

# **Appendix A**

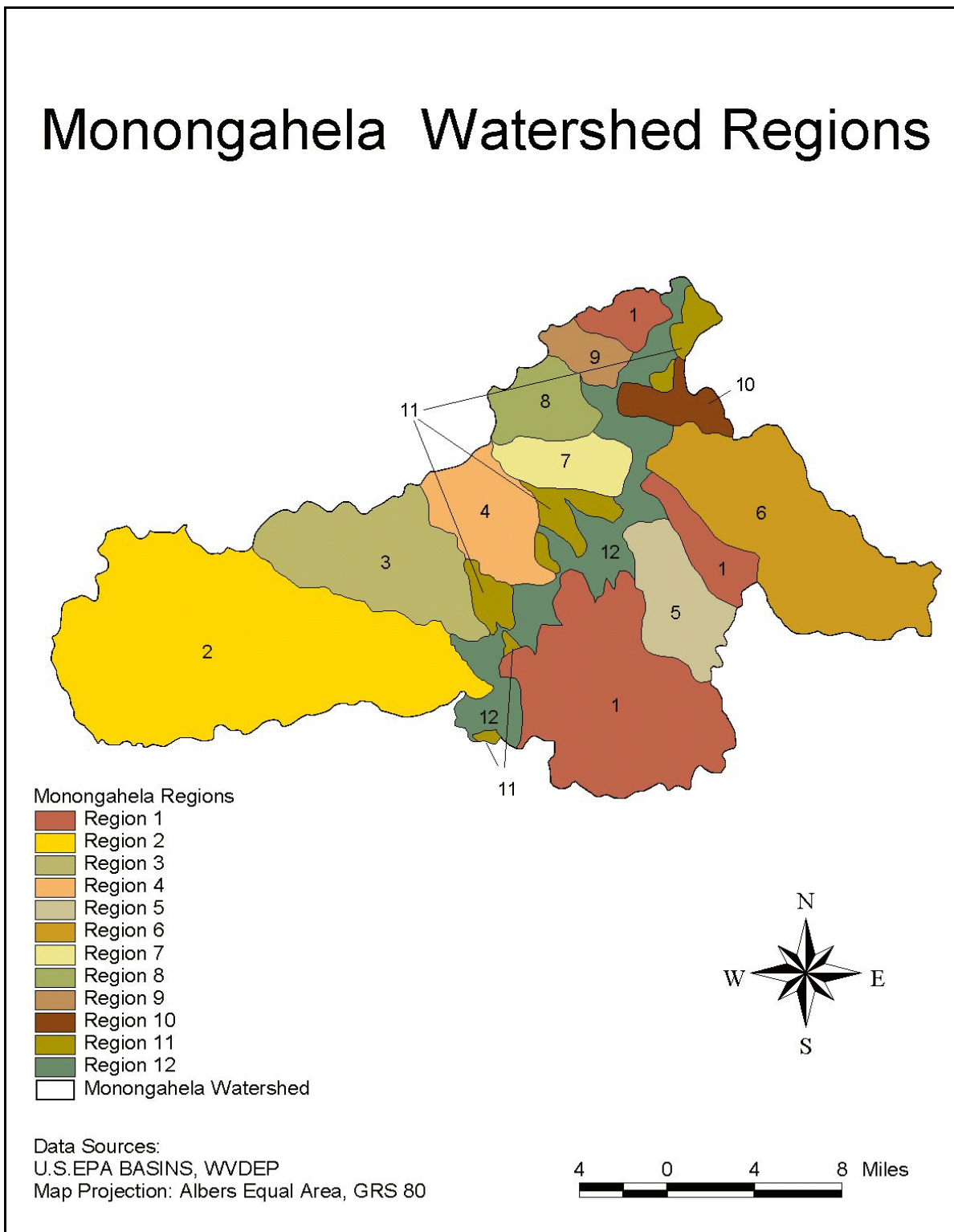
## **Monongahela River Watershed Data and TMDLs**

Appendix A is divided into ten separate sections. Each section provides information for a different region of the Monongahela River watershed. The map on the following page (Figure A) presents the watershed's ten regions. Numeric designation for each Appendix A section corresponds to the same numerically identified region of the Monongahela River watershed (e.g., Appendix A-1 corresponds to region 1 of the Buffaro Creek watershed).

The structure and content of the appendices are as follows:

- **Figure 1**—presents a map of the region, including impaired waterbodies, RF3 stream segments, and subwatersheds used in the model. The subwatershed IDs provide a basis for presenting information in the subsequent tables.
- **Table 1**—lists each impaired waterbody, its corresponding impairment and use designation, all subwatersheds in the region that drain into the impaired waterbody (contributing SWS), and any other regions that drain into the impaired waterbody (contributing regions). Use designations are presented in Section 2 of the main report.
- **Table 2**—lists the subwatersheds in the region that are assumed to contain abandoned mines. These abandoned mines refer to seeps, deep mines, and leaching. They do not include highwall locations or disturbed areas.
- **Tables 3a, 3b, and 3c**—summarize water quality data for water quality monitoring stations in the region. Each table summarizes data for a different metal (aluminum, iron, and manganese). Data are summarized by subwatershed (SWS), and the summary includes average, minimum, and maximum observed values, as well as the total number of observations (count) and the start and end date of sampling.
- **Tables 4a, 4b, and 4c**—present baseline and allocation information for permitted mine point sources in the region and future growth allocations. Tables a through c present information for different metals. The information is presented by mine permit for each subwatershed. Baseline loads (in lbs/yr) are presented for each mine. The baseline load represents the load estimated under baseline conditions, assuming a constant permitted concentration. This load represents the monthly average permitted discharge (based on existing permit limits) and does not necessarily represent current conditions. This load is presented for comparative purposes. Allocation loads (in lb/yr) and allocation concentrations (in mg/L) are also presented for each mine. The allocation load represents the WLA. The allocation concentration represents the constant concentration that will meet the water quality criteria for all conditions. Using the WLAs presented, permit limits can be derived using EPA's *Technical Support Document for Water Quality-based Toxics Control* (USEPA, 1991) to find the monthly average discharge concentration.

- **Tables 5a, 5b, and 5c**—present baseline and allocation information for nonpoint sources



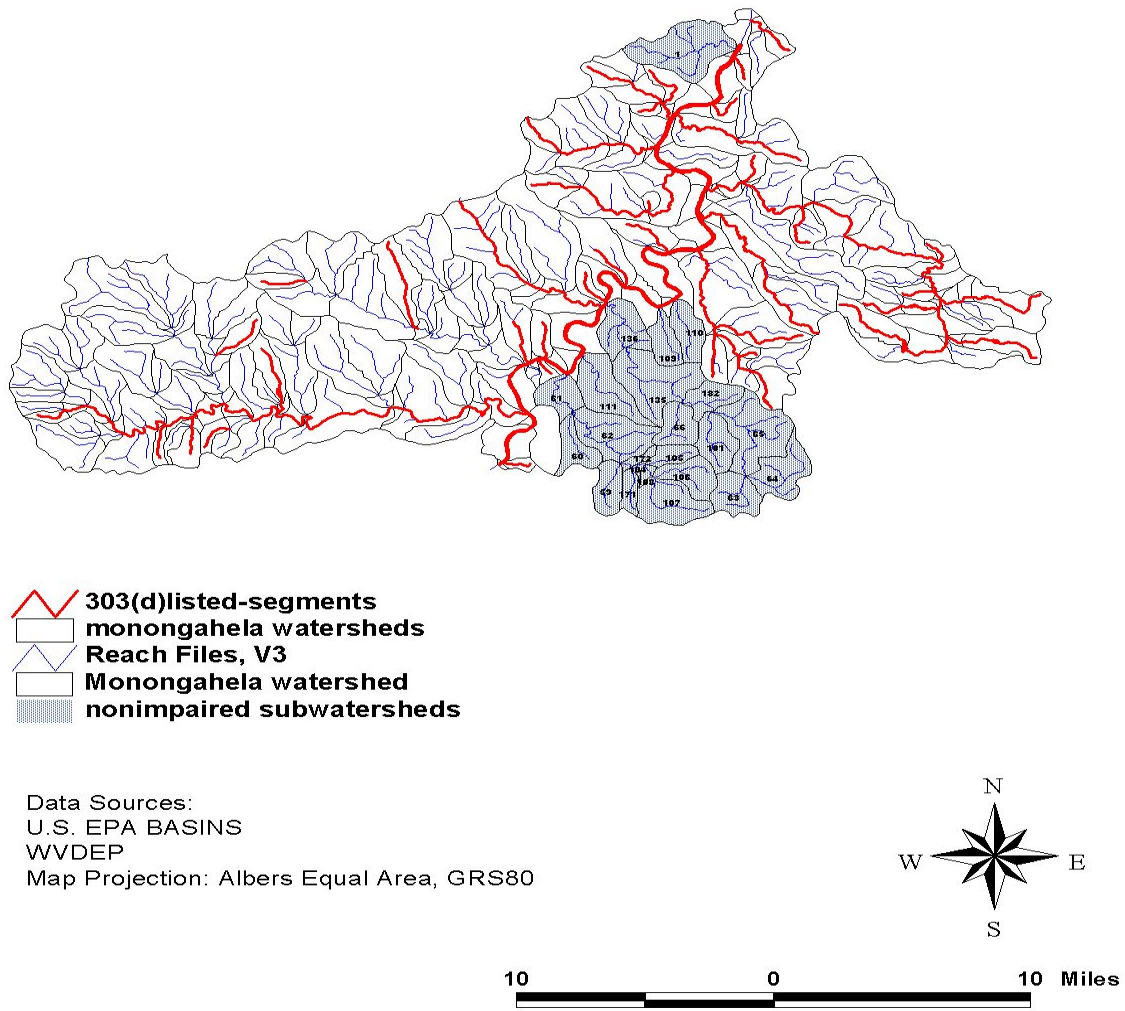
**Figure A.** Monongahela watershed and its two regions

in the region. Each table presents information for a different metal. Baseline and allocation loads (in lb/yr) are presented by subwatershed for the following nonpoint source categories: AML, other nonpoint sources, and revoked mines. The AML category represents highwalls, disturbed land, strip mines, and abandoned mines. The other nonpoint source category represents contributions from forest, pasture, cropland, urban (impervious and pervious), wetlands, and barren land. The revoked mines category represents the loading contribution from revoked mines. The baseline loads presented represent nonpoint source contributions under existing conditions. The allocation loads represent the LAs for individual categories. A column entitled “Requires Reduction” is also included to conveniently identify subwatersheds that require nonpoint source load reductions to meet water quality criteria.

# **Appendix A-1**

## **Region 1**

Metals and pH TMDLs for the Monongahela Watershed



**Figure 1.** Region 1 - nonimpaired segments

**Metals and pH TMDLs for the Monongahela Watershed**

**Table 1.** Impaired waterbodies in Region 1  
( not applicable in this section)

**Table 2.** Locations of abandoned mines (seep, deep mine, and/or leachate)  
( not applicable in this section)

**Metals and pH TMDLs for the Monongahela Watershed**

**Table 3a.** Water quality data for aluminum

SWS	WQ Station	Avg (ug/L)	Min (ug/L)	Max (ug/L)	Count	Start Date	End Date
BASIN_ID	Station	AvgOfValue	MinOfValue	MaxOfValue	DfValue	FirstOfDate	LastOfDate
1	03062966	80.0	80.0	80.0	1.0	8/20/81	8/20/81
110	551014	124.7	70.0	210.0	9.0	2/18/92	4/15/92
111	550951	128.0	36.0	300.0	11.0	1/24/89	4/25/89
136	550952	141.1	20.0	364.0	11.0	3/7/89	5/16/89
194	551013	146.4	44.0	260.0	9.0	2/18/92	4/15/92

**Table 3b.** Water quality data for iron

SWS	WQ Station	Avg (ug/L)	Min (ug/L)	Max (ug/L)	Count	Start Date	End Date
1	03062966	515.0	80.0	1200.0	8	4/22/80	8/20/81
61	392947080054139	260.0	90.0	440.0	8	3/22/80	3/22/80
110	551014	162.9	70.0	310.0	18	12/17/91	6/16/92
111	550951	156.0	20.0	420.0	22	3/7/89	9/19/89
136	393250080023439	250.0	130.0	450.0	8	5/2/79	3/23/80
136	550952	169.6	20.0	524.0	22	4/25/89	9/19/89
181	03062600	764.3	320.0	1300.0	14	10/20/80	4/30/81
194	551013	91.6	24.0	220.0	18	2/18/92	6/16/92

**Table 3c.** Water quality data for manganese

SWS	WQ Station	Avg (ug/L)	Min (ug/L)	Max (ug/L)	Count	Start Date	End Date
1	03062966	340.0	10.0	720.0	8	4/22/80	8/20/81
61	392947080054139	27.5	20.0	30.0	8	9/11/79	3/22/80
110	551014	99.1	20.0	164.0	18	1/6/92	9/21/92
111	550951	22.0	20.0	30.0	22	5/16/89	6/13/89
136	393250080023439	27.5	20.0	40.0	8	5/2/79	5/2/79
136	550952	28.4	20.0	56.0	22	5/16/89	6/13/89
181	03062600	240.0	130.0	300.0	14	3/11/81	4/30/81
194	551013	68.2	5.0	132.0	18	1/8/92	9/21/92



**Metals and pH TMDLs for the Monongahela Watershed**

**Table 4a.** Aluminum baseline conditions and allocations (WLAs) for permitted mining point sources

SWS	Article 3 permit ID	Baseline (lb/yr)	Allocation (lb/yr)	Allocation (mg/L)
1	p100696	14	14	4.3
1	s023276	715	715	4.3
1	s105186	455	455	4.3

**Table 4b.** Iron baseline conditions and allocations (WLAs) for permitted mining point sources

SWS	Article 3 permit ID	Baseline (lb/yr)	Allocation (lb/yr)	Allocation (mg/L)
1	p100696	2	2	3.2
1	s023276	41	41	3.2
1	s105186	318	318	3.2

**Table 4c.** Manganese baseline conditions and allocations (WLAs) for permitted mining point sources

SWS	Article 3 permit ID	Baseline (lb/yr)	Allocation (lb/yr)	Allocation (mg/L)
1	p100696	0.4	0.4	2.0
1	s023276	16	16	2.0
1	s105186	422	422	2.0

**Metals and pH TMDLs for the Monongahela Watershed**

**Table 5a.** Aluminum baseline conditions and allocations (LAs) for nonpoint sources

SWS	AML		Nonpoint Source		Revoked Mines		Requires Reduction
	Baseline Load (lb/yr)	Allocated Load (lb/yr)	Baseline Load (lb/yr)	Allocated Load (lb/yr)	Baseline Load (lb/yr)	Allocated Load (lb/yr)	
1	0	0	7,897	7,897	17	17	
59	0	0	795	795	0	0	
60	0	0	861	861	0	0	
61	0	0	1,574	1,574	90	90	
62	0	0	1,853	1,853	0	0	
63	0	0	2,308	2,308	0	0	
64	0	0	3,030	3,030	0	0	
65	0	0	5,006	5,006	0	0	
66	0	0	1,980	1,980	0	0	
90	0	0	1,413	1,413	0	0	
104	0	0	76	76	0	0	
105	0	0	489	489	0	0	
106	0	0	940	940	0	0	
107	0	0	1,516	1,516	0	0	
108	0	0	122	122	0	0	
109	0	0	817	817	0	0	
110	0	0	1,024	1,024	0	0	
111	0	0	1,738	1,738	0	0	
135	0	0	5,299	5,299	0	0	
136	0	0	2,740	2,740	0	0	
171	0	0	382	382	0	0	
172	0	0	213	213	0	0	
174	0	0	777	777	0	0	
181	0	0	2,331	2,331	0	0	
182	0	0	1,901	1,901	0	0	
194	0	0	1,283	1,283	0	0	
195	0	0	698	698	0	0	

**Table 5b.** Iron baseline conditions and allocations (LAs) for nonpoint sources

SWS	AML		Nonpoint Source		Revoked Mines		Requires Reduction
	Baseline Load (lb/yr)	Allocated Load (lb/yr)	Baseline Load (lb/yr)	Allocated Load (lb/yr)	Baseline Load (lb/yr)	Allocated Load (lb/yr)	
1	0	0	12,632	12,632	28	28	
59	0	0	3,658	3,658	0	0	
60	0	0	3,779	3,779	0	0	
61	0	0	6,857	6,857	391	391	
62	0	0	8,217	8,217	0	0	
63	0	0	4,683	4,683	0	0	
64	0	0	6,144	6,144	0	0	
65	0	0	10,150	10,150	0	0	
66	0	0	4,020	4,020	0	0	
90	0	0	6,495	6,495	0	0	
104	0	0	359	359	0	0	
105	0	0	2,213	2,213	0	0	
106	0	0	4,360	4,360	0	0	
107	0	0	7,049	7,049	0	0	
108	0	0	574	574	0	0	
109	0	0	3,569	3,569	0	0	
110	0	0	4,242	4,242	0	0	
111	0	0	7,462	7,462	0	0	
135	0	0	10,730	10,730	0	0	
136	0	0	5,559	5,559	0	0	
171	0	0	1,797	1,797	0	0	
172	0	0	961	961	0	0	
174	0	0	3,521	3,521	0	0	
181	0	0	4,737	4,737	0	0	
182	0	0	3,862	3,862	0	0	
194	0	0	5,101	5,101	0	0	
195	0	0	1,628	1,628	0	0	

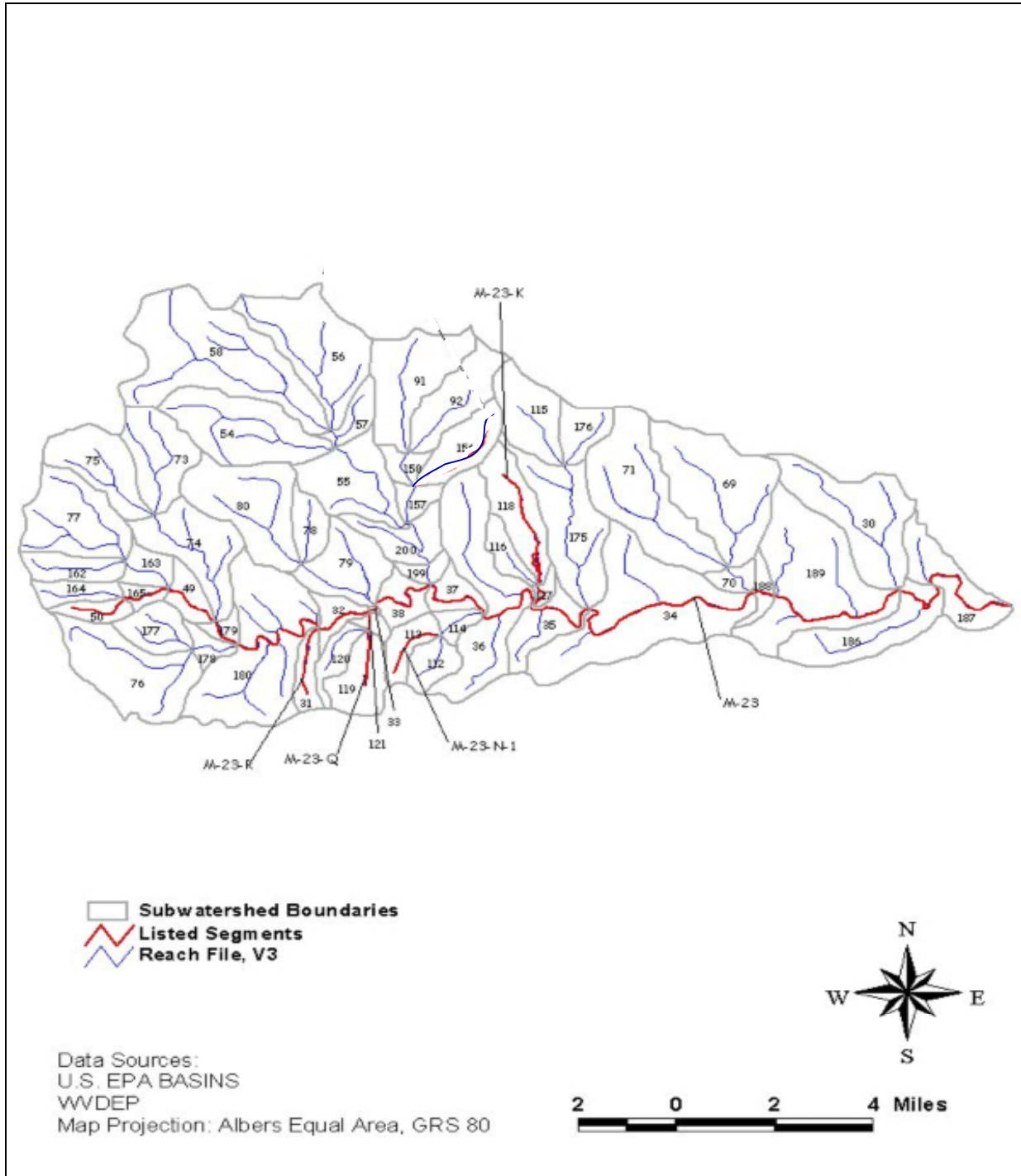
Table 5c. Manganese baseline conditions and allocations (LAs) for n

SWS	AML		Nonpoint Source		Revoked Mines		Requires Reduction
	Baseline Load (lb/yr)	Allocated Load (lb/yr)	Baseline Load (lb/yr)	Allocated Load (lb/yr)	Baseline Load (lb/yr)	Allocated Load (lb/yr)	
1	0	0	2,338	2,338	5	5	
59	0	0	295	295	0	0	
60	0	0	337	337	0	0	
61	0	0	655	655	37	37	
62	0	0	713	713	0	0	
63	0	0	368	368	0	0	
64	0	0	488	488	0	0	
65	0	0	803	803	0	0	
66	0	0	313	313	0	0	
90	0	0	523	523	0	0	
104	0	0	27	27	0	0	
105	0	0	185	185	0	0	
106	0	0	346	346	0	0	
107	0	0	557	557	0	0	
108	0	0	44	44	0	0	
109	0	0	323	323	0	0	
110	0	0	423	423	0	0	
111	0	0	701	701	0	0	
135	0	0	880	880	0	0	
136	0	0	434	434	0	0	
171	0	0	138	138	0	0	
172	0	0	82	82	0	0	
174	0	0	294	294	0	0	
181	0	0	367	367	0	0	
182	0	0	297	297	0	0	
194	0	0	554	554	0	0	
195	0	0	418	418	0	0	

# **Appendix A-2**

## **Region 2**

Metals and pH TMDLs for the Monongahela Watershed



**Figure 1.** Region 2 - Buffalo Creek and Impaired Tributaries

**Metals and pH TMDLs for the Monongahela Watershed**

**Table 1.** Impaired waterbodies in Region 2

Stream Name	Stream Code	Pollutant	Contributing SWS	Contributing Regions	Aquatic Life
Buffalo Creek	M-23	Aluminum	30,31,32,33,34,35,36,37,38,49,50,54,55,56,57,58,69,70,71,73,74,75,76,77,78,79,80,91,92,112,113,114,115,116,117,118,119,120,121,156,157,158,162,163,164,165,175,176,177,178,179,180,186,187,188,189,199,200	NA	x
Llewellyn Run	M-23-O-3-A	Metals	156	NA	x
Fleming Fork	M-23-N-1	Metals	113	NA	x
Joes Run	M-23-R	pH; Metals	31	NA	x
Mod Run	M-23-K	Metals	117,118	NA	x
Whetstone Run	M-23-Q	pH; Metals	119,120,121	NA	X

W = Warm Water Fishery

**Table 2.** Locations of abandoned mines (seep, deep mine, and/or leachate)

SWS
187
189
30
69
71
34
175

**Metals and pH TMDLs for the Monongahela Watershed**

**Table 3a.** Water quality data for aluminum

SWS	WQ Station	Avg (ug/L)	Min (ug/L)	Max (ug/L)	Count	Start Date	End Date
186	414550RAW	341.5	322	361	2	3/12/1986	3/12/1986
187	550570	613.31	40	6200	29	6/25/1974	6/12/1984

**Table 3b.** Water quality data for iron

SWS	WQ Station	Avg (ug/L)	Min (ug/L)	Max (ug/L)	Count	Start Date	End Date
119	3061430	536.67	180	1100	6	9/13/1982	12/7/1982
177	3061410	507.5	90	1500	16	1/14/1980	8/21/1980
177	393114080262039	507.5	90	1500	16	1/14/1980	8/21/1980
187	550570	1205.46	88	11600	78	6/25/1974	9/10/1984
189	3061500	972.73	400	3000	44	5/1/1979	8/13/1981
189	393014080102139	1066.67	400	3000	30	5/1/1979	8/21/1980
32	393114080232039	462	110	700	10	5/2/1979	7/22/1981
55	393320080212239	1010	280	2000	10	5/2/1979	7/22/1981

**Table 3c.** Water quality data for manganese

SWS	WQ Station	Avg (ug/L)	Min (ug/L)	Max (ug/L)	Count	Start Date	End Date
119	3061430	940	110	2200	6	9/13/1982	12/7/1982
177	3061410	36.25	20	80	16	1/14/1980	8/21/1980
177	393114080262039	36.25	20	80	16	1/14/1980	8/21/1980
187	550570	288.56	29	2440	78	6/25/1974	9/10/1984
189	3061500	395.45	90	1600	44	5/1/1979	8/13/1981
189	393014080102139	321.33	90	1000	30	5/1/1979	8/21/1980
32	393114080232039	62	40	110	10	5/2/1979	7/22/1981
55	393320080212239	82	60	120	10	5/2/1979	7/22/1981

**Metals and pH TMDLs for the Monongahela Watershed**

**Table 4a.** Aluminum baseline conditions and allocations (WLAs) for permitted mining point sources

SWS	Article 3 permit ID	Baseline (lb/yr)	Allocation (lb/yr)	Allocation (mg/L)
91	u007883	5188	5188	4.3
115	u007883	1031	1031	4.3
156	u007883	1031	561	2.3
34	s100398	940	940	4.3
189	u012883	865	865	4.3
34	p101399	20	20	4.3
35	r000282	317	317	4.3
35	o000383	63	63	4.3
35	o002183	570	570	4.3
113	o000383	63	63	4.3
113	r000282	251	251	4.3
113	o002183	408	408	4.3
117	o000383	118	118	4.3
117	o002183	942	942	4.3
117	r000282	542	542	4.3
189	o100399	2480	2480	4.3
31	u010083	58	49	3.7
80	u010083	4327	1514	1.5
119	u010083	611	305	2.2
120	u010083	5	3	2.1
180	u010083	3601	2521	3.0

**Table 4b.** Iron baseline conditions and allocations (WLAs) for permitted mining point sources

SWS	Article 3 permit ID	Baseline (lb/yr)	Allocation (lb/yr)	Allocation (mg/L)
91	u007883	3862	3862	3.2
115	u007883	772	772	3.2
156	u007883	772	772	3.2
34	s100398	659	659	3.2
78	U043100	3221	3221	3.2
189	u012883	644	644	3.2
34	p101399	23	23	3.2
35	r000282	442	442	3.2
35	o000383	88	88	3.2
35	o002183	796	796	3.2
113	o000383	4	4	3.2
113	r000282	16	16	3.2
113	o002183	25	25	3.2
117	o000383	146	146	3.2
117	o002183	1171	1171	3.2
117	r000282	673	673	3.2
189	o100399	2919	2919	3.2
31	u010083	43	43	3.2
80	u010083	4	4	3.2
119	u010083	455	455	3.2
120	u010083	4	4	3.2
180	u010083	2681	2681	3.2



**Metals and pH TMDLs for the Monongahela Watershed**

**Table 4c.** Manganese baseline conditions and allocations (WLAs) for permitted mining point sources

<b>SWS</b>	<b>Article 3 permit ID</b>	<b>Baseline (lb/yr)</b>	<b>Allocation (lb/yr)</b>	<b>Allocation (mg/L)</b>
91	u007883	2416	2416	2
115	u007883	483	483	2
156	u007883	483	483	2
34	s100398	542	542	2
78	U043100	2015	2015	2
189	u012883	403	403	2
34	p101399	20	20	2
35	r000282	400	400	2
35	o000383	80	80	2
35	o002183	720	720	2
113	o000383	52	52	2
113	r000282	209	209	2
113	o002183	339	339	2
117	o000383	132	132	2
117	o002183	1059	1059	2
117	r000282	609	609	2
189	o100399	2466	2466	2
31	u010083	27	27	2
80	u010083	3	3	2
119	u010083	284	284	2
120	u010083	3	3	2
180	u010083	1677	1677	2

