051"W	0.68	150.300	0.80	0.63	-46.01
982.00	1.980	11.200	981.95	-1.17	1.77	0.79	1876801.97	14372485.26	39°34'24.100"N	80°09'40.044"W	1.94	24.115	1.08	1.08	0.82
1074.00	3.150	10.790	1073.86	-4.33	5.81	1.57	1876802.75	14372489.30	39°34'24.140"N	80°09'40.034"W	6.02	15.154	1.27	1.27	-0.45
1167.00	5.090	12.390	1166.61	-9.40	12.35	2.94	1876804.12	14372495.84	39°34'24.205"N	80°09'40.016"W	12.70	13.378	2.09	2.09	1.72
1260.00	5.970	11.320	1259.18	-16.20	21.12	4.77	1876805.95	14372504.61	39°34'24.291"N	80°09'39.991"W	21.66	12.730	0.95	0.95	-1.15
1353.00	5.610	14.140	1351.70	-23.22	30.27	6.83	1876808.01	14372513.75	39°34'24.382"N	80°09'39.964"W	31.04	12.717	0.49	-0.39	3.03
1445.00	5.400	6.240	1443.28	-30.05	38.94	8.40	1876809.58	14372522.41	39°34'24.467"N	80°09'39.943"W	39.83	12.175	0.85	-0.23	-8.59
1538.00	6.250	6.840	1535.80	-37.74	48.31	9.48	1876810.66	14372531.79	39°34'24.560"N	80°09'39.928"W	49.24	11.101	0.92	0.91	0.65
1631.00	6.170	8.750	1628.26	-45.81	58.28	10.84	1876812.02	14372541.75	39°34'24.658"N	80°09'39.909"W	59.28	10.539	0.24	-0.09	2.05
1724.00	5.920	6.820	1720.74	-53.66	67.98	12.17	1876813.35	14372551.45	39°34'24.754"N	80°09'39.891"W	69.06	10.152	0.35	-0.27	-2.08
1813.00	5.910	9.720	1809.26	-60.97	77.06	13.49	1876814.67	14372560.52	39°34'24.843"N	80°09'39.873"W	78.23	9.931	0.34	-0.01	3.26
1906.00	6.800	19.750	1901.69	-68.36	86.96	16.16	1876817.33	14372570.42	39°34'24.941"N	80°09'39.838"W	88.45	10.528	1.53	0.96	10.78
1999.00	7.380	20.990	1993.98	-75.85	97.72	20.16	1876821.33	14372581.17	39°34'25.047"N	80°09'39.786"W	99.77	11.657	0.64	0.62	-1.38

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Quality Reclamation MRN 210H AWP Proj: 18587

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REFERENCE WELLPATH IDENTIFICATION	
Operator	SOUTHWESTERN ENERGY
Area	Marion County, WV
Field	Marion
Facility	Quality Reclamation MRN Pad
Slot	Slot #210
Well	Well
Wellbore	Quality Reclamation MRN 210H AWB

WELLPATH DATA (223 stations)															
MD	Inclination	Azimuth	TVD	Vert Sect	North	East	Grid East	Grid North	Latitude	Longitude	Closure Dist	Closure Dir			
(ft)	(°)	(°)	(ft)	(ft)	(ft)	(ft)	(US ft)	(US ft)	(ft)	(ft)	(ft)	(°)			
Turn Rate	Build Rate	DL S	DL S	Build Rate	Turn Rate	Turn Rate	Turn Rate	Turn Rate	Turn Rate	Turn Rate	Turn Rate	Turn Rate			
(/100ft)	(/100ft)	(/100ft)	(/100ft)	(/100ft)	(/100ft)	(/100ft)	(/100ft)	(/100ft)	(/100ft)	(/100ft)	(/100ft)	(/100ft)			
2092.00	7.470	14.070	2086.21	-84.13	109.16	23.77	1876824.94	14372592.61	39°34'25.160"N	80°09'39.738"W	111.71	12.285	0.97	0.10	-7.44
2185.00	6.490	13.410	2178.52	-92.44	120.13	26.46	1876827.63	14372603.58	39°34'25.268"N	80°09'39.703"W	123.01	12.421	1.06	-1.05	-0.71
2277.00	5.950	16.460	2269.97	-99.64	129.76	29.02	1876830.19	14372613.21	39°34'25.363"N	80°09'39.669"W	132.97	12.604	0.69	-0.59	3.32
2370.00	5.160	20.460	2362.54	-105.76	138.30	31.84	1876833.01	14372621.75	39°34'25.447"N	80°09'39.632"W	141.92	12.966	0.95	-0.85	4.30
2463.00	4.930	19.190	2455.18	-111.16	146.00	34.62	1876835.79	14372629.44	39°34'25.523"N	80°09'39.595"W	150.05	13.339	0.27	-0.25	-1.37
2556.00	5.320	11.630	2547.81	-117.11	153.99	36.80	1876837.97	14372637.43	39°34'25.601"N	80°09'39.567"W	158.33	13.440	0.84	0.42	-8.13
