Appendix A

Tug Fork River Watershed Data and TMDLs

Appendix A is divided into three separate sections. Each section provides information for a different region of the Tug Fork River watershed. The map on the following page (Figure A) presents the watershed's 20 regions. Numeric designation for each Appendix A section corresponds to the same numerically identified region of the Tug Fork River watershed (e.g., Appendix A-1 corresponds to region 1 of the Tug Fork River watershed). Table A provides a link between subwatershed IDs and their corresponding stream name and WVDNR code.

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, 3c, 3d, 3e, 3f**—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 West Virginia portion of 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 (for each West Virginia permit) in Appendices A-1through A-5, A-7 through A-9, A-11, A-15 through A-17, and A-20. 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 in the West Virginia portion of 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, Revoked Mines, Harvested Forest, Oil and Gas, Roads, and nonpoint sources. The AML category represents highwalls 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.

- **Tables 6a and 6b**—present gross allocations for the portions of the regions that fall within Kentucky (Appendices A-10, A-12 through A-14, A-16, A-18 and A-20) or Virginia (Appendices A-5, A-6 and A-20).

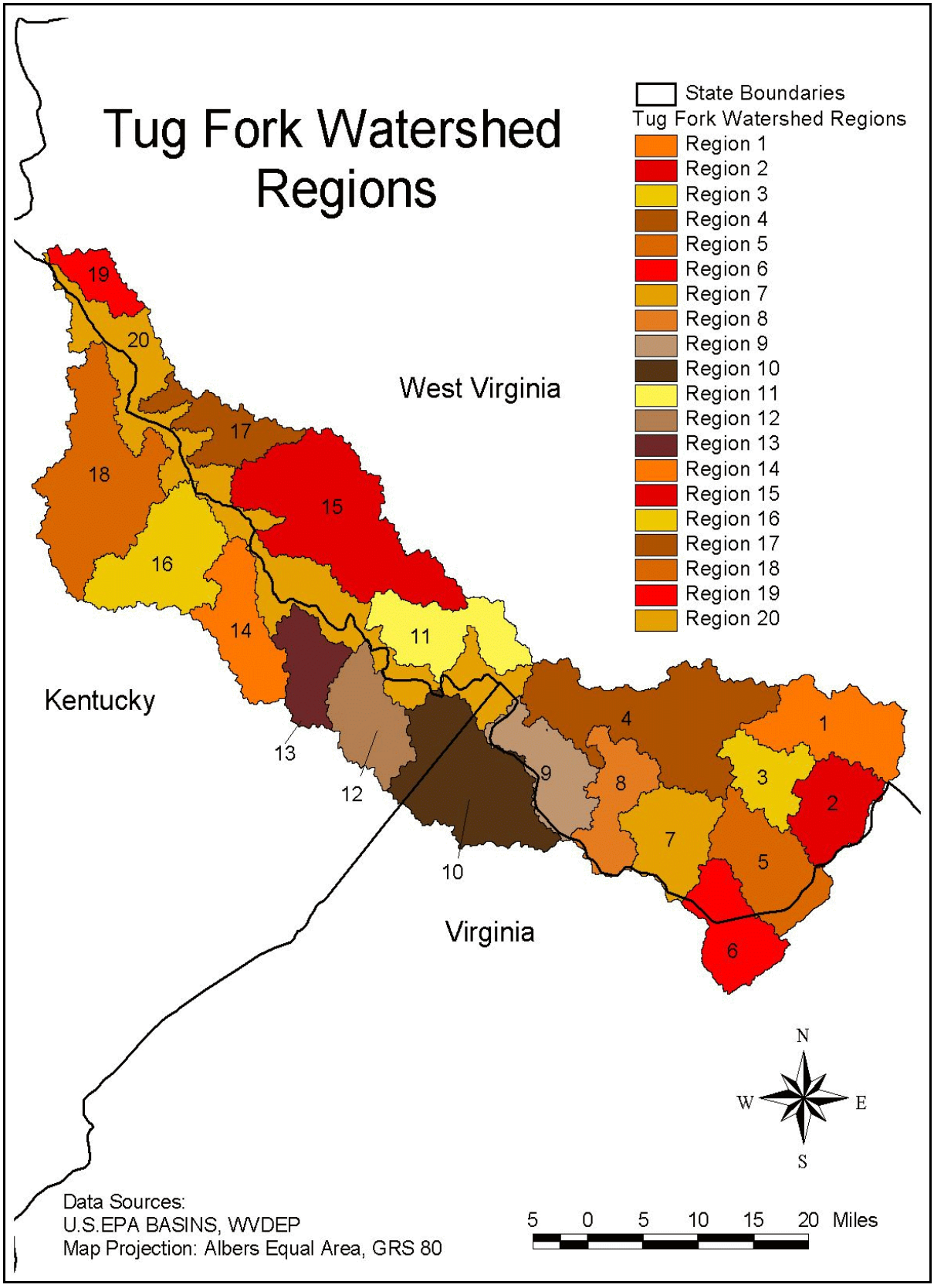

Figure A. Tug Fork River watershed and its twenty regions

Table A. Subwatershed IDs and their corresponding stream names and WVDNR codes.

REGION	SUBASIN_ID	DNR CODE	STREAM NAME
1	373	BST-99	ELKHORN CREEK
1	374	BST-99	ELKHORN CREEK
1	375	BST-99	ELKHORN CREEK
1	376	BST-99-E	LAUREL BRANCH
1	377	BST-99	ELKHORN CREEK
1	378	BST-99-G	BOTTOM CREEK
1	379	BST-99	ELKHORN CREEK
1	380	BST-99	ELKHORN CREEK
1	381	BST-99-I	COLEBANK BRANCH
1	382	BST-99-L	NORTH FORK
1	383	BST-99	ELKHORN CREEK
1	384	BST-99-L-2	BEARWALLOW BRANCH
1	385	BST-99-L	NORTH FORK
1	387	BST-99	ELKHORN CREEK
2	414	BST	TUG FORK
2	415	BST	TUG FORK
2	416	BST-115	SOUTH FORK
2	417	BST-116	BELCHER BRANCH
2	418	BST	TUG FORK
2	419	BST-117	LOOP BRANCH
2	420	BST	TUG FORK
2	421	BST-117	LOOP BRANCH
2	422	BST-118	MILL BRANCH
2	423	BST-119	DRY BRANCH
2	424	BST	TUG FORK
2	425	BST-120	LITTLE CREEK
2	426	BST	TUG FORK
2	427	BST-120-A	INDIAN GRAVE BRANCH
2	428	BST-120	LITTLE CREEK
2	429	BST-120-B	PUNCHEONCAMP BRANCH
2	430	BST-120	LITTLE CREEK
2	431	BST-121	MILLSEAT BRANCH
2	432	BST	TUG FORK
2	433	BST	TUG FORK
2	434	BST-122	BALLARD HARMON BRANCH
2	435	BST-123	SAMS BRANCH
2	436	BST	TUG FORK
2	437	BST-115-A	TEA BRANCH
2	438	BST-115	SOUTH FORK
2	439	BST-115-B	MCCLURE BRANCH
2	440	BST-115	SOUTH FORK
2	441	BST-115-D	JUMP BRANCH
2	442	BST-115	SOUTH FORK

REGION	SUBASIN_ID	DNR CODE	STREAM NAME
2	443	BST-115	SOUTH FORK
2	444	BST-115-E	SPICE CREEK
2	445	BST-115	SOUTH FORK
2	446	BST-115-F	LAUREL BRANCH
2	447	BST-115-G	ROAD FORK
2	448	BST-115	SOUTH FORK
3	388	BST	TUG FORK
3	389	BST	TUG FORK
3	390	BST-100	LITTLE INDIAN CREEK
3	391	BST-102	JED BRANCH
3	392	BST	TUG FORK
3	393	BST	TUG FORK
3	394	BST-103	ROCK NARROWS BRANCH
3	395	BST-104	HARRIS BRANCH
3	396	BST	TUG FORK
3	397	BST-105	MITCHELL BRANCH
3	398	BST	TUG FORK
3	399	BST	TUG FORK
3	400	BST-106	SUGARCAMP BRANCH
3	401	BST	TUG FORK
3	402	BST-108	MILL CREEK
3	403	BST	TUG FORK
3	404	BST-109	SANDLICK CREEK
3	405	BST-110	ADKIN BRANCH
3	406	BST	TUG FORK
3	407	BST	TUG FORK
3	408	BST-111	BELCHER BRANCH
3	409	BST-112	TURNHOLE BRANCH
3	410	BST	TUG FORK
3	411	BST-113	HARMON BRANCH
3	412	BST	TUG FORK
3	413	BST-114	LESLIE BRANCH
3	449	BST-109	SANDLICK CREEK
3	450	BST-109-A	RIGHT FORK
3	451	BST-109-B	LEFT FORK
3	452	BST-109	SANDLICK CREEK
4	249	BST-56	FOURPOLE CREEK
4	250	BST	TUG FORK
4	251	BST-59	LONGPOLE CREEK
4	252	BST	TUG FORK
4	256	BST	TUG FORK
4	257	BST	TUG FORK
4	258	BST-63	HORSE CREEK
4	259	BST-65	WAR BRANCH

REGION	SUBASIN_ID	DNR CODE	STREAM NAME
4	260	BST	TUG FORK
4	261	BST-69	JOHNNYCAKE BRANCH
4	262	BST	TUG FORK
4	281	BST	TUG FORK
4	282	BST-73	SANDY HUFF BRANCH
4	283	BST	TUG FORK
4	328	BST	TUG FORK
4	329	BST-76	CLEAR FORK
4	330	BST-76	CLEAR FORK
4	331	BST-76-C	CRANE TRACE BRANCH
4	332	BST-76-E	DAYCAMP BRANCH
4	333	BST-76	CLEAR FORK
4	334	BST-76-I	WOLFPEN BRANCH
4	335	BST-76	CLEAR FORK
4	336	BST	TUG FORK
4	337	BST-79	LOWER HENSLEY CREEK
4	338	BST	TUG FORK
4	339	BST-84	TWIN BRANCH
4	340	BST	TUG FORK
4	341	BST-78	SPICE CREEK
4	342	BST-78-B	SHABBYROOM BRANCH
4	343	BST-78	SPICE CREEK
4	344	BST-78-D	HONEYCAMP BRANCH
4	345	BST-78	SPICE CREEK
4	346	BST-78	SPICE CREEK
4	347	BST-78-E	COONTREE BRANCH
4	348	BST-78-F	STONECOAL BRANCH
4	349	BST-78	SPICE CREEK
4	350	BST-78	SPICE CREEK
4	351	BST-78-G	BADWAY BRANCH
4	352	BST-78	SPICE CREEK
4	353	BST-78-H	NEWSON BRANCH
4	354	BST-78-I	MOORECAMP BRANCH
4	355	BST-78	SPICE CREEK
4	356	BST-85	DAVY BRANCH
4	357	BST-85-A	LEFT FORK
4	358	BST-85	DAVY BRANCH
4	359	BST	TUG FORK
4	360	BST-87	JENNY BRANCH
4	361	BST	TUG FORK
4	362	BST-94	SHANNON BRANCH
4	363	BST	TUG FORK
4	364	BST-95	UPPER SHANNON BRANCH
4	365	BST	TUG FORK

REGION	SUBASIN_ID	DNR CODE	STREAM NAME
4	366	BST	TUG FORK
4	367	BST-98	BROWNS CREEK
4	368	BST	TUG FORK
4	369	BST-98-A	PUNCHEONCAMP BRANCH
4	370	BST-98	BROWNS CREEK
4	371	BST-98-B	TRAIL FORK
5	307	BST-70-W	JACOBS FORK
5	309	BST-70-W-1	BIG CREEK
5	310	BST-70-W	JACOBS FORK
5	311	BST-70-W-1-B	LONG BRANCH
5	312	BST-70-W-1	BIG CREEK
5	313	BST-70-W-1-H	NORTH FORK
5	314	BST-70-W-5	CUCUMBER CREEK
5	315	BST-70-W	JACOBS FORK
6	308	BST-70	DRY FORK
6	318	BST-70	DRY FORK
6	319	BST-70-Y	KEWEE CREEK
6	320	BST-70	DRY FORK
6	321	BST-70-AA	BEECH FORK
7	295	BST-70	DRY FORK
7	297	BST-70	DRY FORK
7	298	BST-70-N	LITTLE SLATE CREEK
7	299	BST-70-O	ATWELL BRANCH
7	300	BST-70	DRY FORK
7	301	BST-70-Q	BARTLEY CREEK
7	302	BST-70	DRY FORK
7	303	BST-70-T	BARRENSHE CREEK
7	304	BST-70	DRY FORK
7	305	BST-70	DRY FORK
7	306	BST-70-U	WAR CREEK
7	324	BST-70-N	LITTLE SLATE CREEK
7	325	BST-70-N-2	MUDLICK BRANCH
8	284	BST-70	DRY FORK
8	285	BST-70-C	MILE BRANCH
8	286	BST-70	DRY FORK
8	287	BST-70	DRY FORK
8	288	BST-70	DRY FORK
8	289	BST-70-F	GRAPEVINE BRANCH
8	290	BST-70	DRY FORK
8	291	BST-70	DRY FORK
8	292	BST-70-I	BEARTOWN BRANCH
8	293	BST-70-K	HURRICANE BRANCH
8	294	BST-70	DRY FORK
8	296	BST-70-M	BRADSHAW CREEK

REGION	SUBASIN_ID	DNR CODE	STREAM NAME
8	326	BST-70-M-2	HITE FORK
8	327	BST-70-M	BRADSHAW CREEK
9	253	BST-57	BULL CREEK
9	253	BST-57	BULL FORK
9	254	BST-57	BULL CREEK
9	254	BST-57	BULL FORK
9	255	BST-57	BULL CREEK
9	255	BST-57	BULL FORK
9	263	BST-60	PANTHER CREEK
9	264	BST-60	PANTHER CREEK
9	265	BST-60-A	GREENBRIER FORK
9	266	BST-60	PANTHER CREEK
9	267	BST-60-B	TRAP FORK
9	268	BST-60	PANTHER CREEK
9	269	BST-60-C	TRACE FORK
9	270	BST-60-D	CUB BRANCH
9	271	BST-60	PANTHER CREEK
9	272	BST-60-E	GEORGE BRANCH
9	273	BST-60	PANTHER CREEK
9	274	BST-60-G	HURRICANE BRANCH
9	275	BST-60	PANTHER CREEK
9	276	BST-60-I	MEATHOUSE FORK
9	277	BST-60	PANTHER CREEK
9	278	BST-60-H-1	MIDDLE FORK
9	279	BST-60-H	SLAUNCH FORK
9	280	BST-60-H	SLAUNCH FORK
10	216	BST	TUG FORK
11	177	BST-40	MATE CREEK
11	178	BST-40	MATE CREEK
11	179	BST-40-B	RUTHERFORD BRANCH
11	180	BST-40	MATE CREEK
11	181	BST-40-C	MITCHELL BRANCH
11	182	BST-40-D	CHAFIN BRANCH
11	183	BST-40	MATE CREEK
11	184	BST-40-I	STRAIGHT FORK
11	185	BST-40	MATE CREEK
11	190	BST-42	THACKER CREEK
11	191	BST-42-A	SCISSORSVILLE BRANCH
11	192	BST-42	THACKER CREEK
11	193	BST-42-B	MAUCHLINVILLE BRANCH
11	194	BST-42	THACKER CREEK
11	196	BST-43	GRAPEVINE CREEK
11	197	BST-43-A	LICK FORK
11	198	BST-43	GRAPEVINE CREEK

REGION	SUBASIN_ID	DNR CODE	STREAM NAME
11	207	BST-46	BEECH CREEK
11	208	BST-46	BEECH CREEK
11	209	BST-46-A	RIGHTHAND FORK
11	241	BST-52	BEN CREEK
11	242	BST-52-B	LEFT FORK
11	243	BST-52	BEN CREEK
12	188	BST	TUG FORK
13	168	BST	TUG FORK
15	105	BST-24	PIGEON CREEK
15	106	BST-24-B	BIG BRANCH
15	107	BST-24	PIGEON CREEK
15	108	BST-24-E	LAUREL FORK
15	109	BST-24	PIGEON CREEK
15	110	BST-24-E	LAUREL FORK
15	111	BST-24-E-1	RIGHT FORK
15	112	BST-24-E-2-A	SPRUCE FORK
15	113	BST-24-E	LAUREL FORK
15	114	BST-24-E-1	RIGHT FORK
15	115	BST-24-E-1-A	ROCKHOUSE BRANCH
15	116	BST-24	PIGEON CREEK
15	117	BST-24-K	TRACE FORK
15	118	BST-24	PIGEON CREEK
15	119	BST-24-K	TRACE FORK
15	120	BST-24-K-1	DUNCAN FORK
15	121	BST-24-K	TRACE FORK
15	122	BST-24-K-4	RIGHT FORK
15	123	BST-24	PIGEON CREEK
15	124	BST-24-M	HELL CREEK
15	125	BST-24-N	ELK CREEK
15	126	BST-24	PIGEON CREEK
15	127	BST-24-N-2	FIVEMILE CREEK
15	128	BST-24-N	ELK CREEK
15	129	BST-24-O	MILLSTONE BRANCH
15	130	BST-24	PIGEON CREEK
15	131	BST-24-Q	ROCKHOUSE FORK
15	132	BST-24	PIGEON CREEK
15	133	BST-24-Q	ROCKHOUSE FORK
15	134	BST-24-Q-6	BIG PIGEONROOST BRANCH
15	135	BST-24	PIGEON CREEK
15	136	BST-24	PIGEON CREEK
15	137	BST-24-CC	BIG MUNCY BRANCH
15	140	BST-27	MILLER CREEK
15	141	BST-27	MILLER CREEK
15	142	BST-27-C	MILL FORK

REGION	SUBASIN_ID	DNR CODE	STREAM NAME
17	58	BST-14	BULL CREEK
17	59	BST-14	BULL CREEK
17	60	BST-14-B	RIGHT FORK
17	66	BST-17	JENNIE CREEK
17	67	BST-17	JENNIE CREEK
17	68	BST-17-A	MUDLICK FORK
17	69	BST-17-B	OLD FORK
17	70	BST-17	JENNIE CREEK
17	74	BST-19	MARROWBONE CREEK
17	75	BST-19-B	LEFT FORK
17	76	BST-19	MARROWBONE CREEK
17	77	BST-19-F	NEELY BRANCH
17	78	BST-19	MARROWBONE CREEK
18	29	BST	TUG FORK
18	63	BST	TUG FORK
19	2	BST-1	MILL CREEK
19	3	BST-1-A	PADDLE CREEK
19	4	BST-1	MILL CREEK
19	5	BST-1-E	LEFT FORK
19	6	BST-1-D	RIGHT FORK
20	1	BST	TUG FORK
20	7	BST	TUG FORK
20	8	BST	TUG FORK
20	9	BST	TUG FORK
20	10	BST-3	POWDERMILL BRANCH
20	11	BST	TUG FORK
20	12	BST	TUG FORK
20	13	BST	TUG FORK
20	14	BST-7	LOST CREEK
20	15	BST	TUG FORK
20	16	BST	TUG FORK
20	17	BST	TUG FORK
20	18	BST	TUG FORK
20	19	BST-8	HORSE CREEK
20	20	BST	TUG FORK
20	21	BST-10	DRAG CREEK
20	22	BST	TUG FORK
20	23	BST	TUG FORK
20	24	BST	TUG FORK
20	25	BST-12	CAMP CREEK
20	26	BST	TUG FORK
20	27	BST	TUG FORK
20	28	BST	TUG FORK
20	61	BST	TUG FORK

REGION	SUBASIN_ID	DNR CODE	STREAM NAME
20	62	BST	TUG FORK
20	71	BST	TUG FORK
20	72	BST-18	STONECOAL CREEK
20	73	BST	TUG FORK
20	79	BST	TUG FORK
20	80	BST	TUG FORK
20	81	BST	TUG FORK
20	82	BST	TUG FORK
20	83	BST	TUG FORK
20	84	BST	TUG FORK
20	85	BST	TUG FORK
20	86	BST	TUG FORK
20	138	BST	TUG FORK
20	139	BST	TUG FORK
20	143	BST	TUG FORK
20	144	BST-31	BUFFALO CREEK
20	145	BST	TUG FORK
20	146	BST-32	SUGARTREE CREEK
20	147	BST	TUG FORK
20	148	BST	TUG FORK
20	160	BST	TUG FORK
20	161	BST-33	WILLIAMSON BRANCH
20	162	BST	TUG FORK
20	163	BST	TUG FORK
20	164	BST-34	SYCAMORE CREEK
20	165	BST	TUG FORK
20	166	BST-38	SPROUSE CREEK
20	167	BST	TUG FORK
20	186	BST	TUG FORK
20	187	BST	TUG FORK
20	195	BST	TUG FORK
20	199	BST	TUG FORK
20	200	BST	TUG FORK
20	206	BST	TUG FORK
20	210	BST	TUG FORK
20	211	BST	TUG FORK
20	212	BST	TUG FORK
20	214	BST-50	ALUM CREEK
20	215	BST	TUG FORK
20	244	BST	TUG FORK
20	245	BST-55	TURKEY CREEK
20	246	BST	TUG FORK
20	247	BST	TUG FORK
20	248	BST	TUG FORK

REGION	SUBASIN_ID	DNR CODE	STREAM NAME
20	454	BST	TUG FORK
20	455	BST	TUG FORK

Appendix A-1

Region 1

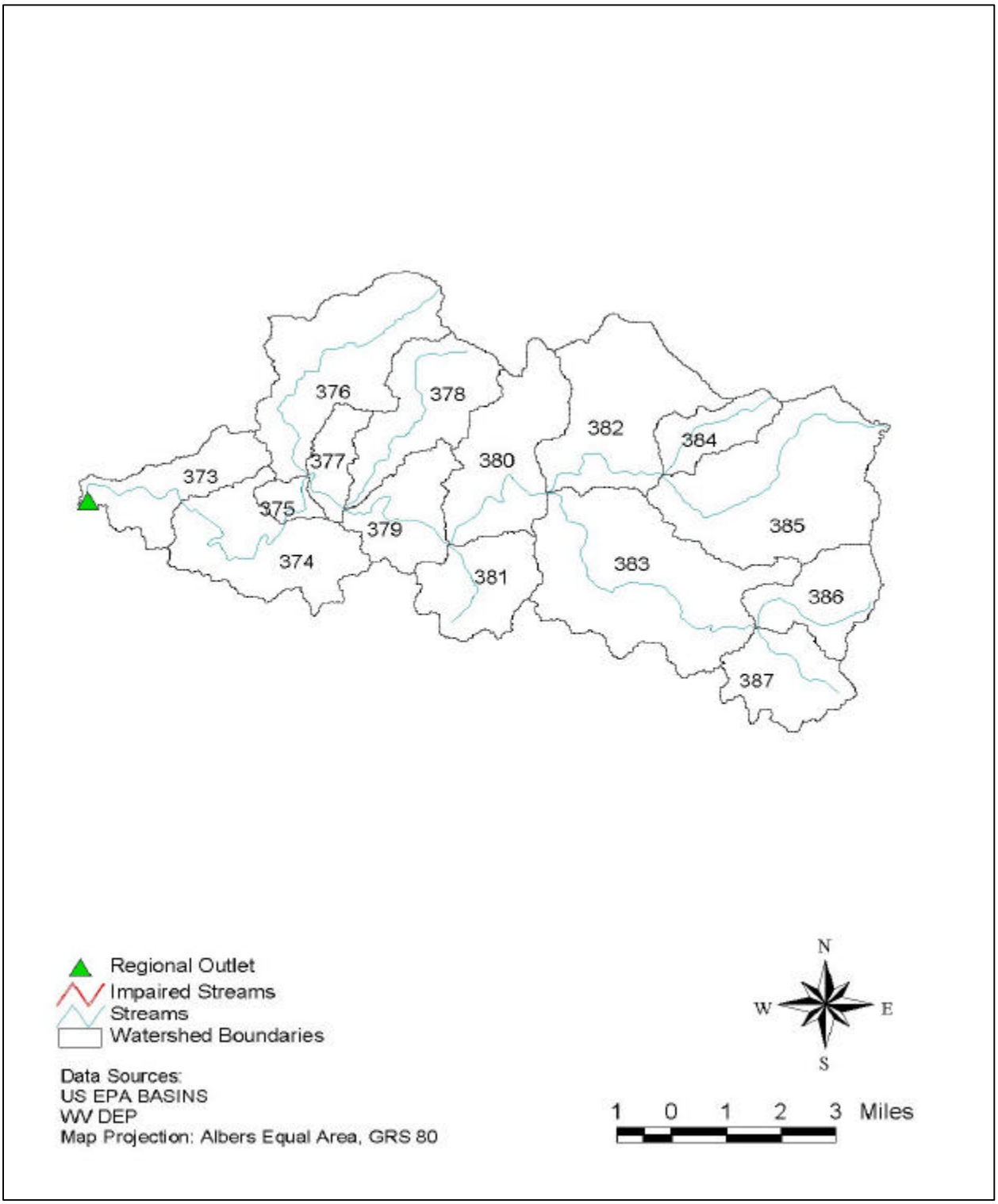

Figure 1. Region 1 - Tug Fork watershed

Table 1. Impaired waterbodies in Region 1

Stream Name	Stream Code	Pollutant	Contributing SWS	Contributing Regions	Affected Use

Not Applicable to this Region

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

SWS
373
374
375
376
377
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386
387

Table 3a. Water quality data for aluminum

SWS	WQ Station	Avg (ug/L)	Min (ug/L)	Max (ug/L)	Count	Start Date	End Date
373	112WRD__372540081330539	80.00	40	120	2	02/25/80	06/17/80
373	211WVOWR__BST-099-0001	274.00	274	274	1	06/22/98	06/22/98
373	WV0052531__DSEC04	192.71	50	2000	70	01/05/99	11/21/01
374	WV0052531__USEC10	255.29	50	3160	70	01/05/99	11/21/01
374	WV1000373__DSLB	135.44	10	770	57	07/10/97	07/27/01
374	WV1000373__USLB	252.07	10	2290	29	02/12/98	07/27/01
378	WV1006347__DSBCD1	165.88	10	1180	68	01/15/99	11/18/01
378	WV1006347__USBCD1	208.20	10	1610	50	01/15/99	10/15/01
378	WV1006479__DSBC02	172.22	10	2180	54	01/15/99	11/18/01
378	WV1006479__USBC01	181.58	10	1320	38	01/15/99	08/28/01
378	WV1006614__DBC	208.53	10	2170	68	01/15/99	11/18/01
378	WV1006614__USBCAS	186.47	10	1140	68	01/15/99	11/18/01
378	WV1008552__USBC03	156.15	10	1040	52	01/15/99	11/18/01
378	WV1012088__DBC	178.27	10	1130	52	01/15/99	11/18/01
378	WV1012088__UBC	155.88	10	1040	51	01/15/99	11/18/01
378	WV1012312__DSBCUT	261.70	10	3530	47	01/18/99	10/15/01
378	WV1012312__USBCUT	185.53	10	1240	47	01/15/99	10/15/01
379	WV1008552__DSBBEC	162.42	10	1530	33	01/18/99	08/28/01
379	WV1008552__DSBC01	161.46	10	1500	41	01/15/99	10/15/01
380	211WVOWR__BST-099-0003	50.00	50	50	1	06/22/98	06/22/98
380	WV0060216__DSECCB	113.22	10	820	59	06/14/99	11/18/01
380	WV0060216__USECBC	129.00	10	1420	60	06/11/99	11/18/01
380	WV1005979__DSBC01	163.14	10	1500	70	01/15/99	11/18/01
380	WV1005979__USBC01	110.54	10	1560	56	01/15/99	11/18/01
380	WV1018701__DSBC	167.91	10	1500	43	02/16/00	11/18/01
380	WV1018701__USBC	115.85	10	1560	41	02/16/00	11/06/01
382	211WVOWR__BST-099-0005	50.00	50	50	1	06/22/98	06/22/98
382	WV1006282__USJA28	142.50	10	850	28	01/18/99	08/07/01
382	WV1006436__DSBBS3	108.40	10	1010	50	01/18/99	11/18/01
382	WV1006436__USBBS4	214.32	10	2980	44	01/18/99	09/25/01
383	211WVOWR__BST-099-0002	50.00	50	50	1	06/22/98	06/22/98
384	WV1005774__DSBB01	164.58	10	1980	24	01/20/99	08/28/01
384	WV1005774__USSB01	104.09	10	440	22	01/27/99	08/28/01
384	WV1005987__DSBB01	94.67	10	890	45	01/18/99	10/17/01
384	WV1005987__USBB01	107.95	10	770	44	01/18/99	09/25/01
385	211WVOWR__BST-099-0004	50.00	50	50	1	06/17/98	06/17/98
385	WV1006533__DSNFEC	113.43	10	690	70	01/20/99	11/18/01
385	WV1006533__USNFEC	109.42	10	920	69	01/20/99	11/18/01

Table 3b. Water quality data for iron

SWS	WQ Station	Avg (ug/L)	Min (ug/L)	Max (ug/L)	Count	Start Date	End Date
373	112WRD__372540081330539	840.00	170	2400	6	05/10/79	08/19/80
373	112WRD__372545081340201	265.00	200	330	2	05/15/84	07/23/84
373	211WVOWR__BST-099-0001	862.00	862	862	1	06/22/98	06/22/98
373	WV0052531__DSEC04	1251.57	230	4800	70	01/05/99	11/21/01
374	WV0052531__USEC10	1007.14	290	7890	70	01/05/99	11/21/01
374	WV1000373__DSLB	111.93	10	1570	57	07/10/97	07/27/01
374	WV1000373__USLB	787.24	10	10230	29	02/12/98	07/27/01
378	WV1006347__DSBCD1	313.24	10	2400	68	01/15/99	11/18/01
378	WV1006347__USBCD1	379.00	10	6230	50	01/15/99	10/15/01
378	WV1006479__DSBC02	329.26	10	5300	54	01/15/99	11/18/01
378	WV1006479__USBC01	393.95	10	2290	38	01/15/99	08/28/01
378	WV1006614__DBC	427.94	10	3640	68	01/15/99	11/18/01
378	WV1006614__USBCAS	349.71	10	2010	68	01/15/99	11/18/01
378	WV1008552__USBC03	312.69	10	2270	52	01/15/99	11/18/01
378	WV1012088__DBC	296.92	10	2210	52	01/15/99	11/18/01
378	WV1012088__UBC	318.04	10	2270	51	01/15/99	11/18/01
378	WV1012312__DSBCUT	518.72	10	8870	47	01/18/99	10/15/01
378	WV1012312__USBCUT	355.74	10	3470	47	01/15/99	10/15/01
379	WV1008552__DSBBEC	210.91	10	2000	33	01/18/99	08/28/01
379	WV1008552__DSBC01	3944.15	10	8100	82	01/15/99	10/15/01
380	211WVOWR__BST-099-0003	277.00	277	277	1	06/22/98	06/22/98
380	WV0060216__DSECCB	238.81	10	2480	59	06/14/99	11/18/01
380	WV0060216__USECBC	371.17	10	7970	60	06/11/99	11/18/01
380	WV1005979__DSBC01	246.43	10	4320	70	01/15/99	11/18/01
380	WV1005979__USBC01	256.96	10	2640	56	01/15/99	11/18/01
380	WV1018701__DSBC	253.49	10	4320	43	02/16/00	11/18/01
380	WV1018701__USBC	254.88	10	2640	41	02/16/00	11/06/01
382	112WRD__372512081252939	880.00	260	2100	5	05/10/79	07/20/81
382	211WVOWR__BST-099-0005	50.00	50	50	1	06/22/98	06/22/98
382	WV1006282__USJA28	172.14	10	1260	28	01/18/99	08/07/01
382	WV1006436__DSBBS3	183.20	10	880	50	01/18/99	11/18/01
382	WV1006436__USBBS4	192.27	10	1220	44	01/18/99	09/25/01
383	112WRD__372310081244139	866.00	80	3200	5	05/10/79	07/20/81
383	211WVOWR__BST-099-0002	268.00	268	268	1	06/22/98	06/22/98
384	WV1005774__DSBB01	333.75	10	5610	24	01/20/99	08/28/01
384	WV1005774__USSB01	94.55	10	560	22	01/27/99	08/28/01
384	WV1005987__DSBB01	108.22	10	730	45	01/18/99	10/17/01
384	WV1005987__USBB01	114.55	10	730	44	01/18/99	09/25/01
385	211WVOWR__BST-099-0004	88.60	88.6	88.6	1	06/17/98	06/17/98
385	WV1006533__DSNFEC	265.86	10	1970	70	01/20/99	11/18/01
385	WV1006533__USNFEC	294.93	10	1840	69	01/20/99	11/18/01

Table 3c. Water quality data for manganese

SWS	WQ Station	Avg (ug/L)	Min (ug/L)	Max (ug/L)	Count	Start Date	End Date
373	112WRD__372540081330539	40.00	20	80	6	05/10/79	08/19/80
373	112WRD__372545081340201	15.00	10	20	2	05/15/84	07/23/84
373	211WVOWR__BST-099-0001	68.70	68.7	68.7	1	06/22/98	06/22/98
374	WV1000373__DSLB	31.93	10	210	57	07/10/97	07/27/01
374	WV1000373__USLB	366.55	10	5590	29	02/12/98	07/27/01
380	211WVOWR__BST-099-0003	16.80	16.8	16.8	1	06/22/98	06/22/98
382	112WRD__372512081252939	42.00	10	70	5	05/10/79	07/20/81
382	211WVOWR__BST-099-0005	10.00	10	10	1	06/22/98	06/22/98
383	112WRD__372310081244139	48.00	20	120	5	05/10/79	07/20/81
383	211WVOWR__BST-099-0002	20.50	20.5	20.5	1	06/22/98	06/22/98
385	211WVOWR__BST-099-0004	12.70	12.7	12.7	1	06/17/98	06/17/98

Table 3d. Water quality data for Total Nonfilterable Residue

SWS	WQ Station	Avg (ug/L)	Min (ug/L)	Max (ug/L)	Count	Start Date	End Date
374	WV1000373__DSLB	2.70	1	77	57	07/10/97	07/27/01
374	WV1000373__USLB	4.17	1	20	29	02/12/98	07/27/01

Table 3e. Water quality data for pH

SWS	WQ Station	Avg (ug/L)	Min (ug/L)	Max (ug/L)	Count	Start Date	End Date
373	112WRD__03212703	7.58	5.8	8.2	30	11/18/80	09/21/82
373	112WRD__372540081330539	8.16	7.6	8.7	22	05/10/79	09/22/80
373	112WRD__372545081340201	7.95	7.9	8.0	2	05/15/84	07/23/84
373	112WRD__372555081345901	8.10	8.1	8.1	1	10/09/78	10/09/78
373	211WVOWR__BST-099-0001	7.80	7.8	7.8	1	06/22/98	06/22/98
373	WV0052531__DSEC04	7.83	6.68	8.8	70	01/05/99	11/21/01
374	WV0052531__USEC10	7.89	6.32	8.5	70	01/05/99	11/21/01
374	WV1000373__DSLB	7.55	6.8	8.1	57	07/10/97	07/27/01
374	WV1000373__USLB	6.65	5.87	7.5	29	02/12/98	07/27/01
378	WV1006347__DSBCD1	7.12	6.6	7.9	68	01/15/99	11/18/01
378	WV1006347__USBCD1	6.81	6.3	7.5	50	01/15/99	10/15/01
378	WV1006479__DSBC02	6.94	5.28	7.8	54	01/15/99	11/18/01
378	WV1006479__USBC01	6.54	5.75	7.8	38	01/15/99	08/28/01
378	WV1006614__DBC	7.16	6.71	7.9	68	01/15/99	11/18/01
378	WV1006614__USBCAS	7.13	6.68	7.9	68	01/15/99	11/18/01
378	WV1008552__USBC03	7.16	6.41	7.7	52	01/15/99	11/18/01
378	WV1012088__DBC	7.21	6.64	7.8	52	01/15/99	11/18/01
378	WV1012088__UBC	7.15	5.89	7.7	51	01/15/99	11/18/01
378	WV1012312__DSBCUT	7.64	6.98	8.4	47	01/18/99	10/15/01
378	WV1012312__USBCUT	7.62	6.9	8.1	47	01/15/99	10/15/01
379	WV1008552__DSBBEC	7.70	7	9.0	33	01/18/99	08/28/01
380	211WVOWR__BST-099-0003	8.30	8.3	8.3	1	06/22/98	06/22/98
380	WV0060216__DSECCB	7.95	7.54	8.9	59	06/14/99	11/18/01
380	WV0060216__USECBC	7.95	7.5	9.0	60	06/11/99	11/18/01
380	WV1005979__DSBC01	7.40	6.74	8.1	70	01/15/99	11/18/01
380	WV1005979__USBC01	7.47	6.91	9.0	56	01/15/99	11/18/01
380	WV1018701__DSBC	7.49	6.74	8.1	43	02/16/00	11/18/01
380	WV1018701__USBC	7.44	6.84	9.0	41	02/16/00	11/06/01
382	112WRD__372455081254601	8.10	7.8	8.4	3	10/09/78	04/13/81
382	112WRD__372512081252939	8.22	8	8.6	6	05/10/79	09/27/83
382	211WVOWR__BST-099-0005	8.00	8	8.0	1	06/22/98	06/22/98
382	WV1006282__USJA28	6.62	6	7.4	28	01/18/99	08/07/01
382	WV1006436__DSBBS3	6.71	5.81	7.5	50	01/18/99	11/18/01
382	WV1006436__USBBS4	6.60	5.81	7.5	44	01/18/99	09/25/01
383	112WRD__372310081244139	8.10	8	8.4	6	05/10/79	09/27/83
383	112WRD__372453081254201	8.13	7.7	8.4	3	10/09/78	04/13/81
383	211WVOWR__BST-099-0002	7.80	7.8	7.8	1	06/22/98	06/22/98
384	WV1005774__DSBB01	7.38	6.33	8.2	24	01/20/99	08/28/01
384	WV1005774__USSB01	7.42	6.4	8.2	22	01/27/99	08/28/01
384	WV1005987__DSBB01	7.42	6.7	8.1	45	01/18/99	10/17/01
384	WV1005987__USBB01	7.45	6.74	8.0	44	01/18/99	09/25/01
385	211WVOWR__BST-099-0004	7.60	7.6	7.6	1	06/16/98	06/16/98
385	WV1006533__DSNFEC	7.73	7.31	8.5	70	01/20/99	11/18/01
385	WV1006533__USNFEC	7.72	7.28	8.4	69	01/20/99	11/18/01

Table 3f. Water quality data for dissolved zinc

SWS	WQ Station	Avg (ug/L)	Min (ug/L)	Max (ug/L)	Count	Start Date	End Date
373	112WRD__372540081330539	2.33	0	4	3	02/25/80	08/19/80
382	112WRD__372512081252939	9.00	9	9	1	08/18/80	08/18/80
383	112WRD__372310081244139	19.00	19	19	1	08/18/80	08/18/80

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

SWS	NPDES Permit ID	Baseline (lb/yr)	Allocation (lb/yr)	Allocation (mg/L)	Percent Reduction
373	WV0052531	231	231	3.60	0
373	WV0090000	1,673	1,673	3.60	0
373	WV1005588	179	179	3.60	0
374	WV0048437	1,520	1,520	3.60	0
374	WV0052531	26	26	3.60	0
374	WV0090972	306	306	3.60	0
374	WV1000373	110	110	3.60	0
374	WV1006223	39	39	3.60	0
376	WV0052531	26	26	3.60	0
376	WV1016211	85	85	3.60	0
376	WV1018698	68	68	3.60	0
376	WVG014004	253	253	3.60	0
376	WVG014016	156	156	3.60	0
378	WV1005995	106	42	1.52	60
378	WV1006347	61	24	1.52	60
378	WV1006614	500	200	1.52	60
378	WV1008552	191	76	1.52	60
378	WV1008803	132	53	1.52	60
378	WV1008838	70	28	1.52	60
378	WV1012088	130	52	1.52	60
378	WV1012312	212	85	1.52	60
378	WV1018663	70	28	1.52	60
378	WVG014020	159	64	1.52	60
379	WV1006223	39	39	3.60	0
379	WV1008552	64	64	3.60	0
379	WV1018795	220	220	3.60	0
380	WV0044024	414	414	3.60	0
380	WV0060216	1,088	1,088	3.60	0
380	WV1005651	185	185	3.60	0
380	WV1005901	19	19	3.60	0
380	WV1006070	105	105	3.60	0
380	WV1006321	84	84	3.60	0
380	WV1008552	64	64	3.60	0
380	WV1012045	104	104	3.60	0
380	WV1012215	342	342	3.60	0
380	WV1018701	38	38	3.60	0
380	WV1018752	26	26	3.60	0
380	WVG014022	552	552	3.60	0
381	WV1005545	21	7	1.33	65
381	WV1005642	877	307	1.33	65
381	WV1005651	185	65	1.33	65
381	WV1006223	78	27	1.33	65
381	WV1006321	84	29	1.33	65
381	WV1012215	171	60	1.33	65
381	WV1016474	1,769	619	1.33	65
381	WV1018744	190	66	1.33	65
382	WV1005901	175	175	3.60	0
382	WV1005944	14	14	3.60	0

382	WV1005987	97	97	3.60	0
382	WV1008587	187	187	3.60	0
382	WVG014018	51	51	3.60	0
384	WV1005944	28	28	3.60	0
384	WV1006533	51	51	3.60	0
384	WVG014018	51	51	3.60	0
385	WV1006533	51	51	3.60	0
385	WV1012274	1,015	1,015	3.60	0
385	WVG014019	63	63	3.60	0
387	WV1005774	204	204	3.60	0

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

SWS	NPDES Permit ID	Baseline (lb/yr)	Allocation (lb/yr)	Allocation (mg/L)	Percent Reduction
373	WV0052531	205	205	3.20	0
373	WV0090000	1,490	1,490	3.20	0
373	WV1005588	160	160	3.20	0
374	WV0048437	1,354	1,354	3.20	0
374	WV0052531	23	23	3.20	0
374	WV0090972	273	273	3.20	0
374	WV1000373	98	98	3.20	0
374	WV1006223	35	35	3.20	0
376	WV0052531	23	23	3.20	0
376	WV1016211	76	76	3.20	0
376	WV1018698	60	60	3.20	0
376	WVG014004	225	225	3.20	0
376	WVG014016	139	139	3.20	0
378	WV1005995	94	94	3.20	0
378	WV1006347	55	55	3.20	0
378	WV1006614	445	445	3.20	0
378	WV1008552	170	170	3.20	0
378	WV1008803	118	118	3.20	0
378	WV1008838	63	63	3.20	0
378	WV1012088	116	116	3.20	0
378	WV1012312	189	189	3.20	0
378	WV1018663	62	62	3.20	0
378	WVG014020	142	142	3.20	0
379	WV1006223	35	35	3.20	0
379	WV1008552	57	57	3.20	0
379	WV1018795	196	196	3.20	0
380	WV0044024	368	368	3.20	0
380	WV0060216	969	969	3.20	0
380	WV1005651	164	164	3.20	0
380	WV1005901	17	17	3.20	0
380	WV1006070	94	94	3.20	0
380	WV1006321	75	75	3.20	0
380	WV1008552	57	57	3.20	0
380	WV1012045	92	92	3.20	0
380	WV1012215	305	305	3.20	0
380	WV1018701	34	34	3.20	0

380	WV1018752	23	23	3.20	0
380	WVG014022	492	492	3.20	0
381	WV1005545	19	19	3.20	0
381	WV1005642	781	781	3.20	0
381	WV1005651	164	164	3.20	0
381	WV1006223	70	70	3.20	0
381	WV1006321	75	75	3.20	0
381	WV1012215	152	152	3.20	0
381	WV1016474	1,576	1,576	3.20	0
381	WV1018744	169	169	3.20	0
382	WV1005901	156	156	3.20	0
382	WV1005944	12	12	3.20	0
382	WV1005987	87	87	3.20	0
382	WV1008587	167	167	3.20	0
382	WVG014018	46	46	3.20	0
384	WV1005944	25	25	3.20	0
384	WV1006533	45	45	3.20	0
384	WVG014018	46	46	3.20	0
385	WV1006533	45	45	3.20	0
385	WV1012274	904	904	3.20	0
385	WVG014019	56	56	3.20	0
387	WV1005774	182	182	3.20	0

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

SWS	NPDES Permit ID	Baseline (lb/yr)	Allocation (lb/yr)	Allocation (mg/L)	Percent Reduction
373	WV0052531	128	128	2.00	0
373	WV0090000	928	928	2.00	0
373	WV1005588	99	99	2.00	0
374	WV0048437	843	843	2.00	0
374	WV0052531	14	14	2.00	0
374	WV0090972	170	170	2.00	0
374	WV1000373	61	61	2.00	0
374	WV1006223	22	22	2.00	0
376	WV0052531	14	14	2.00	0
376	WV1016211	47	47	2.00	0
376	WV1018698	38	38	2.00	0
376	WVG014004	140	140	2.00	0
376	WVG014016	87	87	2.00	0
378	WV1005995	59	59	2.00	0
378	WV1006347	34	34	2.00	0
378	WV1006614	277	277	2.00	0
378	WV1008552	106	106	2.00	0
378	WV1008803	73	73	2.00	0
378	WV1008838	39	39	2.00	0
378	WV1012088	72	72	2.00	0
378	WV1012312	117	117	2.00	0
378	WV1018663	39	39	2.00	0
378	WVG014020	88	88	2.00	0
379	WV1006223	22	22	2.00	0
379	WV1008552	35	35	2.00	0

379	WV1018795	122	122	2.00	0
380	WV0044024	230	230	2.00	0
380	WV0060216	604	604	2.00	0
380	WV1005651	102	102	2.00	0
380	WV1005901	11	11	2.00	0
380	WV1006070	59	59	2.00	0
380	WV1006321	47	47	2.00	0
380	WV1008552	35	35	2.00	0
380	WV1012045	58	58	2.00	0
380	WV1012215	190	190	2.00	0
380	WV1018701	21	21	2.00	0
380	WV1018752	14	14	2.00	0
380	WVG014022	306	306	2.00	0
381	WV1005545	12	12	2.00	0
381	WV1005642	486	486	2.00	0
381	WV1005651	102	102	2.00	0
381	WV1006223	44	44	2.00	0
381	WV1006321	47	47	2.00	0
381	WV1012215	95	95	2.00	0
381	WV1016474	982	982	2.00	0
381	WV1018744	105	105	2.00	0
382	WV1005901	97	97	2.00	0
382	WV1005944	8	8	2.00	0
382	WV1005987	54	54	2.00	0
382	WV1008587	104	104	2.00	0
382	WVG014018	28	28	2.00	0
384	WV1005944	15	15	2.00	0
384	WV1006533	28	28	2.00	0
384	WVG014018	28	28	2.00	0
385	WV1006533	28	28	2.00	0
385	WV1012274	563	563	2.00	0
385	WVG014019	35	35	2.00	0
387	WV1005774	113	113	2.00	0

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

SWS	AML		Revoked Mines		Harvested Forest		Oil and Gas		Roads		Nonpoint Source			
	Baseline Load (lb/yr)	Allocated Load (lb/yr)	Baseline Load (lb/yr)	Allocated Load (lb/yr)	Baseline Load (lb/yr)	Allocated Load (lb/yr)	Baseline Load (lb/yr)	Allocated Load (lb/yr)	Baseline Load (lb/yr)	Allocated Load (lb/yr)	Baseline Load (lb/yr)	Allocated Load (lb/yr)	Requires Reduction	Percent Reduction
373	5,741	287	0	0	977	782	93	75	338	273	1,094	1,094	x	70
374	1,609	805	0	0	1,015	862	19	16	552	472	1,896	1,896	x	20
375	1,674	251	0	0	104	104	0	0	75	75	257	257	x	67
376	72,573	726	0	0	1,089	1,089	19	19	705	705	1,977	1,977	x	94
377	10,821	541	0	0	224	224	0	0	151	151	475	475	x	88
378	19,049	381	0	0	706	459	75	48	458	303	1,434	1,434	x	88
379	7,012	351	0	0	479	479	130	130	315	315	1,075	1,075	x	74
380	10,168	508	0	0	754	754	186	186	541	541	1,794	1,794	x	72
381	1,492	30	0	0	495	396	93	75	338	273	1,064	1,064	x	47
382	12,604	252	309	6	1,003	1,003	355	355	673	673	2,294	2,294	x	73
383	6,924	138	0	0	2,033	1,829	617	556	1,012	915	3,592	3,592	x	50
384	4,437	89	0	0	313	188	149	89	198	122	673	673	x	80
385	26,626	533	0	0	2,034	1,017	655	327	932	483	3,104	3,104	x	84
386	21,083	422	0	0	883	441	206	103	313	162	964	964	x	91
387	3,312	66	0	0	587	440	281	211	321	244	1,117	1,117	x	63

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

SWS	AML		Revoked Mines		Harvested Forest		Oil and Gas		Roads		Nonpoint Source			
	Baseline Load (lb/yr)	Allocated Load (lb/yr)	Baseline Load (lb/yr)	Allocated Load (lb/yr)	Baseline Load (lb/yr)	Allocated Load (lb/yr)	Baseline Load (lb/yr)	Allocated Load (lb/yr)	Baseline Load (lb/yr)	Allocated Load (lb/yr)	Baseline Load (lb/yr)	Allocated Load (lb/yr)	Requires Reduction	Percent Reduction
373	7,574	6,156	0	0	1,235	988	118	94	426	344	1,707	1,707	x	16
374	2,123	2,123	0	0	1,282	1,089	24	20	696	595	2,961	2,961	x	4
375	2,208	1,011	0	0	131	131	0	0	94	94	401	401	x	42
376	95,748	7,675	0	0	1,376	1,376	24	24	890	890	3,096	3,096	x	87
377	14,277	2,140	0	0	283	283	0	0	190	190	737	737	x	78
378	25,132	3,509	0	0	892	580	94	61	577	382	2,248	2,248	x	77
379	9,251	3,783	0	0	605	605	165	165	398	398	1,677	1,677	x	45
380	13,414	7,943	0	0	952	952	235	235	682	682	2,776	2,776	x	30
381	1,968	1,968	0	0	625	500	118	94	427	344	1,666	1,666	x	5
382	16,629	6,825	355	355	1,267	1,267	449	449	848	848	3,590	3,590	x	42
383	9,135	8,443	0	0	2,568	2,311	780	702	1,276	1,153	5,617	5,617	x	6
384	5,853	1,567	0	0	396	238	188	113	250	153	1,055	1,055	x	60
385	35,127	6,667	0	0	2,569	1,285	827	414	1,176	608	4,860	4,860	x	69
386	27,814	2,062	0	0	1,115	558	260	130	395	204	1,511	1,511	x	86
387	4,370	2,325	0	0	742	556	355	266	405	307	1,751	1,751	x	32

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

SWS	AML		Revoked Mines		Harvested Forest		Oil and Gas		Roads		Nonpoint Source			
	Baseline Load (lb/yr)	Allocated Load (lb/yr)	Baseline Load (lb/yr)	Allocated Load (lb/yr)	Baseline Load (lb/yr)	Allocated Load (lb/yr)	Baseline Load (lb/yr)	Allocated Load (lb/yr)	Baseline Load (lb/yr)	Allocated Load (lb/yr)	Baseline Load (lb/yr)	Allocated Load (lb/yr)	Requires Reduction	Percent Reduction
373	2,517	2,517	0	0	77	61	7	6	30	25	801	801	x	1
374	705	705	0	0	80	68	1	1	50	43	1,390	1,390	x	1
375	734	734	0	0	8	8	0	0	7	7	188	188		0
376	31,820	5,409	0	0	85	85	1	1	63	63	1,457	1,457	x	79
377	4,745	4,745	0	0	18	18	0	0	14	14	344	344		0
378	8,352	3,341	0	0	55	36	6	4	41	29	1,059	1,059	x	53
379	3,074	3,074	0	0	38	38	10	10	28	28	787	787		0
380	4,458	4,458	0	0	59	59	15	15	49	49	1,292	1,292		0
381	654	654	0	0	39	31	7	6	30	25	785	785	x	1
382	5,526	5,526	308	308	79	79	28	28	60	60	1,688	1,688		0
383	3,036	3,036	0	0	159	143	48	44	91	83	2,641	2,641	x	0
384	1,945	1,459	0	0	25	15	12	7	18	12	497	497	x	20
385	11,674	7,004	0	0	159	80	51	26	84	49	2,287	2,287	x	34
386	9,244	2,311	0	0	69	35	16	8	28	16	712	712	x	69
387	1,452	1,452	0	0	46	35	22	17	29	23	824	824	x	1

Appendix A-2

Region 2

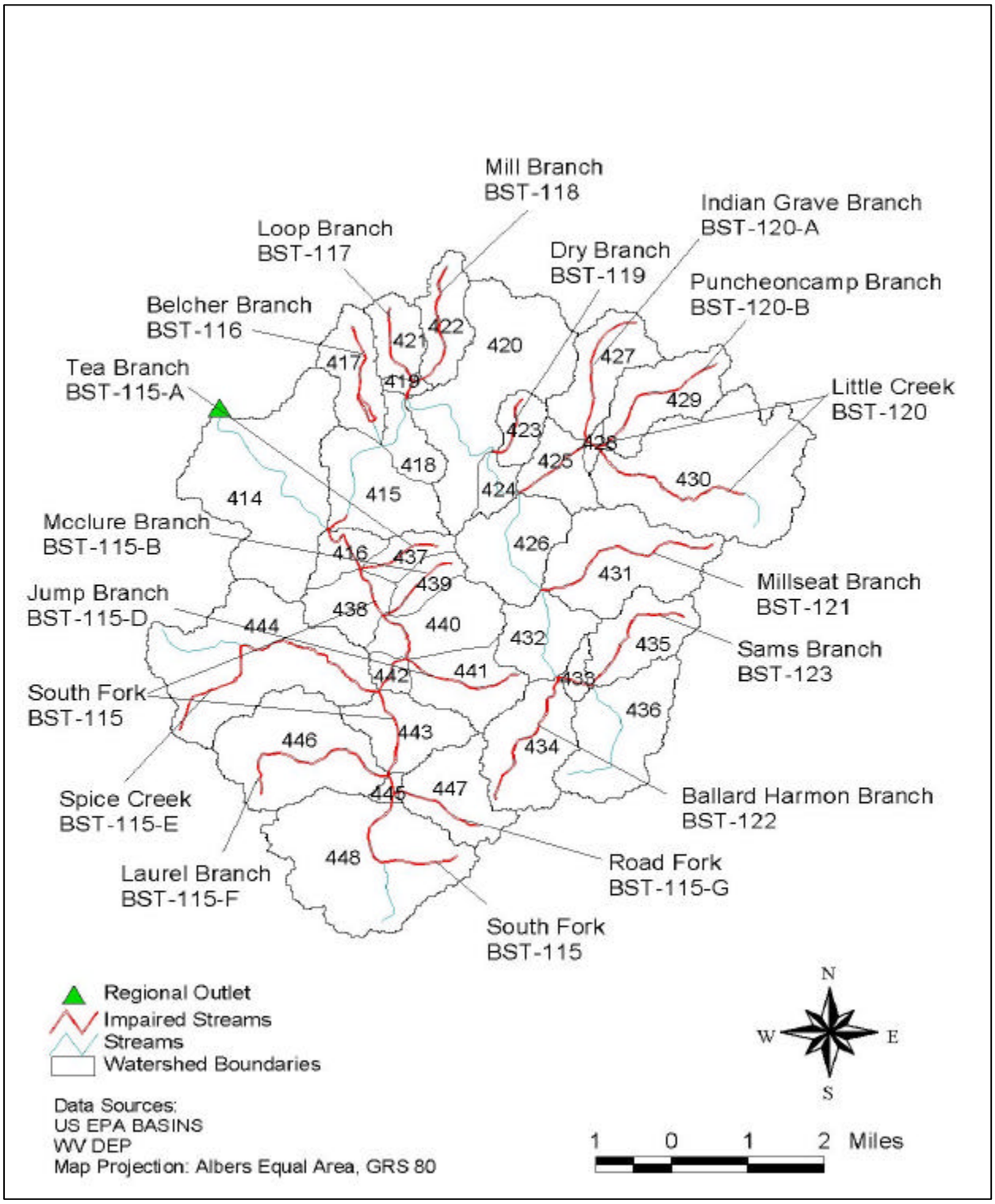

Figure 1. Region 2 - Tug Fork watershed

Table 1. Impaired waterbodies in Region 2

Stream Name	Stream Code	Pollutant	Contributing SWS	Contributing Regions	Aquatic Life
Little Creek	BST-120	Metals	425, 430, 429, 428, 427		Aquatic Life
Puncheoncamp Branch	BST-120-B	Metals	429		Aquatic Life
Indian Grave Branch	BST-120-A	Metals	427		Aquatic Life
Millseat Branch	BST-121	Metals	431		Aquatic Life
Sams Branch	BST-123	Metals	435		Aquatic Life
Ballard Harmon Branch	BST-122	Metals	434		Aquatic Life
Dry Branch	BST-119	Metals	423		Aquatic Life
Mill Branch	BST-118	Metals	422		Aquatic Life
Loop Branch	BST-117	Metals	421, 419, 422		Aquatic Life
Belcher Branch	BST-116	Metals	417		Aquatic Life
Road Fork	BST-115-G	Metals	447		Aquatic Life
South Fork	BST-115	Metals	416, ,437, 438, 439, 440, 441, 442, 443, 444, 445, 446, 447, 448		Aquatic Life
Laurel Branch	BST -115-F	Metals	446		Aquatic Life
Spice Creek	BST-115-E	Metals	444		Aquatic Life
Jump Branch	BST-115-D	Metals	441		Aquatic Life
McClure Branch	BST-115-B	Metals	439		Aquatic Life
Tea Branch	BST-115-A	Metals	437		Aquatic Life

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

SWS
414
415
419
420
422
427
432
433
434
435
436
437
439
447

Table 3a. Water quality data for aluminum

SWS	WQ Station	Avg (ug/L)	Min (ug/L)	Max (ug/L)	Count	Start Date	End Date
416	211WVOWR__BST-115-0001	50.00	50	50	1	07/06/98	07/06/98
419	211WVOWR__BST-117-0001	74.30	74.3	74.3	1	06/24/98	06/24/98
420	211WVOWR__BST-118-0001	114.00	114	114	1	06/24/98	06/24/98
420	211WVOWR__BST-119-0001	183.00	183	183	1	06/24/98	06/24/98
424	211WVOWR__BST-120-0001	50.00	50	50	1	06/23/98	06/23/98
427	211WVOWR__BST-120-0003	118.00	118	118	1	06/23/98	06/23/98
430	211WVOWR__BST-120-0002	50.00	50	50	1	06/23/98	06/23/98
430	211WVOWR__BST-120-0004	333.00	333	333	1	06/16/98	06/16/98
431	211WVOWR__BST-121-0001	50.00	50	50	1	06/24/98	06/24/98
437	211WVOWR__BST-115-0002	50.00	50	50	1	07/01/98	07/01/98
440	211WVOWR__BST-115-0003	510.00	510	510	1	06/25/98	06/25/98
441	211WVOWR__BST-115-0004	159.00	159	159	1	06/25/98	06/25/98
443	211WVOWR__BST-115-0006	611.00	611	611	1	07/06/98	07/06/98
444	211WVOWR__BST-115-0005	50.00	50	50	1	06/24/98	06/24/98
445	211WVOWR__BST-115-0007	654.00	654	654	1	06/25/98	06/25/98

Table 3b. Water quality data for iron

SWS	WQ Station	Avg (ug/L)	Min (ug/L)	Max (ug/L)	Count	Start Date	End Date
415	112WRD__372012081283839	962.00	290	2700	5	05/10/79	07/20/81
416	112WRD__371937081283639	1256.00	200	4200	5	05/10/79	07/20/81
416	211WVOWR__BST-115-0001	142.00	142	142	1	07/06/98	07/06/98
419	211WVOWR__BST-117-0001	295.00	295	295	1	06/24/98	06/24/98
420	211WVOWR__BST-118-0001	391.00	391	391	1	06/24/98	06/24/98
420	211WVOWR__BST-119-0001	475.00	475	475	1	06/24/98	06/24/98
424	211WVOWR__BST-120-0001	256.00	256	256	1	06/23/98	06/23/98
427	211WVOWR__BST-120-0003	539.00	539	539	1	06/23/98	06/23/98
429	112WRD__03212558	1156.00	120	7000	10	02/10/81	10/07/81
430	211WVOWR__BST-120-0002	167.00	167	167	1	06/23/98	06/23/98
430	211WVOWR__BST-120-0004	481.00	481	481	1	06/16/98	06/16/98
431	211WVOWR__BST-121-0001	285.00	285	285	1	06/24/98	06/24/98
437	211WVOWR__BST-115-0002	200.00	200	200	1	07/01/98	07/01/98
440	211WVOWR__BST-115-0003	967.00	967	967	1	06/25/98	06/25/98
441	211WVOWR__BST-115-0004	394.00	394	394	1	06/25/98	06/25/98
443	211WVOWR__BST-115-0006	1180.00	1180	1180	1	07/06/98	07/06/98
444	211WVOWR__BST-115-0005	225.00	225	225	1	06/24/98	06/24/98
445	211WVOWR__BST-115-0007	1470.00	1470	1470	1	06/25/98	06/25/98
448	112WRD__03212567	721.82	110	2800	11	02/09/81	10/06/81
448	112WRD__371638081292801	305.00	150	460	2	05/15/84	07/25/84
448	112WRD__371642081291001	190.00	190	190	2	05/15/84	07/25/84

Table 3c. Water quality data for manganese

SWS	WQ Station	Avg (ug/L)	Min (ug/L)	Max (ug/L)	Count	Start Date	End Date
415	112WRD__372012081283839	62.00	30	80	5	05/10/79	07/20/81
416	112WRD__371937081283639	50.00	20	130	5	05/10/79	07/20/81
416	211WVOWR__BST-115-0001	15.40	15.4	15.4	1	07/06/98	07/06/98
419	211WVOWR__BST-117-0001	33.50	33.5	33.5	1	06/24/98	06/24/98
420	211WVOWR__BST-118-0001	28.50	28.5	28.5	1	06/24/98	06/24/98
420	211WVOWR__BST-119-0001	38.50	38.5	38.5	1	06/24/98	06/24/98
424	211WVOWR__BST-120-0001	10.00	10	10	1	06/23/98	06/23/98
427	211WVOWR__BST-120-0003	48.10	48.1	48.1	1	06/23/98	06/23/98
429	112WRD__03212558	48.00	10	260	10	02/10/81	10/07/81
430	211WVOWR__BST-120-0002	24.20	24.2	24.2	1	06/23/98	06/23/98
430	211WVOWR__BST-120-0004	29.00	29	29	1	06/16/98	06/16/98
431	211WVOWR__BST-121-0001	27.20	27.2	27.2	1	06/24/98	06/24/98
437	211WVOWR__BST-115-0002	24.80	24.8	24.8	1	07/01/98	07/01/98
440	211WVOWR__BST-115-0003	38.00	38	38	1	06/25/98	06/25/98
441	211WVOWR__BST-115-0004	17.30	17.3	17.3	1	06/25/98	06/25/98
443	211WVOWR__BST-115-0006	25.10	25.1	25.1	1	07/06/98	07/06/98
444	211WVOWR__BST-115-0005	35.90	35.9	35.9	1	06/24/98	06/24/98
445	211WVOWR__BST-115-0007	144.00	144	144	1	06/25/98	06/25/98
448	112WRD__03212567	116.36	10	470	11	02/09/81	10/06/81
448	112WRD__371638081292801	265.00	10	520	2	05/15/84	07/25/84
448	112WRD__371642081291001	120.00	110	130	2	05/15/84	07/25/84

Table 3d. Water quality data for Total Nonfilterable Residue

SWS	WQ Station	Avg (ug/L)	Min (ug/L)	Max (ug/L)	Count	Start Date	End Date

(not applicable to this region)

Table 3e. Water quality data for pH

SWS	WQ Station	Avg (ug/L)	Min (ug/L)	Max (ug/L)	Count	Start Date	End Date
415	112WRD__372002081285501	7.87	7.7	8.0	3	10/10/78	04/13/81
415	112WRD__372012081283839	8.22	8	8.6	6	05/10/79	09/27/83
416	112WRD__371936081283601	7.77	7.3	8.3	3	10/10/78	04/13/81
416	112WRD__371937081283639	8.28	7.9	8.6	6	05/10/79	09/27/83
416	211WVOWR__BST-115-0001	8.20	8.2	8.2	1	07/06/98	07/06/98
419	211WVOWR__BST-117-0001	8.00	8	8.0	1	06/24/98	06/24/98
420	211WVOWR__BST-118-0001	7.90	7.9	7.9	1	06/24/98	06/24/98
420	211WVOWR__BST-119-0001	6.70	6.7	6.7	1	06/24/98	06/24/98
424	211WVOWR__BST-120-0001	7.20	7.2	7.2	1	06/23/98	06/23/98
427	211WVOWR__BST-120-0003	7.10	7.1	7.1	1	06/23/98	06/23/98
429	112WRD__03212558	7.80	6.9	8.5	32	11/17/80	09/20/82
430	211WVOWR__BST-120-0002	6.60	6.6	6.6	1	06/23/98	06/23/98
430	211WVOWR__BST-120-0004	7.20	7.2	7.2	1	06/16/98	06/16/98
431	211WVOWR__BST-121-0001	6.70	6.7	6.7	1	06/24/98	06/24/98
437	211WVOWR__BST-115-0002	7.60	7.6	7.6	1	07/01/98	07/01/98
440	211WVOWR__BST-115-0003	7.20	7.2	7.2	1	06/25/98	06/25/98
441	211WVOWR__BST-115-0004	7.30	7.3	7.3	1	06/25/98	06/25/98
443	211WVOWR__BST-115-0006	7.90	7.9	7.9	1	07/06/98	07/06/98
444	211WVOWR__BST-115-0005	7.40	7.4	7.4	1	06/24/98	06/24/98
445	211WVOWR__BST-115-0007	7.60	7.6	7.6	1	06/25/98	06/25/98
448	112WRD__03212567	7.34	6.3	9.2	33	10/28/80	09/21/82
448	112WRD__371638081292801	7.50	7.4	7.6	2	05/15/84	07/25/84
448	112WRD__371642081291001	7.10	7	7.2	2	05/15/84	07/25/84

Table 3f. Water quality data for dissolved zinc

SWS	WQ Station	Avg (ug/L)	Min (ug/L)	Max (ug/L)	Count	Start Date	End Date
415	112WRD__372012081283839	4.00	4	4	1	08/18/80	08/18/80
416	112WRD__371937081283639	4.00	4	4	1	08/18/80	08/18/80

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

SWS	NPDES Permit ID	Baseline (lb/yr)	Allocation (lb/yr)	Allocation (mg/L)	Percent Reduction
414	WV1006029	414	414	3.60	0
414	WV1018558	611	611	3.60	0
415	WV1005855	2,644	925	1.33	65
434	WV0050946	1,396	698	1.89	50
436	WV0050946	1,706	1,024	2.27	40
441	WV1008781	1,109	721	2.46	35
443	WV1008781	7,574	1,515	0.76	80
444	WV1000209	141	64	1.71	55
444	WV1006631	972	437	1.71	55
444	WV1008731	661	298	1.71	55
444	WV1012240	1,929	868	1.71	55
444	WV1018485	284	128	1.71	55
445	WV1008781	76	76	3.60	0
446	WV1012240	322	119	1.40	63
446	WV1018574	3,794	1,404	1.40	63
447	WV0050946	620	186	1.14	70
447	WV1008781	2,349	705	1.14	70
448	WV1005758	2,505	801	1.21	68
448	WV1008781	627	201	1.21	68
448	WV1012193	4,852	1,552	1.21	68
448	WV1018574	1,265	405	1.21	68

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

SWS	NPDES Permit ID	Baseline (lb/yr)	Allocation (lb/yr)	Allocation (mg/L)	Percent Reduction
414	WV1006029	369	369	3.20	0
414	WV1018558	544	544	3.20	0
415	WV1005855	2,354	2,354	3.20	0
434	WV0050946	1,243	1,243	3.20	0
436	WV0050946	1,519	1,519	3.20	0
441	WV1008781	988	988	3.20	0
443	WV1008781	6,744	6,744	3.20	0
444	WV1000209	126	126	3.20	0
444	WV1006631	866	866	3.20	0
444	WV1008731	589	589	3.20	0
444	WV1012240	1,718	1,718	3.20	0
444	WV1018485	253	253	3.20	0
445	WV1008781	68	68	3.20	0
446	WV1012240	286	286	3.20	0
446	WV1018574	3,378	3,378	3.20	0
447	WV0050946	553	553	3.20	0
447	WV1008781	2,092	2,092	3.20	0
448	WV1005758	2,230	2,230	3.20	0
448	WV1008781	558	558	3.20	0
448	WV1012193	4,320	4,320	3.20	0
448	WV1018574	1,126	1,126	3.20	0

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

SWS	NPDES Permit ID	Baseline (lb/yr)	Allocation (lb/yr)	Allocation (mg/L)	Percent Reduction
414	WV1006029	230	230	2.00	0
414	WV1018558	339	339	2.00	0
415	WV1005855	1,467	1,467	2.00	0
434	WV0050946	774	774	2.00	0
436	WV0050946	947	947	2.00	0
441	WV1008781	615	615	2.00	0
443	WV1008781	4,202	4,202	2.00	0
444	WV1000209	78	78	2.00	0
444	WV1006631	539	539	2.00	0
444	WV1008731	367	367	2.00	0
444	WV1012240	1,070	1,070	2.00	0
444	WV1018485	158	158	2.00	0
445	WV1008781	42	42	2.00	0
446	WV1012240	178	178	2.00	0
446	WV1018574	2,105	2,105	2.00	0
447	WV0050946	344	344	2.00	0
447	WV1008781	1,303	1,303	2.00	0
448	WV1005758	1,389	1,389	2.00	0
448	WV1008781	348	348	2.00	0
448	WV1012193	2,691	2,691	2.00	0
448	WV1018574	702	702	2.00	0

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

SWS	AML		Revoked Mines		Harvested Forest		Oil and Gas		Roads		Nonpoint Source			
	Baseline Load (lb/yr)	Allocated Load (lb/yr)	Baseline Load (lb/yr)	Allocated Load (lb/yr)	Baseline Load (lb/yr)	Allocated Load (lb/yr)	Baseline Load (lb/yr)	Allocated Load (lb/yr)	Baseline Load (lb/yr)	Allocated Load (lb/yr)	Baseline Load (lb/yr)	Allocated Load (lb/yr)	**Requires Reduction**	**Percent Reduction**
414	86,141	861	59	1	615	615	0	0	388	388	714	714	x	97
415	3,140	63	0	0	256	154	0	0	163	100	456	456	x	81
416	0	0	0	0	79	79	0	0	51	51	182	182		0
417	0	0	0	0	155	155	0	0	104	104	373	373		0
418	0	0	0	0	90	90	0	0	60	60	217	217		0
419	404	40	0	0	21	21	0	0	13	13	44	44	x	75
420	3,258	65	0	0	537	537	75	75	342	342	1,200	1,200	x	59
421	0	0	0	0	109	109	0	0	69	69	245	245		0
422	32	1	0	0	146	131	0	0	93	84	333	333	x	9
423	0	0	0	0	83	83	0	0	52	52	184	184		0
424	0	0	0	0	52	52	0	0	36	36	130	130		0
425	0	0	0	0	115	115	56	56	82	82	295	295		0
426	0	0	0	0	229	229	56	56	152	152	550	550		0
427	812	16	0	0	199	159	168	134	128	103	454	454	x	51
428	0	0	0	0	16	16	0	0	11	11	40	40		0
429	0	0	0	0	225	191	93	79	141	121	503	503	x	7
430	0	0	0	0	714	607	130	111	401	343	1,437	1,437	x	7
431	0	0	0	0	376	320	112	95	234	200	839	839	x	7
432	416	8	0	0	167	167	37	37	107	107	382	382	x	37
433	4,940	99	0	0	33	33	0	0	22	22	43	43	x	96
434	9,221	92	0	0	262	183	0	0	165	118	469	469	x	91
435	289	6	0	0	197	197	0	0	122	122	435	435	x	27
436	594	12	0	0	298	209	19	13	196	139	631	631	x	42
437	139	3	0	0	75	75	0	0	46	46	162	162	x	32
438	0	0	0	0	129	129	0	0	82	82	295	295		0
439	527	11	0	0	77	77	19	19	47	47	165	165	x	62
440	0	0	0	0	204	204	0	0	127	127	455	455		0
441	0	0	0	0	193	97	0	0	120	62	385	385	x	22
442	0	0	0	0	37	37	0	0	25	25	90	90		0
443	0	0	0	0	188	94	0	0	116	60	120	120	x	35
444	0	0	0	0	598	418	0	0	376	267	1,186	1,186	x	13
445	0	0	0	0	19	19	0	0	12	12	39	39		0
446	0	0	0	0	407	264	0	0	252	167	743	743	x	16
447	2,291	46	0	0	213	117	0	0	132	75	339	339	x	81
448	0	0	0	0	524	288	0	0	361	204	929	929	x	22

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

SWS	AML		Revoked Mines		Harvested Forest		Oil and Gas		Roads		Nonpoint Source			
	Baseline Load (lb/yr)	Allocated Load (lb/yr)	Baseline Load (lb/yr)	Allocated Load (lb/yr)	Baseline Load (lb/yr)	Allocated Load (lb/yr)	Baseline Load (lb/yr)	Allocated Load (lb/yr)	Baseline Load (lb/yr)	Allocated Load (lb/yr)	Baseline Load (lb/yr)	Allocated Load (lb/yr)	**Requires Reduction**	**Percent Reduction**
414	113,644	8,043	68	68	777	777	0	0	489	489	1,118	1,118	x	91
415	4,143	4,143	0	0	324	243	0	0	206	156	714	714	x	2
416	0	0	0	0	100	100	0	0	64	64	286	286		0
417	0	0	0	0	196	196	0	0	131	131	584	584		0
418	0	0	0	0	113	113	0	0	76	76	339	339		0
419	533	369	0	0	26	26	0	0	17	17	69	69	x	25
420	4,299	2,198	0	0	678	678	94	94	431	431	1,882	1,882	x	28
421	0	0	0	0	138	138	0	0	87	87	385	385		0
422	42	42	0	0	184	184	0	0	117	117	522	522		0
423	0	0	0	0	104	104	0	0	65	65	289	289		0
424	0	0	0	0	66	66	0	0	46	46	203	203		0
425	0	0	0	0	146	146	71	71	104	104	461	461		0
426	0	0	0	0	290	290	71	71	192	192	860	860		0
427	1,071	871	0	0	252	201	212	170	161	130	711	711	x	13
428	0	0	0	0	21	21	0	0	14	14	62	62		0
429	0	0	0	0	284	241	118	100	178	152	789	789	x	6
430	0	0	0	0	902	767	165	140	506	432	2,253	2,253	x	6
431	0	0	0	0	475	404	141	120	296	253	1,315	1,315	x	6
432	549	303	0	0	210	210	47	47	136	136	598	598	x	16
433	6,517	285	0	0	41	41	0	0	27	27	66	66	x	94
434	12,165	1,255	0	0	331	232	0	0	209	148	736	736	x	82
435	381	381	0	0	249	249	0	0	154	154	682	682		0
436	783	783	0	0	377	264	24	16	247	175	987	987	x	8
437	183	183	0	0	94	94	0	0	58	58	255	255		0
438	0	0	0	0	163	163	0	0	104	104	462	462		0
439	695	339	0	0	97	97	24	24	59	59	258	258	x	31
440	0	0	0	0	258	258	0	0	160	160	712	712		0
441	0	0	0	0	244	122	0	0	151	78	603	603	x	20
442	0	0	0	0	47	47	0	0	32	32	141	141		0
443	0	0	0	0	237	118	0	0	146	76	187	187	x	33
444	0	0	0	0	755	528	0	0	474	336	1,859	1,859	x	12
445	0	0	0	0	24	24	0	0	15	15	61	61		0
446	0	0	0	0	514	334	0	0	318	211	1,165	1,165	x	14
447	3,023	1,115	0	0	269	148	0	0	166	94	532	532	x	53
448	0	0	0	0	662	364	0	0	455	257	1,456	1,456	x	19