**Metals and pH TMDLs for the Monongahela Watershed**

**Table 5a.** Aluminum baseline conditions and allocations (LAs) for nonpoint sources

SWS	AML		Nonpoint Source		Revoked Mines		Requires Reduction
	Baseline Load (lb/yr)	Allocated Load (lb/yr)	Baseline Load (lb/yr)	Allocated Load (lb/yr)	Baseline Load (lb/yr)	Allocated Load (lb/yr)	
112	0	0	722	722	0	0	
113	0	0	722	722	0	0	
114	23	23	382	382	0	0	
115	42	4	1205	1205	0	0	x
116	0	0	409	409	0	0	
117	1277	26	123	123	644	644	x
118	0	0	1415	1415	0	0	
119	0	0	787	787	0	0	
120	0	0	395	395	0	0	
121	0	0	145	145	0	0	
156	34	1	775	775	0	0	x
157	0	0	297	297	0	0	
158	0	0	292	292	0	0	
162	0	0	584	584	0	0	
163	0	0	412	412	0	0	
164	0	0	416	416	0	0	
165	0	0	189	189	0	0	
175	4521	226	2090	2090	0	0	x
176	0	0	654	654	0	0	
177	0	0	669	669	0	0	
178	0	0	252	252	0	0	
179	0	0	196	196	0	0	
180	0	0	2921	2921	0	0	
186	261	7	1109	1109	105	105	x
187	4008	100	1002	1002	0	0	x
188	35	35	146	146	0	0	
189	9574	239	1957	1957	0	0	x
199	0	0	276	276	0	0	
200	0	0	759	759	0	0	
30	5353	937	1280	1280	0	0	x
31	0	0	396	396	0	0	
32	0	0	371	371	0	0	
33	0	0	19	19	0	0	
34	11236	281	2179	2179	0	0	x
35	0	0	899	899	0	0	
36	0	0	2583	2583	0	0	
37	0	0	619	619	0	0	
38	0	0	623	623	0	0	
49	0	0	413	413	0	0	
50	0	0	338	338	0	0	
54	0	0	2005	2005	0	0	
55	35	35	1472	1472	0	0	
56	0	0	2131	2131	0	0	
57	0	0	398	398	0	0	
58	0	0	3513	3513	0	0	
69	5208	260	3842	3842	0	0	x

**Metals and pH TMDLs for the Monongahela Watershed**

70	60	3	216	216	0	0	x
71	22981	575	3500	3500	0	0	x
73	0	0	1208	1208	0	0	
74	0	0	1507	1507	0	0	
75	0	0	1210	1210	0	0	
76	0	0	1982	1982	0	0	
77	0	0	1658	1658	0	0	
78	0	0	455	455	0	0	
79	0	0	1213	1213	0	0	
80	0	0	1800	1800	0	0	
91	0	0	1721	1721	0	0	
92	0	0	1135	1135	0	0	

**Table 5b.** Iron baseline conditions and allocations (LAs) for nonpoint sources

SWS	AML		Nonpoint Source		Revoked Mines		Requires Reduction
	Baseline	Allocated	Baseline	Allocated	Baseline	Allocated	
112	0	0	2833	2833	0	0	
113	0	0	2839	2839	0	0	
114	6	6	1380	1380	0	0	
115	78	4	6330	6330	0	0	x
116	0	0	2109	2109	0	0	
117	7103	1527	200	200	613	613	x
118	0	0	6816	6816	0	0	
119	0	0	4664	4664	0	0	
120	0	0	2348	2348	0	0	
121	0	0	863	863	0	0	
156	128	128	4583	4583	0	0	
157	0	0	1009	1009	0	0	
158	0	0	992	992	0	0	
162	0	0	1984	1984	0	0	
163	0	0	1398	1398	0	0	
164	0	0	1412	1412	0	0	
165	0	0	643	643	0	0	
175	107695	4846	9839	9839	0	0	x
176	0	0	3436	3436	0	0	
177	0	0	2270	2270	0	0	
178	0	0	856	856	0	0	
179	0	0	664	664	0	0	
180	0	0	9792	9792	0	0	
186	174	174	2853	2853	47	47	
187	1185	1185	2356	2356	0	0	
188	84	84	439	439	0	0	
189	1248	1248	5621	5621	0	0	
199	0	0	719	719	0	0	
200	0	0	2464	2464	0	0	
30	28500	2280	4226	4226	0	0	x
31	0	0	2372	2372	0	0	
32	0	0	1254	1254	0	0	

**Metals and pH TMDLs for the Monongahela Watershed**

33	0	0	66	66	0	0	
34	3330	3330	6485	6485	0	0	
35	0	0	2597	2597	0	0	
36	0	0	8326	8326	0	0	
37	0	0	1399	1399	0	0	
38	0	0	1663	1663	0	0	
49	0	0	1398	1398	0	0	
50	0	0	1144	1144	0	0	
54	0	0	6723	6723	0	0	
55	66	66	4907	4907	0	0	
56	0	0	7141	7141	0	0	
57	0	0	1338	1338	0	0	
58	0	0	11532	11532	0	0	
69	554	554	7794	7794	0	0	
70	145	8	430	430	0	0	x
71	132551	3976	6712	6712	0	0	x
73	0	0	4051	4051	0	0	
74	0	0	5082	5082	0	0	
75	0	0	4043	4043	0	0	
76	0	0	6668	6668	0	0	
77	0	0	5626	5626	0	0	
78	0	0	736	736	0	0	
79	0	0	3954	3954	0	0	
80	0	0	6584	6584	0	0	
91	0	0	4977	4977	0	0	
92	0	0	3831	3831	0	0	

**Table 5c.** Manganese baseline conditions and allocations (LAs) for nonpoint sources

SWS	AML		Nonpoint Source		Revoked Mines		Requires Reduction
	Baseline Load (lb/yr)	Allocated Load (lb/yr)	Baseline Load (lb/yr)	Allocated Load (lb/yr)	Baseline Load (lb/yr)	Allocated Load (lb/yr)	
112	0	0	181	181	0	0	
113	0	0	180	180	0	0	
114	21	21	117	117	0	0	
115	16	16	401	401	0	0	
116	0	0	152	152	0	0	
117	1305	979	89	89	579	579	x
118	0	0	601	601	0	0	
119	0	0	298	298	0	0	
120	0	0	149	149	0	0	
121	0	0	55	55	0	0	
156	123	58	294	294	48	23	x
157	0	0	106	106	0	0	
158	0	0	104	104	0	0	
162	0	0	209	209	0	0	
163	0	0	147	147	0	0	
164	0	0	148	148	0	0	
165	0	0	68	68	0	0	

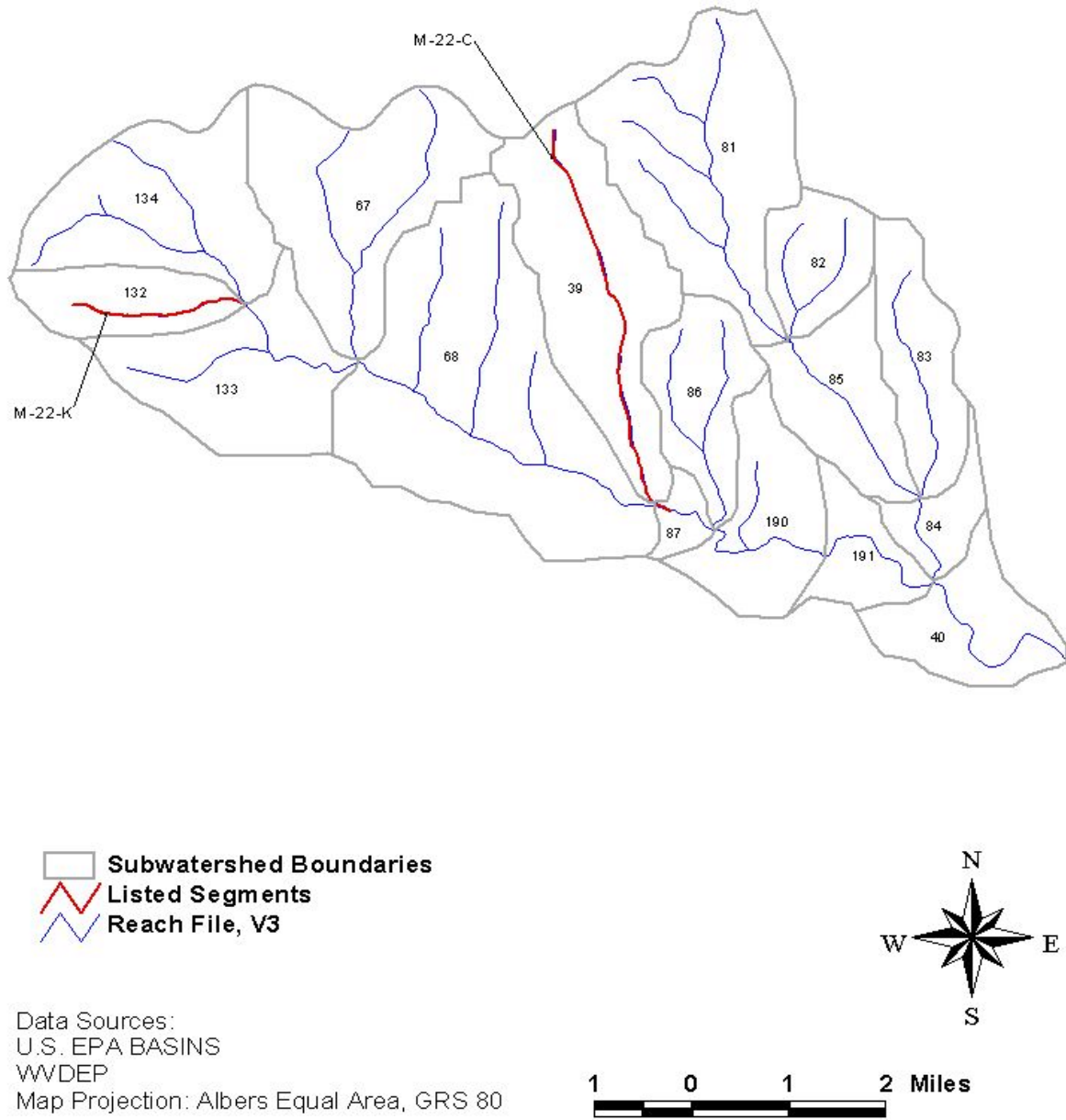
**Metals and pH TMDLs for the Monongahela Watershed**

175	7194	1151	623	623	0	0	x
176	0	0	218	218	0	0	
177	0	0	239	239	0	0	
178	0	0	90	90	0	0	
179	0	0	70	70	0	0	
180	0	0	1069	1069	0	0	
186	72	72	546	546	0	0	
187	105	105	532	532	0	0	
188	27	27	58	58	0	0	
189	101	101	882	882	0	0	
199	0	0	135	135	0	0	
200	0	0	288	288	0	0	
30	3324	1164	422	422	0	0	x
31	0	0	149	149	0	0	
32	0	0	133	133	0	0	
33	0	0	7	7	0	0	
34	253	253	937	937	0	0	
35	0	0	423	423	0	0	
36	0	0	1014	1014	0	0	
37	0	0	341	341	0	0	
38	0	0	298	298	0	0	
49	0	0	148	148	0	0	
50	0	0	121	121	0	0	
54	0	0	726	726	0	0	
55	13	13	545	545	0	0	
56	0	0	771	771	0	0	
57	0	0	144	144	0	0	
58	0	0	1323	1323	0	0	
69	53	53	986	986	0	0	
70	47	14	61	61	0	0	x
71	9118	957	866	866	0	0	x
73	0	0	437	437	0	0	
74	0	0	548	548	0	0	
75	0	0	439	439	0	0	
76	0	0	723	723	0	0	
77	0	0	593	593	0	0	
78	0	0	77	77	0	0	
79	0	0	474	474	0	0	
80	0	0	814	814	0	0	
91	0	0	846	846	0	0	
92	0	0	412	412	0	0	

# **Appendix A-3**

## **Region 3**

**Metals and pH TMDLs for the Monongahela Watershed**



**Figure 1.** Region 3- Impaired Tributaries of Paw Paw Creek

**Metals and pH TMDLs for the Monongahela Watershed**

**Table 1.** Impaired waterbodies in Region 3

<b>Stream Name</b>	<b>Stream Code</b>	<b>Pollutant</b>	<b>Contributing SWS</b>	<b>Contributing Regions</b>	<b>Aquatic Life</b>
ROBINSON RUN	M-22-C	pH; Metals	39	NA	x
SUGAR RUN	M-22-K	pH; Metals	132	NA	x

**Table 2.** Locations of abandoned mines (seep, deep mine, and/or leachate)

<b>SWS</b>
39
132



**Metals and pH TMDLs for the Monongahela Watershed**

**Table 3a.** Water quality data for Aluminum

SWS	WQ Station	Avg (ug/L)	Min (ug/L)	Max (ug/L)	Count	Start Date	End Date
191	550568	686.79	75	6000	29	06/24/74	06/12/84

(not applicable in this region)

**Table 3b.** Water quality data for iron

SWS	WQ Station	Avg (ug/L)	Min (ug/L)	Max (ug/L)	Count	Start Date	End Date
190	393308080100339	862.00	380	1400	10	05/01/79	07/22/81
191	550568	2838.33	300	21600	78	06/24/74	09/10/84
85	393423080091339	535.00	240	700	8	05/01/79	08/21/80

**Table 3c.** Water quality data for manganese

SWS	WQ Station	Avg (ug/L)	Min (ug/L)	Max (ug/L)	Count	Start Date	End Date
190	393308080100339	220.00	130	320	10	05/01/79	07/22/81
191	550568	654.84	84	2970	76	06/24/74	09/10/84
85	393423080091339	97.50	60	190	8	05/01/79	08/21/80

**Metals and pH TMDLs for the Monongahela Watershed**

**Table 4a.** Aluminum baseline conditions and allocations (WLAs) for permitted mining point sources

SWS	Article 3 permit ID	Baseline (lb/yr)	Allocation (lb/yr)	Allocation (mg/L)
132	u007883	1038	416	1.7
132	o104491	688	276	1.7
134	u007883	5064	5064	4.3
190	o000583	1386	1386	4.3
190	r103888	863	863	4.3
190	u000283	419	419	4.3

**Table 4b.** Iron baseline conditions and allocations (WLAs) for permitted mining point sources

SWS	Article 3 permit ID	Baseline (lb/yr)	Allocation (lb/yr)	Allocation (mg/L)
132	u007883	772	772	3.2
134	u007883	3770	3770	3.2
132	o104491	576	576	3.2
190	o000583	1161	1161	3.2
190	r103888	723	723	3.2
190	u000283	312	312	3.2

**Table 4c.** Manganese baseline conditions and allocations (WLAs) for permitted mining point sources

SWS	Article 3 permit ID	Baseline (lb/yr)	Allocation (lb/yr)	Allocation (mg/L)
132	u007883	483	483	2
134	u007883	2359	2359	2
132	o104491	325	325	2
190	o000583	655	655	2
190	r103888	408	408	2
190	u000283	195	195	2

**Metals and pH TMDLs for the Monongahela Watershed**

**Table 5a.** Aluminum baseline conditions and allocations (LAs) for nonpoint sources

<b>SWS</b>	<b>AML</b>		<b>Nonpoint Source</b>		<b>Revoked Mines</b>		<b>Requires Reduction</b>
	Baseline Load (lb/yr)	Allocated Load (lb/yr)	Baseline Load (lb/yr)	Allocated Load (lb/yr)	Baseline Load (lb/yr)	Allocated Load (lb/yr)	
132	480	1	750	750	0	0	x
133	96	96	1,521	1,521	0	0	
134	0	0	1,670	1,670	0	0	
190	26	26	1,111	1,111	33	33	
191	0	0	355	355	4	4	
39	3,184	1,815	1,985	1,985	837	837	x
40	0	0	668	668	0	0	
67	52	52	2,177	2,177	0	0	
68	23	23	3,759	3,759	0	0	
81	0	0	2,424	2,424	0	0	
82	0	0	721	721	0	0	
83	0	0	951	951	0	0	
84	0	0	239	239	0	0	
85	10	10	1,063	1,063	0	0	
86	0	0	927	927	0	0	
87	0	0	198	198	0	0	

**Metals and pH TMDLs for the Monongahela Watershed**

**Table 5b.** Iron baseline conditions and allocations (LAs) for nonpoint sources

SWS	AML		Nonpoint Source		Revoked Mines		Requires Reduction
	Load (lb/yr)	Load (lb/yr)	Load (lb/yr)	Load (lb/yr)	Load (lb/yr)	Load (lb/yr)	
132	3,596	93	2,620	2,620	0	0	x
133	64	64	6,860	6,860	0	0	
134	0	0	8,694	8,694	0	0	
190	469	469	3,925	3,925	14	14	
191	0	0	1,274	1,274	240	240	
39	14,820	5,780	11,486	11,486	623	623	x
40	0	0	2,256	2,256	0	0	
67	996	996	12,156	12,156	0	0	
68	443	443	16,894	16,894	0	0	
81	0	0	14,097	14,097	0	0	
82	0	0	3,996	3,996	0	0	
83	0	0	5,552	5,552	0	0	
84	0	0	989	989	0	0	
85	7	7	5,966	5,966	0	0	
86	0	0	4,292	4,292	0	0	
87	0	0	890	890	0	0	

**Metals and pH TMDLs for the Monongahela Watershed**

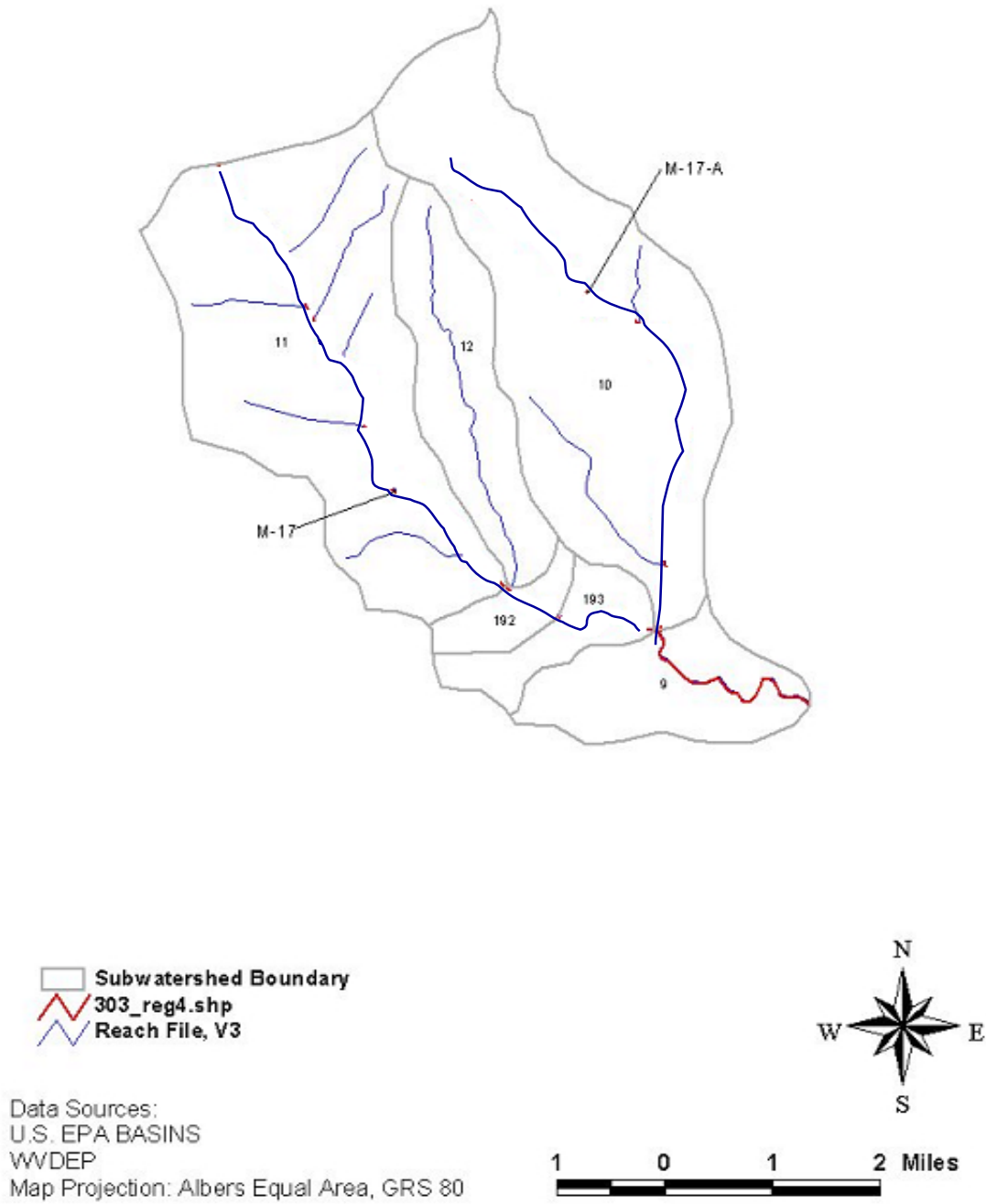
**Table 5c.** Manganese baseline conditions and allocations (LAs) for nonpoint sources

SWS	AML		Nonpoint Source		Revoked Mines		Requires Reduction
	Baseline Load (lb/yr)	Allocated Load (lb/yr)	Baseline Load (lb/yr)	Allocated Load (lb/yr)	Baseline Load (lb/yr)	Allocated Load (lb/yr)	
132	3,596	72	385	385	0	0	x
133	16	16	587	587	0	0	
134	0	0	731	731	0	0	
190	582	582	558	558	17	17	
191	0	0	162	162	142	142	
39	14,808	3,998	762	762	390	390	x
40	0	0	312	312	0	0	
67	1,202	1,202	862	862	0	0	
68	535	535	1,466	1,466	0	0	
81	0	0	924	924	0	0	
82	0	0	295	295	0	0	
83	0	0	362	362	0	0	
84	0	0	96	96	0	0	
85	2	2	427	427	0	0	
86	0	0	349	349	0	0	
87	0	0	76	76	0	0	

# **Appendix A-4**

## **Region 4**

**Metals and pH TMDLs for the Monongahela Watershed**



**Figure 1.** Region 4- Indian Creek watershed

**Metals and pH TMDLs for the Monongahela Watershed**

**Table 1.** Impaired waterbodies in Region 4

<b>Stream Name</b>	<b>Stream Code</b>	<b>Pollutant</b>	<b>Contributing SWS</b>	<b>Contributing Regions</b>	<b>Aquatic Life</b>
Indian Creek	M-17	Aluminum	9,10,11,12,192, 193	NA	x

**Table 2.** Locations of abandoned mines (seep, deep mine, and/or leachate)

<b>SWS</b>
9
10
11
193



**Metals and pH TMDLs for the Monongahela Watershed**

**Table 3a.** Water quality data for Aluminum  
(not applicable in this region)

**Table 3b.** Water quality data for iron

SWS	WQ Station	Avg (ug/L)	Min (ug/L)	Max (ug/L)	Count	Start Date	End Date
10	393541080043101	400.00	280	520	4	05/29/84	08/07/84
10	393550080041301	810.00	780	840	4	05/29/84	08/07/84
193	3062215	1107.78	320	5300	18	01/14/80	07/22/81
193	393436080055039	1151.25	320	5300	16	01/14/80	08/21/80
9	393408080045039	700.00	320	1000	10	05/01/79	07/22/81

**Table 3c.** Water quality data for manganese

SWS	WQ Station	Avg (ug/L)	Min (ug/L)	Max (ug/L)	Count	Start Date	End Date
10	393541080043101	3010.00	320	5700	4	05/29/84	08/07/84
10	393550080041301	3700.00	2700	4700	4	05/29/84	08/07/84
193	3062215	157.78	50	360	18	01/14/80	07/22/81
193	393436080055039	170.00	50	360	16	01/14/80	08/21/80
9	393408080045039	428.00	180	690	10	05/01/79	07/22/81

**Metals and pH TMDLs for the Monongahela Watershed**

**Table 4a.** Aluminum baseline conditions and allocations (WLAs) for permitted mining point sources

SWS	Article 3 permit ID	Baseline (lb/yr)	Allocation (lb/yr)	Allocation (mg/L)
10	u005383	11	11	4.3
10	s103190	1133	1133	4.3
10	s102788	826	826	4.3
10	s005679	406	406	4.3
10	s107086	285	285	4.3
10	s106186	150	150	4.3
12	s100797	1748	1748	4.3
11	u007083*	4179	4179	0.75
10	u007083**	750	750	0.75

\* Sears AMD treatment facility, continuous flow discharge

\*\* Dogwood Lakes AMD treatment facility, continuous flow discharge

**Table 4b.** Iron baseline conditions and allocations (WLAs) for permitted mining point sources

SWS	Article 3 permit ID	Baseline (lb/yr)	Allocation (lb/yr)	Allocation (mg/L)
12	s100797	3581	3581	3.2
10	s103190	851	851	3.2
10	s102788	618	618	3.2
10	s005679	303	303	3.2
10	s107086	213	213	3.2
10	s106186	112	112	3.2
10	u005383	8	8	3.2
10	u007083*	1500	1500	1.5
11	u007083**	8358	8358	1.5

\* Sears AMD treatment facility, continuous flow discharge

\*\* Dogwood Lakes AMD treatment facility, continuous flow discharge

**Table 4c.** Manganese baseline conditions and allocations (WLAs) for permitted mining point sources

SWS	Article 3 permit ID	Baseline (lb/yr)	Allocation (lb/yr)	Allocation (mg/L)
12	s100797	883	883	2
10	s103190	527	527	2
10	s102788	386	386	2
10	s005679	189	189	2
10	s107086	133	133	2
10	s106186	70	70	2
10	u005383	5	5	2
10	u007083*	1000	1000	1
11	u007083**	5572	5572	1

\* Sears AMD treatment facility, continuous flow discharge

\*\* Dogwood Lakes AMD treatment facility, continuous flow discharge

**Metals and pH TMDLs for the Monongahela Watershed**

**Table 5a.** Aluminum baseline conditions and allocations (LAs) for nonpoint sources

SWS	AML		Nonpoint Source		Revoked Mines		Requires Reduction
	Baseline Load (lb/yr)	Allocated Load (lb/yr)	Baseline Load (lb/yr)	Allocated Load (lb/yr)	Baseline Load (lb/yr)	Allocated Load (lb/yr)	
132	480	1	750	750	0	0	x
133	96	96	1,521	1,521	0	0	
134	0	0	1,670	1,670	0	0	
190	26	26	1,111	1,111	33	33	
191	0	0	355	355	4	4	
39	3,184	1,815	1,985	1,985	837	837	x
40	0	0	668	668	0	0	
67	52	52	2,177	2,177	0	0	
68	23	23	3,759	3,759	0	0	
81	0	0	2,424	2,424	0	0	
82	0	0	721	721	0	0	
83	0	0	951	951	0	0	
84	0	0	239	239	0	0	
85	10	10	1,063	1,063	0	0	
86	0	0	927	927	0	0	
87	0	0	198	198	0	0	

**Table 5b.** Iron baseline conditions and allocations (LAs) for nonpoint sources

SWS	AML		Nonpoint Source		Revoked Mines		Requires Reduction
	Load (lb/yr)	Load (lb/yr)	Load (lb/yr)	Load (lb/yr)	Load (lb/yr)	Load (lb/yr)	
132	3,596	93	2,620	2,620	0	0	x
133	64	64	6,860	6,860	0	0	
134	0	0	8,694	8,694	0	0	
190	469	469	3,925	3,925	14	14	
191	0	0	1,274	1,274	240	240	
39	14,820	5,780	11,486	11,486	623	623	x
40	0	0	2,256	2,256	0	0	
67	996	996	12,156	12,156	0	0	
68	443	443	16,894	16,894	0	0	
81	0	0	14,097	14,097	0	0	
82	0	0	3,996	3,996	0	0	
83	0	0	5,552	5,552	0	0	
84	0	0	989	989	0	0	
85	7	7	5,966	5,966	0	0	
86	0	0	4,292	4,292	0	0	
87	0	0	890	890	0	0	