2648.00	4.770	11.000	2639.45	-123.29	161.93	38.39	1876839.56	14372645.36	39°34'25.680"N	80°09'39.545"W	166.42	13.338	0.60	-0.60	-0.68
2741.00	4.450	18.210	2732.15	-128.71	169.15	40.26	1876841.42	14372652.58	39°34'25.751"N	80°09'39.521"W	173.87	13.387	0.71	-0.34	7.75
2834.00	5.010	17.050	2824.83	-133.99	176.46	42.57	1876843.74	14372659.89	39°34'25.823"N	80°09'39.490"W	181.52	13.564	0.61	0.60	-1.25
2927.00	4.470	13.840	2917.51	-139.48	183.86	44.63	1876845.80	14372667.29	39°34'25.896"N	80°09'39.463"W	189.20	13.644	0.65	-0.58	-3.45
3020.00	4.170	6.960	3010.25	-144.89	190.74	45.91	1876847.07	14372674.16	39°34'25.964"N	80°09'39.446"W	196.18	13.533	0.64	-0.32	-7.40
3113.00	4.470	8.430	3102.98	-150.51	197.68	46.85	1876848.01	14372681.10	39°34'26.032"N	80°09'39.433"W	203.15	13.333	0.34	0.32	1.58
3253.00	4.300	9.720	3242.57	-158.96	208.25	48.54	1876849.70	14372691.67	39°34'26.107"N	80°09'39.410"W	213.83	13.120	0.14	-0.12	0.92
3299.00	4.170	3.870	3288.45	-161.60	211.60	49.07	1876850.23	14372695.02	39°34'26.170"N	80°09'39.403"W	217.22	13.056	0.36	-0.28	-2.93
3392.00	5.250	38.780	3381.15	-165.95	218.26	52.23	1876853.39	14372701.68	39°34'26.235"N	80°09'39.362"W	224.43	13.457	2.88	1.16	32.70
3485.00	6.970	46.450	3473.62	-169.00	225.47	58.98	1876860.14	14372708.88	39°34'26.306"N	80°09'39.275"W	233.06	14.660	2.04	1.85	8.25
3578.00	7.970	49.550	3565.83	-171.72	233.54	67.98	1876869.14	14372716.95	39°34'26.385"N	80°09'39.159"W	243.23	16.229	1.16	1.08	3.33
3671.00	9.050	52.240	3657.80	-174.15	242.20	78.67	1876879.82	14372725.61	39°34'26.469"N	80°09'39.021"W	254.66	17.994	1.24	1.16	2.89
3764.00	10.660	58.030	3749.43	-175.75	251.24	91.75	1876892.90	14372734.64	39°34'26.557"N	80°09'38.853"W	267.47	20.062	2.03	1.73	6.23
3857.00	12.440	59.510	3840.54	-176.50	260.88	107.68	1876908.82	14372744.28	39°34'26.651"N	80°09'38.649"W	282.22	22.429	1.94	1.91	1.59
3950.00	14.080	59.340	3931.06	-177.14	271.73	126.04	1876927.18	14372755.13	39°34'26.757"N	80°09'38.413"W	299.54	24.885	1.76	1.76	-0.18
4043.00	16.400	61.400	4020.78	-177.44	283.78	147.30	1876948.43	14372767.18	39°34'26.874"N	80°09'38.140"W	319.74	27.433	2.56	2.49	2.22
4138.00	17.160	61.500	4111.74	-177.29	296.89	171.40	1876972.52	14372780.28	39°34'27.001"N	80°09'37.831"W	342.81	29.998	0.80	0.80	0.11
4231.00	17.910	61.290	4200.42	-177.16	310.31	195.99	1876997.11	14372793.69	39°34'27.132"N	80°09'37.515"W	367.02	32.277	0.81	0.81	-0.23
4324.00	19.600	67.010	4288.48	-175.53	323.27	222.90	1877024.00	14372806.65	39°34'27.257"N	80°09'37.170"W	392.67	34.587	2.68	1.82	6.15
4416.00	19.880	67.830	4375.08	-172.13	335.20	251.59	1877052.69	14372818.58	39°34'27.372"N	80°09'36.802"W	419.11	36.891	0.43	0.30	0.89
4509.00	18.290	66.160	4462.96	-169.01	347.06	279.58	1877080.67	14372830.44	39°34'27.487"N	80°09'36.443"W	445.67	38.854	1.81	-1.71	1.80
4602.00	18.050	66.180	4551.33	-165.97	358.32	306.31	1877107.38	14372841.69	39°34'27.596"N	80°09'36.101"W	471.40	40.525	0.72	-0.26	2.17
4695.00	17.900	72.650	4639.79	-161.35	367.94	333.33	1877134.39	14372851.30	39°34'27.688"N	80°09'35.754"W	496.47	42.175	1.49	-0.16	4.81
4788.00	16.950	73.340	4728.52	-155.63	376.08	359.96	1877161.02	14372869.45	39°34'27.766"N	80°09'35.413"W	520.58	43.745	1.05	-1.02	0.74