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

SWS	AML		Revoked Mines		Harvested Forest		Oil and Gas		Roads		Nonpoint Source			
	Baseline Load (lb/yr)	Allocated Load (lb/yr)	Baseline Load (lb/yr)	Allocated Load (lb/yr)	Baseline Load (lb/yr)	Allocated Load (lb/yr)	Baseline Load (lb/yr)	Allocated Load (lb/yr)	Baseline Load (lb/yr)	Allocated Load (lb/yr)	Baseline Load (lb/yr)	Allocated Load (lb/yr)	**Requires Reduction**	**Percent Reduction**
414	37,768	11,331	59	18	48	48	0	0	35	35	527	527	x	69
415	1,377	1,377	0	0	20	15	0	0	15	12	336	336	x	0
416	0	0	0	0	6	6	0	0	5	5	135	135		0
417	0	0	0	0	12	12	0	0	9	9	275	275		0
418	0	0	0	0	7	7	0	0	5	5	160	160		0
419	177	177	0	0	2	2	0	0	1	1	32	32		0
420	1,429	1,429	0	0	42	42	6	6	31	31	887	887		0
421	0	0	0	0	9	9	0	0	6	6	181	181		0
422	14	14	0	0	11	11	0	0	8	8	246	246		0
423	0	0	0	0	6	6	0	0	5	5	136	136		0
424	0	0	0	0	4	4	0	0	3	3	95	95		0
425	0	0	0	0	9	9	4	4	7	7	217	217		0
426	0	0	0	0	18	18	4	4	14	14	404	404		0
427	356	356	0	0	16	12	13	11	12	10	335	335	x	1
428	0	0	0	0	1	1	0	0	1	1	29	29		0
429	0	0	0	0	18	15	7	6	13	11	372	372	x	1
430	0	0	0	0	56	48	10	9	36	31	1,062	1,062	x	1
431	0	0	0	0	30	25	9	7	21	18	620	620	x	1
432	182	182	0	0	13	13	3	3	10	10	282	282		0
433	2,166	1,516	0	0	3	3	0	0	2	2	30	30	x	30
434	4,043	809	0	0	21	14	0	0	15	11	347	347	x	73
435	127	127	0	0	15	15	0	0	11	11	321	321		0
436	260	260	0	0	23	16	1	1	18	13	464	464	x	2
437	61	61	0	0	6	6	0	0	4	4	120	120		0
438	0	0	0	0	10	10	0	0	7	7	218	218		0
439	231	231	0	0	6	6	1	1	4	4	122	122		0
440	0	0	0	0	16	16	0	0	11	11	336	336		0
441	0	0	0	0	15	8	0	0	11	6	284	284	x	4
442	0	0	0	0	3	3	0	0	2	2	66	66		0
443	0	0	0	0	15	7	0	0	10	6	88	88	x	10
444	0	0	0	0	47	33	0	0	34	25	876	876	x	2
445	0	0	0	0	1	1	0	0	1	1	29	29		0
446	0	0	0	0	32	21	0	0	23	16	549	549	x	3
447	1,005	352	0	0	17	9	0	0	12	7	251	251	x	52
448	0	0	0	0	41	23	0	0	32	20	686	686	x	4

Appendix A-3

Region 3

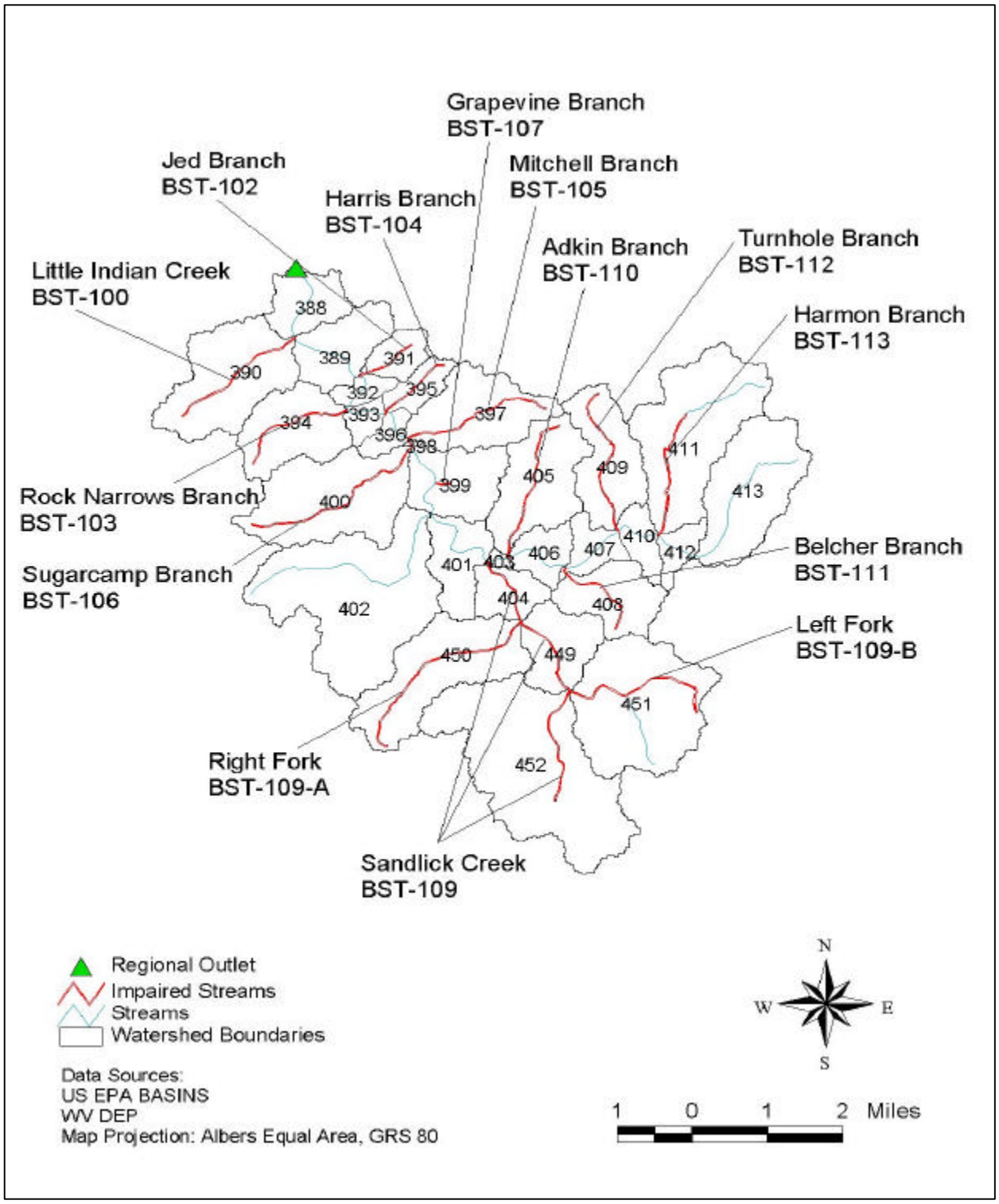

Figure 1. Region 3 - Tug Fork watershed

Table 1. Impaired waterbodies in Region 3

Stream Name	Stream Code	Pollutant	Contributing SWS	Contributing Regions	Aquatic Life
Sandlick Creek	BST-109	Metals	452, 449, 451, 404, 450		Aquatic Life
Left Fork	BST-109-B	Metals	451		Aquatic Life
Right Fork	BST-109-A	Metals	450		Aquatic Life
Belcher Branch	BST-111	Metals	408		Aquatic Life
Harmon Branch	BST-113	Metals	411		Aquatic Life
Turnhole Branch	BST 112	Metals	409		Aquatic Life
Grapevine Branch	BST-107	Metals	399		Aquatic Life
Adkin Branch	BST-110	Metals	405		Aquatic Life
Harris Branch	BST-104	Metals	395		Aquatic Life
Mitchell Branch	BSt-105	Metals	397		Aquatic Life
Sugarcamp Branch	BST-106	Metals	400		Aquatic Life
Little Indian Creek	BST-100	Metals	390		Aquatic Life
Jed Branch	BST-102	Metals	391		Aquatic Life
Rock Narrows Branch	BST-103	Metals	394		Aquatic Life

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

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Table 3a. Water quality data for aluminum

SWS	WQ Station	Avg (ug/L)	Min (ug/L)	Max (ug/L)	Count	Start Date	End Date
389	112WRD__372456081352539	75.00	70	80	2	02/25/80	06/17/80
393	211WVOWR__BST-104-0001	50.00	50	50	1	06/18/98	06/18/98
394	211WVOWR__BST-103-0001	147.00	147	147	1	06/23/98	06/23/98
394	WV1011847__RND-1	404.44	40	600	9	01/13/99	04/25/01
394	WV1011847__UTD-1	415.15	400	700	33	11/14/98	04/25/01
396	211WVOWR__BST-000-101.2	76.30	76.3	76.3	1	07/02/98	07/02/98
397	211WVOWR__BST-105-0001	145.00	145	145	1	07/01/98	07/01/98
399	211WVOWR__BST-107-0001	50.00	50	50	1	06/17/98	06/17/98
400	211WVOWR__BST-106-0001	75.60	75.6	75.6	1	07/01/98	07/01/98
400	WV1011847__SCD-1	416.67	400	500	6	01/13/99	04/11/01
400	WV1011847__SCU-1	400.00	400	400	5	01/13/99	07/13/00
401	211WVOWR__BST-000-104.2	56.00	56	56	1	07/06/98	07/06/98
404	211WVOWR__BST-109-0001	127.00	127	127	1	06/17/98	06/17/98
405	211WVOWR__BST-110-0001	50.00	50	50	1	06/17/98	06/17/98
406	211WVOWR__BST-111-0001	50.00	50	50	1	06/17/98	06/17/98
406	211WVOWR__BST-112-0001	127.00	127	127	1	06/30/98	06/30/98
411	211WVOWR__BST-113-0001	50.00	50	50	1	06/30/98	06/30/98
449	211WVOWR__BST-109-0002	202.00	202	202	1	07/01/98	07/01/98
449	211WVOWR__BST-109-0003	406.00	406	406	1	07/01/98	07/01/98
451	211WVOWR__BST-109-0004	532.00	532	532	1	07/01/98	07/01/98
451	WV1016059__DSLFSC	402.71	50	4100	48	12/07/99	11/21/01
451	WV1016059__USLFSC	337.92	50	4400	48	12/07/99	11/21/01

Table 3b. Water quality data for iron

SWS	WQ Station	Avg (ug/L)	Min (ug/L)	Max (ug/L)	Count	Start Date	End Date
389	112WRD__372456081352539	1920.00	180	6800	6	05/10/79	08/19/80
393	211WVOWR__BST-104-0001	204.00	204	204	1	06/18/98	06/18/98
394	211WVOWR__BST-103-0001	657.00	657	657	1	06/23/98	06/23/98
394	WV1011847__RND-1	128.92	50	700	37	01/13/99	04/25/01
394	WV1011847__UTD-1	158.14	50	700	43	11/14/98	04/25/01
396	211WVOWR__BST-000-101.2	851.00	851	851	1	07/02/98	07/02/98
397	211WVOWR__BST-105-0001	309.00	309	309	1	07/01/98	07/01/98
399	211WVOWR__BST-107-0001	50.00	50	50	1	06/17/98	06/17/98
400	211WVOWR__BST-106-0001	3390.00	3390	3390	1	07/01/98	07/01/98
400	WV1011847__SCD-1	154.35	50	540	23	01/13/99	04/25/01
400	WV1011847__SCU-1	120.00	50	500	19	01/13/99	03/28/01
401	211WVOWR__BST-000-104.2	113.00	113	113	1	07/06/98	07/06/98
404	211WVOWR__BST-109-0001	256.00	256	256	1	06/17/98	06/17/98
405	211WVOWR__BST-110-0001	50.00	50	50	1	06/17/98	06/17/98
406	211WVOWR__BST-111-0001	50.00	50	50	1	06/17/98	06/17/98
406	211WVOWR__BST-112-0001	479.00	479	479	1	06/30/98	06/30/98
411	211WVOWR__BST-113-0001	271.00	254	288	2	06/30/98	06/30/98
449	211WVOWR__BST-109-0002	290.00	290	290	1	07/01/98	07/01/98
449	211WVOWR__BST-109-0003	283.00	283	283	1	07/01/98	07/01/98
450	112WRD__03212580	710.00	300	1400	12	02/10/81	10/20/81
451	211WVOWR__BST-109-0004	357.00	357	357	1	07/01/98	07/01/98
451	WV1016059__DSLFSC	603.29	10	4860	70	01/05/99	11/21/01
451	WV1016059__USLFSC	507.71	10	6090	70	01/05/99	11/21/01

Table 3c. Water quality data for manganese

SWS	WQ Station	Avg (ug/L)	Min (ug/L)	Max (ug/L)	Count	Start Date	End Date
389	112WRD__372456081352539	131.67	60	250	6	05/10/79	08/19/80
393	211WVOWR__BST-104-0001	30.00	30	30	1	06/18/98	06/18/98
394	211WVOWR__BST-103-0001	106.00	106	106	1	06/23/98	06/23/98
394	WV1011847__RND-1	28.89	20	60	9	01/13/99	04/25/01
394	WV1011847__UTD-1	42.42	20	150	33	11/14/98	04/25/01
396	211WVOWR__BST-000-101.2	160.00	160	160	1	07/02/98	07/02/98
397	211WVOWR__BST-105-0001	65.60	65.6	65.6	1	07/01/98	07/01/98
399	211WVOWR__BST-107-0001	10.00	10	10	1	06/17/98	06/17/98
400	211WVOWR__BST-106-0001	466.00	466	466	1	07/01/98	07/01/98
400	WV1011847__SCD-1	170.00	20	610	6	01/13/99	04/11/01
400	WV1011847__SCU-1	70.00	20	270	5	01/13/99	07/13/00
401	211WVOWR__BST-000-104.2	33.90	33.9	33.9	1	07/06/98	07/06/98
404	211WVOWR__BST-109-0001	89.40	89.4	89.4	1	06/17/98	06/17/98
405	211WVOWR__BST-110-0001	20.20	20.2	20.2	1	06/17/98	06/17/98
406	211WVOWR__BST-111-0001	72.50	72.5	72.5	1	06/17/98	06/17/98
406	211WVOWR__BST-112-0001	90.50	90.5	90.5	1	06/30/98	06/30/98
411	211WVOWR__BST-113-0001	50.65	48.5	52.8	2	06/30/98	06/30/98
449	211WVOWR__BST-109-0002	173.00	173	173	1	07/01/98	07/01/98
449	211WVOWR__BST-109-0003	70.40	70.4	70.4	1	07/01/98	07/01/98
450	112WRD__03212580	3183.33	2100	4200	12	02/10/81	10/20/81
451	211WVOWR__BST-109-0004	424.00	424	424	1	07/01/98	07/01/98
451	WV1016059__DSLFSC	251.86	10	1020	70	01/05/99	11/21/01
451	WV1016059__USLFSC	225.00	10	620	70	01/05/99	11/21/01

Table 3d. Water quality data for Total Nonfilterable Residue

SWS	WQ Station	Avg (ug/L)	Min (ug/L)	Max (ug/L)	Count	Start Date	End Date

(not applicable to this region)

Table 3e. Water quality data for pH

SWS	WQ Station	Avg (ug/L)	Min (ug/L)	Max (ug/L)	Count	Start Date	End Date
389	112WRD__372456081352539	7.92	5.8	8.5	26	10/09/78	09/22/80
393	211WVOWR__BST-104-0001	8.00	8	8.0	1	06/18/98	06/18/98
394	211WVOWR__BST-103-0001	7.90	7.9	7.9	1	06/23/98	06/23/98
394	WV1011847__RND-1	7.78	7.19	8.5	36	01/13/99	04/25/01
394	WV1011847__UTD-1	7.75	6.3	8.4	43	11/14/98	04/25/01
396	211WVOWR__BST-000-101.2	7.90	7.9	7.9	1	07/02/98	07/02/98
397	211WVOWR__BST-105-0001	7.60	7.6	7.6	1	07/01/98	07/01/98
399	211WVOWR__BST-107-0001	7.00	7	7.0	1	06/17/98	06/17/98
400	211WVOWR__BST-106-0001	7.90	7.9	7.9	1	07/01/98	07/01/98
400	WV1011847__SCD-1	7.69	7.22	8.3	23	01/13/99	04/25/01
400	WV1011847__SCU-1	7.66	6.69	8.2	19	01/13/99	03/28/01
401	211WVOWR__BST-000-104.2	8.30	8.3	8.3	1	07/06/98	07/06/98
404	112WRD__372153081330801	7.47	7.4	7.5	3	10/09/78	04/14/81
404	211WVOWR__BST-109-0001	7.20	7.2	7.2	1	06/17/98	06/17/98
405	211WVOWR__BST-110-0001	7.20	7.2	7.2	1	06/17/98	06/17/98
406	211WVOWR__BST-111-0001	7.40	7.4	7.4	1	06/17/98	06/17/98
406	211WVOWR__BST-112-0001	7.80	7.8	7.8	1	06/30/98	06/30/98
411	211WVOWR__BST-113-0001	8.10	8.1	8.1	1	06/30/98	06/30/98
449	211WVOWR__BST-109-0002	7.80	7.8	7.8	1	07/01/98	07/01/98
449	211WVOWR__BST-109-0003	7.70	7.7	7.7	1	07/01/98	07/01/98
450	112WRD__03212580	5.06	4.4	6.2	34	11/18/80	09/20/82
450	112WRD__03212585	7.47	6.5	9.0	20	02/04/81	07/06/82
451	211WVOWR__BST-109-0004	7.50	7.5	7.5	1	07/01/98	07/01/98
451	WV1016059__DSLFSC	7.34	6.18	8.3	70	01/05/99	11/21/01
451	WV1016059__USLFSC	7.30	6.3	8.1	70	01/05/99	11/21/01

Table 3f. Water quality data for dissolved zinc

SWS	WQ Station	Avg (ug/L)	Min (ug/L)	Max (ug/L)	Count	Start Date	End Date
389	112WRD__372456081352539	14.00	4	30	3	02/25/80	08/19/80

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

SWS	NPDES Permit ID	Baseline (lb/yr)	Allocation (lb/yr)	Allocation (mg/L)	Percent Reduction
388	WV1006568	44	44	3.60	0
389	WV1006568	87	87	3.60	0
389	WV1011928	320	320	3.60	0
391	WV1011928	193	193	3.60	0
392	WV1011928	64	64	3.60	0
393	WV0066788	57	57	3.60	0
394	WV0045144	222	222	3.60	0
397	WV0090034	1,120	336	1.14	70
397	WV1012126	51	15	1.14	70
397	WV1016458	25	8	1.14	70
399	WV0066788	115	115	3.60	0
399	WV0090034	1,120	1,120	3.60	0
399	WV1016458	51	51	3.60	0
400	WV0066788	114	114	3.60	0
401	WV0066788	230	230	3.60	0
401	WV0090034	1,680	1,680	3.60	0
402	WV0066788	57	57	3.60	0
402	WV0069060	737	737	3.60	0
402	WV1012002	962	962	3.60	0
404	WV1009036	100	100	3.60	0
405	WV0066788	287	115	1.52	60
405	WV0090034	560	224	1.52	60
405	WV1012126	154	62	1.52	60
405	WV1016458	76	30	1.52	60
408	WV0056634	104	31	1.14	70
408	WV0097543	156	47	1.14	70
408	WV1005880	210	63	1.14	70
408	WV1018558	815	244	1.14	70
409	WV1016458	503	201	1.52	60
411	WV1005545	415	104	0.95	75
411	WV1006223	39	10	0.95	75
411	WV1016474	4,044	1,011	0.95	75
411	WV1018949	917	229	0.95	75
413	WV1005545	21	6	1.14	70
413	WV1016474	1,769	531	1.14	70
449	WV0097543	52	52	3.60	0
449	WV1008714	38	38	3.60	0
449	WV1011995	120	120	3.60	0
450	WV1012002	730	584	3.03	20
451	WV0045691	33	13	1.52	60
451	WV1005880	105	42	1.52	60
451	WV1006118	381	152	1.52	60
451	WV1006126	218	87	1.52	60
451	WV1008731	1,543	617	1.52	60
451	WV1016059	0	0	1.52	0
451	WV1018485	189	76	1.52	60
451	WV1018558	1,018	407	1.52	60
451	WV1018876	99	40	1.52	60
452	WV0066770	756	605	3.03	20
452	WV1006118	30	24	3.03	20
452	WV1006126	73	58	3.03	20
452	WV1008820	152	122	3.03	20
452	WV1011995	541	433	3.03	20
452	WV1018485	474	379	3.03	20
452	WV1018876	99	79	3.03	20

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

SWS	NPDES Permit ID	Baseline (lb/yr)	Allocation (lb/yr)	Allocation (mg/L)	Percent Reduction
388	WV1006568	39	39	3.20	0
389	WV1006568	77	77	3.20	0
389	WV1011928	285	285	3.20	0
391	WV1011928	172	172	3.20	0
392	WV1011928	57	57	3.20	0
393	WV0066788	51	51	3.20	0
394	WV0045144	198	198	3.20	0
397	WV0090034	997	997	3.20	0
397	WV1012126	46	46	3.20	0
397	WV1016458	23	23	3.20	0
399	WV0066788	102	102	3.20	0
399	WV0090034	997	997	3.20	0
399	WV1016458	45	45	3.20	0
400	WV0066788	102	102	3.20	0
401	WV0066788	204	204	3.20	0
401	WV0090034	1,496	1,496	3.20	0
402	WV0066788	51	51	3.20	0
402	WV0069060	657	657	3.20	0
402	WV1012002	856	856	3.20	0
404	WV1009036	89	89	3.20	0
405	WV0066788	256	256	3.20	0
405	WV0090034	499	499	3.20	0
405	WV1012126	137	137	3.20	0
405	WV1016458	68	68	3.20	0
408	WV0056634	92	92	3.20	0
408	WV0097543	139	139	3.20	0
408	WV1005880	187	187	3.20	0
408	WV1018558	725	725	3.20	0
409	WV1016458	448	448	3.20	0
411	WV1005545	370	370	3.20	0
411	WV1006223	35	35	3.20	0
411	WV1016474	3,601	3,601	3.20	0
411	WV1018949	817	817	3.20	0
413	WV1005545	19	19	3.20	0
413	WV1016474	1,576	1,576	3.20	0
449	WV0097543	46	46	3.20	0
449	WV1008714	34	34	3.20	0
449	WV1011995	107	107	3.20	0
450	WV1012002	650	650	3.20	0
451	WV0045691	29	29	3.20	0
451	WV1005880	94	94	3.20	0
451	WV1006118	339	339	3.20	0
451	WV1006126	194	194	3.20	0
451	WV1008731	1,374	1,374	3.20	0
451	WV1016059	0	0	3.20	0
451	WV1018485	169	169	3.20	0
451	WV1018558	907	907	3.20	0
451	WV1018876	88	88	3.20	0
452	WV0066770	674	674	3.20	0
452	WV1006118	27	27	3.20	0
452	WV1006126	65	65	3.20	0
452	WV1008820	136	136	3.20	0
452	WV1011995	482	482	3.20	0
452	WV1018485	422	422	3.20	0
452	WV1018876	88	88	3.20	0

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

SWS	NPDES Permit ID	Baseline (lb/yr)	Allocation (lb/yr)	Allocation (mg/L)	Percent Reduction
388	WV1006568	24	24	2.00	0
389	WV1006568	48	48	2.00	0
389	WV1011928	178	178	2.00	0
391	WV1011928	107	107	2.00	0
392	WV1011928	36	36	2.00	0
393	WV0066788	32	32	2.00	0
394	WV0045144	123	123	2.00	0
397	WV0090034	621	621	2.00	0
397	WV1012126	29	29	2.00	0
397	WV1016458	14	14	2.00	0
399	WV0066788	64	64	2.00	0
399	WV0090034	621	621	2.00	0
399	WV1016458	28	28	2.00	0
400	WV0066788	63	63	2.00	0
401	WV0066788	127	127	2.00	0
401	WV0090034	932	932	2.00	0
402	WV0066788	32	32	2.00	0
402	WV0069060	409	409	2.00	0
402	WV1012002	533	533	2.00	0
404	WV1009036	56	56	2.00	0
405	WV0066788	159	159	2.00	0
405	WV0090034	311	311	2.00	0
405	WV1012126	86	86	2.00	0
405	WV1016458	42	42	2.00	0
408	WV0056634	57	57	2.00	0
408	WV0097543	87	87	2.00	0
408	WV1005880	117	117	2.00	0
408	WV1018558	452	452	2.00	0
409	WV1016458	279	279	2.00	0
411	WV1005545	230	230	2.00	0
411	WV1006223	22	22	2.00	0
411	WV1016474	2,244	2,244	2.00	0
411	WV1018949	509	509	2.00	0
413	WV1005545	12	12	2.00	0
413	WV1016474	982	982	2.00	0
449	WV0097543	29	29	2.00	0
449	WV1008714	21	21	2.00	0
449	WV1011995	67	67	2.00	0
450	WV1012002	405	405	2.00	0
451	WV0045691	18	18	2.00	0
451	WV1005880	58	58	2.00	0
451	WV1006118	211	211	2.00	0
451	WV1006126	121	121	2.00	0
451	WV1008731	856	856	2.00	0
451	WV1016059	0	0	2.00	0
451	WV1018485	105	105	2.00	0
451	WV1018558	565	565	2.00	0
451	WV1018876	55	55	2.00	0
452	WV0066770	420	420	2.00	0
452	WV1006118	17	17	2.00	0
452	WV1006126	40	40	2.00	0
452	WV1008820	84	84	2.00	0
452	WV1011995	300	300	2.00	0
452	WV1018485	263	263	2.00	0
452	WV1018876	55	55	2.00	0

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

SWS	AML		Revoked Mines		Harvested Forest		Oil and Gas		Roads		Nonpoint Source			
	Baseline Load (lb/yr)	Allocated Load (lb/yr)	Baseline Load (lb/yr)	Allocated Load (lb/yr)	Baseline Load (lb/yr)	Allocated Load (lb/yr)	Baseline Load (lb/yr)	Allocated Load (lb/yr)	Baseline Load (lb/yr)	Allocated Load (lb/yr)	Baseline Load (lb/yr)	Allocated Load (lb/yr)	**Requires Reduction**	**Percent Reduction**
388	0	0	0	0	117	117	19	19	81	81	289	289		0
389	3,182	3,182	0	0	151	151	19	19	105	105	342	342		0
390	20,007	400	0	0	800	560	0	0	208	148	609	609	x	92
391	19,813	0	0	0	65	65	19	19	43	43	0	0	x	99
392	9,527	191	0	0	38	38	0	0	27	27	26	26	x	97
393	426	426	0	0	36	36	0	0	25	25	85	85		0
394	0	0	0	0	221	221	19	19	141	141	496	496		0
395	942	19	0	0	90	58	0	0	41	27	137	137	x	80
396	0	0	0	0	37	37	0	0	27	27	96	96		0
397	0	0	0	0	246	197	0	0	156	126	512	512	x	9
398	0	0	0	0	1	1	0	0	1	1	8	8		0
399	0	0	0	0	144	144	0	0	117	117	386	386		0
400	0	0	0	0	368	368	135	135	236	236	840	840		0
401	0	0	0	0	133	133	0	0	89	89	249	249		0
402	828	17	0	0	638	447	154	108	393	279	1,328	1,328	x	35
403	0	0	0	0	5	5	0	0	6	6	22	22		0
404	7	7	0	0	90	90	0	0	60	60	219	219		0
405	1,238	25	0	0	243	170	0	0	161	114	522	522	x	62
406	455	9	0	0	77	77	0	0	52	52	186	186	x	58
407	2,031	41	0	0	70	70	0	0	46	46	148	148	x	87
408	7,328	147	0	0	171	86	0	0	107	56	278	278	x	93
409	33,670	337	0	0	224	134	0	0	139	85	232	232	x	98
410	2,200	44	0	0	65	65	0	0	42	42	135	135	x	88
411	1,334	27	712	14	405	304	0	0	271	205	715	715	x	63
412	4,410	88	0	0	49	34	0	0	34	24	92	92	x	95
413	2,120	42	0	0	312	250	0	0	198	160	621	621	x	67
449	4,438	89	0	0	160	96	0	0	100	62	320	320	x	89
450	21,246	212	0	0	347	208	0	0	220	135	602	602	x	95
451	6,804	136	0	0	431	280	0	0	281	186	817	817	x	83
452	541	11	0	0	643	450	0	0	408	290	1,372	1,372	x	28

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

SWS	AML		Revoked Mines		Harvested Forest		Oil and Gas		Roads		Nonpoint Source			
	Baseline Load (lb/yr)	Allocated Load (lb/yr)	Baseline Load (lb/yr)	Allocated Load (lb/yr)	Baseline Load (lb/yr)	Allocated Load (lb/yr)	Baseline Load (lb/yr)	Allocated Load (lb/yr)	Baseline Load (lb/yr)	Allocated Load (lb/yr)	Baseline Load (lb/yr)	Allocated Load (lb/yr)	Requires Reduction	Percent Reduction
388	0	0	0	0	147	147	24	24	102	102	450	450		0
389	4,197	4,197	0	0	191	191	24	24	133	133	532	532		0
390	26,388	2,173	0	0	1,011	708	0	0	263	186	947	947	x	86
391	26,139	422	0	0	82	82	24	24	55	55	0	0	x	98
392	12,565	1,644	0	0	49	49	0	0	34	34	40	40	x	86
393	561	561	0	0	46	46	0	0	31	31	133	133		0
394	0	0	0	0	279	279	24	24	178	178	777	777		0
395	1,243	324	0	0	113	74	0	0	52	34	215	215	x	60
396	0	0	0	0	47	47	0	0	34	34	149	149		0
397	0	0	0	0	310	248	0	0	197	159	803	803	x	8
398	0	0	0	0	1	1	0	0	2	2	11	11		0
399	0	0	0	0	182	182	0	0	148	148	592	592		0
400	0	0	0	0	465	465	170	170	297	297	1,316	1,316		0
401	0	0	0	0	168	168	0	0	113	113	387	387		0
402	1,092	1,092	0	0	806	564	194	136	496	352	2,082	2,082	x	10
403	0	0	0	0	6	6	0	0	8	8	34	34		0
404	9	9	0	0	113	113	0	0	76	76	339	339		0
405	1,633	1,199	0	0	308	215	0	0	203	144	818	818	x	20
406	600	160	0	0	97	97	0	0	66	66	289	289	x	42
407	2,679	272	0	0	88	88	0	0	58	58	231	231	x	79
408	9,668	843	0	0	216	108	0	0	136	70	436	436	x	86
409	44,421	1,434	0	0	283	198	0	0	175	124	364	364	x	95
410	2,902	389	0	0	82	82	0	0	53	53	212	212	x	77
411	1,760	1,124	818	818	512	384	0	0	341	259	1,121	1,121	x	19
412	5,818	206	0	0	62	43	0	0	43	30	142	142	x	93
413	2,797	1,544	0	0	394	315	0	0	250	202	974	974	x	31
449	5,855	611	0	0	202	121	0	0	126	78	502	502	x	80
450	28,030	1,971	0	0	439	263	0	0	277	170	944	944	x	89
451	8,976	2,507	0	0	544	354	0	0	355	235	1,279	1,279	x	61
452	713	713	0	0	812	569	0	0	515	366	2,151	2,151	x	9

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

SWS	AML		Revoked Mines		Harvested Forest		Oil and Gas		Roads		Nonpoint Source			
	Baseline Load (lb/yr)	Allocated Load (lb/yr)	Baseline Load (lb/yr)	Allocated Load (lb/yr)	Baseline Load (lb/yr)	Allocated Load (lb/yr)	Baseline Load (lb/yr)	Allocated Load (lb/yr)	Baseline Load (lb/yr)	Allocated Load (lb/yr)	Baseline Load (lb/yr)	Allocated Load (lb/yr)	**Requires Reduction**	**Percent Reduction**
388	0	0	0	0	9	9	2	2	7	7	211	211		0
389	1,383	1,383	0	0	12	12	2	2	9	9	249	249		0
390	8,694	2,174	0	0	63	44	0	0	19	14	442	442	x	71
391	8,687	347	0	0	5	5	1	1	4	4	0	0	x	96
392	4,140	4,140	0	0	3	3	0	0	2	2	18	18		0
393	185	185	0	0	3	3	0	0	2	2	63	63		0
394	0	0	0	0	17	17	2	2	13	13	366	366		0
395	413	310	0	0	7	5	0	0	4	3	101	101	x	20
396	0	0	0	0	3	3	0	0	2	2	70	70		0
397	0	0	0	0	19	15	0	0	14	12	378	378	x	2
398	0	0	0	0	0	0	0	0	0	0	5	5		0
399	0	0	0	0	11	11	0	0	11	11	273	273		0
400	0	0	0	0	29	29	11	11	21	21	620	620		0
401	0	0	0	0	10	10	0	0	8	8	181	181		0
402	360	360	0	0	50	35	12	9	35	26	982	982	x	2
403	0	0	0	0	0	0	0	0	1	1	15	15		0
404	3	3	0	0	7	7	0	0	5	5	159	159		0
405	543	543	0	0	19	13	0	0	14	11	385	385	x	1
406	199	60	0	0	6	6	0	0	5	5	136	136	x	40
407	890	267	0	0	5	5	0	0	4	4	109	109	x	62
408	3,213	643	0	0	13	7	0	0	10	6	205	205	x	75
409	14,763	738	0	0	18	12	0	0	12	9	171	171	x	94
410	964	386	0	0	5	5	0	0	4	4	100	100	x	54
411	585	527	709	638	32	24	0	0	24	19	528	528	x	8
412	1,933	580	0	0	4	3	0	0	3	2	66	66	x	68
413	929	929	0	0	24	20	0	0	18	15	459	459	x	1
449	1,946	1,362	0	0	13	8	0	0	9	6	236	236	x	27
450	9,315	1,490	0	0	27	16	0	0	20	13	445	445	x	80
451	2,983	746	0	0	34	22	0	0	25	18	601	601	x	62
452	237	237	0	0	50	35	0	0	37	27	1,013	1,013	x	2

Appendix A-4
Region 4

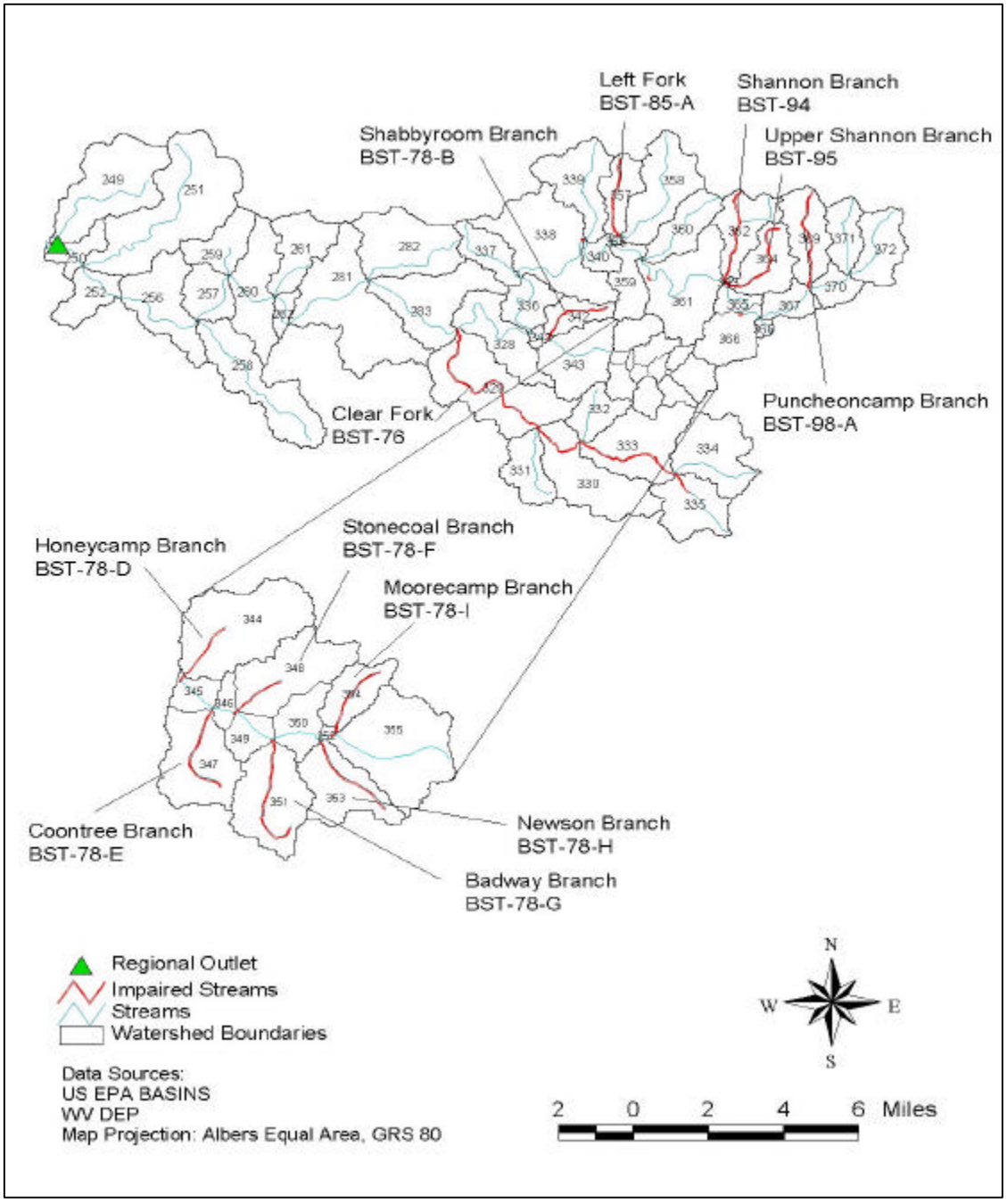

Figure 1. Region 4 - Tug Fork watershed

Table 1. Impaired waterbodies in Region 4

Stream Name	Stream Code	Pollutant	Contributing SWS	Contributing Regions	Aquatic Life
Puncheon Camp	BST- 98-A	Metals	369		Aquatic Life
Upper Shannon	BST-95	Metals	364		Aquatic Life
Shannon Branch	BST-94	Metals	362		Aquatic Life
Left Fork	BST-85-A	Metals	357		Aquatic Life
Shabby Room Branch	BST-78-B	Metals	342		Aquatic Life
Honeycamp Branch	BST-78-D	Metals	344		Aquatic Life
Coontree Branch	BST-78-E	Metals	347		Aquatic Life
Badway Branch	BST-78-G	Metals	351		Aquatic Life
Newson Branch	BST-78-H	Metals	353		Aquatic Life
Moorecamp Branch	BST-78-I	Metals	354		Aquatic Life
Stonecoal Branch	BST-78-F	Metals	348		Aquatic Life
Clear Fork	BST-76	Metals	329, 332, 333, 334, 335, 331, 330		Aquatic Life

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

SWS
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Table 3a. Water quality data for aluminum

SWS	WQ Station	Avg (ug/L)	Min (ug/L)	Max (ug/L)	Count	Start Date	End Date
249	WV0031534__WTNO1	351.47	20	3040	75	11/09/98	11/20/01
249	WV0031534__WTNO2	279.73	50	2180	75	11/09/98	11/20/01
249	WV0044750__DSFC	661.78	50	1930	73	11/09/98	11/20/01
249	WV0057941__TEST-1	256.25	50	1500	72	11/09/98	11/20/01
249	WV0057941__TEST-2	252.08	50	1520	72	11/09/98	11/20/01
249	WV1005812__DSFPC1	438.32	6	8100	74	11/09/98	11/20/01
250	WV1005839__TEST-1	403.79	50	4330	66	11/09/98	08/23/01
250	WV1005839__TEST-2	394.77	50	4250	65	11/09/98	08/23/01
257	112WRD__372905081504039	1412.94	190	6200	17	05/11/79	08/19/80
258	211WVOWR__BST-000-070.6	275.00	275	275	1	07/07/98	07/07/98
260	WV1018671__RB-A	327.25	50	1670	40	04/14/99	09/12/01
260	WV1018671__RB-B	260.00	50	1330	44	04/14/99	09/12/01
282	112WRD__372910081441601	380.00	320	440	2	05/01/84	07/24/84
282	112WRD__372951081445401	1695.00	990	2400	2	05/01/84	07/24/84
283	211WVOWR__BST-000-076.4	294.00	294	294	1	07/07/98	07/07/98
329	112WRD__372702081441439	1484.00	640	3800	5	05/11/79	07/21/81
329	211WVOWR__BST-076-0001	437.50	420	455	2	07/07/98	07/07/98
330	211WVOWR__BST-076-0002	469.00	469	469	1	06/24/98	06/24/98
332	211WVOWR__BST-076-0004	714.00	714	714	1	06/24/98	06/24/98
334	WV0052035__DSRBUT	193.02	50	790	43	01/13/99	04/25/01
334	WV0052035__USRBUT	202.09	50	790	43	01/13/99	04/25/01
334	WV1016512__BC-1	198.33	30	1000	12	03/29/99	10/29/01
334	WV1016512__SS-2	195.00	60	950	12	03/29/99	10/29/01
335	211WVOWR__BST-076-0003	234.00	234	234	1	07/01/98	07/01/98
343	211WVOWR__BST-078-0001	339.00	339	339	1	07/08/98	07/08/98
343	211WVOWR__BST-078-0002	775.00	775	775	1	07/09/98	07/09/98
343	WV0042048__DSSLB2	147.80	40	1200	41	01/13/99	04/25/01
343	WV0042048__USSLB2	219.23	50	1360	39	01/13/99	04/25/01
343	WV1006657__DSHB08	377.86	50	4800	56	01/13/99	11/28/01
343	WV1006657__DSSCLB	380.52	50	7160	58	01/13/99	11/28/01
343	WV1006657__USLDCB	337.72	50	1840	57	01/13/99	11/28/01
345	211WVOWR__BST-078-0003	835.00	835	835	1	07/09/98	07/09/98
346	WV1006657__DSSB02	77.54	50	280	57	01/13/99	11/28/01
346	WV1006657__DSSC07	371.61	50	4160	56	01/13/99	11/28/01
349	211WVOWR__BST-078-0004	200.00	200	200	1	06/30/98	06/30/98
349	WV1006657__USSC	271.05	50	1000	57	01/13/99	11/28/01
352	211WVOWR__BST-078-0005	684.00	684	684	1	07/01/98	07/01/98
353	211WVOWR__BST-078-0006	269.00	269	269	1	06/24/98	06/24/98
354	211WVOWR__BST-078-0007	165.00	165	165	1	06/24/98	06/24/98
356	211WVOWR__BST-085-0002	518.00	518	518	1	06/23/98	06/23/98
357	211WVOWR__BST-085-0001	683.00	683	683	1	06/23/98	06/23/98
358	WV1008676__DSDB01	537.08	30	4790	65	01/14/99	12/22/01
358	WV1008676__DSDB03	613.50	30	4790	20	03/01/01	12/22/01
358	WV1008676__DSDB04	417.78	30	6000	54	01/14/99	12/22/01
358	WV1008684__DDB	674.12	30	9620	17	01/14/99	12/22/01
358	WV1008684__UDB	754.00	30	9840	15	05/17/99	12/15/01
361	WV0002747__DTF1	702.82	120	2820	39	04/10/00	11/30/01
361	WV0002747__UTF2	682.50	30	6580	40	04/10/00	11/30/01
362	211WVOWR__BST-094-0001	71.50	71.5	71.5	1	06/07/98	06/07/98
364	211WVOWR__BST-095-0001	50.00	50	50	1	06/17/98	06/17/98
365	WV0002747__UTF1	729.50	50	6140	40	04/10/00	11/30/01
369	211WVOWR__BST-098-0001	206.00	206	206	1	06/17/98	06/17/98

Table 3b. Water quality data for iron

SWS	WQ Station	Avg (ug/L)	Min (ug/L)	Max (ug/L)	Count	Start Date	End Date
373	112WRD__372540081330539	840.00	170	2400	6	05/10/79	08/19/80
373	112WRD__372545081340201	265.00	200	330	2	05/15/84	07/23/84
373	211WVOWR__BST-099-0001	862.00	862	862	1	06/22/98	06/22/98
373	WV0052531__DSEC04	1251.57	230	4800	70	01/05/99	11/21/01
374	WV0052531__USEC10	1007.14	290	7890	70	01/05/99	11/21/01
374	WV1000373__DSLB	111.93	10	1570	57	07/10/97	07/27/01
374	WV1000373__USLB	787.24	10	10230	29	02/12/98	07/27/01
378	WV1006347__DSBCD1	313.24	10	2400	68	01/15/99	11/18/01
378	WV1006347__USBCD1	379.00	10	6230	50	01/15/99	10/15/01
378	WV1006479__DSBC02	329.26	10	5300	54	01/15/99	11/18/01
378	WV1006479__USBC01	393.95	10	2290	38	01/15/99	08/28/01
378	WV1006614__DBC	427.94	10	3640	68	01/15/99	11/18/01
378	WV1006614__USBCAS	349.71	10	2010	68	01/15/99	11/18/01
378	WV1008552__USBC03	312.69	10	2270	52	01/15/99	11/18/01
378	WV1012088__DBC	296.92	10	2210	52	01/15/99	11/18/01
378	WV1012088__UBC	318.04	10	2270	51	01/15/99	11/18/01
378	WV1012312__DSBCUT	518.72	10	8870	47	01/18/99	10/15/01
378	WV1012312__USBCUT	355.74	10	3470	47	01/15/99	10/15/01
379	WV1008552__DSBBEC	210.91	10	2000	33	01/18/99	08/28/01
379	WV1008552__DSBC01	3944.15	10	8100	82	01/15/99	10/15/01
380	211WVOWR__BST-099-0003	277.00	277	277	1	06/22/98	06/22/98
380	WV0060216__DSECCB	238.81	10	2480	59	06/14/99	11/18/01
380	WV0060216__USECBC	371.17	10	7970	60	06/11/99	11/18/01
380	WV1005979__DSBC01	246.43	10	4320	70	01/15/99	11/18/01
380	WV1005979__USBC01	256.96	10	2640	56	01/15/99	11/18/01
380	WV1018701__DSBC	253.49	10	4320	43	02/16/00	11/18/01
380	WV1018701__USBC	254.88	10	2640	41	02/16/00	11/06/01
382	112WRD__372512081252939	880.00	260	2100	5	05/10/79	07/20/81
382	211WVOWR__BST-099-0005	50.00	50	50	1	06/22/98	06/22/98
382	WV1006282__USJA28	172.14	10	1260	28	01/18/99	08/07/01
382	WV1006436__DSBBS3	183.20	10	880	50	01/18/99	11/18/01
382	WV1006436__USBBS4	192.27	10	1220	44	01/18/99	09/25/01
383	112WRD__372310081244139	866.00	80	3200	5	05/10/79	07/20/81
383	211WVOWR__BST-099-0002	268.00	268	268	1	06/22/98	06/22/98
384	WV1005774__DSBB01	333.75	10	5610	24	01/20/99	08/28/01
384	WV1005774__USSB01	94.55	10	560	22	01/27/99	08/28/01
384	WV1005987__DSBB01	108.22	10	730	45	01/18/99	10/17/01
384	WV1005987__USBB01	114.55	10	730	44	01/18/99	09/25/01
385	211WVOWR__BST-099-0004	88.60	88.6	88.6	1	06/17/98	06/17/98
385	WV1006533__DSNFEC	265.86	10	1970	70	01/20/99	11/18/01
385	WV1006533__USNFEC	294.93	10	1840	69	01/20/99	11/18/01

Table 3c. Water quality data for manganese

SWS	WQ Station	Avg (ug/L)	Min (ug/L)	Max (ug/L)	Count	Start Date	End Date
249	WV0031534__WTNO1	180.08	6	2380	75	11/09/98	11/20/01
249	WV0031534__WTNO2	108.80	20	460	75	11/09/98	11/20/01
249	WV0044750__DSFC	1460.41	20	4700	73	11/09/98	11/20/01
249	WV0057941__TEST-1	69.50	20	270	20	01/15/99	11/20/01
249	WV0057941__TEST-2	62.50	20	210	12	01/15/99	10/03/01
249	WV1005812__DSFPC1	168.67	20	1700	15	01/15/99	10/03/01
250	WV1005839__TEST-1	39.09	20	160	66	11/09/98	08/23/01
250	WV1005839__TEST-2	41.54	20	210	65	11/09/98	08/23/01
257	112WRD__372905081504039	67.06	10	170	17	05/11/79	08/19/80
258	211WVOWR__BST-000-070.6	22.20	22.2	22.2	1	07/07/98	07/07/98
260	WV1018671__RB-A	63.33	20	280	6	04/14/99	04/11/01
260	WV1018671__RB-B	23.75	20	50	8	04/14/99	04/11/01
282	112WRD__372910081441601	105.00	10	200	2	05/01/84	07/24/84
282	112WRD__372951081445401	50.00	30	70	2	05/01/84	07/24/84
283	211WVOWR__BST-000-076.4	20.60	20.6	20.6	1	07/07/98	07/07/98
329	112WRD__372702081441439	66.00	40	120	5	05/11/79	07/21/81
329	211WVOWR__BST-076-0001	179.50	178	181	2	07/07/98	07/07/98
330	211WVOWR__BST-076-0002	25.70	25.7	25.7	1	06/24/98	06/24/98
332	211WVOWR__BST-076-0004	33.70	33.7	33.7	1	06/24/98	06/24/98
334	WV0052035__DSRBUT	51.25	20	190	8	01/13/99	10/11/00
334	WV0052035__USRBUT	47.78	20	190	9	01/13/99	04/25/01
334	WV1016512__BC-1	60.83	30	160	12	03/29/99	10/29/01
334	WV1016512__SS-2	60.00	30	160	12	03/29/99	10/29/01
335	211WVOWR__BST-076-0003	45.20	45.2	45.2	1	07/01/98	07/01/98
343	211WVOWR__BST-078-0001	28.70	28.7	28.7	1	07/08/98	07/08/98
343	211WVOWR__BST-078-0002	110.00	110	110	1	07/09/98	07/09/98
343	WV0042048__DSSLB2	25.00	20	40	10	01/13/99	04/11/01
343	WV0042048__USSLB2	74.00	20	290	10	01/13/99	04/11/01
343	WV1006657__DSHB08	73.00	20	230	10	01/13/99	10/10/01
343	WV1006657__DSSCLB	45.45	20	150	11	01/13/99	10/10/01
343	WV1006657__USLDCB	62.00	20	200	10	01/13/99	10/10/01
345	211WVOWR__BST-078-0003	113.00	113	113	1	07/09/98	07/09/98
346	WV1006657__DSSB02	432.00	20	800	10	01/13/99	10/10/01
346	WV1006657__DSSC07	60.91	20	150	11	01/13/99	10/10/01
349	211WVOWR__BST-078-0004	75.40	75.4	75.4	1	06/30/98	06/30/98
349	WV1006657__USSC	50.00	20	130	11	01/13/99	10/10/01
352	211WVOWR__BST-078-0005	51.60	51.6	51.6	1	07/01/98	07/01/98
353	211WVOWR__BST-078-0006	45.70	45.7	45.7	1	06/24/98	06/24/98
354	211WVOWR__BST-078-0007	12.20	12.2	12.2	1	06/24/98	06/24/98
356	211WVOWR__BST-085-0002	31.10	31.1	31.1	1	06/23/98	06/23/98
357	211WVOWR__BST-085-0001	48.80	48.8	48.8	1	06/23/98	06/23/98
358	WV1008676__DSDB01	73.27	50	190	49	01/14/99	08/02/01
358	WV1008676__DSDB03	50.00	50	50	4	03/01/01	08/02/01
358	WV1008676__DSDB04	58.21	50	210	39	01/14/99	08/02/01
358	WV1008684__DDB	172.50	50	1330	16	05/17/99	12/22/01
358	WV1008684__UDB	156.00	50	1210	15	05/17/99	12/15/01
361	WV0002747__DTF1	93.08	10	320	39	04/10/00	11/30/01
361	WV0002747__UTF2	66.75	10	580	40	04/10/00	11/30/01
362	211WVOWR__BST-094-0001	12.40	12.4	12.4	1	06/07/98	06/07/98
364	211WVOWR__BST-095-0001	10.00	10	10	1	06/17/98	06/17/98
365	WV0002747__UTF1	66.75	10	530	40	04/10/00	11/30/01
369	211WVOWR__BST-098-0001	75.00	75	75	1	06/17/98	06/17/98

Table 3d. Water quality data for Total Nonfilterable Residue

SWS	WQ Station	Avg (ug/L)	Min (ug/L)	Max (ug/L)	Count	Start Date	End Date
361	WV0002747__DTF1	17.29	5	39	7	04/10/00	10/12/01
361	WV0002747__UTF2	11.86	1	35	7	04/10/00	10/12/01
365	WV0002747__UTF1	8.00	8	8	1	10/12/01	10/12/01

Table 3e. Water quality data for pH

SWS	WQ Station	Avg (ug/L)	Min (ug/L)	Max (ug/L)	Count	Start Date	End Date
249	112WRD__373041081553701	7.67	7.2	8.0	3	10/11/78	04/16/81
249	WV0031534__WTNO1	7.98	6.7	8.7	75	11/09/98	11/20/01
249	WV0031534__WTNO2	7.98	6.6	8.7	75	11/09/98	11/20/01
249	WV0044750__DSFC	8.30	5.9	11.9	73	11/09/98	11/20/01
249	WV0057941__TEST-1	7.85	7.1	8.3	72	11/09/98	11/20/01
249	WV0057941__TEST-2	7.80	6.83	8.2	72	11/09/98	11/20/01
249	WV1005812__DSFPC1	7.85	0.22	8.9	74	11/09/98	11/20/01
250	112WRD__373028081554801	7.60	7.6	7.6	1	10/11/78	10/11/78
250	WV1005839__TEST-1	7.87	6.71	8.3	66	11/09/98	08/23/01
250	WV1005839__TEST-2	7.87	6.62	8.3	65	11/09/98	08/23/01
251	112WRD__372955081544001	8.13	7.9	8.5	3	10/11/78	04/16/81
257	112WRD__372905081504039	8.22	7.3	8.7	23	10/11/78	09/22/80
258	211WVOWR__BST-000-070.6	8.30	8.3	8.3	1	07/07/98	07/07/98
260	WV1018671__RB-A	7.30	6.3	8.5	39	04/14/99	09/12/01
260	WV1018671__RB-B	7.34	5.96	8.5	43	04/14/99	09/12/01
281	211WVOWR__BST-071-0001	7.70	7.7	7.7	1	06/25/98	06/25/98
281	211WVOWR__BST-072-0001	7.40	7.4	7.4	1	06/25/98	06/25/98
282	112WRD__372910081441601	6.90	6.6	7.1	3	05/01/84	07/24/84
282	112WRD__372951081445401	7.20	7	7.5	3	05/01/84	07/24/84
283	211WVOWR__BST-000-076.4	8.50	8.5	8.5	1	07/07/98	07/07/98
329	112WRD__372701081441401	8.57	8.4	8.8	3	10/11/78	04/15/81
329	112WRD__372702081441439	8.45	8	8.9	6	05/11/79	09/27/83
329	211WVOWR__BST-076-0001	7.69	7.32	8.1	2	07/07/98	07/07/98
330	211WVOWR__BST-076-0002	8.00	8	8.0	1	06/24/98	06/24/98
332	211WVOWR__BST-076-0004	7.70	7.7	7.7	1	06/24/98	06/24/98
334	WV0052035__DSRBUT	7.80	7.01	8.5	42	01/13/99	04/25/01
334	WV0052035__USRBUT	7.76	6.5	8.5	42	01/13/99	04/25/01
334	WV1016512__BC-1	8.41	7.5	8.9	12	03/29/99	10/29/01
334	WV1016512__SS-2	8.33	7.76	9.0	12	03/29/99	10/29/01
335	211WVOWR__BST-076-0003	8.05	8.05	8.1	1	07/01/98	07/01/98
336	112WRD__372735081421501	8.10	8	8.2	2	08/08/80	04/15/81
341	112WRD__372642081420701	8.03	7.6	8.4	3	10/11/78	04/15/81
343	211WVOWR__BST-078-0001	8.00	8	8.0	1	07/08/98	07/08/98
343	211WVOWR__BST-078-0002	7.60	7.6	7.6	1	07/09/98	07/09/98
343	WV0042048__DSSLB2	7.62	6.36	8.4	41	01/13/99	04/25/01
343	WV0042048__USSLB2	7.43	6.23	8.4	39	01/13/99	04/25/01
343	WV1006657__DSHB08	7.74	6.2	8.5	54	01/13/99	11/28/01
343	WV1006657__DSSCLB	7.77	0.13	8.6	57	01/13/99	11/28/01
343	WV1006657__USLDCB	7.73	6.21	8.5	56	01/13/99	11/28/01
345	211WVOWR__BST-078-0003	8.40	8.4	8.4	1	07/09/98	07/09/98
346	WV1006657__DSSB02	18.87	5.96	673.0	56	01/13/99	11/28/01
346	WV1006657__DSSC07	7.87	6.22	8.5	55	01/13/99	11/28/01
349	211WVOWR__BST-078-0004	8.20	8.2	8.2	1	06/30/98	06/30/98
349	WV1006657__USSC	7.78	6.18	8.5	56	01/13/99	11/28/01
352	211WVOWR__BST-078-0005	8.00	8	8.0	1	07/01/98	07/01/98
353	211WVOWR__BST-078-0006	8.10	8.1	8.1	1	06/24/98	06/24/98
354	211WVOWR__BST-078-0007	8.30	8.3	8.3	1	06/24/98	06/24/98
356	211WVOWR__BST-085-0002	8.10	8.1	8.1	1	06/23/98	06/23/98
357	211WVOWR__BST-085-0001	7.90	7.9	7.9	1	06/23/98	06/23/98
358	WV1008676__DSDB01	6.77	6	7.8	65	01/14/99	12/22/01
358	WV1008676__DSDB03	7.06	6.4	7.8	20	03/01/01	12/22/01
358	WV1008676__DSDB04	6.63	0.05	8.0	54	01/14/99	12/22/01
358	WV1008684__DDB	6.75	6	7.6	17	01/14/99	12/22/01
358	WV1008684__UDB	6.81	6	7.7	15	05/17/99	12/15/01
361	WV0002747__DTF1	7.83	7	8.6	39	04/10/00	11/30/01
361	WV0002747__UTF2	7.99	7.32	8.7	40	04/10/00	11/30/01
362	211WVOWR__BST-094-0001	7.40	7.4	7.4	1	06/07/98	06/07/98
364	211WVOWR__BST-095-0001	7.70	7.7	7.7	1	06/17/98	06/17/98
365	WV0002747__UTF1	7.94	7.23	8.7	40	04/10/00	11/30/01
368	112WRD__372617081352201	7.90	7.9	7.9	1	10/09/78	10/09/78
369	211WVOWR__BST-098-0001	7.30	7.3	7.3	1	06/17/98	06/17/98

Table 3f. Water quality data for dissolved zinc

SWS	WQ Station	Avg (ug/L)	Min (ug/L)	Max (ug/L)	Count	Start Date	End Date
257	112WRD__372905081504039	8.00	4	10	3	02/25/80	08/19/80
329	112WRD__372702081441439	0.00	0	0	1	08/19/80	08/19/80

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

SWS	NPDES Permit ID	Baseline (lb/yr)	Allocation (lb/yr)	Allocation (mg/L)	Percent Reduction
249	WV0044750	681	511	2.84	25
251	WV0046141	112	112	3.60	0
257	WV0046141	112	112	3.60	0
258	WV1011901	98	98	3.60	0
258	WV1016105	62	62	3.60	0
259	WV0046141	503	101	0.76	80
260	WV1018671	132	132	3.60	0
261	WV1012347	71	14	0.76	80
261	WV1016482	39	8	0.76	80
281	WV0041149	249	249	3.60	0
281	WV1018647	135	135	3.60	0
329	WV1008633	117	117	3.60	0
330	WV0003018	101	101	3.60	0
330	WV1008633	78	78	3.60	0
331	WV1006410	19	7	1.33	65
332	WV1008633	78	78	3.60	0
334	WV0066788	57	23	1.52	60
341	WV1006657	128	128	3.60	0
343	WV1006657	128	128	3.60	0
345	WV1006657	257	103	1.52	60
346	WV1006657	385	193	1.89	50
348	WV1006657	128	128	3.60	0
349	WV1006657	899	585	2.46	35
350	WV1006657	128	128	3.60	0
358	WV1008676	291	291	3.60	0
358	WV1008684	139	139	3.60	0
358	WV1008706	118	118	3.60	0
359	WV0003018	33	33	3.60	0
361	WV0002747	146	146	3.60	0
371	WV0090000	837	335	1.52	60

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

SWS	NPDES Permit ID	Baseline (lb/yr)	Allocation (lb/yr)	Allocation (mg/L)	Percent Reduction
249	WV0044750	606	606	3.20	0
251	WV0046141	99	99	3.20	0
257	WV0046141	99	99	3.20	0
258	WV1011901	87	87	3.20	0
258	WV1016105	55	55	3.20	0
259	WV0046141	448	448	3.20	0
260	WV1018671	117	117	3.20	0
261	WV1012347	63	63	3.20	0
261	WV1016482	34	34	3.20	0
281	WV0041149	222	222	3.20	0
281	WV1018647	120	120	3.20	0
329	WV1008633	104	104	3.20	0
330	WV0003018	90	90	3.20	0
330	WV1008633	69	69	3.20	0
331	WV1006410	17	17	3.20	0
332	WV1008633	69	69	3.20	0
334	WV0066788	51	51	3.20	0
341	WV1006657	114	114	3.20	0
343	WV1006657	114	114	3.20	0
345	WV1006657	229	229	3.20	0
346	WV1006657	343	343	3.20	0
348	WV1006657	114	114	3.20	0
349	WV1006657	801	801	3.20	0
350	WV1006657	114	114	3.20	0
358	WV1008676	259	259	3.20	0
358	WV1008684	123	123	3.20	0
358	WV1008706	105	105	3.20	0
359	WV0003018	29	29	3.20	0
361	WV0002747	130	130	3.20	0
371	WV0090000	745	745	3.20	0

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

SWS	NPDES Permit ID	Baseline (lb/yr)	Allocation (lb/yr)	Allocation (mg/L)	Percent Reduction
249	WV0044750	378	378	2.00	0
251	WV0046141	62	62	2.00	0
257	WV0046141	62	62	2.00	0
258	WV1011901	54	54	2.00	0
258	WV1016105	35	35	2.00	0
259	WV0046141	279	279	2.00	0
260	WV1018671	73	73	2.00	0
261	WV1012347	40	40	2.00	0
261	WV1016482	21	21	2.00	0
281	WV0041149	138	138	2.00	0
281	WV1018647	75	75	2.00	0
329	WV1008633	65	65	2.00	0
330	WV0003018	56	56	2.00	0
330	WV1008633	43	43	2.00	0
331	WV1006410	11	11	2.00	0
332	WV1008633	43	43	2.00	0
334	WV0066788	32	32	2.00	0
341	WV1006657	71	71	2.00	0
343	WV1006657	71	71	2.00	0
345	WV1006657	143	143	2.00	0
346	WV1006657	214	214	2.00	0
348	WV1006657	71	71	2.00	0
349	WV1006657	499	499	2.00	0
350	WV1006657	71	71	2.00	0
358	WV1008676	161	161	2.00	0
358	WV1008684	77	77	2.00	0
358	WV1008706	65	65	2.00	0
359	WV0003018	18	18	2.00	0
361	WV0002747	81	81	2.00	0
371	WV0090000	464	464	2.00	0

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

SWS	AML		Revoked Mines		Harvested Forest		Oil and Gas		Roads		Nonpoint Source			
	Baseline Load (lb/yr)	Allocated Load (lb/yr)	Baseline Load (lb/yr)	Allocated Load (lb/yr)	Baseline Load (lb/yr)	Allocated Load (lb/yr)	Baseline Load (lb/yr)	Allocated Load (lb/yr)	Baseline Load (lb/yr)	Allocated Load (lb/yr)	Baseline Load (lb/yr)	Allocated Load (lb/yr)	**Requires Reduction**	**Percent Reduction**
249	3,902	195	0	0	942	801	328	279	557	476	1,934	1,934	x	52
250	0	0	0	0	190	190	38	38	122	122	426	426		0
251	0	0	0	0	1,372	1,372	443	443	851	851	3,036	3,036		0
252	2,100	42	0	0	281	281	135	135	177	177	607	607	x	62
256	1,077	22	0	0	645	645	213	213	388	388	1,359	1,359	x	29
257	0	0	0	0	376	376	115	115	189	189	653	653		0
258	371	371	0	0	823	823	232	232	479	479	1,701	1,701		0
259	714	36	0	0	1,685	758	135	61	203	95	695	695	x	52
260	490	10	94	2	1,614	1,614	154	154	363	363	1,268	1,268	x	14
261	3	0	153	8	4,873	1,462	192	58	267	86	922	922	x	60
262	0	0	0	0	82	82	58	58	58	58	202	202		0
281	0	0	1,398	28	1,311	1,311	463	463	727	727	2,514	2,514	x	21
282	6,444	322	0	0	912	775	135	114	453	387	1,574	1,574	x	67
283	0	0	0	0	844	844	38	38	451	451	1,597	1,597		0
328	0	0	122	2	529	529	58	58	320	320	1,143	1,143	x	6
329	0	0	3,134	2,351	1,050	1,050	270	270	614	614	2,057	2,057	x	11
330	6	6	0	0	746	746	115	115	459	459	1,637	1,637		0
331	0	0	1,555	389	318	318	58	58	203	203	661	661	x	42
332	0	0	0	0	257	257	58	58	159	159	563	563		0
333	0	0	132	132	685	685	251	251	434	434	1,550	1,550		0
334	68	21	1,995	599	591	591	173	173	370	370	1,239	1,239	x	33
335	26,636	533	5	0	457	297	135	87	285	189	825	825	x	93
336	0	0	0	0	274	274	0	0	166	166	602	602		0
337	454	136	0	0	278	278	0	0	172	172	612	612	x	21
338	5,549	111	0	0	1,711	1,711	58	58	624	624	2,194	2,194	x	54
339	2,036	204	0	0	537	537	58	58	335	335	1,180	1,180	x	44
340	739	15	0	0	124	124	0	0	82	82	289	289	x	59
341	0	0	0	0	38	38	0	0	27	27	92	92		0
342	4,645	139	0	0	240	192	58	46	134	108	447	447	x	83
343	1,056	211	219	44	535	535	213	213	336	336	1,182	1,182	x	29
344	0	0	0	0	244	244	19	19	100	100	360	360		0
345	0	0	0	0	53	32	19	12	16	10	48	48	x	26
346	0	0	0	0	96	48	0	0	11	6	22	22	x	41
347	0	0	0	0	352	158	19	9	68	32	244	244	x	35
348	2,023	40	0	0	560	140	0	0	67	18	216	216	x	86
349	0	0	0	0	28	28	0	0	19	19	32	32		0
350	0	0	0	0	43	43	0	0	30	30	100	100		0
351	0	0	0	0	113	113	77	77	69	69	249	249		0
352	0	0	0	0	1	1	0	0	2	2	8	8		0
353	768	38	0	0	84	84	38	38	53	53	186	186	x	65
354	0	0	0	0	52	52	0	0	32	32	117	117		0
355	393	39	0	0	216	216	19	19	103	103	365	365	x	32
356	0	0	0	0	7	7	0	0	7	7	30	30		0
357	134	107	0	0	279	279	0	0	174	174	619	619	x	2
358	2,247	112	0	0	749	749	38	38	387	387	1,348	1,348	x	45
359	100	2	0	0	272	272	96	96	170	170	609	609	x	8
360	0	0	0	0	374	374	19	19	218	218	781	781		0
361	6,571	131	0	0	1,144	1,144	38	38	481	481	1,663	1,663	x	65
362	0	0	0	0	433	433	173	173	258	258	925	925		0
363	645	13	0	0	4	4	0	0	4	4	9	9	x	96
364	78	78	0	0	381	381	135	135	238	238	852	852		0
365	3,962	79	0	0	340	340	0	0	69	69	221	221	x	85
366	21,813	436	0	0	340	340	19	19	221	221	630	630	x	93
367	0	0	0	0	177	177	0	0	122	122	441	441		0
368	179	4	0	0	24	24	0	0	22	22	85	85	x	56
369	0	0	0	0	544	544	96	96	274	274	979	979		0
370	0	0	0	0	169	169	0	0	106	106	381	381		0
371	0	0	0	0	250	250	19	19	162	162	549	549		0
372	13,334	267	0	0	375	206	0	0	234	133	739	739	x	91

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

SWS	AML		Revoked Mines		Harvested Forest		Oil and Gas		Roads		Nonpoint Source			
	Baseline Load (lb/yr)	Allocated Load (lb/yr)	Baseline Load (lb/yr)	Allocated Load (lb/yr)	Baseline Load (lb/yr)	Allocated Load (lb/yr)	Baseline Load (lb/yr)	Allocated Load (lb/yr)	Baseline Load (lb/yr)	Allocated Load (lb/yr)	Baseline Load (lb/yr)	Allocated Load (lb/yr)	Requires Reduction	Percent Reduction
249	5,147	4,781	0	0	1,190	1,012	414	352	702	600	3,033	3,033	x	7
250	0	0	0	0	240	240	49	49	153	153	667	667		0
251	0	0	0	0	1,734	1,734	560	560	1,073	1,073	4,762	4,762		0
252	2,770	635	0	0	355	355	170	170	224	224	952	952	x	48
256	1,420	1,090	0	0	815	815	269	269	490	490	2,131	2,131	x	6
257	0	0	0	0	475	475	146	146	238	238	1,024	1,024		0
258	489	489	0	0	1,040	1,040	293	293	604	604	2,668	2,668		0
259	941	941	0	0	2,129	958	170	77	257	120	1,090	1,090	x	31
260	646	646	108	108	2,039	2,039	194	194	458	458	1,987	1,987		0
261	4	4	176	176	6,156	1,847	243	73	336	108	1,445	1,445	x	56
262	0	0	0	0	103	103	73	73	74	74	314	314		0
281	0	0	1,607	1,607	1,656	1,656	585	585	917	917	3,936	3,936		0
282	8,499	3,800	0	0	1,152	979	170	145	571	488	2,468	2,468	x	39
283	0	0	0	0	1,066	1,066	49	49	569	569	2,504	2,504		0
328	0	0	140	140	668	668	73	73	404	404	1,790	1,790		0
329	0	0	3,603	3,603	1,327	1,327	342	342	774	774	3,226	3,226		0
330	8	8	0	0	943	943	146	146	579	579	2,567	2,567		0
331	0	0	1,788	1,788	402	402	73	73	257	257	1,037	1,037		0
332	0	0	0	0	325	325	73	73	200	200	883	883		0
333	0	0	151	151	865	865	317	317	548	548	2,428	2,428		0
334	90	90	2,293	2,293	747	747	219	219	466	466	1,942	1,942		0
335	35,132	1,432	5	5	577	375	170	111	360	238	1,293	1,293	x	91
336	0	0	0	0	346	346	0	0	210	210	938	938		0
337	599	599	0	0	351	351	0	0	217	217	960	960		0
338	7,319	2,209	0	0	2,162	2,162	73	73	787	787	3,437	3,437	x	37
339	2,685	2,685	0	0	679	679	73	73	422	422	1,850	1,850		0
340	975	254	0	0	156	156	0	0	103	103	451	451	x	43
341	0	0	0	0	49	49	0	0	34	34	143	143		0
342	6,126	1,085	0	0	304	243	73	58	169	136	701	701	x	70
343	1,393	1,393	251	251	676	676	269	269	424	424	1,851	1,851		0
344	0	0	0	0	308	308	24	24	127	127	564	564		0
345	0	0	0	0	67	40	24	15	20	12	76	76	x	24
346	0	0	0	0	121	61	0	0	14	7	34	34	x	40
347	0	0	0	0	445	200	24	11	86	40	383	383	x	32
348	2,669	515	0	0	707	177	0	0	84	23	338	338	x	72
349	0	0	0	0	35	35	0	0	23	23	50	50		0
350	0	0	0	0	55	55	0	0	38	38	156	156		0
351	0	0	0	0	143	143	97	97	88	88	391	391		0
352	0	0	0	0	2	2	0	0	3	3	12	12		0
353	1,013	460	0	0	106	106	49	49	67	67	291	291	x	36
354	0	0	0	0	65	65	0	0	41	41	183	183		0
355	518	518	0	0	273	273	24	24	130	130	572	572		0
356	0	0	0	0	9	9	0	0	9	9	45	45		0
357	176	176	0	0	352	352	0	0	219	219	971	971		0
358	2,963	2,963	0	0	946	946	49	49	488	488	2,112	2,112		0
359	132	132	0	0	343	343	121	121	214	214	954	954		0
360	0	0	0	0	472	472	24	24	275	275	1,223	1,223		0
361	8,667	1,857	0	0	1,445	1,445	49	49	607	607	2,607	2,607	x	51
362	0	0	0	0	547	547	219	219	325	325	1,449	1,449		0
363	851	60	0	0	5	5	0	0	5	5	14	14	x	90
364	102	102	0	0	481	481	170	170	300	300	1,335	1,335		0
365	5,226	564	0	0	430	430	0	0	88	88	344	344	x	77
366	28,769	2,291	0	0	430	430	24	24	278	278	986	986	x	87
367	0	0	0	0	223	223	0	0	153	153	687	687		0
368	236	66	0	0	30	30	0	0	28	28	129	129	x	40
369	0	0	0	0	688	688	121	121	346	346	1,535	1,535		0
370	0	0	0	0	213	213	0	0	134	134	596	596		0
371	0	0	0	0	316	316	24	24	204	204	859	859		0
372	17,591	1,545	0	0	474	261	0	0	295	167	1,159	1,159	x	84

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

SWS	AML		Revoked Mines		Harvested Forest		Oil and Gas		Roads		Nonpoint Source			
	Baseline Load (lb/yr)	Allocated Load (lb/yr)	Baseline Load (lb/yr)	Allocated Load (lb/yr)	Baseline Load (lb/yr)	Allocated Load (lb/yr)	Baseline Load (lb/yr)	Allocated Load (lb/yr)	Baseline Load (lb/yr)	Allocated Load (lb/yr)	Baseline Load (lb/yr)	Allocated Load (lb/yr)	Requires Reduction	Percent Reduction
249	1,696	1,696	0	0	74	63	26	22	50	43	1,430	1,430	x	1
250	0	0	0	0	15	15	3	3	11	11	314	314		0
251	0	0	0	0	108	108	35	35	76	76	2,245	2,245		0
252	913	183	0	0	22	22	11	11	16	16	449	449	x	52
256	468	94	0	0	51	51	17	17	35	35	1,005	1,005	x	24
257	0	0	0	0	30	30	9	9	17	17	483	483		0
258	161	161	0	0	65	65	18	18	43	43	1,258	1,258		0
259	310	310	0	0	133	60	11	5	18	10	514	514	x	9
260	213	43	93	19	127	127	12	12	32	32	937	937	x	17
261	1	1	153	153	385	115	15	5	24	9	681	681	x	23
262	0	0	0	0	6	6	5	5	5	5	147	147		0
281	0	0	1,393	279	103	103	37	37	65	65	1,853	1,853	x	32
282	2,800	2,800	0	0	72	61	11	9	40	35	1,163	1,163	x	0
283	0	0	0	0	67	67	3	3	40	40	1,180	1,180		0
328	0	0	121	24	42	42	5	5	28	28	842	842	x	9
329	0	0	3,124	3,124	83	83	21	21	55	55	1,521	1,521		0
330	3	3	0	0	59	59	9	9	41	41	1,210	1,210		0
331	0	0	1,550	1,550	25	25	5	5	18	18	489	489		0
332	0	0	0	0	20	20	5	5	14	14	416	416		0
333	0	0	131	131	54	54	20	20	39	39	1,143	1,143		0
334	30	30	1,989	1,989	47	47	14	14	33	33	915	915		0
335	11,575	232	4	0	36	23	11	7	25	18	610	610	x	93
336	0	0	0	0	22	22	0	0	15	15	440	440		0
337	197	197	0	0	22	22	0	0	15	15	453	453		0
338	2,411	482	0	0	135	135	5	5	55	55	1,619	1,619	x	46
339	885	885	0	0	42	42	5	5	30	30	872	872		0
340	321	64	0	0	10	10	0	0	7	7	212	212	x	47
341	0	0	0	0	3	3	0	0	2	2	67	67		0
342	2,019	1,110	0	0	19	15	5	4	12	10	330	330	x	38
343	459	459	218	218	42	42	17	17	30	30	872	872		0
344	0	0	0	0	19	19	2	2	9	9	266	266		0
345	0	0	0	0	4	3	2	1	1	1	36	36	x	6
346	0	0	0	0	8	4	0	0	1	1	16	16	x	17
347	0	0	0	0	28	13	2	1	6	3	180	180	x	9
348	879	528	0	0	44	11	0	0	6	2	159	159	x	36
349	0	0	0	0	2	2	0	0	2	2	23	23		0
350	0	0	0	0	3	3	0	0	3	3	73	73		0
351	0	0	0	0	9	9	6	6	6	6	184	184		0
352	0	0	0	0	0	0	0	0	0	0	5	5		0
353	334	334	0	0	7	7	3	3	5	5	137	137		0
354	0	0	0	0	4	4	0	0	3	3	86	86		0
355	171	171	0	0	17	17	2	2	9	9	270	270		0
356	0	0	0	0	1	1	0	0	1	1	21	21		0
357	58	58	0	0	22	22	0	0	15	15	458	458		0
358	976	976	0	0	59	59	3	3	34	34	995	995		0
359	43	9	0	0	21	21	8	8	15	15	449	449	x	6
360	0	0	0	0	30	30	2	2	19	19	577	577		0
361	2,856	571	0	0	90	90	3	3	43	43	1,228	1,228	x	54
362	0	0	0	0	34	34	14	14	23	23	683	683		0
363	280	56	0	0	0	0	0	0	0	0	6	6	x	78
364	34	34	0	0	30	30	11	11	21	21	629	629		0
365	1,722	344	0	0	27	27	0	0	6	6	161	161	x	72
366	9,479	1,896	0	0	27	27	2	2	20	20	463	463	x	76
367	0	0	0	0	14	14	0	0	11	11	322	322		0
368	78	16	0	0	2	2	0	0	2	2	58	58	x	44
369	0	0	0	0	43	43	8	8	24	24	724	724		0
370	0	0	0	0	13	13	0	0	10	10	281	281		0
371	0	0	0	0	20	20	1	1	15	15	405	405		0
372	5,846	1,462	0	0	29	16	0	0	21	13	546	546	x	68