**Metals and pH TMDLs for the Monongahela Watershed**

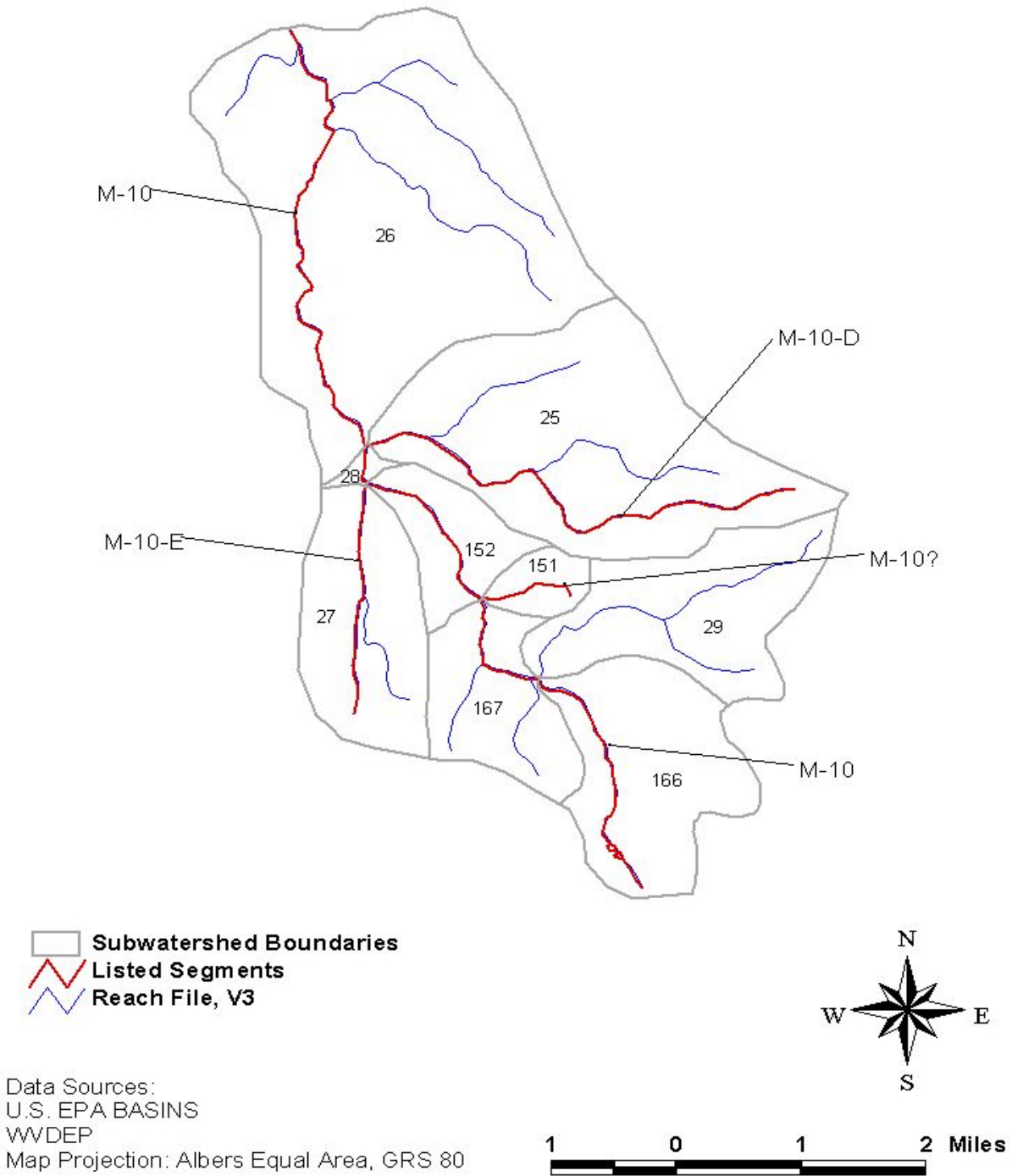
**Table 5c.** Manganese baseline conditions and allocations (LAs) for nonpoint sources

SWS	AML		Nonpoint Source		Revoked Mines		Requires Reduction
	Baseline Load (lb/yr)	Allocated Load (lb/yr)	Baseline Load (lb/yr)	Allocated Load (lb/yr)	Baseline Load (lb/yr)	Allocated Load (lb/yr)	
132	3,596	72	385	385	0	0	x
133	16	16	587	587	0	0	
134	0	0	731	731	0	0	
190	582	582	558	558	17	17	
191	0	0	162	162	142	142	
39	14,808	3,998	762	762	390	390	x
40	0	0	312	312	0	0	
67	1,202	1,202	862	862	0	0	
68	535	535	1,466	1,466	0	0	
81	0	0	924	924	0	0	
82	0	0	295	295	0	0	
83	0	0	362	362	0	0	
84	0	0	96	96	0	0	
85	2	2	427	427	0	0	
86	0	0	349	349	0	0	
87	0	0	76	76	0	0	

# **Appendix A-5**

## **Region 5**

**Metals and pH TMDLs for the Monongahela Watershed**



**Figure 1.** Region 5 - Booths Creek and Impaired Tributaries

**Table 1.** Impaired waterbodies in Region 5

Stream Name	Stream Code	Pollutant	Contributing SWS	Contributing Regions	Aquatic Life
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**Metals and pH TMDLs for the Monongahela Watershed**

Booths Creek	M-10	pH; Metals	26,26,27,28,29,151,152,166,167	NA	x
Mays Run	M-10-E	pH; Metals	27	NA	x
UT#2 Booths Run	M-10-F	pH; Metals	151	NA	x
Owl Creek	M-10-D	pH; Metals	25	NA	x

**Table 2.** Locations of abandoned mines (seep, deep mine, and/or leachate)

<b>SWS</b>
25
27
151

**Metals and pH TMDLs for the Monongahela Watershed**

**Table 3a.** Water quality data for aluminum  
(not applicable in this region)

**Table 3b.** Water quality data for iron  
(not applicable in this region)

**Table 3c.** Water quality data for manganese  
(not applicable in this region)



**Metals and pH TMDLs for the Monongahela Watershed**

**Table 4a.** Aluminum baseline conditions and allocations (WLAs) for permitted mining point sources

SWS	Article 3 permit ID	Baseline (lb/yr)	Allocation (lb/yr)	Allocation (mg/L)
152	s100896	2,495	2,495	4.30
26	o008482	12	12	4.30
27	u100693	301	301	4.30
25	s001584	332	332	4.30

**Table 4b.** Iron baseline conditions and allocations (WLAs) for permitted mining point sources

SWS	Article 3 permit ID	Baseline (lb/yr)	Allocation (lb/yr)	Allocation (mg/L)
152	s100896	2,221	2,221	3.20
26	o008482	19	19	3.20
27	u100693	224	224	3.20
25	s001584	247	247	3.20

**Table 4c.** Manganese baseline conditions and allocations (WLAs) for permitted mining point sources

SWS	Article 3 permit ID	Baseline (lb/yr)	Allocation (lb/yr)	Allocation (mg/L)
152	s100896	1175	1175	2
26	o008482	5	5	2
27	u100693	140	140	2
25	s001584	154	154	2

**Metals and pH TMDLs for the Monongahela Watershed**

**Table 5a.** Aluminum baseline conditions and allocations (LAs) for nonpoint sources

SWS	AML		Nonpoint Source		Revoked Mines		Requires Reduction
	Baseline Load (lb/yr)	Allocated Load (lb/yr)	Baseline Load (lb/yr)	Allocated Load (lb/yr)	Baseline Load (lb/yr)	Allocated Load (lb/yr)	
151	3705	104	235	235	0	0	x
152	1224	73	456	456	0	0	x
166	156	156	1640	1640	0	0	
167	0	0	982	982	0	0	
25	864	173	3294	3294	669	669	x
26	2583	129	5620	5620	162	162	x
27	10265	308	1285	1285	0	0	x
28	453	453	63	63	0	0	
29	0	0	1574	1574	38	38	

**Table 5b.** Iron baseline conditions and allocations (LAs) for nonpoint sources

SWS	AML		Nonpoint Source		Revoked Mines		Requires Reduction
	Baseline Load (lb/yr)	Allocated Load (lb/yr)	Baseline Load (lb/yr)	Allocated Load (lb/yr)	Baseline Load (lb/yr)	Allocated Load (lb/yr)	
151	7,873	244	487	487	0	0	x
152	2,577	2,577	947	947	0	0	
166	328	33	3,402	3,402	0	0	x
167	0	0	2,034	2,034	0	0	
25	1,828	878	6,776	6,776	1,391	697	x
26	5,439	544	11,677	11,677	0	0	x
27	21,712	1,520	2,663	2,663	0	0	x
28	954	95	128	128	0	0	x
29	0	0	3,158	3,158	147	147	

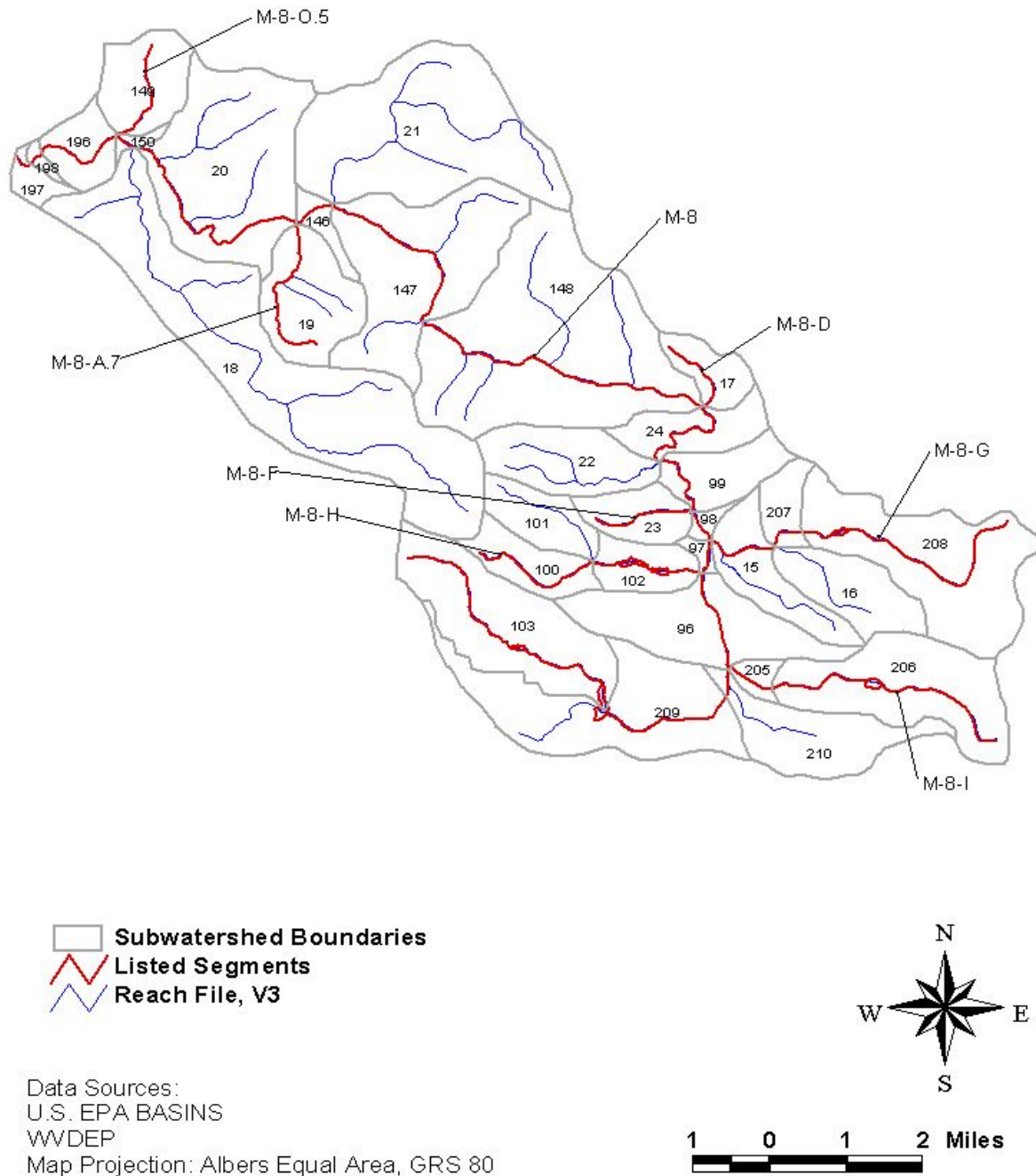
**Table 5c.** Manganese baseline conditions and allocations (LAs) for nonpoint sources

SWS	AML		Nonpoint Source		Revoked Mines		Requires Reduction
	Baseline Load (lb/yr)	Allocated Load (lb/yr)	Baseline Load (lb/yr)	Allocated Load (lb/yr)	Baseline Load (lb/yr)	Allocated Load (lb/yr)	
151	2,810	93	38	38	2,052	68	x
152	1,623	1,460	73	73	0	0	x
166	206	103	263	263	0	0	x
167	0	0	162	162	0	0	
25	1,972	809	578	578	35	18	x
26	3,426	3,083	1,279	1,279	0	0	x
27	13,543	907	208	208	0	0	x
28	601	120	12	12	0	0	x
29	0	0	274	274	43	25	x

# **Appendix A-6**

## **Region 6**

**Metals and pH TMDLs for the Monongahela Watershed**



**Figure 1. Region 6 - Deckers Creek and Impaired Tributaries**

**Metals and pH TMDLs for the Monongahela Watershed**

**Table 1.** Impaired waterbodies in Region6

<b>Stream Name</b>	<b>Stream Code</b>	<b>Pollutant</b>	<b>Contributing SWS</b>	<b>Contributing Regions</b>	<b>Aquatic Life</b>
Deckers Creek	M-8	pH; Metals	15,16,17,18,19,20,21,22,23,24,96,97,98,99,100,101,102,103,146,147,148,149,150,196,197,198,205,206,207,208,209,210	NA	x
Hartman Run/Deckers Ck	M-8-O.5	pH; Metals	149	NA	x
UT#2/Deckers Ck	M-8-A.7	pH; Metals	19	NA	x
Dillan Creek	M-8-G	Metals	15,16,117,118,207,208	NA	x
Glady Run	M-8-D	pH; Metals	17	NA	x
Kanes Creek	M-8-I	pH; Metals	205,206	NA	x
Laurel Run	M-8-H	pH; Metals	100,101,102	NA	x
Slabcamp Run	M-8-F	pH; Metals	23	NA	X

**Table 2.** Locations of abandoned mines (seep, deep mine, and/or leachate)

<b>SWS</b>
17
18
19
20
21
23
24
102
149
206
208

**Metals and pH TMDLs for the Monongahela Watershed**

**Table 3a.** Water quality data for aluminum

SWS	WQ Station	Avg (ug/L)	Min (ug/L)	Max (ug/L)	Count	Start Date	End Date
102	393144079492901	180.00	180	180	1	05/06/94	05/06/94
147	393548079514701	205.00	160	250	2	11/17/93	05/02/94
148	393350079490701	5990.00	770	16000	3	08/11/93	05/04/94
148	393354079491401	230.00	120	420	3	08/10/93	05/02/94
148	393413079505801	30.00	20	40	2	11/16/93	05/04/94
148	393418079511801	33.33	20	60	3	11/16/93	05/08/94
148	393419079502201	105.00	30	180	2	11/16/93	05/04/94
148	393433079513701	226.67	20	420	3	08/11/93	05/04/94
148	393457079515901	4383.33	750	11000	3	08/11/93	05/03/94
15	393142079482401	40.00	20	60	2	11/16/93	05/05/94
15	393145079475001	4176.67	130	8400	3	08/10/93	05/03/94
150	393746079560701	5126.67	880	9300	3	08/09/93	05/03/94
18	393731079555501	226.67	100	470	3	08/10/93	05/04/94
19	393622079534501	5800.00	2300	9100	3	08/10/93	05/04/94
196	3062500	4166.67	2700	6300	3	08/09/93	05/03/94
196	550565	2345.00	241	6000	26	06/25/74	05/15/84
20	393628079551001	4800.00	1000	10000	3	08/11/93	05/03/94
20	393629079535401	4160.00	920	7400	2	08/11/93	05/04/94
20	393637079551001	75.00	60	90	2	11/17/93	05/02/94
20	393718079553201	7096.67	990	11000	3	08/10/93	06/16/94
20	393723079552201	610.00	220	1000	2	11/17/93	05/02/94
205	393013079481901	8733.33	3200	13000	3	08/10/93	05/05/94
206	393005079465601	5333.33	4000	7500	3	08/10/93	06/17/94
207	393150079473401	3640.00	320	6100	3	08/10/93	05/03/94
207	393226079472001	400.00	270	490	3	08/10/93	05/03/94
208	393146079464301	6750.00	5300	8200	2	11/16/93	05/04/94
209	393003079484701	153.33	100	210	3	08/10/93	05/05/94
209	550567	100.00	100	100	1	10/17/84	10/17/84
21	393638079530901	306.67	60	550	3	08/10/93	05/04/94
210	393001079483101	93.33	70	110	3	08/10/93	05/05/94
23	393219079485201	8366.67	5000	15000	3	08/11/93	05/05/94
24	393257079490601	310.00	210	410	2	11/18/93	05/05/94
24	393315079481001	5900.00	1200	15000	3	08/11/93	05/03/94
24	393330079481601	2486.67	260	4600	3	08/10/93	05/03/94
96	393100079483601	6500.00	1200	13000	3	08/10/93	05/03/94
96	393104079485001	116.67	20	200	3	08/10/93	05/03/94
96	393134079484601	996.67	170	2400	3	08/11/93	05/05/94
98	393207079483901	4410.00	930	11000	3	08/11/93	05/04/94
98	550566	1200.00	1200	1200	1	06/24/74	06/24/74

**Metals and pH TMDLs for the Monongahela Watershed**

**Table 3b.** Water quality data for iron

SWS	WQ Station	Avg (ug/L)	Min (ug/L)	Max (ug/L)	Count	Start Date	End Date
102	393144079492901	980.00	980	980	2	05/06/94	05/06/94
147	393548079514701	125.00	30	220	4	11/17/93	05/02/94
148	393350079490701	3233.33	1000	6800	6	08/11/93	05/04/94
148	393354079491401	613.33	350	910	6	08/10/93	05/02/94
148	393413079505801	45.00	30	60	4	11/16/93	05/04/94
148	393418079511801	60.00	50	80	6	11/16/93	05/08/94
148	393419079502201	110.00	30	190	4	11/16/93	05/04/94
148	393433079513701	346.67	210	610	6	08/11/93	05/04/94
148	393457079515901	533.33	390	660	6	08/11/93	05/03/94
15	393142079482401	395.00	230	560	4	11/16/93	05/05/94
15	393145079475001	1803.33	220	4300	6	08/10/93	05/03/94
150	393746079560701	5920.00	260	16000	6	08/09/93	05/03/94
18	393731079555501	343.33	150	690	6	08/10/93	05/04/94
19	393622079534501	190.00	70	280	6	08/10/93	05/04/94
196	3062500	6733.33	4800	9000	6	08/09/93	05/03/94
196	550565	4453.85	320	9200	78	06/25/74	08/13/84
20	393628079551001	6733.33	1400	13000	6	08/11/93	05/03/94
20	393629079535401	265.00	190	340	4	08/11/93	05/04/94
20	393637079551001	110.00	100	120	4	11/17/93	05/02/94
20	393718079553201	9466.67	1400	14000	6	08/10/93	06/16/94
20	393723079552201	865.00	30	1700	4	11/17/93	05/02/94
205	393013079481901	30000.00	4000	43000	6	08/10/93	05/05/94
206	393005079465601	3733.33	2300	6300	6	08/10/93	06/17/94
207	393150079473401	1703.33	610	2400	6	08/10/93	05/03/94
207	393226079472001	920.00	640	1200	6	08/10/93	05/03/94
208	393146079464301	2300.00	1600	3000	4	11/16/93	05/04/94
209	393003079484701	700.00	180	1600	6	08/10/93	05/05/94
209	550567	1000.00	1000	1000	2	10/17/84	10/17/84
21	393638079530901	290.00	70	650	6	08/10/93	05/04/94
210	393001079483101	370.00	210	530	6	08/10/93	05/05/94
23	393219079485201	6900.00	4800	8500	6	08/11/93	05/05/94
24	393257079490601	255.00	210	300	4	11/18/93	05/05/94
24	393315079481001	3433.33	1500	6900	6	08/11/93	05/03/94
24	393330079481601	1906.67	520	2900	6	08/10/93	05/03/94
96	393059079483739	1258.00	840	2100	10	05/01/79	07/23/81
96	393100079483601	19833.33	1500	33000	6	08/10/93	05/03/94
96	393104079485001	490.00	240	640	6	08/10/93	05/03/94
96	393134079484601	4773.33	820	12000	6	08/11/93	05/05/94
98	393207079483901	9300.00	1200	24000	6	08/11/93	05/04/94
98	550566	1540.00	1540	1540	2	06/24/74	06/24/74

**Metals and pH TMDLs for the Monongahela Watershed**

**Table 3c.** Water quality data for manganese

SWS	WQ Station	Avg (ug/L)	Min (ug/L)	Max (ug/L)	Count	Start Date	End Date
102	393144079492901	330.00	330	330	2	05/06/94	05/06/94
147	393548079514701	115.00	30	200	4	11/17/93	05/02/94
148	393350079490701	1100.00	490	1900	6	08/11/93	05/04/94
148	393354079491401	216.67	110	430	6	08/10/93	05/02/94
148	393413079505801	20.00	10	30	4	11/16/93	05/04/94
148	393418079511801	10.00	10	10	6	11/16/93	05/08/94
148	393419079502201	20.00	10	30	4	11/16/93	05/04/94
148	393433079513701	50.00	30	70	6	08/11/93	05/04/94
148	393457079515901	913.33	420	1600	6	08/11/93	05/03/94
15	393142079482401	355.00	100	610	4	11/16/93	05/05/94
15	393145079475001	696.67	230	1100	6	08/10/93	05/03/94
150	393746079560701	2100.00	1100	2700	6	08/09/93	05/03/94
18	393731079555501	73.33	40	140	6	08/10/93	05/04/94
19	393622079534501	3033.33	2900	3100	6	08/10/93	05/04/94
196	3062500	853.33	420	1500	6	08/09/93	05/03/94
196	550565	599.69	44	1220	78	06/25/74	08/13/84
20	393628079551001	950.00	450	1700	6	08/11/93	05/03/94
20	393629079535401	965.00	630	1300	4	08/11/93	05/04/94
20	393637079551001	10.00	10	10	4	11/17/93	05/02/94
20	393718079553201	1043.33	430	1600	6	08/10/93	06/16/94
20	393723079552201	70.00	70	70	4	11/17/93	05/02/94
205	393013079481901	1500.00	700	1900	6	08/10/93	05/05/94
206	393005079465601	1096.67	890	1200	6	08/10/93	06/17/94
207	393150079473401	1040.00	820	1200	6	08/10/93	05/03/94
207	393226079472001	203.33	80	370	6	08/10/93	05/03/94
208	393146079464301	1200.00	1000	1400	4	11/16/93	05/04/94
209	393003079484701	180.00	60	300	6	08/10/93	05/05/94
209	550567	580.00	580	580	2	10/17/84	10/17/84
21	393638079530901	113.33	40	170	6	08/10/93	05/04/94
210	393001079483101	353.33	140	680	6	08/10/93	05/05/94
23	393219079485201	1270.00	540	2500	6	08/11/93	05/05/94
24	393257079490601	275.00	200	350	4	11/18/93	05/05/94
24	393315079481001	1120.00	480	2000	6	08/11/93	05/03/94
24	393330079481601	973.33	680	1400	6	08/10/93	05/03/94
96	393059079483739	386.00	300	520	10	05/01/79	07/23/81
96	393100079483601	1103.33	310	1900	6	08/10/93	05/03/94
96	393104079485001	473.33	180	730	6	08/10/93	05/03/94
96	393134079484601	433.33	280	720	6	08/11/93	05/05/94
98	393207079483901	933.33	420	1600	6	08/11/93	05/04/94
98	550566	350.00	350	350	2	06/24/74	06/24/74



**Metals and pH TMDLs for the Monongahela Watershed**

**Table 4a.** Aluminum baseline conditions and allocations (WLAs) for permitted mining point sources

SWS	Article 3 permit ID	Baseline (lb/yr)	Allocation (lb/yr)	Allocation (mg/L)
103	u008683	3628	3628	4.3
206	u014782	105	105	4.3
207	e004100	286	286	4.3
15	l046800	35	35	4.3
148	u012883	247	247	4.3
96	o014583	162	162	4.3
102	O014583	180	180	4.3
148	q101992	2280	2280	4.3
148	o013283	1177	1177	4.3
99	s100496	1235	1235	4.3
147	q004674	245	245	4.3
148	q004674	967	967	4.3
207	s100496	677	677	4.3

**Table 4b.** Iron baseline conditions and allocations (WLAs) for permitted mining point sources

SWS	Article 3 permit ID	Baseline (lb/yr)	Allocation (lb/yr)	Allocation (mg/L)
103	u008683	0	0	3.2
206	u014782	78	78	3.2
207	e004100	213	213	3.2
15	l046800	27	27	3.2
148	u012883	184	184	3.2
96	o014583	142	142	3.2
102	O014583	166	166	3.2
148	q101992	2102	2102	3.2
148	o013283	1085	1085	3.2
99	s100496	962	962	3.2
147	q004674	226	226	3.2
148	q004674	892	892	3.2
207	s100496	527	527	3.2

**Table 4c.** Manganese baseline conditions and allocations (WLAs) for permitted mining point sources

SWS	Article 3 permit ID	Baseline (lb/yr)	Allocation (lb/yr)	Allocation (mg/L)
103	u008683	1690	1690	2
206	u014782	49	49	2
207	e004100	133	133	2
15	l046800	19	19	2
148	u012883	115	115	2
96	o014583	120	120	2
102	O014583	151	151	2
148	q101992	1908	1908	2
148	o013283	985	985	2

**Metals and pH TMDLs for the Monongahela Watershed**

99	s100496	664	664	2
147	q004674	205	205	2
148	q004674	809	809	2
207	s100496	364	364	2

**Metals and pH TMDLs for the Monongahela Watershed**

**Table 5a.** Aluminum baseline conditions and allocations (LAs) for nonpoint sources

SWS	AML		Nonpoint Source		Revoked Mines		Requires Reduction
	Baseline Load (lb/yr)	Allocated Load (lb/yr)	Baseline Load (lb/yr)	Allocated Load (lb/yr)	Baseline Load (lb/yr)	Allocated Load (lb/yr)	
100	3	0	432	432	0	0	x
101	0	0	413	413	0	0	
102	41,200	2,884	330	330	0	0	x
103	122	122	1,288	1,288	0	0	
146	0	0	114	114	4,809	4,809	
147	0	0	1,675	1,675	2,430	2,430	
148	0	0	3,160	3,160	0	0	
149	9,140	960	805	805	0	0	x
15	0	0	480	480	0	0	
150	0	0	97	97	0	0	
16	0	0	410	410	0	0	
17	3,224	419	212	212	0	0	x
18	547	547	2,338	2,338	0	0	
19	995	129	483	483	7,735	1,006	x
196	1	1	593	593	0	0	
197	0	0	320	320	0	0	
198	0	0	105	105	0	0	
20	17,387	1,217	1,774	1,774	0	0	x
205	0	0	165	165	0	0	
206	10,004	650	847	847	940	940	x
207	0	0	228	228	0	0	
208	7,073	707	941	941	0	0	x
209	0	0	1,033	1,033	0	0	
21	43	43	1,511	1,511	0	0	
210	0	0	517	517	75	75	
22	1	1	743	743	0	0	
23	41,436	41,436	441	441	0	0	
24	4,284	4,284	654	654	0	0	
96	285	285	842	842	0	0	
97	0	0	40	40	0	0	
98	0	0	52	52	0	0	
99	15	15	409	409	0	0	