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Actual Wellpath Report

Quality Reclamation MRN 210H AWP Proj: 18587'
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REFERENCE WELLPATH IDENTIFICATION

Operator	SOUTHWESTERN ENERGY	Slot	Slot #210
Area	Marion County, WV	Well	Quality Reclamation MRN 210H
Field	Marion	Wellbore	Quality Reclamation MRN 210H AWB
Facility	Quality Reclamation MRN Pad		

WELLPATH DATA (223 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]
4880.00	17.200	74.350	4816.47	-149.69	383.60	385.90	1877186.95	14372866.96	39°34'27.838"N	80°09'35.081"W	544.12	45.172	0.42	0.27	1.10
4973.00	18.040	75.430	4905.10	-143.00	390.93	413.08	1877214.12	14372874.29	39°34'27.908"N	80°09'34.733"W	568.74	46.578	0.97	0.90	1.16
5066.00	17.510	75.250	4993.66	-136.03	398.12	440.55	1877241.58	14372881.47	39°34'27.977"N	80°09'34.382"W	593.78	47.896	0.57	-0.57	-0.19
5159.00	18.830	73.260	5082.03	-129.47	406.00	468.45	1877269.47	14372889.35	39°34'28.052"N	80°09'34.024"W	619.91	49.085	1.57	1.42	-2.14
5251.00	17.870	70.350	5169.35	-124.09	415.02	495.96	1877296.98	14372898.37	39°34'28.139"N	80°09'33.672"W	646.70	50.077	1.44	-1.04	-3.16
5344.00	17.970	69.740	5257.84	-119.66	424.79	522.86	1877323.86	14372908.14	39°34'28.233"N	80°09'33.327"W	673.67	50.908	0.23	0.11	-0.66
5437.00	17.760	66.040	5346.36	-116.31	435.52	549.28	1877350.28	14372918.86	39°34'28.336"N	80°09'32.989"W	700.99	51.590	1.24	-0.23	-3.98
5529.00	18.080	65.170	5433.89	-114.10	447.21	575.06	1877376.05	14372930.55	39°34'28.450"N	80°09'32.658"W	728.49	52.129	0.45	0.35	-0.95
5622.00	19.180	63.170	5522.02	-112.55	460.17	601.79	1877402.77	14372943.50	39°34'28.575"N	80°09'32.315"W	757.57	52.596	1.37	1.18	-2.15
5715.00	18.580	60.480	5610.02	-112.18	474.36	628.32	1877429.28	14372957.69	39°34'28.713"N	80°09'31.975"W	787.28	52.948	1.14	-0.65	-2.89
5808.00	18.070	63.150	5698.30	-111.84	488.18	654.08	1877455.04	14372971.50	39°34'28.847"N	80°09'31.644"W	816.17	53.264	1.06	-0.55	2.87
5901.00	18.490	62.920	5786.61	-110.88	501.41	680.08	1877481.03	14372984.73	39°34'28.975"N	80°09'31.310"W	844.93	53.599	0.46	0.45	-0.25
5993.00	18.710	65.350	5873.80	-109.34	514.20	706.48	1877507.42	14372997.52	39°34'29.099"N	80°09'30.972"W	873.79	53.951	0.88	0.24	2.64
6086.00	18.260	66.490	5962.01	-106.89	526.23	733.40	1877534.33	14373009.55	39°34'29.216"N	80°09'30.627"W	902.66	54.339	0.62	-0.48	1.23
6179.00	18.250	68.640	6050.33	-103.63	537.35	760.32	1877561.24	14373020.66	39°34'29.323"N	80°09'30.281"W	931.04	54.749	0.72	-0.01	2.31
6271.00	18.260	69.870	6137.70	-99.56	547.56	787.27	1877588.18	14373030.86	39°34'29.422"N	80°09'29.936"W	958.96	55.181	0.42	0.01	1.34
6364.00	18.040	67.930	6226.07	-95.65	557.98	814.29	1877615.20	14373041.28	39°34'29.522"N	80°09'29.590"W	987.13	55.580	0.69	-0.24	-2.09
6457.00	19.030	68.530	6314.24	-91.99	568.94	841.75	1877642.64	14373052.24	39°34'29.628"N	80°09'29.238"W	1015.99	55.945	1.08	1.06	0.65
6550.00	19.690	70.380	6401.99	-87.53	579.75	870.62	1877671.50	14373063.05	39°34'29.732"N	80°09'28.868"W	1045.99	56.340	0.97	0.71	1.99
6642.00	19.340	69.450	6488.70	-82.84	590.31	899.48	1877700.36	14373073.60	39°34'29.834"N	80°09'28.498"W	1075.88	56.724	0.51	-0.38	-1.01
6735.00	19.010	68.420	6576.54	-78.69	601.28	927.98	1877728.85	14373084.57	39°34'29.940"N	80°09'28.133"W	1105.76	57.059	0.51	-0.35	-1.11
6828.00	18.220	67.660	6664.68	-75.12	612.38	955.52	1877756.37	14373095.66	39°34'30.047"N	80°09'27.780"W	1134.91	57.345	0.89	-0.85	-0.82
6921.00	18.160	67.490	6753.03	-71.87	623.45	982.35	1877783.20	14373106.73	39°34'30.154"N	80°09'27.436"W	1163.49	57.599	0.09	-0.06	-0.18
7014.00	18.260	67.620	6841.37	-68.62	634.55	1009.21	1877810.05	14373117.83	39°34'30.261"N	80°09'27.091"W	1192.13	57.840	0.12	0.11	0.14
7074.00	17.870	67.630	6898.41	-66.52	641.63	1026.42	1877827.25	14373124.91	39°34'30.329"N	80°09'26.871"W	1210.47	57.990	0.65	-0.65	0.02
7180.00	16.460	72.120	6999.69	-61.82	652.43	1055.75	1877856.58	14373135.70	39°34'30.433"N	80°09'26.495"W	1241.08	58.285	1.82	-1.23	4.24
7227.00	14.810	88.880	7044.98	-57.75	654.60	1068.10	1877868.92	14373137.87	39°34'30.453"N	80°09'26.337"W	1252.73	58.498	10.19	-3.51	35.66
7273.00	17.870	102.900	7089.13	-50.31	653.14	1080.87	1877881.68	14373136.41	39°34'30.438"N	80°09'26.174"W	1262.88	58.857	10.81	6.65	30.48
7320.00	16.880	106.870	7133.99	-40.62	649.55	1094.43	1877895.24	14373132.82	39°34'30.401"N	80°09'26.001"W	1272.67	59.311	3.29	-2.11	8.45
7366.00	16.590	113.300	7178.04	-30.65	645.01	1106.85	1877907.66	14373128.28	39°34'30.355"N	80°09'25.843"W	1281.08	59.769	4.07	-0.63	13.98

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Actual Wellpath Report

Quality Reclamation MRN 210H AWP Proj: 18587'
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REFERENCE WELLPATH IDENTIFICATION			
Operator	SOUTHWESTERN ENERGY	Slot	Slot #210
Area	Marion County, WV	Well	Quality Reclamation MRN 210H
Field	Marion	Wellbore	Quality Reclamation MRN 210H AWB
Facility	Quality Reclamation MRN Pad		