Appendix A-5

Region 5

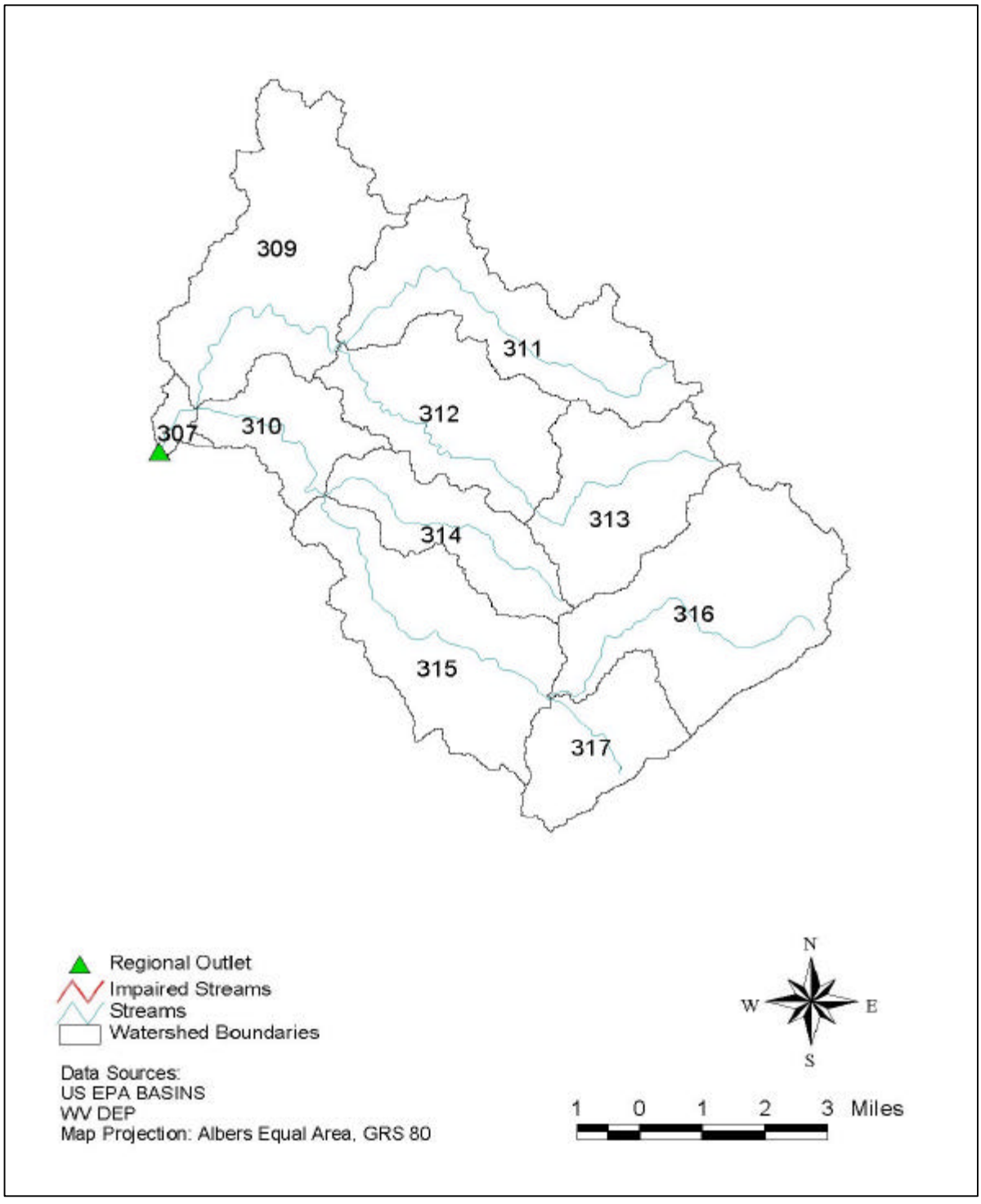


Figure 1. Region 5 - Tug Fork watershed

Table 1. Impaired waterbodies in Region 5

Stream Name	Stream Code	Pollutant	Contributing SWS	Contributing Regions	Aquatic Life

Not Applicable to this Region

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

SWS
309
311
314
315

Table 3a. Water quality data for aluminum

SWS	WQ Station	Avg (ug/L)	Min (ug/L)	Max (ug/L)	Count	Start Date	End Date
307	211WVOWR__BST-070-0008	50.00	50	50	1	06/30/98	06/30/98
309	211WVOWR__BST-070-0010	89.50	89.5	89.5	1	07/02/98	07/02/98
309	WV1016369__CR-1	170.00	0	460	6	11/02/01	01/31/02
313	WV1000047__DNF2	240.00	100	760	12	03/29/99	10/29/01
313	WV1006304__USRF01	187.95	60	620	39	01/25/99	06/25/01
313	WV1006428__DSUT01	210.00	100	670	12	03/29/99	10/29/01
313	WV1006428__USUTHS	160.00	100	280	9	03/29/99	10/29/01
313	WV1008889__DSNF02	240.00	100	760	12	03/29/99	10/29/01
315	211WVOWR__BST-070-0009	50.00	50	50	1	07/01/98	07/01/98
315	WV0091952__DSJF08	165.87	100	370	63	05/08/99	12/16/01
316	WV1006304__USHC10	224.05	90	630	37	01/25/99	06/25/01
316	WV1006304__USUTHC	256.00	90	1000	40	01/25/99	06/25/01

Table 3b. Water quality data for iron

SWS	WQ Station	Avg (ug/L)	Min (ug/L)	Max (ug/L)	Count	Start Date	End Date
307	211WVOWR__BST-070-0008	162.00	162	162	1	06/30/98	06/30/98
309	112WRD__371724081390839	1442.00	270	5200	5	05/10/79	07/21/81
309	211WVOWR__BST-070-0010	328.00	328	328	1	07/02/98	07/02/98
309	WV1016369__CR-1	85.00	0	190	6	11/02/01	01/31/02
310	112WRD__371643081373839	654.00	190	2000	5	05/10/79	07/21/81
311	112WRD__371722081332501	370.00	370	370	1	05/15/84	05/15/84
311	112WRD__371749081315701	735.00	490	980	2	05/15/84	07/25/84
313	WV1000047__DNF2	208.33	50	1050	12	03/29/99	10/29/01
313	WV1006304__USRF01	83.85	30	460	39	01/25/99	06/25/01
313	WV1006428__DSUT01	209.17	60	950	12	03/29/99	10/29/01
313	WV1006428__USUTHS	152.22	30	370	9	03/29/99	10/29/01
313	WV1008889__DSNF02	208.33	50	1050	12	03/29/99	10/29/01
315	211WVOWR__BST-070-0009	92.20	92.2	92.2	1	07/01/98	07/01/98
315	WV0091952__DSJF08	154.37	30	1110	71	01/15/99	12/16/01
316	WV1006304__USHC10	151.89	30	510	37	01/25/99	06/25/01
316	WV1006304__USUTHC	195.75	30	1610	40	01/25/99	06/25/01

Table 3c. Water quality data for manganese

SWS	WQ Station	Avg (ug/L)	Min (ug/L)	Max (ug/L)	Count	Start Date	End Date
307	211WVOWR__BST-070-0008	44.30	44.3	44.3	1	06/30/98	06/30/98
309	112WRD__371724081390839	66.00	20	190	5	05/10/79	07/21/81
309	211WVOWR__BST-070-0010	33.80	33.8	33.8	1	07/02/98	07/02/98
309	WV1016369__CR-1	0.00	0	0	6	11/02/01	01/31/02
310	112WRD__371643081373839	26.00	10	50	5	05/10/79	07/21/81
311	112WRD__371722081332501	310.00	310	310	1	05/15/84	05/15/84
311	112WRD__371749081315701	455.00	370	540	2	05/15/84	07/25/84
313	WV1000047__DNF2	66.67	30	170	12	03/29/99	10/29/01
313	WV1006304__USRF01	51.67	50	60	6	03/22/99	05/24/01
313	WV1006428__DSUT01	60.83	30	170	12	03/29/99	10/29/01
313	WV1006428__USUTHS	65.56	30	130	9	03/29/99	10/29/01
313	WV1008889__DSNF02	66.67	30	170	12	03/29/99	10/29/01
315	211WVOWR__BST-070-0009	30.20	30.2	30.2	1	07/01/98	07/01/98
315	WV0091952__DSJF08	50.00	50	50	12	03/12/99	10/02/01
316	WV1006304__USHC10	70.00	50	90	6	03/22/99	05/24/01
316	WV1006304__USUTHC	92.86	50	350	7	03/22/99	05/24/01

Table 3d. Water quality data for Total Nonfilterable Residue

SWS	WQ Station	Avg (ug/L)	Min (ug/L)	Max (ug/L)	Count	Start Date	End Date

(not applicable to this region)

Table 3e. Water quality data for pH

SWS	WQ Station	Avg (ug/L)	Min (ug/L)	Max (ug/L)	Count	Start Date	End Date
307	112WRD__371651081395201	8.30	8	8.7	3	10/10/78	04/14/81
307	211WVOWR__BST-070-0008	7.70	7.7	7.7	1	06/30/98	06/30/98
309	112WRD__371724081390801	7.67	7.4	7.9	3	10/10/78	04/14/81
309	112WRD__371724081390839	8.05	7.8	8.4	6	05/10/79	09/28/83
309	211WVOWR__BST-070-0010	7.80	7.8	7.8	1	07/02/98	07/02/98
309	WV1016369__CR-1	5.94	0	7.5	6	11/02/01	01/31/02
310	112WRD__371643081373801	8.45	8.4	8.5	2	08/07/80	04/14/81
310	112WRD__371643081373839	8.60	8.4	8.9	6	05/10/79	09/28/83
311	112WRD__371722081332501	7.10	7.1	7.1	1	05/15/84	05/15/84
311	112WRD__371749081315701	7.65	7.6	7.7	2	05/15/84	07/25/84
312	112WRD__371754081362801	7.70	7.7	7.7	1	10/09/78	10/09/78
313	WV1000047__DNF2	8.24	7.5	8.8	12	03/29/99	10/29/01
313	WV1006304__USRF01	7.85	6.45	8.9	39	01/25/99	06/25/01
313	WV1006428__DSUT01	8.25	7.51	9.0	12	03/29/99	10/29/01
313	WV1006428__USUTHS	8.67	8.56	8.9	9	03/29/99	10/29/01
313	WV1008889__DSNF02	8.24	7.5	8.8	12	03/29/99	10/29/01
315	211WVOWR__BST-070-0009	8.13	8.13	8.1	1	07/01/98	07/01/98
315	WV0091952__DSJF08	8.22	7	9.1	71	01/15/99	12/16/01
316	WV1006304__USHC10	8.31	7.43	8.9	37	01/25/99	06/25/01
316	WV1006304__USUTHC	7.97	6.21	8.9	40	01/25/99	06/25/01

Table 3f. Water quality data for dissolved zinc

SWS	WQ Station	Avg (ug/L)	Min (ug/L)	Max (ug/L)	Count	Start Date	End Date
309	112WRD__371724081390839	0.00	0	0	1	08/18/80	08/18/80
310	112WRD__371643081373839	30.00	30	30	1	08/18/80	08/18/80

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

SWS	NPDES Permit ID	Baseline (lb/yr)	Allocation (lb/yr)	Allocation (mg/L)	Percent Reduction
307	WV1006045	74	74	3.60	0
307	WV1012151	21	21	3.60	0
309	WV0069060	737	737	3.60	0
309	WV0097527	17	17	3.60	0
309	WV1006045	37	37	3.60	0
309	WV1008919	392	392	3.60	0
309	WV1009109	1,132	1,132	3.60	0
309	WV1012002	1,134	1,134	3.60	0
309	WV1016326	122	122	3.60	0
310	WV0066770	188	188	3.60	0
310	WV0097527	337	337	3.60	0
310	WV1012151	59	59	3.60	0
311	WV0066770	567	511	3.41	10
311	WV1000209	188	169	3.41	10
311	WV1005791	1,847	1,662	3.41	10
311	WV1011961	231	208	3.41	10
311	WV1018850	2,186	1,967	3.41	10
312	WV0066770	1,324	1,324	3.60	0
312	WV1016130	742	742	3.60	0
313	WV1000047	488	171	1.33	65
313	WV1006304	810	284	1.33	65
313	WV1006428	312	109	1.33	65
313	WV1008889	139	49	1.33	65
313	WV1016512	51	18	1.33	65
313	WV1018574	1,265	443	1.33	65
313	WV1018850	7,286	2,550	1.33	65
314	WV1006304	1,620	1,620	3.60	0
315	WV0065536	3,141	1,319	1.59	58
315	WV0091341	19	8	1.59	58
315	WV0091952	2,943	1,236	1.59	58
315	WV1006215	589	247	1.59	58
315	WV1006304	7,292	3,062	1.59	58
315	WVG014001	19	8	1.59	58
316	WV1006304	6,481	1,296	0.76	80

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

SWS	NPDES Permit ID	Baseline (lb/yr)	Allocation (lb/yr)	Allocation (mg/L)	Percent Reduction
307	WV1006045	66	66	3.20	0
307	WV1012151	19	19	3.20	0
309	WV0069060	657	657	3.20	0
309	WV0097527	15	15	3.20	0
309	WV1006045	33	33	3.20	0
309	WV1008919	350	350	3.20	0
309	WV1009109	1,008	1,008	3.20	0
309	WV1012002	1,010	1,010	3.20	0
309	WV1016326	109	109	3.20	0
310	WV0066770	168	168	3.20	0
310	WV0097527	300	300	3.20	0
310	WV1012151	53	53	3.20	0
311	WV0066770	505	505	3.20	0
311	WV1000209	168	168	3.20	0
311	WV1005791	1,645	1,645	3.20	0
311	WV1011961	205	205	3.20	0
311	WV1018850	1,946	1,946	3.20	0
312	WV0066770	1,179	1,179	3.20	0
312	WV1016130	661	661	3.20	0
313	WV1000047	435	435	3.20	0
313	WV1006304	721	721	3.20	0
313	WV1006428	278	278	3.20	0
313	WV1008889	124	124	3.20	0
313	WV1016512	45	45	3.20	0
313	WV1018574	1,126	1,126	3.20	0
313	WV1018850	6,488	6,488	3.20	0
314	WV1006304	1,443	1,443	3.20	0
315	WV0065536	2,797	2,797	3.20	0
315	WV0091341	17	17	3.20	0
315	WV0091952	2,621	2,621	3.20	0
315	WV1006215	524	524	3.20	0
315	WV1006304	6,493	6,493	3.20	0
315	WVG014001	17	17	3.20	0
316	WV1006304	5,772	5,772	3.20	0

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

SWS	NPDES Permit ID	Baseline (lb/yr)	Allocation (lb/yr)	Allocation (mg/L)	Percent Reduction
307	WV1006045	41	41	2.00	0
307	WV1012151	12	12	2.00	0
309	WV0069060	409	409	2.00	0
309	WV0097527	10	10	2.00	0
309	WV1006045	20	20	2.00	0
309	WV1008919	218	218	2.00	0
309	WV1009109	628	628	2.00	0
309	WV1012002	629	629	2.00	0
309	WV1016326	68	68	2.00	0
310	WV0066770	105	105	2.00	0
310	WV0097527	187	187	2.00	0
310	WV1012151	33	33	2.00	0
311	WV0066770	315	315	2.00	0
311	WV1000209	104	104	2.00	0
311	WV1005791	1,025	1,025	2.00	0
311	WV1011961	128	128	2.00	0
311	WV1018850	1,213	1,213	2.00	0
312	WV0066770	734	734	2.00	0
312	WV1016130	412	412	2.00	0
313	WV1000047	271	271	2.00	0
313	WV1006304	449	449	2.00	0
313	WV1006428	173	173	2.00	0
313	WV1008889	77	77	2.00	0
313	WV1016512	28	28	2.00	0
313	WV1018574	702	702	2.00	0
313	WV1018850	4,042	4,042	2.00	0
314	WV1006304	899	899	2.00	0
315	WV0065536	1,743	1,743	2.00	0
315	WV0091341	11	11	2.00	0
315	WV0091952	1,633	1,633	2.00	0
315	WV1006215	327	327	2.00	0
315	WV1006304	4,045	4,045	2.00	0
315	WVG014001	11	11	2.00	0
316	WV1006304	3,596	3,596	2.00	0

Table 5a. Aluminum baseline conditions and allocations (LAs) for nonpoint sources in West Virginia

SWS	AML		Revoked Mines		Harvested Forest		Oil and Gas		Roads		Nonpoint Source			
	Baseline Load (lb/yr)	Allocated Load (lb/yr)	Baseline Load (lb/yr)	Allocated Load (lb/yr)	Baseline Load (lb/yr)	Allocated Load (lb/yr)	Baseline Load (lb/yr)	Allocated Load (lb/yr)	Baseline Load (lb/yr)	Allocated Load (lb/yr)	Baseline Load (lb/yr)	Allocated Load (lb/yr)	Requires Reduction	Percent Reduction
307	0	0	0	0	108	108	19	19	67	67	234	234		0
309	357	357	231	231	1767	1767	405	405	1095	1095	3761	3761		0
310	0	0	0	0	614	614	58	58	382	382	1343	1343		0
311	801	8	0	0	1357	679	37	19	854	442	2851	2851	x	32
312	0	0	0	0	1180	732	19	12	743	471	2575	2575	x	16
313	0	0	0	0	992	496	19	9	640	331	1881	1881	x	23
314	623	6	0	0	785	487	75	46	475	301	1632	1632	x	31
315	32478	650	751	15	1233	616	0	0	792	410	2087	2087	x	90
316	0	0	0	0	3946	987	0	0	199	65	1394	1394	x	56

Table 5b. Iron baseline conditions and allocations (LAs) for nonpoint sources in West Virginia

SWS	AML		Revoked Mines		Harvested Forest		Oil and Gas		Roads		Nonpoint Source			
	Baseline Load (lb/yr)	Allocated Load (lb/yr)	Baseline Load (lb/yr)	Allocated Load (lb/yr)	Baseline Load (lb/yr)	Allocated Load (lb/yr)	Baseline Load (lb/yr)	Allocated Load (lb/yr)	Baseline Load (lb/yr)	Allocated Load (lb/yr)	Baseline Load (lb/yr)	Allocated Load (lb/yr)	Requires Reduction	Percent Reduction
307	0	0	0	0	137	137	24	24	84	84	368	368		0
309	471	471	266	266	2232	2232	512	512	1381	1381	5899	5899		0
310	0	0	0	0	776	776	73	73	482	482	2105	2105		0
311	1057	1057	0	0	1714	857	47	24	1077	557	4470	4470	x	17
312	0	0	0	0	1491	924	24	15	937	593	4038	4038	x	14
313	0	0	0	0	1254	627	24	12	807	417	2949	2949	x	20
314	822	822	0	0	992	615	94	58	599	379	2558	2558	x	12
315	42850	9348	863	863	1557	779	0	0	998	516	3269	3269	x	70
316	0	0	0	0	4985	1246	0	0	251	81	2185	2185	x	53

Table 5c. Manganese baseline conditions and allocations (LAs) for nonpoint sources in West Virginia

SWS	AML		Revoked Mines		Harvested Forest		Oil and Gas		Roads		Nonpoint Source			
	Baseline Load (lb/yr)	Allocated Load (lb/yr)	Baseline Load (lb/yr)	Allocated Load (lb/yr)	Baseline Load (lb/yr)	Allocated Load (lb/yr)	Baseline Load (lb/yr)	Allocated Load (lb/yr)	Baseline Load (lb/yr)	Allocated Load (lb/yr)	Baseline Load (lb/yr)	Allocated Load (lb/yr)	Requires Reduction	Percent Reduction
307	0	0	0	0	9	9	2	2	6	6	173	173		0
309	155	155	231	231	139	139	32	32	97	97	2782	2782		0
310	0	0	0	0	48	48	5	5	34	34	992	992		0
311	351	351	0	0	106	53	3	1	77	44	2107	2107	x	3
312	0	0	0	0	93	57	1	1	67	45	1903	1903	x	3
313	0	0	0	0	78	39	1	1	58	33	1390	1390	x	4
314	273	273	0	0	62	38	6	4	43	29	1206	1206	x	2
315	14240	9968	749	524	97	48	0	0	71	41	1539	1539	x	27
316	0	0	0	0	309	77	0	0	22	12	1030	1030	x	18

Table 6a. Baseline conditions and allocations for all sources in Virginia

Metal	Baseline Load (lb/yr)	Allocated Load (lb/yr)	Requires Reduction	Percent Reduction
Al	20,852	7,203	X	65
Fe	27,892	11,033	X	60

Appendix A-6

Region 6

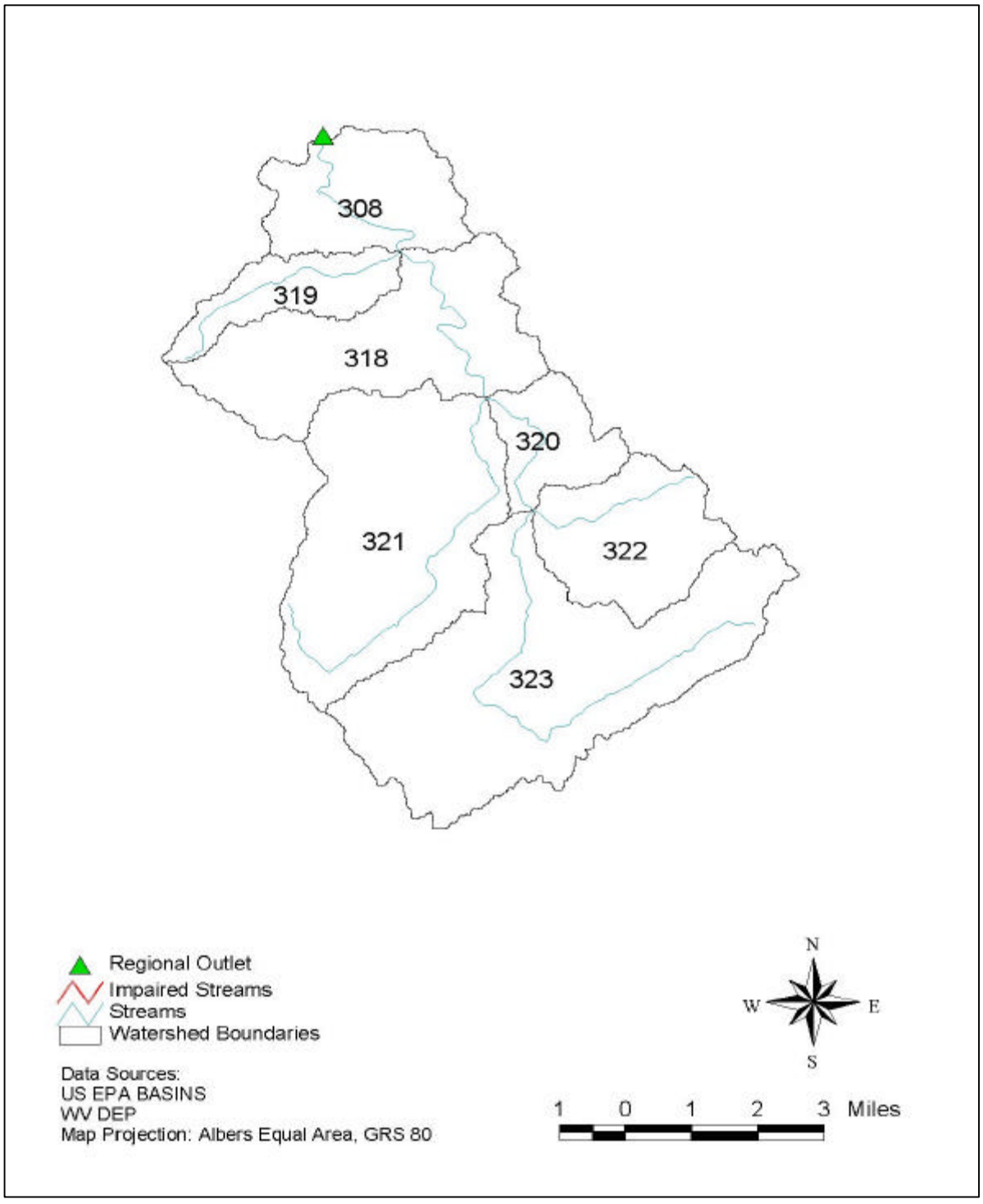


Figure 1. Region 6 - Tug Fork watershed

Table 1. Impaired waterbodies in Region 6

Stream Name	Stream Code	Pollutant	Contributing SWS	Contributing Regions	Aquatic Life

Not Applicable to this Region

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

SWS
308
318
319

Table 3a. Water quality data for aluminum

SWS	WQ Station	Avg (ug/L)	Min (ug/L)	Max (ug/L)	Count	Start Date	End Date
308	WV0021687__DSDF01	168.03	100	490	61	05/29/99	12/04/01
308	WV0021687__USDF01	161.31	100	560	61	05/29/99	12/04/01
318	211WVOWR__BST-070-0011	50.00	50	50	1	07/01/98	07/01/98
318	211WVOWR__BST-070-0012	50.00	50	50	1	07/01/98	07/01/98
320	WV0091952__DSDF02	145.74	20	570	61	05/07/99	12/14/01
320	WV0091952__USDF01	166.17	100	550	60	05/07/99	12/14/01
320	WV1011821__DTWB2	168.85	100	690	52	01/29/99	11/17/01
321	WV0021687__DSRFBF	240.17	100	5000	60	06/18/99	12/10/02
321	WV0021687__USRFBF	164.50	100	660	60	06/18/99	12/10/01
321	WV0049751__AMOIS-01	150.15	100	310	68	01/01/99	12/10/01
321	WV0049751__AMOIS-02	137.54	100	320	69	01/01/99	12/10/01
321	WV0049751__AMOIS-05	141.74	100	340	69	01/01/99	12/10/01
321	WV0049751__AMOIS-06	157.54	100	580	69	01/01/99	12/10/01
321	WV1005685__AMOISO1	150.15	100	310	68	01/01/99	12/10/01
321	WV1005685__AMOISO2	137.54	100	320	69	01/01/99	12/10/01

Table 3b. Water quality data for iron

SWS	WQ Station	Avg (ug/L)	Min (ug/L)	Max (ug/L)	Count	Start Date	End Date
308	112WRD__371537081393239	1076.00	200	4100	5	05/10/79	07/21/81
308	WV0021687__DSDF01	131.43	30	650	70	01/08/99	12/04/01
308	WV0021687__USDF01	133.71	30	620	70	01/08/99	12/04/01
318	211WVOWR__BST-070-0011	127.00	127	127	1	07/01/98	07/01/98
318	211WVOWR__BST-070-0012	226.00	226	226	1	07/01/98	07/01/98
320	WV0091952__DSDF02	162.57	30	450	70	01/08/99	12/14/01
320	WV0091952__USDF01	181.45	30	380	69	01/08/99	12/14/01
320	WV1011821__DTWB2	19660.75	30	1016000	53	01/29/99	11/17/01
321	WV0021687__DSRFBF	110.86	30	1690	70	01/01/99	12/10/01
321	WV0021687__USRFBF	246.86	20	5170	70	01/01/99	12/10/01
321	WV0049751__AMOIS-01	114.12	30	310	68	01/01/99	12/10/01
321	WV0049751__AMOIS-02	568.12	120	1430	69	01/01/99	12/10/01
321	WV0049751__AMOIS-05	203.91	50	380	69	01/01/99	12/10/01
321	WV0049751__AMOIS-06	318.41	100	700	69	01/01/99	12/10/01
321	WV1005685__AMOISO1	120.00	30	520	69	01/01/99	12/10/01
321	WV1005685__AMOISO2	568.82	120	1430	68	01/01/99	12/10/01

Table 3c. Water quality data for manganese

SWS	WQ Station	Avg (ug/L)	Min (ug/L)	Max (ug/L)	Count	Start Date	End Date
308	112WRD__371537081393239	34.00	10	100	5	05/10/79	07/21/81
318	211WVOWR__BST-070-0011	14.60	14.6	14.6	1	07/01/98	07/01/98
318	211WVOWR__BST-070-0012	22.90	22.9	22.9	1	07/01/98	07/01/98
320	WV0091952__DSDF02	125.00	50	300	36	01/08/99	12/07/01
320	WV0091952__USDF01	51.39	50	100	36	01/08/99	12/07/01
320	WV1011821__DTWB2	81.82	50	280	11	03/12/99	10/13/01
321	WV0021687__DSRFBF	105.00	50	160	2	12/31/99	12/10/01
321	WV0049751__AMOIS-01	50.83	50	60	12	03/12/99	10/09/01
321	WV0049751__AMOIS-02	294.00	60	540	10	09/11/99	10/09/01
321	WV0049751__AMOIS-06	119.17	50	170	12	03/12/99	10/09/01
321	WV1005685__AMOISO1	50.83	50	60	12	03/12/99	10/09/01
321	WV1005685__AMOISO2	294.00	60	540	10	09/11/99	10/09/01

Table 3d. Water quality data for Total Nonfilterable Residue

SWS	WQ Station	Avg (ug/L)	Min (ug/L)	Max (ug/L)	Count	Start Date	End Date

(not applicable to this region)

Table 3e. Water quality data for pH

SWS	WQ Station	Avg (ug/L)	Min (ug/L)	Max (ug/L)	Count	Start Date	End Date
308	112WRD__371537081393239	8.43	8.3	8.8	6	05/10/79	09/28/83
308	112WRD__371609081400101	8.50	8.3	8.7	2	08/06/80	04/14/81
308	WV0021687__DSDF01	8.33	6.7	9.0	70	01/08/99	12/04/01
308	WV0021687__USDF01	8.30	6.6	9.1	70	01/08/99	12/04/01
318	211WVOWR__BST-070-0011	7.68	7.68	7.7	1	07/01/98	07/01/98
318	211WVOWR__BST-070-0012	7.50	7.5	7.5	1	07/01/98	07/01/98
320	112WRD__371251081374601	8.23	8.1	8.5	3	10/10/78	04/14/81
320	112WRD__371254081375501	8.40	8.3	8.5	3	10/10/78	04/14/81
320	WV0091952__DSDF02	7.98	6.8	9.2	70	01/08/99	12/14/01
320	WV0091952__USDF01	8.41	0.7	9.3	69	01/08/99	12/14/01
320	WV1011821__DTWB2	8.12	6.5	8.9	53	01/29/99	11/17/01
321	WV0021687__DSRFBF	8.34	7.7	9.0	70	01/01/99	12/10/01
321	WV0021687__USRFBF	8.36	7.5	9.0	70	01/01/99	12/10/01
321	WV0049751__AMOIS-01	8.32	6.4	9.2	68	01/01/99	12/10/01
321	WV0049751__AMOIS-02	8.14	6.7	8.8	69	01/01/99	12/10/01
321	WV0049751__AMOIS-05	8.46	7.7	8.9	69	01/01/99	12/10/01
321	WV0049751__AMOIS-06	8.50	7.7	9.0	69	01/01/99	12/10/01
321	WV1005685__AMOISO1	8.32	6.4	9.2	68	01/01/99	12/10/01
321	WV1005685__AMOISO2	8.14	6.7	8.8	69	01/01/99	12/10/01

Table 3f. Water quality data for dissolved zinc

SWS	WQ Station	Avg (ug/L)	Min (ug/L)	Max (ug/L)	Count	Start Date	End Date
308	112WRD__371537081393239	4.00	4	4	1	08/18/80	08/18/80

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

SWS	NPDES Permit ID	Baseline (lb/yr)	Allocation (lb/yr)	Allocation (mg/L)	Percent Reduction
308	WV0021687	53	53	3.60	0
308	WV1012151	289	289	3.60	0
318	WV1011821	83	83	3.60	0
320	WV0091952	392	392	3.60	0
320	WV1006215	392	392	3.60	0
320	WV1011821	84	84	3.60	0
321	WV0021687	107	54	1.89	50
321	WV0049751	4,337	2,169	1.89	50
321	WV1005685	125	62	1.89	50
321	WV1016300	51	26	1.89	50

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

SWS	NPDES Permit ID	Baseline (lb/yr)	Allocation (lb/yr)	Allocation (mg/L)	Percent Reduction
308	WV0021687	48	48	3.20	0
308	WV1012151	258	258	3.20	0
318	WV1011821	74	74	3.20	0
320	WV0091952	349	349	3.20	0
320	WV1006215	349	349	3.20	0
320	WV1011821	75	75	3.20	0
321	WV0021687	96	96	3.20	0
321	WV0049751	3,862	3,862	3.20	0
321	WV1005685	111	111	3.20	0
321	WV1016300	45	45	3.20	0

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

SWS	NPDES Permit ID	Baseline (lb/yr)	Allocation (lb/yr)	Allocation (mg/L)	Percent Reduction
308	WV0021687	30	30	2.00	0
308	WV1012151	161	161	2.00	0
318	WV1011821	46	46	2.00	0
320	WV0091952	218	218	2.00	0
320	WV1006215	218	218	2.00	0
320	WV1011821	46	46	2.00	0
321	WV0021687	60	60	2.00	0
321	WV0049751	2,406	2,406	2.00	0
321	WV1005685	69	69	2.00	0
321	WV1016300	28	28	2.00	0

Table 5a. Aluminum baseline conditions and allocations (LAs) for nonpoint sources in West Virginia

SWS	AML		Revoked Mines		Harvested Forest		Oil and Gas		Roads		Nonpoint Source			
	Baseline Load (lb/yr)	Allocated Load (lb/yr)	Baseline Load (lb/yr)	Allocated Load (lb/yr)	Baseline Load (lb/yr)	Allocated Load (lb/yr)	Baseline Load (lb/yr)	Allocated Load (lb/yr)	Baseline Load (lb/yr)	Allocated Load (lb/yr)	Baseline Load (lb/yr)	Allocated Load (lb/yr)	**Requires Reduction**	**Percent Reduction**
308	5532	221	0	0	2114	2114	232	232	512	512	1777	1777	X	52
318	6039	3623	0	0	1936	1936	154	154	918	918	3238	3238	X	20
319	891	107	0	0	474	474	135	135	293	293	1042	1042	X	28
320	0	0	0	0	856	385	0	0	47	24	339	339	X	40
321	0	0	0	0	2162	541	32	8	112	36	802	802	X	55

Table 5b. Iron baseline conditions and allocations (LAs) for nonpoint sources in West Virginia

SWS	AML		Revoked Mines		Harvested Forest		Oil and Gas		Roads		Nonpoint Source			
	Baseline Load (lb/yr)	Allocated Load (lb/yr)	Baseline Load (lb/yr)	Allocated Load (lb/yr)	Baseline Load (lb/yr)	Allocated Load (lb/yr)	Baseline Load (lb/yr)	Allocated Load (lb/yr)	Baseline Load (lb/yr)	Allocated Load (lb/yr)	Baseline Load (lb/yr)	Allocated Load (lb/yr)	**Requires Reduction**	**Percent Reduction**
308	7296	7296	0	0	2671	2671	293	293	646	646	2784	2784		0
318	7965	7965	0	0	2446	2446	194	194	1158	1158	5077	5077		0
319	1175	1175	0	0	598	598	170	170	369	369	1634	1634		0
320	0	0	0	0	1081	486	0	0	59	30	531	531	X	37
321	0	0	0	0	2732	683	41	10	141	45	1258	1258	X	52

Table 5c. Manganese baseline conditions and allocations (LAs) for nonpoint sources in West Virginia

SWS	AML		Revoked Mines		Harvested Forest		Oil and Gas		Roads		Nonpoint Source			
	Baseline Load (lb/yr)	Allocated Load (lb/yr)	Baseline Load (lb/yr)	Allocated Load (lb/yr)	Baseline Load (lb/yr)	Allocated Load (lb/yr)	Baseline Load (lb/yr)	Allocated Load (lb/yr)	Baseline Load (lb/yr)	Allocated Load (lb/yr)	Baseline Load (lb/yr)	Allocated Load (lb/yr)	**Requires Reduction**	**Percent Reduction**
308	2404	2404	0	0	167	167	18	18	46	46	1311	1311		0
318	2624	2624	0	0	153	153	12	12	82	82	2393	2393		0
319	387	387	0	0	37	37	11	11	26	26	771	771		0
320	0	0	0	0	67	30	0	0	5	3	250	250	X	12
321	0	0	0	0	170	42	3	1	12	6	593	593	X	17

Table 6a. Baseline conditions and allocations for all sources in Virginia

Metal	Baseline Load (lb/yr)	Allocated Load (lb/yr)	Requires Reduction	Percent Reduction
Al	40,720	21,307	X	48
Fe	54,877	30,353	X	45

Appendix A-7

Region 7

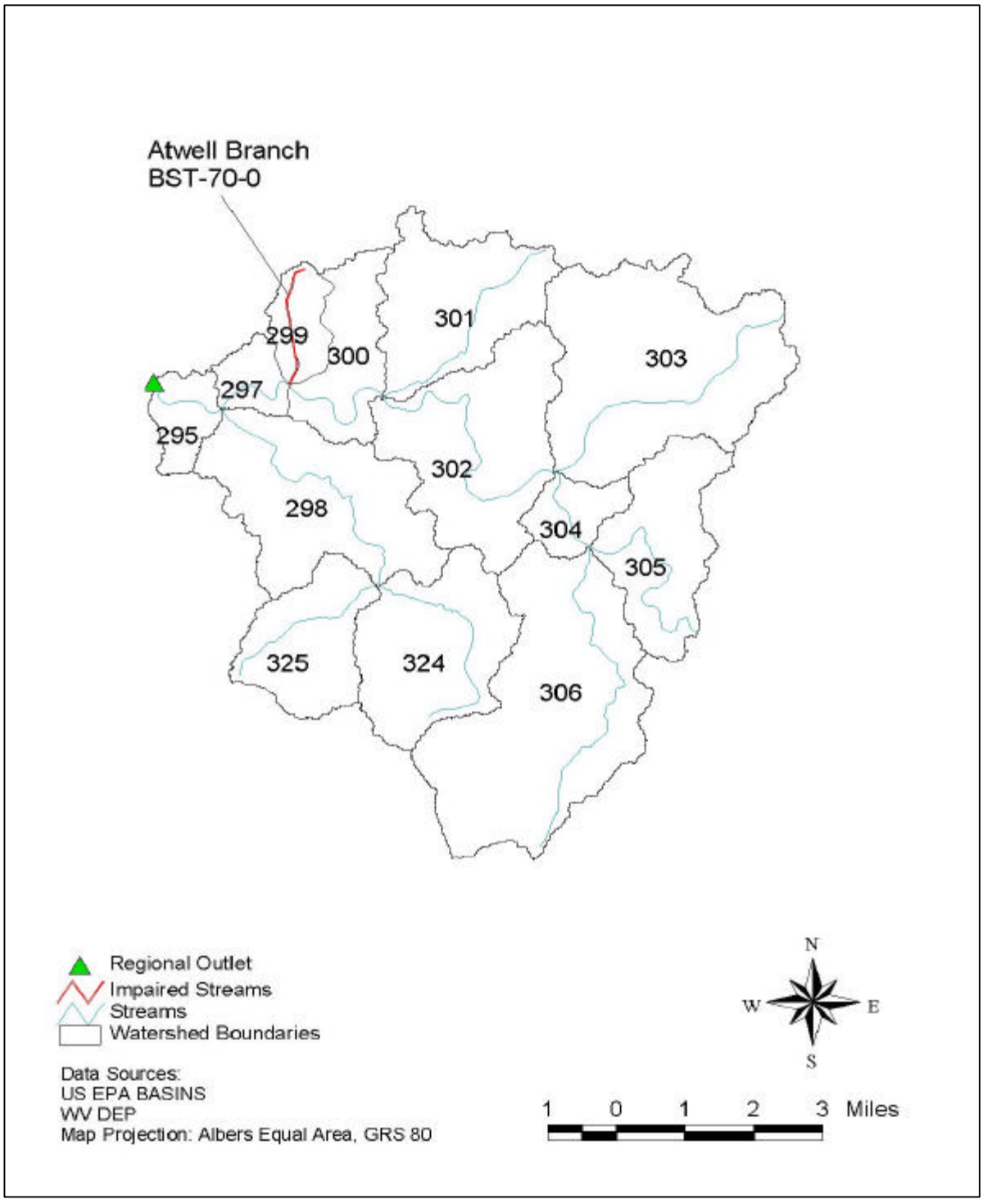


Figure 1. Region 7 - Tug Fork watershed

Table 1. Impaired waterbodies in Region 7

Stream Name	Stream Code	Pollutant	Contributing SWS	Contributing Regions	Aquatic Life
Atwell Branch	BST-70-O	Metals	299		Aquatic Life

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

SWS
295
297
298
300
301
302
303
304
305
306

Table 3a. Water quality data for aluminum

SWS	WQ Station	Avg (ug/L)	Min (ug/L)	Max (ug/L)	Count	Start Date	End Date
298	112WRD__372038081465301	50.00	50	50	1	04/15/81	04/15/81
298	211WVOWR__BST-070-0005	15400.00	15400	15400	1	07/08/98	07/08/98
298	211WVOWR__BST-070-0018	2390.00	2390	2390	1	07/08/98	07/08/98
299	211WVOWR__BST-070-0019	6750.00	6750	6750	1	07/08/98	07/08/98
301	211WVOWR__BST-070-0021	263.00	263	263	1	07/09/98	07/09/98
302	211WVOWR__BST-070-0003	50.00	50	50	1	07/06/98	07/06/98
303	WV0003018__DSBC	237.02	100	3650	57	05/26/99	09/26/01
303	WV0003018__DSBC1	169.67	100	360	30	05/26/99	09/26/01
303	WV0003018__DSHB	170.53	100	520	57	05/26/99	09/26/01
303	WV0003018__USBC	215.77	100	2660	52	05/26/99	09/26/01
303	WV0003018__USBC1	133.33	100	170	6	01/12/00	07/25/01
303	WV0048810__DSCFB6	215.00	100	440	6	11/02/01	01/31/02
303	WV0048810__DSHB05	228.33	100	350	6	11/02/01	01/31/02
303	WV0048810__USCFB1	203.33	100	610	6	11/02/01	01/31/02
303	WV0048810__USCFB3	250.00	100	610	6	11/02/01	01/31/02
303	WV1011855__UBC-1	158.33	100	260	6	11/02/01	01/31/02
303	WV1016369__CR-2	0.00	0	0	6	11/02/01	01/31/02
303	WV1016369__DBC2	190.00	0	540	6	11/02/01	01/31/02
306	211WVOWR__BST-070-0007	50.00	50	50	1	07/06/98	07/06/98
324	211WVOWR__BST-070-0006	50.00	50	50	1	07/06/98	07/06/98

Table 3b. Water quality data for iron

SWS	WQ Station	Avg (ug/L)	Min (ug/L)	Max (ug/L)	Count	Start Date	End Date
298	112WRD__372038081465301	80.00	80	80	1	04/15/81	04/15/81
298	211WVOWR__BST-070-0005	16700.00	16700	16700	1	07/08/98	07/08/98
298	211WVOWR__BST-070-0018	3120.00	3120	3120	1	07/08/98	07/08/98
299	211WVOWR__BST-070-0019	7060.00	7060	7060	1	07/08/98	07/08/98
301	211WVOWR__BST-070-0021	350.00	350	350	1	07/09/98	07/09/98
302	211WVOWR__BST-070-0003	50.00	50	50	1	07/06/98	07/06/98
303	WV0003018__DSBC	353.70	30	7720	73	09/23/98	09/26/01
303	WV0003018__DSBC1	106.49	30	400	37	08/12/98	09/26/01
303	WV0003018__DSHB	157.53	30	1840	73	09/23/98	09/26/01
303	WV0003018__USBC	294.93	30	4650	69	09/09/98	09/26/01
303	WV0003018__USBC1	77.78	30	160	9	03/24/99	07/25/01
303	WV0048810__DSCFB6	600.00	540	720	6	11/02/01	01/31/02
303	WV0048810__DSHB05	88.33	50	220	6	11/02/01	01/31/02
303	WV0048810__USCFB1	161.67	50	390	6	11/02/01	01/31/02
303	WV0048810__USCFB3	75.00	40	110	6	11/02/01	01/31/02
303	WV1011855__DBC-2	163.33	0	630	6	11/02/01	01/31/02
303	WV1011855__UBC-1	188.33	100	280	6	11/02/01	01/31/02
303	WV1016369__CR-2	0.00	0	0	6	11/02/01	01/31/02
306	211WVOWR__BST-070-0007	477.00	477	477	1	07/06/98	07/06/98
324	211WVOWR__BST-070-0006	185.00	185	185	1	07/06/98	07/06/98

Table 3c. Water quality data for manganese

SWS	WQ Station	Avg (ug/L)	Min (ug/L)	Max (ug/L)	Count	Start Date	End Date
298	112WRD__372038081465301	40.00	40	40	1	04/15/81	04/15/81
298	211WVOWR__BST-070-0005	341.00	341	341	1	07/08/98	07/08/98
298	211WVOWR__BST-070-0018	97.80	97.8	97.8	1	07/08/98	07/08/98
299	211WVOWR__BST-070-0019	151.00	151	151	1	07/08/98	07/08/98
301	211WVOWR__BST-070-0021	13.60	13.6	13.6	1	07/09/98	07/09/98
302	211WVOWR__BST-070-0003	10.00	10	10	1	07/06/98	07/06/98
303	WV0048810__DSCFB6	0.00	0	0	6	11/02/01	01/31/02
303	WV0048810__DSHB05	0.00	0	0	6	11/02/01	01/31/02
303	WV0048810__USCFB1	0.00	0	0	6	11/02/01	01/31/02
303	WV0048810__USCFB3	0.00	0	0	6	11/02/01	01/31/02
303	WV1011855__UBC-1	0.00	0	0	6	11/02/01	01/31/02
303	WV1016369__CR-2	0.00	0	0	6	11/02/01	01/31/02
303	WV1016369__DBC2	0.00	0	0	6	11/02/01	01/31/02
306	211WVOWR__BST-070-0007	23.30	23.3	23.3	1	07/06/98	07/06/98
324	211WVOWR__BST-070-0006	10.00	10	10	1	07/06/98	07/06/98

Table 3d. Water quality data for Total Nonfilterable Residue

SWS	WQ Station	Avg (ug/L)	Min (ug/L)	Max (ug/L)	Count	Start Date	End Date
298	211WVOWR__BST-070-0018	55.00	55	55	1	07/08/98	07/08/98
299	211WVOWR__BST-070-0019	169.00	169	169	1	07/08/98	07/08/98
301	211WVOWR__BST-070-0021	50.00	50	50	1	07/09/98	07/09/98

Table 3e. Water quality data for pH

SWS	WQ Station	Avg (ug/L)	Min (ug/L)	Max (ug/L)	Count	Start Date	End Date
298	112WRD__372038081465301	7.60	7.4	7.8	3	10/10/78	04/15/81
298	211WVOWR__BST-070-0005	7.50	7.5	7.5	1	07/08/98	07/08/98
298	211WVOWR__BST-070-0018	7.65	7.5	7.8	2	07/08/98	07/08/98
299	211WVOWR__BST-070-0019	8.00	8	8.0	1	07/08/98	07/08/98
301	211WVOWR__BST-070-0021	8.20	8.2	8.2	1	07/09/98	07/09/98
302	112WRD__372030081433301	8.40	8.3	8.5	2	08/07/80	04/15/81
302	211WVOWR__BST-070-0003	8.10	8.1	8.1	1	07/06/98	07/06/98
303	112WRD__371915081414701	8.47	8.4	8.5	3	10/10/78	04/15/81
303	211WVOWR__BST-070-0020	7.12	7.12	7.1	1	07/01/98	07/01/98
303	WV0003018__DSBC	7.91	7.12	8.5	73	09/23/98	09/26/01
303	WV0003018__DSBC1	7.48	0.5	8.3	37	08/12/98	09/26/01
303	WV0003018__DSHB	7.93	7.03	8.8	73	09/23/98	09/26/01
303	WV0003018__USBC	7.91	7.16	8.5	69	09/09/98	09/26/01
303	WV0003018__USBC1	7.61	7.35	7.9	9	03/24/99	07/25/01
303	WV0048810__DSCFB6	7.17	6.86	7.5	6	11/02/01	01/31/02
303	WV0048810__DSHB05	7.56	7.16	8.1	6	11/02/01	01/31/02
303	WV0048810__USCFB1	7.26	6.88	7.9	6	11/02/01	01/31/02
303	WV0048810__USCFB3	7.28	6.99	7.7	6	11/02/01	01/31/02
303	WV1011855__DBC-2	4.72	0	7.4	6	11/02/01	01/31/02
303	WV1011855__UBC-1	7.17	7	7.4	6	11/02/01	01/31/02
303	WV1016369__CR-2	0.00	0	0.0	6	11/02/01	01/31/02
306	112WRD__371805081412801	7.63	7.2	8.0	3	10/10/78	04/15/81
306	211WVOWR__BST-070-0007	7.10	7.1	7.1	1	07/06/98	07/06/98
324	211WVOWR__BST-070-0006	7.25	7.25	7.3	1	07/06/98	07/06/98

Table 3f. Water quality data for dissolved zinc

SWS	WQ Station	Avg (ug/L)	Min (ug/L)	Max (ug/L)	Count	Start Date	End Date
298	112WRD__372038081465301	4.00	4	4	1	04/15/81	04/15/81

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

SWS	NPDES Permit ID	Baseline (lb/yr)	Allocation (lb/yr)	Allocation (mg/L)	Percent Reduction
302	WV0003018	101	101	3.60	0
303	WV0003018	538	538	3.60	0
303	WV0045691	33	33	3.60	0
303	WV0048810	185	185	3.60	0
303	WV1005880	35	35	3.60	0
303	WV1011855	141	141	3.60	0
303	WV1016270	126	126	3.60	0
303	WV1016369	173	173	3.60	0
305	WV1008919	157	157	3.60	0

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

SWS	NPDES Permit ID	Baseline (lb/yr)	Allocation (lb/yr)	Allocation (mg/L)	Percent Reduction
302	WV0003018	90	90	3.20	0
303	WV0003018	479	479	3.20	0
303	WV0045691	29	29	3.20	0
303	WV0048810	165	165	3.20	0
303	WV1005880	31	31	3.20	0
303	WV1011855	126	126	3.20	0
303	WV1016270	112	112	3.20	0
303	WV1016369	154	154	3.20	0
305	WV1008919	140	140	3.20	0

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

SWS	NPDES Permit ID	Baseline (lb/yr)	Allocation (lb/yr)	Allocation (mg/L)	Percent Reduction
302	WV0003018	56	56	2.00	0
303	WV0003018	298	298	2.00	0
303	WV0045691	18	18	2.00	0
303	WV0048810	103	103	2.00	0
303	WV1005880	19	19	2.00	0
303	WV1011855	78	78	2.00	0
303	WV1016270	70	70	2.00	0
303	WV1016369	96	96	2.00	0
305	WV1008919	87	87	2.00	0

Table 5a. Aluminum baseline conditions and allocations (LAs) for nonpoint sources in West Virginia

SWS	AML		Revoked Mines		Harvested Forest		Oil and Gas		Roads		Nonpoint Source			
	Baseline Load (lb/yr)	Allocated Load (lb/yr)	Baseline Load (lb/yr)	Allocated Load (lb/yr)	Baseline Load (lb/yr)	Allocated Load (lb/yr)	Baseline Load (lb/yr)	Allocated Load (lb/yr)	Baseline Load (lb/yr)	Allocated Load (lb/yr)	Baseline Load (lb/yr)	Allocated Load (lb/yr)	Requires Reduction	Percent Reduction
295	1,185	1,185	0	0	193	193	0	0	122	122	430	430		0
297	511	511	0	0	154	154	58	58	98	98	344	344		0
298	4,471	671	0	0	1,162	1,162	192	192	645	645	2,276	2,276	x	43
299	0	0	0	0	206	206	115	115	129	129	461	461		0
300	2,715	1,086	0	0	481	481	135	135	265	265	929	929	x	36
301	30,586	306	1,229	12	793	793	173	173	476	476	1,428	1,428	x	91
302	6,704	6,704	296	296	1,004	1,004	77	77	631	631	2,200	2,200		0
303	1,997	359	9	2	1,425	1,425	213	213	900	900	3,162	3,162	x	21
304	177	177	0	0	199	199	0	0	129	129	466	466		0
305	891	891	0	0	623	623	135	135	403	403	1,435	1,435		0
306	2,171	478	0	0	1,898	1,898	192	192	985	985	3,499	3,499	x	19
324	0	0	0	0	820	820	58	58	504	504	1,801	1,801		0
325	0	0	0	0	1,370	754	347	191	334	188	1,191	1,191	x	28

Table 5b. Iron baseline conditions and allocations (LAs) for nonpoint sources in West Virginia

SWS	AML		Revoked Mines		Harvested Forest		Oil and Gas		Roads		Nonpoint Source			
	Baseline Load (lb/yr)	Allocated Load (lb/yr)	Baseline Load (lb/yr)	Allocated Load (lb/yr)	Baseline Load (lb/yr)	Allocated Load (lb/yr)	Baseline Load (lb/yr)	Allocated Load (lb/yr)	Baseline Load (lb/yr)	Allocated Load (lb/yr)	Baseline Load (lb/yr)	Allocated Load (lb/yr)	Requires Reduction	Percent Reduction
295	1,562	1,562	0	0	244	244	0	0	153	153	673	673		0
297	674	674	0	0	194	194	73	73	124	124	538	538		0
298	5,896	5,896	0	0	1,468	1,468	243	243	813	813	3,568	3,568		0
299	0	0	0	0	260	260	146	146	163	163	723	723		0
300	3,580	3,580	0	0	607	607	170	170	335	335	1,457	1,457		0
301	40,340	2,865	1,413	1,413	1,002	1,002	219	219	601	601	2,240	2,240	x	82
302	8,842	8,842	340	340	1,268	1,268	97	97	796	796	3,446	3,446		0
303	2,634	2,634	11	11	1,801	1,801	269	269	1,136	1,136	4,953	4,953		0
304	233	233	0	0	252	252	0	0	163	163	727	727		0
305	1,175	1,175	0	0	786	786	170	170	508	508	2,244	2,244		0
306	2,863	2,863	0	0	2,397	2,397	243	243	1,242	1,242	5,484	5,484		0
324	0	0	0	0	1,035	1,035	73	73	635	635	2,825	2,825		0
325	0	0	0	0	1,731	952	439	241	421	237	1,867	1,867	x	26

Table 5c. Manganese baseline conditions and allocations (LAs) for nonpoint sources in West Virginia

SWS	AML		Revoked Mines		Harvested Forest		Oil and Gas		Roads		Nonpoint Source			
	Baseline Load (lb/yr)	Allocated Load (lb/yr)	Baseline Load (lb/yr)	Allocated Load (lb/yr)	Baseline Load (lb/yr)	Allocated Load (lb/yr)	Baseline Load (lb/yr)	Allocated Load (lb/yr)	Baseline Load (lb/yr)	Allocated Load (lb/yr)	Baseline Load (lb/yr)	Allocated Load (lb/yr)	Requires Reduction	Percent Reduction
295	515	515	0	0	15	15	0	0	11	11	317	317		0
297	222	222	0	0	12	12	5	5	9	9	254	254		0
298	1,943	1,943	0	0	92	92	15	15	57	57	1,681	1,681		0
299	0	0	0	0	16	16	9	9	11	11	341	341		0
300	1,180	1,180	0	0	38	38	11	11	24	24	687	687		0
301	13,291	3,854	1,225	355	63	63	14	14	42	42	1,056	1,056	x	66
302	2,913	2,913	295	295	79	79	6	6	56	56	1,623	1,623		0
303	868	868	9	9	113	113	17	17	80	80	2,333	2,333		0
304	77	77	0	0	16	16	0	0	11	11	342	342		0
305	387	387	0	0	49	49	11	11	36	36	1,055	1,055		0
306	943	943	0	0	150	150	15	15	88	88	2,585	2,585		0
324	0	0	0	0	65	65	5	5	45	45	1,332	1,332		0
325	0	0	0	0	108	59	27	15	30	18	880	880	x	7

Appendix A-8

Region 8

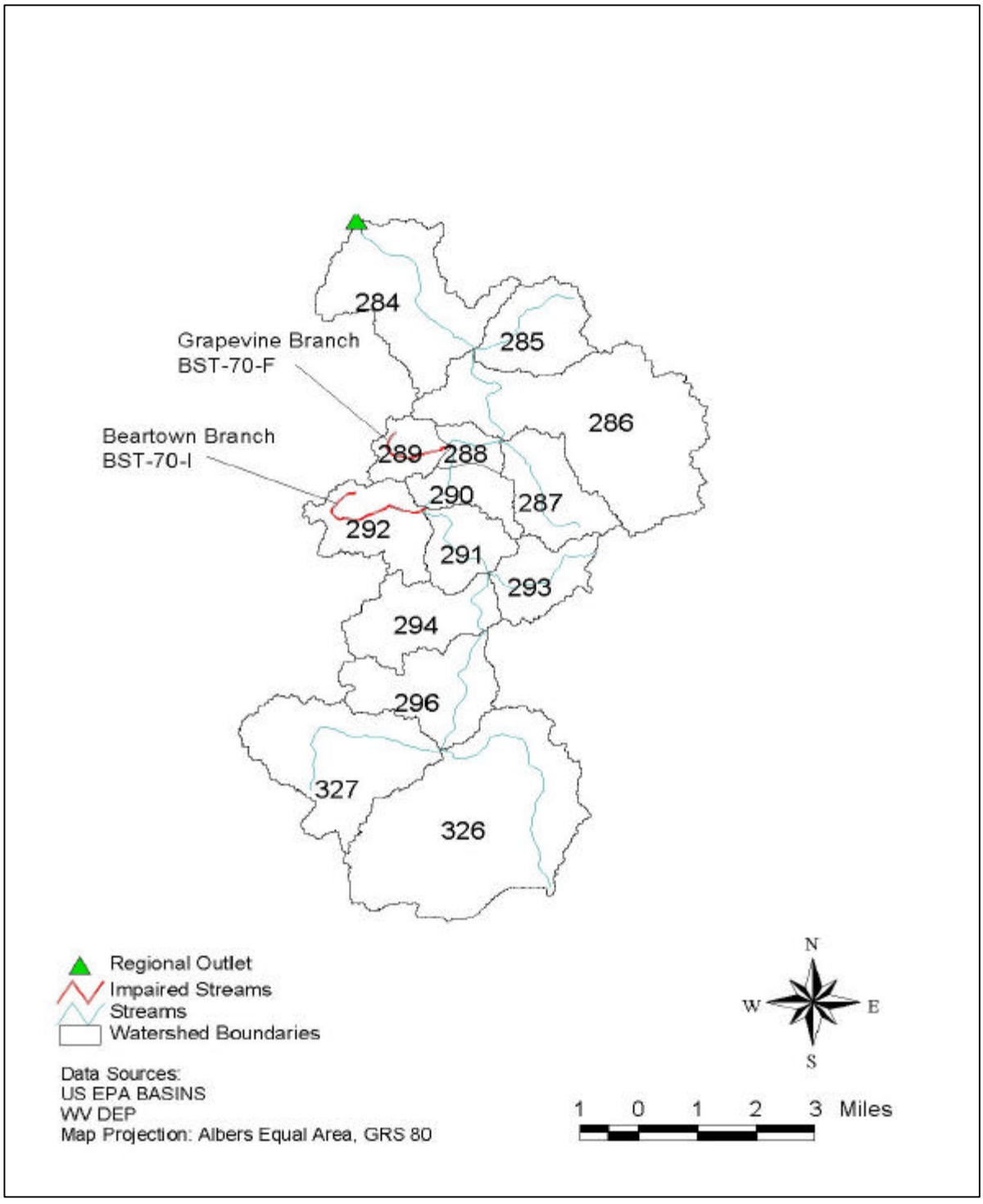


Figure 1. Region 8 - Tug Fork watershed

Table 1. Impaired waterbodies in Region 8

Stream Name	Stream Code	Pollutant	Contributing SWS	Contributing Regions	Aquatic Life
Grapevine Branch	BST-70-F	Metals	289		Aquatic Life
Beartown Branch	BST-70-I	Metals	292		Aquatic Life

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

SWS
284
287
288
290
291
292
293
294
296
326
327

Table 3a. Water quality data for aluminum

SWS	WQ Station	Avg (ug/L)	Min (ug/L)	Max (ug/L)	Count	Start Date	End Date
284	112WRD__372532081472239	65.00	60	70	2	02/25/80	06/17/80
289	211WVOWR__BST-070-0014	50.00	50	50	1	07/02/98	07/02/98
290	211WVOWR__BST-070-0002	50.00	50	50	1	07/07/98	07/07/98
290	WV0031607__USDFR	476.00	400	1200	50	09/20/99	10/10/02
290	WV1012291__DSFTB1	444.19	400	1100	43	01/13/99	09/12/01
291	WV0031607__DSDFR	449.02	400	900	51	09/20/99	11/28/01
292	211WVOWR__BST-070-0015	713.00	713	713	1	07/02/98	07/02/98
296	211WVOWR__BST-070-0004	1640.00	1640	1640	1	07/09/98	07/09/98
326	WV1016083__DSWLB3	440.58	50	12900	120	01/15/97	12/17/01
326	WV1016083__USWBL4	354.83	50	5000	89	01/15/97	12/17/01
326	WV1016113__DSMF02	549.55	50	13200	110	01/15/97	12/17/01
326	WV1016113__USMFAC	320.81	50	3240	97	01/15/97	12/17/01
326	WV1016296__DISMP4	299.21	50	2630	89	01/15/97	12/17/01
326	WV1016296__USWBL	354.55	50	3120	66	01/15/97	07/12/01
327	WV1016113__DS-15	2197.80	50	56140	30	04/20/00	12/17/01
327	WV1016113__US-16	496.73	50	7250	30	04/20/00	12/17/01
327	WV1016113__US-17	955.10	50	22400	30	04/20/00	12/17/01
327	WV1016113__US-18	168.07	50	1090	29	04/20/00	12/17/01

Table 3b. Water quality data for iron

SWS	WQ Station	Avg (ug/L)	Min (ug/L)	Max (ug/L)	Count	Start Date	End Date
284	112WRD__372532081472239	1186.67	150	5000	6	05/11/79	08/19/80
289	211WVOWR__BST-070-0014	138.00	138	138	1	07/02/98	07/02/98
290	211WVOWR__BST-070-0002	97.60	97.6	97.6	1	07/07/98	07/07/98
290	WV0031607__USDFR	180.60	50	900	50	09/20/99	11/28/01
290	WV1012291__DSFTB1	133.72	50	750	43	01/13/99	09/12/01
291	WV0031607__DSDFR	194.12	50	1110	51	09/20/99	11/28/01
292	211WVOWR__BST-070-0015	166.00	166	166	1	07/02/98	07/02/98
296	211WVOWR__BST-070-0004	1740.00	1740	1740	1	07/09/98	07/09/98
326	WV1016083__DSWLB3	382.35	20	6900	119	01/15/97	12/17/01
326	WV1016083__USWBL4	393.93	20	3900	89	01/15/97	12/17/01
326	WV1016113__DSMF02	534.59	20	7600	110	01/15/97	12/17/01
326	WV1016113__USMFAC	375.52	20	4260	97	01/15/97	12/17/01
326	WV1016296__DISMP4	393.93	20	3900	89	01/15/97	12/17/01
326	WV1016296__USWBL	345.00	20	2760	66	01/15/97	07/12/01
327	WV1016113__DS-15	674.33	100	2680	30	04/20/00	12/17/01
327	WV1016113__US-16	579.33	20	9400	30	04/20/00	12/17/01
327	WV1016113__US-17	823.00	20	17600	30	04/20/00	12/17/01
327	WV1016113__US-18	232.76	20	870	29	04/20/00	12/17/01

Table 3c. Water quality data for manganese

SWS	WQ Station	Avg (ug/L)	Min (ug/L)	Max (ug/L)	Count	Start Date	End Date
284	112WRD__372532081472239	53.33	20	160	6	05/11/79	08/19/80
289	211WVOWR__BST-070-0014	35.40	35.4	35.4	1	07/02/98	07/02/98
290	211WVOWR__BST-070-0002	16.80	16.8	16.8	1	07/07/98	07/07/98
290	WV0031607__USDFR	22.50	20	30	8	10/12/99	10/10/01
290	WV1012291__DSFTB1	31.11	20	80	9	01/13/99	04/11/01
291	WV0031607__DSDFR	20.00	20	20	8	10/12/99	10/10/01
292	211WVOWR__BST-070-0015	283.00	283	283	1	07/02/98	07/02/98
296	211WVOWR__BST-070-0004	60.00	60	60	1	07/09/98	07/09/98
326	WV1016083__DSWLB3	51.22	20	250	119	01/15/97	12/17/01
326	WV1016083__USWBL4	53.31	20	220	89	01/15/97	12/17/01
326	WV1016113__DSMF02	75.41	20	260	110	01/15/97	12/17/01
326	WV1016113__USMFAC	51.08	20	230	97	01/15/97	12/17/01
326	WV1016296__DISMP4	53.31	20	220	89	01/15/97	12/17/01
326	WV1016296__USWBL	50.45	20	180	66	01/15/97	07/12/01
327	WV1016113__DS-15	100.33	20	330	30	04/20/00	12/17/01
327	WV1016113__US-16	70.67	20	830	30	04/20/00	12/17/01
327	WV1016113__US-17	70.00	20	1370	30	04/20/00	12/17/01
327	WV1016113__US-18	61.03	20	270	29	04/20/00	12/17/01

Table 3d. Water quality data for Total Nonfilterable Residue

SWS	WQ Station	Avg (ug/L)	Min (ug/L)	Max (ug/L)	Count	Start Date	End Date
326	WV1016083__DSWLB3	8.26	4	30	19	01/15/97	10/02/01
326	WV1016083__USWBL4	11.61	4	54	18	01/15/97	10/02/01
326	WV1016113__DSMF02	11.28	4	35	18	01/15/97	10/02/01
326	WV1016113__USMFAC	11.39	4	53	18	01/15/97	10/02/01
326	WV1016296__DISMP4	11.61	4	54	18	01/15/97	10/02/01
326	WV1016296__USWBL	8.67	4	20	15	01/15/97	07/12/01
327	WV1016113__DS-15	19.40	4	106	30	04/20/00	12/17/01
327	WV1016113__US-16	44.33	4	554	30	04/20/00	12/17/01
327	WV1016113__US-17	53.97	4	1200	30	04/20/00	12/17/01
327	WV1016113__US-18	11.14	4	47	29	04/20/00	12/17/01

Table 3e. Water quality data for pH

SWS	WQ Station	Avg (ug/L)	Min (ug/L)	Max (ug/L)	Count	Start Date	End Date
284	112WRD__372532081472239	8.26	7.1	9.2	24	05/11/79	09/22/80
284	112WRD__372739081490501	8.20	8.2	8.2	1	10/11/78	10/11/78
285	211WVOWR__BST-070-0013	7.80	7.8	7.8	1	07/02/98	07/02/98
286	112WRD__372444081465501	8.10	8.1	8.1	1	10/11/78	10/11/78
289	211WVOWR__BST-070-0014	7.60	7.6	7.6	1	07/02/98	07/02/98
290	211WVOWR__BST-070-0002	8.61	8.61	8.6	1	07/07/98	07/07/98
290	WV0031607__USDFR	7.94	6.64	8.9	49	09/20/99	11/28/01
290	WV1012291__DSFTB1	7.74	6.26	8.8	42	01/13/99	09/12/01
291	WV0031607__DSDFR	7.96	6.7	8.9	51	09/20/99	11/28/01
292	211WVOWR__BST-070-0015	7.50	7.5	7.5	1	07/02/98	07/02/98
296	112WRD__372056081481301	8.47	8.1	9.0	3	10/11/78	04/15/81
296	211WVOWR__BST-070-0004	7.80	7.8	7.8	1	07/09/98	07/09/98
296	211WVOWR__BST-070-0016	7.80	7.8	7.8	1	07/09/98	07/09/98
326	WV1016083__DSWLB3	7.50	6.3	8.6	119	01/15/97	12/17/01
326	WV1016083__USWBL4	7.44	6.4	8.7	89	01/15/97	12/17/01
326	WV1016113__DSMF02	7.44	6.5	8.3	110	01/15/97	12/17/01
326	WV1016113__USMFAC	7.51	6.4	8.7	97	01/15/97	12/17/01
326	WV1016296__DISMP4	7.44	6.4	8.7	89	01/15/97	12/17/01
326	WV1016296__USWBL	7.31	6.5	8.5	66	01/15/97	07/12/01
327	112WRD__371923081491001	7.60	7.6	7.6	1	10/11/78	10/11/78
327	112WRD__371924081491301	7.50	7.5	7.5	1	10/11/78	10/11/78
327	211WVOWR__BST-070-0017	7.60	7.6	7.6	1	07/08/98	07/08/98
327	WV1016113__DS-15	7.41	6	8.6	30	04/20/00	12/17/01
327	WV1016113__US-16	7.57	6.2	8.5	30	04/20/00	12/17/01
327	WV1016113__US-17	7.43	5.8	8.4	30	04/20/00	12/17/01
327	WV1016113__US-18	7.40	6	8.7	29	04/20/00	12/17/01

Table 3f. Water quality data for dissolved zinc

SWS	WQ Station	Avg (ug/L)	Min (ug/L)	Max (ug/L)	Count	Start Date	End Date
284	112WRD__372532081472239	5.67	0	10	3	02/25/80	08/19/80

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

SWS	NPDES Permit ID	Baseline (lb/yr)	Allocation (lb/yr)	Allocation (mg/L)	Percent Reduction
284	WV1008811	142	142	3.60	0
286	WV1006169	103	103	3.60	0
286	WV1008811	71	71	3.60	0
290	WV0031607	204	204	3.60	0
291	WV0031607	204	204	3.60	0
291	WV1012291	195	195	3.60	0
292	WV0031607	204	204	3.60	0
292	WV1005677	55	55	3.60	0
292	WV1006274	49	49	3.60	0
292	WV1011910	65	65	3.60	0
292	WV1016261	21	21	3.60	0
294	WV1012304	46	46	3.60	0
326	WV1008978	215	215	3.60	0
326	WV1016083	197	197	3.60	0
326	WV1016113	40	40	3.60	0
326	WV1016296	107	107	3.60	0
326	WV1018809	109	109	3.60	0
327	WV1005481	183	183	3.60	0
327	WV1005952	104	104	3.60	0
327	WV1016113	121	121	3.60	0

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

SWS	NPDES Permit ID	Baseline (lb/yr)	Allocation (lb/yr)	Allocation (mg/L)	Percent Reduction
284	WV1008811	126	126	3.20	0
286	WV1006169	92	92	3.20	0
286	WV1008811	63	63	3.20	0
290	WV0031607	182	182	3.20	0
291	WV0031607	182	182	3.20	0
291	WV1012291	174	174	3.20	0
292	WV0031607	182	182	3.20	0
292	WV1005677	49	49	3.20	0
292	WV1006274	44	44	3.20	0
292	WV1011910	58	58	3.20	0
292	WV1016261	19	19	3.20	0
294	WV1012304	41	41	3.20	0
326	WV1008978	191	191	3.20	0
326	WV1016083	175	175	3.20	0
326	WV1016113	36	36	3.20	0
326	WV1016296	95	95	3.20	0
326	WV1018809	97	97	3.20	0
327	WV1005481	163	163	3.20	0
327	WV1005952	93	93	3.20	0
327	WV1016113	107	107	3.20	0

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

SWS	NPDES Permit ID	Baseline (lb/yr)	Allocation (lb/yr)	Allocation (mg/L)	Percent Reduction
284	WV1008811	79	79	2.00	0
286	WV1006169	57	57	2.00	0
286	WV1008811	39	39	2.00	0
290	WV0031607	113	113	2.00	0
291	WV0031607	113	113	2.00	0
291	WV1012291	108	108	2.00	0
292	WV0031607	113	113	2.00	0
292	WV1005677	30	30	2.00	0
292	WV1006274	27	27	2.00	0
292	WV1011910	36	36	2.00	0
292	WV1016261	12	12	2.00	0
294	WV1012304	25	25	2.00	0
326	WV1008978	119	119	2.00	0
326	WV1016083	109	109	2.00	0
326	WV1016113	22	22	2.00	0
326	WV1016296	59	59	2.00	0
326	WV1018809	60	60	2.00	0
327	WV1005481	101	101	2.00	0
327	WV1005952	58	58	2.00	0
327	WV1016113	67	67	2.00	0

Table 5a. Aluminum baseline conditions and allocations (LAs) for nonpoint sources in West Virginia

SWS	AML		Revoked Mines		Harvested Forest		Oil and Gas		Roads		Nonpoint Source			
	Baseline Load (lb/yr)	Allocated Load (lb/yr)	Baseline Load (lb/yr)	Allocated Load (lb/yr)	Baseline Load (lb/yr)	Allocated Load (lb/yr)	Baseline Load (lb/yr)	Allocated Load (lb/yr)	Baseline Load (lb/yr)	Allocated Load (lb/yr)	Baseline Load (lb/yr)	Allocated Load (lb/yr)	Requires Reduction	Percent Reduction
284	1,750	1,400	0	0	1,000	1,000	443	443	520	520	1,848	1,848	x	6
285	0	0	4,524	543	387	387	154	154	248	248	702	702	x	66
286	0	0	2,782	835	1,447	1,447	752	752	871	871	2,983	2,983	x	22
287	204	2	0	0	517	455	270	238	253	224	901	901	x	15
288	1,158	12	0	0	107	107	19	19	71	71	238	238	x	72
289	0	0	0	0	178	178	96	96	114	114	405	405		0
290	699	7	0	0	689	551	173	138	135	109	464	464	x	41
291	1,776	178	0	0	671	671	270	270	175	175	587	587	x	46
292	1,864	19	0	0	834	500	173	104	255	156	879	879	x	59
293	654	7	0	0	314	292	213	198	192	179	682	682	x	34
294	5,391	539	0	0	594	594	154	154	284	284	970	970	x	66
296	11,906	357	0	0	717	717	58	58	331	331	1,098	1,098	x	82
326	787	8	0	0	2,276	2,026	328	292	1,017	909	3,604	3,604	x	15
327	1,531	15	0	0	1,460	1,168	309	247	527	425	1,859	1,859	x	35

Table 5b. Iron baseline conditions and allocations (LAs) for nonpoint sources in West Virginia