**Table 5b.** Iron baseline conditions and allocations (LAs) for nonpoint sources

SWS	AML		Nonpoint Source		Revoked Mines		Requires Reduction
	Baseline Load (lb/yr)	Allocated Load (lb/yr)	Baseline Load (lb/yr)	Allocated Load (lb/yr)	Baseline Load (lb/yr)	Allocated Load (lb/yr)	
100	71	71	2,949	2,949	0	0	
101	0	0	2,866	2,866	0	0	
102	195,614	8,803	2,140	2,140	0	0	x
103	150	150	9,637	9,637	0	0	
146	0	0	457	457	4,440	4,440	
147	0	0	11,317	11,317	2,323	2,323	
148	0	0	19,931	19,931	0	0	
149	44,479	4,181	1,630	1,630	0	0	x
15	0	0	2,361	2,361	0	0	
150	0	0	200	200	0	0	
16	0	0	2,261	2,261	0	0	
17	13,460	1,575	1,086	1,086	0	0	x
18	148	1	11,501	11,501	0	0	x
19	7,226	470	2,266	2,266	56,160	3,650	x
196	1	1	1,097	1,097	0	0	

**Metals and pH TMDLs for the Monongahela Watershed**

197	0	0	531	531	0	0	
198	0	0	186	186	0	0	
20	64,065	1,281	6,204	6,204	0	0	x
205	0	0	328	328	0	0	
206	49,695	4,224	2,517	2,517	775	775	x
207	0	0	960	960	0	0	
208	35,317	3,108	5,521	5,521	0	0	x
209	0	0	5,844	5,844	0	0	
21	66	1	7,371	7,371	0	0	x
210	0	0	2,656	2,656	56	45	x
22	15	15	4,996	4,996	0	0	
23	197,032	4,532	2,521	2,521	0	0	x
24	184,376	1,844	2,632	2,632	0	0	x
96	351	351	4,288	4,288	0	0	
97	0	0	229	229	0	0	
98	0	0	230	230	0	0	
99	74	1	1,527	1,527	0	0	x

**Metals and pH TMDLs for the Monongahela Watershed**

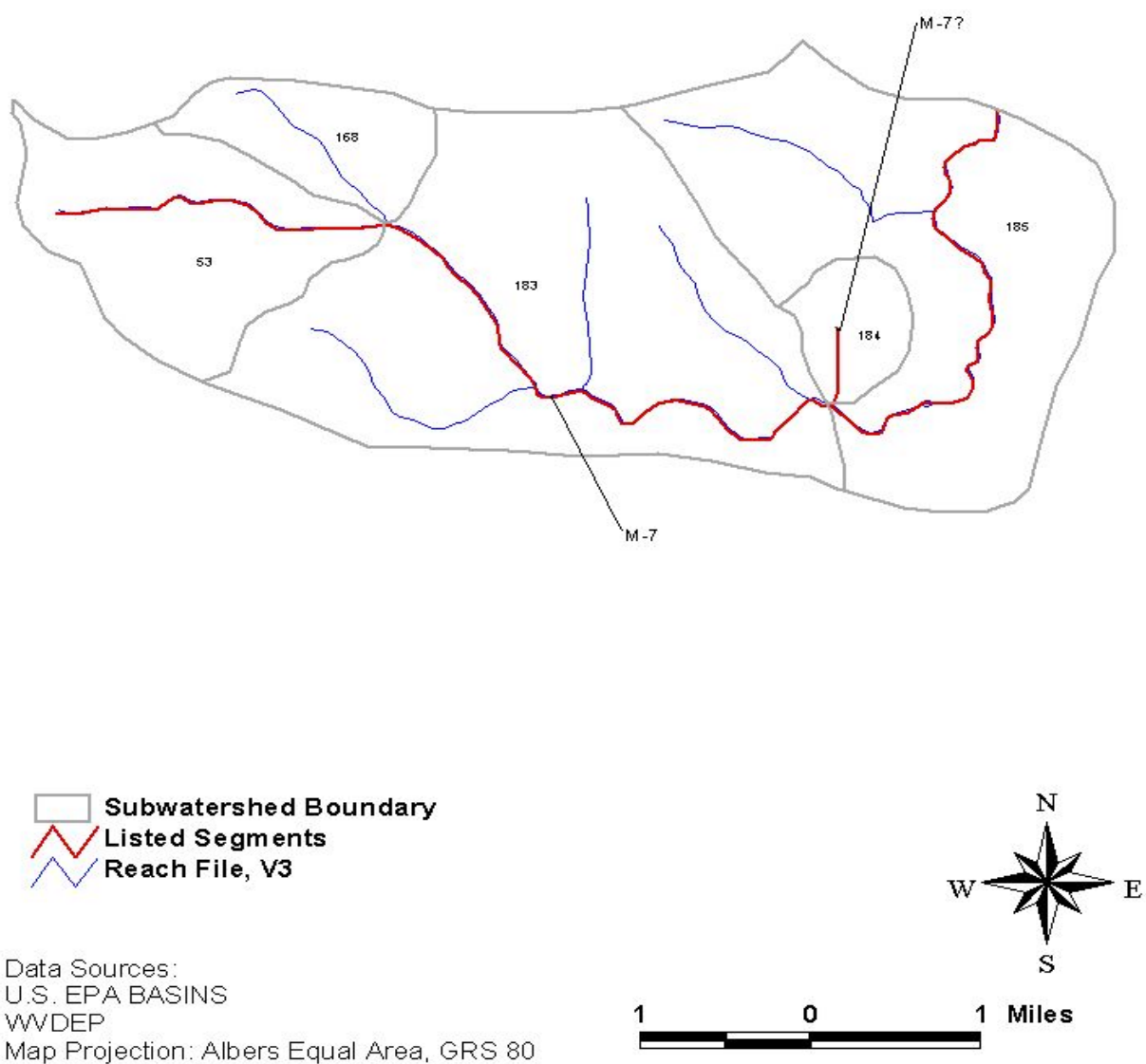
**Table 5c.** Manganese baseline conditions and allocations (LAs) for nonpoint sources

SWS	AML		Nonpoint Source		Revoked Mines		Requires Reduction
	Baseline Load (lb/yr)	Allocated Load (lb/yr)	Baseline Load (lb/yr)	Allocated Load (lb/yr)	Baseline Load (lb/yr)	Allocated Load (lb/yr)	
100	14	4	229	229	0	0	x
101	0	0	188	188	0	0	
102	6,655	3,993	207	207	0	0	x
103	39	39	655	655	0	0	
146	0	0	61	61	4,038	4,038	
147	0	0	725	725	2,045	2,045	x
148	0	0	1,948	1,948	0	0	
149	3,153	1,387	546	546	0	0	x
15	0	0	934	934	0	0	
150	0	0	62	62	0	0	
16	0	0	431	431	0	0	
17	321	8	698	698	0	0	x
18	437	437	1,905	1,905	0	0	
19	277	232	255	255	2,150	1,806	x
196	6	6	378	378	0	0	
197	0	0	205	205	0	0	
198	0	0	66	66	0	0	
20	1,669	1,669	1,602	1,602	0	0	
205	0	0	141	141	0	0	
206	685	685	1,421	1,421	527	527	
207	0	0	1,194	1,194	0	0	
208	1,552	1,009	601	601	0	0	x
209	0	0	583	583	0	0	
21	1,268	1,268	835	835	0	0	
210	0	0	359	359	35	35	
22	3	3	417	417	0	0	
23	6,676	1,702	462	462	0	0	x
24	2,815	2,815	479	479	0	0	
96	83	83	1,684	1,684	0	0	
97	0	0	44	44	0	0	
98	0	0	35	35	0	0	
99	30	30	465	465	0	0	

# **Appendix A-7**

## **Region 7**

**Metals and pH TMDLs for the Monongahela Watershed**



**Figure 1. Region 7- Dents Run**

**Metals and pH TMDLs for the Monongahela Watershed**

**Table 1.** Impaired waterbodies in Region 7

<b>Stream Name</b>	<b>Stream Code</b>	<b>Pollutant</b>	<b>Contributing SWS</b>	<b>Contributing Regions</b>	<b>Aquatic Life</b>
Dents Run	M-7	Al, Fe, Mn	53, 168, 183, 184, 185	NA	x

**Table 2.** Locations of abandoned mines (seep, deep mine, and/or leachate)

<b>SWS</b>
183
184
185



**Metals and pH TMDLs for the Monongahela Watershed**

**Table 3a.** Water quality data for aluminum  
not applicable in this region

**Table 3b.** Water quality data for iron

<b>SWS</b>	<b>WQ Station</b>	<b>Avg (ug/L)</b>	<b>Min (ug/L)</b>	<b>Max (ug/L)</b>	<b>Count</b>	<b>Start Date</b>	<b>End Date</b>
183	393759080024501	590.00	180	1000	4	06/04/84	08/06/84
183	393803080015501	1280.00	260	2300	4	06/04/84	08/07/84

**Table 3c.** Water quality data for manganese

<b>SWS</b>	<b>WQ Station</b>	<b>Avg (ug/L)</b>	<b>Min (ug/L)</b>	<b>Max (ug/L)</b>	<b>Count</b>	<b>Start Date</b>	<b>End Date</b>
183	393759080024501	13000.00	12000	14000	4	06/04/84	08/06/84
183	393803080015501	7950.00	7600	8300	4	06/04/84	08/07/84

**Metals and pH TMDLs for the Monongahela Watershed**

**Table 4a.** Aluminum baseline conditions and allocations (WLAs) for permitted mining point sources

SWS	Article 3 permit ID	Baseline (lb/yr)	Allocation (lb/yr)	Allocation (mg/L)
53	s100698	2221	2221	4.3
168	s102192	80	80	4.3
168	s001780	40	40	4.3
168	s103390	54	54	4.3
183	s008080	1014	661	2.8
183	s103891	408	266	2.8
183	s100500	1211	789	2.8
183	s011482	380	248	2.8
183	s100895	2873	1872	2.8
183	s102192	352	229	2.8
183	s001780	169	110	2.8
183	s102088	127	83	2.8
183	s103390	225	147	2.8
185	s100894	267	267	4.3
183	o003485	1039	677	2.8
185	o102292	3183	3183	4.3
185	o008482	28	28	4.3
185	p101499	14	14	4.3
183	Z007781	1044	680	2.8
183	s005876	1118	729	2.8
53	u005383	24	7	1.2
168	u005383	275	275	4.3
183	u005383	2496	1627	2.8
185	u005383	43	21	2.1

**Table 4b.** Iron baseline conditions and allocations (WLAs) for permitted mining point sources

SWS	Article 3 permit ID	Baseline (lb/yr)	Allocation (lb/yr)	Allocation (mg/L)
53	s100698	1796	1796	3.2
168	s102192	65	65	3.2
168	s001780	32	32	3.2
168	s103390	43	43	3.2
183	s008080	820	820	3.2
183	s103891	330	330	3.2
183	s100500	979	979	3.2
183	s011482	307	307	3.2
183	s100895	2322	2322	3.2
183	s102192	285	285	3.2
183	s001780	137	137	3.2
183	s102088	102	102	3.2
183	s103390	182	182	3.2
185	s100894	216	216	3.2
183	o003485	1714	1714	3.2
185	o102292	5252	5252	3.2
185	o008482	46	46	3.2

**Metals and pH TMDLs for the Monongahela Watershed**

185	p101499	23	23	3.2
183	Z007781	787	787	3.2
183	s005876	843	843	3.2

**Metals and pH TMDLs for the Monongahela Watershed**

53	u005383	18	18	3.2
168	u005383	209	209	3.2
183	u005383	1902	1902	3.2
185	u005383	32	32	3.2

**Table 4c.** Manganese baseline conditions and allocations (WLAs) for permitted mining point sources

SWS	Article 3 permit ID	Baseline (lb/yr)	Allocation (lb/yr)	Allocation (mg/L)
53	s100698	1477	1477	2
168	s102192	53	53	2
168	s001780	27	27	2
168	s103390	36	36	2
183	s008080	674	674	2
183	s103891	272	272	2
183	s100500	805	805	2
183	s011482	253	253	2
183	s100895	1910	1910	2
183	s102192	234	234	2
183	s001780	112	112	2
183	s102088	84	84	2
183	s103390	150	150	2
185	s100894	178	178	2
183	o003485	1448	1448	2
185	o102292	4436	4436	2
185	o008482	39	39	2
185	p101499	20	20	2
183	Z007781	491	491	2
183	s005876	526	526	2
53	u005383	11	11	2
168	u005383	131	131	2
183	u005383	1190	1190	2
185	u005383	20	20	2

**Metals and pH TMDLs for the Monongahela Watershed**

**Table 5a.** Aluminum baseline conditions and allocations (LAs) for nonpoint sources

SWS	AML		Nonpoint Source		Revoked Mines		Requires Reduction
	Baseline Load (lb/yr)	Allocated Load (lb/yr)	Baseline Load (lb/yr)	Allocated Load (lb/yr)	Baseline Load (lb/yr)	Allocated Load (lb/yr)	
168	0	0	241	215	13	12	x
183	666	3	1362	1237	1388	145	x
184	542	5	121	114	715	550	x
185	1306	653	1903	1830	1175	1175	x
53	88	9	575	518	0	0	x

**Table 5b.** Iron baseline conditions and allocations (LAs) for nonpoint sources

SWS	AML		Nonpoint Source		Revoked Mines		Requires Reduction
	Baseline Load (lb/yr)	Allocated Load (lb/yr)	Baseline Load (lb/yr)	Allocated Load (lb/yr)	Baseline Load (lb/yr)	Allocated Load (lb/yr)	
168	0	0	1,250	1,250	70	70	
183	22,463	3,145	6,398	6,398	1,134	1,134	x
184	19,813	40	431	431	803	727	x
185	47,087	3,296	5,576	5,576	944	944	x
53	2,423	2,423	2,845	2,845	0	0	

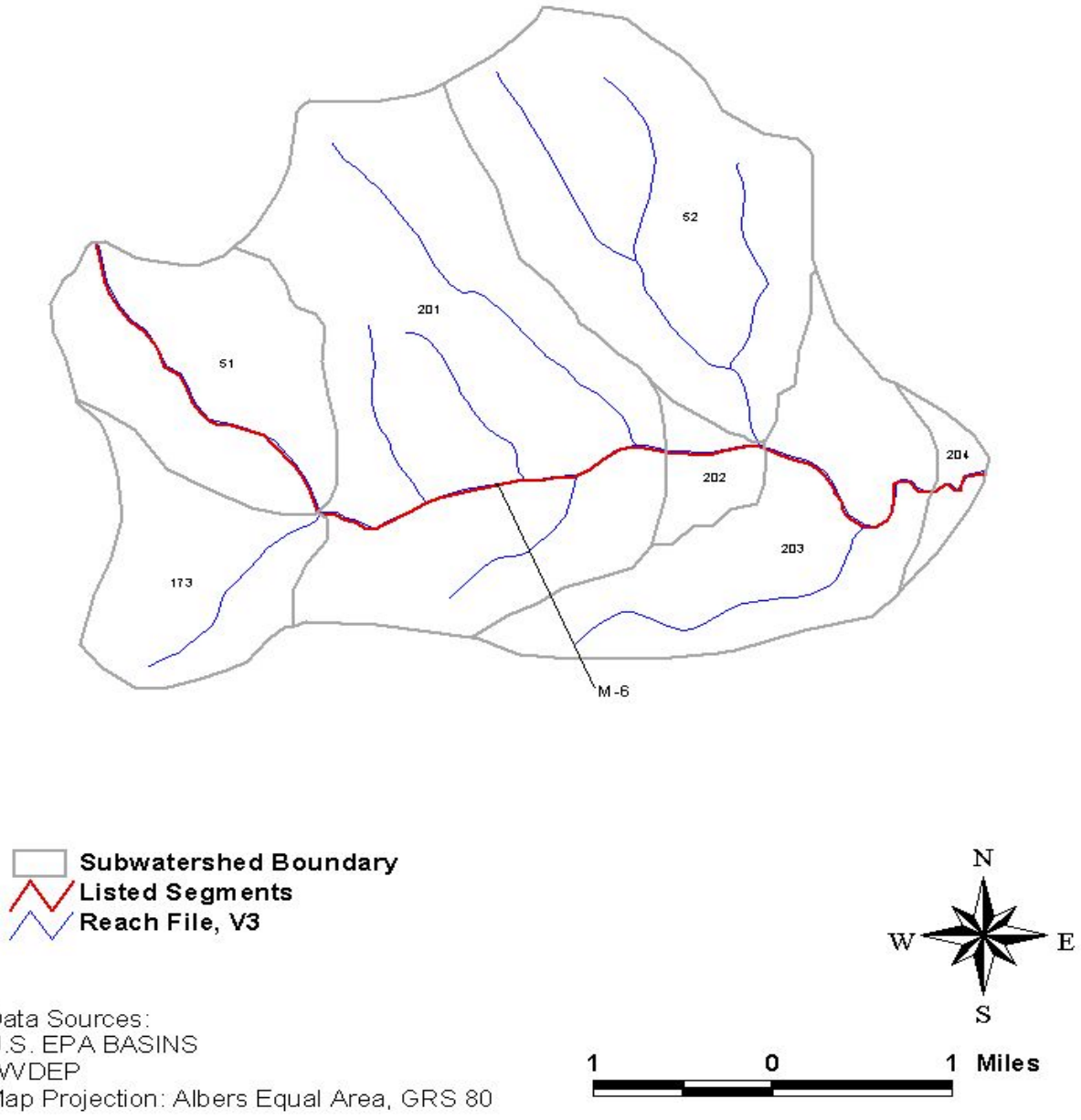
**Table 5c.** Manganese baseline conditions and allocations (LAs) for nonpoint sources

SWS	AML		Nonpoint Source		Revoked Mines		Requires Reduction
	Baseline Load (lb/yr)	Allocated Load (lb/yr)	Baseline Load (lb/yr)	Allocated Load (lb/yr)	Baseline Load (lb/yr)	Allocated Load (lb/yr)	
168	0	0	99	99	5	5	
183	3,093	773	612	612	805	805	x
184	2,669	13	66	66	484	417	x
185	6,378	2,806	1,059	1,059	658	658	x
53	408	408	249	249	0	0	

# **Appendix A-8**

## **Region 8**

**Metals and pH TMDLs for the Monongahela Watershed**



**Figure 1.** Region 8 - Scotts Run

**Metals and pH TMDLs for the Monongahela Watershed**

**Table 1.** Impaired waterbodies in Region 8

<b>Stream Name</b>	<b>Stream Code</b>	<b>Pollutant</b>	<b>Contributing SWS</b>	<b>Contributing Regions</b>	<b>Aquatic Life</b>
Scotts Run	M-6	Al, Fe, Mn	51,52,173,201,202,203,204	NA	x

**Table 2.** Locations of abandoned mines (seep, deep mine, and/or leachate)

<b>SWS</b>
51
52
173
201
203



**Metals and pH TMDLs for the Monongahela Watershed**

**Table 3a.** Water quality data for aluminum

<b>SWS</b>	<b>WQ Station</b>	<b>Avg (ug/L)</b>	<b>Min (ug/L)</b>	<b>Max (ug/L)</b>	<b>Count</b>	<b>Start Date</b>	<b>End Date</b>
203	550563	11321.43	2000	68800	14	07/09/74	06/13/78

**Table 3b.** Water quality data for iron

<b>SWS</b>	<b>WQ Station</b>	<b>Avg (ug/L)</b>	<b>Min (ug/L)</b>	<b>Max (ug/L)</b>	<b>Count</b>	<b>Start Date</b>	<b>End Date</b>
203	393912080015201	280.00	280	280	2	06/04/84	06/04/84
203	550563	25465.00	4200	160000	28	07/09/74	06/13/78

**Table 3c.** Water quality data for manganese

<b>SWS</b>	<b>WQ Station</b>	<b>Avg (ug/L)</b>	<b>Min (ug/L)</b>	<b>Max (ug/L)</b>	<b>Count</b>	<b>Start Date</b>	<b>End Date</b>
203	393912080015201	30.00	30	30	2	06/04/84	06/04/84
203	550563	1268.86	84	3220	28	07/09/74	06/13/78

**Metals and pH TMDLs for the Monongahela Watershed**

**Table 4a.** Aluminum baseline conditions and allocations (WLAs) for permitted mining point sources

SWS	Article 3 permit ID	Baseline (lb/yr)	Allocation (lb/yr)	Allocation (mg/L)
201	s103390	419	126	1.3
201	s001780	332	100	1.3
201	s102192	679	204	1.3
201	s100200	1230	370	1.3
201	s101688	2498	1250	2.2
202	s001780	129	65	2.2
202	s103690	1018	509	2.2
202	s103390	158	79	2.2
202	s102192	258	129	2.2
202	s101688	227	114	2.2
203	u005383	11	11	4.3
203	s001780	303	121	1.7
203	s102192	621	249	1.7
203	s100495	3479	1394	1.7
203	s103390	390	156	1.7
204	s100297	1035	518	2.2
204	s100594	305	153	2.2
204	l066300	30	18	2.6
51	p100500	32	32	4.3
52	S102088	201	121	2.6
52	s103489	935	561	2.6
52	s101688	457	274	2.6
52	s005580	166	100	2.6
52	S011775	637	383	2.6

**Table 4b.** Iron baseline conditions and allocations (WLAs) for permitted mining point sources

SWS	Article 3 permit ID	Baseline (lb/yr)	Allocation (lb/yr)	Allocation (mg/L)
52	S102088	152	152	3.2
52	s103489	705	705	3.2
201	s103390	316	316	3.2
201	s001780	250	250	3.2
201	s102192	512	512	3.2
202	s001780	97	97	3.2
202	s103690	768	768	3.2
202	s103390	119	119	3.2
202	s102192	195	195	3.2
203	s001780	229	229	3.2
203	s102192	468	468	3.2
203	s100495	2625	2625	3.2
203	s103390	294	294	3.2
204	s100297	775	775	3.2
204	s100594	228	228	3.2
204	l066300	23	23	3.2
51	p100500	29	29	3.2
52	p100300	0	0	3.2
52	s101688	341	341	3.2
52	s005580	124	124	3.2
52	S011775	475	475	3.2
201	s101688	1863	1863	3.2
202	s101688	169	169	3.2

Metals and pH TMDLs for the Monongahela Watershed

201	s100200	928	928	3.2
203	u005383	8	8	3.2

**Metals and pH TMDLs for the Monongahela Watershed**

**Table 4c.** Manganese baseline conditions and allocations (WLAs) for permitted mining point sources

SWS	Article 3 permit ID	Baseline (lb/yr)	Allocation (lb/yr)	Allocation (mg/L)
52	S102088	116	116	2
52	s103489	541	541	2
201	s103390	242	242	2
201	s001780	192	192	2
201	s102192	392	392	2
202	s001780	75	75	2
202	s103690	589	589	2
202	s103390	91	91	2
202	s102192	149	149	2
203	s001780	175	97	1.1
203	s102192	359	199	1.1
203	s100495	2012	1116	1.1
203	s103390	225	125	1.1
204	s100297	549	549	2
204	s100594	162	162	2
204	I066300	14	14	2
51	p100500	26	26	2
52	s101688	213	213	2
52	s005580	77	77	2
52	S011775	297	297	2
201	s101688	1162	1162	2
202	s101688	106	106	2
201	s100200	711	711	2
203	u005383	5	5	2

**Metals and pH TMDLs for the Monongahela Watershed**

**Table 5a.** Aluminum baseline conditions and allocations (LAs) for nonpoint sources

SWS	AML		Nonpoint Source		Revoked Mines		Requires Reduction
	Baseline Load (lb/yr)	Allocated Load (lb/yr)	Baseline Load (lb/yr)	Allocated Load (lb/yr)	Baseline Load (lb/yr)	Allocated Load (lb/yr)	
173	582	1	553	553	0	0	x
201	251,790	252	1,977	1,977	153,669	154	x
202	0	0	100	100	0	0	
203	303,499	303	909	909	0	0	x
204	2,332	2	57	57	0	0	x
51	141,486	141	769	769	0	0	x
52	2,170	2	1,295	1,295	333	0	x

**Table 5b.** Iron baseline conditions and allocations (LAs) for nonpoint sources

SWS	AML		Nonpoint Source		Revoked Mines		Requires Reduction
	Baseline Load (lb/yr)	Allocated Load (lb/yr)	Baseline Load (lb/yr)	Allocated Load (lb/yr)	Baseline Load (lb/yr)	Allocated Load (lb/yr)	
173	359	18	3,660	3,660	0	0	x
201	153,256	153	12,347	12,347	93,533	94	x
202	0	0	367	367	0	0	
203	185,327	185	4,271	4,271	0	0	x
204	1,751	2	124	124	0	0	x
51	86,099	1,551	5,271	5,271	0	0	x
52	1,328	48	8,302	8,302	285	121	x

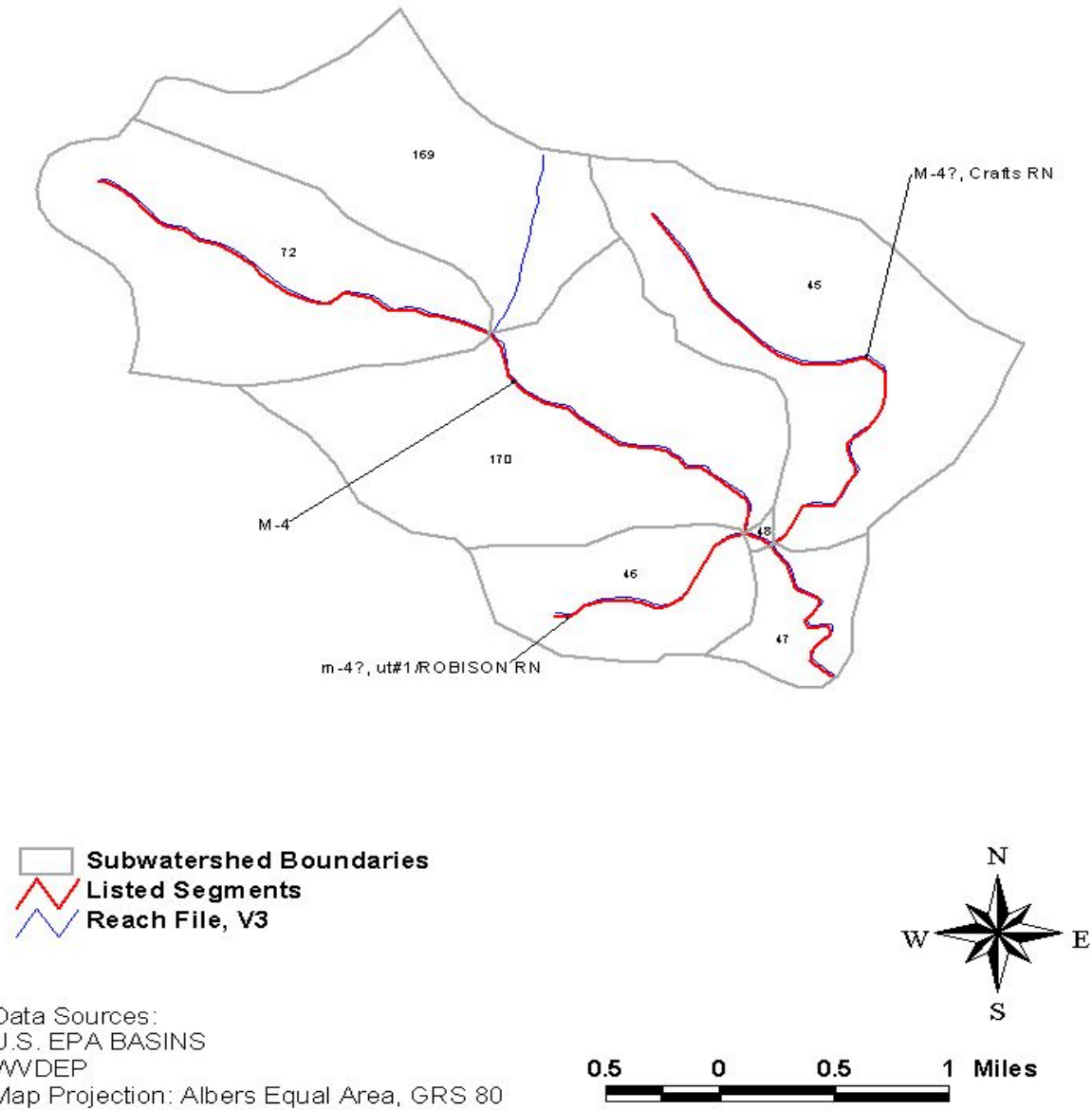
**Table 5c.** Manganese baseline conditions and allocations (LAs) for nonpoint sources