WELLPATH DATA (223 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]	
7412.00	18.000	121.380	7221.97	-19.30	638.71	1118.95	1877919.76	14373121.98	39°34'30.292"N	80°09'25.689"W	1288.41	60.282	6.05	3.07	17.57	
7458.00	19.860	125.550	7265.48	-6.08	630.46	1131.38	1877932.18	14373113.74	39°34'30.209"N	80°09'25.532"W	1295.19	60.871	5.00	4.04	9.07	
7505.00	20.170	128.360	7309.64	8.59	620.79	1144.23	1877945.02	14373104.07	39°34'30.112"N	80°09'25.369"W	1301.79	61.518	2.15	0.66	5.98	
7551.00	19.970	130.730	7352.85	23.27	610.75	1156.40	1877957.19	14373094.03	39°34'30.012"N	80°09'25.215"W	1307.78	62.159	1.82	-0.43	5.15	
7598.00	22.560	133.560	7396.65	39.39	599.29	1169.02	1877969.80	14373082.58	39°34'29.898"N	80°09'25.055"W	1313.68	62.858	5.93	5.51	6.02	
7644.00	25.190	138.770	7438.71	57.37	585.85	1181.87	1877982.65	14373069.14	39°34'29.763"N	80°09'24.892"W	1319.10	63.633	7.32	5.72	11.33	
7691.00	27.940	143.190	7480.75	78.05	569.51	1195.06	1877995.84	14373052.80	39°34'29.601"N	80°09'24.726"W	1323.83	64.520	7.20	5.85	9.40	
7737.00	30.240	145.910	7520.95	100.26	551.28	1208.01	1878008.79	14373034.58	39°34'29.419"N	80°09'24.563"W	1327.86	65.470	5.77	5.00	5.91	
7783.00	32.050	146.460	7560.31	123.96	531.51	1221.25	1878022.02	14373014.82	39°34'29.223"N	80°09'24.396"W	1331.90	66.480	3.98	3.93	1.20	
7830.00	34.240	147.760	7599.67	149.59	509.93	1235.20	1878035.96	14372993.25	39°34'29.008"N	80°09'24.220"W	1336.32	67.567	4.90	4.66	2.77	
7876.00	37.470	149.950	7636.95	176.51	486.87	1249.11	1878049.87	14372970.19	39°34'28.779"N	80°09'24.045"W	1340.64	68.706	7.55	7.02	4.76	
7923.00	39.980	151.640	7673.61	205.91	461.20	1263.45	1878064.20	14372944.54	39°34'28.524"N	80°09'23.865"W	1344.99	69.946	5.79	5.34	3.60	
7969.00	43.900	153.950	7707.82	236.63	433.86	1277.48	1878078.22	14372917.20	39°34'28.253"N	80°09'23.690"W	1349.14	71.241	9.16	8.52	5.02	
8016.00	47.860	155.850	7740.54	270.28	403.30	1291.77	1878092.51	14372886.66	39°34'27.949"N	80°09'23.511"W	1353.26	72.661	8.91	8.43	4.04	
8062.00	53.070	157.710	7769.81	305.57	370.71	1305.73	1878106.47	14372854.07	39°34'27.626"N	80°09'23.336"W	1357.33	74.150	11.75	11.33	4.04	
8108.00	57.560	159.190	7795.98	343.08	335.53	1319.61	1878120.34	14372818.91	39°34'27.277"N	80°09'23.163"W	1361.60	75.734	10.11	9.76	3.22	
8155.00	61.800	160.270	7819.70	383.18	297.48	1333.65	1878134.38	14372780.87	39°34'26.900"N	80°09'22.989"W	1366.43	77.426	9.24	9.02	2.30	
8201.00	64.790	161.020	7840.37	423.71	258.71	1347.26	1878147.99	14372742.11	39°34'26.515"N	80°09'22.819"W	1371.88	79.130	6.66	6.50	1.63	
8247.00	68.320	161.630	7858.67	465.24	218.74	1360.77	1878161.49	14372702.15	39°34'26.119"N	80°09'22.652"W	1378.24	80.868	7.77	7.67	1.33	
8294.00	71.460	162.130	7874.83	508.59	176.80	1374.50	1878175.21	14372660.23	39°34'25.703"N	80°09'22.481"W	1385.82	82.671	6.76	6.68	1.06	
8340.00	75.600	162.090	7887.87	551.89	134.82	1388.04	1878188.75	14372618.27	39°34'25.287"N	80°09'22.313"W	1394.58	84.452	9.00	9.00	-0.09	
8386.00	79.480	161.580	7897.79	596.02	92.16	1402.05	1878202.75	14372575.61	39°34'24.864"N	80°09'22.140"W	1405.07	86.239	8.50	8.43	-1.11	
8479.00	86.770	157.890	7908.92	687.24	5.62	1434.02	1878234.71	14372489.11	39°34'24.006"N	80°09'21.742"W	1434.03	89.775	8.77	7.84	-3.97	
8572.00	89.540	156.610	7911.92	779.65	-80.09	1469.96	1878270.64	14372403.43	39°34'23.156"N	80°09'21.293"W	1472.14	93.119	3.28	2.98	-1.38	
8664.00	89.510	157.800	7912.68	871.13	-164.90	1505.60	1878306.27	14372318.65	39°34'22.314"N	80°09'20.848"W	1514.61	96.250	1.29	-0.03	1.29	
8757.00	89.600	156.170	7913.40	963.64	-250.49	1541.96	1878342.62	14372233.08	39°34'21.465"N	80°09'20.394"W	1562.18	99.227	1.76	0.40	-1.75	
8850.00	90.120	157.820	7913.63	1056.15	-336.09	1578.31	1878378.95	14372147.51	39°34'20.616"N	80°09'19.940"W	1613.69	102.021	1.86	0.56	1.77	
8943.00	89.480	160.880	7913.95	1148.19	-423.10	1611.10	1878411.73	14372060.53	39°34'19.753"N	80°09'19.532"W	1665.73	104.715	3.36	-0.69	3.29	
9036.00	89.510	158.900	7914.77	1240.10	-510.43	1643.07	1878443.70	14371973.24	39°34'18.887"N	80°09'19.134"W	1720.53	107.258	2.13	0.03	-2.13	
9128.00	89.570	157.170	7915.51	1331.42	-595.74	1677.48	1878478.09	14371887.95	39°34'18.040"N	80°09'18.705"W	1780.13	109.552	1.88	0.07	-1.88	

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Southwestern Energy

Actual Wellpath Report

Quality Reclamation MRN 210H AWP Proj: 18587



REFERENCE WELLPATH IDENTIFICATION			
Operator	SOUTHWESTERN ENERGY	Slot	Slot #210
Area	Marion County, WV	Well	Quality Reclamation MRN 210H AWB
Field	Marion	Wellbore	Quality Reclamation MRN 210H AWB
Facility	Quality Reclamation MRN Pad		