SWS	AML		Revoked Mines		Harvested Forest		Oil and Gas		Roads		Nonpoint Source			
	Baseline Load (lb/yr)	Allocated Load (lb/yr)	Baseline Load (lb/yr)	Allocated Load (lb/yr)	Baseline Load (lb/yr)	Allocated Load (lb/yr)	Baseline Load (lb/yr)	Allocated Load (lb/yr)	Baseline Load (lb/yr)	Allocated Load (lb/yr)	Baseline Load (lb/yr)	Allocated Load (lb/yr)	Requires Reduction	Percent Reduction
284	2,308	2,308	0	0	1,263	1,263	560	560	655	655	2,892	2,892		0
285	0	0	5,200	4,000	489	489	194	194	313	313	1,101	1,101	x	16
286	0	0	3,198	3,198	1,828	1,828	950	950	1,098	1,098	4,677	4,677		0
287	268	268	0	0	653	574	342	301	319	282	1,414	1,414	x	5
288	1,528	1,528	0	0	135	135	24	24	89	89	373	373		0
289	0	0	0	0	225	225	121	121	144	144	636	636		0
290	922	922	0	0	870	696	219	175	171	137	727	727	x	9
291	2,342	2,342	0	0	847	847	342	342	221	221	920	920		0
292	2,458	2,069	0	0	1,054	632	219	131	322	197	1,379	1,379	x	19
293	863	863	0	0	396	369	269	250	242	226	1,069	1,069	x	2
294	7,110	7,110	0	0	750	750	194	194	358	358	1,520	1,520		0
296	15,704	6,027	0	0	906	906	73	73	418	418	1,720	1,720	x	51
326	1,037	1,037	0	0	2,875	2,559	414	369	1,283	1,146	5,652	5,652	x	4
327	2,019	2,019	0	0	1,845	1,476	390	312	665	536	2,912	2,912	x	7

Table 5c. Manganese baseline conditions and allocations (LAs) for nonpoint sources in West Virginia

SWS	AML		Revoked Mines		Harvested Forest		Oil and Gas		Roads		Nonpoint Source			
	Baseline Load (lb/yr)	Allocated Load (lb/yr)	Baseline Load (lb/yr)	Allocated Load (lb/yr)	Baseline Load (lb/yr)	Allocated Load (lb/yr)	Baseline Load (lb/yr)	Allocated Load (lb/yr)	Baseline Load (lb/yr)	Allocated Load (lb/yr)	Baseline Load (lb/yr)	Allocated Load (lb/yr)	Requires Reduction	Percent Reduction
284	760	760	0	0	79	79	35	35	46	46	1,361	1,361		0
285	0	0	4,509	2,796	31	31	12	12	22	22	519	519	x	34
286	0	0	2,773	2,773	114	114	59	59	77	77	2,205	2,205		0
287	88	88	0	0	41	36	21	19	22	20	667	667	x	1
288	503	503	0	0	8	8	2	2	6	6	176	176		0
289	0	0	0	0	14	14	8	8	10	10	300	300		0
290	304	304	0	0	54	43	14	11	12	10	343	343	x	2
291	772	772	0	0	53	53	21	21	16	16	434	434		0
292	810	810	0	0	66	40	14	8	23	15	650	650	x	3
293	284	284	0	0	25	23	17	16	17	16	504	504	x	0
294	2,343	2,343	0	0	47	47	12	12	25	25	716	716		0
296	5,174	5,174	0	0	57	57	5	5	29	29	810	810		0
326	342	342	0	0	180	160	26	23	90	82	2,665	2,665	x	1
327	665	665	0	0	115	92	24	20	47	39	1,371	1,371	x	2

Appendix A-9

Region 9

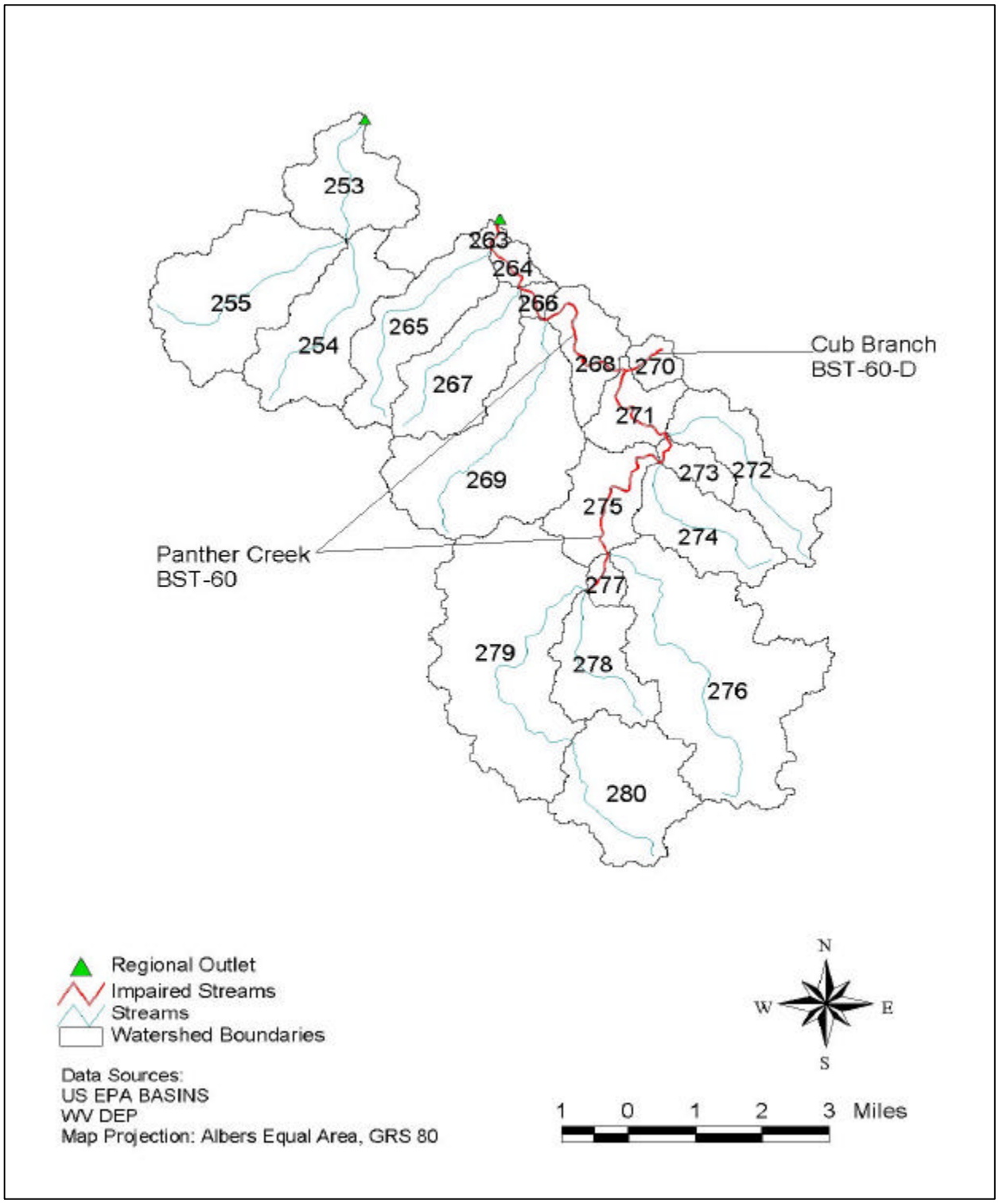


Figure 1. Region 9 - Tug Fork watershed

Table 1. Impaired waterbodies in Region 9

Stream Name	Stream Code	Pollutant	Contributing SWS	Contributing Regions	Aquatic Life
Cub Branch	BST-60-D	Metals	270		Aquatic Life
Panther Creek	BST-60	Metals	263, 264, 265, 266, 267, 268, 269, 270, 271, 272, 273, 274, 275, 276, 277, 278, 279, 280		Aquatic Life

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

SWS
255
267
276
279

Table 3a. Water quality data for aluminum

SWS	WQ Station	Avg (ug/L)	Min (ug/L)	Max (ug/L)	Count	Start Date	End Date
271	112WRD__03213500	218.00	90	500	5	02/25/80	06/08/81
271	112WRD__372645081521539	120.00	120	120	2	02/25/80	06/17/80
276	WV1006274__DSBLB	463.16	400	900	38	09/23/99	09/12/01
276	WV1006274__USBLB	463.89	400	900	36	11/10/99	09/12/01
278	WV1006509__DMF	400.00	400	400	9	07/12/01	11/28/01
278	WV1006509__UMF	400.00	400	400	1	07/25/01	07/25/01

Table 3b. Water quality data for iron

SWS	WQ Station	Avg (ug/L)	Min (ug/L)	Max (ug/L)	Count	Start Date	End Date
271	112WRD__03213500	1708.00	320	12000	10	05/11/79	07/21/81
271	112WRD__372645081521539	2453.33	320	12000	6	05/11/79	08/19/80
273	112WRD__03213495	265.83	70	1000	12	02/03/81	10/20/81
276	WV1006274__DSBLB	170.79	50	950	38	09/23/99	09/12/01
276	WV1006274__USBLB	333.06	40	3340	36	11/10/99	09/12/01
278	WV1006509__DMF	134.44	50	260	9	07/12/01	11/28/01
278	WV1006509__UMF	140.00	140	140	1	07/25/01	07/25/01

Table 3c. Water quality data for manganese

SWS	WQ Station	Avg (ug/L)	Min (ug/L)	Max (ug/L)	Count	Start Date	End Date
271	112WRD__03213500	44.00	10	230	10	05/11/79	07/21/81
271	112WRD__372645081521539	58.33	10	230	6	05/11/79	08/19/80
273	112WRD__03213495	11.67	0	30	12	02/03/81	10/20/81
276	WV1006274__DSBLB	28.57	20	70	7	11/10/99	04/11/01
276	WV1006274__USBLB	86.67	20	350	6	11/10/99	04/11/01

Table 3d. Water quality data for Total Nonfilterable Residue

SWS	WQ Station	Avg (ug/L)	Min (ug/L)	Max (ug/L)	Count	Start Date	End Date

(not applicable to this region)

Table 3e. Water quality data for pH

SWS	WQ Station	Avg (ug/L)	Min (ug/L)	Max (ug/L)	Count	Start Date	End Date
263	112WRD__372855081535401	8.30	8.3	8.3	1	10/11/78	10/11/78
271	112WRD__03213500	7.65	6.6	8.7	90	09/17/69	01/08/85
271	112WRD__372645081521539	7.80	6.6	8.5	15	05/11/79	09/22/80
273	112WRD__03213495	6.89	6	7.4	33	11/18/80	09/21/82
275	112WRD__372412081525801	7.80	7.8	7.8	1	10/13/78	10/13/78
276	WV1006274__DSBLB	7.44	6.25	8.2	37	09/23/99	09/12/01
276	WV1006274__USBLB	7.31	6.16	8.9	35	11/10/99	09/12/01
277	112WRD__372409081525801	8.20	8.2	8.2	1	10/13/78	10/13/78
278	WV1006509__DMF	7.45	6.71	7.9	8	07/12/01	11/28/01
278	WV1006509__UMF	7.25	7.25	7.3	1	07/25/01	07/25/01

Table 3f. Water quality data for dissolved zinc

SWS	WQ Station	Avg (ug/L)	Min (ug/L)	Max (ug/L)	Count	Start Date	End Date
271	112WRD__03213500	4.00	0	10	6	02/25/80	06/08/81
271	112WRD__372645081521539	3.33	0	10	3	02/25/80	08/19/80

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

SWS	NPDES Permit ID	Baseline (lb/yr)	Allocation (lb/yr)	Allocation (mg/L)	Percent Reduction
254	WV1006258	1,180	295	0.95	75
254	WV1016334	1,064	266	0.95	75
254	WV1018540	746	187	0.95	75
255	WV1016334	1,773	355	0.76	80
255	WV1018540	1,154	231	0.76	80
255	WV1018582	2,453	491	0.76	80
274	WV1016423	93	93	3.60	0
274	WV1016521	54	54	3.60	0
276	WV1006274	10	10	3.60	0
276	WV1006509	28	28	3.60	0
278	WV1006509	139	139	3.60	0

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

SWS	NPDES Permit ID	Baseline (lb/yr)	Allocation (lb/yr)	Allocation (mg/L)	Percent Reduction
254	WV1006258	1,051	1,051	3.20	0
254	WV1016334	948	948	3.20	0
254	WV1018540	665	665	3.20	0
255	WV1016334	1,579	1,579	3.20	0
255	WV1018540	1,027	1,027	3.20	0
255	WV1018582	2,185	2,185	3.20	0
274	WV1016423	83	83	3.20	0
274	WV1016521	48	48	3.20	0
276	WV1006274	9	9	3.20	0
276	WV1006509	25	25	3.20	0
278	WV1006509	124	124	3.20	0

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

SWS	NPDES Permit ID	Baseline (lb/yr)	Allocation (lb/yr)	Allocation (mg/L)	Percent Reduction
254	WV1006258	655	655	2.00	0
254	WV1016334	590	590	2.00	0
254	WV1018540	414	414	2.00	0
255	WV1016334	984	984	2.00	0
255	WV1018540	640	640	2.00	0
255	WV1018582	1,361	1,361	2.00	0
274	WV1016423	52	52	2.00	0
274	WV1016521	30	30	2.00	0
276	WV1006274	5	5	2.00	0
276	WV1006509	15	15	2.00	0
278	WV1006509	77	77	2.00	0

Table 5a. Aluminum baseline conditions and allocations (LAs) for nonpoint sources in west Virginia

SWS	AML		Revoked Mines		Harvested Forest		Oil and Gas		Roads		Nonpoint Source			
	Baseline Load (lb/yr)	Allocated Load (lb/yr)	Baseline Load (lb/yr)	Allocated Load (lb/yr)	Baseline Load (lb/yr)	Allocated Load (lb/yr)	Baseline Load (lb/yr)	Allocated Load (lb/yr)	Baseline Load (lb/yr)	Allocated Load (lb/yr)	Baseline Load (lb/yr)	Allocated Load (lb/yr)	**Requires Reduction**	**Percent Reduction**
253	0	0	0	0	517	517	96	96	246	246	877	877		0
254	0	0	0	0	835	752	19	17	350	316	1,130	1,130	x	5
255	1,944	97	0	0	848	848	0	0	466	466	1,435	1,435	x	39
263	0	0	0	0	75	75	19	19	16	16	57	57		0
264	0	0	0	0	144	144	19	19	41	41	146	146		0
265	0	0	35	35	490	490	58	58	295	295	1,058	1,058		0
266	0	0	0	0	38	38	19	19	25	25	90	90		0
267	609	61	0	0	561	561	77	77	283	283	1,008	1,008	x	22
268	0	0	0	0	294	294	115	115	151	151	540	540		0
269	0	0	0	0	970	970	154	154	584	584	2,092	2,092		0
270	0	0	0	0	83	83	38	38	51	51	183	183		0
271	0	0	0	0	209	209	77	77	129	129	460	460		0
272	0	0	0	0	511	511	115	115	265	265	950	950		0
273	0	0	0	0	106	106	19	19	65	65	233	233		0
274	0	0	0	0	382	344	192	173	236	213	836	836	x	5
275	0	0	0	0	327	327	135	135	203	203	725	725		0
276	4,004	80	0	0	1,526	1,068	617	432	785	557	2,777	2,777	x	49
277	0	0	0	0	62	62	0	0	38	38	137	137		0
278	0	0	0	0	363	363	38	38	223	223	794	794		0
279	600	480	0	0	1,293	1,293	96	96	731	731	2,611	2,611	x	2
280	0	0	0	0	880	792	213	191	363	328	1,295	1,295	x	5

Table 5b. Iron baseline conditions and allocations (LAs) for nonpoint sources in West Virginia

SWS	AML		Revoked Mines		Harvested Forest		Oil and Gas		Roads		Nonpoint Source			
	Baseline Load (lb/yr)	Allocated Load (lb/yr)	Baseline Load (lb/yr)	Allocated Load (lb/yr)	Baseline Load (lb/yr)	Allocated Load (lb/yr)	Baseline Load (lb/yr)	Allocated Load (lb/yr)	Baseline Load (lb/yr)	Allocated Load (lb/yr)	Baseline Load (lb/yr)	Allocated Load (lb/yr)	**Requires Reduction**	**Percent Reduction**
253	0	0	0	0	653	653	121	121	310	310	1,375	1,375		0
254	0	0	0	0	1,055	950	24	22	441	398	1,771	1,771	x	5
255	2,564	2,564	0	0	1,072	1,072	0	0	588	588	2,250	2,250		0
263	0	0	0	0	94	94	24	24	20	20	89	89		0
264	0	0	0	0	182	182	24	24	52	52	229	229		0
265	0	0	40	40	619	619	73	73	372	372	1,658	1,658		0
266	0	0	0	0	49	49	24	24	31	31	141	141		0
267	803	803	0	0	709	709	97	97	357	357	1,580	1,580		0
268	0	0	0	0	372	372	146	146	191	191	847	847		0
269	0	0	0	0	1,225	1,225	194	194	737	737	3,280	3,280		0
270	0	0	0	0	105	105	49	49	64	64	287	287		0
271	0	0	0	0	264	264	97	97	163	163	721	721		0
272	0	0	0	0	645	645	146	146	335	335	1,490	1,490		0
273	0	0	0	0	134	134	24	24	81	81	365	365		0
274	0	0	0	0	483	435	243	219	297	268	1,311	1,311	x	4
275	0	0	0	0	413	413	170	170	257	257	1,138	1,138		0
276	5,281	2,020	0	0	1,928	1,350	779	545	990	702	4,355	4,355	x	33
277	0	0	0	0	79	79	0	0	48	48	215	215		0
278	0	0	0	0	458	458	49	49	282	282	1,245	1,245		0
279	791	791	0	0	1,634	1,634	121	121	921	921	4,095	4,095		0
280	0	0	0	0	1,111	1,000	269	242	458	414	2,032	2,032	x	5

Table 5c. Manganese baseline conditions and allocations (LAs) for nonpoint sources in West Virginia

SWS	AML		Revoked Mines		Harvested Forest		Oil and Gas		Roads		Nonpoint Source			
	Baseline Load (lb/yr)	Allocated Load (lb/yr)	Baseline Load (lb/yr)	Allocated Load (lb/yr)	Baseline Load (lb/yr)	Allocated Load (lb/yr)	Baseline Load (lb/yr)	Allocated Load (lb/yr)	Baseline Load (lb/yr)	Allocated Load (lb/yr)	Baseline Load (lb/yr)	Allocated Load (lb/yr)	Requires Reduction	Percent Reduction
253	0	0	0	0	41	41	8	8	22	22	648	648		0
254	0	0	0	0	66	59	2	1	31	28	835	835	x	1
255	845	845	0	0	67	67	0	0	41	41	1,061	1,061		0
263	0	0	0	0	6	6	2	2	1	1	42	42		0
264	0	0	0	0	11	11	2	2	4	4	108	108		0
265	0	0	35	35	39	39	5	5	26	26	782	782		0
266	0	0	0	0	3	3	2	2	2	2	66	66		0
267	265	265	0	0	44	44	6	6	25	25	745	745		0
268	0	0	0	0	23	23	9	9	13	13	399	399		0
269	0	0	0	0	77	77	12	12	52	52	1,546	1,546		0
270	0	0	0	0	7	7	3	3	5	5	135	135		0
271	0	0	0	0	17	17	6	6	11	11	340	340		0
272	0	0	0	0	40	40	9	9	24	24	702	702		0
273	0	0	0	0	8	8	2	2	6	6	172	172		0
274	0	0	0	0	30	27	15	14	21	19	618	618	x	1
275	0	0	0	0	26	26	11	11	18	18	536	536		0
276	1,740	35	0	0	120	84	49	34	70	52	2,053	2,053	x	44
277	0	0	0	0	5	5	0	0	3	3	101	101		0
278	0	0	0	0	29	29	3	3	20	20	587	587		0
279	261	261	0	0	102	102	8	8	65	65	1,931	1,931		0
280	0	0	0	0	69	62	17	15	32	30	958	958	x	1

Appendix A-10

Region 10

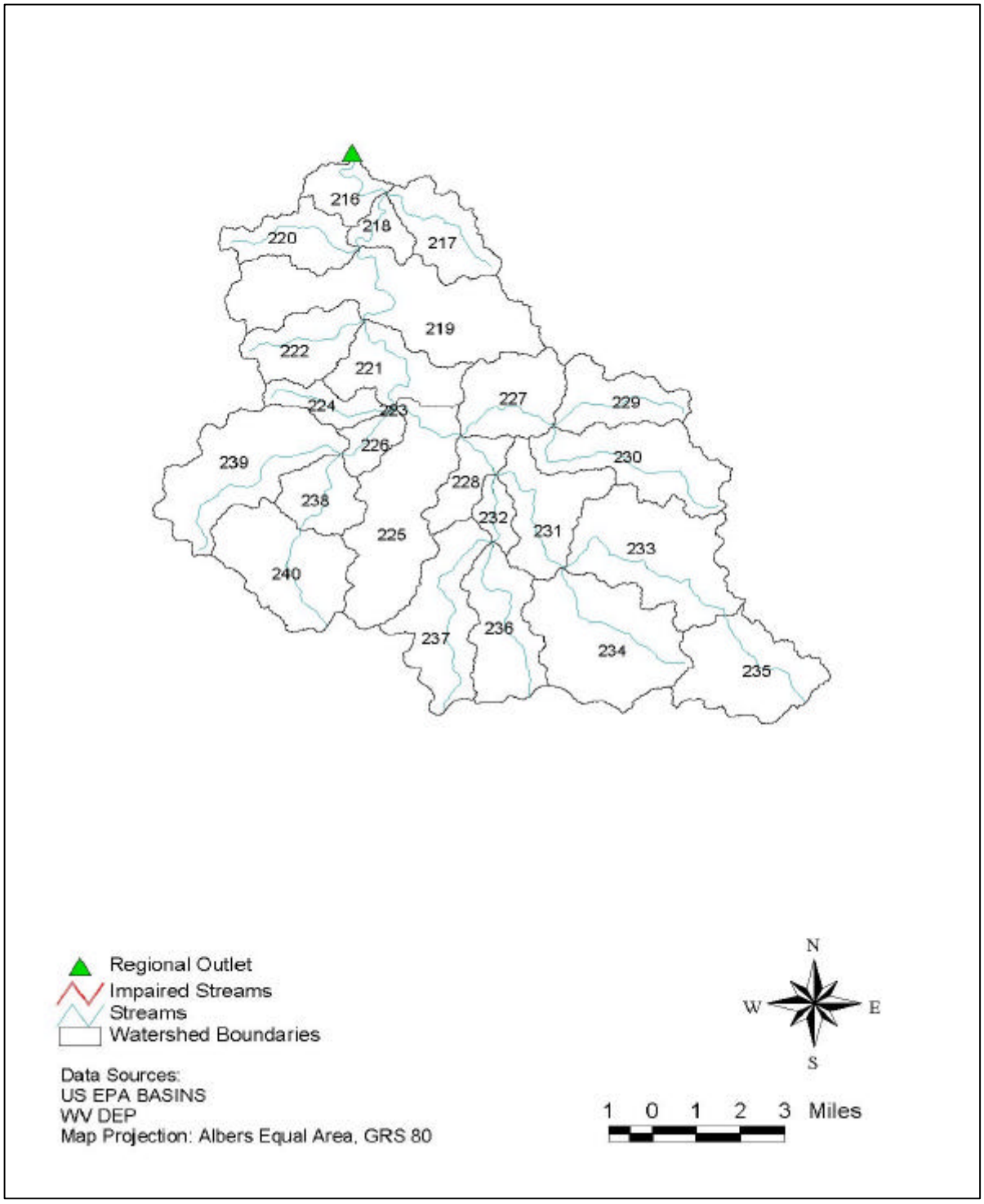


Figure 1. Region 10 - Tug Fork watershed

Table 1. Impaired waterbodies in Region 10

Stream Name	Stream Code	Pollutant	Contributing SWS	Contributing Regions	Aquatic Life

Not Applicable to this Region, Kentucky Waters

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

SWS

(not applicable in this region)

Table 3a. Water quality data for aluminum

SWS	WQ Station	Avg (ug/L)	Min (ug/L)	Max (ug/L)	Count	Start Date	End Date

(not applicable for 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
217	8980565__swb1	123.33	10	200	3	06/07/00	12/04/00
217	8980565__swb3	206.67	10	400	3	06/07/00	12/04/00
219	112WRD__03213630	2832.31	200	18000	13	08/02/82	10/18/83
221	112WRD__03213590	2915.00	230	13000	24	04/09/79	08/26/81
222	112WRD__03213594	45800.00	170	240000	7	02/23/81	10/26/81
222	8980624__DMM7	66.00	10	200	5	04/23/98	06/22/99
225	112WRD__03213581	1579.17	110	5400	12	06/05/79	08/26/81
227	112WRD__03213578	3988.00	940	7500	5	06/05/79	07/23/80
231	112WRD__03213572	1630.77	160	4600	13	06/05/79	08/26/81
232	112WRD__03213575	1882.00	360	5400	5	06/05/79	07/23/80
238	112WRD__03213587	4700.00	1200	14000	5	06/05/79	07/23/80
239	112WRD__03213584	2074.17	150	7400	12	06/05/79	08/26/81
239	8980322__bsw2	344.29	0	1330	14	11/18/96	10/03/00
239	8980361__sw1	355.00	0	2050	16	11/18/96	10/03/00
239	8980361__sw2	352.31	0	1330	13	01/20/97	10/03/00
239	8985696__sw2	180.00	180	180	1	01/20/97	01/20/97

Table 3d. Water quality data for Total Nonfilterable Residue

SWS	WQ Station	Avg (ug/L)	Min (ug/L)	Max (ug/L)	Count	Start Date	End Date
217	8980565__swb1	14.00	5	22	3	06/07/00	12/04/00
217	8980565__swb3	56.33	0	164	3	06/07/00	12/04/00
222	112WRD__03213594	9280.00	9280	9280	1	08/06/81	08/06/81
222	8980624__DMM7	6.17	3	10	6	10/09/97	06/22/99
239	8980322__bsw2	11.46	0	50	13	11/18/96	10/03/00
239	8980361__sw1	7.43	0	30	14	11/18/96	10/03/00
239	8980361__sw2	11.46	0	50	13	01/20/97	10/03/00
239	8985696__sw2	2.00	2	2	1	01/20/97	01/20/97

Table 3e. Water quality data for pH

SWS	WQ Station	Avg (ug/L)	Min (ug/L)	Max (ug/L)	Count	Start Date	End Date
216	112WRD__373208082033401	7.75	7.7	7.9	4	10/12/78	04/14/81
217	8980565__swb1	7.63	7.3	8.0	3	06/07/00	12/04/00
217	8980565__swb3	7.60	7.5	7.8	3	06/07/00	12/04/00
219	112WRD__03213630	7.36	5.25	8.1	10	08/02/82	10/18/83
221	112WRD__03213590	7.18	5.7	9.2	24	04/09/79	08/26/81
222	112WRD__03213594	7.56	7	8.2	15	12/31/80	10/26/81
222	8980624__DMM7	7.08	6.48	7.4	6	10/09/97	06/22/99
225	112WRD__03213581	7.46	6.2	9.3	12	06/05/79	08/26/81
226	112WRD__372649082033101	7.93	7.6	8.3	3	10/12/78	04/14/81
227	112WRD__03213577	6.91	6.4	7.6	7	05/05/81	09/22/81
227	112WRD__03213578	7.78	6.9	8.3	5	06/05/79	07/23/80
228	112WRD__372605082015801	7.97	7.6	8.3	3	10/12/78	04/14/81
231	112WRD__03213572	7.47	6.1	9.4	14	06/05/79	08/26/81
232	112WRD__03213575	7.54	7	8.3	5	06/05/79	07/23/80
232	112WRD__372501082012301	7.90	7.4	8.4	3	10/12/78	04/14/81
233	112WRD__372305081595201	8.60	8.6	8.6	1	10/12/78	10/12/78
234	112WRD__372255082000001	8.00	8	8.0	1	10/12/78	10/12/78
238	112WRD__03213587	7.44	5.8	8.3	5	06/05/79	07/23/80
239	112WRD__03213584	7.55	6.1	9.0	13	06/05/79	08/26/81
239	8980322__bsw2	8.03	7.6	8.4	14	11/18/96	10/03/00
239	8980322__G200	7.37	7.3	7.5	6	07/10/90	09/22/90
239	8980361__sw1	7.74	7	8.3	16	11/18/96	10/03/00
239	8980361__sw2	8.05	7.6	8.4	13	01/20/97	10/03/00
239	8985696__sw2	8.20	8.2	8.2	1	01/20/97	01/20/97

Table 3f. Water quality data for dissolved zinc

SWS	WQ Station	Avg (ug/L)	Min (ug/L)	Max (ug/L)	Count	Start Date	End Date
219	112WRD__03213630	4.00	4	4	1	08/02/82	08/02/82

Table 6a. Baseline conditions and allocations for sources in Virginia

Metal	Baseline Load (lb/yr)	Allocated Load (lb/yr)	Requires Reduction	Percent Reduction
Aluminum	97,884	70,489	X	28
Iron	132,508	97,901	X	26

Table 6b. Baseline conditions and allocations for sources in Kentucky

Metal	Baseline Load (lb/yr)	Allocated Load (lb/yr)	Requires Reduction	Percent Reduction
Aluminum	31,592	25,795	X	18
Iron	41,689	34,366	X	18

Appendix A-11
Region 11

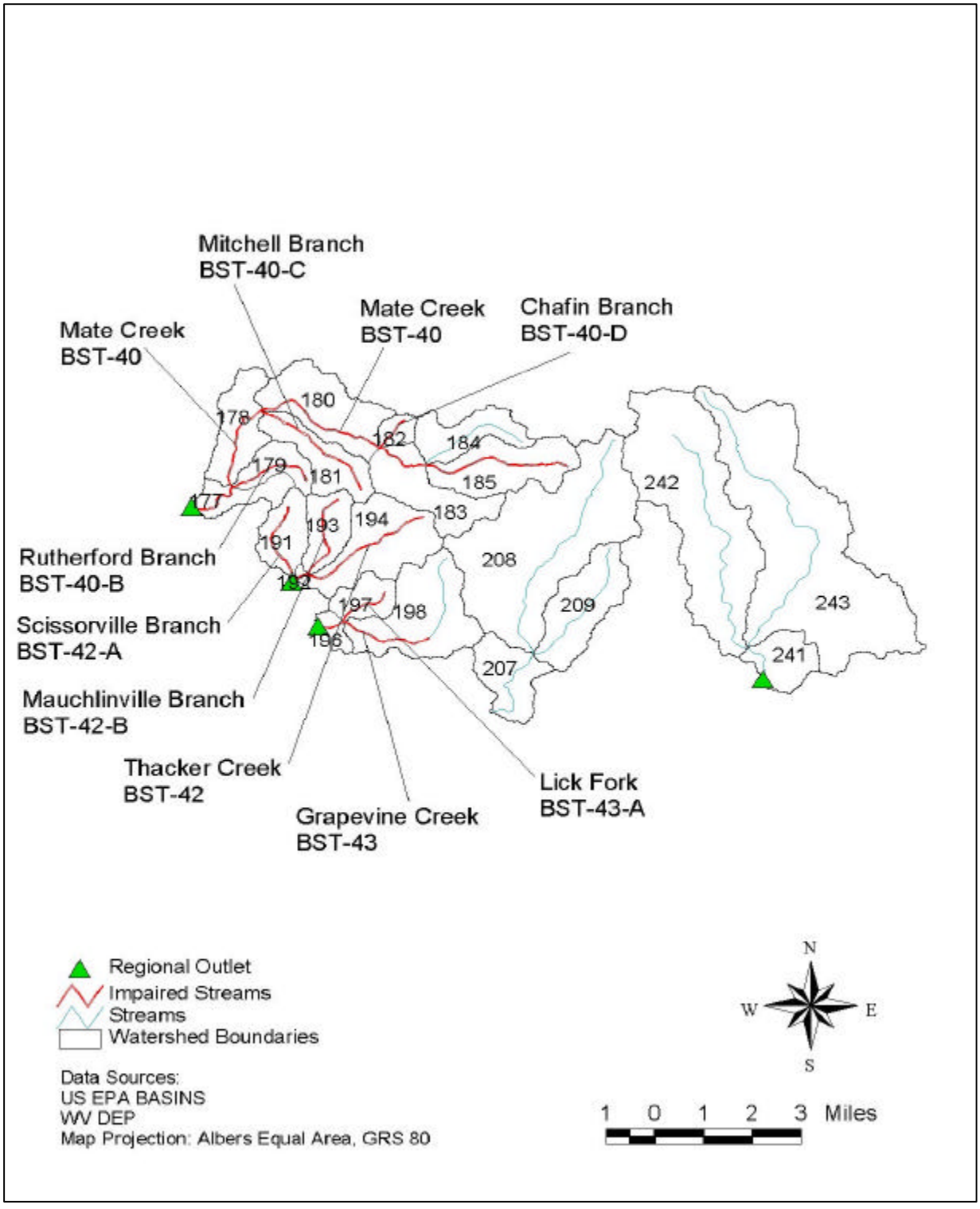

Mitchell Branch
BST-40-C
Mate Creek
BST-40
Chafin Branch
BST-40-D
Mate Creek
BST-40
Rutherford Branch
BST-40-B
Scissorville Branch
BST-42-A
Mauchlinville Branch
BST-42-B
Thacker Creek
BST-42
Grapevine Creek
BST-43
Lick Fork
BST-43-A
177
178
179
180
181
182
183
184
185
191
192
193
194
196
197
198
207
208
209
241
242
243
Regional Outlet
Impaired Streams
Streams
Watershed Boundaries
Data Sources:
US EPA BASINS
WV DEP
Map Projection: Albers Equal Area, GRS 80
N
W
E
S
1 0 1 2 3 Miles

Figure 1. Region 11 - Tug Fork watershed

Table 1. Impaired waterbodies in Region 11

Stream Name	Stream Code	Pollutant	Contributing SWS	Contributing Regions	Aquatic Life
Mate Creek	BST-40	Metals	177, 178, 179, 180, 181, 182, 183, 184, 185		Aquatic Life
Rutherford Branch	BST-40-B	Metals, pH	179		Aquatic Life
Mitchell Branch	BST-40-C	Metals	181		Aquatic Life
Chafin Branch	BST-40-D	Metals	182		Aquatic Life
Thacker Creek	BST-42	Metals, pH	191, 192,193,194		Aquatic Life
Mauchlinville Branch	BST-42-B	Metals, pH	192, 193		Aquatic Life
Scissorsville Branch	BST-42-A	Metals, pH	192, 192		Aquatic Life
Grapevine Creek	BST-43	Metals	196, 197, 198		Aquatic Life
Lick Fork	BST-43-A	Metals	196, 197		Aquatic Life

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

SWS
177
178
180
181
191
192
194
198
241
243

Table 3a. Water quality data for aluminum

SWS	WQ Station	Avg (ug/L)	Min (ug/L)	Max (ug/L)	Count	Start Date	End Date
179	WV1007912__DBC	130.00	60	220	4	10/10/98	11/13/98
179	WV1010557__DAPH	842.00	70	3620	10	12/17/00	12/04/01
179	WV1010557__UAPH	1078.57	130	5040	7	08/15/01	11/26/01
179	WV1016784__WT-2	139.33	10	1570	45	04/12/99	11/16/01
179	WV1016784__WT-3	138.57	10	1780	63	04/26/99	11/16/01
179	WV1016784__WT-5	99.37	10	1560	63	04/12/99	11/16/01
179	WV1016784__WT-6	121.88	10	1200	64	04/12/99	11/16/01
182	WV1005227__DPB	289.09	250	670	22	08/08/00	09/23/01
183	WV0091219__DDCF	291.00	250	530	10	08/15/01	12/17/01
183	WV0091219__UDCF	398.00	250	620	10	08/15/01	12/17/01
183	WV1010557__DDC	406.36	100	1000	11	06/27/01	11/26/01
183	WV1010557__UDC	422.31	250	1000	13	08/15/01	12/17/01
183	WV1013190__DDCF	398.00	250	620	10	08/15/01	12/17/01
183	WV1013190__UDCF	165.00	20	580	8	09/11/01	12/17/01
183	WV1015648__D-S8-1	465.00	250	870	4	08/15/01	09/23/01
184	WV0091201__DSF	353.43	200	1410	70	01/05/99	12/17/01
184	WV0091201__USF	342.46	120	1190	69	01/05/99	12/17/01
184	WV1005227__DHRF	314.71	250	740	17	08/08/00	08/15/01
184	WV1005227__DSF	331.00	60	1410	30	03/18/99	09/23/01
184	WV1005294__DSF	333.33	100	580	3	03/18/99	08/30/01
184	WV1005294__USF	260.00	250	270	2	08/15/01	08/30/01
185	WV0060801__UMC1	50.00	50	50	1	03/08/99	03/08/99
185	WV0091197__DMC	315.16	110	780	64	01/05/99	11/26/01
185	WV0091197__UMC	300.83	200	450	36	01/05/99	09/23/01
185	WV0091201__DMC	363.06	20	2000	72	01/05/99	12/04/01
185	WV0091201__UMC	317.75	40	1100	71	01/05/99	12/17/01
185	WV1015648__D-S8-2	550.91	40	2650	11	10/06/99	09/23/01
185	WV1015648__U-S8-7	302.31	100	520	13	11/30/99	08/30/01
207	WV1004999__DRHF	425.44	200	4520	57	01/12/99	09/28/01
207	WV1013360__DBC	415.96	120	2320	52	01/12/99	06/25/01
207	WV1013360__UBC	434.23	120	2920	52	01/12/99	06/25/01
208	WV0060801__DMF2	40.00	40	40	2	11/24/98	03/22/99
208	WV1007912__DSB	105.45	10	240	11	10/29/98	01/03/01
208	WV1007912__UBC	125.26	10	2120	76	10/10/98	11/16/01
208	WV1013106__WT-15	145.00	60	230	4	10/10/98	11/13/98
208	WV1013106__WT-16	280.00	60	470	3	10/10/98	11/13/98
208	WV1013106__WT-18	92.50	60	190	4	10/10/98	11/13/98
208	WV1013106__WT-19	126.27	10	2120	75	10/10/98	11/16/01
208	WV1015648__D-S8-8	482.73	100	970	11	03/18/99	09/23/01
208	WV1016784__WT-4	10.00	10	10	1	11/01/01	11/01/01
208	WV1016784__WT-9	118.44	10	1230	64	04/12/99	11/16/01
208	WV1020137__DSMF	190.24	10	2180	41	01/10/00	11/16/01
208	WV1020137__USMF	193.75	10	1110	24	01/10/00	11/01/01
209	WV1004999__URHF	345.71	120	960	63	01/12/99	09/28/01
209	WV1013106__WT-1	770.00	120	1420	2	11/02/98	11/13/98
209	WV1013106__WT-3	130.00	60	230	4	10/10/98	11/13/98
242	WV0053597__ALHF	614.38	200	2050	16	09/09/97	12/14/99
242	WV0092878__DHGB	388.33	250	1100	18	01/14/00	09/17/00
242	WV0092878__DLF	383.06	110	910	36	01/12/99	06/30/00

242	WV0092878__ULF	336.90	110	680	42	01/12/99	09/17/00
242	WV0095869__DLF	97.50	10	1330	76	10/10/98	11/16/01
242	WV0095869__ULF	35.00	10	60	2	10/29/98	04/16/01
242	WV1008129__DCLH	77.14	60	130	7	10/10/98	01/12/99
242	WV1008129__DSHB	134.29	60	470	7	10/10/98	01/12/99
242	WV1008129__DSLF	140.00	60	480	7	10/10/98	01/12/99
242	WV1008129__USLF	487.14	60	1760	7	10/10/98	01/12/99
243	WV1020196__DBCUN1	741.43	190	4650	14	05/11/01	11/28/01
243	WV1020196__DBCUN2	250.00	250	250	1	05/23/01	05/23/01
243	WV1020196__DBF-BC9	384.29	120	800	14	05/11/01	11/28/01
243	WV1020196__UBC	407.14	160	880	14	05/11/01	11/28/01

Table 3b. Water quality data for iron

SWS	WQ Station	Avg (ug/L)	Min (ug/L)	Max (ug/L)	Count	Start Date	End Date
179	WV1007912__DBC	130.00	50	210	4	10/10/98	11/13/98
179	WV1010557__DAPH	1513.38	30	36090	71	01/05/99	12/04/01
179	WV1010557__UAPH	354.39	30	4650	57	01/05/99	11/26/01
179	WV1016784__WT-2	135.78	10	1530	45	04/12/99	11/16/01
179	WV1016784__WT-3	127.50	10	1150	64	04/12/99	11/16/01
179	WV1016784__WT-5	60.95	10	420	63	04/12/99	11/16/01
179	WV1016784__WT-6	90.31	10	900	64	04/12/99	11/16/01
182	WV1005227__DPB	196.27	20	960	51	01/05/99	09/23/01
183	WV0091219__DDCF	215.14	20	3000	72	01/05/99	12/17/01
183	WV0091219__UDCF	378.33	20	12000	72	01/05/99	12/17/01
183	WV1010557__DDC	474.71	20	19200	68	01/05/99	11/26/01
183	WV1010557__UDC	182.84	20	1210	74	01/05/99	12/17/01
183	WV1013190__DDCF	378.33	20	12000	72	01/05/99	12/17/01
183	WV1013190__UDCF	1052.82	30	19200	71	01/05/99	12/17/01
183	WV1015648__D-S8-1	164.59	10	1210	61	01/05/99	09/23/01
184	WV0091201__DSF	199.43	20	1640	70	01/05/99	12/17/01
184	WV0091201__USF	246.23	20	1890	69	01/05/99	12/17/01
184	WV1005227__DHRF	155.23	30	420	44	01/05/99	08/15/01
184	WV1005227__DSF	222.00	20	1640	65	01/05/99	09/23/01
184	WV1005294__DSF	196.19	20	1480	63	01/05/99	09/23/01
184	WV1005294__USF	214.62	20	860	52	01/05/99	09/23/01
185	WV0060801__DMC2	196.36	50	1550	11	12/11/98	05/07/99
185	WV0060801__UMC1	740.91	50	7530	11	12/11/98	05/07/99
185	WV0091197__DMC	596.88	30	6890	64	01/05/99	11/26/01
185	WV0091197__UMC	135.83	30	570	36	01/05/99	09/23/01
185	WV0091201__DMC	343.89	0	7280	72	01/05/99	12/04/01
185	WV0091201__UMC	194.23	30	2530	71	01/05/99	12/17/01
185	WV1015648__D-S8-2	161.85	20	950	65	01/05/99	09/23/01
185	WV1015648__U-S8-7	287.63	20	3840	38	01/05/99	08/30/01
198	WV0060801__DCF1	480.00	160	1740	24	07/09/98	06/23/99
198	WV0060801__DMB1	417.92	60	1330	24	07/09/98	06/23/99
198	WV0060801__UGF2	138.67	50	1250	15	07/09/98	05/25/99
207	WV1004999__DRHF	320.35	30	5330	57	01/12/99	09/28/01
207	WV1013360__DBC	297.69	30	4730	52	01/12/99	06/25/01
207	WV1013360__UBC	303.46	0	5020	52	01/12/99	06/25/01
208	WV0060801__DFF2	132.08	30	1180	24	07/09/98	06/23/99
208	WV0060801__DMF2	151.74	10	950	23	07/09/98	06/23/99

208	WV0060801__UFF1	90.00	30	310	15	07/09/98	05/25/99
208	WV1007912__DSB	126.36	10	350	11	10/29/98	01/03/01
208	WV1007912__UBC	418.82	10	19290	76	10/10/98	11/16/01
208	WV1013106__WT-15	47.50	20	100	4	10/10/98	11/13/98
208	WV1013106__WT-16	110.00	20	260	3	10/10/98	11/13/98
208	WV1013106__WT-18	117.50	40	170	4	10/10/98	11/13/98
208	WV1013106__WT-19	421.87	10	19290	75	10/10/98	11/16/01
208	WV1015648__D-S8-8	247.88	20	1640	66	01/05/99	09/23/01
208	WV1016784__WT-4	10.00	10	10	1	11/01/01	11/01/01
208	WV1016784__WT-9	93.75	10	770	64	04/12/99	11/16/01
208	WV1020137__DSMF	263.17	10	2400	41	01/10/00	11/16/01
208	WV1020137__USMF	265.00	10	1140	24	01/10/00	11/01/01
209	WV1004999__URHF	408.73	30	1700	63	01/12/99	09/28/01
209	WV1013106__WT-1	2150.00	20	4280	2	11/02/98	11/13/98
209	WV1013106__WT-3	112.50	20	230	4	10/10/98	11/13/98
242	WV0053597__ALHF	390.74	50	2720	27	09/09/97	12/14/99
242	WV0092878__DHGB	475.56	30	3110	18	01/14/00	09/17/00
242	WV0092878__DLF	324.17	30	1920	36	01/12/99	06/30/00
242	WV0092878__ULF	173.10	30	1690	42	01/12/99	09/17/00
242	WV0095869__DLF	147.24	10	890	76	10/10/98	11/16/01
242	WV0095869__ULF	15.00	10	20	2	10/29/98	04/16/01
242	WV1008129__DCLH	188.57	40	520	7	10/10/98	01/12/99
242	WV1008129__DSHB	177.14	20	810	7	10/10/98	01/12/99
242	WV1008129__DSLF	222.86	30	940	7	10/10/98	01/12/99
242	WV1008129__USLF	2787.14	20	17440	7	10/10/98	01/12/99
243	112WRD__373530081562501	85.00	40	130	2	05/01/84	07/24/84
243	WV1020196__DBCUN1	764.29	50	5330	14	05/11/01	11/28/01
243	WV1020196__DBCUN2	630.00	630	630	1	05/23/01	05/23/01
243	WV1020196__DBF-BC9	280.71	40	1130	14	05/11/01	11/28/01
243	WV1020196__UBC	277.14	60	900	14	05/11/01	11/28/01

Table 3c. Water quality data for manganese

SWS	WQ Station	Avg (ug/L)	Min (ug/L)	Max (ug/L)	Count	Start Date	End Date
179	WV1007912__DBC	52.50	30	120	4	10/10/98	11/13/98
179	WV1010557__DAPH	161.97	10	5350	71	01/05/99	12/04/01
179	WV1010557__UAPH	33.16	10	310	57	01/05/99	11/26/01
179	WV1016784__WT-2	90.44	10	1360	45	04/12/99	11/16/01
179	WV1016784__WT-3	58.13	10	630	64	04/12/99	11/16/01
179	WV1016784__WT-5	24.13	10	150	63	04/12/99	11/16/01
179	WV1016784__WT-6	26.72	10	270	64	04/12/99	11/16/01
182	WV1005227__DPB	34.51	10	290	51	01/05/99	09/23/01
183	WV0091219__DDCF	35.69	10	710	72	01/05/99	12/17/01
183	WV0091219__UDCF	37.92	10	570	72	01/05/99	12/17/01
183	WV1010557__DDC	62.35	10	2020	68	01/05/99	11/26/01
183	WV1010557__UDC	31.92	10	180	73	01/05/99	12/17/01
183	WV1013190__DDCF	37.92	10	570	72	01/05/99	12/17/01
183	WV1013190__UDCF	63.00	10	2020	70	01/05/99	12/17/01
183	WV1015648__D-S8-1	30.82	10	180	61	01/05/99	09/23/01
184	WV0091201__DSF	38.00	10	360	70	01/05/99	12/17/01
184	WV0091201__USF	77.97	10	1000	69	01/05/99	12/17/01

184	WV1005227__DHRF	25.45	10	50	44	01/05/99	08/15/01
184	WV1005227__DSF	26.00	10	100	65	01/05/99	09/23/01
184	WV1005294__DSF	29.68	10	80	63	01/05/99	09/23/01
184	WV1005294__USF	33.27	10	110	52	01/05/99	09/23/01
185	WV0060801__DMC2	20.00	20	20	11	12/11/98	05/07/99
185	WV0060801__UMC1	20.00	20	20	10	12/11/98	05/07/99
185	WV0091197__DMC	290.77	10	5000	65	01/05/99	11/26/01
185	WV0091197__UMC	25.00	10	50	36	01/05/99	09/23/01
185	WV0091201__DMC	60.14	10	570	72	01/05/99	12/04/01
185	WV0091201__UMC	50.70	10	670	71	01/05/99	12/17/01
185	WV1015648__D-S8-2	26.77	10	90	65	01/05/99	09/23/01
185	WV1015648__U-S8-7	32.63	10	140	38	01/05/99	08/30/01
198	WV0060801__DCF1	1023.75	20	7900	24	07/09/98	08/20/01
198	WV0060801__DMB1	644.17	110	1060	24	07/09/98	06/23/99
198	WV0060801__UGF2	22.00	20	40	15	07/09/98	05/25/99
207	WV1004999__DRHF	46.14	10	280	57	01/12/99	09/28/01
207	WV1013360__DBC	38.65	10	330	52	01/12/99	06/25/01
207	WV1013360__UBC	30.00	10	160	52	01/12/99	06/25/01
208	WV0060801__DFF2	39.17	20	250	24	07/09/98	06/23/99
208	WV0060801__DMF2	29.13	10	120	23	07/09/98	06/23/99
208	WV0060801__UFF1	26.67	20	70	15	07/09/98	05/25/99
208	WV1007912__DSB	146.36	10	290	11	10/29/98	01/03/01
208	WV1007912__UBC	45.26	10	390	76	10/10/98	11/16/01
208	WV1013106__WT-15	52.50	30	100	4	10/10/98	11/13/98
208	WV1013106__WT-16	123.33	30	220	3	10/10/98	11/13/98
208	WV1013106__WT-18	75.00	30	170	4	10/10/98	11/13/98
208	WV1013106__WT-19	39.33	10	240	75	10/10/98	11/16/01
208	WV1015648__D-S8-8	26.97	10	80	66	01/05/99	09/23/01
208	WV1016784__WT-4	10.00	10	10	1	11/01/01	11/01/01
208	WV1016784__WT-9	29.22	10	310	64	04/12/99	11/16/01
208	WV1020137__DSMF	59.76	10	250	41	01/10/00	11/16/01
208	WV1020137__USMF	100.42	10	400	24	01/10/00	11/01/01
209	WV1004999__URHF	112.06	10	740	63	01/12/99	09/28/01
209	WV1013106__WT-1	445.00	30	860	2	11/02/98	11/13/98
209	WV1013106__WT-3	37.50	30	50	4	10/10/98	11/13/98
242	WV0053597__ALHF	63.33	30	200	18	09/09/97	12/14/99
242	WV0092878__DHGB	57.22	10	570	18	01/14/00	09/17/00
242	WV0092878__DLF	46.94	10	270	36	01/12/99	06/30/00
242	WV0092878__ULF	29.52	10	100	42	01/12/99	09/17/00
242	WV0095869__DLF	62.63	10	490	76	10/10/98	11/16/01
242	WV0095869__ULF	20.00	10	30	2	10/29/98	04/16/01
242	WV1008129__DCLH	95.71	30	250	7	10/10/98	01/12/99
242	WV1008129__DSHB	92.86	30	230	7	10/10/98	01/12/99
242	WV1008129__DSLF	70.00	30	220	7	10/10/98	01/12/99
242	WV1008129__USLF	101.43	30	240	7	10/10/98	01/12/99
243	112WRD__373530081562501	120.00	110	130	2	05/01/84	07/24/84
243	WV1020196__DBCUN1	68.57	20	250	14	05/11/01	11/28/01
243	WV1020196__DBCUN2	40.00	40	40	1	05/23/01	05/23/01
243	WV1020196__DBF-BC9	138.57	20	350	14	05/11/01	11/28/01
243	WV1020196__UBC	145.71	20	350	14	05/11/01	11/28/01

Table 3d. Water quality data for Total Nonfilterable Residue

SWS	WQ Station	Avg (ug/L)	Min (ug/L)	Max (ug/L)	Count	Start Date	End Date
179	WV1007912__DBC	1.00	1	1	1	10/29/98	10/29/98
179	WV1016784__WT-2	1.57	1	4	7	04/12/99	10/01/01
179	WV1016784__WT-3	18.40	1	77	10	04/12/99	10/01/01
179	WV1016784__WT-5	7.27	1	30	11	04/12/99	10/01/01
179	WV1016784__WT-6	3.55	1	15	11	04/12/99	10/01/01
208	WV1007912__DSB	7.70	1	22	10	10/29/98	01/03/01
208	WV1007912__UBC	3.38	1	14	13	10/29/98	10/01/01
208	WV1013106__WT-15	1.00	1	1	1	10/29/98	10/29/98
208	WV1013106__WT-18	1.50	1	2	2	10/10/98	10/29/98
208	WV1013106__WT-19	3.38	1	14	13	10/29/98	10/01/01
208	WV1016784__WT-9	3.64	1	19	11	04/12/99	10/01/01
208	WV1020137__DSMF	34.00	1	225	7	01/10/00	10/01/01
208	WV1020137__USMF	36.20	5	159	5	01/10/00	10/01/01
209	WV1013106__WT-3	2.00	2	2	1	10/29/98	10/29/98
242	WV0095869__DLF	3.57	1	10	14	10/29/98	10/01/01
242	WV0095869__ULF	1.00	1	1	1	10/29/98	10/29/98
242	WV1008129__DCLH	2.00	1	3	2	10/29/98	01/12/99
242	WV1008129__DSHB	1.50	1	2	2	10/29/98	01/12/99
242	WV1008129__DSLF	1.50	1	2	2	10/29/98	01/12/99
242	WV1008129__USLF	1.50	1	2	2	10/29/98	01/12/99

Table 3e. Water quality data for pH

SWS	WQ Station	Avg (ug/L)	Min (ug/L)	Max (ug/L)	Count	Start Date	End Date
177	112WRD__373715082093701	8.13	8	8.2	3	10/12/78	04/15/81
179	WV1007912__DBC	7.96	7.65	8.8	4	10/10/98	11/13/98
179	WV1010557__DAPH	7.69	4.9	9.1	71	01/05/99	12/04/01
179	WV1010557__UAPH	7.73	6.5	9.6	57	01/05/99	11/26/01
179	WV1016784__WT-2	7.23	6.57	8.3	45	04/12/99	11/16/01
179	WV1016784__WT-3	7.28	6.45	8.2	64	04/12/99	11/16/01
179	WV1016784__WT-5	7.60	6.68	8.5	63	04/12/99	11/16/01
179	WV1016784__WT-6	7.76	6.86	9.1	64	04/12/99	11/16/01
182	WV1005227__DPB	8.07	7.4	8.6	51	01/05/99	09/23/01
183	WV0091219__DDCF	8.17	6.8	11.4	72	01/05/99	12/17/01
183	WV0091219__UDCF	8.17	6.9	11.4	72	01/05/99	12/17/01
183	WV1010557__DDC	7.36	0.04	9.1	68	01/05/99	11/26/01
183	WV1010557__UDC	7.92	6.3	8.5	73	01/05/99	12/17/01
183	WV1013190__DDCF	8.17	6.9	11.4	72	01/05/99	12/17/01
183	WV1013190__UDCF	7.33	0.04	11.9	71	01/05/99	12/17/01
183	WV1015648__D-S8-1	7.92	6.3	8.5	61	01/05/99	09/23/01
184	WV0091201__DSF	7.95	6.3	9.0	70	01/05/99	12/17/01
184	WV0091201__USF	8.13	6.2	8.6	69	01/05/99	12/17/01
184	WV1005227__DHRF	7.82	6.7	8.4	44	01/05/99	08/15/01
184	WV1005227__DSF	8.00	6.3	8.8	65	01/05/99	09/23/01

184	WV1005294__DSF	8.03	6.5	8.4	63	01/05/99	09/23/01
184	WV1005294__USF	8.14	6.2	8.5	52	01/05/99	09/23/01
185	WV0060801__DMC2	7.68	7.15	8.1	11	12/11/98	05/07/99
185	WV0060801__UMC1	6.89	0.02	7.8	11	12/11/98	05/07/99
185	WV0091197__DMC	7.91	6.8	8.9	65	01/05/99	11/26/01
185	WV0091197__UMC	7.93	7.1	8.7	36	01/05/99	09/23/01
185	WV0091201__DMC	7.73	0.1	8.9	72	01/05/99	12/04/01
185	WV0091201__UMC	8.08	6.5	8.9	71	01/05/99	12/17/01
185	WV1015648__D-S8-2	7.83	0.1	8.9	65	01/05/99	09/23/01
185	WV1015648__U-S8-7	8.04	7.1	8.7	38	01/05/99	08/30/01
198	WV0060801__DCF1	7.14	0.98	8.1	24	07/09/98	08/20/01
198	WV0060801__DMB1	7.47	6.95	8.2	24	07/09/98	06/23/99
198	WV0060801__UGF2	7.81	7.1	8.8	15	07/09/98	05/25/99
207	112WRD__373247082035301	7.60	7.3	7.9	3	10/12/78	04/14/81
207	WV1004999__DRHF	8.01	6.9	8.6	57	01/12/99	09/28/01
207	WV1013360__DBC	8.11	7	8.6	52	01/12/99	06/25/01
207	WV1013360__UBC	8.09	7.1	8.6	52	01/12/99	06/25/01
208	WV0060801__DFF2	7.69	6.98	8.3	24	07/09/98	06/23/99
208	WV0060801__DMF2	7.75	7.29	8.6	23	07/09/98	06/23/99
208	WV0060801__UFF1	7.82	7.3	8.5	15	02/02/98	05/25/99
208	WV1007912__DSB	7.82	7.31	8.7	11	10/29/98	01/03/01
208	WV1007912__UBC	7.58	6.4	8.3	76	10/10/98	11/16/01
208	WV1013106__WT-15	7.85	7.53	8.0	4	10/10/98	11/13/98
208	WV1013106__WT-16	7.14	7.08	7.2	3	10/10/98	11/13/98
208	WV1013106__WT-18	8.05	7.67	8.7	4	10/10/98	11/13/98
208	WV1013106__WT-19	7.59	6.4	8.3	75	10/10/98	11/16/01
208	WV1015648__D-S8-8	7.89	0.01	8.6	66	01/05/99	09/23/01
208	WV1016784__WT-4	6.91	6.91	6.9	1	11/01/01	11/01/01
208	WV1016784__WT-9	7.70	6.94	9.2	64	04/12/99	11/16/01
208	WV1020137__DSMF	7.33	6.72	8.3	41	01/10/00	11/16/01
208	WV1020137__USMF	7.25	6.57	7.8	24	01/10/00	11/01/01
209	WV1004999__URHF	7.97	7.1	8.5	63	01/12/99	09/28/01
209	WV1013106__WT-1	7.56	7.29	7.8	2	11/02/98	11/13/98
209	WV1013106__WT-3	7.84	7.38	8.9	4	10/10/98	11/13/98
241	112WRD__373241081574301	7.63	7.4	8.1	4	10/12/78	04/16/81
242	WV0053597__ALHF	7.62	6.4	8.4	22	09/09/97	12/14/99
242	WV0092878__DHGB	8.31	7.9	8.5	18	01/14/00	09/17/00
242	WV0092878__DLF	8.32	7.8	9.0	36	01/12/99	06/30/00
242	WV0092878__ULF	8.30	7.7	9.0	42	01/12/99	09/17/00
242	WV0095869__DLF	7.64	6.65	8.7	76	10/10/98	11/16/01
242	WV0095869__ULF	7.67	7.22	8.1	2	10/29/98	04/16/01
242	WV1008129__DCLH	7.37	6.88	7.7	7	10/10/98	01/12/99
242	WV1008129__DSHB	7.55	7.32	7.9	7	10/10/98	01/12/99
242	WV1008129__DSLF	7.75	7.53	8.0	7	10/10/98	01/12/99
242	WV1008129__USLF	7.81	7.54	8.3	7	10/10/98	01/12/99
243	112WRD__373318081575801	7.50	7.5	7.5	1	10/12/78	10/12/78
243	112WRD__373319081575801	7.90	7.9	7.9	1	10/12/78	10/12/78
243	112WRD__373530081562501	7.87	7.3	8.2	3	05/01/84	07/24/84
243	WV1020196__DBCUN1	8.04	7.8	8.4	14	05/11/01	11/28/01
243	WV1020196__DBCUN2	7.40	7.4	7.4	1	05/23/01	05/23/01
243	WV1020196__DBF-BC9	7.97	7.8	8.3	14	05/11/01	11/28/01
243	WV1020196__UBC	7.99	7.8	8.3	14	05/11/01	11/28/01

Table 3f. Water quality data for dissolved zinc

SWS	WQ Station	Avg (ug/L)	Min (ug/L)	Max (ug/L)	Count	Start Date	End Date
243	112WRD__373530081562501	3.00	3	3	1	07/24/84	07/24/84

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

SWS	NPDES Permit ID	Baseline (lb/yr)	Allocation (lb/yr)	Allocation (mg/L)	Percent Reduction
178	WV1004280	112	112	3.60	0
180	WV1004280	21	21	3.60	0
180	WV1005201	392	392	3.60	0
180	WV1020021	722	722	3.60	0
183	WV0060801	76	76	3.60	0
183	WV1010557	69	69	3.60	0
183	WV1013190	125	125	3.60	0
184	WV0091201	92	92	3.60	0
185	WV0060801	461	461	3.60	0
185	WV0091197	225	225	3.60	0
185	WV0091201	69	69	3.60	0
185	WV0095851	134	134	3.60	0
185	WV1020137	178	178	3.60	0
196	WV1004727	28	28	3.60	0
197	WV1004727	56	56	3.60	0
198	WV0060801	2,944	1,766	2.27	40
198	WV1004727	337	202	2.27	40
198	WV1013084	1,649	990	2.27	40
207	WV0060801	305	305	3.60	0
208	WV0060801	457	457	3.60	0
208	WV0095869	1,256	1,256	3.60	0
208	WV1013211	428	428	3.60	0
208	WV1016784	229	229	3.60	0
208	WV1020137	176	176	3.60	0
209	WV1016784	172	172	3.60	0
242	WV0091464	9,019	3,156	1.33	65
242	WV0095869	251	88	1.33	65
242	WV0096253	1,183	414	1.33	65
242	WV1008099	638	223	1.33	65
242	WV1008129	110	38	1.33	65
242	WV1008188	3,809	1,333	1.33	65
242	WV1011057	294	103	1.33	65
242	WV1013181	1,820	637	1.33	65
242	WV1016288	5,618	1,966	1.33	65
243	WV0090930	736	258	1.33	65
243	WV0091464	696	244	1.33	65
243	WV0096032	451	158	1.33	65
243	WV0096253	296	104	1.33	65
243	WV1008188	3,516	1,231	1.33	65
243	WV1013181	910	319	1.33	65
243	WV1016288	8,333	2,916	1.33	65
243	WV1020196	13,126	4,594	1.33	65

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

SWS	NPDES Permit ID	Baseline (lb/yr)	Allocation (lb/yr)	Allocation (mg/L)	Percent Reduction
178	WV1004280	99	99	3.20	0
180	WV1004280	19	19	3.20	0
180	WV1005201	349	349	3.20	0
180	WV1020021	643	643	3.20	0
183	WV0060801	68	68	3.20	0
183	WV1010557	62	62	3.20	0
183	WV1013190	111	111	3.20	0
184	WV0091201	82	82	3.20	0
185	WV0060801	410	410	3.20	0
185	WV0091197	200	200	3.20	0
185	WV0091201	62	62	3.20	0
185	WV0095851	119	119	3.20	0
185	WV1020137	158	158	3.20	0
196	WV1004727	25	25	3.20	0
197	WV1004727	50	50	3.20	0
198	WV0060801	2,622	2,622	3.20	0
198	WV1004727	300	300	3.20	0
198	WV1013084	1,469	1,469	3.20	0
207	WV0060801	271	271	3.20	0
208	WV0060801	407	407	3.20	0
208	WV0095869	1,118	1,118	3.20	0
208	WV1013211	381	381	3.20	0
208	WV1016784	204	204	3.20	0
208	WV1020137	157	157	3.20	0
209	WV1016784	153	153	3.20	0
242	WV0091464	8,032	8,032	3.20	0
242	WV0095869	224	224	3.20	0
242	WV0096253	1,054	1,054	3.20	0
242	WV1008099	568	568	3.20	0
242	WV1008129	98	98	3.20	0
242	WV1008188	3,393	3,393	3.20	0
242	WV1011057	262	262	3.20	0
242	WV1013181	1,621	1,621	3.20	0
242	WV1016288	5,003	5,003	3.20	0
243	WV0090930	655	655	3.20	0
243	WV0091464	620	620	3.20	0
243	WV0096032	401	401	3.20	0
243	WV0096253	263	263	3.20	0
243	WV1008188	3,132	3,132	3.20	0
243	WV1013181	811	811	3.20	0
243	WV1016288	7,421	7,421	3.20	0
243	WV1020196	11,690	11,690	3.20	0

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

SWS	NPDES Permit ID	Baseline (lb/yr)	Allocation (lb/yr)	Allocation (mg/L)	Percent Reduction
178	WV1004280	62	62	2.00	0
180	WV1004280	12	12	2.00	0
180	WV1005201	217	217	2.00	0
180	WV1020021	401	401	2.00	0
183	WV0060801	42	42	2.00	0
183	WV1010557	38	38	2.00	0
183	WV1013190	69	69	2.00	0
184	WV0091201	51	51	2.00	0
185	WV0060801	256	256	2.00	0
185	WV0091197	125	125	2.00	0
185	WV0091201	38	38	2.00	0
185	WV0095851	74	74	2.00	0
185	WV1020137	99	99	2.00	0
196	WV1004727	16	16	2.00	0
197	WV1004727	31	31	2.00	0
198	WV0060801	1,633	1,633	2.00	0
198	WV1004727	187	187	2.00	0
198	WV1013084	915	915	2.00	0
207	WV0060801	169	169	2.00	0
208	WV0060801	253	253	2.00	0
208	WV0095869	697	697	2.00	0
208	WV1013211	238	238	2.00	0
208	WV1016784	127	127	2.00	0
208	WV1020137	98	98	2.00	0
209	WV1016784	95	95	2.00	0
242	WV0091464	5,003	5,003	2.00	0
242	WV0095869	139	139	2.00	0
242	WV0096253	656	656	2.00	0
242	WV1008099	354	354	2.00	0
242	WV1008129	61	61	2.00	0
242	WV1008188	2,113	2,113	2.00	0
242	WV1011057	163	163	2.00	0
242	WV1013181	1,010	1,010	2.00	0
242	WV1016288	3,116	3,116	2.00	0
243	WV0090930	408	408	2.00	0
243	WV0091464	386	386	2.00	0
243	WV0096032	250	250	2.00	0
243	WV0096253	164	164	2.00	0
243	WV1008188	1,951	1,951	2.00	0
243	WV1013181	505	505	2.00	0
243	WV1016288	4,622	4,622	2.00	0
243	WV1020196	7,281	7,281	2.00	0

Table 5a. Aluminum baseline conditions and allocations (LAs) for nonpoint sources in West Virginia

SWS	AML		Revoked Mines		Harvested Forest		Oil and Gas		Roads		Nonpoint Source		Requires Reduction	Percent 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)	Baseline Load (lb/yr)	Allocated Load (lb/yr)	Baseline Load (lb/yr)	Allocated Load (lb/yr)	Baseline Load (lb/yr)	Allocated Load (lb/yr)		
177	4,104	82	0	0	518	518	19	19	45	45	347	347	x	80
178	276	6	49	1	2,376	1,188	19	10	88	48	687	687	x	45
179	0	0	0	0	433	225	39	20	49	28	389	389	x	27
180	23,064	231	0	0	2,483	1,167	0	0	136	71	866	866	x	91
181	12,763	128	0	0	801	368	39	18	86	44	590	590	x	92
182	0	0	0	0	137	69	0	0	20	11	155	155	x	25
183	0	0	0	0	981	686	0	0	109	79	865	865	x	17
184	0	0	0	0	653	326	39	19	78	42	610	610	x	28
185	0	0	0	0	1,137	341	58	18	127	46	966	966	x	40
190	0	0	0	0	5	5	0	0	1	1	5	5		0
191	3,769	38	2,652	27	602	482	19	15	61	50	353	353	x	87
192	45	45	112	112	35	35	0	0	4	4	26	26		0
193	0	0	908	9	624	437	38	27	60	44	446	446	x	54
194	1,202	12	0	0	1,286	900	0	0	141	102	1,126	1,126	x	43
196	0	0	0	0	186	186	0	0	17	17	139	139		0
197	0	0	0	0	412	247	0	0	46	29	360	360	x	22
198	9,676	97	0	0	1,506	376	0	0	169	52	1,086	1,086	x	87
207	0	0	0	0	696	626	19	17	80	72	633	633	x	6
208	0	0	0	0	3,599	2,340	135	87	409	277	3,182	3,182	x	20
209	0	0	0	0	1,085	760	96	67	123	89	981	981	x	17
241	369	4	0	0	578	578	38	38	63	63	505	505	x	24
242	0	0	0	0	3,190	957	0	0	379	135	2,124	2,124	x	44
243	8,410	84	0	0	4,544	1,681	367	136	543	228	3,159	3,159	x	69

Table 5b. Iron baseline conditions and allocations (LAs) for nonpoint sources in West Virginia

SWS	AML		Revoked Mines		Harvested Forest		Oil and Gas		Roads		Nonpoint Source		Requires Reduction	Percent 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)	Baseline Load (lb/yr)	Allocated Load (lb/yr)	Baseline Load (lb/yr)	Allocated Load (lb/yr)	Baseline Load (lb/yr)	Allocated Load (lb/yr)		
177	5,414	687	0	0	654	654	25	25	57	57	535	535	x	71
178	364	364	56	56	3,002	1,501	25	12	111	60	1,074	1,074	x	34
179	0	0	0	0	547	284	49	26	62	35	610	610	x	25
180	30,432	5,312	0	0	3,137	1,475	0	0	171	88	1,355	1,355	x	77
181	16,839	1,252	0	0	1,012	466	49	23	108	55	925	925	x	86
182	0	0	0	0	174	87	0	0	25	14	243	243	x	22
183	0	0	0	0	1,239	867	0	0	137	99	1,355	1,355	x	15
184	0	0	0	0	825	412	49	25	97	53	958	958	x	25
185	0	0	0	0	1,436	431	74	22	160	58	1,517	1,517	x	36
190	0	0	0	0	6	6	0	0	2	2	8	8		0
191	4,970	547	3,049	910	761	609	24	19	77	63	554	554	x	71
192	60	60	129	129	44	44	0	0	5	5	41	41		0
193	0	0	1,044	1,044	788	552	49	34	76	55	700	700	x	10
194	1,586	859	0	0	1,624	1,137	0	0	178	128	1,766	1,766	x	25
196	0	0	0	0	235	235	0	0	21	21	219	219		0
197	0	0	0	0	521	312	0	0	57	36	564	564	x	20
198	12,762	3,574	0	0	1,902	476	0	0	212	65	1,703	1,703	x	65
207	0	0	0	0	879	791	24	22	100	91	992	992	x	5
208	0	0	0	0	4,547	2,956	170	111	515	348	4,990	4,990	x	18
209	0	0	0	0	1,371	960	121	85	155	112	1,539	1,539	x	15
241	487	487	0	0	730	730	49	49	79	79	792	792		0
242	0	0	0	0	4,029	1,209	0	0	477	169	3,331	3,331	x	40
243	11,092	10,191	0	0	5,740	2,124	463	171	683	286	4,954	4,954	x	23

Table 5c. Manganese baseline conditions and allocations (LAs) for nonpoint sources in West Virginia

SWS	AML		Revoked Mines		Harvested Forest		Oil and Gas		Roads		Nonpoint Source		Requires Reduction	Percent 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)	Baseline Load (lb/yr)	Allocated Load (lb/yr)	Baseline Load (lb/yr)	Allocated Load (lb/yr)	Baseline Load (lb/yr)	Allocated Load (lb/yr)		
177	1,788	358	0	0	40	40	2	2	5	5	248	248	x	69
178	120	120	49	49	186	93	2	1	9	6	505	505	x	11
179	0	0	0	0	34	18	3	2	5	4	288	288	x	6
180	10,047	5,928	0	0	194	91	0	0	15	9	637	637	x	39
181	5,560	1,279	0	0	63	29	3	1	9	6	436	436	x	71
182	0	0	0	0	11	5	0	0	2	1	115	115	x	5
183	0	0	0	0	77	54	0	0	11	9	638	638	x	4
184	0	0	0	0	51	25	3	2	8	6	452	452	x	6
185	0	0	0	0	89	27	5	1	14	7	716	716	x	9
190	0	0	0	0	0	0	0	0	0	0	4	4		0
191	1,638	573	2,644	925	48	38	2	1	6	6	261	261	x	61
192	20	20	112	112	3	3	0	0	0	0	19	19		0
193	0	0	905	905	49	34	3	2	6	5	330	330	x	1
194	522	10	0	0	102	71	0	0	15	12	832	832	x	37
196	0	0	0	0	15	15	0	0	2	2	103	103		0
197	0	0	0	0	33	20	0	0	5	3	266	266	x	5
198	4,205	2,187	0	0	119	30	0	0	18	9	803	803	x	41
207	0	0	0	0	55	49	2	1	8	8	468	468	x	1
208	0	0	0	0	284	185	11	7	43	32	2,352	2,352	x	4
209	0	0	0	0	86	60	8	5	13	10	726	726	x	4
241	161	161	0	0	46	46	3	3	7	7	373	373		0
242	0	0	0	0	252	76	0	0	40	20	1,570	1,570	x	11
243	3,655	3,655	0	0	359	133	29	11	57	32	2,336	2,336	x	4

Appendix A-12

Region 12

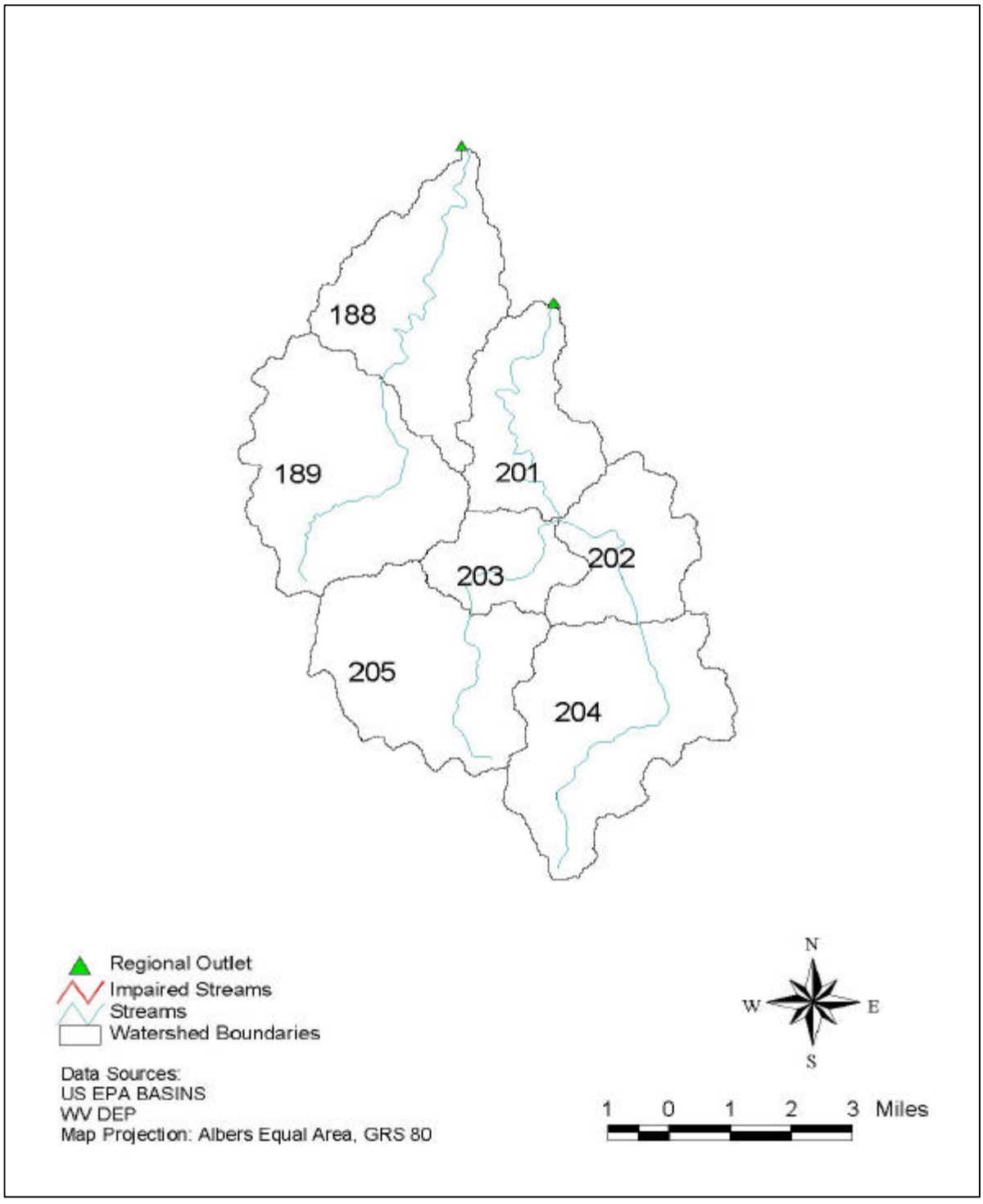


Figure 1. Region 12 - Tug Fork watershed

Table 1. Impaired waterbodies in Region 12

Stream Name	Stream Code	Pollutant	Contributing SWS	Contributing Regions	Aquatic Life