SWS	AML		Nonpoint Source		Revoked Mines		Requires Reduction
	Baseline Load (lb/yr)	Allocated Load (lb/yr)	Baseline Load (lb/yr)	Allocated Load (lb/yr)	Baseline Load (lb/yr)	Allocated Load (lb/yr)	
173	32	32	262	262	0	0	
201	14,564	291	986	986	8,888	178	x
202	0	0	59	59	0	0	
203	17,243	172	491	491	0	0	x
204	34	14	35	35	0	0	x
51	8,136	3,661	357	357	0	0	x
52	424	424	626	626	126	126	

# **Appendix A-9**

## **Region 9**

**Metals and pH TMDLs for the Monongahela Watershed**



**Figure 1. Region 9. Robinson run**

**Metals and pH TMDLs for the Monongahela Watershed**

**Table 1.** Impaired waterbodies in Region 9

<b>Stream Name</b>	<b>Stream Code</b>	<b>Pollutant</b>	<b>Contributing SWS</b>	<b>Contributing Regions</b>	<b>Aquatic Life</b>
Crafts Run	M-4-A	pH, Metals	45	NA	x
Robinson Run	M-4	pH, Metals	45,46,47,48,72,169,170	NA	x
UT#1 Robinson Run	M-4-B	pH, Metals	46	NA	x

**Table 2.** Locations of abandoned mines (seep, deep mine, and/or leachate)

<b>SWS</b>
45
46
47
169
170



**Metals and pH TMDLs for the Monongahela Watershed**

**Table 3a.** Water quality data for aluminum  
(not applicable in this region)

**Table 3b.** Water quality data for iron  
(not applicable in this region)

**Table 3c.** Water quality data for manganese  
(not applicable in this region)

**Metals and pH TMDLs for the Monongahela Watershed**

**Table 4a.** Aluminum baseline conditions and allocations (WLAs) for permitted mining point sources

SWS	Article 3 permit ID	Baseline (lb/yr)	Allocation (lb/yr)	Allocation (mg/L)
169	u007683	140	140	4.3
169	u011983*	8,055	8,055	0.75
170	u105086	168	102	2.6
170	u011983	75	45	2.6
170	o100589	371	371	4.3
170	u016082	251	192	3.3
170	s002483	237	237	4.3
45	U018200	248	150	2.6
45	u105086	234	142	2.6
45	s105786	340	205	2.6
45	o101593	1239	749	2.6
45	o006383	151	91	2.6
45	o008283	151	91	2.6
46	u011983	110	58	2.3
47	r103888	243	243	4.3
47	R075400	197	197	4.3
47	o000583	393	393	4.3
47	o003482	254	254	4.3
72	U025100	70	18	1.1
72	u011983	446	115	1.1
72	s100394	877	226	1.1
72	S011775	406	105	1.1
72	s005580	98	25	1.1

\* Bowlby Mills AMD treatment facility, continuous flow discharge

**4b. Iron**  
baseline

SWS	Article 3 permit ID	Baseline (lb/yr)	Allocation (lb/yr)	Allocation (mg/L)
45	U018200	185	120	2.1
45	u105086	174	114	2.1
72	U025100	51	51	3.2
169	u007683	104	104	3.2
169	u011983*	16,109	16,109	1.50
170	u105086	125	125	3.2
45	s105786	254	166	2.1
72	s100394	657	657	3.2
45	o101593	3132	2040	2.1
45	o006383	381	248	2.1
45	o008283	381	248	2.1
47	r103888	614	614	3.2
47	R075400	497	497	3.2
47	o000583	993	993	3.2
47	o003482	643	643	3.2
170	o100589	937	937	3.2
170	u016082	187	187	3.2
72	S011775	303	303	3.2
72	s005580	73	73	3.2
170	s002483	177	177	3.2

**Metals and pH TMDLs for the Monongahela Watershed**

46	u011983	82	82	3.2
72	u011983	324	324	3.2
170	u011983	56	56	3.2

\* Bowlby Mills AMD treatment facility, continuous flow discharge

**Table 4c.**

Mangane

SWS	Article 3 permit ID	Baseline (lb/yr)	Allocation (lb/yr)	Allocation (mg/L)
45	U018200	116	116	2
45	u105086	109	109	2
72	U025100	32	32	2
169	u007683	65	65	2
169	u011983*	10,740	10,740	1.00
170	u105086	78	78	2
45	s105786	178	162	1.8
72	s100394	459	459	2
45	o101593	2832	2582	1.8
45	o006383	344	314	1.8
45	o008283	344	314	1.8
47	r103888	555	555	2
47	R075400	449	449	2
47	o000583	898	898	2
47	o003482	581	581	2
170	o100589	847	847	2
170	u016082	117	117	2
72	S011775	189	189	2
72	s005580	46	46	2
170	s002483	110	110	2
46	u011983	51	51	2
72	u011983	202	202	2
170	u011983	35	35	2

\* Bowlby Mills AMD treatment facility, continuous flow discharge

**Metals and pH TMDLs for the Monongahela Watershed**

**Table 5a.** Aluminum baseline conditions and allocations (LAs) for nonpoint sources

SWS	AML		Nonpoint Source		Revoked Mines		Requires Reduction
	Baseline Load (lb/yr)	Allocated Load (lb/yr)	Baseline Load (lb/yr)	Allocated Load (lb/yr)	Baseline Load (lb/yr)	Allocated Load (lb/yr)	
169	15	15	366	366	335	176	x
170	2,458	25	898	898	556	33	x
45	1,557	16	737	737	84	1	x
46	599	30	304	304	98	51	x
47	338	41	109	109	0	0	x
48	0	0	11	11	0	0	
72	76	1	555	555	0	0	x

**Table 5b.** Iron baseline conditions and allocations (LAs) for nonpoint sources

SWS	AML		Nonpoint Source		Revoked Mines		Requires Reduction
	Baseline Load (lb/yr)	Allocated Load (lb/yr)	Baseline Load (lb/yr)	Allocated Load (lb/yr)	Baseline Load (lb/yr)	Allocated Load (lb/yr)	
169	3,375	17	2,441	2,441	339	339	x
170	257,760	773	4,190	4,190	894	852	x
45	163,977	656	4,155	4,155	85	0	x
46	59,346	356	1,721	1,721	73	19	x
47	38,576	386	307	307	0	0	x
48	0	0	38	38	0	0	
72	1,697	17	3,605	3,605	0	0	x

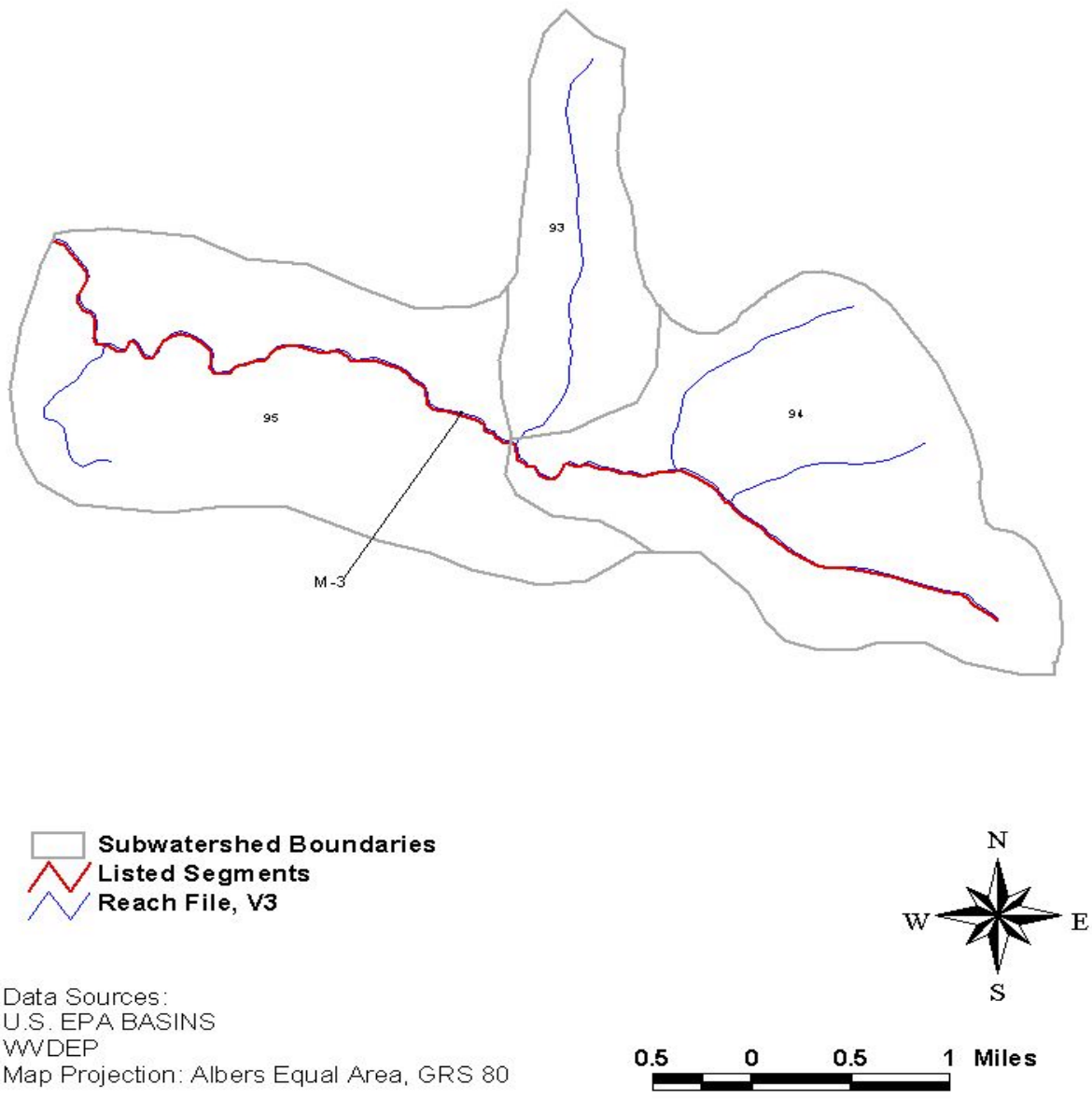
**Table 5c.** Manganese baseline conditions and allocations (LAs) for nonpoint sources

SWS	AML		Nonpoint Source		Revoked Mines		Requires Reduction
	Baseline Load (lb/yr)	Allocated Load (lb/yr)	Baseline Load (lb/yr)	Allocated Load (lb/yr)	Baseline Load (lb/yr)	Allocated Load (lb/yr)	
169	46	5	166	166	222	222	x
170	2957	296	458	458	627	63	x
45	2358	47	376	376	56	1	x
46	923	185	156	156	46	46	x
47	896	448	62	62	0	0	x
48	0	0	6	6	0	0	
72	31	31	262	262	0	0	

# **Appendix A-10**

## **Region 10**

**Metals and pH TMDLs for the Monongahela Watershed**



**Figure 1. Region 10- West Run**

**Metals and pH TMDLs for the Monongahela Watershed**

**Table 1.** Impaired waterbodies in Region 10

<b>Stream Name</b>	<b>Stream Code</b>	<b>Pollutant</b>	<b>Contributing SWS</b>	<b>Contributing Regions</b>	<b>Aquatic Life</b>
West Run	M-3	pH, Metals	93,94,95	NA	X

**Table 2.** Locations of abandoned mines (seep, deep mine, and/or leachate)

<b>SWS</b>
93
94

**Metals and pH TMDLs for the Monongahela Watershed**

**Table 3a.** Water quality data for aluminum  
(not applicable in this region)

**Table 3b.** Water quality data for iron  
(not applicable in this region)

**Table 3c.** Water quality data for manganese  
(not applicable in this region)



**Metals and pH TMDLs for the Monongahela Watershed**

**Table 4a.** Aluminum baseline conditions and allocations (WLAs) for permitted mining point sources

<b>SWS</b>	<b>Article 3 permit ID</b>	<b>Baseline (lb/yr)</b>	<b>Allocation (lb/yr)</b>	<b>Allocation (mg/L)</b>
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(not applicable to this region)

**Table 4b.** Iron baseline conditions and allocations (WLAs) for permitted mining point sources

<b>SWS</b>	<b>Article 3 permit ID</b>	<b>Baseline (lb/yr)</b>	<b>Allocation (lb/yr)</b>	<b>Allocation (mg/L)</b>
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(not applicable to this region)

**Table 4c.** Manganese baseline conditions and allocations (WLAs) for permitted mining point sources

<b>SWS</b>	<b>Article 3 permit ID</b>	<b>Baseline (lb/yr)</b>	<b>Allocation (lb/yr)</b>	<b>Allocation (mg/L)</b>
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(not applicable to this region)

**Metals and pH TMDLs for the Monongahela Watershed**

**Table 5a.** Aluminum baseline conditions and allocations (LAs) for nonpoint sources

SWS	AML		Nonpoint Source		Revoked Mines		Requires Reduction
	Baseline Load (lb/yr)	Allocated Load (lb/yr)	Baseline Load (lb/yr)	Allocated Load (lb/yr)	Baseline Load (lb/yr)	Allocated Load (lb/yr)	
93	213	213	1,150	1,150	0	0	
94	14,933	3,509	1,895	1,895	0	0	x
95	0	0	4,398	4,398	0	0	

**Table 5b.** Iron baseline conditions and allocations (LAs) for nonpoint sources

SWS	AML		Nonpoint Source		Revoked Mines		Requires Reduction
	Baseline Load (lb/yr)	Allocated Load (lb/yr)	Baseline Load (lb/yr)	Allocated Load (lb/yr)	Baseline Load (lb/yr)	Allocated Load (lb/yr)	
93	231	231	2,268	2,268	0	0	
94	77,957	6,626	3,906	3,906	0	0	x
95	0	0	8,134	8,134	0	0	

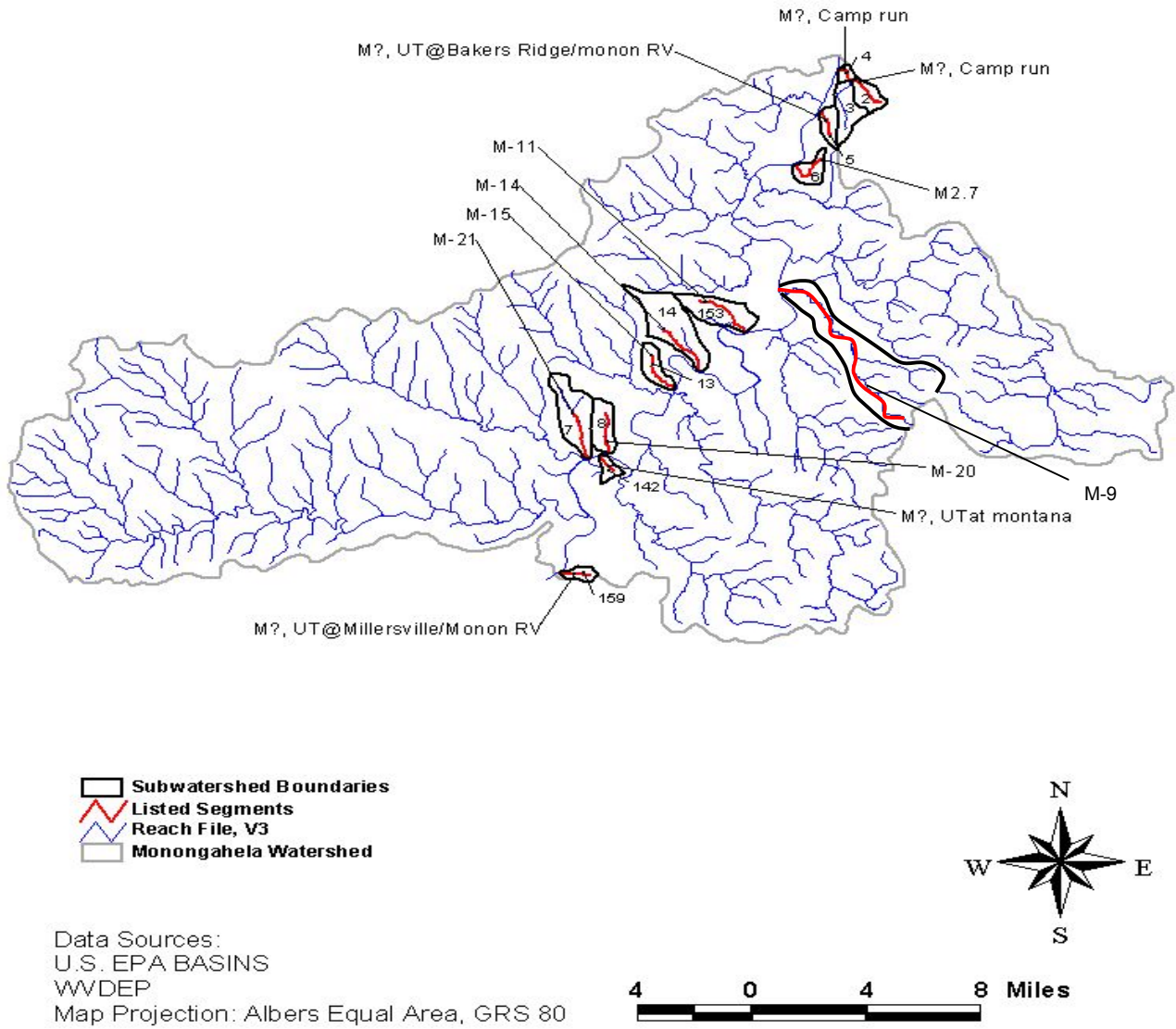
**Table 5c.** Manganese baseline conditions and allocations (LAs) for nonpoint sources

SWS	AML		Nonpoint Source		Revoked Mines		Requires Reduction
	Baseline Load (lb/yr)	Allocated Load (lb/yr)	Baseline Load (lb/yr)	Allocated Load (lb/yr)	Baseline Load (lb/yr)	Allocated Load (lb/yr)	
93	602	602	336	336	0	0	
94	26,210	4,325	610	610	0	0	x
95	0	0	1,652	1,652	0	0	

# **Appendix A-11**

## **Region 11**

**Metals and pH TMDLs for the Monongahela Watershed**



**Figure 1.** Region 11 -Miscellaneous Impaired Monongahela River Tributaries

**Metals and pH TMDLs for the Monongahela Watershed**

**Table 1.** Impaired waterbodies in Region 11

Stream Name	Stream Code	Pollutant	Contributing SWS	Contributing Regions	Aquatic Life
Pharaoh Run	M-21	pH, Metals	7	NA	x
Parker Run	M-20	pH, Metals	8	NA	x
Birchfield Run	M-15	pH, Metals	13	NA	x
Flaggy Meadow Run	M-14	pH, Metals	14	NA	x
Brand Run	M-11	pH, Metals	153	NA	x
Laurel Run/Mon Rv	M-2.7	pH, Metals	6	NA	x
UT@Bakers Ridge/Mon Rv	M-2.6	pH, Metals	5	NA	x
Camp Run	M-2.1	pH, Metals	2,3,4	NA	x
UT@Millers ville/Mon Rv	M-25.9	pH, Metals	159	NA	x
UT@Montana/Mon Rv	M-20.2	pH, Metals	142	NA	X
Cobun Creek	M-9	pH, Metals	195, 194, 174, 9	NA	x

**Table 2.** Locations of abandoned mines (seep, deep mine, and/or leachate)

SWS
2
3
5
6
13
14
90
142
153
159

**Metals and pH TMDLs for the Monongahela Watershed**

**Table 3a.** Water quality data for aluminum  
(not applicable in this region)

**Table 3b.** Water quality data for iron  
(not applicable in this region)

**Table 3c.** Water quality data for manganese  
(not applicable in this region)

**Metals and pH TMDLs for the Monongahela Watershed**

**Table 4a.** Aluminum baseline conditions and allocations (WLAs) for permitted mining point sources

SWS	Article 3 PERMIT ID	Baseline(lbs/yr)	Allocation(lbs/yr)	Allocation (mg/l)
8	p101698	70	70	4.3
8	u003784	45	45	4.3
13	s005679	356	356	4.3
14	s103090	122	122	4.3
14	s100694	27	27	4.3
153	s102088	62	62	4.3
14	u007083*	20936	20936	0.75

\* Flaggy Meadows AMD treatment facility, continuous flow discharge

**Table 4b.** Iron baseline conditions and allocations (WLAs) for permitted mining point sources

SWS	Article 3 PERMIT ID	Baseline(lbs/yr)	Allocation(lbs/yr)	Allocation (mg/L)
8	p101698	116	116	3.2
8	u003784	34	34	3.2
13	s005679	755	755	3.2
14	s103090	259	259	3.2
14	s100694	57	57	3.2
153	s102088	154	154	3.2
14	u007083*	41873	41873	1.5

ment facility, continuous flow discharge

**Metals and pH TMDLs for the Monongahela Watershed**

**Table 4c.** Manganese baseline conditions and allocations (WLAs) for permitted mining point sources

<b>SWS</b>	<b>Article 3 PERMIT ID</b>	<b>Baseline(lbs/yr)</b>	<b>Allocation(lbs/yr)</b>	<b>Allocation (mg/L)</b>
8	p101698	31	31	2
8	u003784	21	21	2
13	s005679	471	471	2
14	s103090	161	161	2
14	s100694	36	36	2
153	s102088	82	82	2
14	u007083*	27915	27915	1

\* Flaggy Meadows AMD treatment facility, continuous flow discharge



**Metals and pH TMDLs for the Monongahela Watershed**

SWS	AML		Nonpoint Source		Revoked Mines		Requires Reduction
	Baseline Load (lb/yr)	Allocated Load (lb/yr)	Baseline Load (lb/yr)	Allocated Load (lb/yr)	Baseline Load (lb/yr)	Allocated Load (lb/yr)	
2	2,087	626	418	418	0	0	x
3	30	30	992	992	0	0	
4	0	0	247	247	0	0	
5	665	23	651	651	0	0	x
6	1,620	551	668	668	0	0	x
7	213	167	3,219	3,219	126	98	x
8	0	0	1,200	1,200	6	6	
13	1,028	10	851	851	0	0	x
14	22	4	1,133	1,133	3,461	712	x
174	0	0	777	777	0	0	
194	0	0	1,283	1,283	0	0	
195	0	0	698	698	0	0	
90	315	239	1,413	1,413	0	0	x
142	639	70	511	511	0	0	x
153	1,524	716	1,775	1,775	700	355	x
159	1,471	500	232	232	0	0	x

**Table 5b. Iron baseline conditions and allocations (LAs) for nonpoint sources**

SWS	AML		Nonpoint Source		Revoked Mines		Requires Reduction
	Baseline Load (lb/yr)	Allocated Load (lb/yr)	Baseline Load (lb/yr)	Allocated Load (lb/yr)	Baseline Load (lb/yr)	Allocated Load (lb/yr)	
2	56,327	1,183	890	890	0	0	x
3	1,544	1,544	1,980	1,980	0	0	
4	0	0	500	500	0	0	
5	1,289	46	1,298	1,298	6	6	x
6	51,391	1,131	1,354	1,354	0	0	x
7	5,593	1,734	8,920	8,920	3,385	1,049	x
8	0	0	2,446	2,446	0	0	
13	2,722	313	1,752	1,752	0	0	x
14	640	320	5,508	5,508	5,190	2,595	x
174	0	0	3,521	3,521	0	0	
194	0	0	5,101	5,101	0	0	
195	0	0	1,628	1,628	0	0	
90	669	580	6,495	6,495	0	0	x
142	28,508	998	1,242	1,242	0	0	x
153	22,378	1,902	3,606	3,606	448	448	x
159	66,812	1,002	511	511	0	0	x

**Metals and pH TMDLs for the Monongahela Watershed**

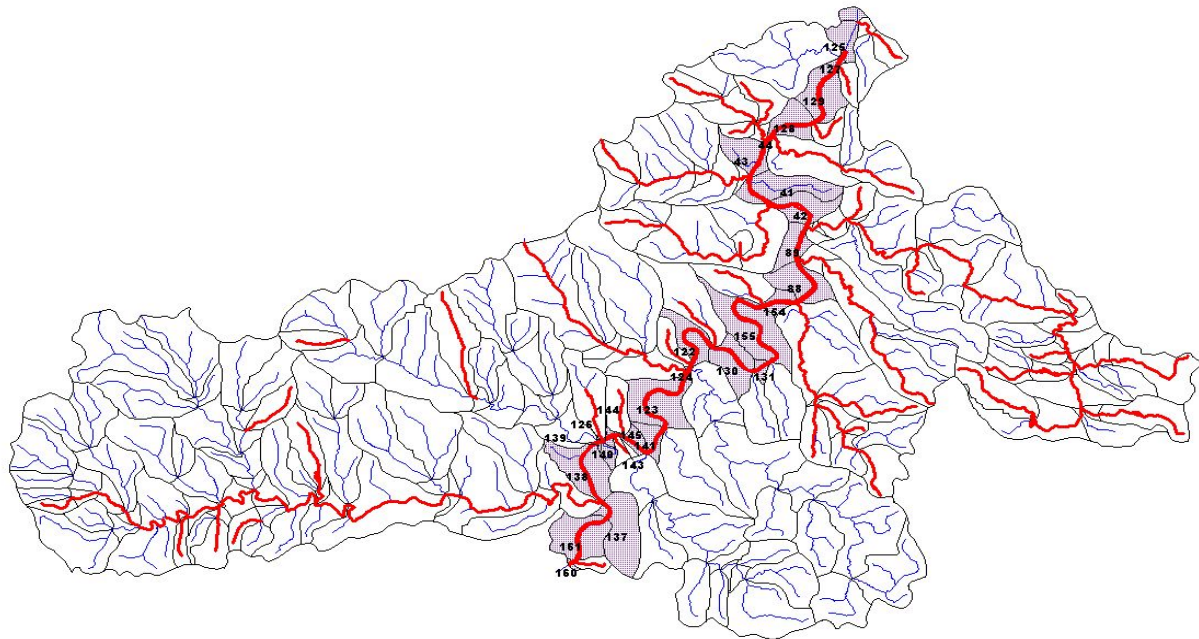
**Table 5c.** Manganese baseline conditions and allocations (LAs) for nonpoint sources






SWS	AML		Nonpoint Source		Revoked Mines		Requires Reduction
	Baseline Load (lb/yr)	Allocated Load (lb/yr)	Baseline Load (lb/yr)	Allocated Load (lb/yr)	Baseline Load (lb/yr)	Allocated Load (lb/yr)	
2	12,920	840	75	75	0	0	x
3	178	89	196	196	0	0	x
4	0	0	43	43	0	0	
5	1,564	28	139	139	0	0	x
6	4,801	744	113	113	0	0	x
7	4,078	816	761	761	2,405	481	x
8	0	0	195	195	1	1	
13	1,485	156	154	154	0	0	x
14	249	249	490	490	2,545	2,545	x
174	0	0	294	294	0	0	
194	0	0	554	554	0	0	
195	0	0	418	418	0	0	
90	413	324	523	110	0	0	x
142	1,907	591	133	133	0	0	x
153	7,519	1,353	378	378	237	43	x
159	2,229	657	101	101	0	0	x

# **Appendix A-12**

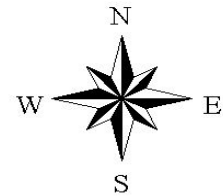
## **Region 12**

**Metals and pH TMDLs for the Monongahela Watershed**



-  303(d)listed-segments
-  monongahela watersheds
-  Reach Files, V3
-  Monongahela watershed
-  Mainstem subwatersheds

Data Sources:  
U.S. EPA BASINS  
WVDEP  
Map Projection: Albers Equal Area, GRS80



**Figure 1.** Region 12 - monongahela River watersheds

**Metals and pH TMDLs for the Monongahela Watershed**

**Table 1.** Impaired waterbodies in Region 12

<b>Stream Name</b>	<b>Stream Code</b>	<b>Pollutant</b>	<b>Contributing Regions and</b>	<b>Aquatic Life</b>
monongahela River	M	Al	Region 1 through 11, Tyger River, and West Fork River	Aquatic Life