WELLPATH DATA (223 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]	[ft]	[ft]	[ft]	[ft]	[ft]	[°]	[ft/100ft]	[ft/100ft]	[°/100ft]
9221.00	89.570	7916.21	1423.97	-681.22	1714.12	1878514.72	14371802.50	39°34'17.192"N	80°09'18.247"W	1844.52	111.674	0.80	0.00	-0.80	
9314.00	89.780	7916.74	1516.66	-766.00	1752.33	1878552.91	14371717.75	39°34'16.351"N	80°09'17.770"W	1912.44	113.612	1.50	0.23	-1.48	
9406.00	89.690	7917.16	1608.28	-850.24	1789.30	1878589.88	14371633.54	39°34'15.515"N	80°09'17.308"W	1981.04	115.416	2.72	-0.10	2.72	
9499.00	89.480	7917.84	1700.50	-936.79	1823.29	1878623.86	14371547.01	39°34'14.656"N	80°09'16.884"W	2049.87	117.194	2.18	-0.23	2.17	
9592.00	89.320	7918.81	1792.64	-1023.82	1856.08	1878666.63	14371460.02	39°34'13.793"N	80°09'16.476"W	2119.73	118.881	0.49	-0.17	-0.46	
9685.00	89.970	7919.39	1884.84	-1110.11	1890.75	1878691.29	14371373.76	39°34'12.937"N	80°09'16.043"W	2192.55	120.418	2.32	0.70	-2.22	
9778.00	90.310	7919.16	1977.36	-1195.71	1927.10	1878727.63	14371288.19	39°34'12.088"N	80°09'15.589"W	2267.91	121.818	0.41	0.37	-0.18	
9871.00	90.370	7918.61	2069.74	-1281.75	1962.37	1878762.89	14371202.17	39°34'11.234"N	80°09'15.149"W	2343.88	123.151	1.72	0.06	1.72	
9963.00	90.430	7917.96	2160.93	-1367.49	1995.72	1878796.23	14371116.46	39°34'10.384"N	80°09'14.734"W	2419.28	124.419	0.52	0.07	0.51	
10056.00	90.430	7917.27	2252.97	-1454.52	2028.50	1878829.00	14371029.46	39°34'09.521"N	80°09'14.326"W	2496.09	125.642	0.82	0.00	0.82	
10149.00	90.370	7916.62	2345.06	-1541.43	2061.61	1878862.09	14370942.59	39°34'08.659"N	80°09'13.913"W	2574.14	126.785	1.28	-0.06	-1.28	
10242.00	90.400	7915.99	2437.41	-1627.61	2096.55	1878897.02	14370856.43	39°34'07.804"N	80°09'13.478"W	2654.17	127.823	1.33	0.03	-1.33	
10334.00	90.710	7915.10	2528.87	-1712.47	2132.07	1878932.53	14370771.60	39°34'06.962"N	80°09'13.034"W	2734.64	128.771	0.34	0.34	-0.04	
10427.00	91.320	7913.45	2620.98	-1799.23	2165.48	1878965.92	14370684.87	39°34'06.101"N	80°09'12.618"W	2815.41	129.722	3.65	0.66	3.59	
10520.00	91.940	7910.81	2712.63	-1887.02	2196.06	1878996.50	14370597.11	39°34'05.231"N	80°09'12.238"W	2895.43	130.672	0.77	0.67	0.39	
10613.00	91.880	7907.70	2804.99	-1972.66	2232.02	1879032.44	14370511.50	39°34'04.381"N	80°09'11.789"W	2978.81	131.470	8.05	-0.06	-8.05	
10705.00	92.060	7904.54	2896.83	-2055.23	2272.46	1879072.87	14370428.95	39°34'03.561"N	80°09'11.283"W	3063.99	132.127	0.95	0.20	0.93	
10795.00	92.460	7900.99	2986.35	-2137.64	2308.41	1879108.81	14370346.57	39°34'02.744"N	80°09'10.834"W	3146.15	132.800	4.65	0.44	4.63	
10888.00	92.490	7896.97	3077.81	-2225.56	2338.37	1879138.76	14370258.69	39°34'01.872"N	80°09'10.462"W	3228.17	133.584	5.75	0.03	5.75	
10981.00	92.340	7893.05	3168.95	-2314.08	2366.55	1879166.93	14370170.19	39°34'00.995"N	80°09'10.112"W	3309.92	134.358	3.27	-0.16	-3.27	
11073.00	91.940	7889.62	3259.92	-2400.11	2398.94	1879199.31	14370084.19	39°34'00.141"N	80°09'09.709"W	3393.45	135.014	3.18	-0.43	-3.15	
11166.00	91.880	7886.52	3352.10	-2486.61	2432.96	1879233.32	14369997.72	39°33'59.283"N	80°09'09.285"W	3478.87	135.625	1.31	-0.06	1.31	
11259.00	91.660	7883.64	3444.17	-2573.43	2466.17	1879266.52	14369910.93	39°33'58.422"N	80°09'08.872"W	3564.34	136.219	0.28	-0.24	-0.15	
11352.00	91.970	7880.70	3536.15	-2660.45	2498.84	1879299.18	14369823.94	39°33'57.559"N	80°09'08.465"W	3649.96	136.794	0.96	0.33	0.90	
11444.00	91.720	7877.73	3627.35	-2745.96	2532.63	1879332.95	14369738.45	39°33'56.711"N	80°09'08.044"W	3735.58	137.314	3.05	-0.27	-3.04	
11537.00	91.850	7874.84	3720.14	-2829.45	2573.40	1879373.71	14369654.99	39°33'55.882"N	80°09'07.533"W	3824.68	137.713	6.59	0.74	-6.59	
11630.00	91.880	7871.81	3813.09	-2910.84	2618.30	1879418.59	14369573.63	39°33'55.074"N	80°09'06.970"W	3915.16	138.029	0.44	0.03	0.44	
11723.00	91.940	7868.71	3906.01	-2993.25	2661.26	1879461.54	14369491.25	39°33'54.255"N	80°09'06.431"W	4005.23	138.360	2.46	0.06	2.46	
11815.00	91.850	7865.66	3997.43	-3077.84	2697.18	1879497.45	14369406.69	39°33'53.416"N	80°09'05.983"W	4092.42	138.771	7.34	-0.10	-7.35	
11908.00	91.880	7862.63	4088.52	-3166.49	2725.06	1879525.32	14369318.07	39°33'52.537"N	80°09'05.637"W	4177.63	139.285	4.68	0.03	4.68	

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Actual Wellpath Report

Quality Reclamation MRN 210H AWP Proj: 18587'
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REFERENCE WELLPATH IDENTIFICATION			
Operator	SOUTHWESTERN ENERGY	Slot	Slot #210
Area	Marion County, WV	Well	Quality Reclamation MRN 210H
Field	Marion	Wellbore	Quality Reclamation MRN 210H AWB
Facility	Quality Reclamation MRN Pad		