Not Applicable to this Region, Kentucky Waters

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

SWS

(not applicable in this region)

Table 3a. Water quality data for aluminum

SWS	WQ Station	Avg (ug/L)	Min (ug/L)	Max (ug/L)	Count	Start Date	End Date

(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
188	112WRD__03213690	602.50	190	2100	8	06/13/79	06/11/81
188	22KYOSM2__0345902S01	573.33	430	750	6	04/27/83	09/29/83
188	8980344__cb4	40.00	40	40	2	05/12/99	09/29/99
188	8980344__s2	130.00	120	140	2	06/28/99	09/29/99
188	8980473__SW4	2702.00	940	4030	5	10/16/95	03/15/96
188	8980473__SW5	11.67	10	20	6	07/09/97	12/10/97
188	8980499__mc1	70.00	70	70	1	05/12/99	05/12/99
188	8980499__mc2	80.00	80	80	1	05/12/99	05/12/99
188	8980552__cb4	92.50	20	210	4	12/29/99	08/15/00
188	8980552__s2	90.00	20	180	4	12/29/99	08/15/00
188	8980555__mc1	87.50	40	170	4	11/29/99	08/28/00
188	8980555__mc2	287.50	130	630	4	11/29/99	08/28/00
189	8980220__203	205.00	90	390	4	11/15/96	12/01/97
189	8980473__SW1	5133.33	1220	12000	6	10/16/95	03/15/96
189	8980473__SW2	1093.33	670	1470	6	10/16/95	03/15/96
189	8980473__SW3	4381.67	2130	7180	6	10/16/95	03/15/96
189	8980492__SW1	632.00	140	1130	5	02/25/99	06/14/00
189	8980492__SW2	258.00	30	1110	5	07/08/99	06/14/00
189	8980492__SW4	344.00	50	550	5	02/25/99	06/14/00
189	8980611__SW2	45.00	30	60	4	07/08/99	12/04/99
201	8980311__S2	100.00	100	100	1	06/18/99	06/18/99
201	8980344__cb2	105.00	100	110	2	06/28/99	09/29/99
201	8980344__s1	80.00	30	130	2	06/28/99	09/29/99
201	8980551__s2	27.50	20	50	4	12/29/99	08/15/00
201	8980552__cb2	143.33	90	230	3	02/17/00	08/15/00
201	8980552__s1	77.50	40	140	4	12/29/99	08/15/00
201	8980566__SW3	184.00	60	320	5	12/08/91	06/24/99
201	8980566__SW4	16.67	10	20	6	08/11/94	12/15/95
201	8984035__cb2	125.00	100	150	2	12/14/99	03/21/00
201	8985290__cb2	100.00	100	100	1	06/28/99	06/28/99
201	8989030__mc6	140.00	140	140	1	06/23/99	06/23/99
201	8989105__mc6	192.50	160	250	4	12/02/99	08/15/00
202	112WRD__03213670	2085.71	440	5800	7	06/12/79	03/26/81
203	112WRD__03213680	461.43	160	1200	7	06/12/79	03/26/81
203	8980121__M2	140.00	140	140	1	06/17/99	06/17/99
203	8980121__M3	140.00	140	140	1	06/17/99	06/17/99
203	8980121__M4	220.00	220	220	1	06/17/99	06/17/99
203	8980311__M3	220.00	220	220	1	06/18/99	06/18/99
203	8980311__S1	100.00	100	100	1	06/18/99	06/18/99
203	8980467__sw1	35.00	30	40	2	05/25/99	09/30/99
203	8980467__sw2	55.00	50	60	2	05/25/99	09/30/99
203	8980550__m2	210.00	110	310	4	12/10/99	08/15/00
203	8980550__m3	197.50	30	370	4	12/10/99	08/15/00
203	8980550__m4	285.00	180	450	4	12/10/99	08/15/00
203	8980551__m3	185.00	30	290	4	12/27/99	08/15/00
203	8980551__s1	205.00	20	660	4	12/27/99	08/15/00
203	8980554__sw1	75.00	20	140	4	12/14/99	08/15/00
203	8980554__sw2	542.50	30	1550	4	12/14/99	08/15/00
203	8984037__S1	640.00	520	820	3	02/16/00	09/20/00
203	8984039__SWMP1	220.00	120	310	3	02/16/00	08/15/00
203	8985494__S1	35.00	30	40	2	05/26/99	09/30/99
203	8985689__SWMP1	75.00	50	100	2	05/25/99	09/30/99
204	8980217__hk1	218.33	100	370	6	11/04/96	01/15/98
204	8980217__hk2	326.00	140	680	5	03/12/97	01/15/98
204	8980217__hk3	292.50	10	570	4	03/28/97	01/15/98
204	8980322__bsw3	257.33	0	890	15	11/18/96	10/03/00
204	8980322__bsw4	230.00	0	370	15	11/18/96	10/03/00
204	8980322__sw1	570.63	0	1730	16	11/18/96	10/02/00
204	8980389__sw1	235.00	0	540	14	11/04/96	10/03/00
204	8980389__sw2	298.46	0	1550	13	03/12/97	10/03/00
204	8980389__sw4	282.14	10	750	14	02/12/97	10/02/00
204	8980624__DMM2	11.67	10	20	6	01/10/00	06/16/00
205	8980389__sw3	174.00	0	890	15	11/04/96	10/09/00
205	8980602__SW9	98.33	40	160	6	05/29/96	09/06/96
205	8985688__sw1	393.33	40	1340	6	11/15/96	03/04/98
205	8985947__SW1	1306.25	340	3070	8	08/18/98	07/19/00

Table 3d. Water quality data for Total Nonfilterable Residue

SWS	WQ Station	Avg (ug/L)	Min (ug/L)	Max (ug/L)	Count	Start Date	End Date
188	22KYOSM2__0345902S01	17.50	7	31	6	04/27/83	09/29/83
188	8980344__cb4	1.50	1	2	2	05/12/99	09/29/99
188	8980344__s2	22.50	21	24	2	06/28/99	09/29/99
188	8980473__SW4	7.80	4	11	5	10/16/95	03/15/96
188	8980473__SW5	9.67	8	13	6	07/09/97	12/10/97
188	8980499__mc1	20.00	20	20	1	05/12/99	05/12/99
188	8980499__mc2	24.00	24	24	1	05/12/99	05/12/99
188	8980552__cb4	7.50	1	17	4	12/29/99	08/15/00
188	8980552__s2	16.00	1	28	4	12/29/99	08/15/00
188	8980555__mc1	13.75	1	35	4	11/29/99	08/28/00
188	8980555__mc2	57.00	1	220	4	11/29/99	08/28/00
189	8980220__203	13.33	0	32	3	11/15/96	12/01/97
189	8980473__SW1	12.00	6	24	6	10/16/95	03/15/96
189	8980473__SW2	22.83	7	44	6	10/16/95	03/15/96
189	8980473__SW3	18.83	6	58	6	10/16/95	03/15/96
189	8980492__SW1	11.80	8	14	5	02/25/99	06/14/00
189	8980492__SW2	12.00	10	16	5	07/08/99	06/14/00
189	8980492__SW4	11.80	8	15	5	02/25/99	06/14/00
189	8980611__SW2	14.50	10	18	4	07/08/99	12/04/99
201	8980311__S2	9.00	9	9	1	06/18/99	06/18/99
201	8980344__cb2	11.00	10	12	2	06/28/99	09/29/99
201	8980344__s1	9.50	5	14	2	06/28/99	09/29/99
201	8980551__s2	9.00	2	17	4	12/29/99	08/15/00
201	8980552__cb2	10.00	4	15	3	02/17/00	08/15/00
201	8980552__s1	12.25	1	27	4	12/29/99	08/15/00
201	8980566__SW3	8.40	3	15	5	12/08/91	06/24/99
201	8980566__SW4	8.33	6	12	6	08/11/94	12/15/95
201	8984035__cb2	10.50	8	13	2	12/14/99	03/21/00
201	8985290__cb2	10.00	10	10	1	06/28/99	06/28/99
201	8989030__mc6	6.00	6	6	1	06/23/99	06/23/99
201	8989105__mc6	10.50	2	21	4	12/02/99	08/15/00
203	112WRD__03213680	2550.00	2550	2550	1	07/06/81	07/06/81
203	8980121__M2	19.00	19	19	1	06/17/99	06/17/99
203	8980121__M3	9.00	9	9	1	06/17/99	06/17/99
203	8980121__M4	13.00	13	13	1	06/17/99	06/17/99
203	8980311__M3	12.00	12	12	1	06/18/99	06/18/99
203	8980311__S1	12.00	12	12	1	06/18/99	06/18/99
203	8980467__sw1	4.50	1	8	2	05/25/99	09/30/99
203	8980467__sw2	8.00	6	10	2	05/25/99	09/30/99
203	8980550__m2	11.00	8	14	4	12/10/99	08/15/00
203	8980550__m3	10.50	1	17	4	12/10/99	08/15/00
203	8980550__m4	12.75	10	18	4	12/10/99	08/15/00
203	8980551__m3	7.75	1	17	4	12/27/99	08/15/00
203	8980551__s1	4.25	1	8	4	12/27/99	08/15/00
203	8980554__sw1	12.25	6	18	4	12/14/99	08/15/00
203	8980554__sw2	26.50	1	77	4	12/14/99	08/15/00
203	8984037__S1	18.33	15	22	3	02/16/00	09/20/00
203	8984039__SWMP1	10.00	5	14	3	02/16/00	08/15/00
203	8985494__S1	15.50	14	17	2	05/26/99	09/30/99
203	8985689__SWMP1	15.00	14	16	2	05/25/99	09/30/99
204	8980217__hk1	53.34	0	268.05	6	11/04/96	01/15/98
204	8980217__hk2	16.80	0	56	5	03/12/97	01/15/98
204	8980217__hk3	16.00	0	48	4	03/28/97	01/15/98
204	8980322__bsw3	44.50	0	489	14	11/18/96	10/03/00
204	8980322__bsw4	6.36	0	16	14	11/18/96	10/03/00
204	8980322__sw1	17.88	0	70	16	11/18/96	10/02/00
204	8980389__sw1	7.07	0	20	14	11/04/96	10/03/00
204	8980389__sw2	6.17	0	20	12	10/23/97	10/03/00
204	8980389__sw4	9.93	0	36	14	02/12/97	10/02/00
204	8980624__DMM2	5.83	4	8	6	01/10/00	06/16/00
205	8980389__sw3	11.63	0	42	16	11/04/96	10/09/00
205	8980602__SW9	6.00	2	12	6	05/29/96	09/06/96
205	8985688__sw1	19.60	0	72	5	11/15/96	03/04/98
205	8985947__SW1	77.00	9	315	8	08/18/98	07/19/00

Table 3e. Water quality data for pH

SWS	WQ Station	Avg (ug/L)	Min (ug/L)	Max (ug/L)	Count	Start Date	End Date
188	112WRD__03213690	7.59	7.1	8.5	8	06/13/79	06/11/81
188	112WRD__373617082094901	8.13	8	8.3	3	10/12/78	04/15/81
188	22KYOSM2__0345902S01	4.33	4.25	4.5	6	04/27/83	09/29/83
188	8980344__cb4	8.05	8	8.1	2	05/12/99	09/29/99
188	8980344__s2	6.75	6.7	6.8	2	06/28/99	09/29/99
188	8980473__SW4	7.41	7.03	7.7	5	10/16/95	03/15/96
188	8980473__SW5	7.10	6.94	7.2	6	07/09/97	12/10/97
188	8980499__mc1	7.90	7.9	7.9	1	05/12/99	05/12/99
188	8980499__mc2	8.20	8.2	8.2	1	05/12/99	05/12/99
188	8980552__cb4	7.64	6.85	8.1	4	12/29/99	08/15/00
188	8980552__s2	7.58	7	8.1	4	12/29/99	08/15/00
188	8980555__mc1	7.85	7.6	8.0	4	11/29/99	08/28/00
188	8980555__mc2	8.05	7.8	8.2	4	11/29/99	08/28/00
189	8980220__203	7.83	7.6	8.1	4	11/15/96	12/01/97
189	8980473__SW1	6.98	6.64	7.5	5	10/16/95	03/15/96
189	8980473__SW2	7.75	7.47	7.9	6	10/16/95	03/15/96
189	8980473__SW3	7.78	7.62	7.9	6	10/16/95	03/15/96
189	8980492__SW1	7.41	6.97	7.8	5	02/25/99	06/14/00
189	8980492__SW2	7.70	7.07	8.0	5	07/08/99	06/14/00
189	8980492__SW4	7.20	7.1	7.3	5	02/25/99	06/14/00
189	8980611__SW2	7.86	7.73	8.0	4	07/08/99	12/04/99
201	112WRD__373049082091001	8.30	7.8	8.8	3	10/12/78	04/15/81
201	112WRD__373359082084301	8.50	8.1	9.3	4	10/12/78	04/15/81
201	8980311__S2	7.25	7.25	7.3	1	06/18/99	06/18/99
201	8980344__cb2	7.15	7	7.3	2	06/28/99	09/29/99
201	8980344__s1	7.25	7	7.5	2	06/28/99	09/29/99
201	8980551__s2	7.75	7.5	8.0	4	12/29/99	08/15/00
201	8980552__cb2	7.77	7.4	8.1	3	02/17/00	08/15/00
201	8980552__s1	7.38	6.9	8.2	4	12/29/99	08/15/00
201	8980566__SW3	7.16	6.98	7.3	5	12/08/91	06/24/99
201	8980566__SW4	7.19	6.89	7.5	6	08/11/94	12/15/95
201	8984035__cb2	7.00	6.9	7.1	2	12/14/99	03/21/00
201	8985290__cb2	7.30	7.3	7.3	1	06/28/99	06/28/99
201	8989030__mc6	6.98	6.98	7.0	1	06/23/99	06/23/99
201	8989105__mc6	7.96	7.8	8.3	4	12/02/99	08/15/00
202	112WRD__03213670	7.29	7.05	7.6	7	06/12/79	03/26/81
203	112WRD__03213680	7.61	7.4	8.1	7	06/12/79	03/26/81
203	112WRD__373049082091101	8.70	7.9	9.5	3	10/12/78	04/15/81
203	8980121__M2	6.90	6.9	6.9	1	06/17/99	06/17/99
203	8980121__M3	7.40	7.4	7.4	1	06/17/99	06/17/99
203	8980121__M4	7.60	7.6	7.6	1	06/17/99	06/17/99
203	8980311__M3	7.10	7.1	7.1	1	06/18/99	06/18/99
203	8980311__S1	6.99	6.99	7.0	1	06/18/99	06/18/99
203	8980467__sw1	7.70	7.6	7.8	2	05/25/99	09/30/99
203	8980467__sw2	8.35	8.3	8.4	2	05/25/99	09/30/99
203	8980550__m2	7.88	7.6	8.1	4	12/10/99	08/15/00
203	8980550__m3	7.90	7.6	8.1	4	12/10/99	08/15/00
203	8980550__m4	7.29	7	7.6	4	12/10/99	08/15/00
203	8980551__m3	7.48	7	8.0	4	12/27/99	08/15/00
203	8980551__s1	7.68	7.5	7.9	4	12/27/99	08/15/00
203	8980554__sw1	7.78	7.5	8.0	4	12/14/99	08/15/00
203	8980554__sw2	8.10	7.9	8.4	4	12/14/99	08/15/00
203	8984037__S1	8.07	8	8.1	3	02/16/00	09/20/00
203	8984039__SWMP1	7.77	7	8.2	3	02/16/00	08/15/00
203	8985494__S1	8.20	8.1	8.3	2	05/26/99	09/30/99
203	8985689__SWMP1	7.80	7.3	8.3	2	05/25/99	09/30/99
204	8980217__hk1	7.63	6.9	8.1	6	11/04/96	01/15/98
204	8980217__hk2	7.92	7.2	8.4	5	03/12/97	01/15/98
204	8980217__hk3	8.10	7.9	8.4	4	03/28/97	01/15/98
204	8980322__bsw3	8.10	7.5	8.5	15	11/18/96	10/03/00
204	8980322__bsw4	8.10	7.7	8.4	15	11/18/96	10/03/00
204	8980322__sw1	8.03	7.6	8.4	15	11/18/96	10/02/00
204	8980389__sw1	7.98	7.1	8.3	14	11/04/96	10/03/00
204	8980389__sw2	7.85	7.1	8.5	13	03/12/97	10/03/00
204	8980389__sw4	8.00	7.49	8.4	14	02/12/97	10/02/00
204	8980624__DMM2	7.66	7.5	8.0	6	01/10/00	06/16/00
205	8980389__sw3	8.13	7.2	8.5	16	11/04/96	10/09/00
205	8980602__SW9	7.07	6.8	7.6	6	05/29/96	09/06/96
205	8985688__sw1	7.88	7.6	8.0	6	11/15/96	03/04/98
205	8985947__SW1	7.76	7.1	8.3	8	08/18/98	07/19/00

Table 3f. Water quality data for dissolved zinc

SWS	WQ Station	Avg (ug/L)	Min (ug/L)	Max (ug/L)	Count	Start Date	End Date

(not applicable to this region)

Table 6a. Baseline conditions and allocations for all sources in Kentucky

Metal	Baseline Load (lb/yr)	Allocated Load (lb/yr)	Requires Reduction	Percent Reduction
Aluminum	81,868	73,056	X	11
Iron	97,814	86,683	X	11

Appendix A-13

Region 13

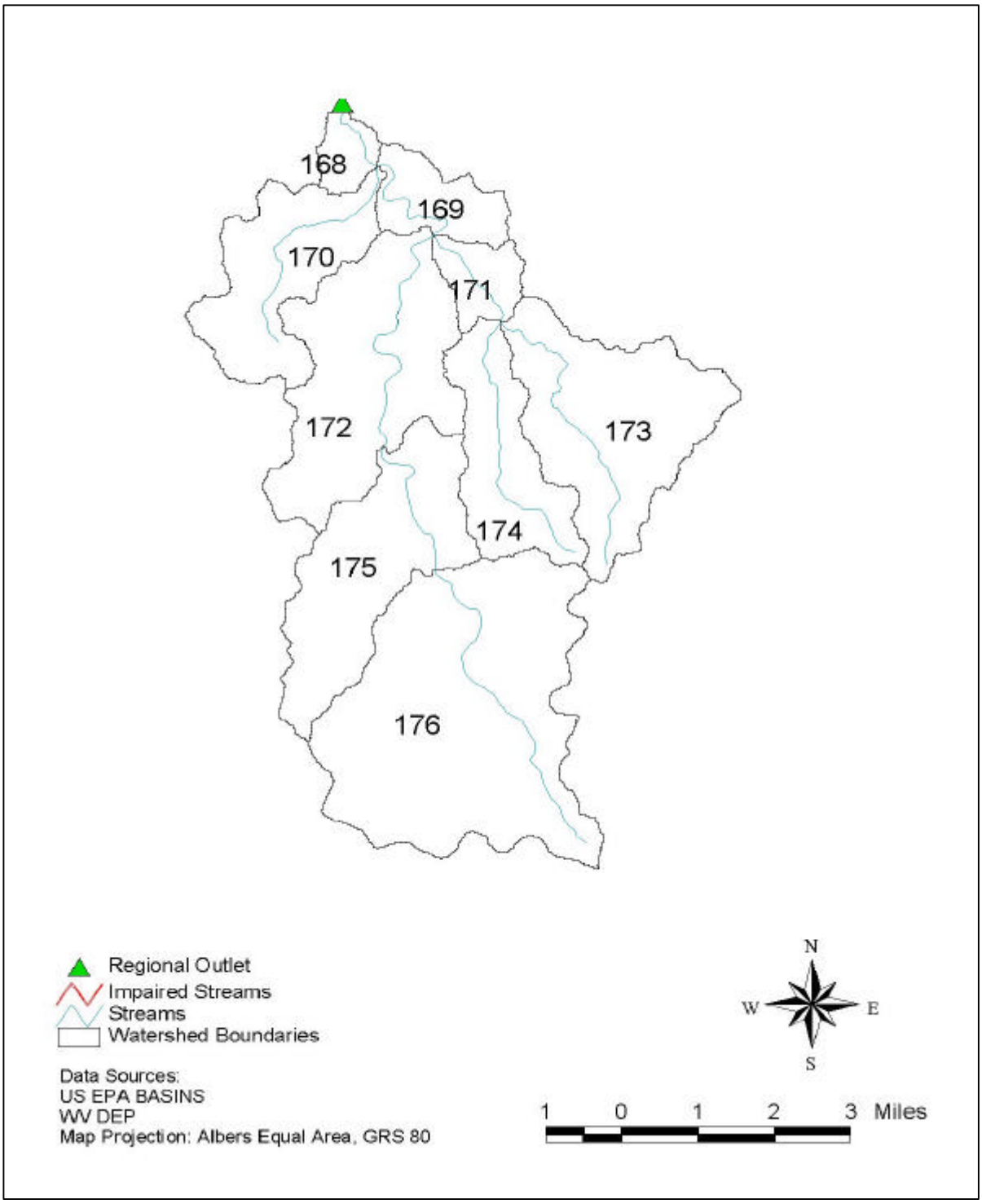


Figure 1. Region 13 - Tug Fork watershed

Table 1. Impaired waterbodies in Region 13

Stream Name	Stream Code	Pollutant	Contributing SWS	Contributing Regions	Aquatic Life

Not Applicable to this Region, Kentucky Waters

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

SWS

(not applicable in this region)

Table 3a. Water quality data for aluminum

SWS	WQ Station	Avg (ug/L)	Min (ug/L)	Max (ug/L)	Count	Start Date	End Date

(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
169	112WRD__03213698	4728.75	360	18000	8	06/13/79	06/11/81
170	22KYOSM2__0338101S05	355.00	100	530	6	08/02/82	01/12/83
171	8985817__s1	132.00	10	300	5	12/04/96	03/06/98
173	8980597__SW3	63.33	40	90	6	03/19/97	06/10/98
174	8985446__213	108.00	10	230	5	12/04/96	01/27/98
176	8980492__SW3	270.00	10	540	4	02/25/99	06/14/00
176	8980492__SW5	230.00	50	360	5	02/25/99	06/14/00
176	8980492__SW6	373.33	40	1020	3	02/25/99	06/14/00
176	8985887__s1	311.67	0	560	6	12/04/96	02/25/98
176	8985888__b1	234.00	30	680	5	12/04/96	02/25/98

Table 3d. Water quality data for Total Nonfilterable Residue

SWS	WQ Station	Avg (ug/L)	Min (ug/L)	Max (ug/L)	Count	Start Date	End Date
170	22KYOSM2__0338101S05	25.33	2	42	6	08/02/82	01/12/83
171	8985817__s1	1.60	0	4	5	12/04/96	03/06/98
173	8980597__SW3	14.67	8	24	6	03/19/97	06/10/98
174	8985446__213	5.20	0	14	5	12/04/96	01/27/98
176	8980492__SW3	6.75	4	9	4	02/25/99	06/14/00
176	8980492__SW5	10.60	7	15	5	02/25/99	06/14/00
176	8980492__SW6	5.00	4	6	3	02/25/99	06/14/00
176	8985887__s1	12.00	0	38	6	12/04/96	02/25/98
176	8985888__b1	8.80	0	32	5	12/04/96	02/25/98

Table 3e. Water quality data for pH

SWS	WQ Station	Avg (ug/L)	Min (ug/L)	Max (ug/L)	Count	Start Date	End Date
168	112WRD__373945082162401	7.80	7.3	8.6	4	10/11/78	04/15/81
169	112WRD__03213698	7.64	7.25	8.0	8	06/13/79	06/11/81
170	22KYOSM2__0338101S05	6.50	5.23	7.1	6	08/02/82	01/12/83
171	8985817__s1	8.46	8	8.7	5	12/04/96	03/06/98
172	112WRD__373809082152001	8.80	8.8	8.8	1	10/11/78	10/11/78
173	8980597__SW3	7.39	7.15	7.6	6	03/19/97	06/10/98
174	8985446__213	8.38	8	9.1	5	12/04/96	01/27/98
176	8980492__SW3	7.13	7.11	7.2	4	02/25/99	06/14/00
176	8980492__SW5	7.14	7.01	7.3	4	02/25/99	06/14/00
176	8980492__SW6	7.00	6.92	7.1	3	02/25/99	06/14/00
176	8985887__s1	8.12	7.9	8.6	6	12/04/96	02/25/98
176	8985888__b1	8.32	7.9	8.7	6	12/04/96	02/25/98

Table 3f. Water quality data for dissolved zinc

SWS	WQ Station	Avg (ug/L)	Min (ug/L)	Max (ug/L)	Count	Start Date	End Date

(not applicable to this region)

Table 6a. Baseline conditions and allocations for all sources in Kentucky

Metal	Baseline Load (lb/yr)	Allocated Load (lb/yr)	Requires Reduction	Percent Reduction
Aluminum	37,110	29,592	X	20
Iron	49,232	39,735	X	19

Appendix A-14

Region 14

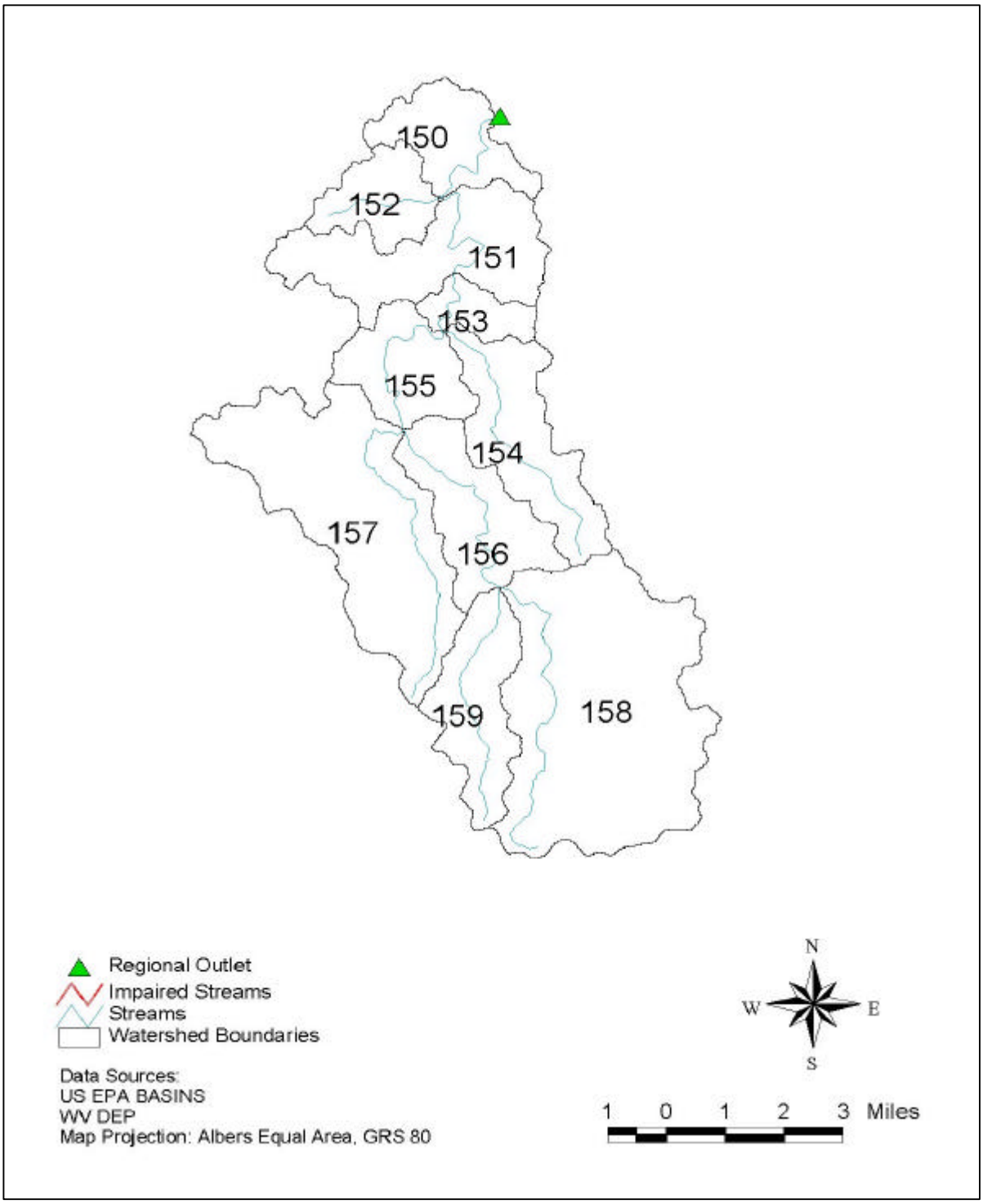


Figure 1. Region 14 - Tug Fork watershed

Table 1. Impaired waterbodies in Region 14

Stream Name	Stream Code	Pollutant	Contributing SWS	Contributing Regions	Aquatic Life

Not Applicable to this Region, Kentucky Waters

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

SWS

(not applicable in this region)

Table 3a. Water quality data for aluminum

SWS	WQ Station	Avg (ug/L)	Min (ug/L)	Max (ug/L)	Count	Start Date	End Date

(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
150	112WRD__03213750	2820.00	1100	5000	5	06/13/79	06/10/81
154	22KYOSM2__0127201S01	600.00	350	1600	6	08/02/82	01/03/83
154	22KYOSM2__0127201S02	203.33	120	350	6	08/02/82	01/03/83
154	22KYOSM2__0519901S01	13050.00	100	76000	6	04/01/83	10/11/83
154	22KYOSM2__0519901S02	600.00	300	1000	5	04/01/83	07/30/83
155	8980573__4	916.67	720	1210	3	06/07/99	12/01/99
157	8980573__201	371.67	230	550	6	02/02/98	08/26/99
157	8984029__201	371.67	230	550	6	02/02/98	08/26/99
158	22KYOSM2__0127201S06	8021.67	100	29000	6	08/02/82	01/03/83

Table 3d. Water quality data for Total Nonfilterable Residue

SWS	WQ Station	Avg (ug/L)	Min (ug/L)	Max (ug/L)	Count	Start Date	End Date
154	22KYOSM2__0127201S01	39.67	12	106	6	08/02/82	01/03/83
154	22KYOSM2__0127201S02	25.00	4	34	6	08/02/82	01/03/83
154	22KYOSM2__0519901S01	261.50	0	1516	6	04/01/83	10/11/83
154	22KYOSM2__0519901S02	17.20	7	26	5	04/01/83	07/30/83
155	8980573__4	22.25	4	68	4	03/03/98	12/01/99
157	8980573__201	9.00	4	13	6	02/02/98	08/26/99
157	8984029__201	10.00	5	13	5	02/02/98	08/26/99
158	22KYOSM2__0127201S06	157.50	14	413	6	08/02/82	01/03/83

Table 3e. Water quality data for pH

SWS	WQ Station	Avg (ug/L)	Min (ug/L)	Max (ug/L)	Count	Start Date	End Date
150	112WRD__03213750	6.93	6.6	7.3	7	06/13/79	06/10/81
150	112WRD__374428082200601	6.35	4.7	7.3	4	10/11/78	04/16/81
154	22KYOSM2__0127201S01	6.66	5.71	7.2	4	08/02/82	12/09/82
154	22KYOSM2__0127201S02	7.19	6.6	7.5	4	08/02/82	12/09/82
154	22KYOSM2__0519901S01	6.68	6	7.4	6	04/01/83	10/11/83
154	22KYOSM2__0519901S02	6.68	6	7.5	5	04/01/83	07/30/83
155	8980573__4	7.46	7.28	7.7	4	03/03/98	12/01/99
156	112WRD__373949082224001	7.63	7.3	8.0	3	10/11/78	04/16/81
157	112WRD__373950082224501	7.70	7	8.2	3	10/11/78	04/16/81
157	8980573__201	7.98	7.59	8.4	6	02/02/98	08/26/99
157	8984029__201	7.98	7.59	8.4	6	02/02/98	08/26/99
158	22KYOSM2__0127201S06	6.85	6.52	7.3	4	08/02/82	12/01/82

Table 3f. Water quality data for dissolved zinc

SWS	WQ Station	Avg (ug/L)	Min (ug/L)	Max (ug/L)	Count	Start Date	End Date

(not applicable to this region)

Table 6b. Baseline conditions and allocations for all sources in Kentucky

Metal	Baseline Load (lb/yr)	Allocated Load (lb/yr)	Requires Reduction	Percent Reduction
Aluminum	49,994	36,461	X	27
Iron	66,205	49,109	X	26

Appendix A-15

Region 15

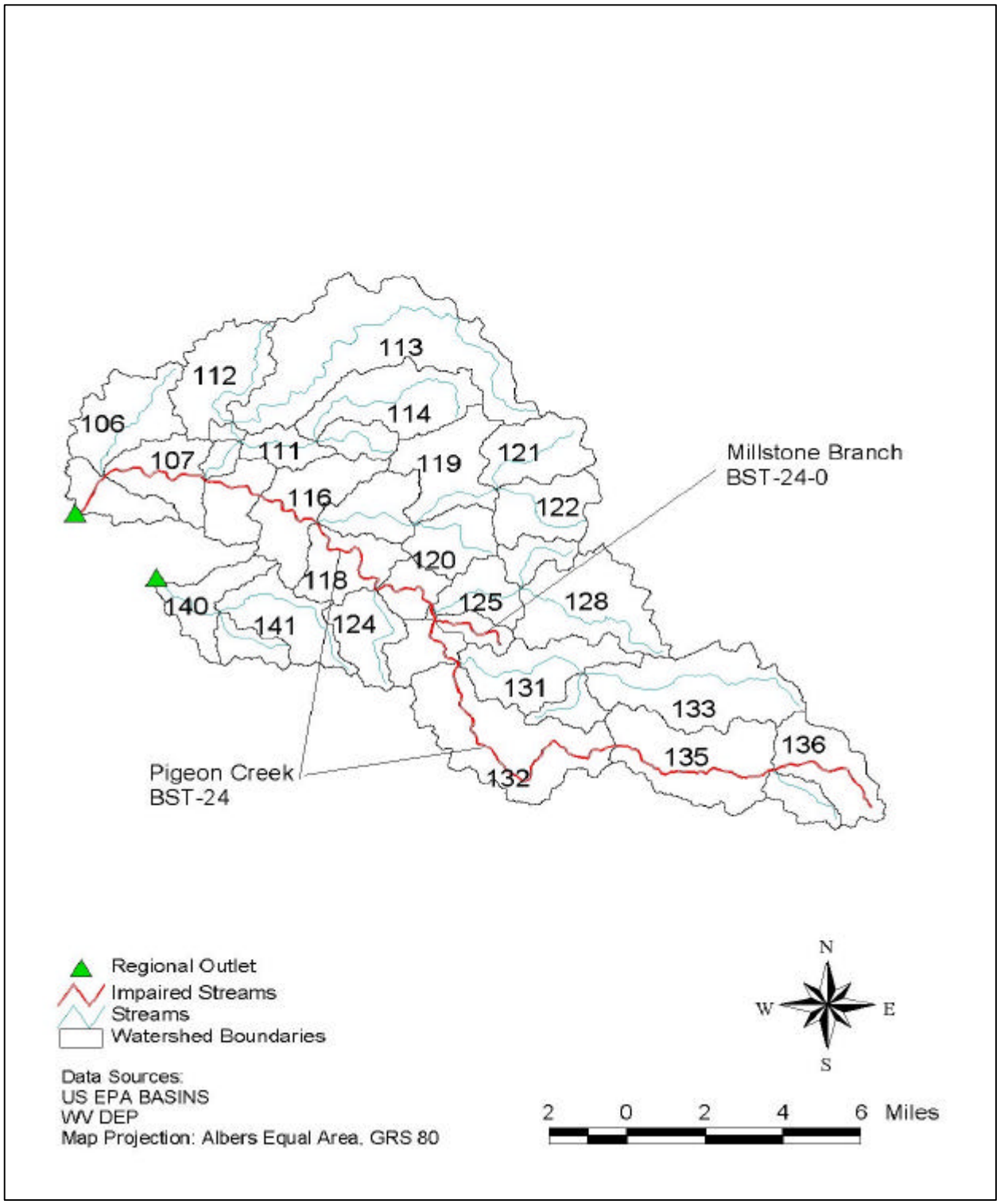


Figure 1. Region 15 - Tug Fork watershed

Table 1. Impaired waterbodies in Region 15

Stream Name	Stream Code	Pollutant	Contributing SWS	Contributing Regions		Aquatic Life
Millstone Branch	BST-24-O	Metals	126, 129			Aquatic Life
Pigeon Creek	BST-24	Metals, pH	105, 106, 107, 108, 109, 110, 111, 112, 113, 114, 115, 116, 117, 118, 119, 120, 121, 122, 123, 124, 125, 126, 127, 128, 129, 130, 131, 132, 133, 134, 135, 136, 137			Aquatic Life

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

SWS
105
121
128
131
132
133
134

Table 3a. Water quality data for aluminum

SWS	WQ Station	Avg (ug/L)	Min (ug/L)	Max (ug/L)	Count	Start Date	End Date
105	211WVOWR__BST-024-0001	320.00	320	320	1	07/06/98	07/06/98
106	WV0044181__UBB	400.00	400	400	14	01/12/99	02/07/01
106	WV0048593__DBB	529.41	400	2500	17	02/10/99	11/29/01
110	11COEHUN__1TFVW0010	147.00	147	147	1	03/02/81	03/02/81
110	WV0044181__SC-1	950.00	400	1500	2	04/08/99	07/11/00
112	WV0099414__DLFSC	440.32	400	1000	62	11/01/98	11/29/01
112	WV0099414__DMFSC	480.43	100	1600	46	07/07/99	11/29/01
112	WV0099414__ULFSC	497.22	400	1800	36	01/07/99	11/29/01
112	WV0099414__UMFSC	450.00	400	500	4	04/13/00	09/11/01
112	WV1004531__USC	420.00	400	600	10	03/22/99	11/29/01
113	WV0044181__SC-2	900.00	400	1400	2	04/08/99	07/11/00
113	WV0095788__DLF	485.00	400	1600	20	01/17/01	11/28/01
113	WV0096083__DLFK	481.67	400	1600	60	11/01/98	11/26/01
113	WV0099414__ULF	503.51	400	3200	57	11/01/98	11/29/01
113	WV1004531__UTB	400.00	400	400	1	04/08/99	04/08/99
113	WV1007939__DLF	483.05	400	1600	59	11/01/98	11/26/01
113	WV1007939__ULF	522.22	400	2400	45	12/10/98	09/26/01
113	WV1013076__S-6	450.00	400	500	2	09/11/01	11/28/01
113	WV1013076__S-7	433.33	400	500	3	04/23/99	11/19/01
113	WV1013114__S-2	445.00	400	1200	60	01/07/99	11/28/01
113	WV1013556__DSLF	654.03	200	13300	67	01/06/99	11/20/01
113	WV1013556__DSPB	723.71	120	9760	62	01/06/99	11/20/01
113	WV1013556__DSPP	446.41	120	3780	64	01/06/99	11/20/01
113	WV1013556__USLF	640.75	200	5610	67	01/06/99	11/05/01
113	WV1013556__USPB	531.11	120	3660	63	01/06/99	11/20/01
113	WV1013556__USPP	505.45	120	5740	44	01/06/99	09/12/01
115	WV0099414__DLF	515.79	400	3400	57	11/01/98	11/29/01
116	112WRD__374713082154439	90.00	70	110	2	02/26/80	06/18/80
116	WV1004701__F-9-S	44.17	10	70	12	03/30/99	12/31/01
118	211WVOWR__BST-024-0002	50.00	50	50	1	06/22/98	06/22/98
119	WV1004174__DTF	644.44	400	5600	27	11/01/98	04/19/01
119	WV1004182__DTF	674.65	400	18000	71	11/01/98	11/26/01
119	WV1004182__URB	475.00	400	2000	72	11/01/98	11/26/01
121	WV1004174__UTF	459.26	400	900	27	11/01/98	04/19/01
121	WV1004182__UTF	736.58	400	18000	73	11/01/98	11/26/01
121	WV1008170__DCBU	458.06	100	1000	31	01/13/99	09/11/01
122	WV1004174__URF	577.78	400	4200	27	11/01/98	04/19/01
123	WV1003674__DPC	433.53	60	3660	68	01/15/99	10/22/01
123	WV1003674__UPC	404.82	250	2470	56	07/07/99	10/22/01
125	WV1016865__UEC	340.83	70	970	48	11/08/99	10/22/01
131	WV1017080__S-10	359.70	200	850	66	01/05/99	09/23/01
132	WV0064262__DGB	5885.11	100	18400	47	03/31/99	12/18/01
132	WV0095800__DGB	6184.21	100	18400	38	11/01/99	12/18/01
132	WV0095800__DPC	234.81	100	1400	54	10/01/99	12/18/01
132	WV0095800__DSB	155.00	100	400	60	10/01/99	12/18/01
132	WV0095800__USPC	220.93	100	900	54	10/01/99	12/18/01
132	WV1004280__DPC	471.08	100	14700	65	03/29/99	12/18/01
132	WV1004280__UPC	443.38	100	13700	65	03/29/99	12/18/01
132	WV1013467__DPC	244.21	100	1400	38	02/21/00	12/18/01

132	WV1013467__UPC	229.74	100	900	38	02/21/00	12/18/01
132	WV1017080__S-16	318.33	30	1460	66	01/05/99	09/23/01
132	WV1017080__S-19	423.18	170	4210	66	01/05/99	09/23/01
133	WV1017080__S-3	347.34	100	1100	64	01/05/99	09/23/01
135	211WVOWR__BST-024-0003	1210.00	1210	1210	1	06/20/98	06/20/98
135	WV1005227__DSR	434.48	100	4030	29	03/21/00	09/23/01
135	WV1005294__DPC	495.00	260	730	2	08/15/01	08/30/01
135	WV1005294__DSR	434.48	100	4030	29	03/21/00	09/23/01
135	WV1011081__DLTB	326.67	250	440	3	11/13/00	09/12/01
135	WV1017080__S-12	516.21	200	7280	29	01/05/99	06/27/01
135	WV1017080__S-14	792.44	200	5250	41	01/05/99	09/23/01
136	WV1005294__UPC	410.00	270	550	2	08/15/01	08/30/01
136	WVG015018__DBG	442.55	10	2560	47	08/05/99	11/26/01
136	WVG015018__UBG	539.18	120	3560	49	08/05/99	11/26/01
140	11COEHUN__1TFVW0013	176.00	176	176	1	03/02/81	03/02/81

Table 3b. Water quality data for iron

SWS	WQ Station	Avg (ug/L)	Min (ug/L)	Max (ug/L)	Count	Start Date	End Date
105	211WVOWR__BST-024-0001	620.00	620	620	1	07/06/98	07/06/98
106	WV0044181__UBB	252.05	50	2200	44	01/12/99	10/02/01
106	WV0048593__DBB	398.31	30	6320	65	11/01/98	11/29/01
108	112WRD__374753082171039	550.00	330	950	4	05/11/79	08/20/80
109	112WRD__374740082165901	300.00	300	300	1	07/21/81	07/21/81
110	11COEHUN__1TFVW0010	182.00	150	214	2	10/28/80	03/02/81
110	WV0044181__SC-1	1220.00	60	2380	2	04/08/99	07/11/00
111	11COEHUN__1TFVW0011	390.00	390	390	1	10/28/80	10/28/80
112	WV0099414__DLFSC	293.55	50	1200	62	11/01/98	11/29/01
112	WV0099414__DMFSC	279.50	50	1900	60	11/01/98	11/29/01
112	WV0099414__ULFSC	269.62	50	2200	53	11/01/98	11/29/01
112	WV0099414__UMFSC	205.00	170	240	4	04/13/00	09/11/01
112	WV1004531__USC	275.12	50	930	43	02/09/99	11/29/01
113	WV0044181__DRB	632.26	50	2390	62	11/01/98	11/28/01
113	WV0044181__SC-2	1130.00	200	2060	2	04/08/99	07/11/00
113	WV0044181__URB	278.98	50	1060	59	11/01/98	10/22/01
113	WV0095788__DLB	519.03	50	4280	62	11/01/98	11/28/01
113	WV0095788__DLF	461.41	50	2580	64	11/01/98	11/28/01
113	WV0095788__ULF	1050.95	50	18400	63	11/01/98	11/28/01
113	WV0096083__DLFK	569.83	50	2190	60	11/01/98	11/26/01
113	WV0099414__ULF	320.69	50	2700	58	11/01/98	11/29/01
113	WV1004531__DTB	280.00	50	960	32	02/09/99	09/24/01
113	WV1004531__UTB	217.22	50	630	18	01/21/99	09/24/01
113	WV1007939__DLF	548.98	50	2190	59	11/01/98	11/26/01
113	WV1007939__ULF	429.33	50	2080	45	12/10/98	09/26/01
113	WV1013076__S-6	355.00	270	440	2	09/11/01	11/28/01
113	WV1013076__S-7	243.33	130	340	3	04/23/99	11/19/01
113	WV1013114__S-2	339.50	50	1290	60	01/07/99	11/28/01
113	WV1013556__DSLF	1410.15	50	39500	67	01/06/99	11/20/01
113	WV1013556__DSPB	1019.84	70	21110	62	01/06/99	11/20/01
113	WV1013556__DSPP	380.16	20	6810	64	01/06/99	11/20/01

113	WV1013556__USLF	1022.24	70	13350	67	01/06/99	11/05/01
113	WV1013556__USPB	683.02	60	3700	63	01/06/99	11/20/01
113	WV1013556__USPP	765.45	40	7760	44	01/06/99	09/12/01
115	WV0099414__DLF	360.00	80	2960	58	11/01/98	11/29/01
116	112WRD__374713082154439	863.33	300	3100	6	05/11/79	08/20/80
116	WV1004701__F-9-S	230.83	160	320	12	03/30/99	12/31/01
118	211WVOWR__BST-024-0002	328.00	328	328	1	06/22/98	06/22/98
119	WV1004174__DTF	660.74	50	12700	27	11/01/98	04/19/01
119	WV1004182__DTF	723.33	50	31500	72	11/01/98	11/26/01
119	WV1004182__URB	208.75	50	1480	72	11/01/98	11/26/01
121	WV1004174__UTF	312.59	70	3050	27	11/01/98	04/19/01
121	WV1004182__UTF	1100.82	50	30400	73	11/01/98	02/09/02
121	WV1008170__DCBU	245.16	50	1670	31	01/13/99	09/11/01
122	WV1004174__URF	546.67	70	7630	27	11/01/98	04/19/01
123	WV1003674__DPC	485.15	30	8960	68	01/15/99	10/22/01
123	WV1003674__UPC	470.88	30	5820	68	01/15/99	10/22/01
125	WV1016865__UEC	255.00	70	680	48	11/08/99	10/22/01
131	112WRD__374219082101739	9860.00	1100	40000	5	05/11/79	07/21/81
131	WV1017080__S-10	440.45	40	2870	66	01/05/99	09/23/01
132	112WRD__374148082110239	987.50	150	3300	4	05/11/79	07/21/81
132	WV0064262__DGB	11086.77	30	68740	47	03/31/99	12/18/01
132	WV0095800__DGB	11756.38	190	68740	47	03/29/99	12/18/01
132	WV0095800__DPC	175.52	30	1710	67	03/12/99	12/18/01
132	WV0095800__DSB	136.42	30	1410	81	03/12/99	12/18/01
132	WV0095800__USPC	189.70	30	1750	67	03/12/99	12/18/01
132	WV1004280__DPC	979.24	30	43550	66	03/29/99	12/18/01
132	WV1004280__UPC	785.76	30	31380	66	03/29/99	12/18/01
132	WV1013467__DPC	172.59	30	1710	58	03/31/99	12/18/01
132	WV1013467__UPC	190.86	30	1750	58	03/31/99	12/18/01
132	WV1017080__S-16	1086.67	20	8700	66	01/05/99	09/23/01
132	WV1017080__S-19	516.67	30	10030	66	01/05/99	09/23/01
133	WV1017080__S-3	282.34	30	3200	64	01/05/99	09/23/01
135	211WVOWR__BST-024-0003	1660.00	1660	1660	1	06/20/98	06/20/98
135	WV1005227__DSR	580.77	30	4900	65	01/05/99	09/23/01
135	WV1005294__DPC	325.33	30	2080	60	01/05/99	08/30/01
135	WV1005294__DSR	580.77	30	4900	65	01/05/99	09/23/01
135	WV1011081__DLTB	316.60	30	9090	53	01/05/99	09/12/01
135	WV1011081__DSB	149.00	50	320	10	01/22/99	07/31/01
135	WV1017080__S-12	459.31	50	8200	29	01/05/99	06/27/01
135	WV1017080__S-14	1179.76	50	12650	41	01/05/99	09/23/01
136	WV1005294__UPC	279.46	20	1510	56	01/05/99	09/23/01
136	WVG015018__DBG	733.00	30	8800	60	01/05/99	11/26/01
136	WVG015018__UBG	463.77	20	5660	61	01/05/99	11/26/01
137	WV1005294__DBM	134.71	30	630	34	01/05/99	07/31/01
137	WV1005294__UMB	276.67	20	3180	36	01/05/99	09/23/01
140	11COEHUN__1TFVW0013	274.00	274	274	1	03/02/81	03/02/81

Table 3c. Water quality data for manganese

SWS	WQ Station	Avg (ug/L)	Min (ug/L)	Max (ug/L)	Count	Start Date	End Date
105	211WVOWR__BST-024-0001	87.00	87	87	1	07/06/98	07/06/98
106	WV0044181__UBB	55.00	20	400	44	01/12/99	10/02/01
106	WV0048593__DBB	163.54	20	1150	65	11/01/98	11/29/01
108	112WRD__374753082171039	27.50	20	50	4	05/11/79	08/20/80
109	112WRD__374740082165901	50.00	50	50	1	07/21/81	07/21/81
110	11COEHUN__1TFVW0010	66.50	10	123	2	10/28/80	03/02/81
110	WV0044181__SC-1	80.00	30	130	2	04/08/99	07/11/00
111	11COEHUN__1TFVW0011	10.00	10	10	1	10/28/80	10/28/80
112	WV0099414__DLFSC	72.67	20	250	60	11/01/98	11/29/01
112	WV0099414__ULFSC	46.98	20	210	53	11/01/98	11/29/01
112	WV0099414__UMFSC	25.00	20	30	4	04/13/00	09/11/01
112	WV1004531__USC	282.33	20	6860	43	02/09/99	11/29/01
113	WV0044181__DRB	1132.10	20	2770	62	11/01/98	11/28/01
113	WV0044181__SC-2	125.00	30	220	2	04/08/99	07/11/00
113	WV0044181__URB	4360.34	0	43000	59	11/01/98	10/22/01
113	WV0095788__DLB	228.23	20	2840	62	11/01/98	11/28/01
113	WV0095788__DLF	176.25	20	760	64	11/01/98	11/28/01
113	WV0095788__ULF	126.03	20	1210	63	11/01/98	11/28/01
113	WV0096083__DLFK	482.50	20	4080	60	11/01/98	11/26/01
113	WV0099414__ULF	54.83	20	160	58	11/01/98	11/29/01
113	WV1004531__DTB	607.50	20	9100	32	02/09/99	09/24/01
113	WV1004531__UTB	73.89	20	400	18	01/21/99	09/24/01
113	WV1007939__DLF	485.25	20	4080	59	11/01/98	11/26/01
113	WV1007939__ULF	325.78	20	1640	45	12/10/98	09/26/01
113	WV1013076__S-6	170.00	110	230	2	09/11/01	11/28/01
113	WV1013076__S-7	70.00	30	120	3	04/23/99	11/19/01
113	WV1013114__S-2	297.17	20	1890	60	01/07/99	11/28/01
113	WV1013556__DSLF	80.60	10	630	67	01/06/99	11/20/01
113	WV1013556__DSPB	172.42	10	1530	62	01/06/99	11/20/01
113	WV1013556__DSPP	49.84	10	690	64	01/06/99	11/20/01
113	WV1013556__USLF	121.04	10	950	67	01/06/99	11/05/01
113	WV1013556__USPB	347.14	10	6650	63	01/06/99	11/20/01
113	WV1013556__USPP	145.45	10	2300	44	01/06/99	09/12/01
115	WV0099414__DLF	58.79	20	180	58	11/01/98	11/29/01
116	112WRD__374713082154439	75.00	50	120	6	05/11/79	08/20/80
116	WV1004701__F-9-S	280.83	20	1110	12	03/30/99	12/31/01
118	211WVOWR__BST-024-0002	38.30	38.3	38.3	1	06/22/98	06/22/98
119	WV1004174__DTF	48.52	20	370	27	11/01/98	04/19/01
119	WV1004182__DTF	93.75	20	1120	72	11/01/98	11/26/01
119	WV1004182__URB	129.31	20	2080	72	11/01/98	11/26/01
121	WV1004174__UTF	39.63	20	140	27	11/01/98	04/19/01
121	WV1004182__UTF	55.75	20	980	73	11/01/98	11/26/01
121	WV1008170__DCBU	72.58	20	270	31	01/13/99	09/11/01
122	WV1004174__URF	58.15	20	270	27	11/01/98	04/19/01
123	WV1003674__DPC	69.71	10	230	68	01/15/99	10/22/01
123	WV1003674__UPC	57.06	10	390	68	01/15/99	10/22/01
125	WV1016865__UEC	33.33	10	80	48	11/08/99	10/22/01
131	112WRD__374219082101739	492.00	90	790	5	05/11/79	07/21/81

131	WV1017080__S-10	52.88	10	160	66	01/05/99	09/23/01
132	112WRD__374148082110239	87.50	50	140	4	05/11/79	07/21/81
132	WV0064262__DGB	2441.70	10	4430	47	03/31/99	12/18/01
132	WV0095800__DGB	2565.32	410	4430	47	03/29/99	12/18/01
132	WV0095800__DPC	20.45	10	190	67	03/12/99	12/18/01
132	WV0095800__DSB	128.17	10	3330	82	03/12/99	12/18/01
132	WV0095800__USPC	19.55	10	140	67	03/12/99	12/18/01
132	WV1004280__DPC	73.54	10	2070	65	03/29/99	12/18/01
132	WV1004280__UPC	81.08	10	2580	65	03/29/99	12/18/01
132	WV1013467__DPC	17.76	10	190	58	03/31/99	12/18/01
132	WV1013467__UPC	16.72	10	140	58	03/31/99	12/18/01
132	WV1017080__S-16	119.85	20	740	66	01/05/99	09/23/01
132	WV1017080__S-19	74.39	10	450	66	01/05/99	09/23/01
133	WV1017080__S-3	34.22	10	200	64	01/05/99	09/23/01
135	211WVOWR__BST-024-0003	55.90	55.9	55.9	1	06/20/98	06/20/98
135	WV1005227__DSR	33.69	10	160	65	01/05/99	09/23/01
135	WV1005294__DPC	31.33	10	90	60	01/05/99	08/30/01
135	WV1005294__DSR	33.69	10	160	65	01/05/99	09/23/01
135	WV1011081__DLTB	29.25	10	200	53	01/05/99	09/12/01
135	WV1011081__DSB	28.00	10	50	10	01/22/99	07/31/01
135	WV1017080__S-12	34.14	10	160	29	01/05/99	06/27/01
135	WV1017080__S-14	64.39	10	280	41	01/05/99	09/23/01
136	WV1005294__UPC	35.00	10	90	56	01/05/99	09/23/01
136	WVG015018__DBG	40.33	0	280	60	01/05/99	11/26/01
136	WVG015018__UBG	31.48	10	100	61	01/05/99	11/26/01
137	WV1005294__DBM	25.00	10	50	34	01/05/99	07/31/01
137	WV1005294__UMB	31.67	10	150	36	01/05/99	09/23/01
140	11COEHUN__1TFVW0013	162.00	162	162	1	03/02/81	03/02/81

Table 3d. Water quality data for Total Nonfilterable Residue

SWS	WQ Station	Avg (ug/L)	Min (ug/L)	Max (ug/L)	Count	Start Date	End Date
110	WV0044181__SC-1	36.50	3	70	2	04/08/99	07/11/00
113	WV0044181__SC-2	11.00	1	21	2	04/08/99	07/11/00
113	WV0095788__DLF	1.00	1	1	1	01/17/01	01/17/01
113	WV1004531__UTB	6.33	5	8	3	02/17/99	04/08/99
113	WV1013076__S-7	1.00	1	1	1	04/23/99	04/23/99

Table 3e. Water quality data for pH

SWS	WQ Station	Avg (ug/L)	Min (ug/L)	Max (ug/L)	Count	Start Date	End Date
105	112WRD__374725082205501	7.90	7.7	8.3	3	10/11/78	04/16/81
105	211WVOWR__BST-024-0001	8.10	8.1	8.1	1	07/06/98	07/06/98
106	WV0044181__UBB	8.06	7.5	8.6	44	01/12/99	10/02/01
106	WV0048593__DBB	8.14	7.4	8.4	65	11/01/98	11/29/01
108	112WRD__374753082171039	7.46	7	7.9	5	05/11/79	09/29/83
108	112WRD__374754082171001	7.43	7.2	7.7	3	10/12/78	04/13/81
109	112WRD__374740082165901	6.70	6.4	7.0	2	04/16/81	07/21/81
110	11COEHUN__1TFVW0010	6.45	6	6.9	2	10/28/80	03/02/81
110	WV0044181__SC-1	8.05	7.8	8.3	2	04/08/99	07/11/00
111	11COEHUN__1TFVW0011	7.00	7	7.0	1	10/28/80	10/28/80
112	WV0099414__DLFSC	8.25	7.5	8.7	62	11/01/98	11/29/01
112	WV0099414__DMFSC	8.29	7.9	8.7	60	11/01/98	11/29/01
112	WV0099414__ULFSC	8.28	7.8	9.0	53	11/01/98	11/29/01
112	WV0099414__UMFSC	8.28	8	8.5	4	04/13/00	09/11/01
112	WV1004531__USC	8.11	7.9	8.3	42	02/09/99	11/29/01
113	WV0044181__DRB	7.69	7.1	9.2	62	11/01/98	11/28/01
113	WV0044181__SC-2	8.20	7.8	8.6	2	04/08/99	07/11/00
113	WV0044181__URB	8.06	4.5	9.1	59	11/01/98	10/22/01
113	WV0095788__DLB	8.14	7.3	8.4	62	11/01/98	11/28/01
113	WV0095788__DLF	8.05	7.4	8.5	64	11/01/98	11/28/01
113	WV0095788__ULF	8.16	7.4	8.6	62	11/01/98	11/28/01
113	WV0096083__DLFK	7.88	7	8.3	60	11/01/98	11/26/01
113	WV0099414__ULF	8.20	7.6	8.9	58	11/01/98	11/29/01
113	WV1004531__DTB	8.14	7.5	8.8	32	02/09/99	09/24/01
113	WV1004531__UTB	8.00	7.2	8.3	18	01/21/99	09/24/01
113	WV1007939__DLF	7.82	4.88	8.3	59	11/01/98	11/26/01
113	WV1007939__ULF	7.83	6.03	8.2	45	12/10/98	09/26/01
113	WV1013076__S-6	8.10	8	8.2	2	09/11/01	11/28/01
113	WV1013076__S-7	8.07	8	8.2	3	04/23/99	11/19/01
113	WV1013114__S-2	8.07	7.4	9.8	60	01/07/99	11/28/01
113	WV1013556__DSLF	7.90	7.2	8.4	67	01/06/99	11/20/01
113	WV1013556__DSPB	7.84	5.1	8.5	62	01/06/99	11/20/01
113	WV1013556__DSPP	7.87	7.1	8.6	64	01/06/99	11/20/01
113	WV1013556__USLF	7.93	7.3	8.4	67	01/06/99	11/05/01
113	WV1013556__USPB	7.92	6.9	8.9	63	01/06/99	11/20/01
113	WV1013556__USPP	7.89	7.3	8.3	44	01/06/99	09/12/01
115	WV0099414__DLF	8.23	7.8	8.9	58	11/01/98	11/29/01
116	112WRD__374713082154439	7.79	6.1	8.6	31	02/08/79	09/23/80
116	WV1004701__F-9-S	7.67	7.5	8.0	12	03/30/99	12/31/01
117	112WRD__374625082141201	7.93	7.8	8.1	3	10/12/78	04/13/81
118	211WVOWR__BST-024-0002	8.30	8.3	8.3	1	06/22/98	06/22/98
119	WV1004174__DTF	8.18	7.9	8.6	26	11/01/98	04/19/01
119	WV1004182__DTF	8.26	7.8	8.6	70	11/01/98	11/26/01
119	WV1004182__URB	8.11	7.6	8.4	71	11/01/98	11/26/01
121	WV1004174__UTF	8.19	8	8.3	27	11/01/98	04/19/01
121	WV1004182__UTF	8.01	0	8.4	71	11/01/98	11/26/01
121	WV1008170__DCBU	8.03	7.08	8.4	31	01/13/99	09/11/01
122	WV1004174__URF	8.26	8.1	8.5	27	11/01/98	04/19/01

123	WV1003674__DPC	8.34	6.7	9.3	68	01/15/99	10/22/01
123	WV1003674__UPC	8.39	6.5	9.1	68	01/15/99	10/22/01
125	WV1016865__UEC	8.34	6.7	8.8	48	11/08/99	10/22/01
126	112WRD__374403082112501	8.20	7.9	8.4	3	10/12/78	04/13/81
131	112WRD__374219082101739	7.25	6.8	7.6	6	05/11/79	09/29/83
131	112WRD__374235082104801	7.00	6.7	7.3	2	08/05/80	04/13/81
131	WV1017080__S-10	8.34	6.5	8.9	66	01/05/99	09/23/01
132	112WRD__374148082110239	7.95	7.1	8.8	6	05/11/79	09/29/83
132	112WRD__374231082110301	7.53	7.2	8.1	3	10/11/78	04/13/81
132	WV0064262__DGB	3.94	3.06	7.7	47	03/31/99	12/18/01
132	WV0095800__DGB	3.75	3.06	5.1	47	03/29/99	12/18/01
132	WV0095800__DPC	7.43	7.08	7.8	67	03/12/99	12/18/01
132	WV0095800__DSB	16.34	6.68	745.0	82	03/12/99	12/18/01
132	WV0095800__USPC	7.44	7.11	7.9	67	03/12/99	12/18/01
132	WV1004280__DPC	7.46	7.11	8.6	66	03/29/99	12/18/01
132	WV1004280__UPC	7.46	7.08	8.6	66	03/29/99	12/18/01
132	WV1013467__DPC	7.45	7.16	7.8	58	03/31/99	12/18/01
132	WV1013467__UPC	7.46	7.14	7.9	58	03/31/99	12/18/01
132	WV1017080__S-16	8.37	6.25	10.0	66	01/05/99	09/23/01
132	WV1017080__S-19	8.40	7.8	9.0	66	01/05/99	09/23/01
133	WV1017080__S-3	8.32	7.2	9.0	64	01/05/99	09/23/01
135	211WVOWR__BST-024-0003	8.40	8.4	8.4	1	06/20/98	06/20/98
135	WV1005227__DSR	8.25	7.6	8.8	65	01/05/99	09/23/01
135	WV1005294__DPC	8.36	7.1	9.1	60	01/05/99	08/30/01
135	WV1005294__DSR	8.25	7.6	8.8	65	01/05/99	09/23/01
135	WV1011081__DLTB	8.13	7.5	8.8	53	01/05/99	09/12/01
135	WV1011081__DSB	8.22	7.8	8.6	10	01/22/99	07/31/01
135	WV1017080__S-12	8.00	0.08	8.9	30	01/05/99	06/27/01
135	WV1017080__S-14	8.25	7.3	8.9	41	01/05/99	09/23/01
136	WV1005294__UPC	8.32	7.6	9.2	56	01/05/99	09/23/01
136	WVG015018__DBG	8.59	7.7	15.0	60	01/05/99	11/26/01
136	WVG015018__UBG	8.35	6.3	9.5	61	01/05/99	11/26/01
137	WV1005294__DBM	8.08	7.5	8.7	34	01/05/99	07/31/01
137	WV1005294__UMB	8.11	6.3	8.8	36	01/05/99	09/23/01
140	112WRD__374530082190201	7.60	7.3	7.9	3	10/11/78	04/16/81
140	11COEHUN__1TFVW0013	7.05	6.2	7.9	2	10/28/80	03/02/81

Table 3f. Water quality data for dissolved zinc

SWS	WQ Station	Avg (ug/L)	Min (ug/L)	Max (ug/L)	Count	Start Date	End Date
108	112WRD__374753082171039	9.00	9	9	1	08/20/80	08/20/80
109	112WRD__374740082165901	4.00	4	4	1	04/16/81	04/16/81
110	11COEHUN__1TFVW0010	61.00	61	61	1	03/02/81	03/02/81
116	112WRD__374713082154439	2.00	0	6	3	02/26/80	08/20/80
131	112WRD__374219082101739	4.00	4	4	1	08/19/80	08/19/80
132	112WRD__374148082110239	4.00	4	4	1	08/19/80	08/19/80
140	11COEHUN__1TFVW0013	50.00	50	50	1	03/02/81	03/02/81

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

SWS	NPDES Permit ID	Baseline (lb/yr)	Allocation (lb/yr)	Allocation (mg/L)	Percent Reduction
106	WV0044172	6,393	1,279	0.76	80
106	WV0044181	275	55	0.76	80
106	WV0044199	739	148	0.76	80
106	WV0048593	79	16	0.76	80
106	WV0069779	571	114	0.76	80
109	WV0090255	650	130	0.76	80
112	WV0044172	1,564	313	0.76	80
112	WV0044181	286	57	0.76	80
112	WV1008226	8,272	1,654	0.76	80
113	WV0044181	286	57	0.76	80
113	WV0095788	11,308	2,262	0.76	80
113	WV0096083	801	160	0.76	80
113	WV1004182	175	35	0.76	80
113	WV1004531	5,825	1,165	0.76	80
113	WV1005448	105	21	0.76	80
113	WV1008170	2,563	513	0.76	80
113	WV1013076	4,079	816	0.76	80
113	WV1013114	1,648	330	0.76	80
113	WV1013556	1,824	365	0.76	80
113	WV1015991	2,005	401	0.76	80
113	WV1017179	52	10	0.76	80
114	WV1013556	144	144	3.60	0
116	WV0090255	325	65	0.76	80
116	WV0093009	84	17	0.76	80
117	WV1015451	265	53	0.76	80
119	WV1004182	5,310	1,062	0.76	80
119	WV1015451	132	26	0.76	80
119	WV1015991	912	182	0.76	80
121	WV0068764	2,294	459	0.76	80
121	WV0096083	40	8	0.76	80
121	WV1004182	6,916	1,383	0.76	80
121	WV1008170	7,047	1,409	0.76	80
121	WV1015991	912	182	0.76	80
122	WV0068764	8,085	1,617	0.76	80
122	WV1003763	7,196	1,439	0.76	80
122	WV1010822	338	68	0.76	80
122	WV1016741	433	87	0.76	80
123	WV1003844	1,695	339	0.76	80
125	WV1016865	234	47	0.76	80
126	WV0096016	23	23	3.60	0
127	WV0068764	2,239	448	0.76	80
128	WV0064912	221	44	0.76	80
128	WV0068764	428	86	0.76	80
128	WV0099970	1,942	388	0.76	80
128	WV1015923	41	8	0.76	80
129	WV0096016	47	47	3.60	0
130	WV1004301	387	77	0.76	80
130	WV1005197	773	155	0.76	80

132	WV1004280	272	54	0.76	80
132	WV1013467	26	5	0.76	80
132	WV1017080	4,668	934	0.76	80
133	WV0001503	2,820	564	0.76	80
133	WV0050865	215	43	0.76	80
133	WV0092797	1,438	288	0.76	80
133	WV0093203	559	112	0.76	80
133	WV0095818	13,037	2,607	0.76	80
133	WV1003984	140	28	0.76	80
133	WV1008111	179	36	0.76	80
133	WV1010727	754	151	0.76	80
133	WV1010735	300	60	0.76	80
133	WV1013050	78	16	0.76	80
133	WV1013505	1,140	228	0.76	80
133	WV1015478	7,798	1,560	0.76	80
133	WV1015893	4,884	977	0.76	80
133	WV1017080	3,423	685	0.76	80
133	WV1019988	8,013	1,603	0.76	80
134	WV1017080	2,490	498	0.76	80
135	WV0095818	826	165	0.76	80
135	WV1005201	65	13	0.76	80
135	WV1010727	3,018	604	0.76	80
135	WV1015893	3,757	751	0.76	80
135	WV1017080	2,801	560	0.76	80
135	WV1020021	619	124	0.76	80
136	WV0096253	1,193	239	0.76	80
136	WV1004760	1,877	375	0.76	80
136	WV1010581	140	28	0.76	80
136	WV1013246	2,292	458	0.76	80
136	WV1013297	2,271	454	0.76	80
136	WV1013505	6,841	1,368	0.76	80
136	WV1015893	1,503	301	0.76	80
136	WVG015018	307	61	0.76	80
137	WV0060801	77	77	3.60	0
137	WV1013572	124	124	3.60	0
140	WV1015681	1,760	528	1.14	70
140	WV1015699	4,495	1,348	1.14	70
140	WV1015702	2,013	604	1.14	70
140	WV1015711	1,350	405	1.14	70
141	WV1015702	966	966	3.60	0
142	WV1015711	900	630	2.65	30

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

SWS	NPDES Permit ID	Baseline (lb/yr)	Allocation (lb/yr)	Allocation (mg/L)	Percent Reduction
106	WV0044172	5,694	5,694	3.20	0
106	WV0044181	245	245	3.20	0
106	WV0044199	658	658	3.20	0
106	WV0048593	70	70	3.20	0
106	WV0069779	509	509	3.20	0
109	WV0090255	579	579	3.20	0
112	WV0044172	1,393	1,393	3.20	0
112	WV0044181	254	254	3.20	0
112	WV1008226	7,366	7,366	3.20	0
113	WV0044181	254	254	3.20	0
113	WV0095788	10,070	10,070	3.20	0
113	WV0096083	713	713	3.20	0
113	WV1004182	156	156	3.20	0
113	WV1004531	5,187	5,187	3.20	0
113	WV1005448	93	93	3.20	0
113	WV1008170	2,282	2,282	3.20	0
113	WV1013076	3,633	3,633	3.20	0
113	WV1013114	1,468	1,468	3.20	0
113	WV1013556	1,624	1,624	3.20	0
113	WV1015991	1,786	1,786	3.20	0
113	WV1017179	47	47	3.20	0
114	WV1013556	128	128	3.20	0
116	WV0090255	290	290	3.20	0
116	WV0093009	75	75	3.20	0
117	WV1015451	236	236	3.20	0
119	WV1004182	4,729	4,729	3.20	0
119	WV1015451	118	118	3.20	0
119	WV1015991	812	812	3.20	0
121	WV0068764	2,042	1,893	3.12	7
121	WV0096083	35	33	3.12	7
121	WV1004182	6,159	5,709	3.12	7
121	WV1008170	6,276	5,817	3.12	7
121	WV1015991	812	752	3.12	7
122	WV0068764	7,200	6,235	2.92	13
122	WV1003763	6,408	5,550	2.92	13
122	WV1010822	301	261	2.92	13
122	WV1016741	386	334	2.92	13
123	WV1003844	1,510	1,510	3.20	0
125	WV1016865	208	208	3.20	0
126	WV0096016	21	21	3.20	0
127	WV0068764	1,994	1,994	3.20	0
128	WV0064912	197	197	3.20	0
128	WV0068764	381	381	3.20	0
128	WV0099970	1,730	1,730	3.20	0
128	WV1015923	37	37	3.20	0
129	WV0096016	41	41	3.20	0
130	WV1004301	344	344	3.20	0

130	WV1005197	689	689	3.20	0
132	WV1004280	242	242	3.20	0
132	WV1013467	23	23	3.20	0
132	WV1017080	4,157	4,157	3.20	0
133	WV0001503	2,511	1,979	2.66	21
133	WV0050865	192	151	2.66	21
133	WV0092797	1,281	1,010	2.66	21
133	WV0093203	498	393	2.66	21
133	WV0095818	11,610	9,152	2.66	21
133	WV1003984	124	98	2.66	21
133	WV1008111	160	126	2.66	21
133	WV1010727	672	530	2.66	21
133	WV1010735	267	211	2.66	21
133	WV1013050	69	54	2.66	21
133	WV1013505	1,015	800	2.66	21
133	WV1015478	6,944	5,474	2.66	21
133	WV1015893	4,349	3,428	2.66	21
133	WV1017080	3,049	2,403	2.66	21
133	WV1019988	7,136	5,625	2.66	21
134	WV1017080	2,217	2,217	3.20	0
135	WV0095818	735	735	3.20	0
135	WV1005201	58	58	3.20	0
135	WV1010727	2,687	2,687	3.20	0
135	WV1015893	3,346	3,346	3.20	0
135	WV1017080	2,494	2,494	3.20	0
135	WV1020021	551	551	3.20	0
136	WV0096253	1,062	1,061	3.20	0
136	WV1004760	1,672	1,670	3.20	0
136	WV1010581	124	124	3.20	0
136	WV1013246	2,041	2,039	3.20	0
136	WV1013297	2,023	2,020	3.20	0
136	WV1013505	6,092	6,086	3.20	0
136	WV1015893	1,338	1,337	3.20	0
136	WVG015018	274	273	3.20	0
137	WV0060801	68	68	3.20	0
137	WV1013572	111	111	3.20	0
140	WV1015681	1,567	1,567	3.20	0
140	WV1015699	4,003	4,003	3.20	0
140	WV1015702	1,793	1,793	3.20	0
140	WV1015711	1,203	1,203	3.20	0
141	WV1015702	861	861	3.20	0
142	WV1015711	802	802	3.20	0

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

SWS	NPDES Permit ID	Baseline (lb/yr)	Allocation (lb/yr)	Allocation (mg/L)	Percent Reduction
106	WV0044172	3,546	3,546	2.00	0
106	WV0044181	152	152	2.00	0
106	WV0044199	410	410	2.00	0
106	WV0048593	44	44	2.00	0
106	WV0069779	317	317	2.00	0
109	WV0090255	361	361	2.00	0
112	WV0044172	868	868	2.00	0
112	WV0044181	158	158	2.00	0
112	WV1008226	4,589	4,589	2.00	0
113	WV0044181	158	158	2.00	0
113	WV0095788	6,273	6,273	2.00	0
113	WV0096083	444	444	2.00	0
113	WV1004182	97	97	2.00	0
113	WV1004531	3,231	3,231	2.00	0
113	WV1005448	58	58	2.00	0
113	WV1008170	1,422	1,422	2.00	0
113	WV1013076	2,263	2,263	2.00	0
113	WV1013114	914	914	2.00	0
113	WV1013556	1,012	1,012	2.00	0
113	WV1015991	1,112	1,112	2.00	0
113	WV1017179	29	29	2.00	0
114	WV1013556	80	80	2.00	0
116	WV0090255	180	180	2.00	0
116	WV0093009	47	47	2.00	0
117	WV1015451	147	147	2.00	0
119	WV1004182	2,946	2,946	2.00	0
119	WV1015451	73	73	2.00	0
119	WV1015991	506	506	2.00	0
121	WV0068764	1,272	1,209	2.00	5
121	WV0096083	22	21	2.00	5
121	WV1004182	3,837	3,645	2.00	5
121	WV1008170	3,909	3,714	2.00	5
121	WV1015991	506	480	2.00	5
122	WV0068764	4,485	4,261	2.00	5
122	WV1003763	3,992	3,792	2.00	5
122	WV1010822	188	178	2.00	5
122	WV1016741	240	228	2.00	5
123	WV1003844	940	940	2.00	0
125	WV1016865	130	130	2.00	0
126	WV0096016	13	13	2.00	0
127	WV0068764	1,242	1,242	2.00	0
128	WV0064912	123	123	2.00	0
128	WV0068764	237	237	2.00	0
128	WV0099970	1,077	1,077	2.00	0
128	WV1015923	23	23	2.00	0
129	WV0096016	26	26	2.00	0
130	WV1004301	214	214	2.00	0
130	WV1005197	429	429	2.00	0