T = Aquatic Life Trout Waters

W = Warm Water Fishery

**Table 2.** Locations of abandoned mines (seep, deep mine, and/or leachate)

<b>SWS</b>
88
128
138
141
145
129
155
161

**Metals and pH TMDLs for the Monongahela Watershed**

**Table 3a.** Water quality data for aluminum

SWS	WQ Station	Avg (ug/L)	Min (ug/L)	Max (ug/L)	Count	Start Date	End Date
41	550127	576.0	0.0	1500.0	5	6/11/74	10/30/74
41	550446	505.4	30.0	10200.0	184	6/28/88	5/3/93
41	WA96-M01	597.9	10.0	2000.0	12	6/6/97	12/11/97
43	4PMP11006	340.0	340.0	340.0	1	5/15/86	5/15/86
89	4MGW11002	171.4	50.0	330.0	17	7/26/88	8/15/89
89	4MGW11201	179.8	50.0	380.0	9	7/26/88	8/14/90
122	4OPW11002	248.8	50.0	460.0	18	8/26/85	8/5/86
122	4OPW11201	409.2	50.0	816.0	9	7/28/87	8/15/89
122	550562	2000.0	2000.0	2000.0	1	6/25/74	6/25/74
125	03063000	1990.0	1990.0	1990.0	1	7/27/76	7/27/76
125	4PMP11002	207.9	87.0	426.0	18	7/29/87	8/14/90
125	4PMP11201	191.2	78.0	320.0	11	7/22/80	8/27/85
125	WQN0725	895.6	100.0	8480.0	142	5/8/90	3/14/95
138	03062000	1266.7	400.0	2800.0	3	9/30/60	4/20/61
155	4HDW11002	207.8	50.0	787.0	18	7/28/87	7/26/88
155	4HDW11201	208.9	64.0	412.0	9	7/28/87	8/15/89
161	550447	779.1	0.0	6000.0	48	4/13/76	5/10/77

**Table 3b.** Water quality data for iron

SWS	WQ Station	Avg (ug/L)	Min (ug/L)	Max (ug/L)	Count	Start Date	End Date
41	4MON13098	1097.5	1075.0	1120.0	4	7/19/73	8/22/74
41	550127	1695.9	0.0	3700.0	34	8/19/65	8/19/65
41	550446	945.4	20.0	24000.0	510	3/12/86	3/9/93
41	WA96-M01	1003.8	111.0	3500.0	24	9/3/97	12/3/98
43	4PMP11006	200.0	200.0	200.0	2	5/15/86	5/15/86
89	4MGW11002	305.7	100.0	803.0	54	6/3/75	8/5/86
89	4MGW11201	340.0	100.0	803.0	26	8/27/85	7/29/87
122	4OPW11002	455.5	100.0	1135.0	52	8/26/85	7/28/87
122	4OPW11201	767.0	100.0	1785.0	26	8/26/85	8/24/92
122	550562	5000.0	5000.0	5000.0	2	6/25/74	6/25/74
125	03063000	1151.4	320.0	3300.0	28	2/27/76	3/29/76
125	4PMP11002	484.5	100.0	1300.0	52	6/20/78	7/30/91
125	4PMP11201	574.8	100.0	1589.0	30	6/3/75	7/29/87
125	WQN0725	1344.7	81.0	13190.0	536	10/9/79	1/8/91
126	4GRP11008	1143.3	890.0	1680.0	12	7/18/74	7/18/74
155	4HDW11002	482.3	100.0	3265.0	56	7/26/88	8/15/89
155	4HDW11201	415.2	100.0	775.0	28	7/22/80	7/30/91
161	550447	1227.4	20.0	17400.0	210	10/30/74	4/13/76

**Metals and pH TMDLs for the Monongahela Watershed**

**Table 3c.** Water quality data for manganese

SWS	WQ Station	Avg (ug/L)	Min (ug/L)	Max (ug/L)	Count	Start Date	End Date
41	4MON13098	680	680	680	2	8/22/74	8/22/74
41	550127	1060.714	200	2400	28	1/23/73	1/23/73
41	550446	303.7729	4	1500	502	7/22/68	5/10/77
41	WA96-M01	123.2417	36.3	227	24	6/18/96	12/11/97
43	4PMP11006	90	90	90	2	5/15/86	5/15/86
89	4MGW11002	196.4815	40	603	54	6/20/78	8/14/90
89	4MGW11201	159.2308	70	337	26	8/23/83	8/15/89
122	4OPW11002	273.7692	50	1436	52	6/25/79	8/24/92
122	4OPW11201	326.5385	120	830	26	6/25/79	7/29/91
122	550562	290	290	290	2	6/25/74	6/25/74
125	03063000	901.3542	10	3800	192	1/5/66	9/29/69
125	4PMP11002	216.0769	70	654	52	8/23/83	7/27/88
125	4PMP11201	212	70	337	30	6/20/78	7/27/88
125	WQN0725	198.5374	30	648	294	5/6/81	1/19/95
126	4GRP11008	535	450	790	10	6/17/74	10/10/74
138	03062000	946.6667	670	1400	6	9/30/60	5/9/63
155	4HDW11002	289.3214	50	730	56	6/26/79	8/5/86
155	4HDW11201	282.4286	70	747	28	7/29/75	8/27/85
161	550447	458.6122	10	2400	196	10/4/71	5/10/77

**Metals and pH TMDLs for the Monongahela Watershed**

**Table 4a.** Aluminum baseline conditions and allocations (WLAs) for permitted mining point sources

SWS	Article 3 permit ID	Baseline (lb/yr)	Allocation (lb/yr)	Allocation (mg/L)
41	U007083	8925	8925	4.3
42	O008482	75	75	4.3
43	O102292	3426	3426	4.3
43	O003482	332	332	4.3
43	R075400	257	257	4.3
43	O016783	80	80	4.3
43	U011983	5506	5506	4.3
44	O016683	58	58	4.3
44	O003482	332	332	4.3
44	R075400	257	257	4.3
88	O004685	151	151	4.3
88	O004684	166	166	4.3
122	S006679	3788	3788	4.3
122	S102686	151	151	4.3
122	S003682	531	531	4.3
122	S005679	1426	1426	4.3
122	I053900	104	104	4.3
122	S100400	211	211	4.3
123	S004484	69	69	4.3
123	S101786	199	199	4.3
123	S105186	2970	2970	4.3
128	O003382	85	85	4.3
128	S008584	85	85	4.3
128	O016683	55	55	4.3
129	S000977	861	861	4.3
129	S103290	221	221	4.3
138	O104287	58	58	4.3
138	S101095	899	899	4.3
141	S101786	62	62	4.3
144	S007785	617	617	4.3
145	S101786	187	187	4.3
145	S100288	618	618	4.3
155	Q004674	483	483	4.3
155	Q101992	1049	1049	4.3
155	S102189	181	181	4.3
155	S101393	151	151	4.3
155	S102088	627	627	4.3
155	S102189	181	181	4.3
155	S103690	1079	1079	4.3
155	S103090	355	355	4.3

36,869



**Metals and pH TMDLs for the Monongahela Watershed**

**Table 4b.** Iron baseline conditions and allocations (WLAs) for permitted mining point sources

SWS	Article 3 permit ID	Baseline (lb/yr)	Allocation (lb/yr)	Allocation (mg/L)
41	U007083	6644	6644	3.2
42	O008482	57	57	3.2
43	O102292	2567	2567	3.2
43	O003482	249	249	3.2
43	R075400	192	192	3.2
43	O016783	60	60	3.2
43	U011983	4099	4099	3.2
44	O016683	44	44	3.2
44	O003482	249	249	3.2
44	R075400	192	192	3.2
88	O004685	113	113	3.2
88	O004684	124	124	3.2
122	S006679	2839	2839	3.2
122	S102686	113	113	3.2
122	S003682	398	398	3.2
122	S005679	1069	1069	3.2
122	I053900	78	78	3.2
122	S100400	158	158	3.2
123	S004484	52	52	3.2
123	S101786	149	149	3.2
123	S105186	2226	2226	3.2
128	O003382	63	63	3.2
128	S008584	64	64	3.2
128	O016683	41	41	3.2
129	S000977	645	645	3.2
129	S103290	166	166	3.2
129	WV0004731*	1136	1136	3.2
138	O104287	44	44	3.2
138	S101095	674	674	3.2
141	S101786	47	47	3.2
144	S007785	462	462	3.2
145	S101786	140	140	3.2
145	S100288	463	463	3.2
155	Q004674	362	362	3.2
155	Q101992	786	786	3.2
155	S102189	136	136	3.2
155	S101393	113	113	3.2
155	S102088	469	469	3.2
155	S102189	136	136	3.2
155	S103690	809	809	3.2
155	S103090	266	266	3.2

\* showing as NPDES permit ID

28,694

**Metals and pH TMDLs for the Monongahela Watershed**

**Table 4b. Manganese** baseline conditions and allocations (WLAs) for permitted mining point sources

SWS	Article 3 permit ID	Baseline (lb/yr)	Allocation (lb/yr)	Allocation (mg/L)
41	U007083	4157	4157	2
42	O008482	36	36	2
43	O102292	1631	1631	2
43	O003482	158	158	2
43	R075400	122	122	2
43	O016783	38	38	2
43	U011983	2564	2564	2
44	O016683	28	28	2
44	O003482	158	158	2
44	R075400	122	122	2
88	O004685	72	72	2
88	O004684	79	79	2
122	S006679	1803	1803	2
122	S102686	72	72	2
122	S003682	253	253	2
122	S005679	679	679	2
122	I053900	50	50	2
122	S100400	101	101	2
123	S004484	33	33	2
123	S101786	95	95	2
123	S105186	1414	1414	2
128	O003382	40	40	2
128	S008584	40	40	2
128	O016683	26	26	2
129	S000977	410	410	2
129	S103290	105	105	2
138	O104287	28	28	2
138	S101095	428	428	2
141	S101786	30	30	2
144	S007785	294	294	2
145	S101786	89	89	2
145	S100288	294	294	2
155	Q004674	230	230	2
155	Q101992	499	499	2
155	S102189	86	86	2
155	S101393	72	72	2
155	S102088	298	298	2
155	S102189	86	86	2
155	S103690	514	514	2
155	S103090	169	169	2

17,404

**Metals and pH TMDLs for the Monongahela Watershed**

**Table 5a.** Aluminum baseline conditions and allocations (LAs) for nonpoint sources

SWS	AML		Nonpoint Source		Revoked Mines		Requires Reduction
	Baseline Load (lb/yr)	Allocated Load (lb/yr)	Baseline Load (lb/yr)	Allocated Load (lb/yr)	Baseline Load (lb/yr)	Allocated Load (lb/yr)	
41	0	0	1,806	1,806	0	0	
42	0	0	1,488	1,488	0	0	
43	0	0	1,119	1,119	0	0	
44	0	0	9	9	0	0	
88	44	44	1,352	1,352	0	0	
89	0	0	868	868	0	0	
122	0	0	516	516	5	5	
123	0	0	999	999	18	18	
124	0	0	7	7	0	0	
125	0	0	312	312	0	0	
126	0	0	132	132	0	0	
127	0	0	49	49	0	0	
128	38	38	890	890	0	0	
129	210	210	730	730	0	0	
130	0	0	606	606	16	16	
137	0	0	2,511	2,511	0	0	
138	159	159	1,641	1,641	0	0	
139	0	0	21	21	0	0	
140	0	0	234	234	0	0	
141	650	650	225	225	35	35	
143	0	0	124	124	0	0	
144	0	0	11	11	0	0	
145	94	94	167	167	0	0	
154	0	0	344	344	0	0	
155	122	122	1,288	1,288	18	18	
160	0	0	39	39	0	0	
161	260	260	2,320	2,320	0	0	

**Metals and pH TMDLs for the Monongahela Watershed**

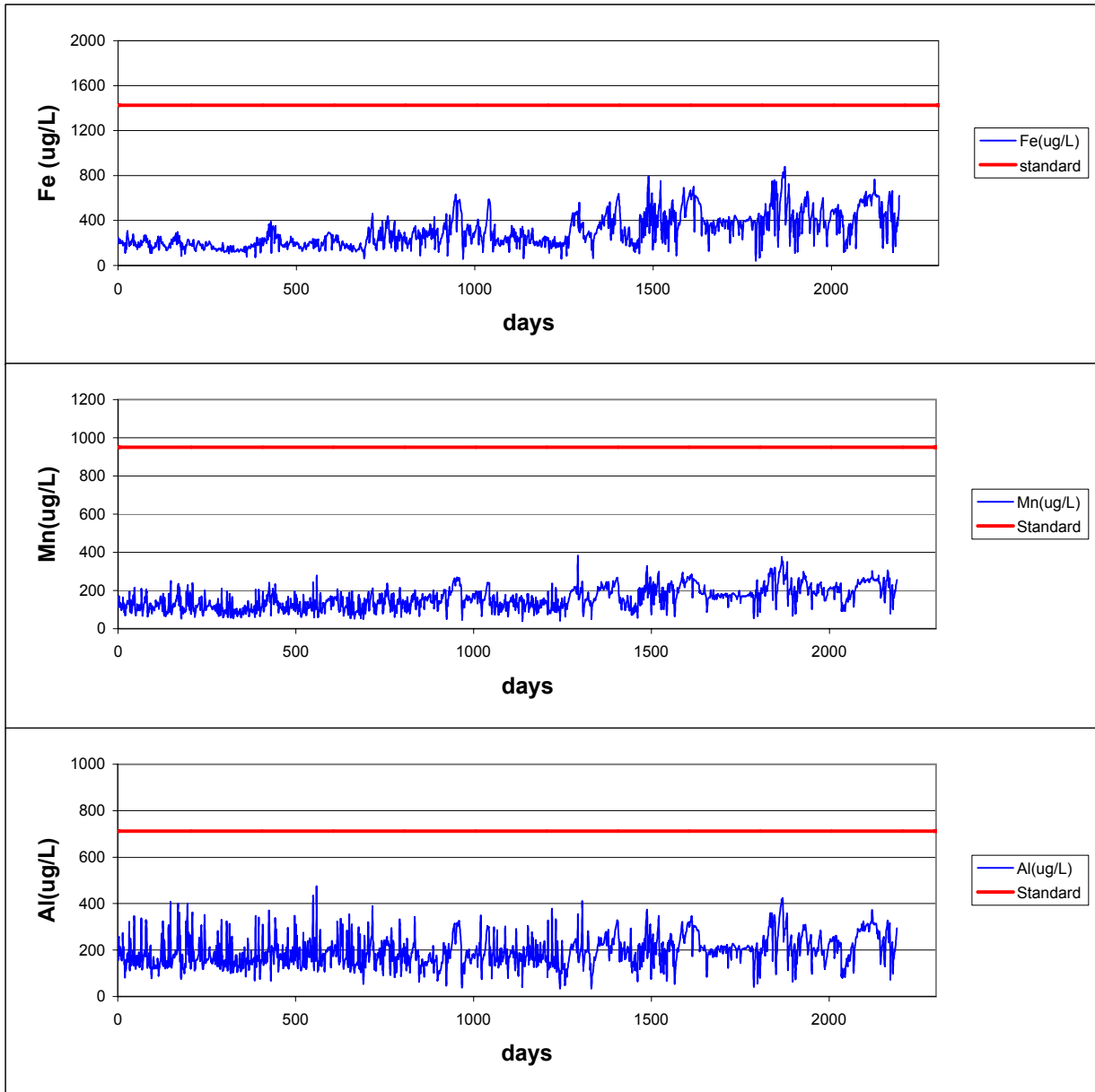
**Table 5b.** Iron baseline conditions and allocations (LAs) for nonpoint sources

SWS	AML		Nonpoint Source		Revoked Mines		Requires Reduction
	Baseline Load (lb/yr)	Allocated Load (lb/yr)	Baseline Load (lb/yr)	Allocated Load (lb/yr)	Baseline Load (lb/yr)	Allocated Load (lb/yr)	
41	0	0	3,047	3,047	0	0	
42	0	0	2,509	2,509	0	0	
43	0	0	2,488	2,488	0	0	
44	0	0	16	16	0	0	
88	146	146	3,295	3,295	0	0	
89	0	0	1,948	1,948	0	0	
122	0	0	1,327	1,327	13	13	
123	0	0	2,664	2,664	49	49	
124	0	0	15	15	0	0	
125	0	0	791	791	0	0	
126	0	0	359	359	0	0	
127	0	0	92	92	0	0	
128	117	117	2,343	2,343	0	0	
129	780	780	1,913	1,913	0	0	
130	0	0	1,674	1,674	43	43	
137	0	0	5,347	5,347	0	0	
138	594	594	4,258	4,258	0	0	
139	0	0	54	54	0	0	
140	0	0	675	675	0	0	
141	692	692	613	613	136	136	
143	0	0	248	248	0	0	
144	0	0	19	19	0	0	
145	377	377	411	411	0	0	
154	0	0	923	923	0	0	
155	413	413	3,451	3,451	60	60	
160	0	0	71	71	0	0	
161	994	994	3,963	3,963	0	0	

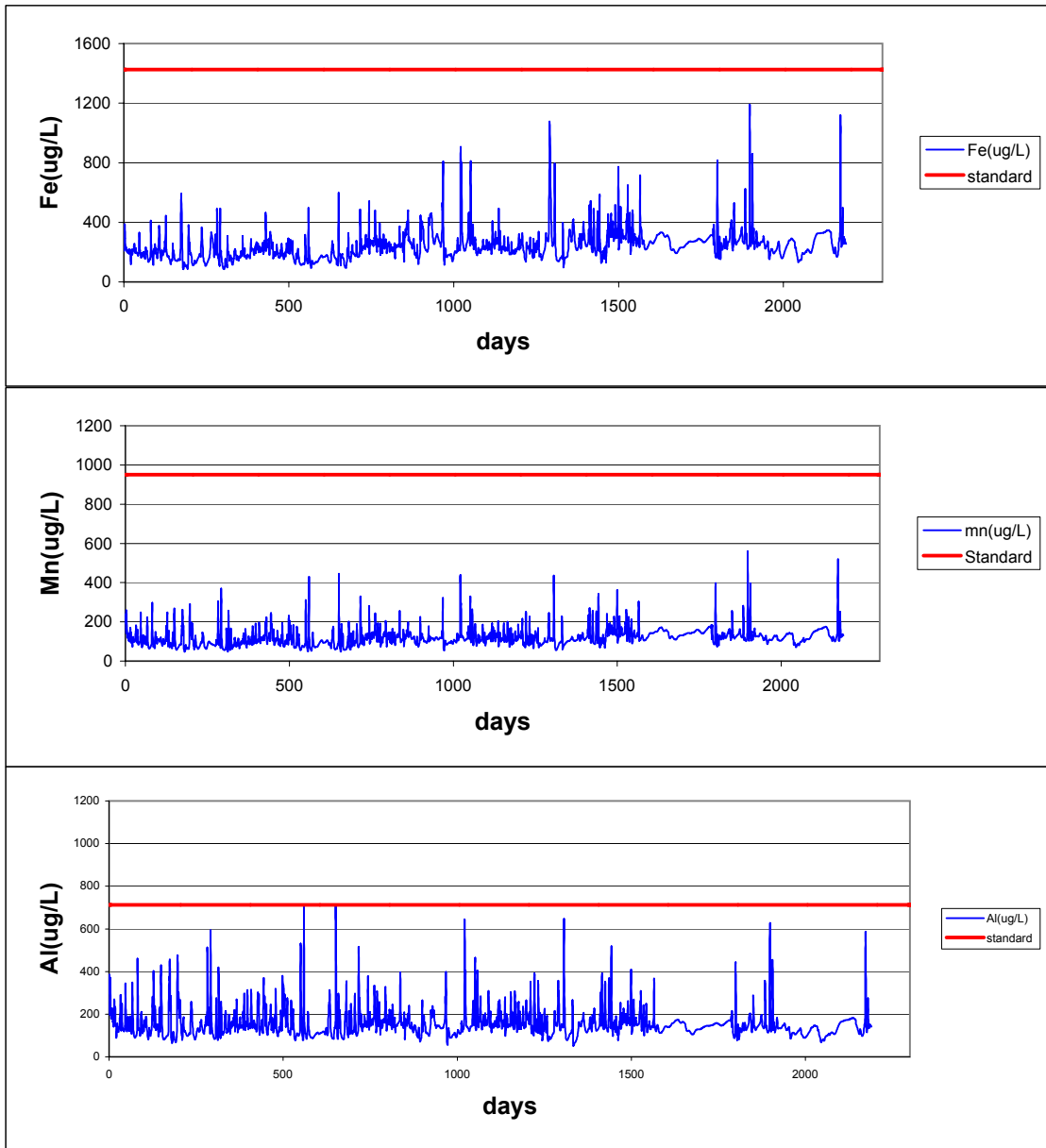
**Metals and pH TMDLs for the Monongahela Watershed**

**Table 5c.** Manganese baseline conditions and allocations (LAs) for nonpoint sources

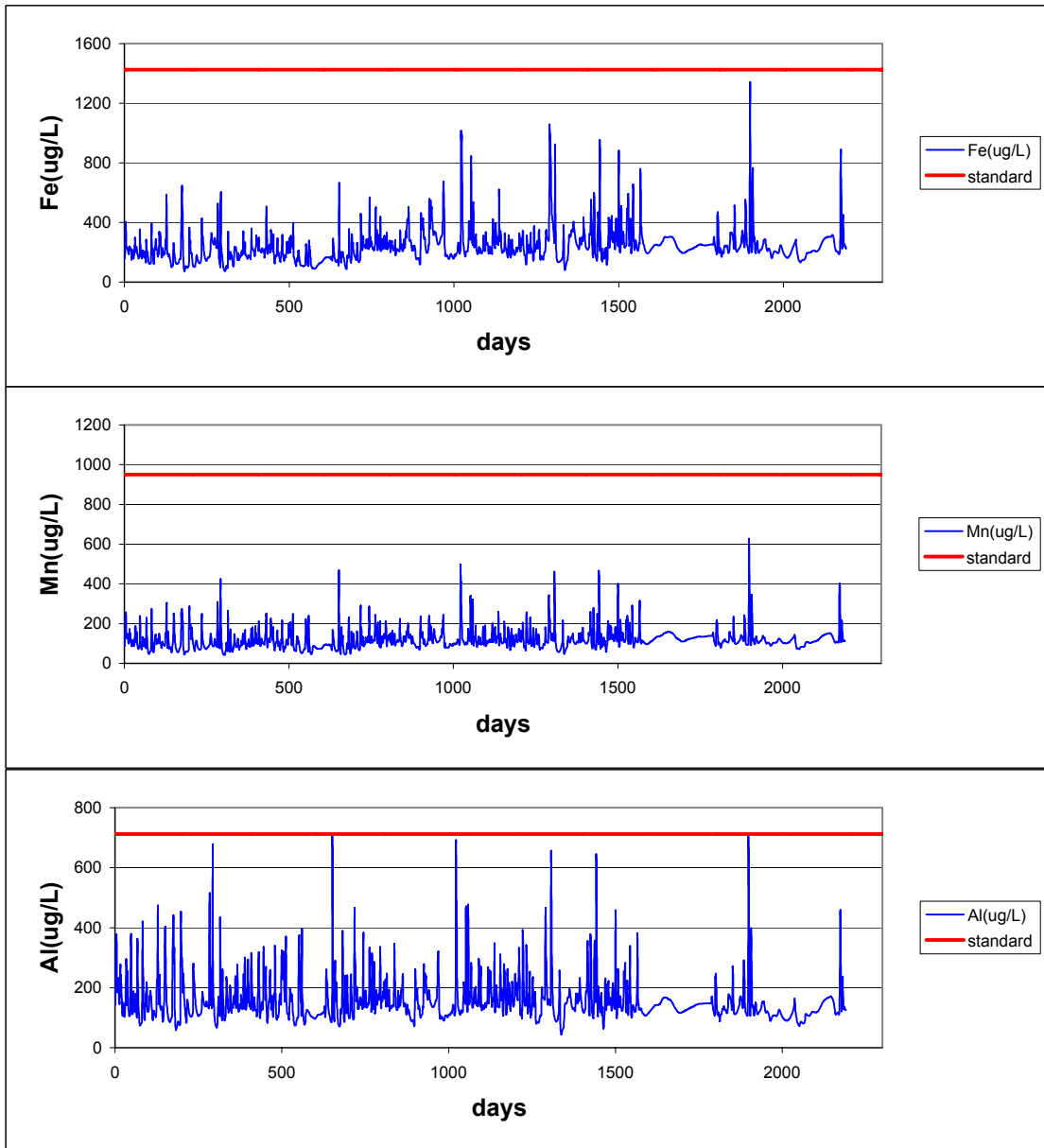
SWS	AML		Nonpoint Source		Revoked Mines		Requires Reduction
	Baseline Load (lb/yr)	Allocated Load (lb/yr)	Baseline Load (lb/yr)	Allocated Load (lb/yr)	Baseline Load (lb/yr)	Allocated Load (lb/yr)	
41	0	0	1,101	1,101	0	0	
42	0	0	907	907	0	0	
43	0	0	573	573	0	0	
44	0	0	6	6	0	0	
88	47	47	622	622	0	0	
89	0	0	436	436	0	0	
122	0	0	214	214	2	2	
123	0	0	393	393	7	7	
124	0	0	4	4	0	0	
125	0	0	137	137	0	0	
126	0	0	51	51	0	0	
127	0	0	29	29	0	0	
128	37	37	359	359	0	0	
129	168	168	301	301	0	0	
130	0	0	225	225	6	6	
137	0	0	1,290	1,290	0	0	
138	141	141	672	672	0	0	
139	0	0	8	8	0	0	
140	0	0	81	81	0	0	
141	562	562	85	85	29	29	
143	0	0	70	70	0	0	
144	0	0	7	7	0	0	
145	75	75	73	73	0	0	
154	0	0	138	138	0	0	
155	86	86	502	502	13	13	
160	0	0	22	22	0	0	
161	222	222	1,392	1,392	0	0	



**Figure 2.** In-Stream TMDL Conditions for Monongahela River Mainstem at Cell 1 (Near Fairmont, WV)



**Figure 3.** In-Stream TMDL Conditions for Monongahela River Mainstem at Cell 22 (Near Little Falls, WV)



**Figure 4.** In-Stream TMDL Conditions for Monongahela River Mainstem at Cell 36 (Near Van Voorhis, WV)



**Appendix B**

**Mining Permits  
in the Monongahela Watershed**

Permit ID	NPDES ID	Mine Type	Status	Current Area <sup>A</sup> (ac)	Original Area <sup>B</sup> (AC)	Facility Name	NPDES Status	County	Inspector
d007982	WV0062693	Coal Underground	Revoked	10	17	Omega Mining Co Inc			
e004100	WV1007050	Coal Underground	New	39	33	Patriot Mining Company, Inc.			
i046800	WV0066192	Coal Surface Min	New	2	2	Coaltrain Corporation			
i066300	WV1002783	Coal Surface Min	Inactive	2	2	Patriot Mining Company, Inc.			
o000383	WV0004553	Other	Phase 1 Released	10	10	North Marion Development, Inc			
o000583	WV0004537	Other	Renewed	124	110	Triplett Brothers Excavating, Inc.			
o002183		Other	Inactive	80	80	Triplett Brothers Excavating, Inc.			
o002283		Other	Revoked	0	12	51 Systems			
o002483		Other	Phase 1 Released	31	22	Eastern Associated Coal Corp.			
o003485	WV0098264	Other	Renewed	74	58	Patriot Mining Company, Inc.			
o006383		Other	Renewed	13	13	Coresco, Inc.			
o007782	WV0098850	Other	Revoked	0	6	Wocap Energy Resources, Inc			
o008283		Other	Renewed	13	13	Coresco, Inc.			
o013283	WV0065218	Other	Renewed	32	32	Preston County Coal and Coke Corpora			
o014583	WV1010298	Other	Renewed	11	11	Sharon Coal co			
o100399	WV1017438	Reprocessing	New	126	126	American Bituminous Power Partners,			
o100589	WV1007602	Other	Renewed	32	32	Patriot Mining Company, Inc.			
o101593		Other	New	107	107	Coresco, Inc.			
o102292	WV0046612	Other	Renewed	227	227	Beard Technologies, Inc.			
o104491	WV0040711	Other	Renewed	64	64	Consolidation Coal Company			
p100200		Prospect	New	0	0	Martinka Coal Company			
p100300		Prospect	New	0	0	Coresco, Inc.			
p100500		Prospect	New	1	1	Patriot Mining Company, Inc.			
p100600		Prospect	New	0	0	Coresco, Inc.			
p100696		Prospect	New	1	1	Mepco, Inc.			
p100800		Prospect	New	1	1	Dana Mining Company, Inc.			
p101399		Prospect	New	1	1	Hidden Valley Estates Golf			