WELLPATH DATA (223 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]	
12001.00	91.790	164.540	7859.66	4178.91	-3256.12	2749.70	1879549.95	14369228.47	39°33'51.649"N	80°09'05.334"W	4261.82	139.820	0.22	-0.10	-0.19	
12093.00	91.880	157.930	7856.71	4269.39	-3343.13	2779.26	1879579.50	14369141.49	39°33'50.786"N	80°09'04.967"W	4347.51	140.262	7.18	0.10	-7.18	
12186.00	90.370	156.910	7854.88	4361.81	-3428.98	2814.96	1879615.19	14369055.67	39°33'49.935"N	80°09'04.521"W	4436.43	140.616	1.96	-1.62	-1.10	
12279.00	90.550	157.630	7854.13	4454.27	-3514.76	2850.89	1879651.11	14368969.92	39°33'49.084"N	80°09'04.073"W	4525.61	140.954	0.80	0.19	0.77	
12371.00	90.520	158.480	7853.28	4545.60	-3600.09	2885.27	1879685.48	14368884.62	39°33'48.237"N	80°09'03.644"W	4613.61	141.290	0.92	-0.03	0.92	
12464.00	90.550	158.180	7852.41	4637.87	-3686.51	2919.61	1879719.81	14368798.23	39°33'47.380"N	80°09'03.216"W	4702.61	141.622	0.32	0.03	-0.32	
12556.00	90.460	158.290	7851.60	4729.16	-3771.95	2953.73	1879753.91	14368712.82	39°33'46.532"N	80°09'02.791"W	4790.83	141.936	0.15	-0.10	0.12	
12649.00	90.460	158.050	7850.85	4821.45	-3858.28	2988.31	1879788.48	14368626.52	39°33'45.676"N	80°09'02.360"W	4880.19	142.242	0.26	0.00	-0.26	
12742.00	90.490	160.140	7850.08	4913.55	-3945.15	3021.49	1879821.65	14368539.68	39°33'44.814"N	80°09'01.946"W	4969.26	142.552	2.25	0.03	2.25	
12835.00	90.520	159.650	7849.26	5005.46	-4032.48	3053.45	1879853.60	14368452.38	39°33'43.948"N	80°09'01.549"W	5058.11	142.866	0.53	0.03	-0.53	
12927.00	90.150	158.380	7848.72	5096.59	-4118.37	3086.40	1879886.54	14368366.51	39°33'43.096"N	80°09'01.139"W	5146.54	143.151	1.44	-0.40	-1.38	
13020.00	89.970	161.330	7848.62	5188.51	-4205.67	3118.43	1879918.55	14368279.24	39°33'42.231"N	80°09'00.740"W	5235.67	143.444	3.18	-0.19	3.17	
13113.00	89.820	162.780	7848.79	5279.82	-4294.15	3147.08	1879947.19	14368190.80	39°33'41.354"N	80°09'00.385"W	5323.89	143.763	1.57	-0.16	1.56	
13206.00	89.850	160.540	7849.06	5371.25	-4382.42	3176.34	1879976.45	14368102.56	39°33'40.479"N	80°09'00.022"W	5412.46	144.066	2.41	0.03	-2.41	
13298.00	89.880	159.850	7849.28	5462.11	-4468.97	3207.51	1880007.61	14368016.03	39°33'39.620"N	80°08'59.635"W	5500.90	144.332	0.75	0.03	-0.75	
13391.00	89.940	159.940	7849.43	5554.02	-4556.31	3239.48	1880039.56	14367928.72	39°33'38.754"N	80°08'59.237"W	5590.54	144.588	0.12	0.06	0.10	
13471.00	89.850	158.020	7849.57	5633.27	-4630.98	3268.17	1880068.25	14367854.08	39°33'38.014"N	80°08'58.886"W	5668.06	144.789	2.40	-0.11	-2.40	
13563.00	89.260	154.750	7850.29	5724.87	-4715.26	3305.02	1880105.08	14367769.82	39°33'37.177"N	80°08'58.419"W	5758.20	144.973	3.61	-0.64	-3.55	
13656.00	89.140	156.660	7851.58	5817.56	-4800.01	3343.28	1880143.33	14367685.10	39°33'36.336"N	80°08'57.941"W	5849.58	145.142	2.06	-0.13	2.05	
13749.00	86.950	153.930	7854.76	5910.25	-4884.44	3382.12	1880182.15	14367600.70	39°33'35.498"N	80°08'57.455"W	5941.08	145.300	3.76	-2.35	-2.94	
13842.00	86.890	154.200	7859.75	6002.99	-4967.95	3422.73	1880222.76	14367517.22	39°33'34.669"N	80°08'56.947"W	6032.88	145.435	0.30	-0.06	0.29	
13934.00	86.550	156.540	7865.02	6094.59	-5051.44	3461.01	1880261.02	14367433.76	39°33'33.840"N	80°08'56.468"W	6123.37	145.583	2.57	-0.37	2.54	
14027.00	87.880	158.520	7869.54	6186.89	-5137.27	3496.51	1880296.51	14367347.96	39°33'32.989"N	80°08'56.025"W	6214.27	145.760	2.56	1.43	2.13	
14120.00	89.970	157.850	7871.28	6279.17	-5223.59	3531.06	1880331.05	14367261.67	39°33'32.132"N	80°08'55.595"W	6305.10	145.942	2.36	2.25	-0.72	
14213.00	89.880	162.010	7871.41	6371.06	-5310.92	3562.97	1880362.94	14367174.36	39°33'31.266"N	80°08'55.198"W	6395.36	146.143	4.47	-0.10	4.47	
14305.00	89.850	163.610	7871.62	6461.15	-5398.81	3590.16	1880390.12	14367086.51	39°33'30.395"N	80°08'54.861"W	6483.55	146.376	1.74	-0.03	1.74	
14398.00	89.820	159.630	7871.89	6552.58	-5487.05	3619.47	1880419.43	14366998.30	39°33'29.520"N	80°08'54.498"W	6573.30	146.590	4.28	-0.03	-4.28	
14490.00	90.680	157.550	7871.49	6643.80	-5572.69	3653.06	1880453.00	14366912.68	39°33'28.671"N	80°08'54.079"W	6663.31	146.754	2.45	0.93	-2.26	
14583.00	91.080	158.450	7870.06	6736.12	-5658.91	3687.89	1880487.82	14366826.49	39°33'27.816"N	80°08'53.645"W	6754.54	146.908	1.06	0.43	0.97	
14676.00	90.990	158.720	7868.38	6828.32	-5745.47	3721.84	1880521.76	14366739.96	39°33'26.957"N	80°08'53.222"W	6845.62	147.065	0.31	-0.10	0.29	

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Actual Wellpath Report

Quality Reclamation MRN 210H AWP Proj: 18587



REFERENCE WELLPATH IDENTIFICATION			
Operator	SOUTHWESTERN ENERGY	Slot	Slot #210
Area	Marion County, WV	Well	Quality Reclamation MRN 210H AWB
Field	Marion	Wellbore	Quality Reclamation MRN 210H AWB
Facility	Quality Reclamation MRN Pad		