132	WV1004280	151	151	2.00	0
132	WV1013467	14	14	2.00	0
132	WV1017080	2,590	2,590	2.00	0
133	WV0001503	1,564	1,251	1.68	20
133	WV0050865	119	95	1.68	20
133	WV0092797	798	638	1.68	20
133	WV0093203	310	248	1.68	20
133	WV0095818	7,232	5,786	1.68	20
133	WV1003984	78	62	1.68	20
133	WV1008111	99	79	1.68	20
133	WV1010727	419	335	1.68	20
133	WV1010735	166	133	1.68	20
133	WV1013050	43	34	1.68	20
133	WV1013505	633	506	1.68	20
133	WV1015478	4,326	3,461	1.68	20
133	WV1015893	2,709	2,167	1.68	20
133	WV1017080	1,899	1,519	1.68	20
133	WV1019988	4,445	3,556	1.68	20
134	WV1017080	1,381	1,381	2.00	0
135	WV0095818	458	458	2.00	0
135	WV1005201	36	36	2.00	0
135	WV1010727	1,674	1,674	2.00	0
135	WV1015893	2,084	2,084	2.00	0
135	WV1017080	1,554	1,554	2.00	0
135	WV1020021	343	343	2.00	0
136	WV0096253	662	662	2.00	0
136	WV1004760	1,041	1,041	2.00	0
136	WV1010581	78	78	2.00	0
136	WV1013246	1,271	1,271	2.00	0
136	WV1013297	1,260	1,260	2.00	0
136	WV1013505	3,795	3,795	2.00	0
136	WV1015893	834	834	2.00	0
136	WVG015018	171	171	2.00	0
137	WV0060801	43	43	2.00	0
137	WV1013572	69	69	2.00	0
140	WV1015681	976	976	2.00	0
140	WV1015699	2,493	2,493	2.00	0
140	WV1015702	1,117	1,117	2.00	0
140	WV1015711	749	749	2.00	0
141	WV1015702	536	536	2.00	0
142	WV1015711	499	499	2.00	0

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

SWS	AML		Revoked Mines		Harvested Forest		Oil and Gas		Roads		Nonpoint Source			
	Baseline Load (lb/yr)	Allocated Load (lb/yr)	Baseline Load (lb/yr)	Allocated Load (lb/yr)	Baseline Load (lb/yr)	Allocated Load (lb/yr)	Baseline Load (lb/yr)	Allocated Load (lb/yr)	Baseline Load (lb/yr)	Allocated Load (lb/yr)	Baseline Load (lb/yr)	Allocated Load (lb/yr)	Requires Reduction	Percent Reduction
105	8,684	434	0	0	1,005	1,005	184	184	107	107	764	764	x	77
106	0	0	0	0	3,807	1,333	66	23	215	93	1,311	1,311	x	49
107	0	0	0	0	1,380	1,380	0	0	166	166	1,278	1,278		0
108	0	0	0	0	515	283	39	21	36	21	282	282	x	30
109	0	0	0	0	1,262	946	97	73	142	109	1,089	1,089	x	14
110	0	0	0	0	143	72	39	19	19	10	145	145	x	29
111	0	0	0	0	743	371	78	39	84	46	663	663	x	29
112	0	0	0	0	3,124	937	254	76	250	91	1,563	1,563	x	49
113	0	0	0	0	6,099	3,049	683	342	720	393	4,448	4,448	x	31
114	0	0	0	0	2,666	933	390	137	294	120	2,319	2,319	x	38
115	0	0	0	0	716	322	175	79	79	39	621	621	x	33
116	0	0	0	0	3,615	1,446	293	117	257	117	2,001	2,001	x	40
117	0	0	0	0	2,178	545	19	5	156	50	1,239	1,239	x	49
118	0	0	0	0	1,547	928	0	0	179	114	1,400	1,400	x	22
119	0	0	0	0	1,933	1,256	97	63	241	164	1,659	1,659	x	20
120	0	0	0	0	1,369	684	97	49	151	82	1,198	1,198	x	28
121	869	43	0	0	1,619	486	175	53	197	71	863	863	x	59
122	0	0	0	0	1,403	491	215	75	189	77	851	851	x	44
123	0	0	0	0	1,798	719	0	0	90	41	633	633	x	45
124	0	0	0	0	1,436	718	19	10	158	86	1,251	1,251	x	28
125	0	0	0	0	2,256	564	78	19	128	41	1,008	1,008	x	53
126	0	0	0	0	21	21	0	0	4	4	24	24		0
127	0	0	0	0	1,295	324	39	10	80	25	538	538	x	54
128	723	36	0	0	3,186	1,593	58	29	337	184	2,559	2,559	x	36
129	0	0	0	0	592	326	0	0	60	35	471	471	x	26
130	0	0	0	0	919	276	19	6	107	39	805	805	x	39
131	11,850	237	0	0	5,488	1,372	78	19	249	79	1,882	1,882	x	82
132	3,182	64	0	0	8,758	2,190	78	19	461	147	3,436	3,436	x	63
133	10,756	215	0	0	4,276	1,069	136	34	405	129	1,306	1,306	x	84
134	8,160	163	0	0	1,278	192	0	0	71	16	396	396	x	92
135	0	0	0	0	5,397	2,699	0	0	384	209	2,599	2,599	x	34
136	0	0	0	0	1,942	583	78	23	217	79	1,053	1,053	x	47
137	0	0	0	0	659	296	19	9	78	39	612	612	x	30
140	0	0	0	0	1,123	505	150	67	127	66	630	630	x	37
141	0	0	0	0	1,949	779	97	39	211	96	1,630	1,630	x	35
142	0	0	0	0	584	233	83	33	67	32	484	484	x	36

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

SWS	AML		Revoked Mines		Harvested Forest		Oil and Gas		Roads		Nonpoint Source			
	Baseline Load (lb/yr)	Allocated Load (lb/yr)	Baseline Load (lb/yr)	Allocated Load (lb/yr)	Baseline Load (lb/yr)	Allocated Load (lb/yr)	Baseline Load (lb/yr)	Allocated Load (lb/yr)	Baseline Load (lb/yr)	Allocated Load (lb/yr)	Baseline Load (lb/yr)	Allocated Load (lb/yr)	Requires Reduction	Percent Reduction
105	11,442	1,489	0	0	1,270	1,270	232	232	135	135	1,188	1,188	x	70
106	0	0	0	0	4,810	1,683	84	29	270	116	2,038	2,038	x	46
107	0	0	0	0	1,744	1,744	0	0	208	208	1,985	1,985		0
108	0	0	0	0	651	358	49	27	45	27	442	442	x	28
109	0	0	0	0	1,594	1,195	123	92	178	137	1,710	1,710	x	13
110	0	0	0	0	181	91	49	25	23	13	228	228	x	26
111	0	0	0	0	938	469	98	49	106	57	1,042	1,042	x	26
112	0	0	0	0	3,947	1,184	321	96	314	113	2,455	2,455	x	45
113	0	0	0	0	7,704	3,852	863	432	906	492	6,987	6,987	x	29
114	0	0	0	0	3,368	1,179	493	173	370	150	3,643	3,643	x	35
115	0	0	0	0	904	407	221	100	99	49	976	976	x	30
116	0	0	0	0	4,567	1,827	370	148	323	146	3,142	3,142	x	37
117	0	0	0	0	2,752	688	25	6	197	62	1,939	1,939	x	45
118	0	0	0	0	1,955	1,173	0	0	225	143	2,198	2,198	x	20
119	0	0	0	0	2,442	1,587	123	80	303	206	2,600	2,600	x	18
120	0	0	0	0	1,729	865	123	61	190	103	1,882	1,882	x	26
121	1,147	34	0	0	2,045	614	221	66	247	89	1,352	1,352	x	57
122	0	0	0	0	1,772	620	272	95	237	96	1,334	1,334	x	41
123	0	0	0	0	2,271	908	0	0	113	51	991	991	x	42
124	0	0	0	0	1,814	907	25	12	198	108	1,965	1,965	x	25
125	0	0	0	0	2,850	713	98	25	161	51	1,580	1,580	x	50
126	0	0	0	0	26	26	0	0	5	5	37	37		0
127	0	0	0	0	1,635	409	49	12	101	32	844	844	x	51
128	954	954	0	0	4,025	2,012	74	37	424	230	4,019	4,019	x	24
129	0	0	0	0	748	411	0	0	76	44	740	740	x	24
130	0	0	0	0	1,161	348	25	7	134	48	1,260	1,260	x	35
131	15,634	2,290	0	0	6,933	1,733	98	25	313	98	2,947	2,947	x	73
132	4,199	4,199	0	0	11,064	2,766	98	25	580	183	5,378	5,378	x	41
133	14,191	284	0	0	5,402	1,351	172	43	509	160	2,041	2,041	x	83
134	10,766	1,110	0	0	1,614	242	0	0	89	20	621	621	x	85
135	0	0	0	0	6,818	3,409	0	0	482	262	4,074	4,074	x	32
136	0	0	0	0	2,454	736	98	29	272	98	1,653	1,653	x	44
137	0	0	0	0	832	375	25	11	98	49	961	961	x	27
140	0	0	0	0	1,418	638	189	85	159	82	979	979	x	35
141	0	0	0	0	2,462	985	123	49	266	120	2,560	2,560	x	31
142	0	0	0	0	737	295	105	42	84	40	753	753	x	33

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

SWS	AML		Revoked Mines		Harvested Forest		Oil and Gas		Roads		Nonpoint Source		Requires Reduction	Percent 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)	Baseline Load (lb/yr)	Allocated Load (lb/yr)	Baseline Load (lb/yr)	Allocated Load (lb/yr)	Baseline Load (lb/yr)	Allocated Load (lb/yr)		
105	3,821	191	0	0	82	82	15	15	13	13	554	554	x	81
106	0	0	0	0	312	109	5	2	26	16	951	951	x	17
107	0	0	0	0	113	113	0	0	20	20	926	926		0
108	0	0	0	0	40	22	3	2	4	3	208	208	x	8
109	0	0	0	0	99	74	8	6	15	13	807	807	x	3
110	0	0	0	0	11	6	3	2	2	1	108	108	x	6
111	0	0	0	0	58	29	6	3	9	6	492	492	x	6
112	0	0	0	0	244	73	20	6	27	14	1,159	1,159	x	14
113	0	0	0	0	476	238	53	27	77	52	3,299	3,299	x	7
114	0	0	0	0	208	73	30	11	32	18	1,720	1,720	x	8
115	0	0	0	0	56	25	14	6	8	5	461	461	x	8
116	0	0	0	0	282	113	23	9	28	17	1,483	1,483	x	11
117	0	0	0	0	170	43	2	0	17	8	913	913	x	12
118	0	0	0	0	121	73	0	0	19	14	1,037	1,037	x	5
119	0	0	0	0	151	98	8	5	26	20	1,225	1,225	x	4
120	0	0	0	0	107	53	8	4	16	11	889	889	x	6
121	379	76	0	0	127	38	14	4	21	11	637	637	x	35
122	0	0	0	0	110	38	17	6	20	12	629	629	x	12
123	0	0	0	0	140	56	0	0	10	6	466	466	x	14
124	0	0	0	0	112	56	2	1	17	11	928	928	x	6
125	0	0	0	0	176	44	6	2	14	7	745	745	x	15
126	0	0	0	0	2	2	0	0	0	0	17	17		0
127	0	0	0	0	101	25	3	1	9	4	399	399	x	16
128	315	16	0	0	249	124	5	2	36	24	1,897	1,897	x	18
129	0	0	0	0	46	25	0	0	6	5	349	349	x	6
130	0	0	0	0	72	22	2	0	11	6	593	593	x	8
131	5,162	258	0	0	429	107	6	2	27	13	1,387	1,387	x	75
132	1,386	1,386	0	0	684	171	6	2	49	25	2,531	2,531	x	12
133	4,685	94	0	0	334	84	11	3	43	22	959	959	x	81
134	3,554	71	0	0	100	15	0	0	8	3	293	293	x	90
135	0	0	0	0	422	211	0	0	41	28	1,920	1,920	x	9
136	0	0	0	0	152	46	6	2	23	12	780	780	x	13
137	0	0	0	0	51	23	2	1	8	5	454	454	x	6
140	0	0	0	0	92	41	12	6	16	11	457	457	x	11
141	0	0	0	0	152	61	8	3	23	14	1,209	1,209	x	8
142	0	0	0	0	48	19	7	3	8	5	351	351	x	9

Appendix A-16

Region 16

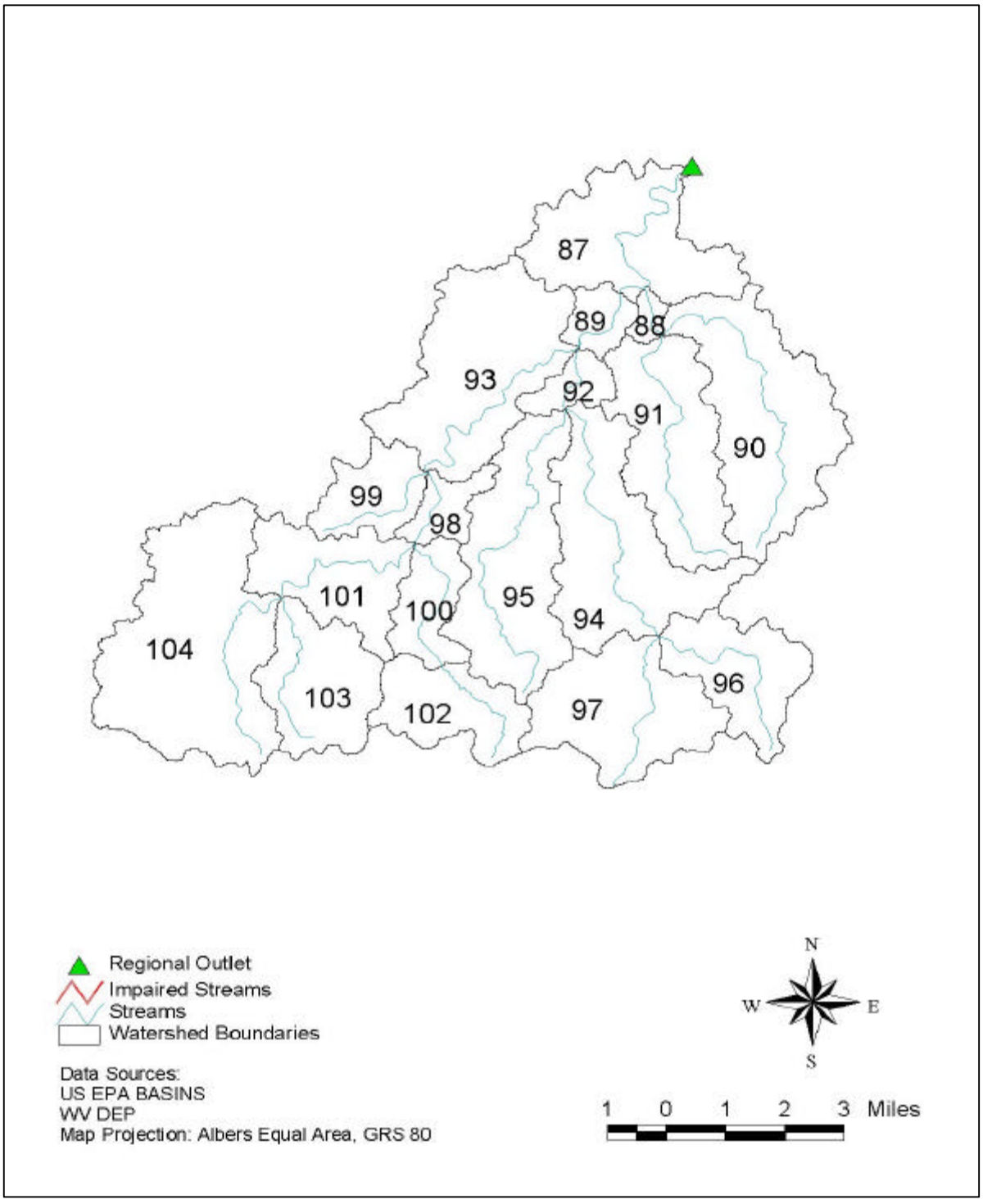


Figure 1. Region 16 - Tug Fork watershed

Table 1. Impaired waterbodies in Region 16

Stream Name	Stream Code	Pollutant	Contributing SWS	Contributing Regions	Aquatic Life

Not Applicable to this Region, Kentucky Waters

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

SWS

(not applicable in this region)

Table 3a. Water quality data for aluminum

SWS	WQ Station	Avg (ug/L)	Min (ug/L)	Max (ug/L)	Count	Start Date	End Date

(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
93	112WRD__03214300	2188.57	560	5500	7	06/06/79	03/23/81
94	8800011__022	376.25	230	690	8	12/30/93	09/18/00
94	8800011__J	320.00	130	980	6	05/20/96	08/18/97
97	8984103__JRF-E2	11166.00	190	30210	5	02/21/00	06/02/00
99	8800034__296	211.67	80	380	6	03/24/98	04/26/99
99	8800034__S239	425.00	80	910	6	03/25/98	06/21/99
102	8980430__BSW24	316.00	170	480	5	02/17/97	04/02/98
102	8980430__BSW25	242.00	80	530	5	12/06/96	04/02/98
102	8980430__BSW26	198.33	10	380	6	10/15/96	04/02/98
102	8980524__BSW24	245.00	240	250	2	08/08/98	10/26/98
102	8980524__BSW25	283.33	50	800	9	08/08/98	11/16/00
102	8980524__BSW26	265.00	130	400	2	08/08/98	10/26/98
102	8980542__SW25	35.00	20	70	6	03/24/99	11/08/00
102	8985992__205	590.00	590	590	1	12/10/98	12/10/98

Table 3d. Water quality data for Total Nonfilterable Residue

SWS	WQ Station	Avg (ug/L)	Min (ug/L)	Max (ug/L)	Count	Start Date	End Date
94	8800011__022	5.28	0.1	20	8	12/30/93	09/18/00
94	8800011__J	23.57	0.1	138	6	05/20/96	08/18/97
97	8984103__JRF-E2	1088.60	5	2820	5	02/21/00	06/02/00
99	8800034__296	1.53	0.1	3	6	03/24/98	04/26/99
99	8800034__S239	3.02	0.1	8	5	03/25/98	02/23/99
102	8980430__BSW24	15.00	0	62	6	10/15/96	04/02/98
102	8980430__BSW25	4.40	0	12	5	12/06/96	04/02/98
102	8980430__BSW26	5.67	0	14	6	10/15/96	04/02/98
102	8980504__sw25	14.67	11	18	6	08/11/99	11/16/00
102	8980524__BSW24	9.70	5	15	10	08/08/98	11/16/00
102	8980524__BSW25	11.90	3	18	10	08/08/98	11/16/00
102	8980524__BSW26	9.20	4	21	10	08/08/98	11/16/00
102	8980542__SW25	6.50	3	11	6	03/24/99	11/08/00
102	8985992__205	12.78	6	18	9	12/10/98	11/16/00
102	8987041__sw-25	13.33	7	18	6	08/11/99	11/16/00

Table 3e. Water quality data for pH

SWS	WQ Station	Avg (ug/L)	Min (ug/L)	Max (ug/L)	Count	Start Date	End Date
87	112WRD__374849082250701	6.60	6.6	6.6	2	07/14/76	07/19/76
87	112WRD__374932082240501	7.57	7.5	7.6	3	10/11/78	04/15/81
88	112WRD__374745082251201	7.63	7.5	7.7	3	10/11/78	04/15/81
92	112WRD__374659082264101	7.60	7.1	7.9	3	10/11/78	04/15/81
93	112WRD__03214300	7.45	6.65	8.0	7	06/06/79	03/23/81
93	112WRD__374701082265401	7.68	7.6	7.8	3	10/11/78	04/15/81
94	8800011__022	7.40	7.08	7.8	8	12/30/93	09/18/00
94	8800011__J	7.32	6.9	7.6	6	05/20/96	08/18/97
97	8984103__JRF-E1	7.27	6.8	7.8	6	01/21/00	06/02/00
97	8984103__JRF-E2	7.60	7	8.0	5	02/21/00	06/02/00
99	8800034__296	7.33	6.72	7.9	6	03/24/98	04/26/99
99	8800034__S239	7.95	7.74	8.2	6	03/25/98	06/21/99
102	8980430__BSW24	8.22	7.7	8.6	6	10/15/96	04/02/98
102	8980430__BSW25	7.84	7.2	8.4	5	12/06/96	04/02/98
102	8980430__BSW26	8.18	7.8	8.6	6	10/15/96	04/02/98
102	8980504__sw25	7.33	6.9	7.9	6	08/11/99	11/16/00
102	8980524__BSW24	7.35	6.5	8.3	10	08/08/98	11/16/00
102	8980524__BSW25	7.58	6.9	8.5	10	08/08/98	11/16/00
102	8980524__BSW26	7.72	7.1	8.3	10	08/08/98	11/16/00
102	8980542__SW25	7.31	7.2	7.4	6	03/24/99	11/08/00
102	8985992__205	7.61	7	8.1	9	12/10/98	11/16/00
102	8987041__sw-25	7.67	7.1	8.1	6	08/11/99	11/16/00

Table 3f. Water quality data for dissolved zinc

SWS	WQ Station	Avg (ug/L)	Min (ug/L)	Max (ug/L)	Count	Start Date	End Date

(not applicable to this region)

Table 6a. Baseline conditions and allocations for all sources in Kentucky

Element	Baseline Load (lb/yr)	Allocated Load (lb/yr)	Requires Reduction	Percent Reduction
Aluminum	246,683	135,876	X	45
Iron	306,594	166,611	X	46

Appendix A-17
Region 17

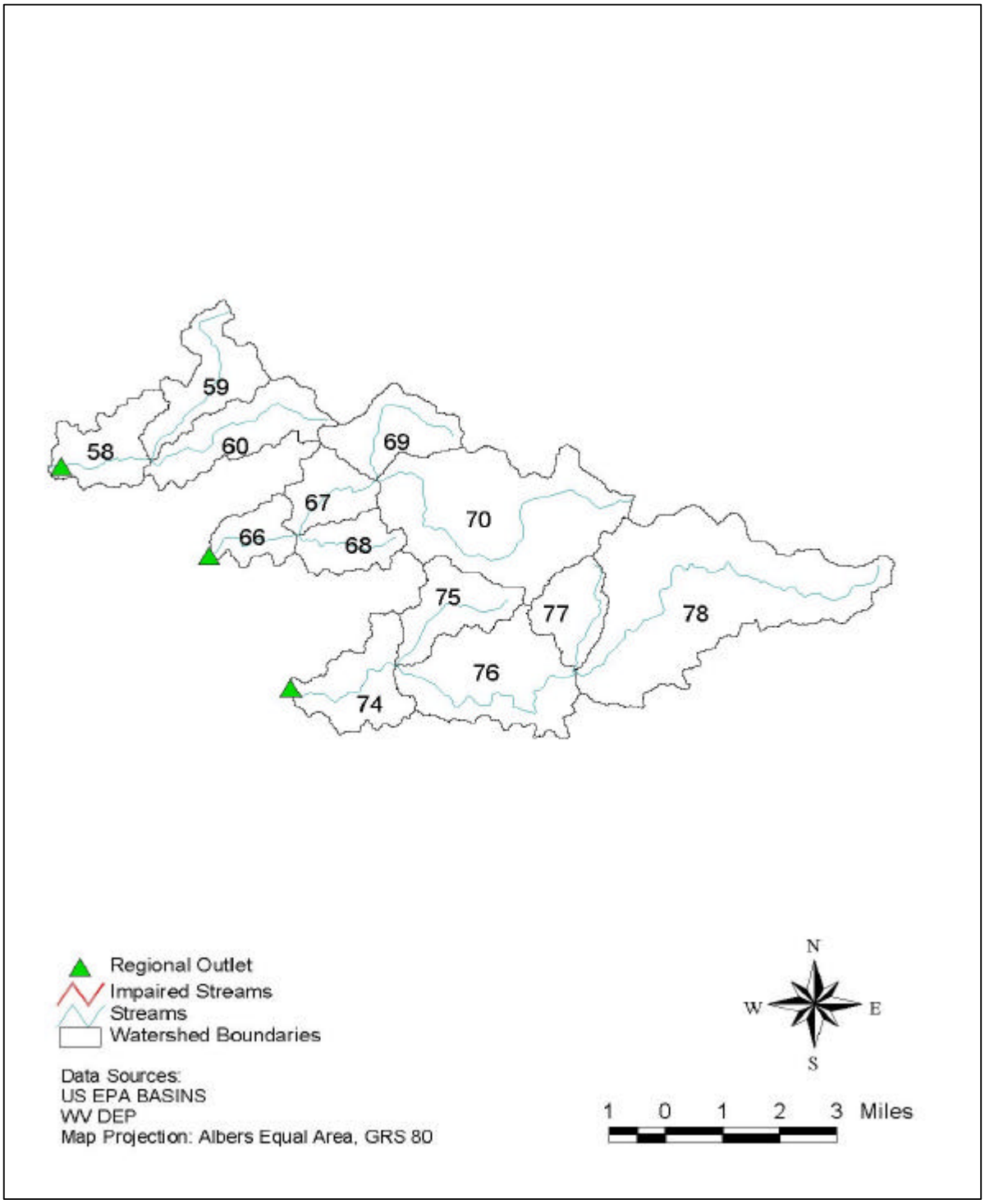


Figure 1. Region 17 - Tug Fork watershed

Table 1. Impaired waterbodies in Region 17

Stream Name	Stream Code	Pollutant	Contributing SWS	Contributing Regions	Aquatic Life

Not Applicable to this Region

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

SWS
74
75
76
78

Table 3a. Water quality data for aluminum

SWS	WQ Station	Avg (ug/L)	Min (ug/L)	Max (ug/L)	Count	Start Date	End Date
60	11COEHUN__1TFVW0025	155.00	155	155	1	03/02/81	03/02/81
67	211WVOWR__BST-017-0001	150.00	150	150	1	06/30/98	06/30/98
68	WV0095711__DMF	153.85	100	600	13	05/21/01	12/17/01
70	WV0095711__DJC	100.00	100	100	12	07/09/01	12/17/01
70	WV0095711__DJC2	108.33	100	200	12	07/09/01	12/17/01
70	WV0095711__UJC	100.00	100	100	12	07/09/01	12/17/01
70	WV0095711__UJC2	116.67	100	200	12	07/09/01	12/17/01
74	211WVOWR__BST-019-0001	50.00	50	50	1	07/07/98	07/07/98
76	WV0048593__DMC1	400.00	400	400	10	04/10/01	11/29/01
78	211WVOWR__BST-019-0002	260.00	260	260	1	07/06/98	07/06/98
78	WV0044181__DMC2	406.25	400	500	16	04/10/01	11/29/01
78	WV0044181__DSLB	447.73	400	1000	44	01/20/99	02/02/01
78	WV0044181__M-10	500.00	400	1500	58	11/01/98	11/29/01
78	WV0044181__USLB	440.48	400	1000	42	02/10/99	02/02/01
78	WV1008218__DMB001	430.43	400	800	23	11/01/98	12/22/99
78	WV1008218__UMB001	445.83	400	1000	24	12/14/98	12/22/99
78	WV1013076__S-3	400.00	400	400	2	03/22/99	04/08/99
78	WV1013076__S-4	400.00	400	400	3	03/22/99	02/07/01
78	WV1013114__S-1	495.35	400	1300	43	01/20/99	02/13/01
78	WV1017217__DMC1	582.93	400	1500	41	01/20/99	12/26/00
78	WV1017217__UMC1	474.58	400	1400	59	01/20/99	11/28/01

Table 3b. Water quality data for iron

SWS	WQ Station	Avg (ug/L)	Min (ug/L)	Max (ug/L)	Count	Start Date	End Date
58	11COEHUN__1TFVW0017	5410.00	5410	5410	1	11/24/80	11/24/80
60	11COEHUN__1TFVW0025	308.00	308	308	1	03/02/81	03/02/81
67	211WVOWR__BST-017-0001	600.00	600	600	1	06/30/98	06/30/98
68	WV0095711__DMF	595.49	30	3740	71	03/30/99	12/17/01
70	WV0095711__DJC	733.85	30	6040	65	03/30/99	12/17/01
70	WV0095711__DJC2	645.69	30	5770	65	03/30/99	12/17/01
70	WV0095711__UJC	697.54	30	5940	65	03/30/99	12/17/01
70	WV0095711__UJC2	656.00	30	5960	65	03/30/99	12/17/01
74	112WRD__375132082230239	672.50	400	920	4	05/11/79	08/20/80
74	211WVOWR__BST-019-0001	579.00	579	579	1	07/07/98	07/07/98
76	WV0048593__DMC1	253.33	50	590	12	11/01/98	11/29/01
78	211WVOWR__BST-019-0002	180.00	180	180	1	07/06/98	07/06/98
78	WV0044181__DMC2	341.88	120	1920	16	04/10/01	11/29/01
78	WV0044181__DSLB	238.39	50	820	62	01/20/99	11/29/01
78	WV0044181__M-10	313.65	60	1600	63	11/01/98	11/29/01
78	WV0044181__USLB	305.67	120	730	60	02/10/99	11/29/01
78	WV0048593__UMC2	323.28	100	3260	67	11/01/98	11/29/01
78	WV1008218__DMB001	272.00	50	900	35	11/01/98	11/29/01
78	WV1008218__UMB001	239.71	50	790	35	12/14/98	11/29/01
78	WV1013076__S-3	347.50	50	2270	24	12/15/98	11/28/01
78	WV1013076__S-4	215.87	50	1300	63	11/01/98	11/28/01
78	WV1013114__S-1	409.17	50	3100	60	01/20/99	11/28/01
78	WV1017217__DMC1	337.41	50	1100	54	01/20/99	11/29/01
78	WV1017217__UMC1	338.64	50	1270	59	01/20/99	11/28/01

Table 3c. Water quality data for manganese

SWS	WQ Station	Avg (ug/L)	Min (ug/L)	Max (ug/L)	Count	Start Date	End Date
58	11COEHUN__1TFVW0017	200.00	200	200	1	11/24/80	11/24/80
60	11COEHUN__1TFVW0025	282.00	282	282	1	03/02/81	03/02/81
67	211WVOWR__BST-017-0001	27.00	27	27	1	06/30/98	06/30/98
68	WV0095711__DMF	76.62	10	480	71	03/30/99	12/17/01
70	WV0095711__DJC	84.92	10	900	65	03/30/99	12/17/01
70	WV0095711__DJC2	77.19	10	920	64	03/30/99	12/17/01
70	WV0095711__UJC	80.92	10	870	65	03/30/99	12/17/01
70	WV0095711__UJC2	82.03	10	900	64	03/30/99	12/17/01
74	112WRD__375132082230239	52.50	30	110	4	05/11/79	08/20/80
74	211WVOWR__BST-019-0001	116.00	116	116	1	07/07/98	07/07/98
76	WV0048593__DMC1	62.50	20	160	12	11/01/98	11/29/01
78	211WVOWR__BST-019-0002	100.00	100	100	1	07/06/98	07/06/98
78	WV0044181__DMC2	184.38	20	2060	16	04/10/01	11/29/01
78	WV0044181__DSLB	70.97	20	160	62	01/20/99	11/29/01
78	WV0044181__M-10	192.54	20	940	63	11/01/98	11/29/01
78	WV0044181__USLB	57.83	20	180	60	02/10/99	11/29/01
78	WV0048593__UMC2	121.94	20	550	67	11/01/98	11/29/01
78	WV1008218__DMB001	128.00	20	600	35	11/01/98	11/29/01
78	WV1008218__UMB001	123.14	20	560	35	12/14/98	11/29/01
78	WV1013076__S-3	466.25	20	1900	24	12/15/98	11/28/01
78	WV1013076__S-4	924.29	20	6360	63	11/01/98	11/28/01
78	WV1013114__S-1	1173.00	20	11000	60	01/20/99	11/28/01
78	WV1017217__DMC1	836.30	20	6360	54	01/20/99	11/29/01
78	WV1017217__UMC1	1572.37	30	11200	59	01/20/99	11/28/01

Table 3d. Water quality data for Total Nonfilterable Residue

SWS	WQ Station	Avg (ug/L)	Min (ug/L)	Max (ug/L)	Count	Start Date	End Date
78	WV0044181__M-10	1.00	1	1	1	04/08/99	04/08/99
78	WV1013076__S-3	4.50	3	6	2	03/22/99	04/08/99
78	WV1013076__S-4	7.00	1	13	2	03/22/99	04/08/99

Table 3e. Water quality data for pH

SWS	WQ Station	Avg (ug/L)	Min (ug/L)	Max (ug/L)	Count	Start Date	End Date
58	11COEHUN__1TFVW0017	6.50	6.5	6.5	1	11/24/80	11/24/80
58	211WVOWR__BST-014-0001	7.80	7.8	7.8	1	07/07/98	07/07/98
60	11COEHUN__1TFVW0025	6.00	6	6.0	1	03/02/81	03/02/81
60	211WVOWR__BST-014-0002	7.80	7.8	7.8	1	06/24/98	06/24/98
66	112WRD__375340082260001	7.47	7	7.9	3	10/10/78	04/14/81
67	211WVOWR__BST-017-0001	7.60	7.6	7.6	1	06/30/98	06/30/98
68	WV0095711__DMF	7.30	6.12	7.8	71	03/30/99	12/17/01
70	WV0095711__DJC	7.41	6.72	8.7	65	03/30/99	12/17/01
70	WV0095711__DJC2	7.52	6.99	8.9	65	03/30/99	12/17/01
70	WV0095711__UJC	7.35	6.82	8.0	65	03/30/99	12/17/01
70	WV0095711__UJC2	7.34	6.65	8.1	65	03/30/99	12/17/01
74	112WRD__375132082230239	7.18	6.8	7.5	5	05/11/79	09/29/83
74	211WVOWR__BST-019-0001	7.90	7.9	7.9	1	07/07/98	07/07/98
76	WV0048593__DMC1	8.28	7.9	8.5	12	11/01/98	11/29/01
78	211WVOWR__BST-019-0002	8.10	8.1	8.1	1	07/06/98	07/06/98
78	WV0044181__DMC2	8.11	7.3	8.5	16	04/10/01	11/29/01
78	WV0044181__DSLB	8.07	7.4	8.4	62	01/20/99	11/29/01
78	WV0044181__M-10	7.93	7.2	8.7	63	11/01/98	11/29/01
78	WV0044181__USLB	8.07	7.5	8.5	60	02/10/99	11/29/01
78	WV0048593__UMC2	8.07	7.1	8.7	67	11/01/98	11/29/01
78	WV1008218__DMB001	8.09	7.4	8.5	35	11/01/98	11/29/01
78	WV1008218__UMB001	8.07	7.5	8.4	35	12/14/98	11/29/01
78	WV1013076__S-3	8.01	7.4	8.3	24	12/15/98	11/28/01
78	WV1013076__S-4	8.25	7.6	9.0	63	11/01/98	11/28/01
78	WV1013114__S-1	8.10	7.4	8.4	60	01/20/99	11/28/01
78	WV1017217__DMC1	7.93	6.9	8.3	54	01/20/99	11/29/01
78	WV1017217__UMC1	8.14	7.4	8.7	59	01/20/99	11/28/01

Table 3f. Water quality data for dissolved zinc

SWS	WQ Station	Avg (ug/L)	Min (ug/L)	Max (ug/L)	Count	Start Date	End Date
74	112WRD__375132082230239	5.00	5	5	1	08/20/80	08/20/80

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

SWS	NPDES Permit ID	Baseline (lb/yr)	Allocation (lb/yr)	Allocation (mg/L)	Percent Reduction
66	WV0095711	69	69	3.60	0
68	WV0095711	139	139	3.60	0
68	WV1008021	103	103	3.60	0
70	WV0095711	208	104	1.89	50
70	WV1003682	487	244	1.89	50
70	WV1007939	5,142	2,571	1.89	50
70	WV1008218	495	247	1.89	50
70	WV1020072	496	248	1.89	50
76	WV0048593	79	79	3.60	0
76	WV1008218	495	495	3.60	0
77	WV1007939	686	343	1.89	50
77	WV1008218	330	165	1.89	50
78	WV0044181	666	133	0.76	80
78	WV0048593	82	16	0.76	80
78	WV0095788	1,967	393	0.76	80
78	WV1003682	12,880	2,576	0.76	80
78	WV1007939	4,278	856	0.76	80
78	WV1008218	514	103	0.76	80
78	WV1010956	1,347	269	0.76	80
78	WV1013076	4,895	979	0.76	80
78	WV1013114	1,099	220	0.76	80
78	WV1016971	877	175	0.76	80
78	WV1017217	9,254	1,851	0.76	80

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

SWS	NPDES Permit ID	Baseline (lb/yr)	Allocation (lb/yr)	Allocation (mg/L)	Percent Reduction
66	WV0095711	62	62	3.20	0
68	WV0095711	124	124	3.20	0
68	WV1008021	92	92	3.20	0
70	WV0095711	186	186	3.20	0
70	WV1003682	434	434	3.20	0
70	WV1007939	4,580	4,580	3.20	0
70	WV1008218	441	441	3.20	0
70	WV1020072	441	441	3.20	0
76	WV0048593	70	70	3.20	0
76	WV1008218	441	441	3.20	0
77	WV1007939	611	611	3.20	0
77	WV1008218	294	294	3.20	0
78	WV0044181	593	556	3.16	6
78	WV0048593	73	69	3.16	6
78	WV0095788	1,751	1,642	3.16	6
78	WV1003682	11,470	10,752	3.16	6
78	WV1007939	3,809	3,571	3.16	6
78	WV1008218	458	429	3.16	6
78	WV1010956	1,200	1,125	3.16	6
78	WV1013076	4,359	4,086	3.16	6
78	WV1013114	978	917	3.16	6
78	WV1016971	781	733	3.16	6
78	WV1017217	8,241	7,725	3.16	6

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

SWS	NPDES Permit ID	Baseline (lb/yr)	Allocation (lb/yr)	Allocation (mg/L)	Percent Reduction
66	WV0095711	39	39	2.00	0
68	WV0095711	77	77	2.00	0
68	WV1008021	57	57	2.00	0
70	WV0095711	116	116	2.00	0
70	WV1003682	270	270	2.00	0
70	WV1007939	2,852	2,852	2.00	0
70	WV1008218	274	274	2.00	0
70	WV1020072	275	275	2.00	0
76	WV0048593	44	44	2.00	0
76	WV1008218	274	274	2.00	0
77	WV1007939	380	380	2.00	0
77	WV1008218	183	183	2.00	0
78	WV0044181	370	370	2.00	0
78	WV0048593	46	46	2.00	0
78	WV0095788	1,091	1,091	2.00	0
78	WV1003682	7,145	7,145	2.00	0
78	WV1007939	2,373	2,373	2.00	0
78	WV1008218	285	285	2.00	0
78	WV1010956	747	747	2.00	0
78	WV1013076	2,716	2,716	2.00	0
78	WV1013114	609	609	2.00	0
78	WV1016971	487	487	2.00	0
78	WV1017217	5,134	5,134	2.00	0

Table 5a. Aluminum baseline conditions and allocations (LAs) for nonpoint sources in West Virginia

SWS	AML		Revoked Mines		Harvested Forest		Oil and Gas		Roads		Nonpoint Source			
	Baseline Load (lb/yr)	Allocated Load (lb/yr)	Baseline Load (lb/yr)	Allocated Load (lb/yr)	Baseline Load (lb/yr)	Allocated Load (lb/yr)	Baseline Load (lb/yr)	Allocated Load (lb/yr)	Baseline Load (lb/yr)	Allocated Load (lb/yr)	Baseline Load (lb/yr)	Allocated Load (lb/yr)	Requires Reduction	Percent Reduction
58	0	0	0	0	414	414	116	116	280	280	698	698		0
59	0	0	0	0	758	569	83	62	330	252	826	826	x	14
60	0	0	0	0	583	524	116	105	373	338	932	932	x	5
66	0	0	0	0	242	242	66	66	166	166	411	411		0
67	0	0	0	0	324	324	116	116	214	214	534	534		0
68	0	0	0	0	314	251	66	53	200	162	489	489	x	11
69	0	0	0	0	473	473	50	50	303	303	755	755		0
70	0	0	0	0	2,816	1,408	450	225	331	187	2,324	2,324	x	30
74	53,673	537	2,058	21	1,025	1,025	116	116	105	105	344	344	x	96
75	54,779	548	374	4	767	767	133	133	92	92	308	308	x	97
76	62,778	628	748	7	1,693	1,693	133	133	196	196	1,013	1,013	x	94
77	0	0	0	0	628	314	150	75	75	42	546	546	x	30
78	555	6	0	0	4,313	1,510	546	191	487	199	2,314	2,314	x	49

Table 5b. Iron baseline conditions and allocations (LAs) for nonpoint sources in West Virginia

SWS	AML		Revoked Mines		Harvested Forest		Oil and Gas		Roads		Nonpoint Source			
	Baseline Load (lb/yr)	Allocated Load (lb/yr)	Baseline Load (lb/yr)	Allocated Load (lb/yr)	Baseline Load (lb/yr)	Allocated Load (lb/yr)	Baseline Load (lb/yr)	Allocated Load (lb/yr)	Baseline Load (lb/yr)	Allocated Load (lb/yr)	Baseline Load (lb/yr)	Allocated Load (lb/yr)	Requires Reduction	Percent Reduction
58	0	0	0	0	523	523	147	147	352	352	1,085	1,085		0
59	0	0	0	0	958	718	105	79	416	317	1,282	1,282	x	13
60	0	0	0	0	736	662	147	132	470	425	1,448	1,448	x	5
66	0	0	0	0	306	306	84	84	209	209	638	638		0
67	0	0	0	0	409	409	147	147	269	269	830	830		0
68	0	0	0	0	396	317	84	67	251	204	760	760	x	10
69	0	0	0	0	597	597	63	63	381	381	1,173	1,173		0
70	0	0	0	0	3,558	1,779	568	284	415	233	3,609	3,609	x	28
74	70,719	1,414	2,368	1,011	1,295	1,295	147	147	132	132	535	535	x	94
75	72,177	1,881	431	431	970	970	168	168	115	115	478	478	x	95
76	82,716	2,513	861	861	2,138	2,138	168	168	245	245	1,572	1,572	x	91
77	0	0	0	0	794	397	189	94	94	53	848	848	x	28
78	732	15	0	0	5,448	1,907	689	241	612	249	3,635	3,635	x	46

Table 5c. Manganese baseline conditions and allocations (LAs) for nonpoint sources in West Virginia

SWS	AML		Revoked Mines		Harvested Forest		Oil and Gas		Roads		Nonpoint Source			
	Baseline Load (lb/yr)	Allocated Load (lb/yr)	Baseline Load (lb/yr)	Allocated Load (lb/yr)	Baseline Load (lb/yr)	Allocated Load (lb/yr)	Baseline Load (lb/yr)	Allocated Load (lb/yr)	Baseline Load (lb/yr)	Allocated Load (lb/yr)	Baseline Load (lb/yr)	Allocated Load (lb/yr)	Requires Reduction	Percent Reduction
58	0	0	0	0	34	34	10	10	28	28	507	507		0
59	0	0	0	0	62	47	7	5	33	26	598	598	x	3
60	0	0	0	0	48	43	10	9	37	34	676	676	x	1
66	0	0	0	0	20	20	5	5	16	16	298	298		0
67	0	0	0	0	27	27	10	10	21	21	387	387		0
68	0	0	0	0	26	21	5	4	20	17	355	355	x	2
69	0	0	0	0	39	39	4	4	30	30	548	548		0
70	0	0	0	0	231	115	37	18	41	29	1,684	1,684	x	7
74	23,615	1,181	2,050	102	84	84	10	10	13	13	250	250	x	94
75	24,102	1,205	373	19	63	63	11	11	11	11	222	222	x	94
76	27,622	1,381	745	37	139	139	11	11	24	24	734	734	x	92
77	0	0	0	0	51	26	12	6	9	7	396	396	x	7
78	242	5	0	0	337	118	43	15	52	30	1,717	1,717	x	21

Appendix A-18

Region 18

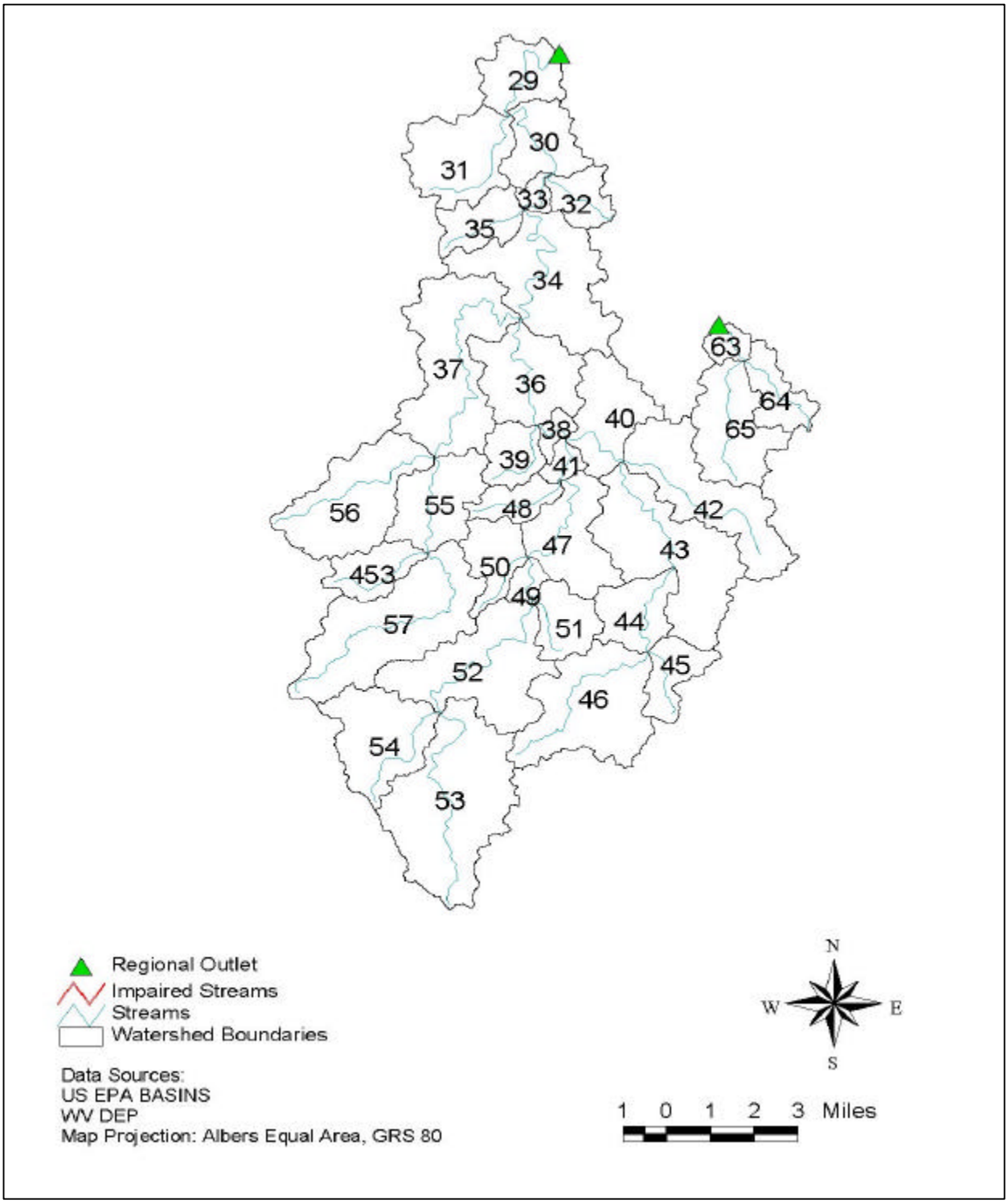


Figure 1. Region 18 - Tug Fork watershed

Table 1. Impaired waterbodies in Region 18

Stream Name	Stream Code	Pollutant	Contributing SWS	Contributing Regions	Aquatic Life

Not Applicable to this Region, Kentucky Waters

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

SWS

(not applicable in this region)

Table 3a. Water quality data for aluminum

SWS	WQ Station	Avg (ug/L)	Min (ug/L)	Max (ug/L)	Count	Start Date	End Date

(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
31	22KYOSM2__0520803S01	2922.50	480	6200	4	07/11/83	02/13/84
35	22KYOSM2__0520804S01	3507.50	1220	7900	4	07/11/83	02/27/84
37	112WRD__03214720	1237.50	440	2200	8	06/06/79	06/12/81
41	112WRD__03214600	2425.00	690	9000	8	06/06/79	06/12/81
43	112WRD__03214650	3534.29	280	14000	7	06/06/79	03/23/81
52	8807013__S5	276.67	60	540	6	10/13/98	03/08/99
52	8807015__S5	276.67	60	540	6	10/13/98	03/08/99
54	8807013__S4	526.67	360	710	6	10/13/98	03/08/99
54	8807015__S4	526.67	360	710	6	10/13/98	03/08/99
57	8807013__S1	218.33	20	770	6	10/13/98	03/08/99
57	8807013__S2	598.33	170	1280	6	10/13/98	03/08/99
57	8807013__S3	106.67	30	220	6	10/13/98	03/08/99
57	8807015__S1	218.33	20	770	6	10/13/98	03/08/99
57	8807015__S2	598.33	170	1280	6	10/13/98	03/08/99
57	8807015__S3	106.67	30	220	6	10/13/98	03/08/99

Table 3d. Water quality data for Total Nonfilterable Residue

SWS	WQ Station	Avg (ug/L)	Min (ug/L)	Max (ug/L)	Count	Start Date	End Date
31	22KYOSM2__0520803S01	30.50	0	76	4	07/11/83	02/13/84
35	22KYOSM2__0520804S01	20.00	6	52	4	07/11/83	02/27/84
52	8807013__S5	2.17	1	6	6	10/13/98	03/08/99
52	8807015__S5	2.17	1	6	6	10/13/98	03/08/99
54	8807013__S4	2.00	1	4	6	10/13/98	03/08/99
54	8807015__S4	2.00	1	4	6	10/13/98	03/08/99
57	8807013__S1	1.33	1	2	6	10/13/98	03/08/99
57	8807013__S2	1.33	1	2	6	10/13/98	03/08/99
57	8807013__S3	1.50	1	3	6	10/13/98	03/08/99
57	8807015__S1	1.33	1	2	6	10/13/98	03/08/99
57	8807015__S2	1.33	1	2	6	10/13/98	03/08/99
57	8807015__S3	1.50	1	3	6	10/13/98	03/08/99

Table 3e. Water quality data for pH

SWS	WQ Station	Avg (ug/L)	Min (ug/L)	Max (ug/L)	Count	Start Date	End Date
29	112WRD__380006082311301	7.60	7.4	7.8	3	10/10/78	04/15/81
31	22KYOSM2__0520803S01	7.33	7	7.5	4	07/11/83	02/13/84
35	22KYOSM2__0520804S01	6.80	6.5	7.2	4	07/11/83	02/27/84
37	112WRD__03214720	7.21	6.65	8.3	8	06/06/79	06/12/81
37	112WRD__375447082332701	7.27	7.1	7.6	3	10/10/78	04/15/81
40	112WRD__375155082322501	7.83	7.3	8.7	3	10/10/78	04/15/81
40	21KY__CLN210	7.18	6.59	8.1	35	05/21/98	09/25/98
41	112WRD__03214600	7.38	6.7	8.0	8	06/06/79	06/12/81
41	112WRD__375147082323301	7.87	7.4	8.2	3	10/10/78	04/15/81
43	112WRD__03214650	7.26	6.55	7.9	7	06/06/79	03/23/81
52	8807013__S5	7.08	6.55	7.3	6	10/13/98	03/08/99
52	8807015__S5	7.08	6.55	7.3	6	10/13/98	03/08/99
54	8807013__S4	7.32	7.1	7.7	6	10/13/98	03/08/99
54	8807015__S4	7.32	7.1	7.7	6	10/13/98	03/08/99
57	8807013__S1	6.99	6.54	7.3	6	10/13/98	03/08/99
57	8807013__S2	6.78	6.38	7.3	6	10/13/98	03/08/99
57	8807013__S3	6.87	6.46	7.3	6	10/13/98	03/08/99
57	8807015__S1	6.99	6.54	7.3	6	10/13/98	03/08/99
57	8807015__S2	6.78	6.38	7.3	6	10/13/98	03/08/99
57	8807015__S3	6.87	6.46	7.3	6	10/13/98	03/08/99

Table 3f. Water quality data for dissolved zinc

SWS	WQ Station	Avg (ug/L)	Min (ug/L)	Max (ug/L)	Count	Start Date	End Date

(not applicable to this region)

Table 6a. Baseline conditions and allocations for sources in Kentucky

Metal	Baseline Load (lb/yr)	Allocated Load (lb/yr)	Requires Reduction	Percent Reduction
Aluminum	305,930	153,821	X	50
Iron	388,552	196,394	X	49

Appendix A-19

Region 19

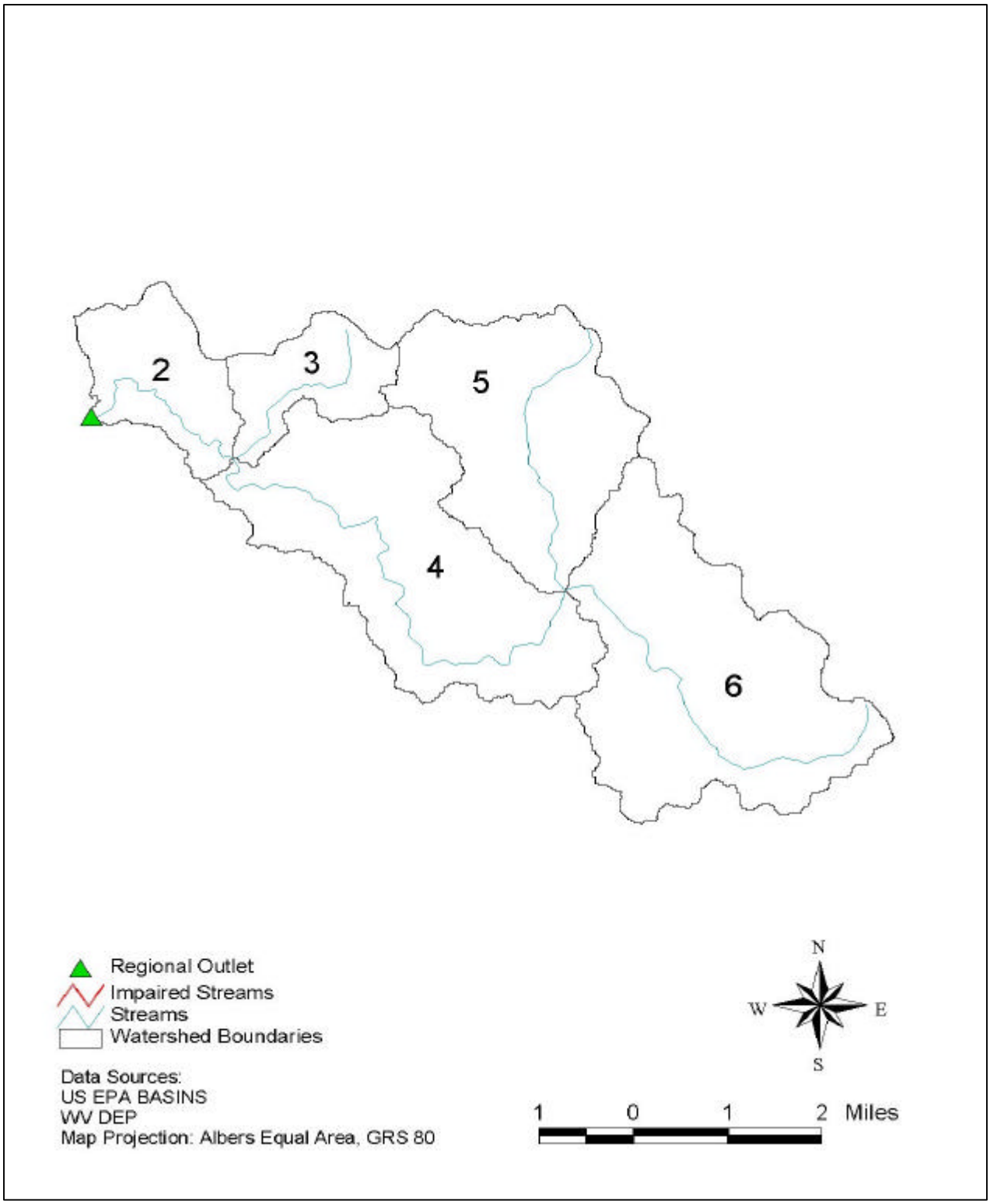


Figure 1. Region 19 - Tug Fork watershed

Table 1. Impaired waterbodies in Region 19

Stream Name
Not Applicable to this Region

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

Table 3a. Water quality data for aluminum

SWS	WQ Station	Avg (ug/L)	Min (ug/L)	Max (ug/L)	Count	Start Date	End Date

(not applicable for 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
4	112WRD__380602082340239	2384.00	720	4500	5	05/12/79	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
4	112WRD__380602082340239	226.00	70	350	5	05/12/79	07/22/81

Table 3d. Water quality data for Total Nonfilterable Residue

SWS	WQ Station	Avg (ug/L)	Min (ug/L)	Max (ug/L)	Count	Start Date	End Date

(not applicable to this region)

Table 3e. Water quality data for pH

SWS	WQ Station	Avg (ug/L)	Min (ug/L)	Max (ug/L)	Count	Start Date	End Date
2	112WRD__380647082352901	7.30	7.1	7.5	3	10/10/78	04/14/81
4	112WRD__380602082340239	7.07	6.5	7.6	6	05/12/79	09/30/83

Table 3f. Water quality data for dissolved zinc

SWS	WQ Station	Avg (ug/L)	Min (ug/L)	Max (ug/L)	Count	Start Date	End Date
4	112WRD__380602082340239	16.00	16	16	1	08/20/80	08/20/80
4	WV1006533__USNFEC	109.42	10	920	69	01/20/99	11/18/01

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

SWS	NPDES Permit ID	Baseline (lb/yr)	Allocation (lb/yr)	Allocation (mg/L)

(not applicable to this region)

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

SWS	NPDES Permit ID	Baseline (lb/yr)	Allocation (lb/yr)	Allocation (mg/L)

(not applicable to this region)

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

SWS	NPDES Permit ID	Baseline (lb/yr)	Allocation (lb/yr)	Allocation (mg/L)

(not applicable to this region)

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

SWS	AML		Revoked Mines		Harvested Forest		Oil and Gas		Roads		Nonpoint Source			
	Baseline Load (lb/yr)	Allocated Load (lb/yr)	Baseline Load (lb/yr)	Allocated Load (lb/yr)	Baseline Load (lb/yr)	Allocated Load (lb/yr)	Baseline Load (lb/yr)	Allocated Load (lb/yr)	Baseline Load (lb/yr)	Allocated Load (lb/yr)	Baseline Load (lb/yr)	Allocated Load (lb/yr)	**Requires Reduction**	**Percent Reduction**
2	0	0	0	0	381	267	0	0	322	229	808	808	x	14
3	0	0	0	0	414	290	0	0	249	177	619	619	x	15
4	0	0	0	0	1,393	975	0	0	1,009	716	2,517	2,517	x	14
5	0	0	0	0	1,194	836	19	14	772	547	1,922	1,922	x	15
6	5,244	5,244	0	0	1,784	1,249	271	190	1,094	776	2,687	2,687	x	8

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

SWS	AML		Revoked Mines		Harvested Forest		Oil and Gas		Roads		Nonpoint Source			
	Baseline Load (lb/yr)	Allocated Load (lb/yr)	Baseline Load (lb/yr)	Allocated Load (lb/yr)	Baseline Load (lb/yr)	Allocated Load (lb/yr)	Baseline Load (lb/yr)	Allocated Load (lb/yr)	Baseline Load (lb/yr)	Allocated Load (lb/yr)	Baseline Load (lb/yr)	Allocated Load (lb/yr)	**Requires Reduction**	**Percent Reduction**
2	0	0	0	0	481	337	0	0	407	288	1,257	1,257	x	
3	0	0	0	0	523	366	0	0	314	223	966	966	x	14
4	0	0	0	0	1,760	1,232	0	0	1,273	902	3,929	3,929	x	13
5	0	0	0	0	1,508	1,056	24	17	973	690	3,000	3,000	x	13
6	6,906	6,906	0	0	2,254	1,577	343	240	1,380	978	4,194	4,194	x	8

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

SWS	AML		Revoked Mines		Harvested Forest		Oil and Gas		Roads		Nonpoint Source			
	Baseline Load (lb/yr)	Allocated Load (lb/yr)	Baseline Load (lb/yr)	Allocated Load (lb/yr)	Baseline Load (lb/yr)	Allocated Load (lb/yr)	Baseline Load (lb/yr)	Allocated Load (lb/yr)	Baseline Load (lb/yr)	Allocated Load (lb/yr)	Baseline Load (lb/yr)	Allocated Load (lb/yr)	**Requires Reduction**	**Percent Reduction**
2	0	0	0	0	31	22	0	0	30	22	588	588	x	
3	0	0	0	0	34	24	0	0	23	17	453	453	x	3
4	0	0	0	0	114	80	0	0	93	69	1,845	1,845	x	3
5	0	0	0	0	98	69	2	1	71	53	1,409	1,409	x	3
6	2,236	2,236	0	0	146	102	22	16	101	74	1,969	1,969	x	2

Appendix A-20

Region 20

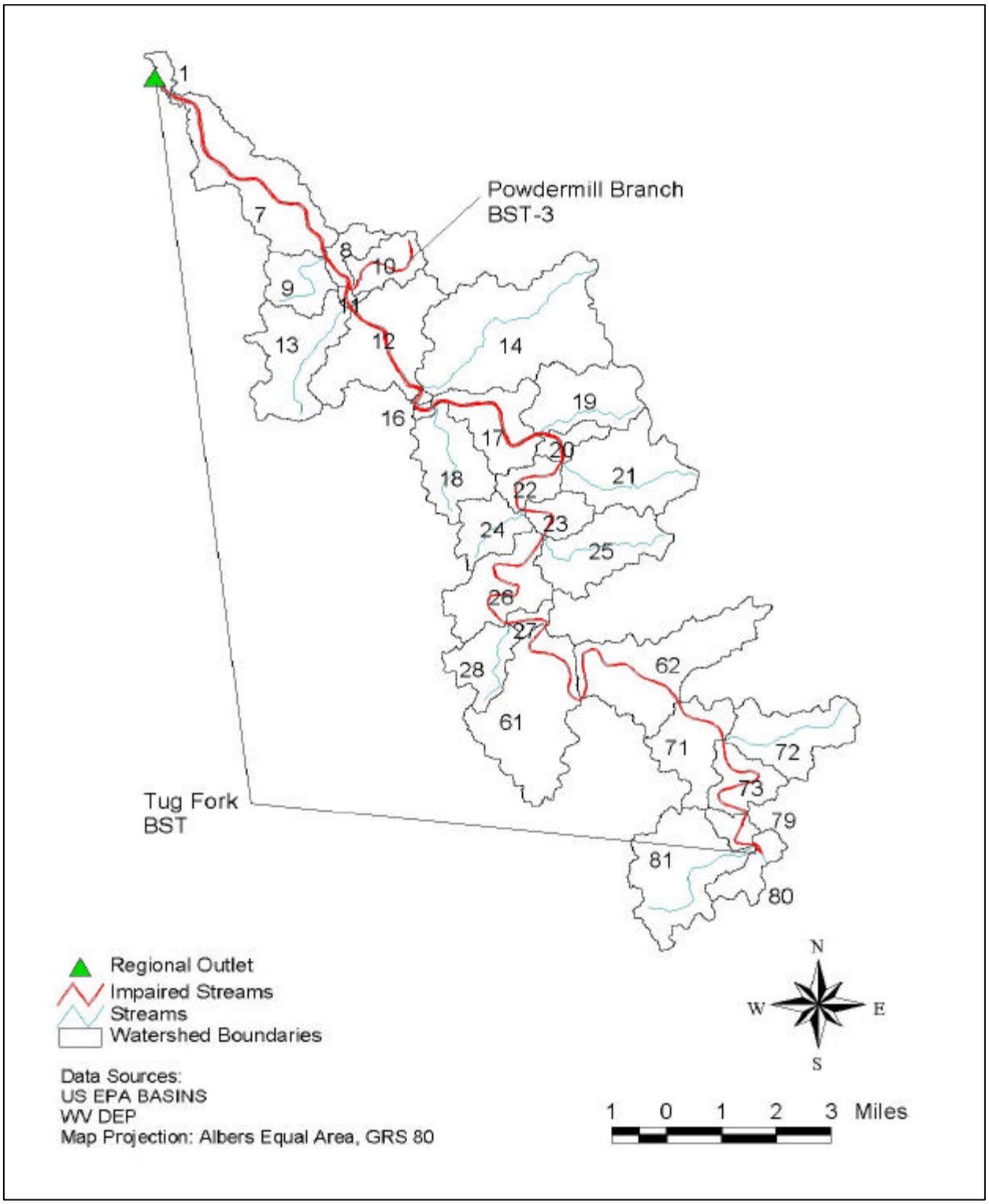


Figure 1. Region 20a - Tug Fork watershed

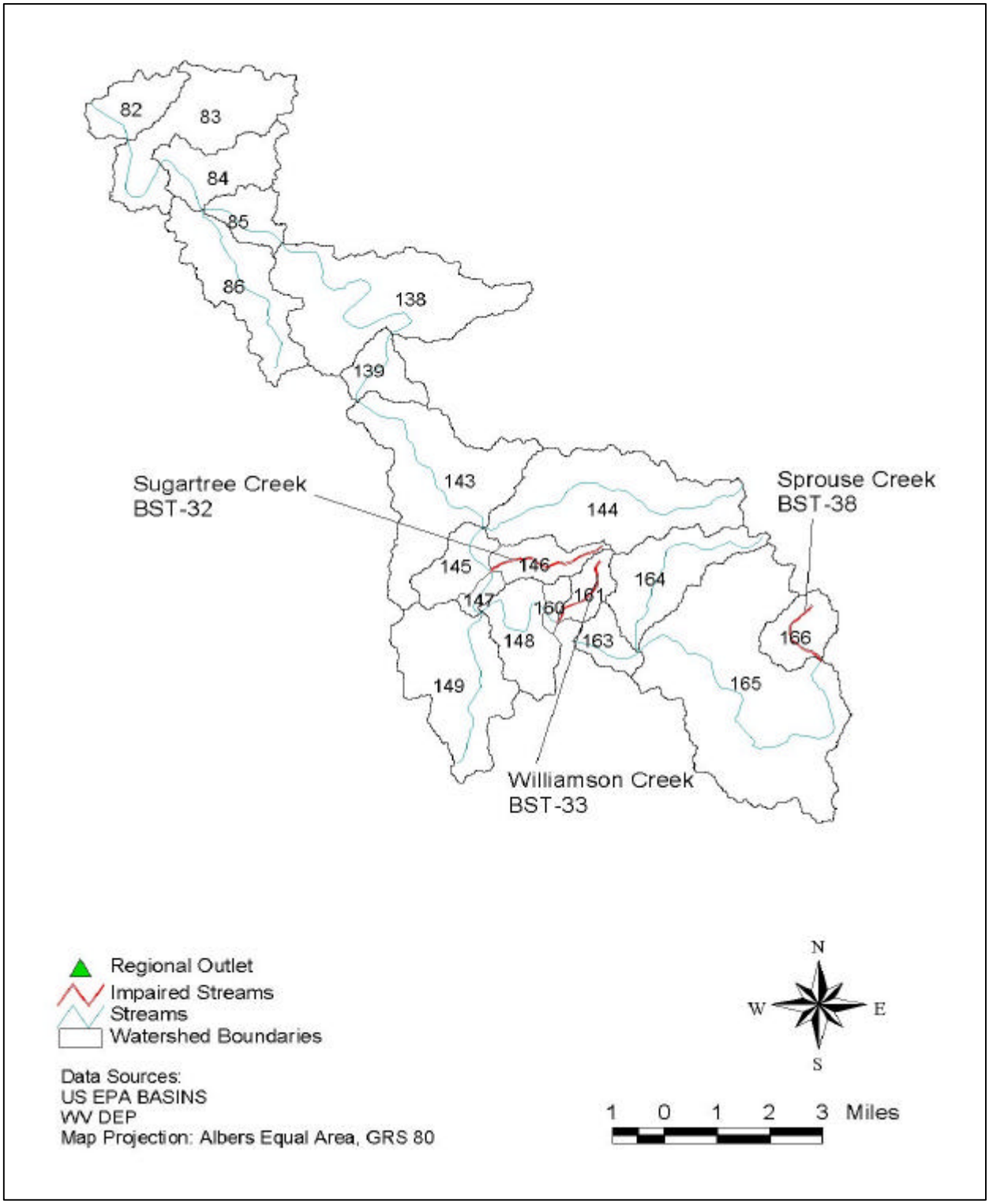


Figure 2. Region 20b - Tug Fork watershed

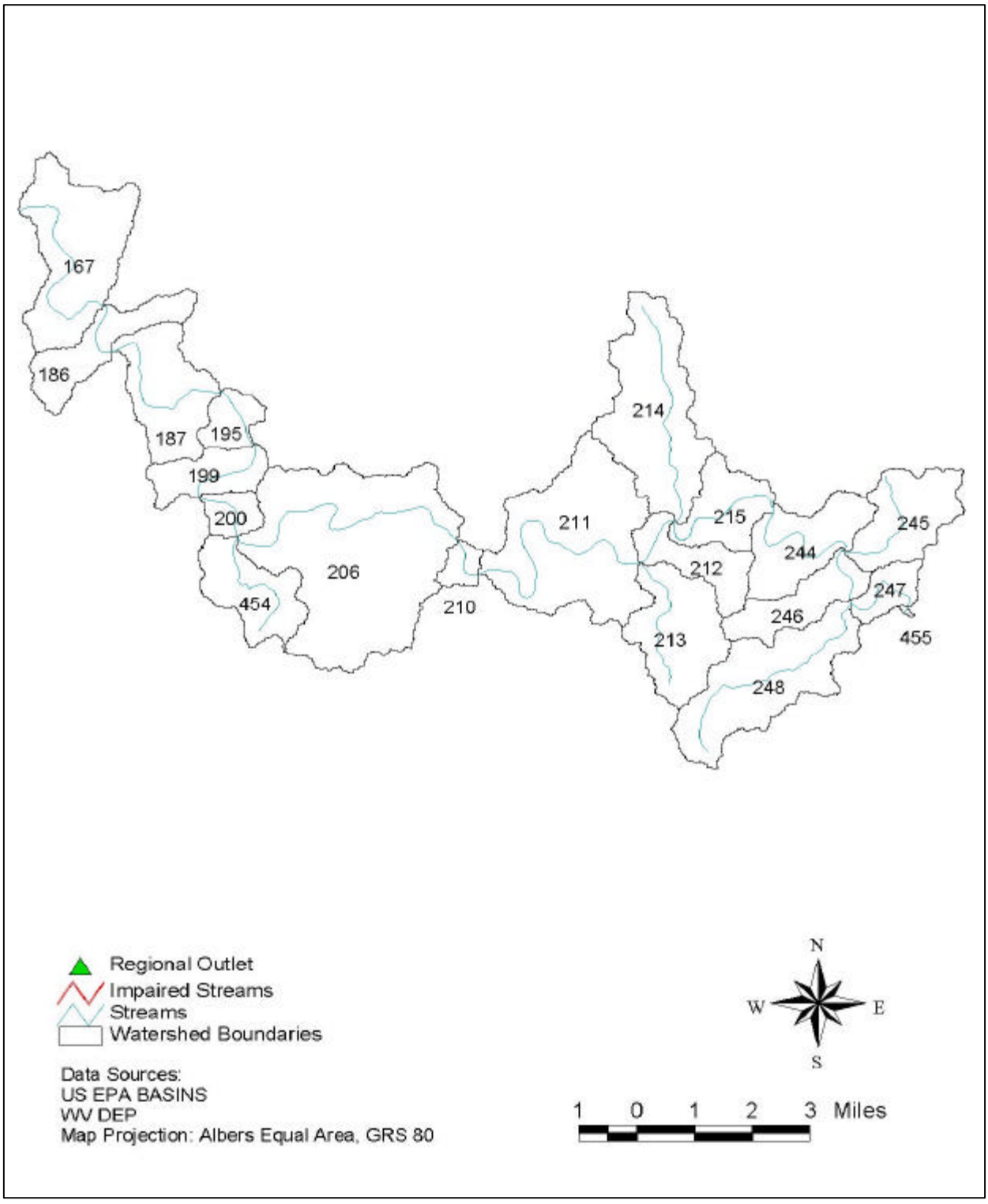


Figure 3. Region 20c - Tug Fork watershed

Table 1. Impaired waterbodies in Region 20

Stream Name	Stream Code	Pollutant	Contributing SWS	Contributing Regions	Aquatic Life
Powdermill Branch	BST-3	Metals	10		Aquatic Life
Sugartree Creek	BST-32	Metals	146		Aquatic Life
Williamson Branch	BST-33	Metals	161		Aquatic Life
Sprouse Creek	BST-38	Metals	166		Aquatic Life
Tug Fork	BST	Al, Fe, Zn	1, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 61, 62, 71, 72, 73, 79, 80, 81, 82, 83, 84, 85, 86, 138, 139, 143, 145, 146, 147, 148, 149, 160, 161, 162, 163, 164, 165, 166, 167, 186, 187, 195, 199, 200, 206, 210, 211, 212, 213, 214, 212, 244 245, 246, 247, 248, 454, 455	1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 100	Aquatic Life

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

SWS
80
82
83
138
139
143
144
145
163
164
165
167
187
199
200
206
214
215
245

Table 3a. Water quality data for aluminum

SWS	WQ Station	Avg (ug/L)	Min (ug/L)	Max (ug/L)	Count	Start Date	End Date
1	211WVOWR__BST-000-000.2	1450.42	63	7900	12	02/09/99	11/27/01
10	211WVOWR__BST-003-0001	58.70	58.7	58.7	1	06/25/98	06/25/98
15	112WRD__03214900	590.00	80	1200	5	02/26/80	06/10/81
15	112WRD__380020082305339	285.00	100	470	2	02/26/80	06/18/80
19	211WVOWR__BST-000-014.5	281.00	281	281	1	07/07/98	07/07/98
61	211WVOWR__BST-000-024.9	170.00	170	170	1	07/07/98	07/07/98
71	WV0095711__DBB	125.00	100	200	12	07/09/01	12/17/01
72	WV0095711__DSC	130.77	100	300	13	08/02/99	12/17/01
72	WV0095711__UMF	169.23	100	800	13	05/21/01	12/17/01
72	WV0095711__USC	138.46	100	400	13	08/02/99	12/17/01
84	112WRD__03214000	395.00	0	970	6	02/13/61	06/09/81
160	112WRD__03213700	646.00	80	1800	5	02/26/80	06/09/81
165	WV0090026__LLC	165.52	100	700	67	03/24/99	12/28/01
165	WV0090026__ULC	161.94	10	700	67	03/24/99	12/28/01
165	WV0095800__DLC	174.47	100	700	47	09/28/99	12/04/01
165	WV1013416__DDWB	140.00	100	600	30	01/10/00	12/28/01
165	WV1013416__DLC	169.57	100	600	23	01/10/00	11/30/01
165	WV1013416__DMB	242.11	100	1700	19	01/07/00	08/08/01
165	WV1013416__ULC	159.26	100	500	27	01/10/00	12/04/01
166	WV0064262__DSC	420.00	100	3000	65	03/26/99	12/28/01
166	WV0064262__DSS	194.55	100	600	33	03/31/99	08/27/01
166	WV0064262__USS	234.48	100	800	29	03/31/99	07/10/01
166	WV0095800__DSPC	321.43	100	3000	28	10/05/99	12/28/01
166	WV1013416__DSC	206.67	100	800	30	01/07/00	12/28/01
166	WV1013416__USC	196.67	100	800	30	01/07/00	12/28/01
167	WV0064262__DFB	266.67	100	2900	66	03/31/99	12/04/01
167	WV0095800__DCB	166.67	100	600	33	10/22/99	12/28/01
211	211WVOWR__BST-000-047.4	56.10	56.1	56.1	1	07/08/98	07/08/98
211	211WVOWR__BST-000-051.6	321.00	321	321	1	07/08/98	07/08/98
211	WV1004999__DGB	369.67	200	2700	61	01/12/99	09/28/01
211	WV1004999__DMB	339.84	120	850	64	01/12/99	09/28/01
214	WV0092622__DAC2	423.10	120	2590	42	01/12/99	09/17/00
214	WV0092878__DAC2	290.00	250	370	6	07/14/00	09/17/00
214	WV0095869__DAC	163.24	10	1990	74	10/10/98	11/16/01
214	WV0095869__UAC	252.61	60	1520	23	10/10/98	06/26/00
214	WV1008129__DSAC	149.01	10	1240	71	10/10/98	11/16/01
214	WV1008129__UCLH	128.33	60	340	6	10/10/98	01/12/99
214	WV1008129__USAC	162.00	10	1990	70	12/09/98	11/16/01
214	WV1012991__DAC	490.60	120	3640	83	01/12/99	09/28/01
214	WV1013173__UAC	151.64	10	1990	67	02/04/99	11/16/01