Permit ID	NPDES ID	Mine Type	Status	Current Area <sup>A</sup> (ac)	Original Area <sup>B</sup> (AC)	Facility Name	NPDES Status	County	Inspector
						Course In			
p101499		Prospect	New	1	1	Patriot Mining Company, Inc.			
p101698		Prospect	New	5	5	Patriot Mining Company, Inc.			
r000282		Reprocessing	Inactive	46	46	Triplett Brothers Excavating, Inc.			
r075400		Other	Inactive	17	12	Patriot Mining Company, Inc.			
r103888		Reprocessing	Renewed	77	196	Triplett Brothers Excavating, Inc.			
s000884	WV0067989	Coal Surface Min	Revoked	19	52	Morgantown Energy Export co			
s001584	WV0067954		Phase 1 Released	22	60	Patriot Mining Company, Inc.			
s001780		Coal Surface Min	Renewed	68	68	Patriot Mining Company, Inc.			
s002382	WV1006771	Coal Surface Min	Revoked	0	37	J.a.I. Coal Co Inc			
s002483	WV0044695	Coal Surface Min	Phase 1 Released	17	15	Dean Fuels Inc			
s005580		Coal Surface Min	Phase 1 Released	19	19	Patriot Mining Company, Inc.			
s005876		Coal Surface Min	Phase 1 Released	75	75	Patriot Mining Company, Inc.			
s006285	WV0098434	Coal Surface Min	Revoked	23	55	Pinnacle Mining Co of N wv			
s008080		Coal Surface Min	Renewed	72	72	Patriot Mining Company, Inc.			
s010482	WV0067148	Coal Surface Min	Revoked	0	86	Coal Resources Inc			
s011482		Coal Surface Min	Renewed	27	28	Patriot Mining Company, Inc.			
s011775		Coal Surface Min	Phase 1 Released	0	75	Patriot Mining Company, Inc.			
s023276	WV1007432	Coal Surface Min	Renewed	47	35	L & M Tool Co., Inc.			
s100297		Coal Surface Min	New	163	132	Patriot Mining Company, Inc.			
s100394		Coal Surface Min	New	62	102	Shafer Brothers Construction, Inc.			
s100398	WV1017349	Coal Surface Min	New	58	58	Land Reclamation Systems, Inc			
s100495		Coal Surface Min	New	241	232	Patriot Mining Company, Inc.			
s100500		Coal Surface Min	New	86	86	Patriot Mining Company, Inc.			
s100594		Coal Surface Min	New	48	48	Patriot Mining Company, Inc.			
s100694	WV1011511	Coal Surface Min	New	5	5	Shafer Brothers Construction,			

Permit ID	NPDES ID	Mine Type	Status	Current Area <sup>A</sup> (ac)	Original Area <sup>B</sup> (AC)	Facility Name	NPDES Status	County	Inspector
						Inc.			
s100698	WV1017373	Coal Surface Min	New	158	158	Patriot Mining Company, Inc.			
s100797	WV1017276	Coal Surface Min	New	100	99	Patriot Mining Company, Inc.			
s100894	WV1011545	Coal Surface Min	New	19	19	Geupel Construction Co Inc			
s100895	WV1011626	Coal Surface Min	Renewed	204	178	Patriot Mining Company, Inc.			
s100896	WV1011731	Coal Surface Min	New	164	287	Coresco, Inc.			
s101092		Coal Surface Min	Renewed	22	22	Patriot Mining Company, Inc.			
s101688	WV1007441	Coal Surface Min	Phase 1 Released	228	224	Amerikohl Mining, Inc.			
s102186	WV0098949	Coal Surface Min	Revoked	0	30	Pinnacle Mining Co of N wv			
s102192		Coal Surface Min	Renewed	139	129	Black Hawk Mining Inc			
s102788		Coal Surface Min	Phase 1 Released	55	39	Amerikohl Mining, Inc.			
s102886	WV0099171	Coal Surface Min	Revoked	0	120	Pinnacle Mining Co of N wv			
s103190	WV1010255	Coal Surface Min	Inactive	75	43	Patriot Mining Company, Inc.			
s103289		Coal Surface Min	Revoked	0	59	Coal Stripping, Inc			
s103390		Coal Surface Min	Renewed	86	77	Patriot Mining Company, Inc.			
s103489	WV0095311	Coal Surface Min	Renewed	65	65	Shafer Brothers Construction, Inc.			
s103490	WV1010310	Coal Surface Min	Revoked	43	73	Coal Stripping, Inc			
s103690		Coal Surface Min	Renewed	71	50	Shafer Brothers Construction, Inc.			
s103891		Coal Surface Min	Renewed	29	28	Patriot Mining Company, Inc.			
s104291	WV0098957	Coal Surface Min	Revoked	15	15	Jamesway Coal co			
s105586		Coal Surface Min	Revoked	0	86	Pinnacle Mining Co of N wv			
s105786	WV0099023	Coal Surface Min	Renewed	24	24	Coresco, Inc.			
s106186	WV0099058	Coal Surface Min	Phase 1 Released	10	10	Scjl Co-leasing, Inc			
s107086	WV1002708	Coal Surface Min	Phase 1 Released	19	49	Patriot Mining Company, Inc.			
s108486	WV1002864	Coal Surface Min	Revoked	10	31	Sand Ridge Coal co			
u000283		Coal	Phase 1	30	20	Eastern			

Permit ID	NPDES ID	Mine Type	Status	Current Area <sup>A</sup> (ac)	Original Area <sup>B</sup> (AC)	Facility Name	NPDES Status	County	Inspector
		Underground	Released			Associated Coal Corp.			
u000883	WV0095451	Coal Underground	Revoked	0	11	Morgantown Energy Export co			
u003784	WV0064785	Coal Underground	Phase 1 Released	3	5	Condor Development Corp			
u007683	WV1007394		Renewed	10	6	Dana Mining Company, Inc.			
u007883		Coal Underground	Renewed	892	460	Consolidation Coal Company			
u008683	WV0003450	Coal Underground	Renewed	213	145	Consolidation Coal Company			
u012883	WV1002546	Coal Underground	Inactive	129	115	Triplett Brothers Excavating, Inc.			
u014782	WV0063258	Coal Underground	Renewed	7	7	Decondor Coal Company, Inc.			
u016082		Coal Underground	Phase 1 Released	18	7	Dean Fuels Inc			
u018200		Coal Underground	Renewed	18	4	Dana Mining Company, Inc.			
u025100	WV1011715	Coal Underground	Renewed	5	3	Dana Mining Company, Inc.			
u043100		Coal Underground	Inactive	310	26	Consolidation Coal Company			
u053200	WV0091995	Coal Underground	Revoked	4	3	Maiden Mining co			
u100693	WV1011448	Coal Underground	Phase 1 Released	20	20	Mepco, Inc.			
u101293	WV1011481	Coal Underground	Revoked	1	1	Flaggy Meadow Coal Co.			
u103186		Coal Underground	Revoked	7	10	Mon-river Mining Corp			
u105086		Coal Underground	Renewed	29	11	Dana Mining Company, Inc.			
z007781		Coal Surface Min	Phase 1 Released	70	70	Patriot Mining Company, Inc.			
q004674		Quarry	renewed	30	32	GEER LIMESTONE			
s100200		Surface mine	new	67	67	Patriot Mining Company, Inc.			
s100496		Surface mine	new	59	65	COALTRAIN CORPORATION			
s100691		Surface mine	Revoked	20					
s103286		Surface mine	Revoked	38		mon-river mining corp			

Permit ID	NPDES ID	Mine Type	Status	Current Area <sup>A</sup> (ac)	Original Area <sup>B</sup> (AC)	Facility Name	NPDES Status	County	Inspector
u005383		Coal Underground	Renewed	146	146	CONSOLIDATION COAL COMPANY			
u010083		Coal Underground	inactive	457	647	CONSOLIDATION COAL			
u011983		Coal Underground	renewed	394	369	CONSOLIDATION COAL COMPANY			
u007083	WV0038288	Coal Underground	renewed	593	423	CONSOLIDATION COAL COMPANY			
11-82 INC.			Revoked	5	5	GREEN HILLS ENT.			
119-79			Revoked	0	18	S.R.J. ENERGY, INC.			
150-77P			Revoked	0	3	WEST VIRGINIA FUELS, I			
168-76			Revoked	0	40	WEST VIRGINIA FUELS, I			
255-74			Revoked	32	32	W & S, INC.			
33-79			Revoked	0	16	ROBERT WEBB			
40-77			Revoked	0	9	ROBERT WEBB			
51-78			Revoked	40	40	S. KELLY INDUSTRIES			
67-78			Revoked	0	80	STEWARTOWN COAL CORP.			
6-81			Revoked	10	10	ROBERT WEBB			
89-78			Revoked	10	10	EIGHTY FOUR			
D-79-82			Revoked	20	24	OMEGA MINING CO.			
I053900	WV1003011		surface mine	6.9	6.9	CONSOLIDATION COAL COMPANY			
O003382	WV0059242	other	renewed	5.97	5.97	MEPCO, INC.			
O003482	WV1002970	other	renewed	22	15.34	PATRIOT MINING COMPANY, INC.			
O004684	WV1007769	other		11		WESTSIDE RIVER TERMINAL INC			

Permit ID	NPDES ID	Mine Type	Status	Current Area <sup>A</sup> (ac)	Original Area <sup>B</sup> (AC)	Facility Name	NPDES Status	County	Inspector
O004685	WV0095184	other		10		WESTSIDE RIVER TERMINAL INC			
O008482	WV0091421	other	renewed	5	5	VANCE RIVER TERMINAL, INC.			
O016683	WV0090859	other	renewed	3.86	3.86	PATRIOT MINING COMPANY, INC.			
O016783	WV1007475	other		5.3		MON-VALLEY COAL & LUMBER CO			
O102292	WV0046612	other	renewed	227	227	CONSOLIDATION COAL COMPANY			
O104287	WV0063321	other	active	4	3.65	HOULT DEVELOPMENT CO			
P-1014-86			Revoked	3	2	NORTHERN W.VA. FUELS,			
P-1022-88			Revoked	2	2	TERRA CONTRACTORS			
P-69-84			Revoked	0	1	COLONIAL COAL			
Q004674	WV0047848	other	renewed	32	32	GREER LIMESTONE COMPANY			
Q101992		other	renewed	69.5	69.5	GREER LIMESTONE COMPANY			
R075400		other	inactive	17	12.28	PATRIOT MINING COMPANY, INC.			
S000977	WV1006789	surface mine		60.8		PATRIOT MINING COMPANY, INC.			
S003682	WV1002856	surface mine		35.2		KING KNOB COAL CO INC			
S004484	WV0068365	surface mine		4.6		J & D COAL CO			
S005679		surface mine	phase 1 released	94.5	94.5	KING KNOB COAL CO INC			

Permit ID	NPDES ID	Mine Type	Status	Current Area <sup>A</sup> (ac)	Original Area <sup>B</sup> (AC)	Facility Name	NPDES Status	County	Inspector
S006679	WV0099155	surface mine		251		KING KNOB COAL CO INC			
S007785	WV0098108	surface mine		43.56		THOMPSON COAL & CONST INC			
S008584	WV0068403	surface mine		6		ED-E DEVELOPMENT CO INC			
S100288	WV1007211	surface mine		43.63		J & B COAL COMPANY			
S100400	WV1017462	surface mine	new	14	14	SHAFER BROTHERS CONSTRUCTIO N, INC			
S-1006-91			Revoked	8	41	DOVE ENTERPRISES, INC.			
S-1007-86			Revoked	12	12	J & D COAL CO., INC.			
S-1009-88			Revoked	30	30	GOLDEN PRODUCTS CO.			
S101095	WV1011651	surface mine		63.52		STANLEY INDUSTRIES, INC.			
S-1011-89			Revoked	26	24	AS& K, INC.			
S101393	WV1007424	surface mine		10		SHAFER BROTHERS CONSTRUCTIO N, INC			
S101786	WV0098418	surface mine		4.4		B.L. & S. COAL CO, INC			
S101786		surface mine		13.2		B.L. & S. COAL CO, INC			
S102088	WV1007424	surface mine		41.51		SHAFER BROTHERS CONSTRUCTIO N, INC			
S102189	WV1006819	surface mine		12		SHAFER BROTHERS CONSTRUCTIO N, INC			
S102189	WV1007424	surface mine		12		SHAFER BROTHERS CONSTRUCTIO N, INC			



Permit ID	NPDES ID	Mine Type	Status	Current Area <sup>A</sup> (ac)	Original Area <sup>B</sup> (AC)	Facility Name	NPDES Status	County	Inspector
S102686		surface mine		10		KING KNOB COAL CO INC			
S-1027-89			Revoked	7	7	JADA COAL CO.			
S-1028-86			Revoked	90	120	PINNACLE MINING CO.			
S103090	WV1010271	surface mine		23.54		B.L. & S. COAL CO, INC			
S-1032-89			Revoked	34	37	COAL STRIPPING, INC.			
S103290		surface mine		15.6		PATRIOT MINING COMPANY, INC.			
S103690		surface mine	phase 1 released	71.5	50	SHAFER BROTHERS CONSTRUCTIO N, INC			
S-104-82			Revoked	85	86	MORGANTOWN ENERGY			
S105186	WV1002571	surface mine	phase 1 released	196.79	231	LAROSA FUEL COMPANY, INC.			
S-1054-86			Revoked	12	12	JADA COAL CO.			
S-1087-86			Revoked	30	37	beEFSTEAK MINING CO.			
S-17-82			Revoked	45	62	VALLEY MINING CO.			
S-21-84			Revoked	28	28	Z & F DEVELOPMENT CO.			
s-24-83			Revoked	18	18	DEAN FUELS, INC.			
S-31-84			Revoked	20	22	CHAD FUELS, INC.			
S-33-83			Revoked	19	19	HILLCREST CONST. CO.,			
S-3-83			Revoked	6	13	STANYA COAL CO.			
S-44-84			Revoked	11	16	J & D COAL CO.			
S-68-84			Revoked	5	5	B & G COAL CO.			
S-77-83			Revoked	34	76	USE COAL, INC.			

# Metals and pH TMDLs for the Monongahela Valley River Watershed

Permit ID	NPDES ID	Mine Type	Status	Current Area <sup>A</sup> (ac)	Original Area <sup>B</sup> (AC)	Facility Name	NPDES Status	County	Inspector
S-77-85			Revoked	90	115	THOMPSON COAL & CONST.			
U007083	WV0038288	Coal underground	renewed	423	593.5	CONSOLIDATIO N COAL COMPANY			
U011983		Coal underground	renewed	369.08	394.12	CONSOLIDATIO N COAL COMPANY			
U-1077-86			Revoked	10	10	ERIC EXCAVATING & TRUC			
U-109-83			Revoked	23	18	MOHIGAN MINING CO.			
U-17-85			Revoked	12	11	SPHINX SERVICE CORP.			

<sup>A</sup> Current Area - Surface disturbed area of permitted mines(April 2001)

<sup>B</sup> Original Area - Surface disturbed area when mining permit was originally issued

## **Appendix C**

# **Hydrology and Water Quality Calibration and Validation Results**

# Hydrology Calibration

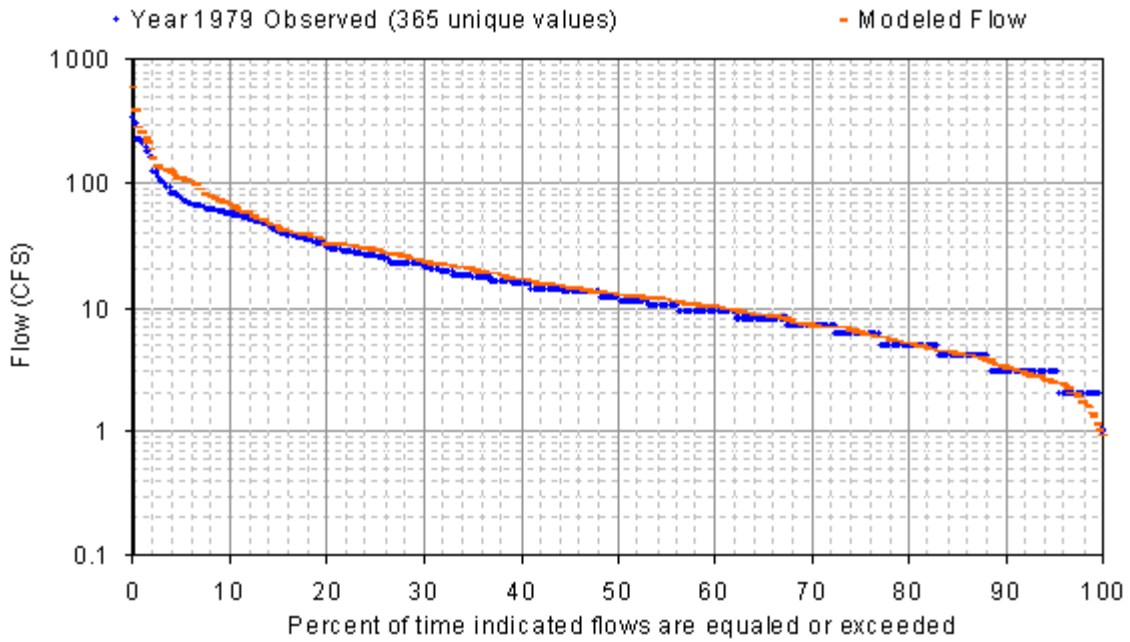


Figure C-1. Indian Creek (USGS 3062215) flow-frequency curve for year 1979

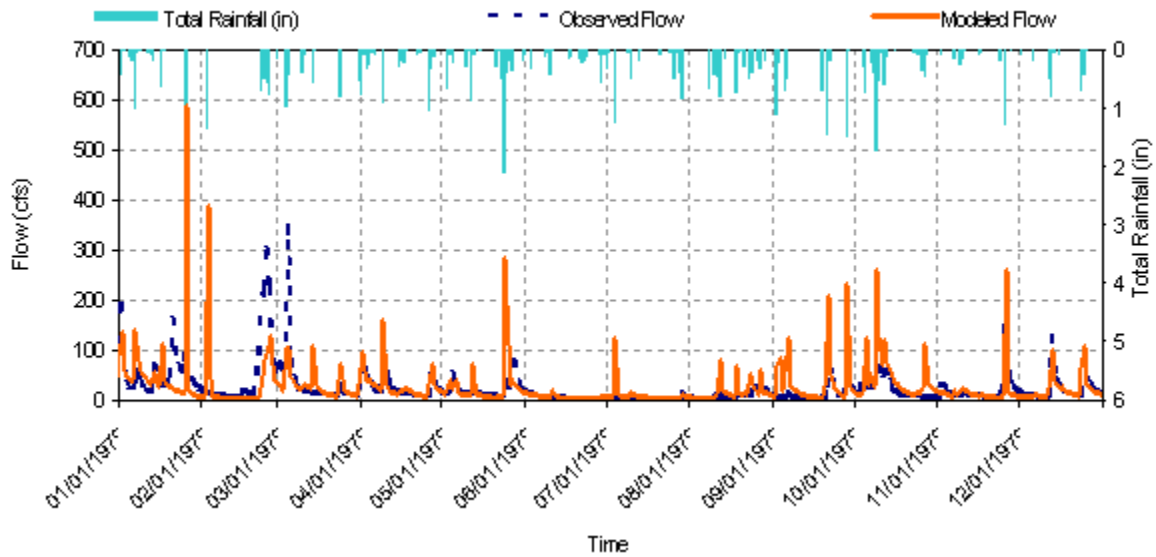
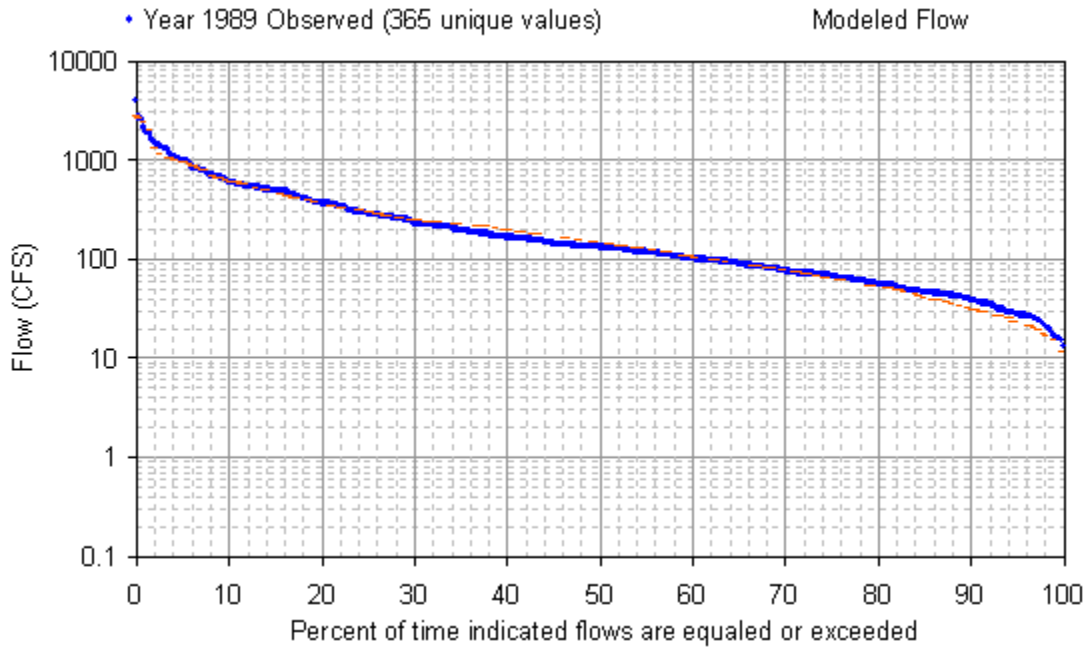
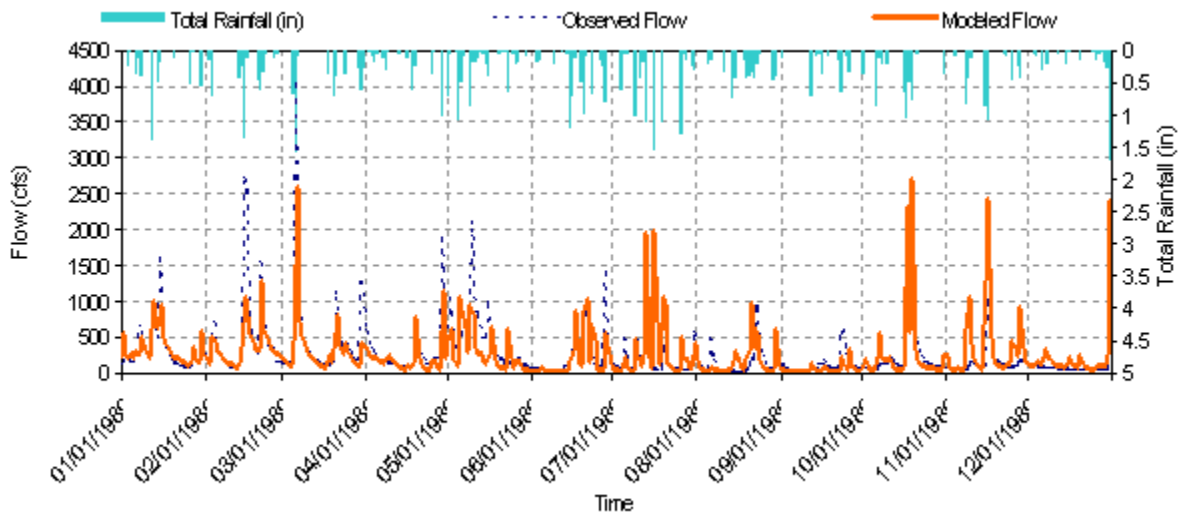


Figure C-2. Temporal calibration results for Indian Creek (USGS 3062215) for year 1979