WELLPATH DATA (223 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)	(%/100ft)	(%/100ft)	(%/100ft)
14769.00	91.050	160.050	7866.72	6920.34	-6832.50	3754.58	1880554.49	14366652.96	39°33'26.094"N	80°08'52.815"W	6936.49	147.229	1.43	0.06	1.43
14862.00	89.850	158.860	7865.99	7012.36	-5919.58	3787.21	1880587.11	14366565.91	39°33'25.230"N	80°08'52.409"W	7027.41	147.390	1.82	-1.29	-1.28
14955.00	89.780	158.150	7866.29	7104.59	-6006.11	3821.29	1880621.18	14366479.41	39°33'24.372"N	80°08'51.984"W	7118.68	147.534	0.77	-0.08	-0.76
15048.00	90.620	157.560	7865.97	7196.95	-6092.25	3856.35	1880656.22	14366393.30	39°33'23.517"N	80°08'51.547"W	7210.20	147.667	1.10	0.90	-0.63
15140.00	90.310	157.410	7865.22	7288.38	-6177.24	3891.57	1880691.44	14366308.34	39°33'22.674"N	80°08'51.107"W	7300.88	147.790	0.37	-0.34	-0.16
15233.00	90.550	157.570	7864.53	7380.81	-6263.15	3927.18	1880727.03	14366222.46	39°33'21.822"N	80°08'50.663"W	7392.55	147.911	0.31	0.26	0.17
15326.00	90.520	157.390	7863.66	7473.24	-6349.05	3962.80	1880762.64	14366136.58	39°33'20.969"N	80°08'50.219"W	7484.27	148.029	0.20	-0.03	-0.19
15418.00	90.460	156.760	7862.87	7564.74	-6433.78	3998.63	1880798.46	14366051.88	39°33'20.129"N	80°08'49.772"W	7575.13	148.139	0.69	-0.07	-0.68
15511.00	90.090	154.580	7862.42	7657.44	-6518.52	4036.94	1880836.76	14365967.18	39°33'19.288"N	80°08'49.293"W	7667.33	148.230	2.38	-0.40	-2.34
15604.00	90.060	159.070	7862.30	7749.96	-6603.99	4073.53	1880873.34	14365881.73	39°33'18.440"N	80°08'48.836"W	7759.28	148.333	4.83	-0.03	4.83
15697.00	89.970	160.640	7862.28	7841.89	-6691.30	4105.56	1880905.35	14365794.45	39°33'17.574"N	80°08'48.438"W	7850.42	148.468	1.69	-0.10	1.69
15790.00	90.000	160.870	7862.30	7933.58	-6779.10	4136.21	1880936.00	14365706.68	39°33'16.703"N	80°08'48.057"W	7941.32	148.611	0.25	0.03	0.25
15882.00	89.630	158.170	7862.60	8024.59	-6865.28	4168.40	1880968.17	14365620.53	39°33'15.849"N	80°08'47.656"W	8031.66	148.735	2.96	-0.40	-2.93
15975.00	89.570	153.920	7863.25	8117.22	-6950.25	4206.15	1881005.91	14365535.59	39°33'15.005"N	80°08'47.185"W	8123.89	148.819	4.57	-0.06	-4.57
16068.00	89.540	156.910	7863.97	8210.02	-7034.47	4245.58	1881045.32	14365451.40	39°33'14.169"N	80°08'46.692"W	8216.36	148.887	2.14	-0.03	2.14
16160.00	89.940	158.970	7864.39	8301.45	-7119.42	4280.87	1881080.60	14365366.48	39°33'13.326"N	80°08'46.251"W	8307.34	148.982	3.35	0.43	3.33
16253.00	90.000	162.140	7864.44	8393.18	-7207.10	4311.82	1881111.55	14365278.83	39°33'12.457"N	80°08'45.867"W	8398.46	149.109	3.41	0.06	3.41
16346.00	90.000	162.430	7864.44	8484.43	-7299.69	4340.12	1881139.83	14365190.27	39°33'11.579"N	80°08'45.516"W	8489.04	149.252	0.31	0.00	0.31
16439.00	89.660	157.320	7864.71	8576.32	-7382.98	4372.11	1881171.81	14365103.00	39°33'10.713"N	80°08'45.119"W	8580.43	149.367	5.51	-0.37	-5.49
16531.00	89.450	155.530	7866.13	8660.68	-7467.21	4409.11	1881208.80	14365018.81	39°33'09.877"N	80°08'44.656"W	8671.76	149.440	2.25	-0.10	-2.25
16624.00	89.450	155.530	7866.13	8750.68	-7551.76	4447.83	1881247.51	14364934.29	39°33'09.038"N	80°08'44.172"W	8764.26	149.503	0.33	-0.13	0.30
16717.00	89.600	157.040	7866.90	8853.30	-7636.90	4485.24	1881284.90	14364849.17	39°33'08.193"N	80°08'43.705"W	8856.61	149.574	1.63	0.16	1.62
16809.00	89.660	160.030	7867.49	8944.52	-7722.51	4518.90	1881318.55	14364763.60	39°33'07.344"N	80°08'43.286"W	8947.49	149.666	3.25	0.07	3.25
16902.00	89.540	161.850	7868.14	9036.16	-7810.40	4549.26	1881348.91	14364675.73	39°33'06.473"N	80°08'42.909"W	9038.70	149.781	1.96	0.13	1.96
16995.00	89.480	157.400	7868.94	9128.12	-7897.56	4581.63	1881381.27	14364588.60	39°33'05.608"N	80°08'42.506"W	9130.32	149.881	4.79	-0.06	-4.79
17087.00	90.150	157.290	7869.23	9219.58	-7982.46	4617.07	1881416.69	14364503.73	39°33'04.766"N	80°08'42.064"W	9221.55	149.955	0.74	0.73	-0.12
17180.00	90.150	159.080	7868.99	9311.87	-8068.79	4651.63	1881451.24	14364417.42	39°33'03.909"N	80°08'41.633"W	9313.60	150.037	1.92	0.00	1.92
17273.00	90.090	160.450	7868.80	9403.82	-8156.05	4683.79	1881483.39	14364330.20	39°33'03.044"N	80°08'41.233"W	9408.27	150.132	1.47	-0.06	1.47
17366.00	90.770	160.420	7868.10	9495.59	-8243.68	4714.94	1881514.52	14364242.60	39°33'02.175"N	80°08'40.846"W	9496.78	150.233	0.78	0.73	-0.03
17459.00	91.320	155.590	7866.40	9587.88	-8329.87	4749.75	1881549.33	14364156.44	39°33'01.320"N	80°08'40.412"W	9588.89	150.308	5.23	0.59	5.19

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Actual Wellpath Report

Quality Reclamation MRN 210H AWP Proj: 18587



REFERENCE WELLPATH IDENTIFICATION

Operator	SOUTHWESTERN ENERGY	Slot	Slot #210
Area	Marion County, WV	Well	Quality Reclamation MRN 210H
Field	Marion	Wellbore	Quality Reclamation MRN 210H AWB
Facility	Quality Reclamation MRN Pad		