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	211WVOWR__BST-000-000.2	2097.92	50	11000	12	02/09/99	11/27/01
10	11COEHUN__1TFVW0021	1460.00	1460	1460	1	11/24/80	11/24/80
10	211WVOWR__BST-003-0001	1720.00	1720	1720	1	06/25/98	06/25/98
11	22KYOSM2__1110201S02	565.71	70	2000	7	11/27/90	04/24/91
12	11COEHUN__1TFVW0020	1520.00	1520	1520	1	11/24/80	11/24/80
12	22KYOSM2__1110201S01	432.86	70	1300	7	11/27/90	04/24/91
12	22KYOSM2__1110201S03	7430.00	7430	7430	1	10/04/90	10/04/90
14	11COEHUN__1TFVW0019	3720.00	3720	3720	1	11/24/80	11/24/80
15	112WRD__03214900	3215.59	40	27000	34	06/28/79	08/15/85
15	112WRD__380020082305339	4323.33	40	27000	15	06/28/79	08/20/80
19	211WVOWR__BST-000-014.5	699.00	699	699	1	07/07/98	07/07/98
61	211WVOWR__BST-000-024.9	440.00	440	440	1	07/07/98	07/07/98
71	11COEHUN__1TFVW0009	210.00	210	210	1	10/28/80	10/28/80
71	WV0095711__DBB	552.59	40	3690	58	03/30/99	12/17/01
72	WV0095711__DSC	665.94	30	3440	64	04/28/99	12/17/01
72	WV0095711__UMF	612.68	90	3740	71	03/30/99	12/17/01
72	WV0095711__USC	653.79	30	3360	66	03/30/99	12/17/01
79	112WRD__375057082251801	24000.00	16000	32000	2	06/09/76	09/20/77
83	WV0048593__DUBC	315.88	50	1660	34	11/01/98	06/15/01
83	WV0048593__UUBC	477.62	50	3050	63	11/01/98	11/29/01
84	112WRD__03214000	1381.00	80	6500	30	10/04/60	08/15/85
139	11COEHUN__1TFVW0012	640.00	640	640	1	10/28/80	10/28/80
143	22KYOSM2__0347801S01	3390.00	280	6500	2	11/10/83	12/02/83
149	22KYOSM2__0127201S03	656.00	100	1500	5	08/02/82	12/06/82
149	22KYOSM2__0127201S04	261.67	50	500	6	08/02/82	01/12/83
160	112WRD__03213700	1020.00	250	2500	5	02/26/80	06/09/81
164	WV0000434__USC	53.38	30	370	65	03/31/99	12/18/01
164	WV1004590__USC	60.42	30	280	24	03/12/99	12/18/01
165	WV0000434__DSC	99.09	30	2960	66	03/31/99	12/18/01
165	WV0001252__DDWB	113.28	30	2330	67	03/16/99	12/28/01
165	WV0001252__UDWB	75.67	30	540	67	03/16/99	12/28/01
165	WV0090026__LLC	61.64	30	540	67	03/24/99	12/28/01
165	WV0090026__ULC	63.28	30	540	67	03/24/99	12/28/01
165	WV0095800__DLC	71.36	30	520	59	03/26/99	12/04/01
165	WV1004590__DSC	70.00	30	320	25	03/12/99	12/18/01
165	WV1005171__DDWB	118.55	30	2330	55	03/16/99	12/28/01
165	WV1005171__UDWB	75.45	30	460	55	03/16/99	12/28/01
165	WV1013416__DDWB	89.39	30	540	49	03/16/99	12/28/01
165	WV1013416__DLC	116.34	30	710	41	04/26/99	11/30/01
165	WV1013416__DMB	111.47	30	1560	34	03/31/99	08/08/01
165	WV1013416__ULC	89.35	30	520	46	03/26/99	12/04/01
166	WV0064262__DSC	400.00	30	1740	65	03/26/99	12/28/01
166	WV0064262__DSS	85.45	30	1200	33	03/31/99	08/27/01
166	WV0064262__USS	84.14	30	1210	29	03/31/99	07/10/01
166	WV0095800__DSPC	503.00	40	3890	30	09/20/99	12/28/01
166	WV1013416__DSC	392.04	30	1650	49	03/26/99	12/28/01
166	WV1013416__USC	374.08	30	1700	49	03/26/99	12/28/01

167	WV0064262__DFB	116.52	30	1350	66	03/31/99	12/04/01
167	WV0095800__DCB	217.75	30	2990	40	03/26/99	12/28/01
187	8980499__cb5	30.00	30	30	1	05/26/99	05/26/99
187	8980555__cb5	122.50	30	210	4	12/14/99	08/15/00
199	8980499__cb4	40.00	40	40	1	05/12/99	05/12/99
199	8980555__cb4	92.50	50	130	4	12/27/99	08/28/00
211	211WVOWR__BST-000-047.4	214.00	214	214	1	07/08/98	07/08/98
211	211WVOWR__BST-000-051.6	589.00	589	589	1	07/08/98	07/08/98
211	WV1004999__DGB	283.11	30	4600	61	01/12/99	09/28/01
211	WV1004999__DMB	215.78	20	1490	64	01/12/99	09/28/01
214	WV0092622__DAC2	473.33	30	2990	42	01/12/99	09/17/00
214	WV0092878__DAC2	220.00	60	480	6	07/14/00	09/17/00
214	WV0095869__DAC	564.73	10	4260	74	10/10/98	11/16/01
214	WV0095869__UAC	519.13	10	1550	23	10/10/98	06/26/00
214	WV1008129__DSAC	684.93	10	8190	71	10/10/98	11/16/01
214	WV1008129__UCLH	330.00	70	800	6	10/10/98	01/12/99
214	WV1008129__USAC	593.86	10	4260	70	12/09/98	11/16/01
214	WV1012991__DAC	544.32	20	5990	111	01/12/99	09/28/01
214	WV1013173__UAC	573.28	10	4260	67	02/04/99	11/16/01
454	8980542__SW1	136.67	60	260	6	03/24/99	11/08/00
454	8980542__SW2	186.00	60	350	5	03/24/99	11/08/00
454	8980566__SW1	20.00	10	40	5	12/17/98	05/25/99
454	8980566__SW2	126.00	100	150	5	12/08/91	04/24/92
454	8980566__SW6	46.67	20	90	6	12/08/91	05/28/92

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	211WVOWR__BST-000-000.2	107.77	10	530	12	02/09/99	11/27/01
10	11COEHUN__1TFVW0021	100.00	100	100	1	11/24/80	11/24/80
10	211WVOWR__BST-003-0001	383.00	383	383	1	06/25/98	06/25/98
11	22KYOSM2__1110201S02	78.57	20	200	7	11/27/90	04/24/91
12	11COEHUN__1TFVW0020	100.00	100	100	1	11/24/80	11/24/80
12	22KYOSM2__1110201S01	105.00	30	250	7	11/27/90	04/24/91
12	22KYOSM2__1110201S03	760.00	760	760	1	10/04/90	10/04/90
14	11COEHUN__1TFVW0019	100.00	100	100	1	11/24/80	11/24/80
15	112WRD__03214900	154.12	20	790	34	06/28/79	08/15/85
15	112WRD__380020082305339	160.67	20	730	15	06/28/79	08/20/80
19	211WVOWR__BST-000-014.5	42.10	42.1	42.1	1	07/07/98	07/07/98
61	211WVOWR__BST-000-024.9	36.10	36.1	36.1	1	07/07/98	07/07/98
71	11COEHUN__1TFVW0009	100.00	100	100	1	10/28/80	10/28/80
71	WV0095711__DBB	105.52	10	1790	58	03/30/99	12/17/01
72	WV0095711__DSC	145.78	10	1990	64	04/28/99	12/17/01
72	WV0095711__UMF	76.62	10	470	71	03/30/99	12/17/01
72	WV0095711__USC	145.45	10	1890	66	03/30/99	12/17/01
79	112WRD__375057082251801	1050.00	600	1500	2	06/09/76	09/20/77
83	WV0048593__DUBC	105.00	20	560	34	11/01/98	06/15/01
83	WV0048593__UUBC	115.24	20	480	63	11/01/98	11/29/01
84	112WRD__03214000	241.79	0	1500	28	12/05/60	08/15/85
139	11COEHUN__1TFVW0012	100.00	100	100	1	10/28/80	10/28/80
143	22KYOSM2__0347801S01	4520.00	10	11100	3	10/19/83	12/02/83
149	22KYOSM2__0127201S03	790.00	100	1600	5	08/02/82	12/06/82
149	22KYOSM2__0127201S04	1.67	0	10	6	08/02/82	01/12/83
160	112WRD__03213700	104.00	60	140	5	02/26/80	06/09/81
164	WV0000434__USC	12.92	10	90	65	03/31/99	12/18/01
164	WV1004590__USC	11.25	10	20	24	03/12/99	12/18/01
165	WV0000434__DSC	13.18	10	80	66	03/31/99	12/18/01
165	WV0001252__DDWB	58.06	10	2360	67	03/16/99	12/28/01
165	WV0001252__UDWB	24.03	10	190	67	03/16/99	12/28/01
165	WV0090026__LLC	11.64	10	60	67	03/24/99	12/28/01
165	WV0090026__ULC	11.49	10	60	67	03/24/99	12/28/01
165	WV0095800__DLC	13.22	10	70	59	03/26/99	12/04/01
165	WV1004590__DSC	11.60	10	20	25	03/12/99	12/18/01
165	WV1005171__DDWB	66.36	10	2360	55	03/16/99	12/28/01

165	WV1005171__UDWB	25.09	10	190	55	03/16/99	12/28/01
165	WV1013416__DDWB	25.10	10	180	49	03/16/99	12/28/01
165	WV1013416__DLC	19.27	10	130	41	04/26/99	11/30/01
165	WV1013416__DMB	17.65	10	100	34	03/31/99	08/08/01
165	WV1013416__ULC	14.13	10	70	46	03/26/99	12/04/01
166	WV0064262__DSC	540.46	10	3330	65	03/26/99	12/28/01
166	WV0064262__DSS	36.36	10	550	33	03/31/99	08/27/01
166	WV0064262__USS	37.93	10	560	29	03/31/99	07/10/01
166	WV0095800__DSPC	600.33	20	1970	30	09/20/99	12/28/01
166	WV1013416__DSC	600.41	10	3330	49	03/26/99	12/28/01
166	WV1013416__USC	1167.35	10	13050	49	03/26/99	12/28/01
167	WV0064262__DFB	45.30	10	520	66	03/31/99	12/04/01
167	WV0095800__DCB	48.00	10	790	40	03/26/99	12/28/01
187	8980499__cb5	70.00	70	70	1	05/26/99	05/26/99
187	8980555__cb5	280.00	160	540	4	12/14/99	08/15/00
199	8980499__cb4	30.00	30	30	1	05/12/99	05/12/99
199	8980555__cb4	125.00	20	320	4	12/27/99	08/28/00
211	211WVOWR__BST-000-047.4	22.10	22.1	22.1	1	07/08/98	07/08/98
211	211WVOWR__BST-000-051.6	35.40	35.4	35.4	1	07/08/98	07/08/98
211	WV1004999__DGB	26.72	10	160	61	01/12/99	09/28/01
211	WV1004999__DMB	24.84	10	130	64	01/12/99	09/28/01
214	WV0092622__DAC2	143.33	10	570	42	01/12/99	09/17/00
214	WV0092878__DAC2	26.67	20	40	6	07/14/00	09/17/00
214	WV0095869__DAC	239.46	10	1390	74	10/10/98	11/16/01
214	WV0095869__UAC	235.22	10	1450	23	10/10/98	06/26/00
214	WV1008129__DSAC	311.13	10	1830	71	10/10/98	11/16/01
214	WV1008129__UCLH	226.67	60	590	6	10/10/98	01/12/99
214	WV1008129__USAC	249.71	10	1390	70	12/09/98	11/16/01
214	WV1012991__DAC	183.86	10	2410	114	01/12/99	09/28/01
214	WV1013173__UAC	239.25	10	1390	67	02/04/99	11/16/01
454	8980542__SW1	425.00	10	900	6	03/24/99	11/08/00
454	8980542__SW2	20.00	10	30	5	03/24/99	11/08/00
454	8980566__SW1	18.00	10	20	5	12/17/98	05/25/99
454	8980566__SW2	152.00	120	200	5	12/08/91	04/24/92
454	8980566__SW6	226.67	180	280	6	12/08/91	05/28/92

Table 3d. Water quality data for Total Nonfilterable Residue

SWS	WQ Station	Avg (ug/L)	Min (ug/L)	Max (ug/L)	Count	Start Date	End Date
1	211WVOWR__BST-000-000.2	39.00	6	200	7	05/16/00	11/27/01
11	22KYOSM2__1110201S02	48.71	5	225	7	11/27/90	04/24/91
12	22KYOSM2__1110201S01	34.43	5	136	7	11/27/90	04/24/91
12	22KYOSM2__1110201S03	206.00	206	206	1	10/04/90	10/04/90
15	112WRD__03214900	48.33	1	186	15	08/02/83	08/15/85
84	112WRD__03214000	39.13	1	223	16	08/02/83	08/15/85
143	22KYOSM2__0347801S01	11.33	2	30	3	10/19/83	12/02/83
149	22KYOSM2__0127201S03	45.60	22	108	5	08/02/82	12/06/82
149	22KYOSM2__0127201S04	19.33	4	28	6	08/02/82	01/12/83
187	8980499__cb5	4.00	4	4	1	05/26/99	05/26/99
187	8980555__cb5	4.75	2	11	4	12/14/99	08/15/00
199	8980499__cb4	1.00	1	1	1	05/12/99	05/12/99
199	8980555__cb4	9.25	1	15	4	12/27/99	08/28/00
214	WV0095869__DAC	10.08	1	45	13	10/29/98	10/01/01
214	WV0095869__UAC	33.60	1	147	5	10/29/98	04/06/00
214	WV1008129__DSAC	6.67	1	30	12	10/10/98	10/01/01
214	WV1008129__UCLH	2.00	2	2	2	11/02/98	01/12/99
214	WV1008129__USAC	10.83	1	45	12	01/12/99	10/01/01
214	WV1013173__UAC	11.09	1	45	11	04/12/99	10/01/01
454	8980504__sw1	8.50	5	14	6	08/11/99	11/16/00
454	8980504__sw2	14.00	8	19	6	08/11/99	11/16/00
454	8980542__SW1	5.33	2	9	6	03/24/99	11/08/00
454	8980542__SW2	10.20	7	13	5	03/24/99	11/08/00
454	8980566__SW1	8.00	5	12	5	12/17/98	05/25/99
454	8980566__SW2	11.60	8	16	5	12/08/91	04/24/92
454	8980566__SW6	15.00	9	19	6	12/08/91	05/28/92

Table 3e. Water quality data for pH

SWS	WQ Station	Avg (ug/L)	Min (ug/L)	Max (ug/L)	Count	Start Date	End Date
1	211WVOWR__BST-000-000.2	7.69	7.2	8.1	12	02/09/99	11/27/01
10	11COEHUN__1TFVW0021	6.20	6.2	6.2	1	11/24/80	11/24/80
10	211WVOWR__BST-003-0001	7.10	7.1	7.1	1	06/25/98	06/25/98
11	22KYOSM2__1110201S02	7.81	7.48	8.1	7	11/27/90	04/24/91
12	11COEHUN__1TFVW0020	6.10	6.1	6.1	1	11/24/80	11/24/80
12	22KYOSM2__1110201S01	7.71	7.3	8.1	7	11/27/90	04/24/91
12	22KYOSM2__1110201S03	7.13	7.13	7.1	1	10/04/90	10/04/90
14	11COEHUN__1TFVW0019	6.20	6.2	6.2	1	11/24/80	11/24/80
15	112WRD__03214900	7.74	6.3	8.4	86	03/18/76	11/27/85
15	112WRD__380020082305339	10.08	6.3	82.0	32	10/10/78	09/23/80
19	211WVOWR__BST-000-014.5	8.00	8	8.0	1	07/07/98	07/07/98
21	211WVOWR__BST-010-0001	7.40	7.4	7.4	1	06/30/98	06/30/98
27	112WRD__375535082285201	8.40	8.4	8.4	1	10/10/78	10/10/78
61	211WVOWR__BST-000-024.9	8.10	8.1	8.1	1	07/07/98	07/07/98
62	211WVOWR__BST-016-0001	7.80	7.8	7.8	1	06/30/98	06/30/98
71	11COEHUN__1TFVW0009	7.00	7	7.0	1	10/28/80	10/28/80
71	WV0095711__DBB	7.12	6.65	7.9	58	03/30/99	12/17/01
72	WV0095711__DSC	7.35	6.79	7.9	64	04/28/99	12/17/01
72	WV0095711__UMF	7.29	6.16	7.9	71	03/30/99	12/17/01
72	WV0095711__USC	7.33	6.74	7.9	66	03/30/99	12/17/01
79	112WRD__375057082251801	5.45	4.5	6.4	2	06/09/76	09/20/77
79	112WRD__375119082245101	7.27	6.8	7.7	3	10/10/78	04/14/81
82	112WRD__03214500	7.75	7.1	8.4	2	10/10/85	11/26/85
83	WV0048593__DUBC	8.09	7.5	8.4	34	11/01/98	06/15/01
83	WV0048593__UUBC	8.06	7.4	8.5	63	11/01/98	11/29/01
84	112WRD__03214000	7.68	6.2	8.6	111	10/04/60	08/15/85
139	11COEHUN__1TFVW0012	7.80	7.8	7.8	1	10/28/80	10/28/80
143	22KYOSM2__0347801S01	4.82	3.2	6.5	3	10/19/83	12/02/83
149	22KYOSM2__0127201S03	5.88	5.67	6.0	4	08/02/82	11/04/82
149	22KYOSM2__0127201S04	6.93	6.63	7.2	5	08/02/82	01/12/83
160	112WRD__03213700	7.80	6.5	8.9	98	09/16/69	01/15/85
164	WV0000434__USC	7.39	6.76	7.9	65	03/31/99	12/18/01
164	WV1004590__USC	7.27	6.99	7.7	24	03/12/99	12/18/01
165	WV0000434__DSC	7.41	6.98	7.9	66	03/31/99	12/18/01
165	WV0001252__DDWB	7.41	6.82	7.8	67	03/16/99	12/28/01
165	WV0001252__UDWB	7.35	6.82	7.8	67	03/16/99	12/28/01
165	WV0090026__LLC	7.43	6.73	7.9	67	03/24/99	12/28/01
165	WV0090026__ULC	7.39	6.64	7.9	67	03/24/99	12/28/01
165	WV0095800__DLC	7.39	6.65	8.0	59	03/26/99	12/04/01
165	WV1004590__DSC	7.35	7.02	7.9	25	03/12/99	12/18/01
165	WV1005171__DDWB	7.42	6.82	7.8	55	03/16/99	12/28/01
165	WV1005171__UDWB	7.36	6.82	7.8	55	03/16/99	12/28/01
165	WV1013416__DDWB	7.34	6.82	7.8	49	03/16/99	12/28/01
165	WV1013416__DLC	7.40	6.76	7.9	41	04/26/99	11/30/01
165	WV1013416__DMB	7.37	6.94	7.7	34	03/31/99	08/08/01
165	WV1013416__ULC	7.40	6.65	8.0	46	03/26/99	12/04/01
166	WV0064262__DSC	7.53	6.53	7.9	65	03/26/99	12/28/01
166	WV0064262__DSS	7.11	6.65	7.8	33	03/31/99	08/27/01
166	WV0064262__USS	7.11	6.67	7.7	29	03/31/99	07/10/01
166	WV0095800__DSPC	7.52	6.53	7.9	30	09/20/99	12/28/01
166	WV1013416__DSC	7.53	6.53	7.9	49	03/26/99	12/28/01
166	WV1013416__USC	7.33	6.58	7.7	49	03/26/99	12/28/01
167	WV0064262__DFB	7.39	6.58	7.9	66	03/31/99	12/04/01
167	WV0095800__DCB	7.20	6.83	7.6	40	03/26/99	12/28/01
187	8980499__cb5	7.60	7.6	7.6	1	05/26/99	05/26/99
187	8980555__cb5	7.90	7.7	8.1	4	12/14/99	08/15/00
199	8980499__cb4	8.10	8.1	8.1	1	05/12/99	05/12/99
199	8980555__cb4	7.66	7.42	7.8	4	12/27/99	08/28/00
206	112WRD__373304082072901	8.10	8.1	8.1	2	08/07/80	04/15/81
211	211WVOWR__BST-000-047.4	8.30	8.3	8.3	1	07/08/98	07/08/98
211	211WVOWR__BST-000-051.6	8.30	8.3	8.3	1	07/08/98	07/08/98
211	WV1004999__DGB	8.16	7	8.6	61	01/12/99	09/28/01
211	WV1004999__DMB	8.10	7.1	8.4	64	01/12/99	09/28/01

214	WV0092622__DAC2	8.01	7.4	8.5	42	01/12/99	09/17/00
214	WV0092878__DAC2	8.25	8	8.4	6	07/14/00	09/17/00
214	WV0095869__DAC	7.46	6.49	8.2	74	10/10/98	11/16/01
214	WV0095869__UAC	7.52	7.02	7.9	23	10/10/98	06/26/00
214	WV1008129__DSAC	7.45	6.47	8.0	71	10/10/98	11/16/01
214	WV1008129__UCLH	7.13	6.53	7.3	6	10/10/98	01/12/99
214	WV1008129__USAC	7.44	6.49	8.2	70	12/09/98	11/16/01
214	WV1012991__DAC	8.04	7.2	8.5	106	01/12/99	09/28/01
214	WV1013173__UAC	7.44	6.49	8.2	67	02/04/99	11/16/01
248	112WRD__373051081564401	7.30	7.3	7.3	1	10/12/78	10/12/78
454	8980504__sw1	7.32	7.1	7.5	6	08/11/99	11/16/00
454	8980504__sw2	7.70	6.8	8.1	6	08/11/99	11/16/00
454	8980542__SW1	8.08	7.71	8.4	6	03/24/99	11/08/00
454	8980542__SW2	7.49	7.38	7.6	5	03/24/99	11/08/00
454	8980566__SW1	7.40	7.06	7.7	6	12/17/98	06/24/99
454	8980566__SW2	6.58	6.48	6.7	6	12/08/91	05/28/92
454	8980566__SW6	6.35	6.12	6.5	6	12/08/91	05/28/92

Table 3f. Water quality data for dissolved zinc

SWS	WQ Station	Avg (ug/L)	Min (ug/L)	Max (ug/L)	Count	Start Date	End Date
1	211WVOWR__BST-000-000.2	3.73	2	10	11	05/26/99	11/27/01
15	112WRD__03214900	2.33	0	4	6	02/26/80	06/10/81
15	112WRD__380020082305339	2.00	0	4	3	02/26/80	08/20/80
84	112WRD__03214000	5.50	0	10	6	02/26/80	05/15/85
160	112WRD__03213700	6.60	0	20	5	02/26/80	06/09/81

Table 4a-1. Aluminum baseline conditions and allocations (WLAs) for permitted mining point sources

SWS	NPDES Permit ID	Baseline (lb/yr)	Allocation (lb/yr)	Allocation (mg/L)	Percent Reduction
7	WV0058955	143	143	3.60	0
8	WV0058955	214	214	3.60	0
71	WV0095711	139	139	3.60	0
71	WV1008021	52	52	3.60	0
72	WV0095711	69	69	3.60	0
72	WV1008021	103	103	3.60	0
73	WV0095711	190	190	3.60	0
83	WV0048593	79	79	3.60	0
83	WV0096148	2,041	2,041	3.60	0
83	WVG015036	54	54	3.60	0
138	WV0115444*	2	2	0.75	0
138	WV1015681	754	754	3.60	0
143	WV1015711	450	450	3.60	0
164	WV0000434	972	534	2.08	45
164	WV0064262	682	375	2.08	45
164	WV1004590	123	68	2.08	45
165	WV0090026	63	63	3.60	0
165	WV1004590	62	62	3.60	0
165	WV1005171	205	205	3.60	0
165	WV1013416	3,458	3,458	3.60	0
166	WV0064262	2,728	682	0.95	75
166	WV0090026	197	49	0.95	75
166	WV0092665	35	9	0.95	75
166	WV1013416	864	216	0.95	75
167	WV0064262	682	682	3.60	0
167	WV0090701	126	126	3.60	0
167	WV0095796	832	832	3.60	0
206	WV0060801	76	76	3.60	0
214	WV0095869	251	100	1.52	60
214	WV1008129	1,024	410	1.52	60
214	WV1012991	140	56	1.52	60
214	WV1013173	1,446	579	1.52	60
214	WV1013211	1,071	428	1.52	60

* Non-Mining Point Source: Mingo County PSD

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

SWS	NPDES Permit ID	Baseline (lb/yr)	Allocation (lb/yr)	Allocation (mg/L)	Percent Reduction
7	WV0058955	127	127	3.20	0
8	WV0058955	191	191	3.20	0
71	WV0095711	124	124	3.20	0
71	WV1008021	46	46	3.20	0
72	WV0095711	62	62	3.20	0
72	WV1008021	92	92	3.20	0
73	WV0095711	170	170	3.20	0
83	WV0048593	70	70	3.20	0
83	WV0096148	1,817	1,817	3.20	0
83	WVG015036	48	48	3.20	0
138	WV1015681	672	672	3.20	0
143	WV1015711	401	401	3.20	0
164	WV0000434	865	865	3.20	0
164	WV0064262	607	607	3.20	0
164	WV1004590	110	110	3.20	0
165	WV0090026	56	56	3.20	0
165	WV1004590	55	55	3.20	0
165	WV1005171	182	182	3.20	0
165	WV1013416	3,079	3,079	3.20	0
166	WV0064262	2,429	2,429	3.20	0
166	WV0090026	176	176	3.20	0
166	WV0092665	31	31	3.20	0
166	WV1013416	770	770	3.20	0
167	WV0064262	607	607	3.20	0
167	WV0090701	112	112	3.20	0
167	WV0095796	741	741	3.20	0
206	WV0060801	68	68	3.20	0
214	WV0095869	224	224	3.20	0
214	WV1008129	912	912	3.20	0
214	WV1012991	124	124	3.20	0
214	WV1013173	1,288	1,288	3.20	0
214	WV1013211	954	954	3.20	0

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

SWS	NPDES Permit ID	Baseline (lb/yr)	Allocation (lb/yr)	Allocation (mg/L)	Percent Reduction
7	WV0058955	79	79	2.00	0
8	WV0058955	119	119	2.00	0
71	WV0095711	77	77	2.00	0
71	WV1008021	29	29	2.00	0
72	WV0095711	39	39	2.00	0
72	WV1008021	57	57	2.00	0
73	WV0095711	106	106	2.00	0
83	WV0048593	44	44	2.00	0
83	WV0096148	1,132	1,132	2.00	0
83	WVG015036	30	30	2.00	0
138	WV1015681	418	418	2.00	0
143	WV1015711	250	250	2.00	0
164	WV0000434	539	539	2.00	0
164	WV0064262	378	378	2.00	0
164	WV1004590	68	68	2.00	0
165	WV0090026	35	35	2.00	0
165	WV1004590	34	34	2.00	0
165	WV1005171	114	114	2.00	0
165	WV1013416	1,918	1,918	2.00	0
166	WV0064262	1,513	1,513	2.00	0
166	WV0090026	109	109	2.00	0
166	WV0092665	19	19	2.00	0
166	WV1013416	480	480	2.00	0
167	WV0064262	378	378	2.00	0
167	WV0090701	70	70	2.00	0
167	WV0095796	461	461	2.00	0
206	WV0060801	42	42	2.00	0
214	WV0095869	139	139	2.00	0
214	WV1008129	568	568	2.00	0
214	WV1012991	77	77	2.00	0
214	WV1013173	802	802	2.00	0
214	WV1013211	594	594	2.00	0

Table 5a. Aluminum baseline conditions and allocations (LAs) for nonpoint sources in West Virginia

SWS	AML		Revoked Mines		Harvested Forest		Oil and Gas		Roads		Nonpoint Source			
	Baseline Load (lb/yr)	Allocated Load (lb/yr)	Baseline Load (lb/yr)	Allocated Load (lb/yr)	Baseline Load (lb/yr)	Allocated Load (lb/yr)	Baseline Load (lb/yr)	Allocated Load (lb/yr)	Baseline Load (lb/yr)	Allocated Load (lb/yr)	Baseline Load (lb/yr)	Allocated Load (lb/yr)	Requires Reduction	Percent Reduction
1	0	0	0	0	38	38	0	0	44	44	113	113		0
7	0	0	0	0	783	783	0	0	346	346	846	846		0
8	0	0	0	0	159	159	48	48	109	109	263	263		0
10	0	0	0	0	330	182	154	85	209	118	520	520	X	25
11	0	0	0	0	19	19	0	0	14	14	34	34		0
12	0	0	0	0	4380	4380	233	233	344	344	751	751		0
14	0	0	0	0	1956	1369	852	596	1231	873	3063	3063	X	17
15	0	0	0	0	14	14	0	0	10	10	22	22		0
16	0	0	0	0	7	7	9	9	5	5	11	11		0
17	0	0	0	0	336	336	148	148	164	164	397	397		0
19	0	0	0	0	710	391	154	85	448	253	1115	1115	X	24
20	0	0	0	0	100	100	12	12	66	66	163	163		0
21	0	0	0	0	872	698	133	106	515	418	1289	1289	X	11
22	0	0	0	0	103	103	24	24	68	68	170	170		0
23	0	0	0	0	175	175	0	0	117	117	286	286		0
25	0	0	0	0	662	562	217	184	421	361	1051	1051	X	8
26	0	0	0	0	1471	1471	76	76	103	103	364	364		0
27	0	0	0	0	56	56	10	10	32	32	76	76		0
61	0	0	0	0	700	700	50	50	49	49	174	174		0
62	0	0	0	0	667	667	254	254	432	432	1074	1074		0
71	0	0	0	0	677	677	50	50	47	47	165	165		0
72	0	0	0	0	637	509	150	120	393	318	974	974	X	11
73	0	0	0	0	503	503	82	82	131	131	321	321		0
79	0	0	0	0	230	230	19	19	16	16	60	60		0
80	1	0	0	0	116	116	29	29	14	14	111	111	X	0
82	1279	26	1056	21	483	483	67	67	55	55	390	390	X	69
83	151	3	156	3	2240	2240	237	237	156	156	1137	1137	X	7
84	0	0	0	0	688	688	144	144	84	84	649	649		0
85	0	0	0	0	285	285	70	70	36	36	270	270		0
138	1204	24	535	11	2471	2471	308	308	179	179	1335	1335	X	28
139	3045	61	0	0	643	643	48	48	32	32	241	241	X	74
143	34	1	158	3	1938	1938	232	232	132	132	1041	1041	X	5
144	17576	352	0	0	2911	1456	175	88	320	174	2419	2419	X	81
145	52	1	0	0	41	41	28	28	23	23	84	84	X	23
146	0	0	0	0	492	345	50	35	54	40	425	425	X	17
147	0	0	0	0	84	84	8	8	8	8	64	64		0
148	0	0	0	0	104	104	35	35	61	61	233	233		0
160	0	0	0	0	62	62	14	14	13	13	135	135		0
161	0	0	0	0	373	261	0	0	41	30	335	335	X	16
162	0	0	0	0	16	16	0	0	5	5	58	58		0
163	290	6	0	0	277	277	64	64	30	30	254	254	X	31
164	1265	25	0	0	1500	750	0	0	155	85	1151	1151	X	51
165	317	6	102	2	2752	2752	369	369	306	306	2304	2304	X	7
166	0	0	0	0	519	234	0	0	71	35	393	393	X	33
167	1906	38	0	0	1414	1414	134	134	141	141	1053	1053	X	40
186	0	0	6	0	238	238	42	42	87	87	317	317	X	1
187	1309	26	0	0	568	568	77	77	65	65	499	499	X	51
195	0	0	0	0	115	115	18	18	13	13	101	101		0
199	122	2	0	0	95	95	41	41	46	46	164	164	X	25
200	31	1	0	0	197	197	22	22	18	18	139	139	X	8
206	658	13	732	15	564	564	88	88	293	293	1007	1007	X	41
210	0	0	0	0	62	62	6	6	7	7	54	54		0
211	0	0	0	0	696	696	136	136	374	374	1322	1322		0
212	0	0	0	0	87	87	11	11	32	32	113	113		0
214	1242	25	0	0	1934	1160	115	69	220	139	1592	1592	X	42
215	38	1	0	0	422	422	11	11	47	47	366	366	X	4
244	0	0	0	0	642	642	0	0	68	68	529	529		0
245	12051	241	0	0	1001	551	115	63	109	64	786	786	X	88
246	0	0	0	0	341	341	0	0	22	22	157	157		0
247	0	0	0	0	543	543	0	0	39	39	287	287		0
455	0	0	0	0	2	2	0	0	2	2	8	8		0

Table 5b. Iron baseline conditions and allocations (LAs) for nonpoint sources in West Virginia

SWS	AML		Revoked Mines		Harvested Forest		Oil and Gas		Roads		Nonpoint Source			
	Baseline Load (lb/yr)	Allocated Load (lb/yr)	Baseline Load (lb/yr)	Allocated Load (lb/yr)	Baseline Load (lb/yr)	Allocated Load (lb/yr)	Baseline Load (lb/yr)	Allocated Load (lb/yr)	Baseline Load (lb/yr)	Allocated Load (lb/yr)	Baseline Load (lb/yr)	Allocated Load (lb/yr)	Requires Reduction	Percent Reduction
1	0	0	0	0	48	48	0	0	55	55	171	171		0
7	0	0	0	0	989	989	0	0	437	437	1320	1320		0
8	0	0	0	0	201	201	61	61	138	138	410	410		0
10	0	0	0	0	417	230	195	107	264	149	811	811	X	23
11	0	0	0	0	24	24	0	0	17	17	53	53		0
12	0	0	0	0	5533	5533	294	294	434	434	1171	1171		0
14	0	0	0	0	2471	1730	1076	753	1553	1101	4783	4783	X	15
15	0	0	0	0	17	17	0	0	12	12	34	34		0
16	0	0	0	0	9	9	12	12	6	6	18	18		0
17	0	0	0	0	424	424	186	186	207	207	619	619		0
19	0	0	0	0	897	494	195	107	565	318	1741	1741	X	22
20	0	0	0	0	126	126	15	15	84	84	255	255		0
21	0	0	0	0	1102	882	168	134	649	526	2003	2003	X	10
22	0	0	0	0	130	130	30	30	86	86	263	263		0
23	0	0	0	0	221	221	0	0	147	147	444	444		0
25	0	0	0	0	836	710	274	233	530	455	1634	1634	X	7
26	0	0	0	0	1858	1858	96	96	130	130	566	566		0
27	0	0	0	0	71	71	12	12	40	40	118	118		0
61	0	0	0	0	885	885	63	63	62	62	270	270		0
62	0	0	0	0	842	842	321	321	545	545	1664	1664		0
71	0	0	0	0	856	856	63	63	59	59	255	255		0
72	0	0	0	0	804	643	189	151	495	401	1513	1513	X	10
73	0	0	0	0	635	635	103	103	165	165	497	497		0
79	0	0	0	0	291	291	24	24	21	21	91	91		0
80	2	0	0	0	146	146	36	36	17	17	171	171	X	0
82	1685	84	1216	61	611	611	85	85	69	69	598	598	X	65
83	199	10	180	9	2830	2830	299	299	196	196	1760	1760	X	7
84	0	0	0	0	869	869	182	182	105	105	1008	1008		0
85	0	0	0	0	360	360	89	89	45	45	419	419		0
138	1587	79	615	31	3121	3121	389	389	225	225	2069	2069	X	26
139	4012	201	0	0	812	812	61	61	40	40	366	366	X	72
143	45	2	182	9	2449	2449	293	293	166	166	1596	1596	X	5
144	23190	3082	0	0	3678	1839	221	111	402	218	3793	3793	X	71
145	69	3	0	0	51	51	35	35	29	29	129	129	X	21
146	0	0	0	0	622	435	63	44	67	50	659	659	X	16
147	0	0	0	0	106	106	10	10	10	10	97	97		0
148	0	0	0	0	131	131	44	44	77	77	351	351		0
160	0	0	0	0	78	78	17	17	16	16	192	192		0
161	0	0	0	0	471	330	0	0	52	38	524	524	X	15
162	0	0	0	0	20	20	0	0	6	6	78	78		0
163	383	19	0	0	350	350	81	81	38	38	381	381	X	30
164	1669	1241	0	0	1895	947	0	0	195	106	1803	1803	X	26
165	419	21	117	6	3477	3477	466	466	385	385	3609	3609	X	6
166	0	0	0	0	656	295	0	0	89	44	616	616	X	30
167	2515	126	0	0	1787	1787	170	170	178	178	1645	1645	X	38
186	0	0	7	0	301	301	52	52	110	110	494	494	X	1
187	1726	86	0	0	718	718	97	97	81	81	782	782	X	48
195	0	0	0	0	145	145	23	23	16	16	159	159		0
199	160	8	0	0	121	121	52	52	58	58	257	257	X	24
200	41	2	0	0	249	249	28	28	23	23	217	217	X	7
206	868	43	842	42	713	713	111	111	370	370	1579	1579	X	36
210	0	0	0	0	78	78	8	8	9	9	85	85		0
211	0	0	0	0	880	880	171	171	471	471	2073	2073		0
212	0	0	0	0	110	110	14	14	40	40	177	177		0
214	1638	1638	0	0	2443	1466	146	87	276	174	2496	2496	X	16
215	50	2	0	0	533	533	14	14	60	60	575	575	X	4
244	0	0	0	0	810	810	0	0	86	86	830	830		0
245	15895	1573	0	0	1265	696	146	80	137	80	1233	1233	X	80
246	0	0	0	0	430	430	0	0	28	28	246	246		0
247	0	0	0	0	686	686	0	0	49	49	450	450		0
455	0	0	0	0	3	3	0	0	3	3	12	12		0

Table 5c. Manganese baseline conditions and allocations (LAs) for nonpoint sources in West Virginia

SWS	AML		Revoked Mines		Harvested Forest		Oil and Gas		Roads		Nonpoint Source			
	Baseline Load (lb/yr)	Allocated Load (lb/yr)	Baseline Load (lb/yr)	Allocated Load (lb/yr)	Baseline Load (lb/yr)	Allocated Load (lb/yr)	Baseline Load (lb/yr)	Allocated Load (lb/yr)	Baseline Load (lb/yr)	Allocated Load (lb/yr)	Baseline Load (lb/yr)	Allocated Load (lb/yr)	Requires Reduction	Percent Reduction
1	0	0	0	0	3	3	0	0	4	4	78	78		0
7	0	0	0	0	64	64	0	0	32	32	619	619		0
8	0	0	0	0	13	13	4	4	10	10	193	193		0
10	0	0	0	0	27	15	13	7	19	12	381	381	X	6
11	0	0	0	0	2	2	0	0	1	1	25	25		0
12	0	0	0	0	359	359	19	19	32	32	549	549		0
14	0	0	0	0	161	112	70	49	113	84	2245	2245	X	4
15	0	0	0	0	1	1	0	0	1	1	16	16		0
16	0	0	0	0	1	1	1	1	0	0	8	8		0
17	0	0	0	0	28	28	12	12	15	15	290	290	X	0
19	0	0	0	0	58	32	13	7	41	25	817	817		5
20	0	0	0	0	8	8	1	1	6	6	120	120		0
21	0	0	0	0	71	57	11	9	51	43	935	935	X	2
22	0	0	0	0	8	8	2	2	7	7	122	122		0
23	0	0	0	0	14	14	0	0	12	12	208	208		0
25	0	0	0	0	54	46	18	15	42	37	763	763	X	2
26	0	0	0	0	120	120	6	6	11	11	264	264		0
27	0	0	0	0	5	5	1	1	3	3	55	55		0
61	0	0	0	0	57	57	4	4	5	5	126	126		0
62	0	0	0	0	55	55	21	21	43	43	775	775		0
71	0	0	0	0	55	55	4	4	5	5	119	119		0
72	0	0	0	0	52	42	12	10	39	33	706	706	X	2
73	0	0	0	0	41	41	7	7	13	13	231	231		0
79	0	0	0	0	19	19	2	2	2	2	42	42		0
80	1	0	0	0	9	9	2	2	2	2	79	79	X	0
82	563	113	1052	210	40	40	5	5	7	7	275	275	X	67
83	66	13	156	31	183	183	19	19	19	19	819	819	X	14
84	0	0	0	0	56	56	12	12	10	10	471	471		0
85	0	0	0	0	23	23	6	6	4	4	195	195		0
138	530	106	533	107	202	202	25	25	22	22	963	963	X	37
139	1340	268	0	0	53	53	4	4	4	4	167	167	X	68
143	15	3	157	31	159	159	19	19	16	16	736	736	X	13
144	7656	1531	0	0	227	114	14	7	34	23	1788	1788	X	64
145	23	5	0	0	3	3	2	2	2	2	60	60	X	20
146	0	0	0	0	40	28	4	3	7	5	307	307	X	4
147	0	0	0	0	7	7	1	1	1	1	44	44		0
148	0	0	0	0	8	8	3	3	6	6	159	159		0
160	0	0	0	0	5	5	1	1	2	2	81	81		0
161	0	0	0	0	29	20	0	0	4	4	246	246	X	3
162	0	0	0	0	1	1	0	0	1	1	31	31		0
163	126	25	0	0	22	22	5	5	3	3	172	172	X	31
164	551	11	0	0	117	59	0	0	17	11	849	849	X	39
165	138	28	102	20	215	215	29	29	33	33	1700	1700	X	9
166	0	0	0	0	41	18	0	0	8	5	291	291	X	7
167	830	166	0	0	111	111	10	10	15	15	773	773	X	38
186	0	0	6	1	19	19	3	3	8	8	232	232	X	2
187	569	114	0	0	45	45	6	6	7	7	368	368	X	46
195	0	0	0	0	9	9	1	1	1	1	75	75		0
199	53	11	0	0	8	8	3	3	4	4	121	121	X	22
200	14	3	0	0	16	16	2	2	2	2	102	102	X	8
206	286	57	730	146	45	45	7	7	27	27	745	745	X	44
210	0	0	0	0	5	5	0	0	1	1	40	40		0
211	0	0	0	0	55	55	11	11	34	34	977	977		0
212	0	0	0	0	7	7	1	1	3	3	84	84		0
214	540	11	0	0	153	92	9	5	23	17	1177	1177	X	32
215	16	3	0	0	33	33	1	1	5	5	271	271	X	4
244	0	0	0	0	51	51	0	0	7	7	391	391		0
245	5237	1571	0	0	79	43	9	5	11	8	581	581	X	63
246	0	0	0	0	27	27	0	0	2	2	116	116		0
247	0	0	0	0	43	43	0	0	4	4	212	212		0
455	0	0	0	0	0	0	0	0	0	0	6	6		0

Table 6a. Baseline conditions and allocations for all sources in Virginia

Metal	Baseline Load (lb/yr)	Allocated Load (lb/yr)	Requires Reduction	Percent Reduction
Aluminum	7,132	7,132		0
Iron	9,740	9,740		0

Table 6a. Baseline conditions and allocations for all sources in Kentucky

Metal	Baseline Load (lb/yr)	Allocated Load (lb/yr)	Requires Reduction	Percent Reduction
Aluminum	114,824	93,055	X	19
Iron	150,311	123,070	X	18

Appendix B

Dissolved Zinc Impairments in the Tug Fork Watershed

Problem Understanding and Conclusions

The mainstem of the Tug Fork River was listed as impaired for zinc on West Virginia's 1998 303(d) list. Dissolved zinc data collected from stations located on the mainstem of the Tug Fork are shown in Table 1. Figures 1 and Figure 2 show the dissolved zinc data along with the corresponding hardness-based water quality criteria. There were no exceedances of the hardness-based water quality criteria for zinc. These findings suggest that the mainstem of the Tug Fork is not impaired for zinc and TMDL development for this pollutant is not necessary. This impairment will be addressed in the development of the West Virginia 2002 Section 303(d) List.

AGENCY	STATION	LOCATION	Date	Hardness, as Calcium Carbonate (mg/L)	Dissolved Zinc (ug/L)	Acute Criteria (ug/L)	Chronic Criteria (ug/L)
211WVOWR	BST-000-000.2	Tug Fork at Fort Gay	05/26/99	187	2	171	178
211WVOWR	BST-000-000.2	Tug Fork at Fort Gay	08/04/99	203	2	183	190
211WVOWR	BST-000-000.2	Tug Fork at Fort Gay	11/29/99	170	2	157	164
211WVOWR	BST-000-000.2	Tug Fork at Fort Gay	02/15/00	110	2	109	113
211WVOWR	BST-000-000.2	Tug Fork at Fort Gay	05/16/00	203	2	183	190
211WVOWR	BST-000-000.2	Tug Fork at Fort Gay	08/02/00	165	2	153	160
211WVOWR	BST-000-000.2	Tug Fork at Fort Gay	11/16/00	284	2	243	253
211WVOWR	BST-000-000.2	Tug Fork at Fort Gay	02/26/01	160	2	149	156
211WVOWR	BST-000-000.2	Tug Fork at Fort Gay	05/02/01	190	10	173	180
211WVOWR	BST-000-000.2	Tug Fork at Fort Gay	08/08/01	204	10	184	191
211WVOWR	BST-000-000.2	Tug Fork at Fort Gay	11/27/01	244	5	214	223

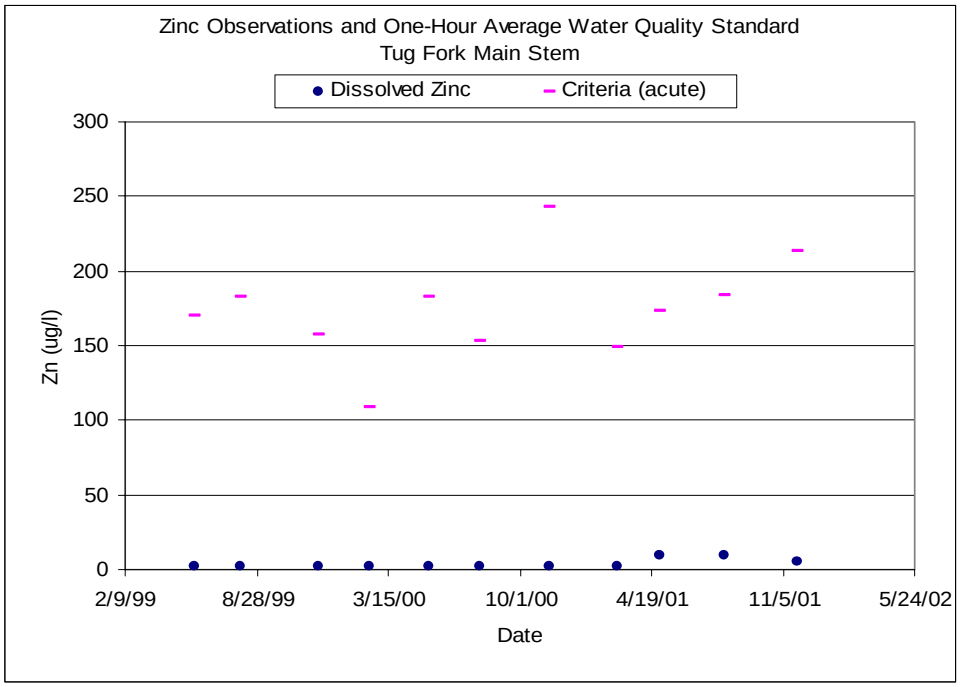


Figure B-1. Dissolved zinc observations for the Tug Fork watershed (with corresponding criteria)

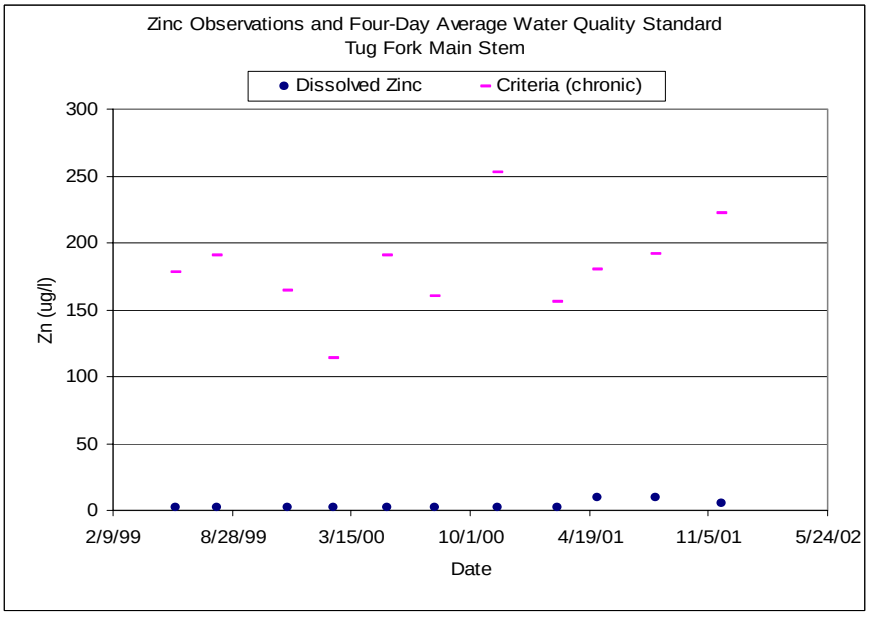


Figure B-2. Dissolved zinc observations for the Tug Fork watershed (with corresponding criteria)

Appendix C

Water Quality Data Analysis

Location: Tug Fork at Kermit
Pollutant: TSS, mg/L
Data from: 2/21/1985 to 9/16/1998 (157 Observations)

Flow Range	# Obs	Flow (cfs)			Concentration (mg/L)		
Percentile	*Count*	*Median*	*Min*	*Max*	*Median*	*Min*	*Max*
0-10	16	147	105	182	5.000	1.000	19.000
10-20	16	222	188	259	11.500	1.000	50.000
20-30	15	293	260	343	12.000	4.000	1270.000
30-40	16	454	344	556	18.000	1.000	71.000
40-50	16	677	561	789	14.000	1.000	182.000
50-60	17	930	800	1060	28.000	2.000	129.000
60-70	14	1194	1070	1300	11.000	4.000	298.000
70-80	16	1552	1320	1750	15.500	2.000	141.000
80-90	15	2519	1770	3440	46.000	7.000	440.000
90-100	15	4453	3450	6700	64.000	14.000	214.000

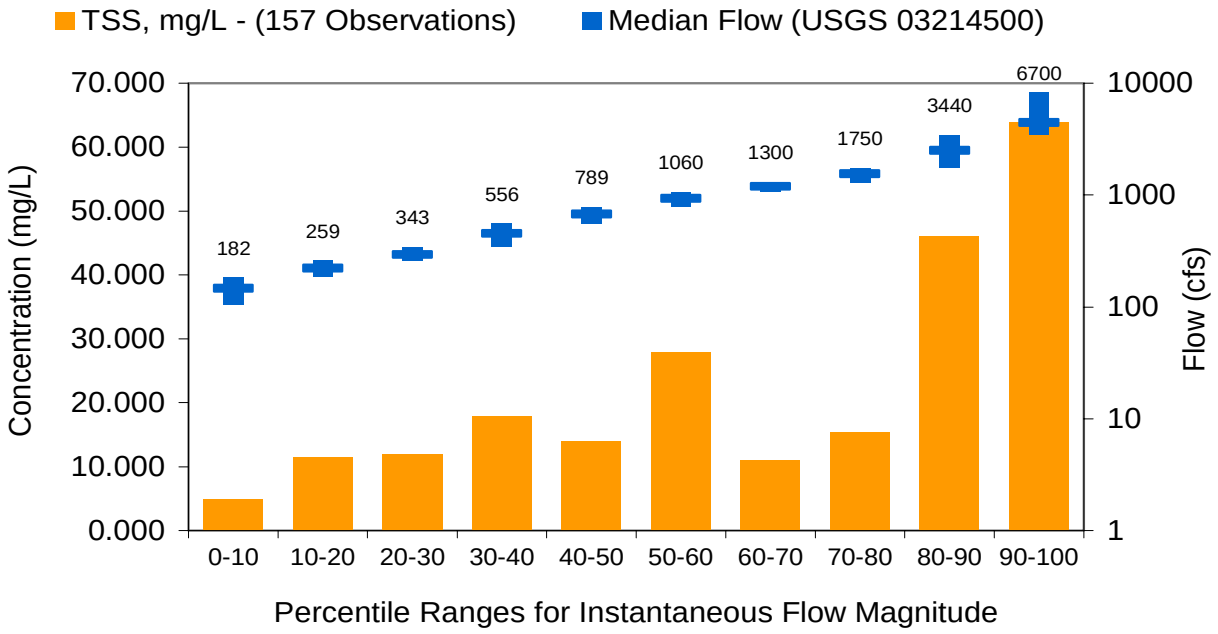


Figure C-1. Tug Fork River mainstem at Kermit - Flow/TSS relationship

Location: Tug Fork at Kermit
Pollutant: Total Fe, mg/L
Data from: 8/6/1985 to 9/16/1998 (146 Observations)

Flow Range	# Obs	Flow (cfs)			Concentration (mg/L)		
Percentile	*Count*	*Median*	*Min*	*Max*	*Median*	*Min*	*Max*
0-10	15	145	105	177	0.310	0.110	0.781
10-20	16	217	182	254	0.580	0.060	1.760
20-30	13	290	259	330	0.480	0.290	3.570
30-40	15	449	344	561	0.617	0.320	1.970
40-50	14	677	580	768	0.812	0.323	5.980
50-60	16	917	789	1060	1.050	0.003	4.640
60-70	13	1192	1070	1300	0.675	0.393	7.800
70-80	15	1575	1320	1910	0.780	0.370	11.800
80-90	14	2575	1940	3440	1.590	0.511	4.770
90-100	14	4496	3450	6700	2.275	0.962	10.400

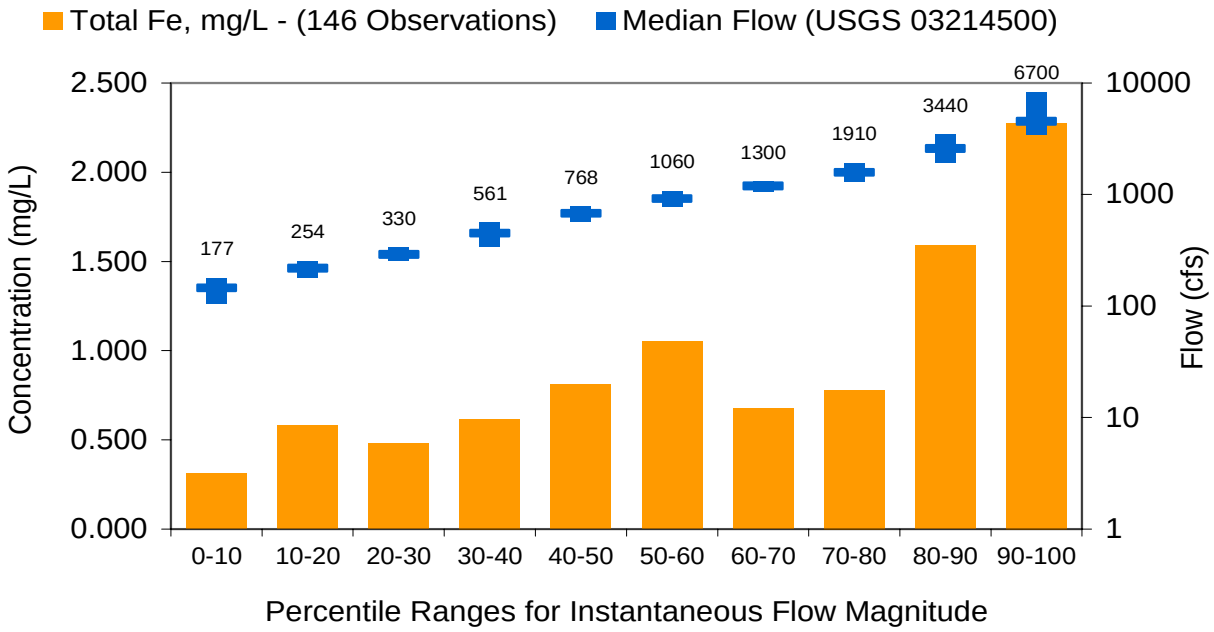


Figure C-2. Tug Fork River mainstem at Kermit - Flow/Total Iron relationship

Location: Tug Fork at Kermit
Pollutant: Total Al, mg/L
Data from: 8/6/1985 to 9/16/1998 (147 Observations)

Flow Range	# Obs	Flow (cfs)			Concentration (mg/L)		
Percentile	*Count*	*Median*	*Min*	*Max*	*Median*	*Min*	*Max*
0-10	15	145	105	177	0.100	0.044	0.359
10-20	16	217	182	254	0.165	0.032	1.120
20-30	13	290	259	330	0.175	0.080	1.870
30-40	15	434	343	555	0.305	0.069	16.400
40-50	15	669	561	768	0.243	0.091	3.490
50-60	16	917	789	1060	0.371	0.082	2.010
60-70	13	1192	1070	1300	0.342	0.009	2.760
70-80	14	1551	1320	1750	0.308	0.129	5.600
80-90	15	2531	1910	3440	0.716	0.271	3.300
90-100	14	4496	3450	6700	1.055	0.368	5.040

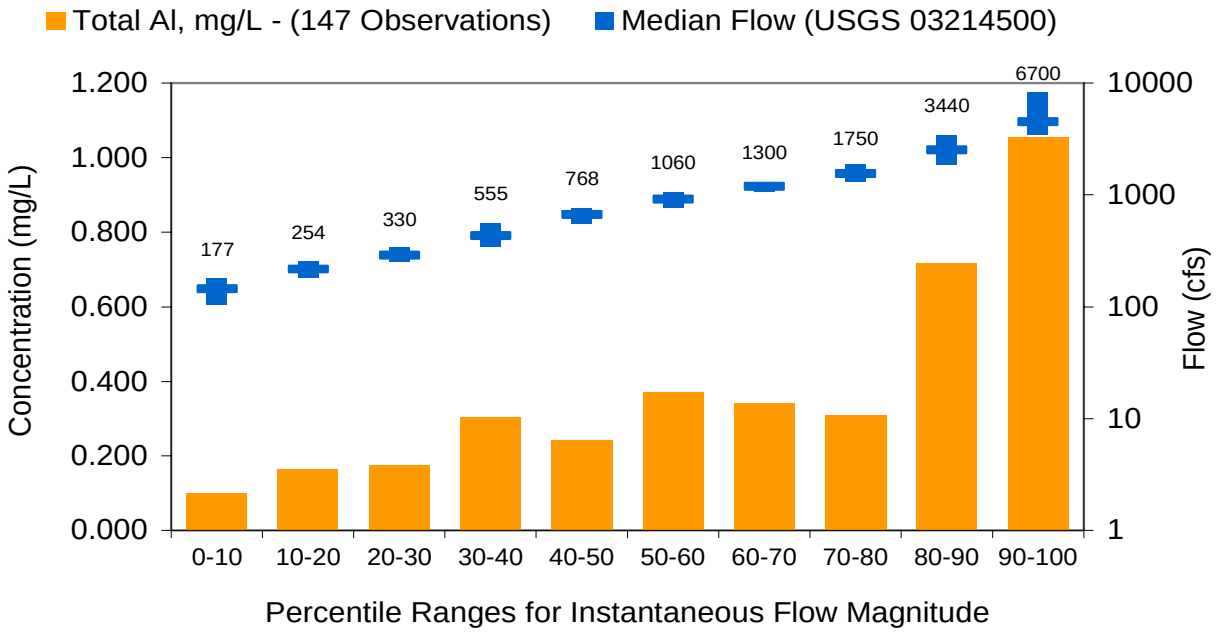


Figure C-3. Tug Fork River mainstem at Kermit - Flow/Total Aluminum relationship

Location: Tug Fork at Kermit
Pollutant: Total Mn, mg/L
Data from: 2/19/1985 to 9/16/1998 (153 Observations)

Flow Range	# Obs	Flow (cfs)			Concentration (mg/L)		
Percentile	*Count*	*Median*	*Min*	*Max*	*Median*	*Min*	*Max*
0-10	16	147	105	182	0.060	0.040	0.110
10-20	15	219	188	254	0.070	0.040	0.110
20-30	15	288	259	330	0.070	0.047	0.230
30-40	15	434	343	555	0.090	0.045	1.450
40-50	16	677	561	789	0.106	0.008	0.220
50-60	16	928	800	1060	0.074	0.024	0.165
60-70	14	1201	1070	1320	0.080	0.037	0.290
70-80	15	1605	1360	1910	0.080	0.041	0.480
80-90	15	2548	1940	3440	0.095	0.032	0.240
90-100	15	4453	3450	6700	0.110	0.067	0.469

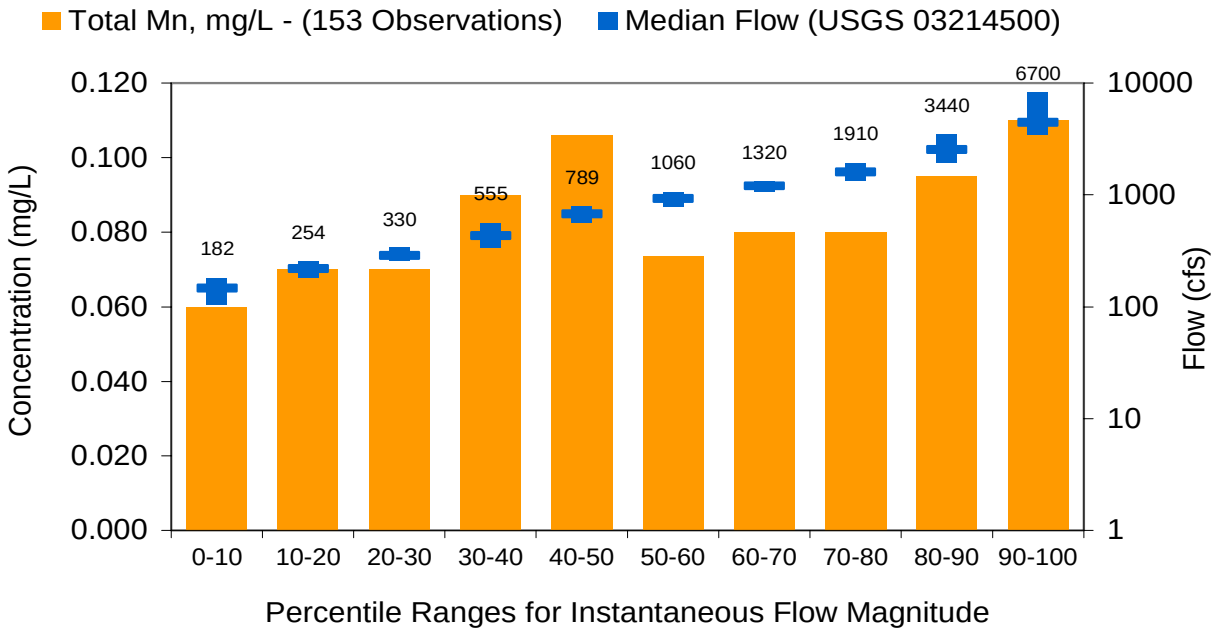


Figure C-4. Tug Fork River mainstem at Kermit - Flow/Total Manganese relationship

Location: Tug Fork at Fort Gay
Pollutant: TSS, mg/L
Data from: 1/0/1900 to 1/0/1900 (167 Observations)

Flow Range	# Obs	Flow (cfs)			Concentration (mg/L)		
Percentile	*Count*	*Median*	*Min*	*Max*	*Median*	*Min*	*Max*
0-10	17	167	85	207	8.000	3.000	30.000
10-20	17	278	211	334	9.000	1.000	104.000
20-30	16	395	335	458	21.500	2.000	60.000
30-40	17	581	463	673	17.000	1.000	908.000
40-50	18	954	696	1160	25.500	2.000	190.000
50-60	15	1316	1170	1430	27.000	3.000	242.000
60-70	17	1808	1504	2140	42.000	9.000	653.000
70-80	16	2556	2170	3030	55.000	20.000	1120.000
80-90	17	3652	3080	4200	81.000	27.000	482.000
90-100	16	6339	4230	12100	165.000	13.000	835.000

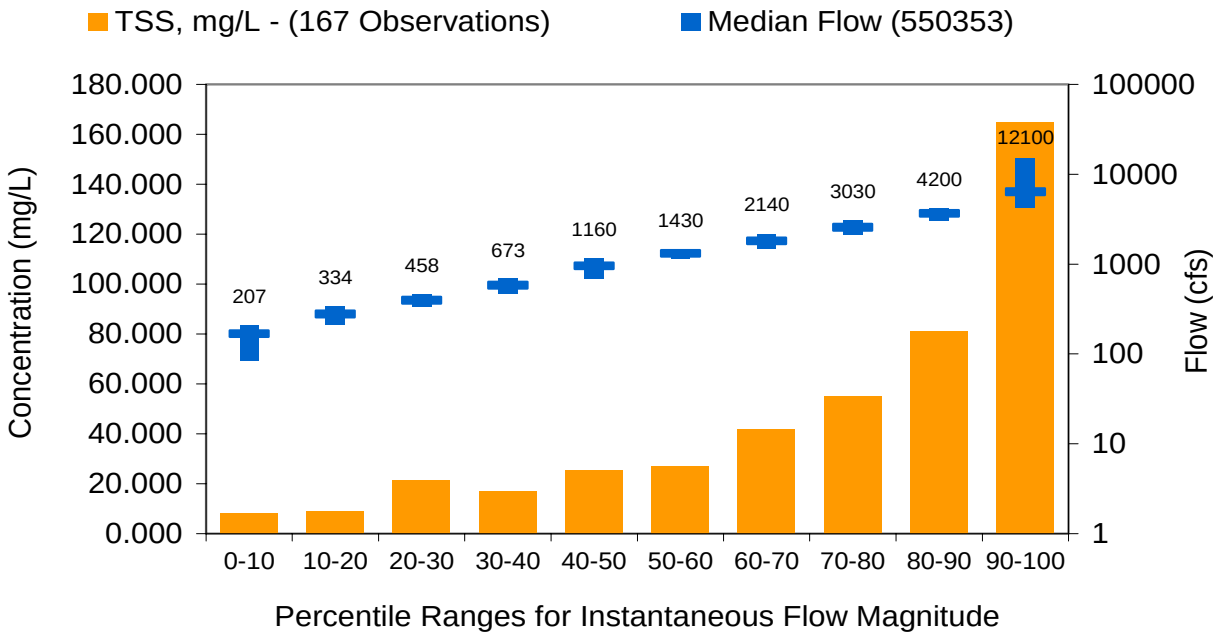


Figure C-5. Tug Fork River mainstem at Fort Gay - Flow/TSS relationship

Location: Tug Fork at Fort Gay
Pollutant: Total Fe, mg/L
Data from: 1/0/1900 to 1/0/1900 (118 Observations)

Flow Range	# Obs	Flow (cfs)			Concentration (mg/L)		
Percentile	*Count*	*Median*	*Min*	*Max*	*Median*	*Min*	*Max*
0-10	12	173	139	211	0.430	0.130	1.120
10-20	12	293	221	334	0.505	0.060	4.400
20-30	12	386	335	450	0.830	0.400	2.460
30-40	11	553	451	647	0.680	0.150	35.000
40-50	12	852	665	1090	0.745	0.110	2.680
50-60	12	1263	1110	1420	1.765	0.400	7.100
60-70	11	1675	1430	1924	1.340	0.070	23.000
70-80	12	2178	1980	2490	1.750	0.040	13.000
80-90	13	3247	2587	3780	2.800	0.250	24.000
90-100	10	5397	4040	8350	4.850	0.530	9.200

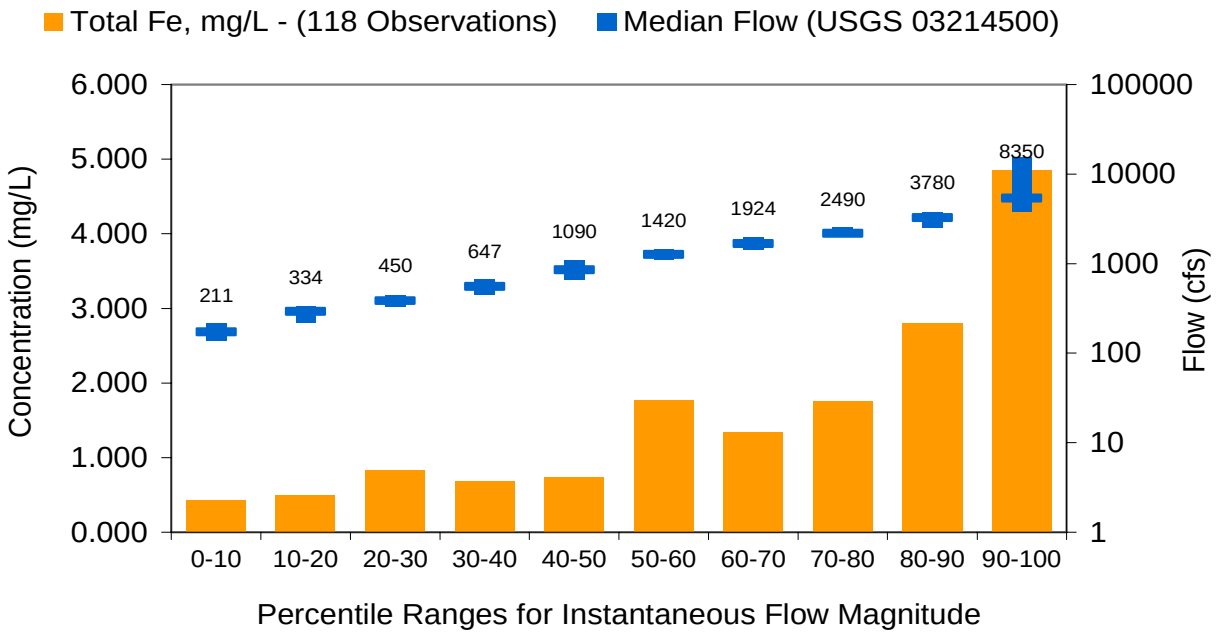


Figure C-6. Tug Fork River mainstem at Fort Gay - Flow/Total Iron relationship

Location: Tug Fork at Fort Gay
Pollutant: Total Al, mg/L
Data from: 1/0/1900 to 1/0/1900 (106 Observations)

Flow Range	# Obs	Flow (cfs)			Concentration (mg/L)		
Percentile	*Count*	*Median*	*Min*	*Max*	*Median*	*Min*	*Max*
0-10	11	171	139	211	0.280	0.180	0.770
10-20	11	298	221	334	0.440	0.170	8.800
20-30	10	374	335	433	0.360	0.100	6.200
30-40	11	557	443	665	0.620	0.200	5.700
40-50	10	861	673	1090	0.640	0.220	1.160
50-60	11	1295	1110	1430	0.700	0.340	13.000
60-70	10	1777	1530	1990	0.550	0.140	30.000
70-80	11	2318	2060	2717	1.100	0.540	17.000
80-90	10	3430	3000	3780	1.420	0.820	9.200
90-100	10	5397	4040	8350	4.050	0.900	6.700

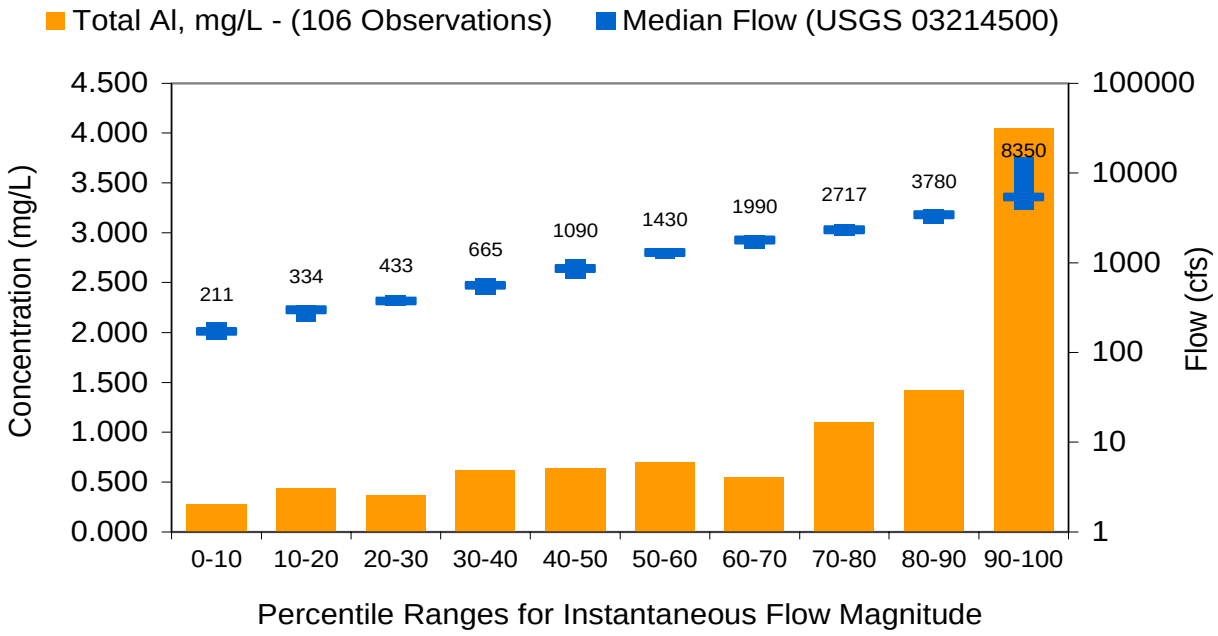


Figure C-7. Tug Fork River mainstem at Fort Gay - Flow/Total Aluminum relationship

Location: Tug Fork at Fort Gay
Pollutant: Total Mn, mg/L
Data from: 1/0/1900 to 1/0/1900 (118 Observations)

Flow Range	# Obs	Flow (cfs)			Concentration (mg/L)		
Percentile	*Count*	*Median*	*Min*	*Max*	*Median*	*Min*	*Max*
0-10	12	173	139	211	0.086	0.005	0.140
10-20	12	293	221	334	0.049	0.005	0.165
20-30	12	386	335	450	0.072	0.020	0.140
30-40	11	553	451	647	0.064	0.030	0.750
40-50	12	852	665	1090	0.073	0.010	0.100
50-60	12	1263	1110	1420	0.100	0.044	0.270
60-70	11	1675	1430	1924	0.133	0.005	0.680
70-80	12	2178	1980	2490	0.082	0.005	0.440
80-90	13	3247	2587	3780	0.120	0.005	0.660
90-100	10	5397	4040	8350	0.190	0.020	0.480