**Figure C-3.** Buffalo Creek (USGS 3061500) flow-frequency curve for year 1989



**Figure C-4.** Temporal calibration results for Buffalo Creek (USGS 3061500) for year 1989

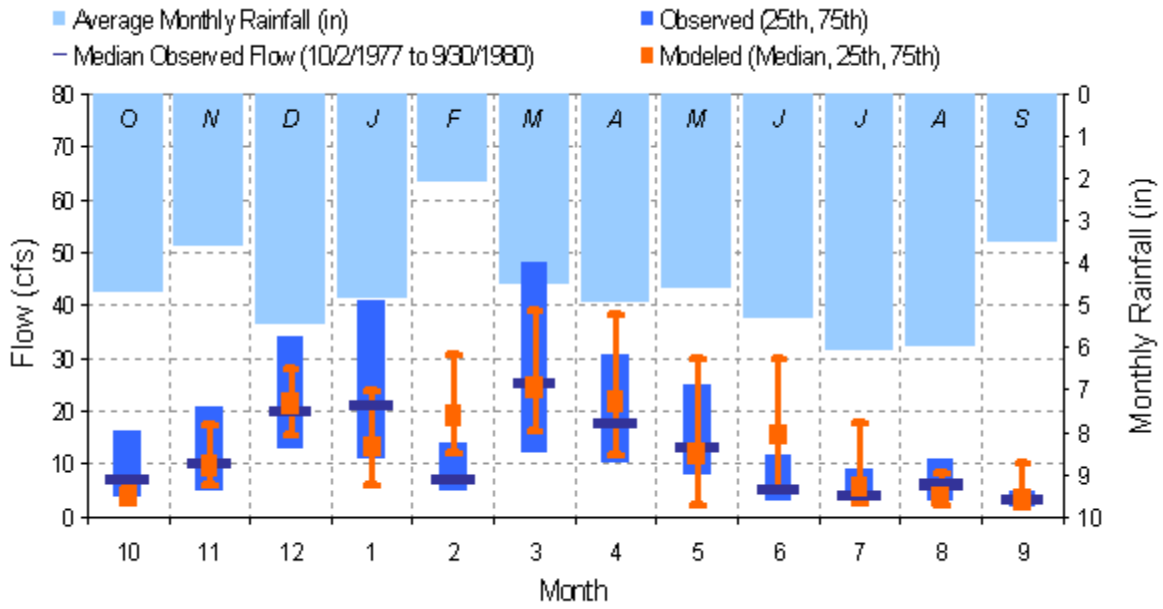


Figure C-5. Indian Creek (USGS 3062215) validation

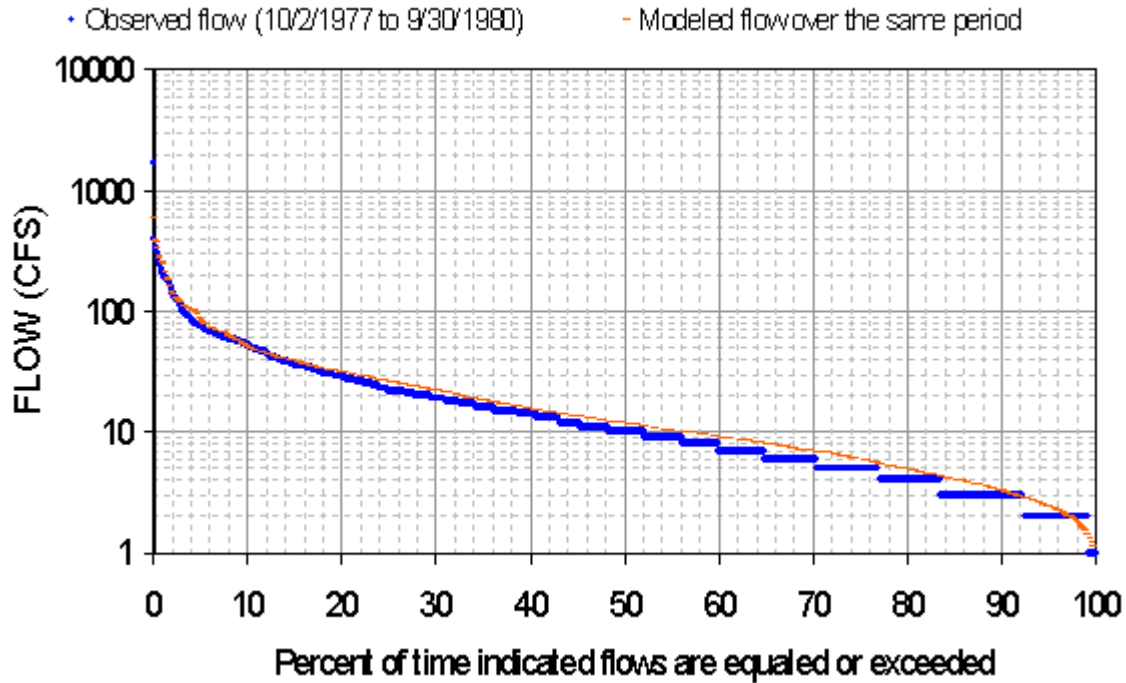
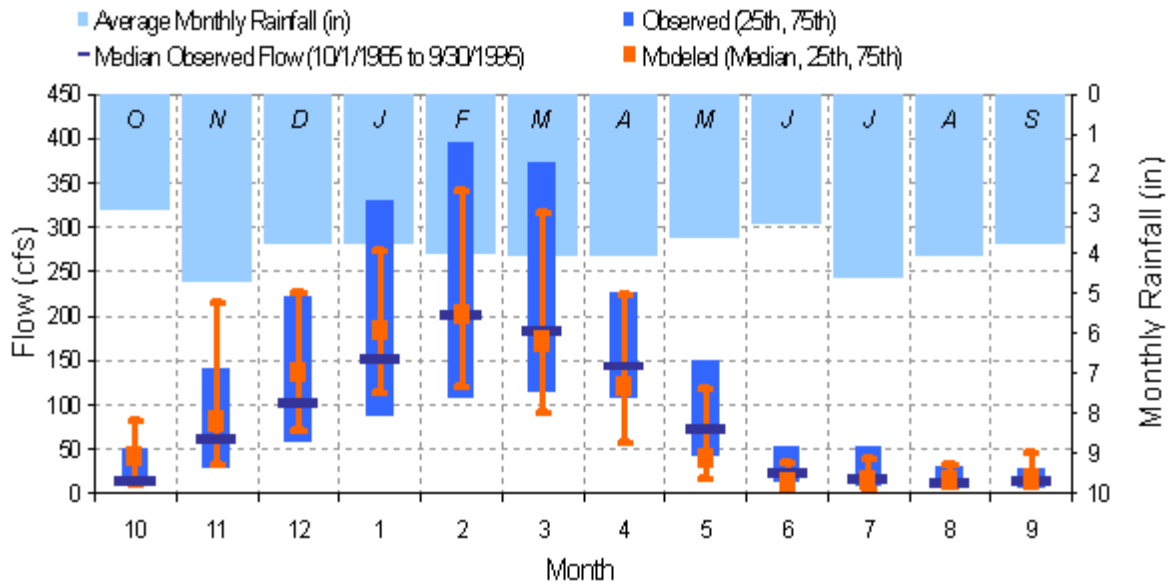
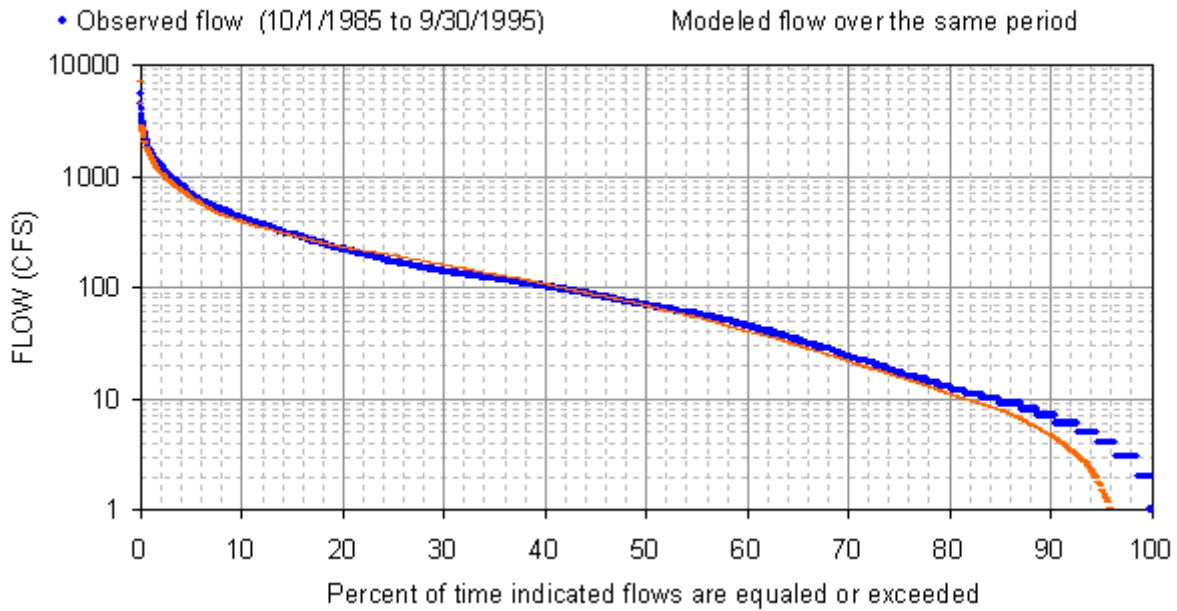


Figure C-6. Indian Creek (USGS 3062215) flow-frequency validation



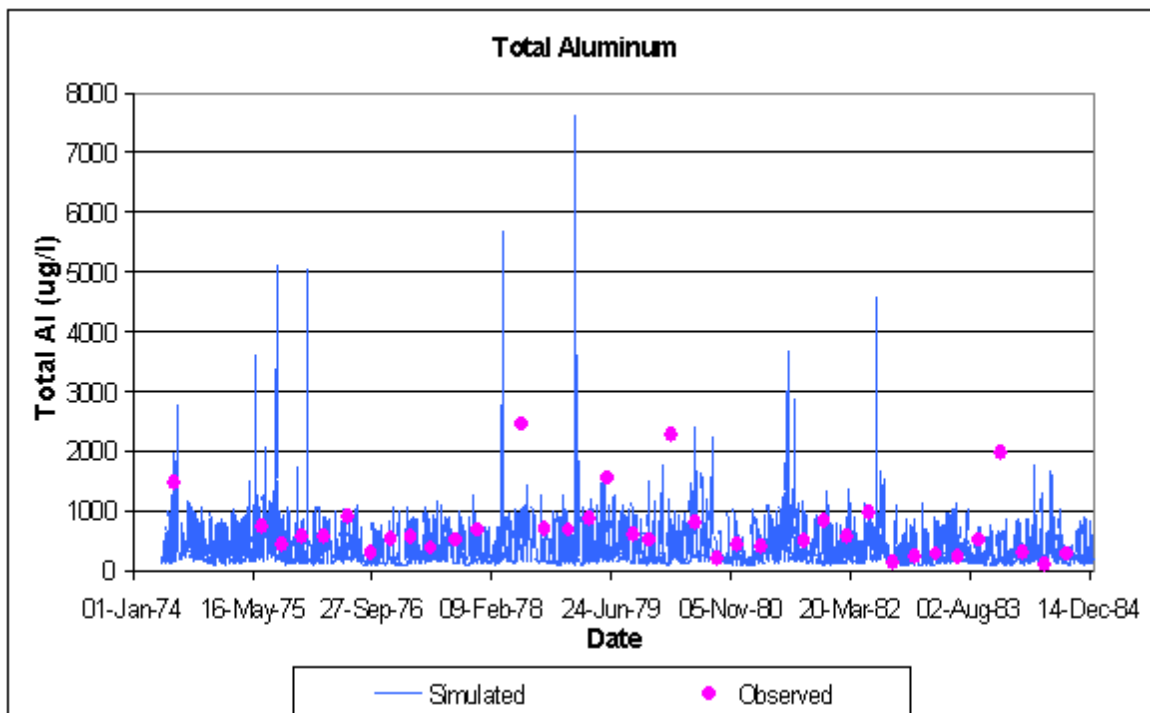
**Figure C-7.** Buffalo Creek (USGS 3061500) validation



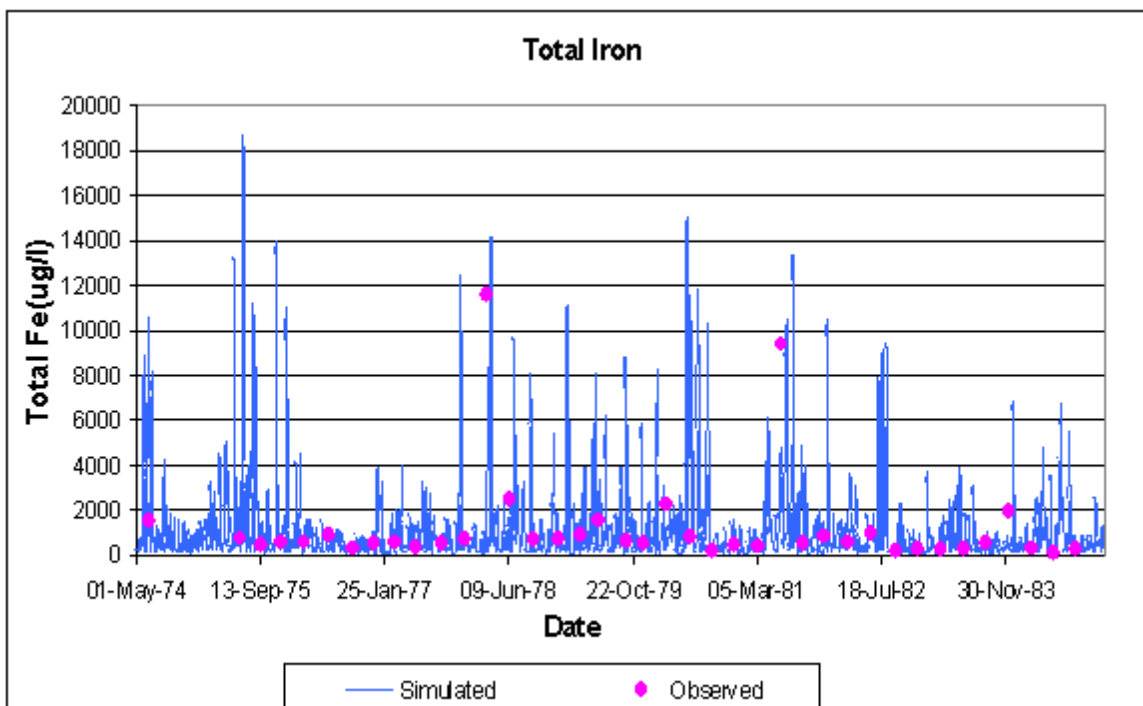
**Figure C-8.** Buffalo Creek (USGS 3061500) flow-frequency validation



## Water Quality Calibration



**Figure C-9.** Water Quality Calibration of Aluminum at Buffalo Creek (550570)



**Figure C-10.** Water Quality Calibration of Iron at Buffalo Creek (550570)

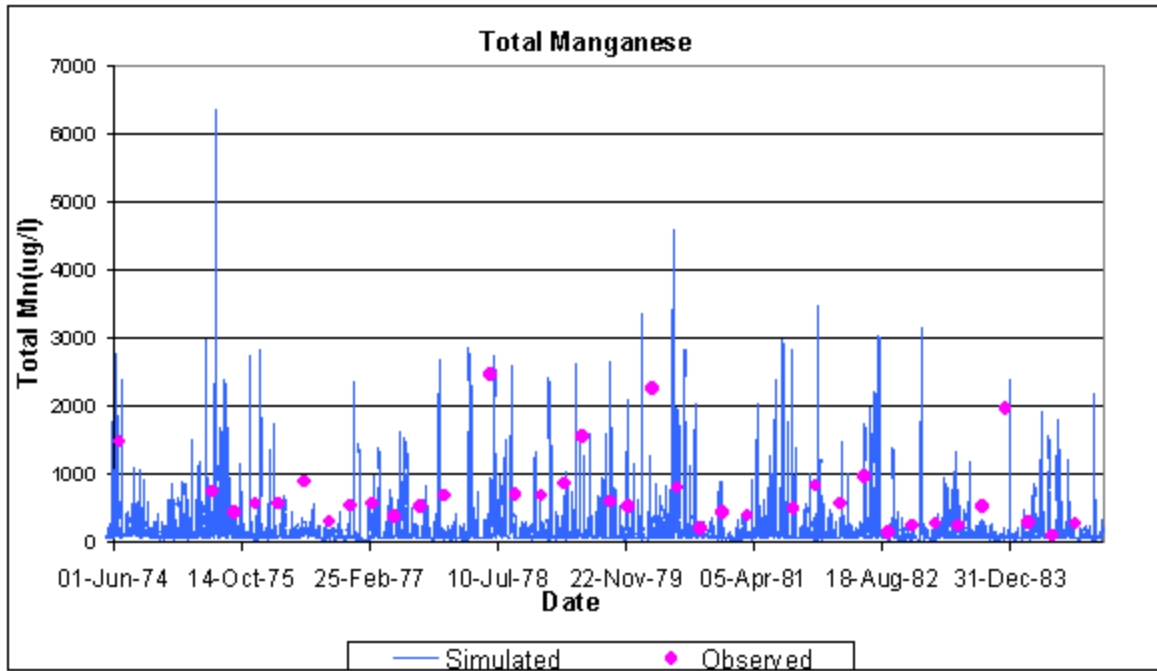


Figure C-11. Water Quality Calibration of Manganese at Buffalo Creek (550570)

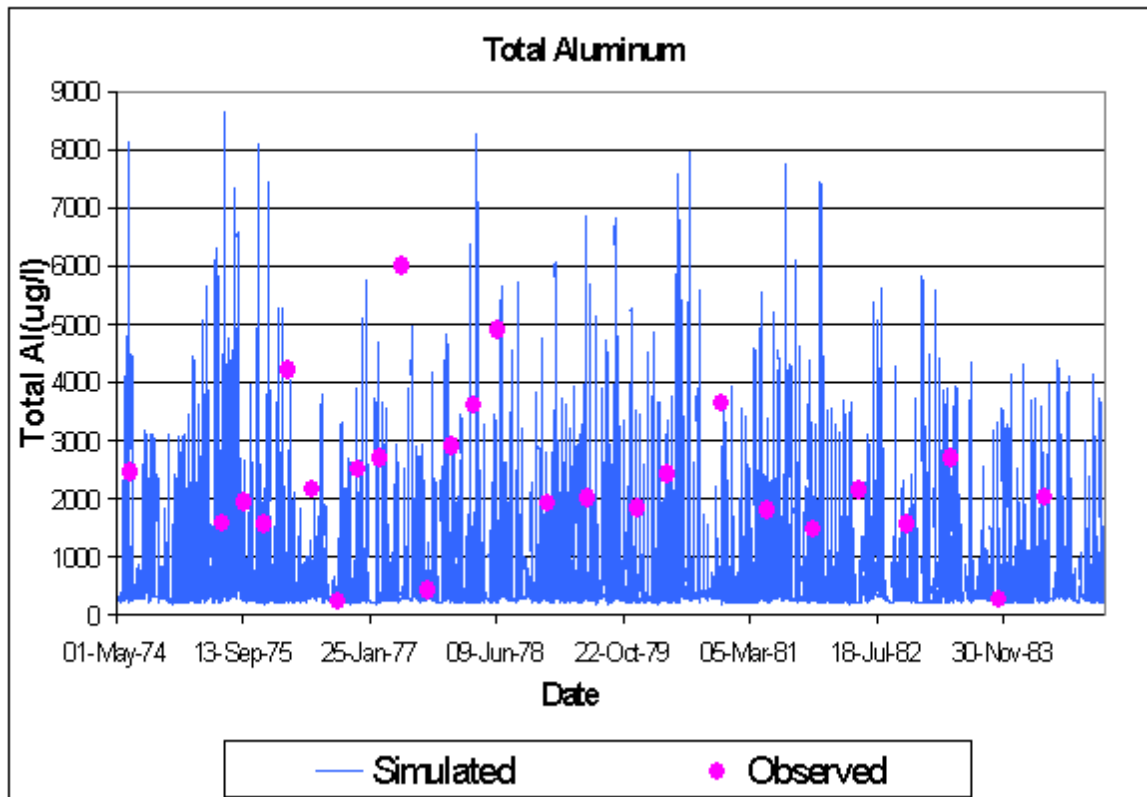
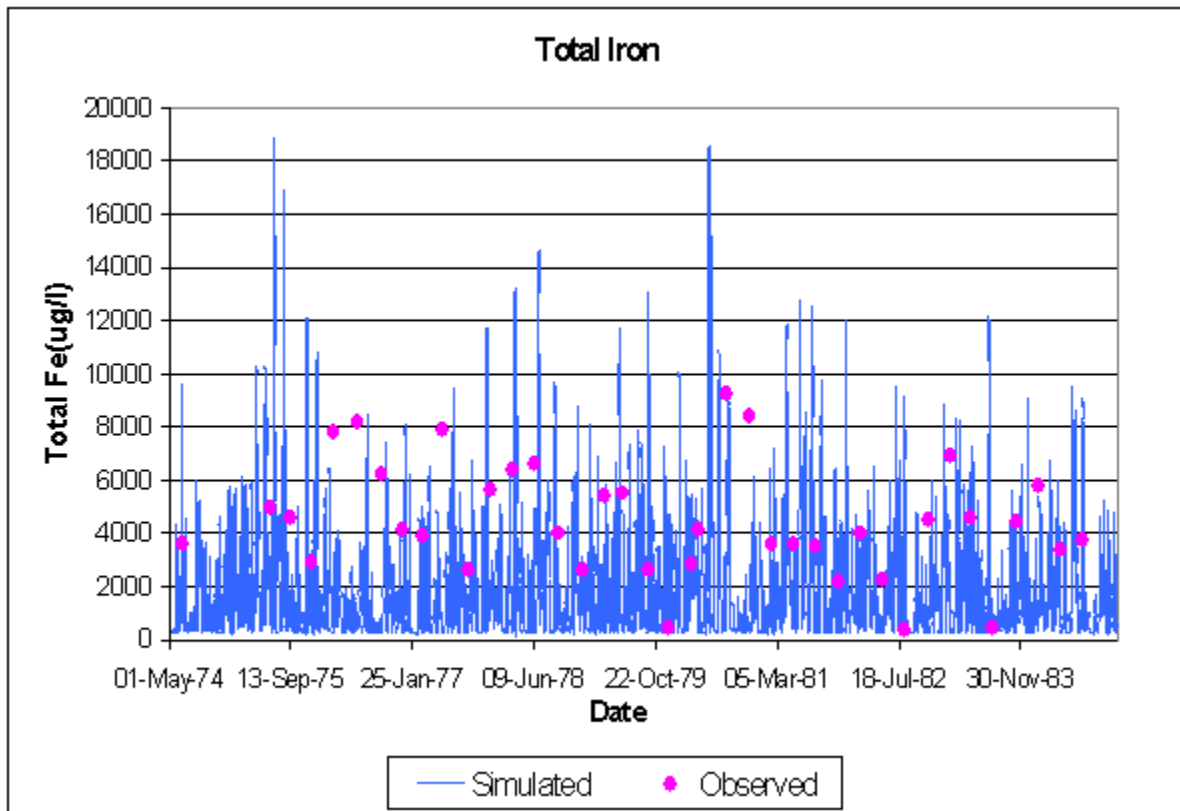
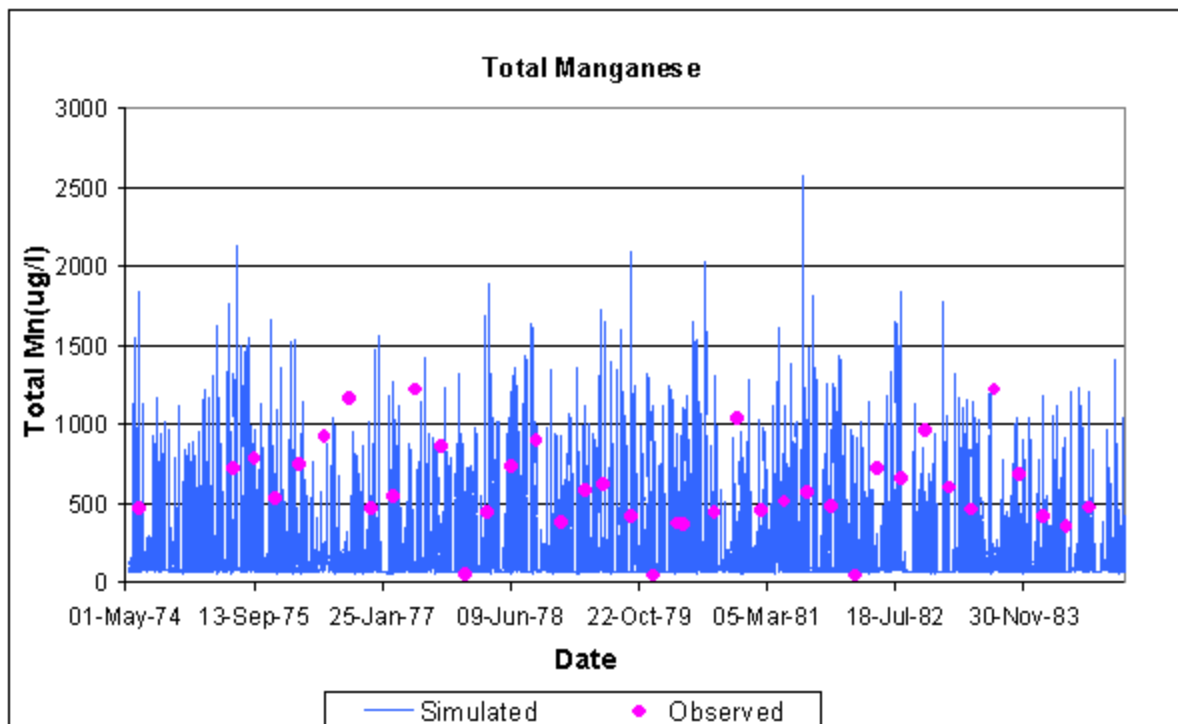


Figure C-12. Water Quality Calibration of Aluminum at Deckers Creek (550565)



**Figure C-13.** Water Quality Calibration of Iron at Deckers Creek (550565)



**Figure C-14.** Water Quality Calibration of Manganese at Deckers Creek (550565)

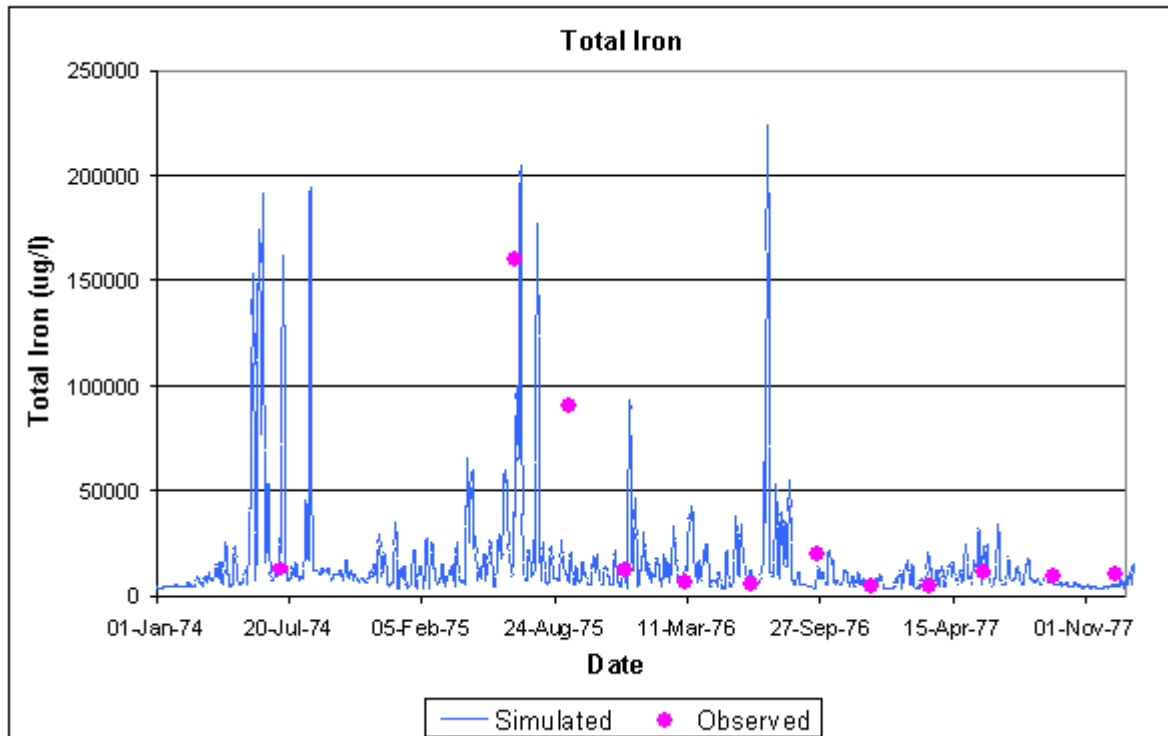


Figure C-15. Water Quality Calibration of Iron at Robinson Run (550563)

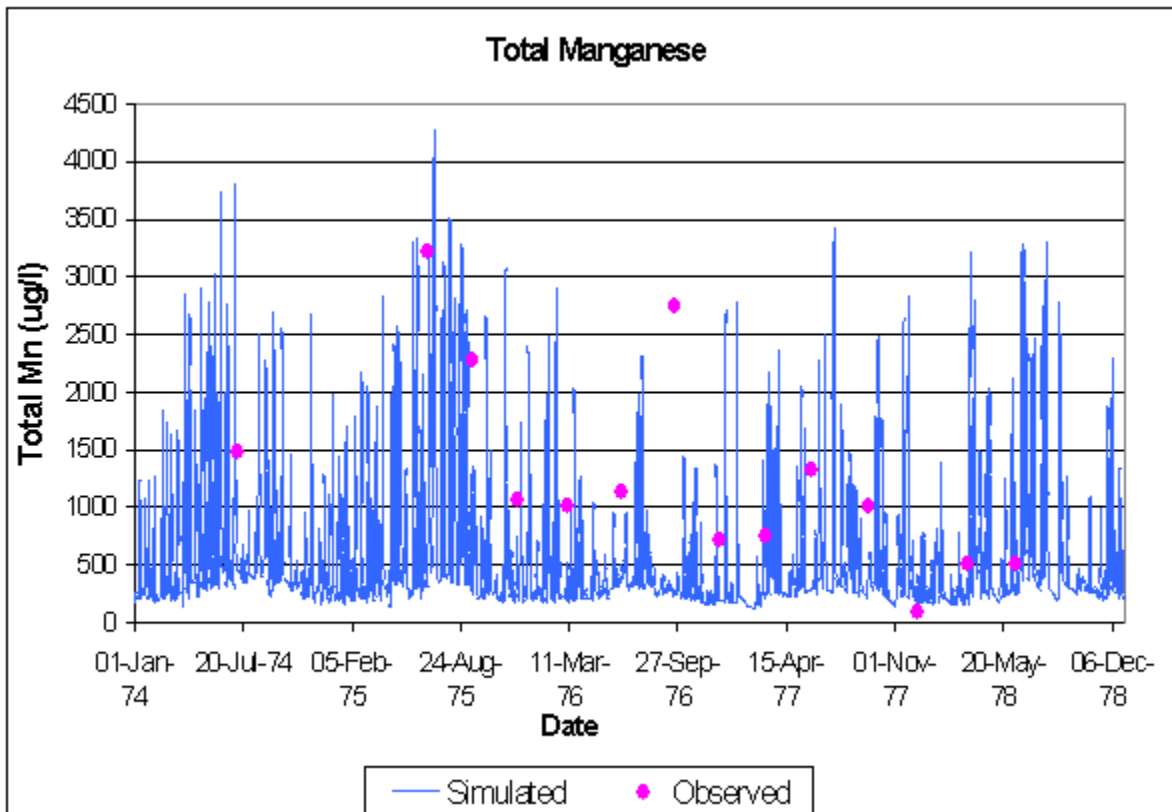


Figure C-16. Water Quality Calibration of Manganese at Robinson Run (550563)