WELLPATH DATA (223 stations)														
MD	Inclination	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]
17551.00	91.350	157.030	7864.26	9679.48	-8414.09	4786.70	1881586.27	14364072.24	39°33'00.48"N	80°08'39.95"W	9680.37	150.365	1.57	0.03
17644.00	91.110	157.140	7862.26	9771.96	-8499.73	4822.91	1881622.46	14363986.63	39°32'59.63"N	80°08'39.49"W	9772.71	150.429	0.28	-0.26
17737.00	91.110	155.880	7860.46	9864.53	-8585.01	4859.97	1881659.51	14363901.38	39°32'58.78"N	80°08'39.03"W	9865.17	150.486	1.35	0.00
17829.00	91.450	156.980	7858.40	9956.12	-8669.31	4896.75	1881696.27	14363817.11	39°32'57.95"N	80°08'38.57"W	9956.66	150.541	1.25	0.37
17922.00	91.450	161.710	7856.05	10048.11	-8756.28	4929.53	1881729.04	14363730.17	39°32'57.08"N	80°08'38.16"W	10048.52	150.622	5.08	0.00
18015.00	90.740	161.660	7854.27	10139.52	-8844.55	4958.75	1881758.25	14363641.93	39°32'56.21"N	80°08'37.80"W	10139.79	150.723	0.77	-0.76
18108.00	90.680	158.590	7853.12	10231.36	-8932.00	4990.36	1881789.85	14363554.51	39°32'55.34"N	80°08'37.41"W	10231.53	150.808	3.30	-0.06
18200.00	90.710	157.760	7852.00	10322.66	-9017.40	5024.56	1881824.04	14363469.14	39°32'54.50"N	80°08'36.98"W	10322.77	150.873	0.90	0.03
18293.00	90.770	159.480	7850.80	10414.86	-9103.98	5058.46	1881857.93	14363382.58	39°32'53.64"N	80°08'36.56"W	10414.92	150.942	1.85	0.06
18386.00	90.650	157.250	7849.65	10507.11	-9190.42	5092.74	1881892.20	14363296.18	39°32'52.78"N	80°08'36.13"W	10507.13	151.008	2.40	-0.13
18478.00	90.710	156.500	7848.56	10598.64	-9275.02	5128.87	1881928.32	14363211.60	39°32'51.94"N	80°08'35.68"W	10598.65	151.058	0.82	0.07
18563.00	90.680	158.720	7847.53	10683.09	-9353.60	5161.25	1881960.68	14363133.05	39°32'51.16"N	80°08'35.28"W	10683.09	151.110	2.61	-0.04
18587.00	90.680	158.720	7847.24	10706.87	-9375.97	5169.96	1881969.39	14363110.69	39°32'50.94"N	80°08'35.17"W	10706.88	151.127	0.00	0.00

HOLE & CASING SECTIONS - Ref Wellbore: Quality Reclamation MRN 210H AWB														
Ref Wellpath: Quality Reclamation MRN 210H AWP Proj: 18587														
String/Diameter	Start MD	End MD	Interval	Start TVD	End TVD	Start N/S	End N/S	Start E/W	End E/W	End N/S	Start E/W	End E/W	End N/S	Start E/W
[ft]	[ft]	[ft]	[ft]	[ft]	[ft]	[ft]	[ft]	[ft]	[ft]	[ft]	[ft]	[ft]	[ft]	[ft]
17.5in Open Hole	26.00	600.00	574.00	26.00	600.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	-0.46
13.375in Casing Surface	26.00	591.00	565.00	26.00	591.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	-0.39
12.25in Open Hole	600.00	3225.00	2625.00	600.00	3214.65	3214.65	3193.71	26.00	26.00	0.00	0.00	0.00	0.00	206.17
9.625in Casing Intermediate	26.00	3204.00	3178.00	26.00	3193.71	3193.71	3193.71	26.00	26.00	0.00	0.00	0.00	0.00	204.60
8.75in Open Hole	3225.00	7150.00	3925.00	3214.65	6970.95	6970.95	6970.95	206.17	206.17	48.18	48.18	48.18	48.18	649.70
8.5in Open Hole	7150.00	18587.00	11437.00	6970.95	7847.24	7847.24	7847.24	649.70	649.70	1047.60	1047.60	1047.60	1047.60	9375.97

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Actual Wellpath Report

Quality Reclamation MRN 210H AWP Proj: 18587'
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REFERENCE WELLPATH IDENTIFICATION

Operator	SOUTHWESTERN ENERGY	Slot	Slot #210
Area	Marion County, WV	Well	Quality Reclamation MRN 210H
Field	Marion	Wellbore	Quality Reclamation MRN 210H AWB
Facility	Quality Reclamation MRN Pad		

TARGETS

Name	TVD [ft]	North [ft]	East [ft]	Grid East [US ft]	Grid North [US ft]	Latitude	Longitude	Shape
Quality Reclamation MRN 210H BHL Rev-2	7808.00	-9379.75	5170.07	1881969.50	14363106.91	39°32'50.905"N	80°08'35.174"W	point
Quality Reclamation MRN 210H LP Rev-2	7910.00	-2.00	1456.03	1878256.72	14372481.49	39°34'23.929"N	80°09'21.462"W	point

WELLPATH COMPOSITION - Ref Wellbore: Quality Reclamation MRN 210H AWB Ref Wellpath: Quality Reclamation MRN 210H AWP Proj: 18587'

Start MD [ft]	End MD [ft]	Positional Uncertainty Model	Log Name/Comment	Wellbore
26.00	584.00	VESSI GyroFlex v4	01_VES Gyro <17-1/2"> (50'-584')	Quality Reclamation MRN 210H AWB
584.00	3113.00	BHI NaviTrak (Axial)	02_APS EM <12.25"> (584')(611'-3113')	Quality Reclamation MRN 210H AWB
3113.00	7074.00	BHI NaviTrak (Axial)	03_APS EM <8-3/4"> (3113')(3253'-7074')	Quality Reclamation MRN 210H AWB
7074.00	18563.00	BHI AutoTrak Curve (Short)	04_BHI AT Curve <8.5"> (7074')(7180'-18563')	Quality Reclamation MRN 210H AWB
18563.00	18587.00	Blind Drilling (std)	Projection to bit	Quality Reclamation MRN 210H AWB

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 Quality Reclamation MRN 210H AWP Proj: 18587'
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REFERENCE WELLPATH IDENTIFICATION			
Operator	SOUTHWESTERN ENERGY	Slot	Slot #210
Area	Marion County, WV	Well	Quality Reclamation MRN 210H
Field	Marion	Wellbore	Quality Reclamation MRN 210H AWB
Facility	Quality Reclamation MRN Pad		

COMMENTS
<p>Wellpath general comments API: 47-049-02424-0000 Job#: 8464166 Rig: SDC 46 Duration: 03/24/17 - 04/09/17 VES Gyro <17-1/2"> (50'-584') APS EM <12-1/4"> (584')(611'-3113') APS EM <8-3/4"> (3113')(3253'-7074') BHI AT Curve <8-1/2"> (7074')(7180'-18563') Projected MD at TD: 18587'</p>

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