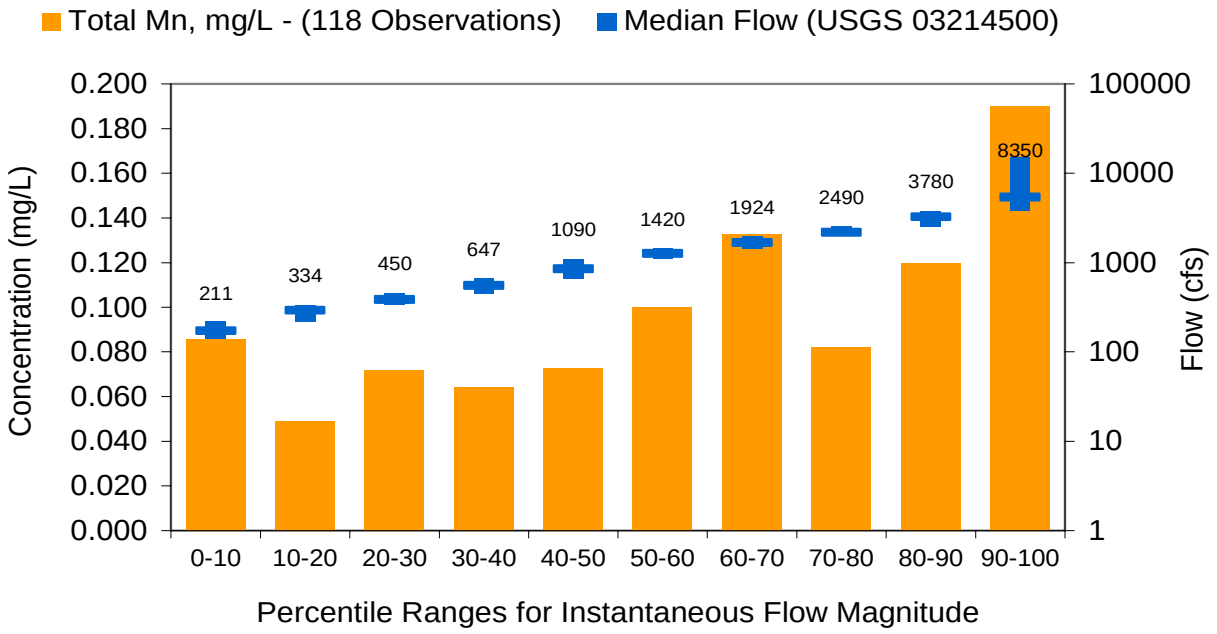


Figure C-8. Tug Fork River mainstem - Flow/Total Manganese relationship

Location: Tributaries to Tug Fork
Analysis: Total Fe, ug/L vs TSS, mg/L
Data from: 8/6/1981 to 12/17/2001 (377 Observations)

Flow Range	# Obs	TSS (mg/L)			Concentration (ug/L)		
Percentile	*Count*	*Median*	*Min*	*Max*	*Median*	*Min*	*Max*
0-10	38	10	10	11	165	10	10230
10-20	38	11	11	12	220	0	8140
20-30	38	13	12	13	210	20	5190
30-40	37	14	13	14	120	0	1660
40-50	38	16	14	17	235	0	7180
50-60	38	18	17	20	295	0	910
60-70	37	22	20	24	280	10	12000
70-80	38	30	26	35	350	0	2600
80-90	37	45	35	58	890	20	7900
90-100	37	358	58	2820	1040	170	76000

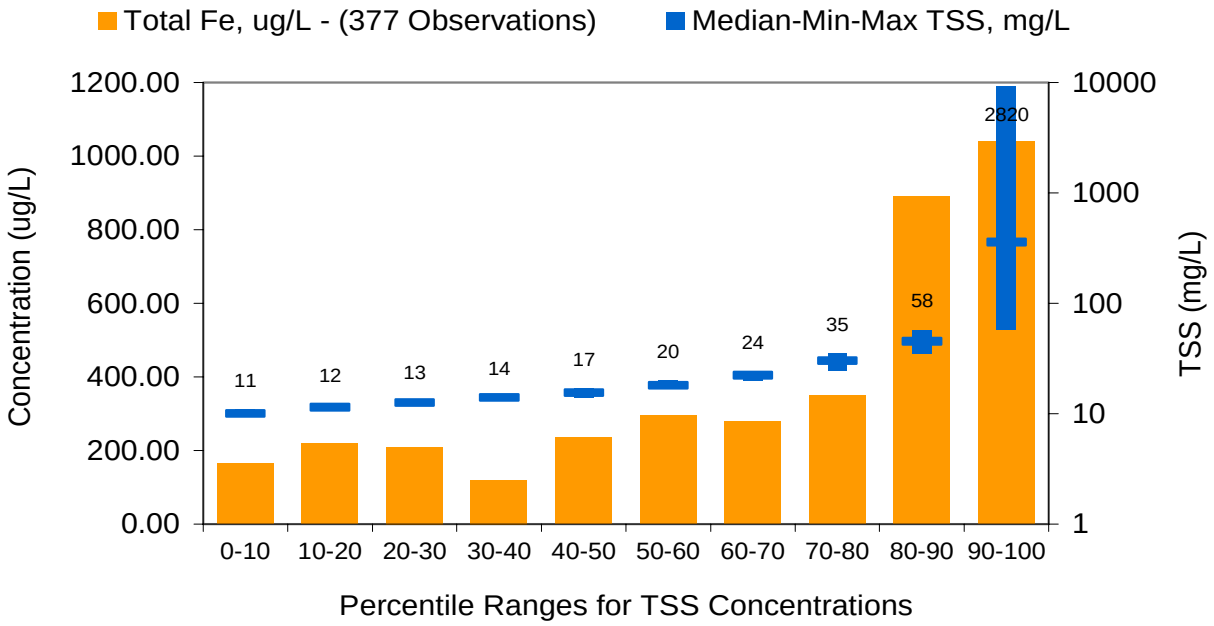


Figure C-9. Upstream Tributaries to Tug Fork River - TSS/Total Iron relationship

Location: Tributaries to Tug Fork
Analysis: Total Al, ug/L vs TSS, mg/L
Data from: 7/24/1997 to 12/17/2001 (134 Observations)

Flow Range	# Obs	TSS (mg/L)			Concentration (ug/L)		
Percentile	*Count*	*Median*	*Min*	*Max*	*Median*	*Min*	*Max*
0-10	16	10	10	10	80	10	1770
10-20	11	11	11	12	150	50	2290
20-30	15	13	12	14	100	50	400
30-40	12	15	14	15	75	50	1100
40-50	13	18	16	19	180	10	730
50-60	15	21	19	23	240	50	1400
60-70	12	28	24	32	190	10	700
70-80	13	36	34	39	290	50	4154
80-90	13	50	40	58	290	70	2390
90-100	13	143	65	554	690	250	56140

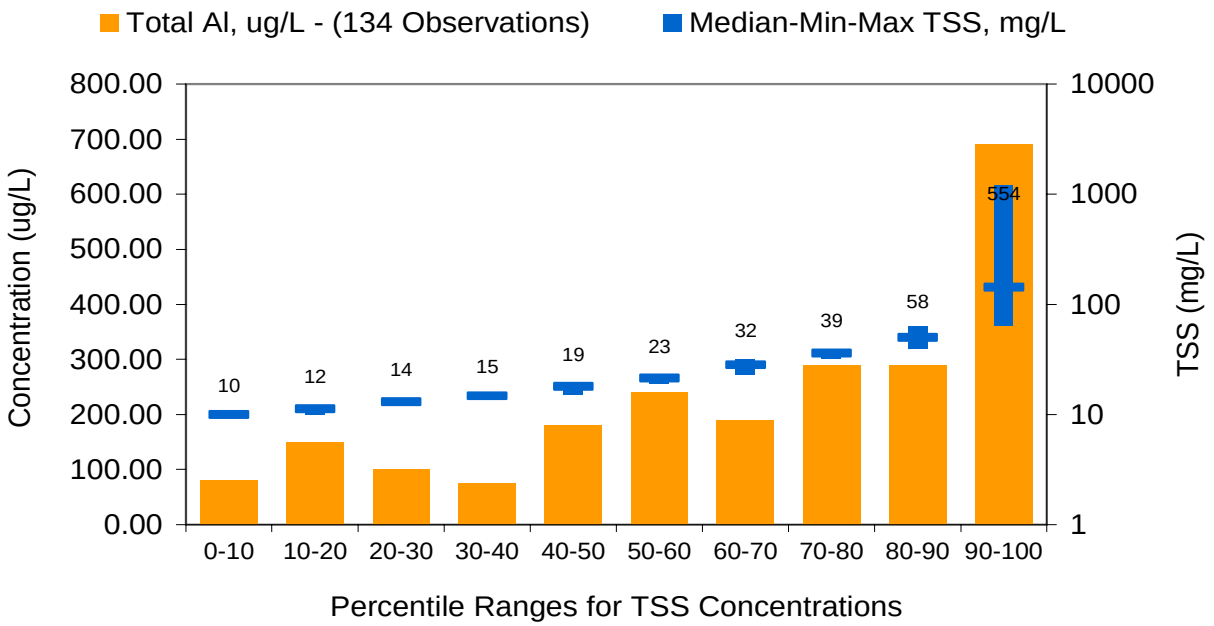


Figure C-10. Upstream Tributaries to Tug Fork River - TSS/Total Aluminum relationship

Location: Tributaries to Tug Fork
Analysis: Total Mn, ug/L vs TSS, mg/L
Data from: 8/6/1981 to 12/17/2001 (373 Observations)

Flow Range	# Obs	TSS (mg/L)			Concentration (ug/L)		
Percentile	*Count*	*Median*	*Min*	*Max*	*Median*	*Min*	*Max*
0-10	38	10	10	11	45	10	5590
10-20	37	11	11	12	50	0	960
20-30	38	13	12	13	100	20	10000
30-40	37	14	13	14	20	0	9000
40-50	37	16	14	17	50	0	5100
50-60	37	18	17	20	30	0	1570
60-70	37	22	20	24	70	10	11000
70-80	37	30	26	35	90	0	4600
80-90	37	45	35	58	110	10	650
90-100	37	358	58	2820	200	0	1600

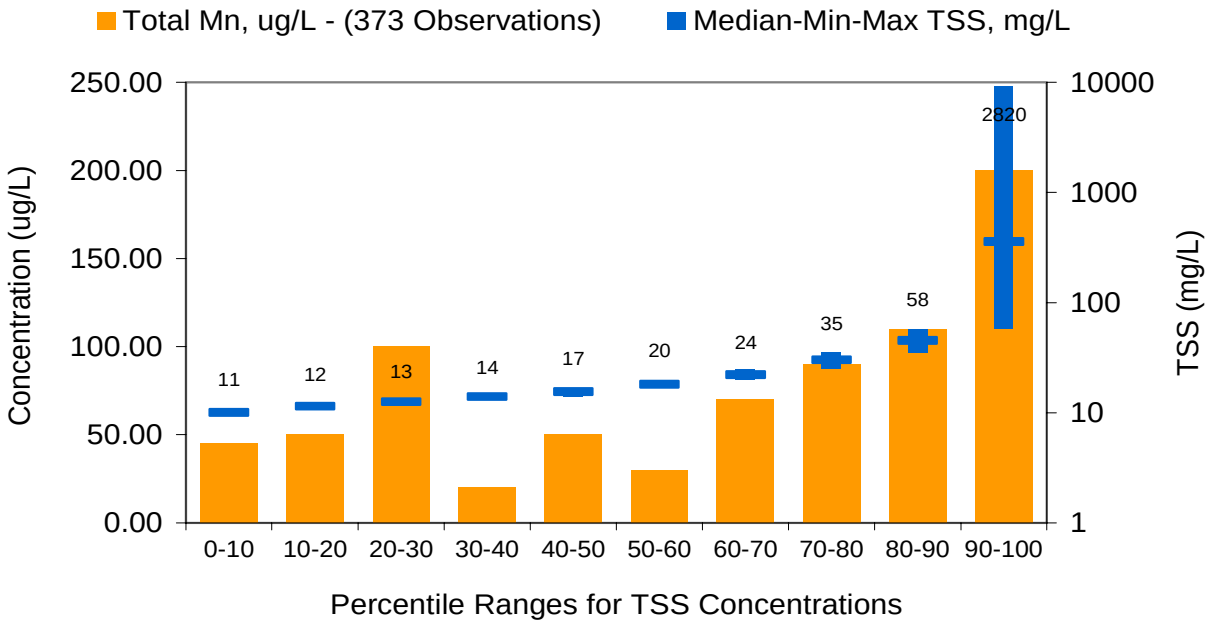


Figure C-11. Upstream Tributaries to Tug Fork River - TSS/Total Manganese relationship

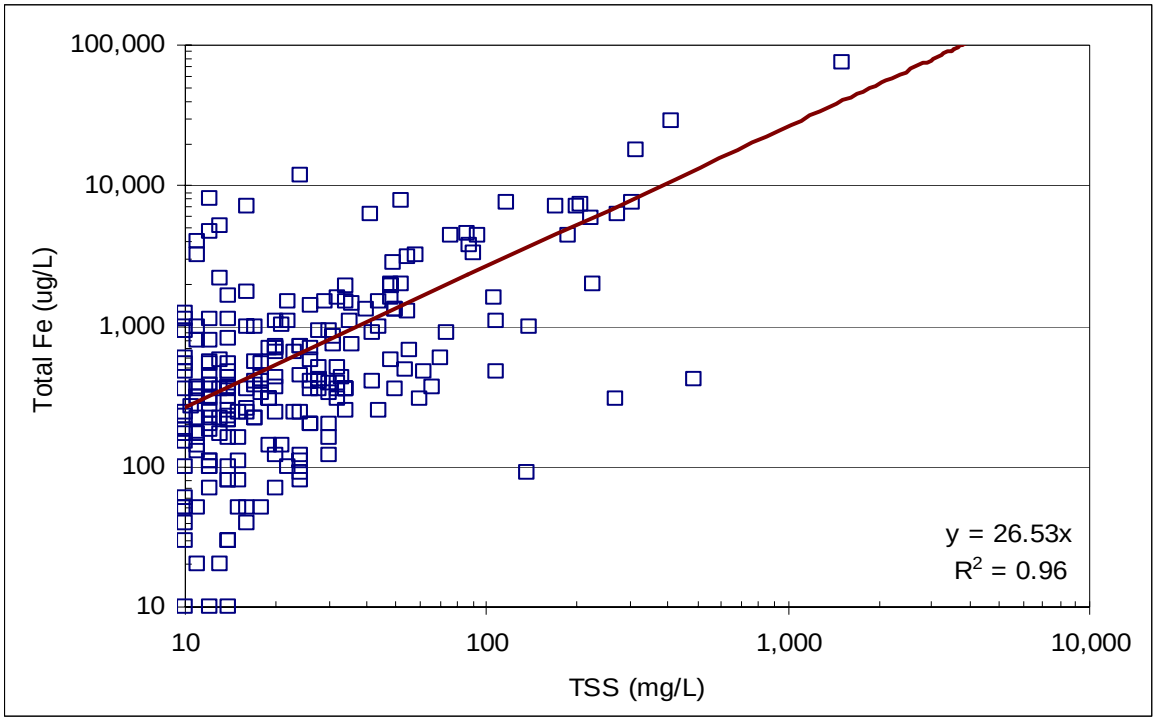


Figure C-12. Tug Fork watershed - TSS/Total Iron correlation (all flows)

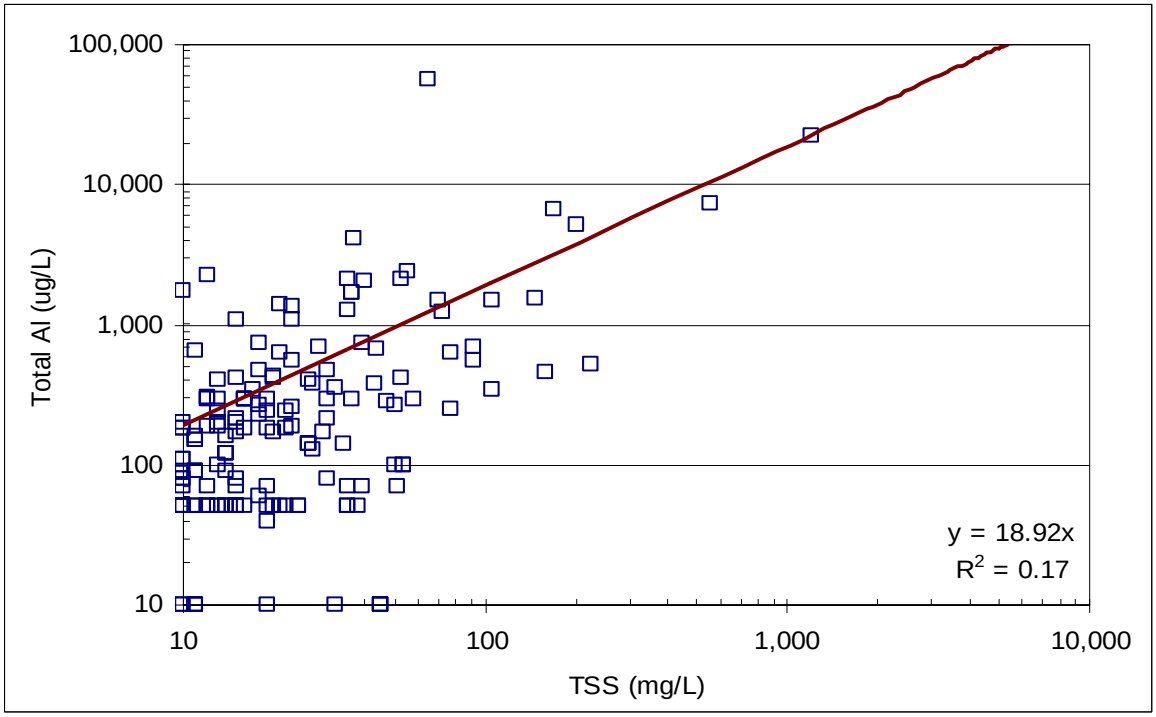


Figure C-13. Tug Fork watershed - TSS/Total Aluminum correlation (all flows)

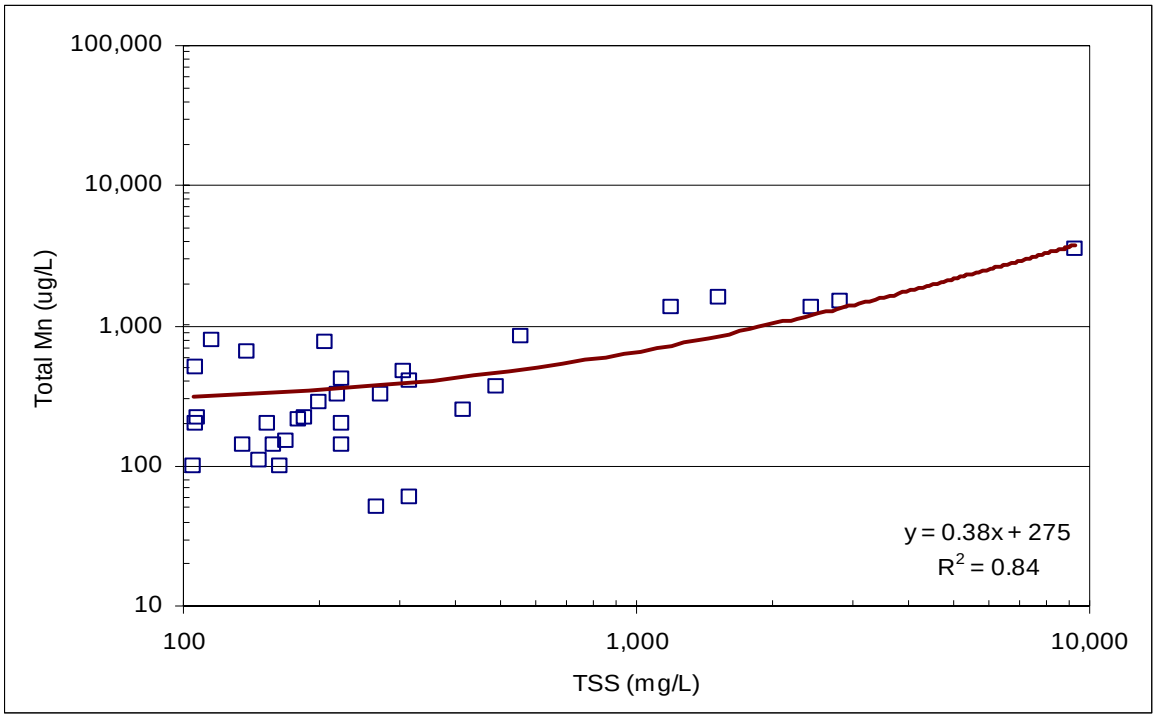


Figure C-14. Tug Fork watershed - TSS/Total Manganese correlation (all flows)

Appendix D - 1

Hydrology Calibration

Subwatershed 82

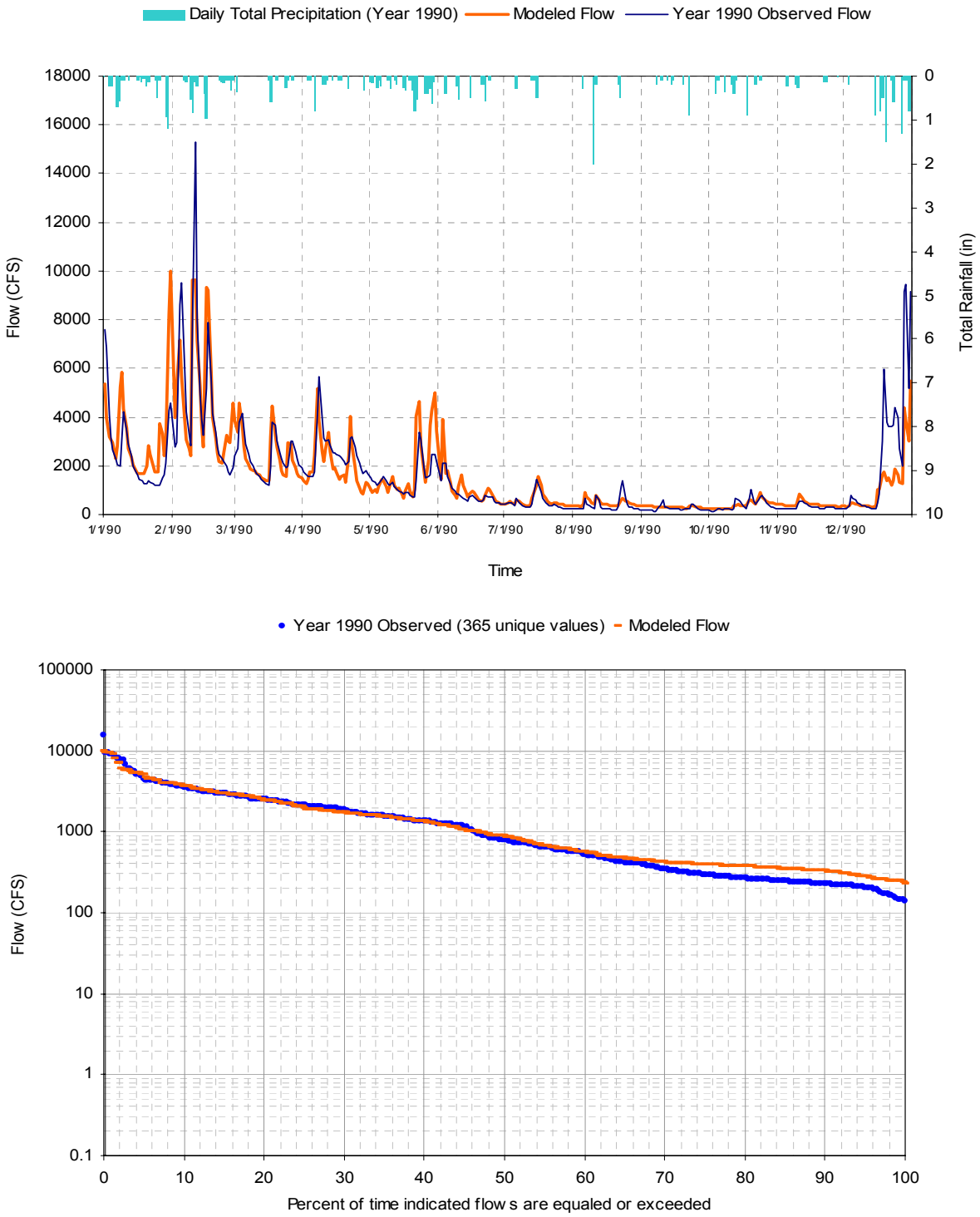


Figure D-1. Hydrology calibration at USGS 03214500

Subwatershed 160

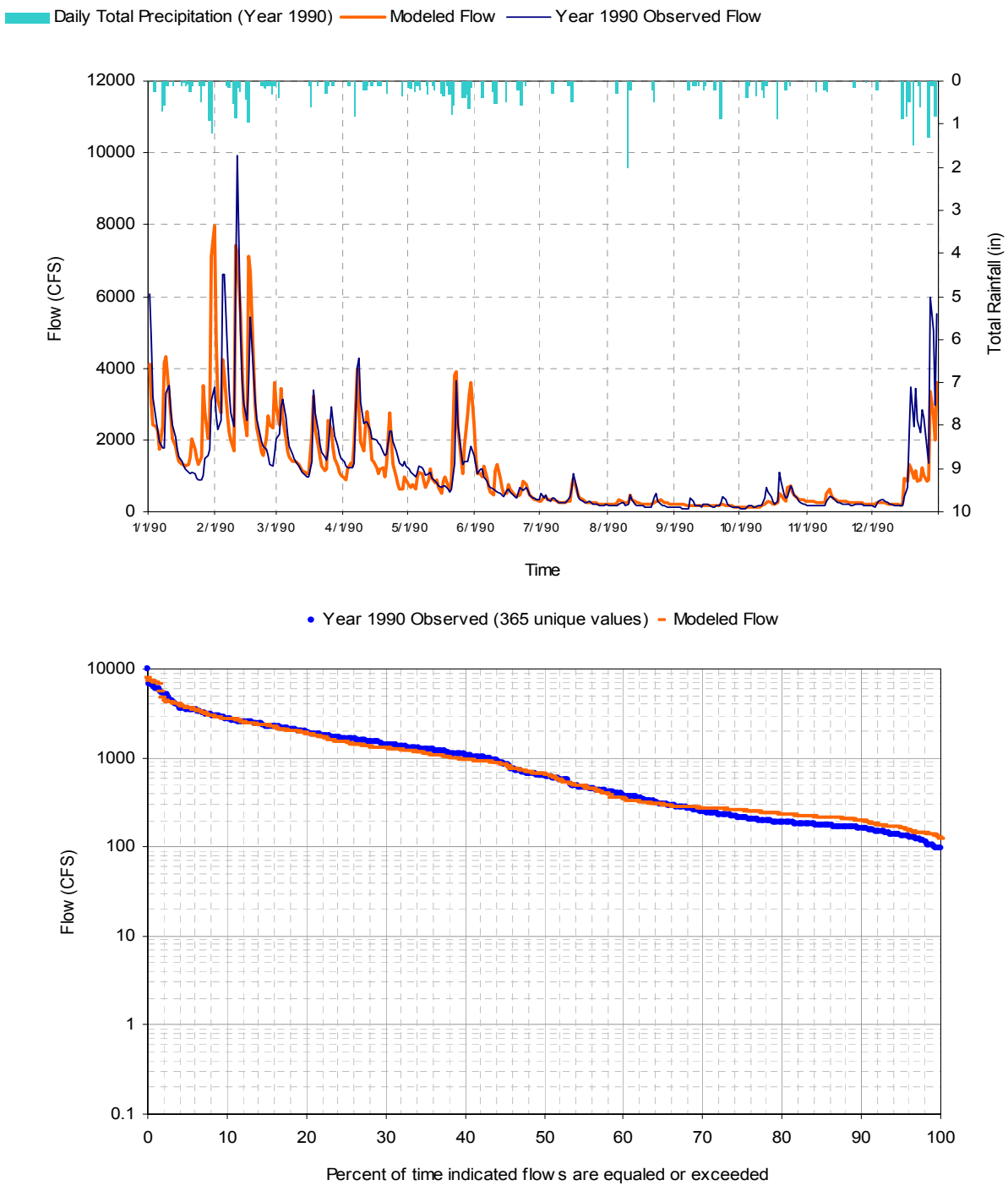


Figure D-2. Hydrology calibration at USGS 03213700

Subwatershed 206

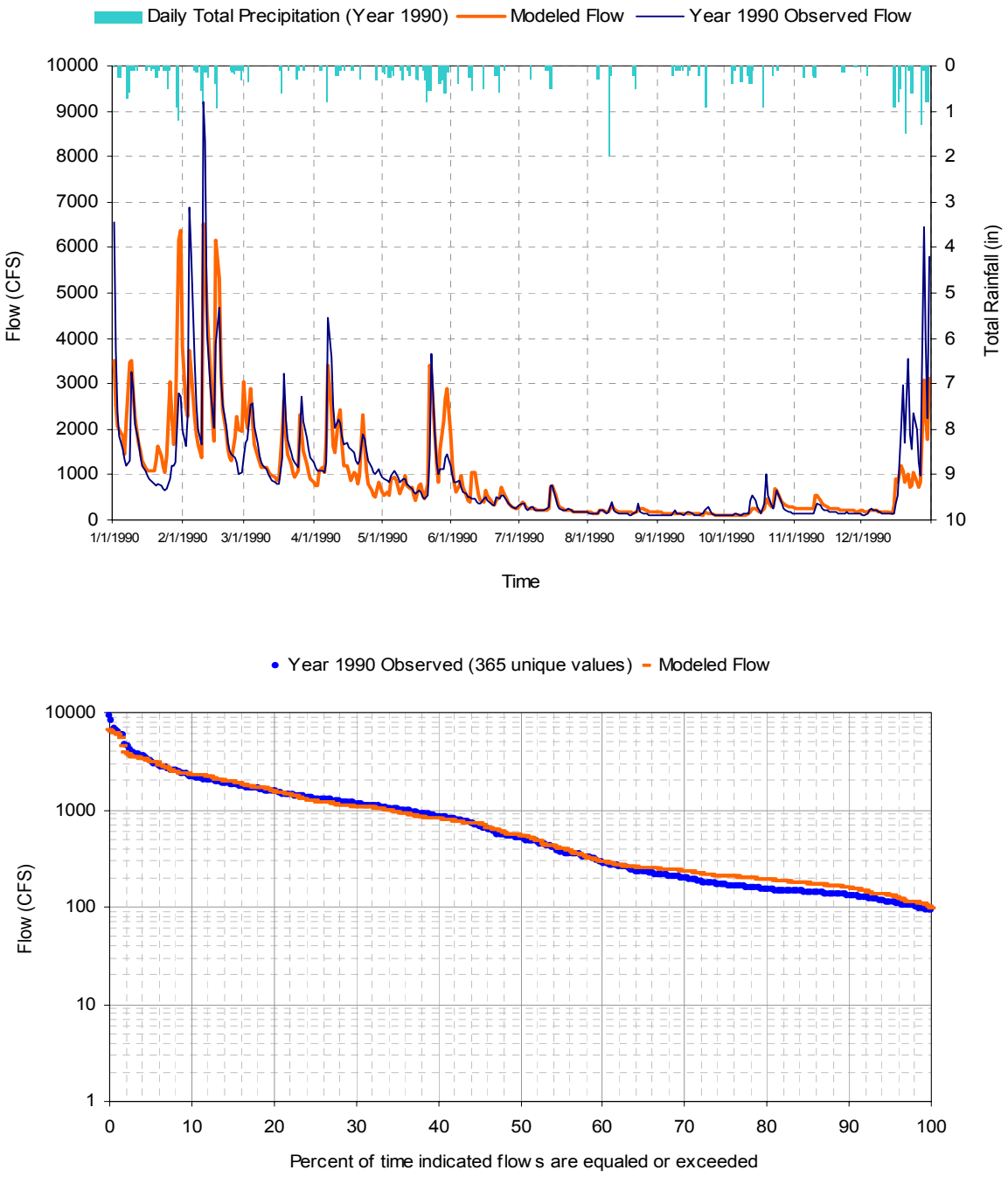
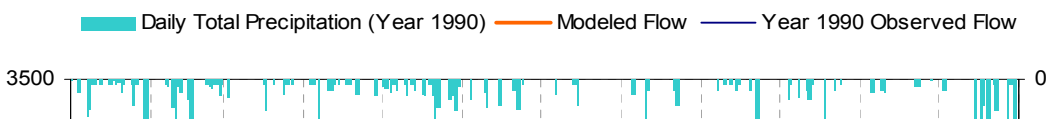
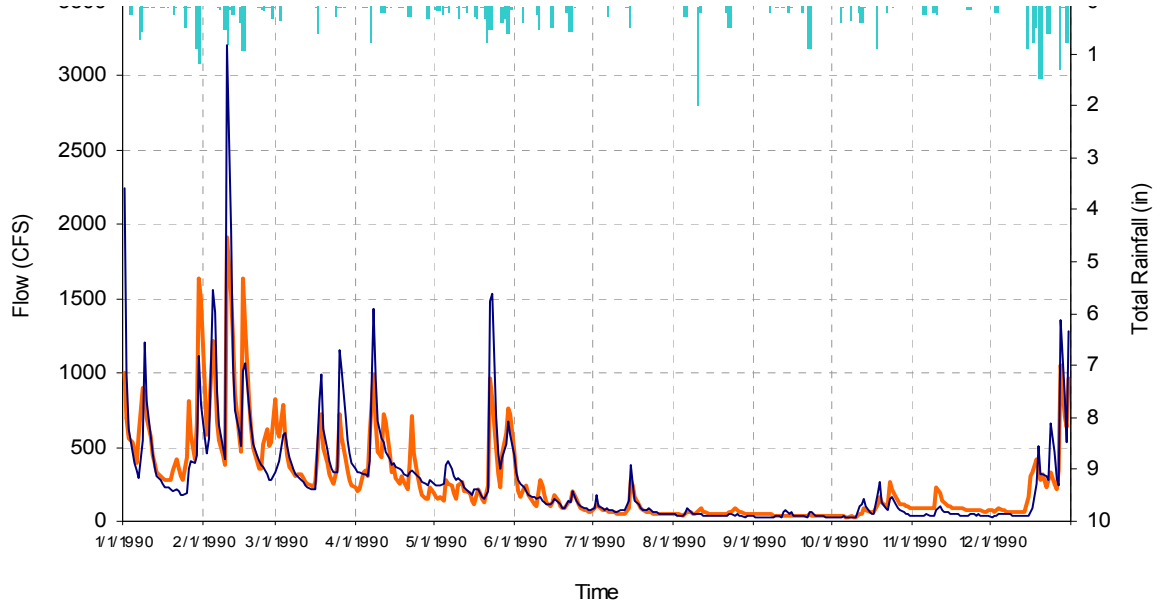


Figure D-3. Hydrology calibration at USGS 03213620

Subwatershed 290





to late 1999. A possible reason for this discrepancy may be the effect of a localized, unique situation that the model is not able to predict.

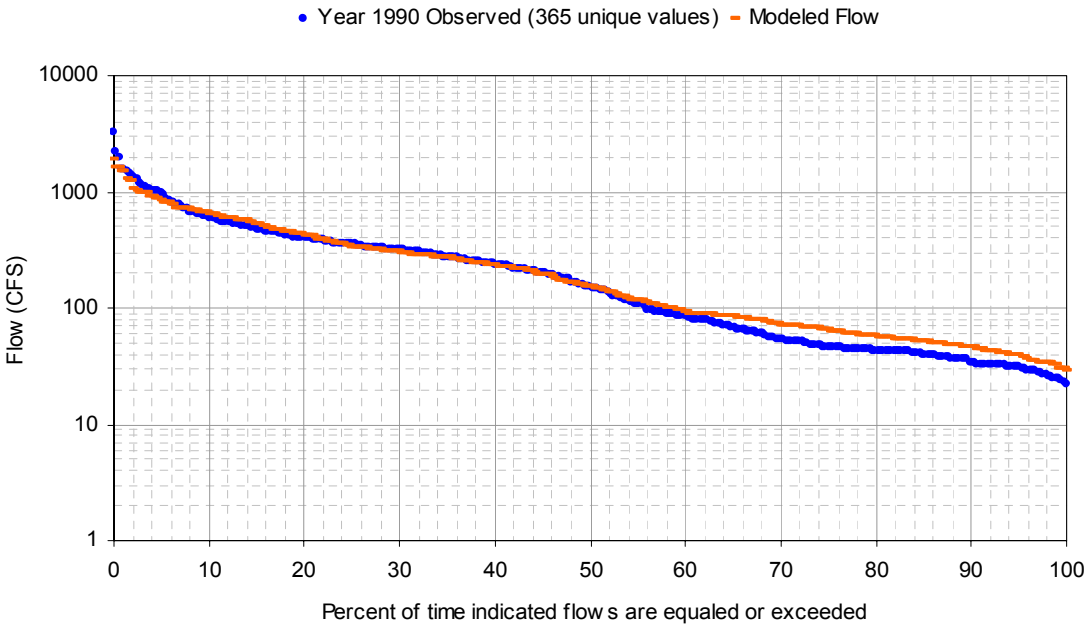
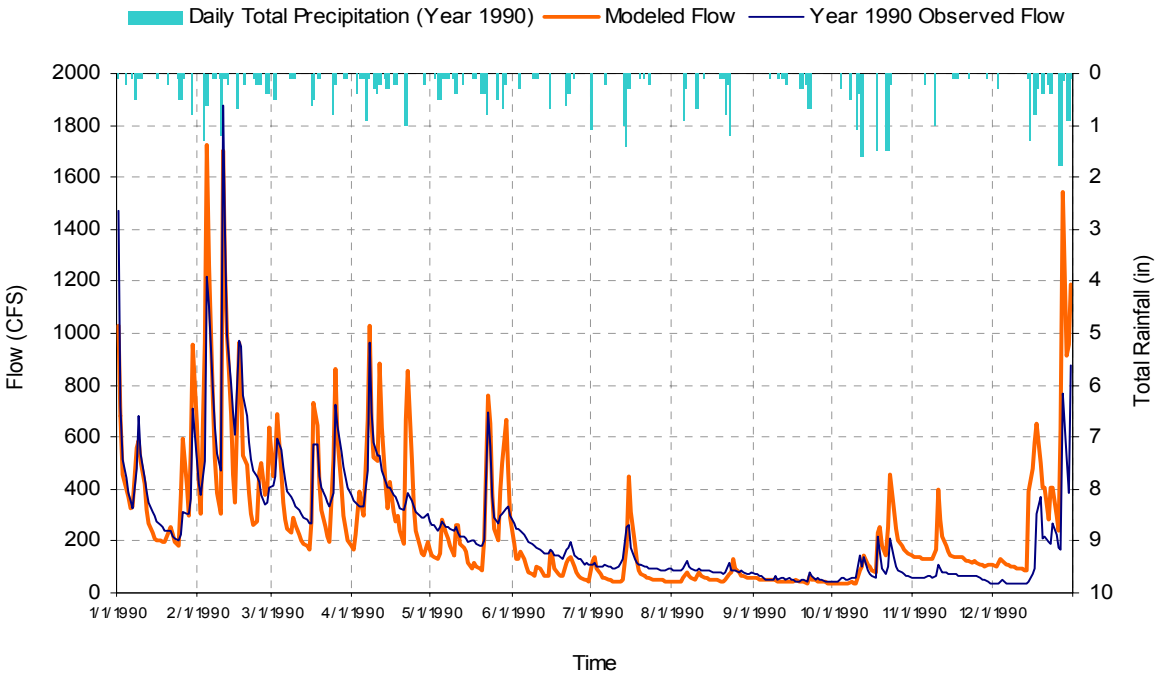


Figure D-4. Hydrology calibration at USGS 03212980

Subwatershed 366



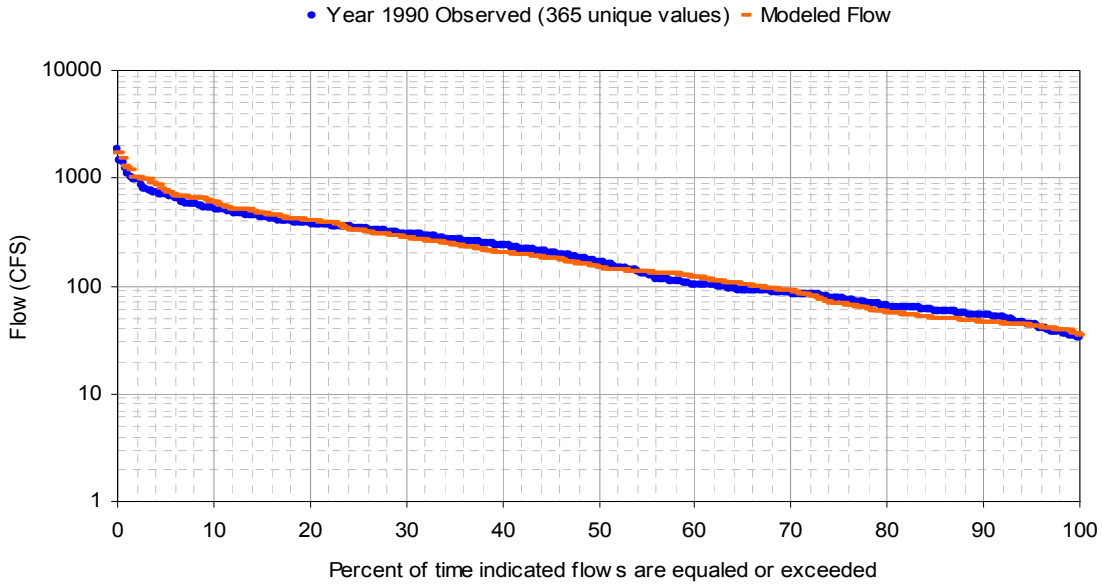
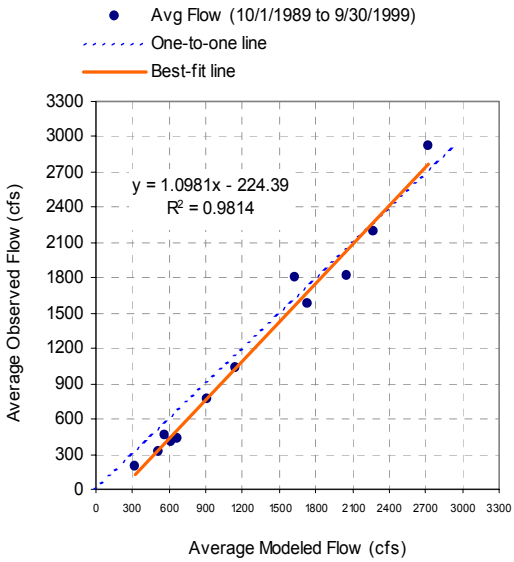
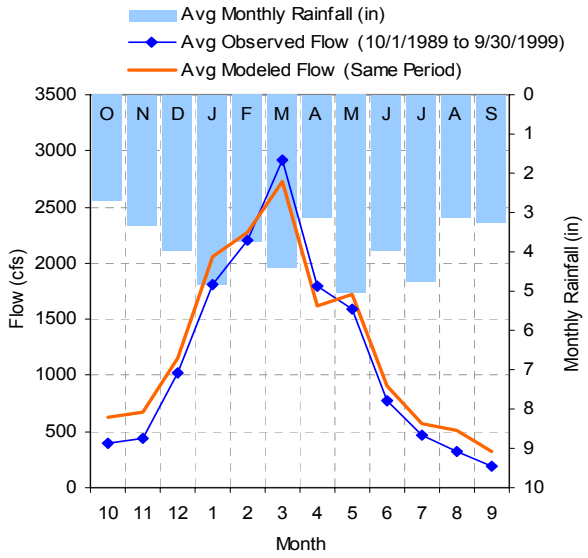
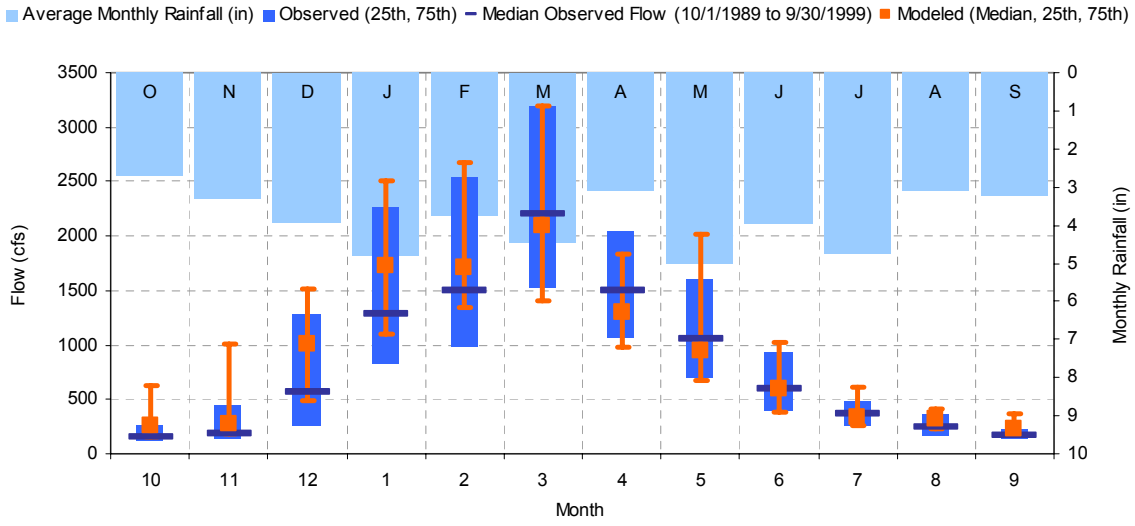


Figure D-5. Hydrology calibration at USGS 03212750







MONTH	OBSERVED FLOW (CFS)				MODELED FLOW (CFS)				VOLUME (IN)		COMPARISON	
	MEAN	MEDIAN	25TH	75TH	MEAN	MEDIAN	25TH	75TH	DATA	MODEL	DEV	CRITIQUE
OCT	400.81	151.00	118.00	258.75	622.22	256.99	147.37	627.53	2.96	4.59	1.63	*OK*
NOV	438.99	189.00	133.75	448.50	671.51	282.58	179.87	1015.84	3.13	4.79	1.66	*OK*
DEC	1027.78	570.50	259.25	1290.00	1148.62	1001.11	487.44	1517.25	7.58	8.48	0.89	*OK*
JAN	1813.99	1290.00	830.25	2257.50	2050.17	1726.02	1103.29	2500.25	13.38	15.13	1.74	*OK*
FEB	2200.18	1500.00	974.50	2530.00	2278.60	1707.97	1341.24	2677.63	14.77	15.29	0.53	*OK*
MAR	2916.64	2205.00	1522.50	3195.00	2720.01	2100.86	1409.87	3190.24	21.52	20.07	-1.45	*OK*
APR	1799.03	1495.00	1065.00	2052.50	1625.53	1303.84	979.17	1831.13	12.85	11.61	-1.24	*OK*
MAY	1585.48	1050.00	700.00	1600.00	1727.20	944.84	677.15	2011.59	11.70	12.74	1.05	*OK*
JUN	771.95	601.00	400.75	928.00	910.02	603.04	388.54	1018.23	5.51	6.50	0.99	*OK*
JUL	466.85	359.50	256.00	491.50	564.22	340.75	262.90	609.85	3.44	4.16	0.72	*OK*
AUG	322.94	246.50	170.25	362.50	511.27	318.62	226.32	407.66	2.38	3.77	1.39	*OK*
SEP	196.79	167.00	130.00	228.25	318.23	225.33	173.40	359.49	1.41	2.27	0.87	*OK*

Figure D-6. Ten-year hydrology validation at UDGS 03213700

Appendix D - 2

Water Quality Calibration

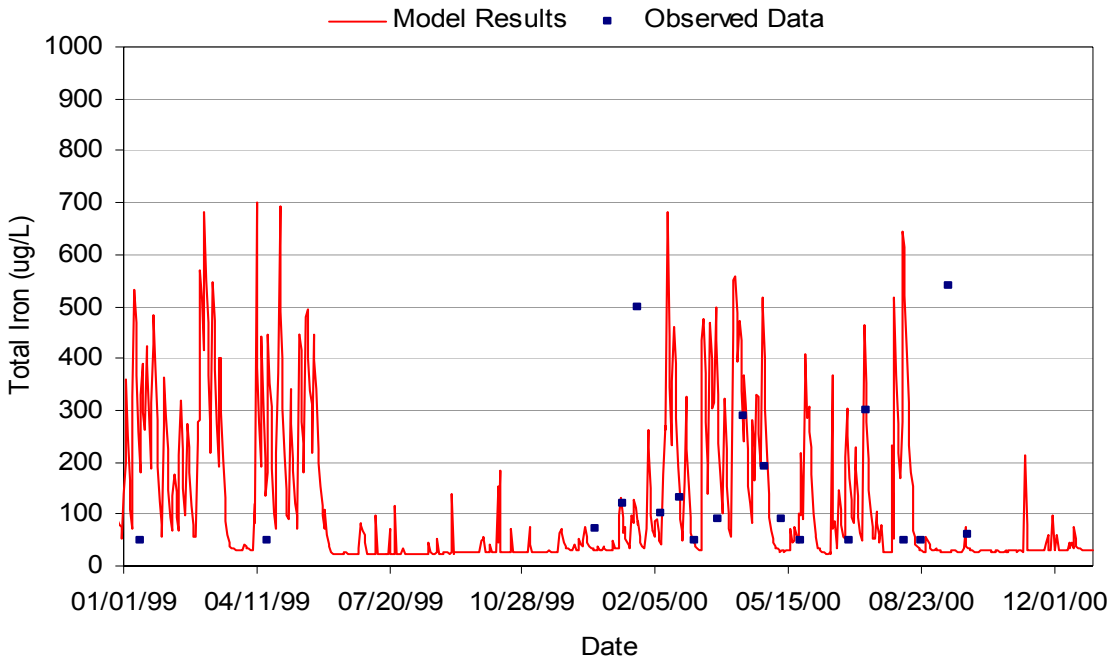


Figure D-7. Water Quality Calibration for Total Iron at Station WV1011847__SCD-1

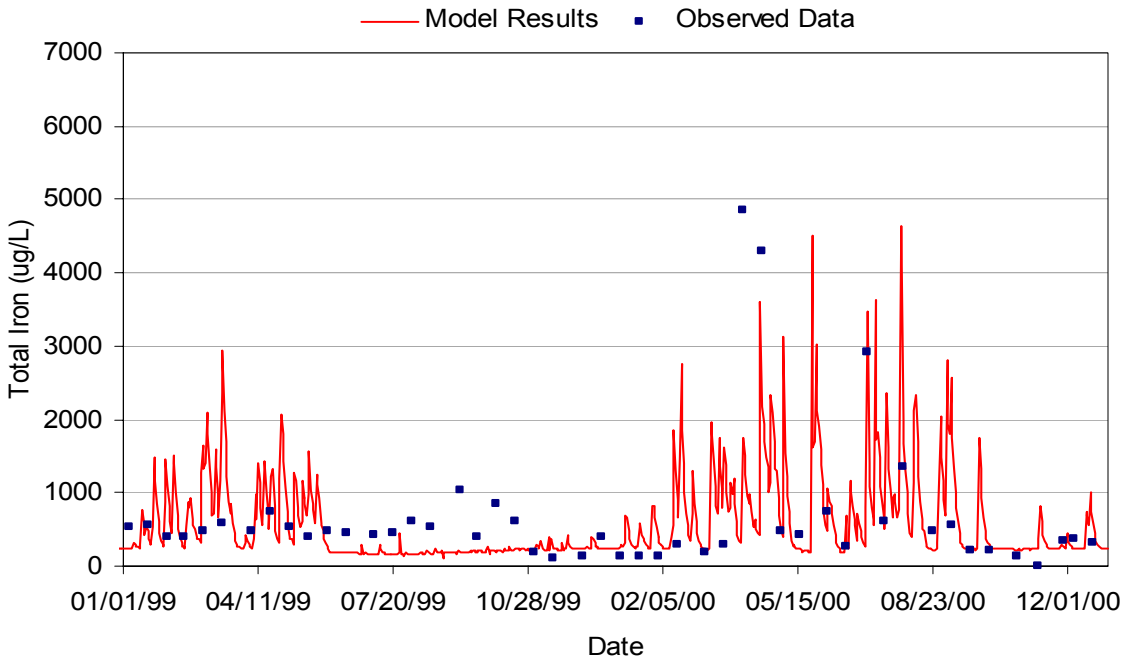


Figure D-8. Water Quality Calibration for Total Iron at Station WV1016059__DSLFSC

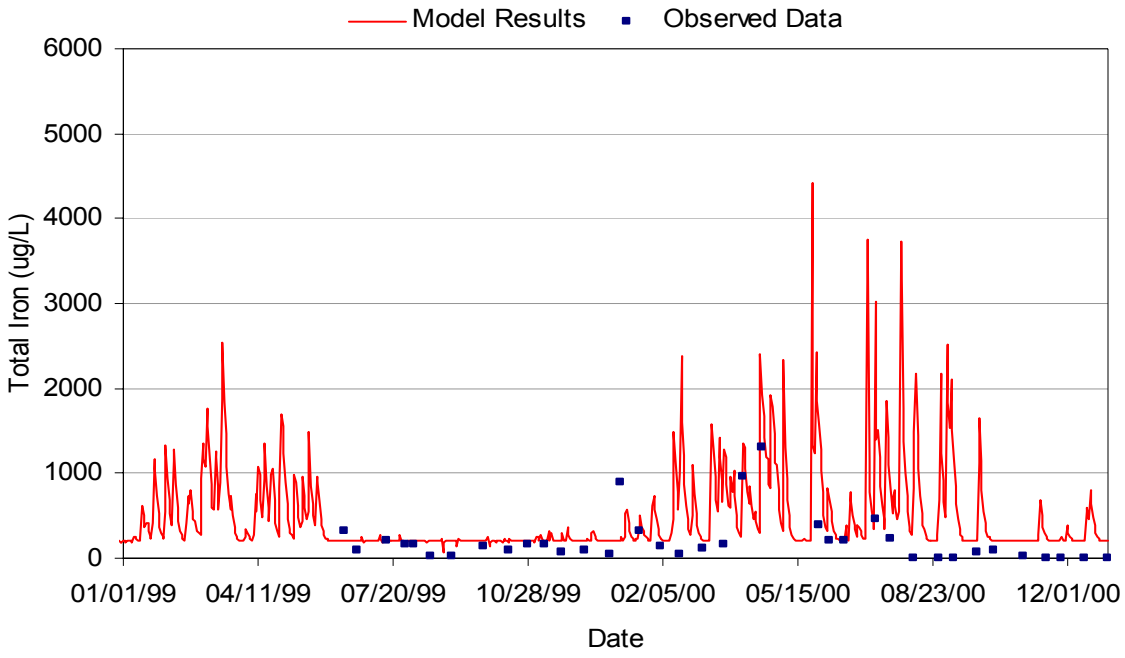


Figure D-9. Water Quality Calibration for Total Iron at Station WV0060216__DSECCB

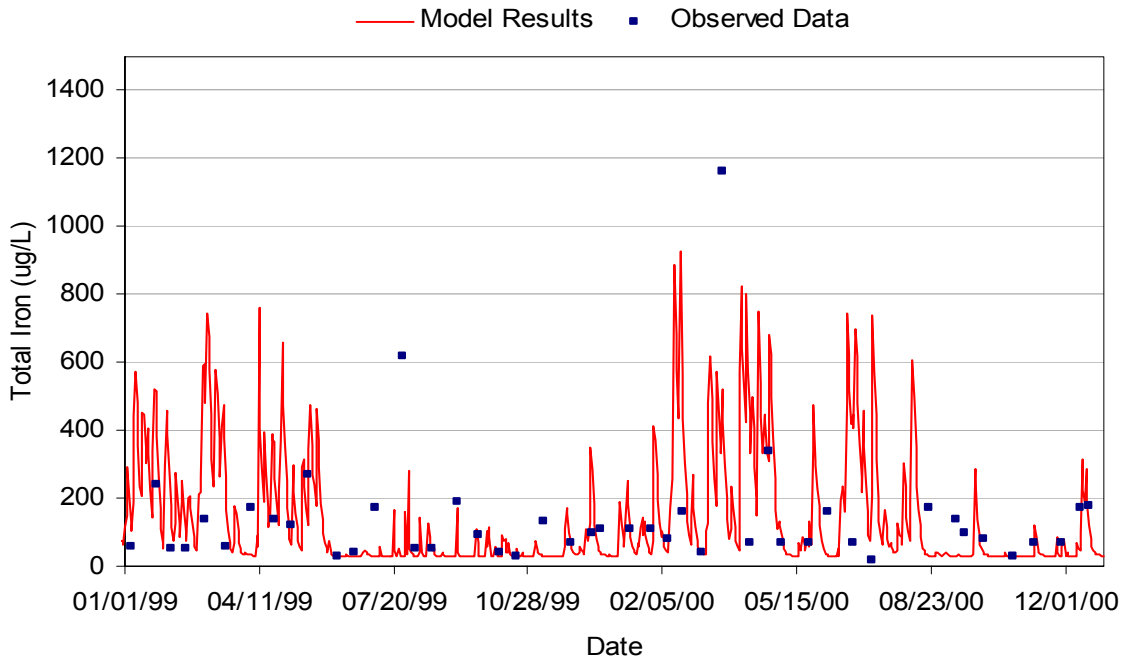


Figure D-10. Water Quality Calibration for Total Iron at Station WV0091219__DDCF

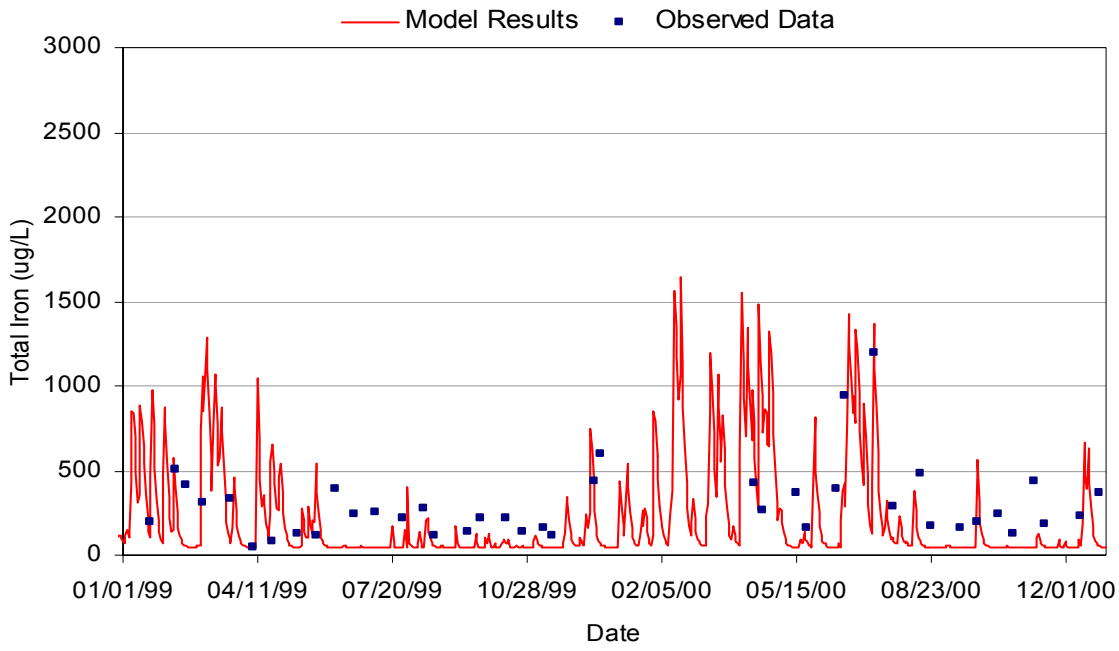


Figure D-11. Water Quality Calibration for Total Iron at Station WV0099414__DLFSC

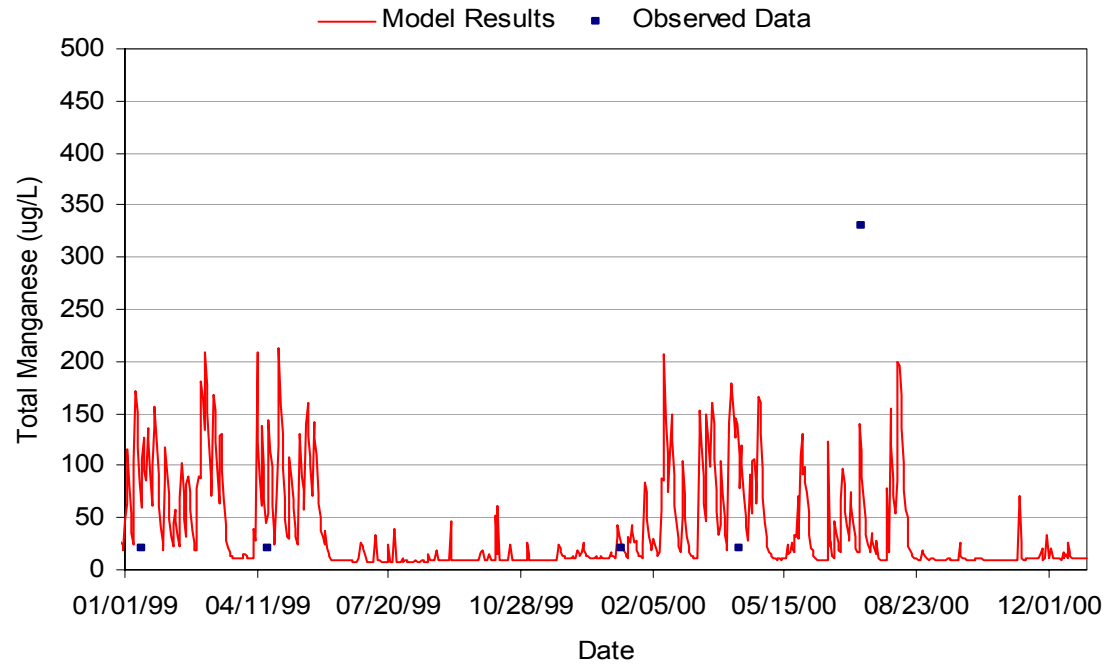


Figure D-12. Water Quality Calibration for Total Manganese at Station WV1011847__SCD-1

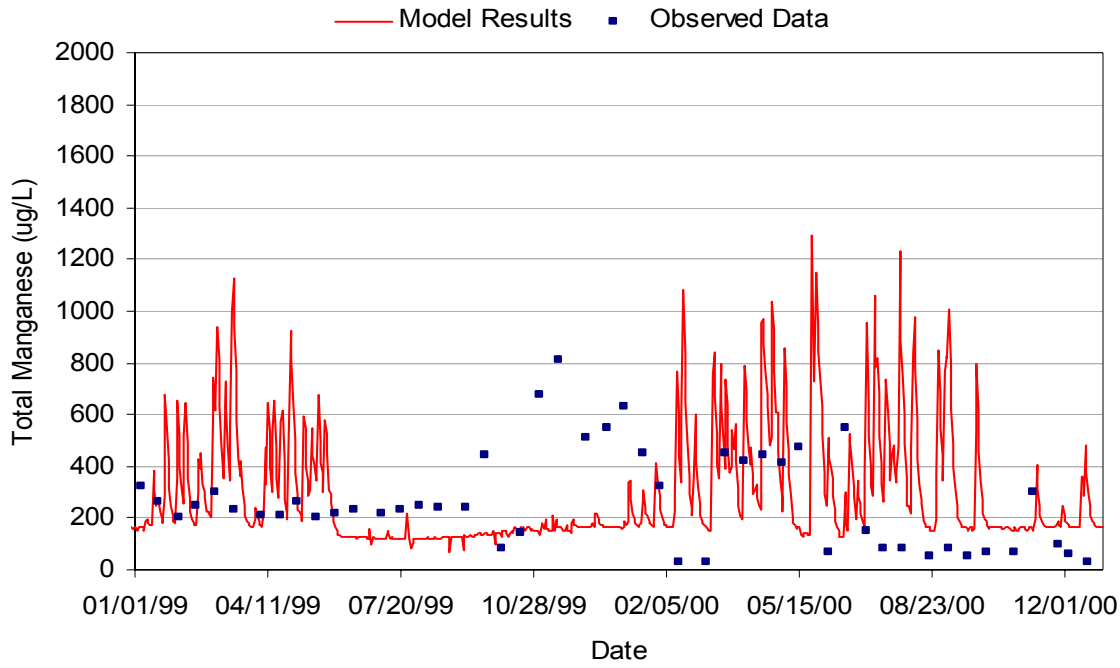


Figure D-13. Water Quality Calibration for Total Manganese at Station WV1016059__DSLFSC

Note: The model results and the observed data are not in accordance for the period of mid to late 1999. A possible reason for this discrepancy may be the effect of a localized, unique situation that the model is not able to predict.

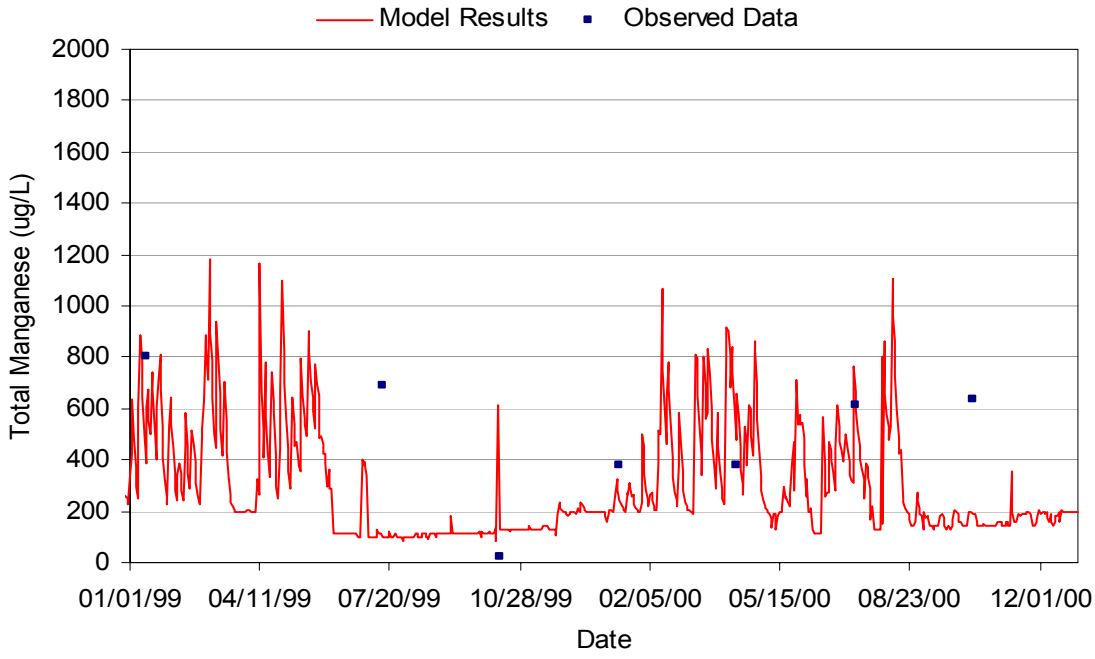


Figure D-14. Water Quality Calibration for Total Manganese at Station WV1006657__DSSB02

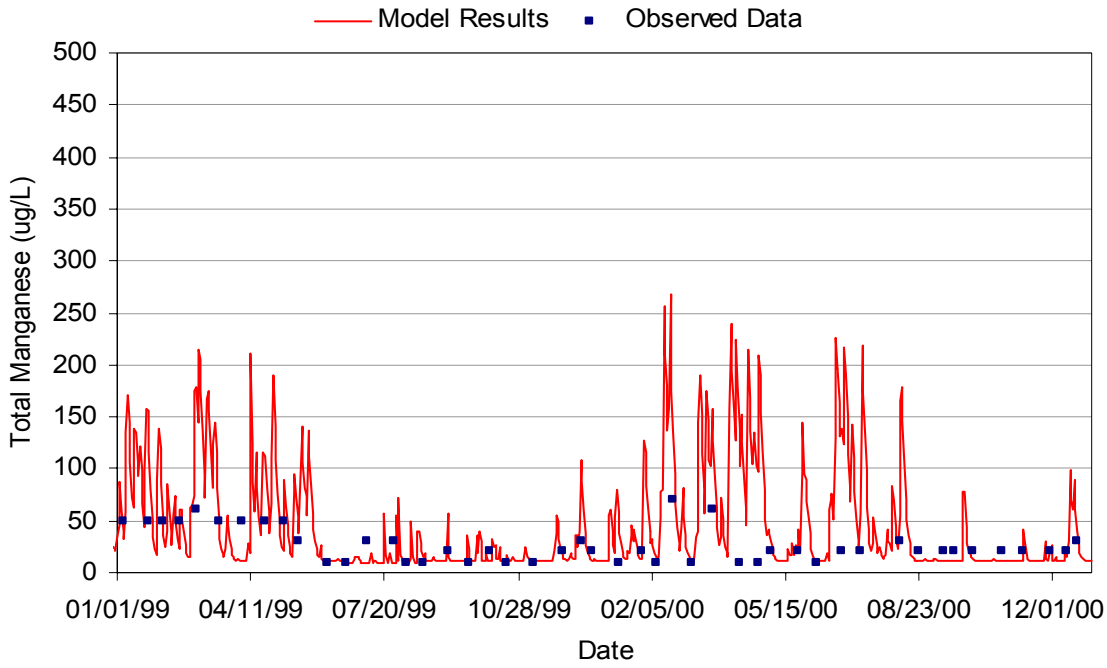


Figure D-15. Water Quality Calibration for Total Manganese at Station WV0091219__DDCF

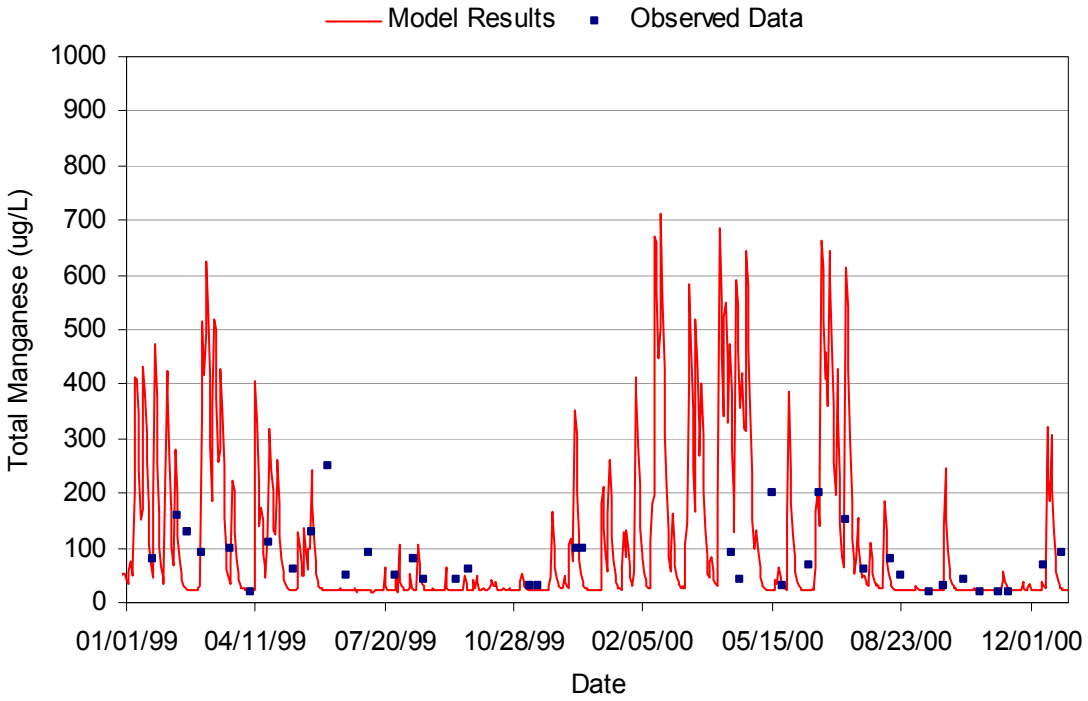


Figure D-16. Water Quality Calibration for Total Manganese at Station WV0099414__DLFSC

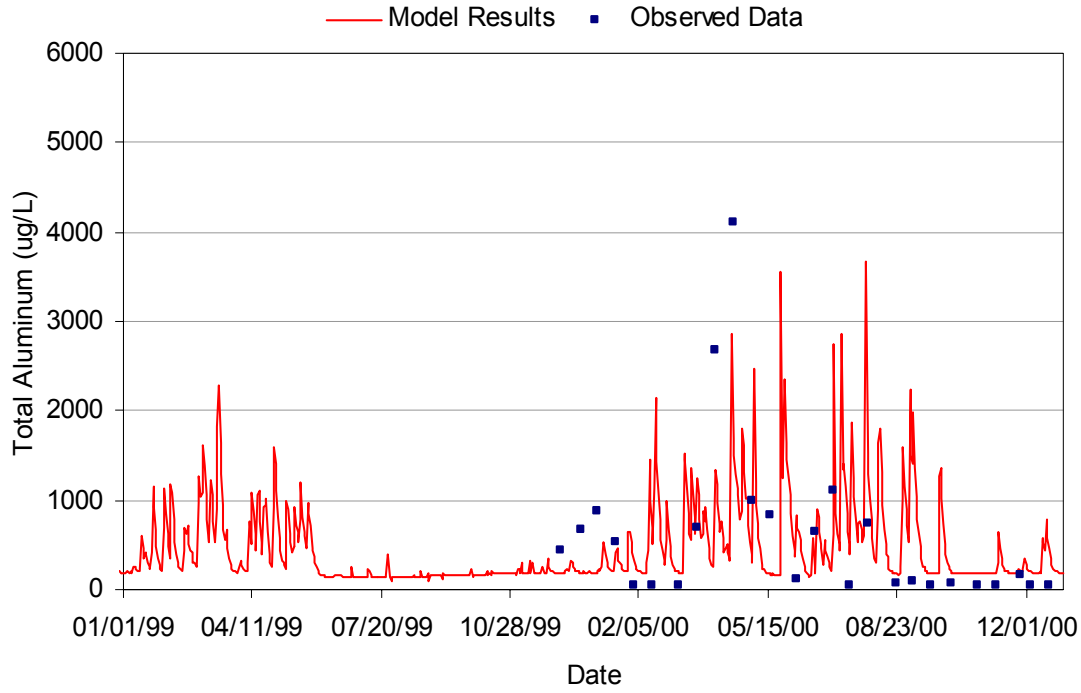


Figure D-17. Water Quality Calibration for Total Aluminum at Station WV1016059__DSLFSC

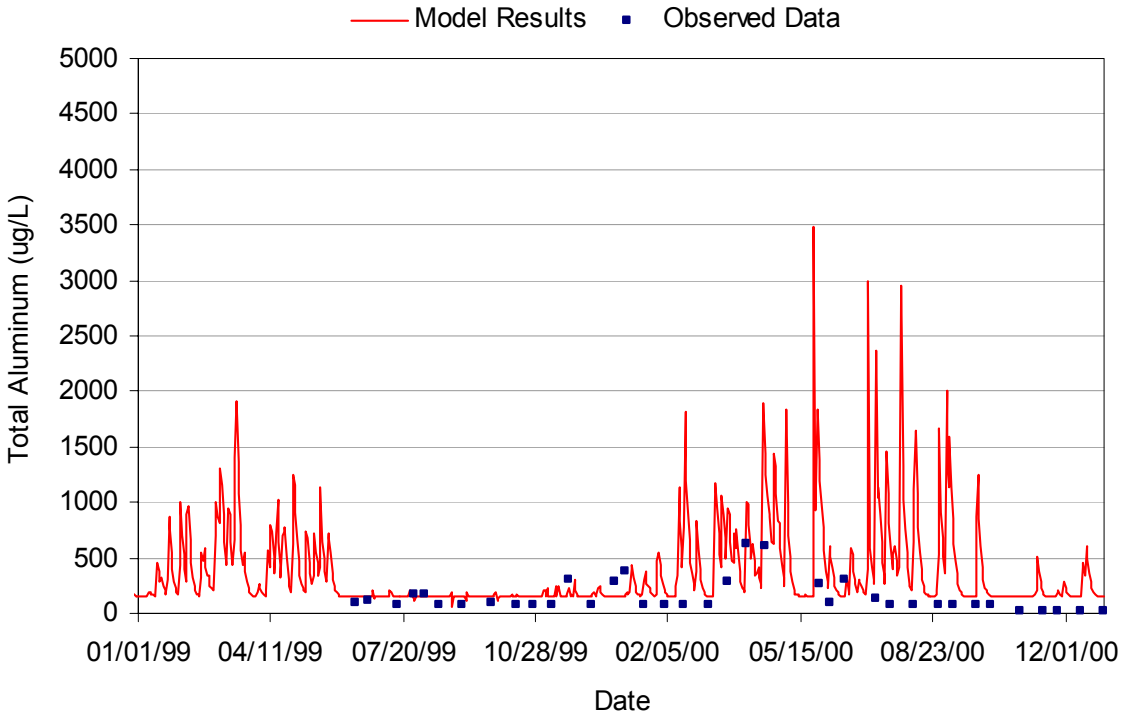


Figure D-18. Water Quality Calibration for Total Aluminum at Station WV0060216__DSECCB

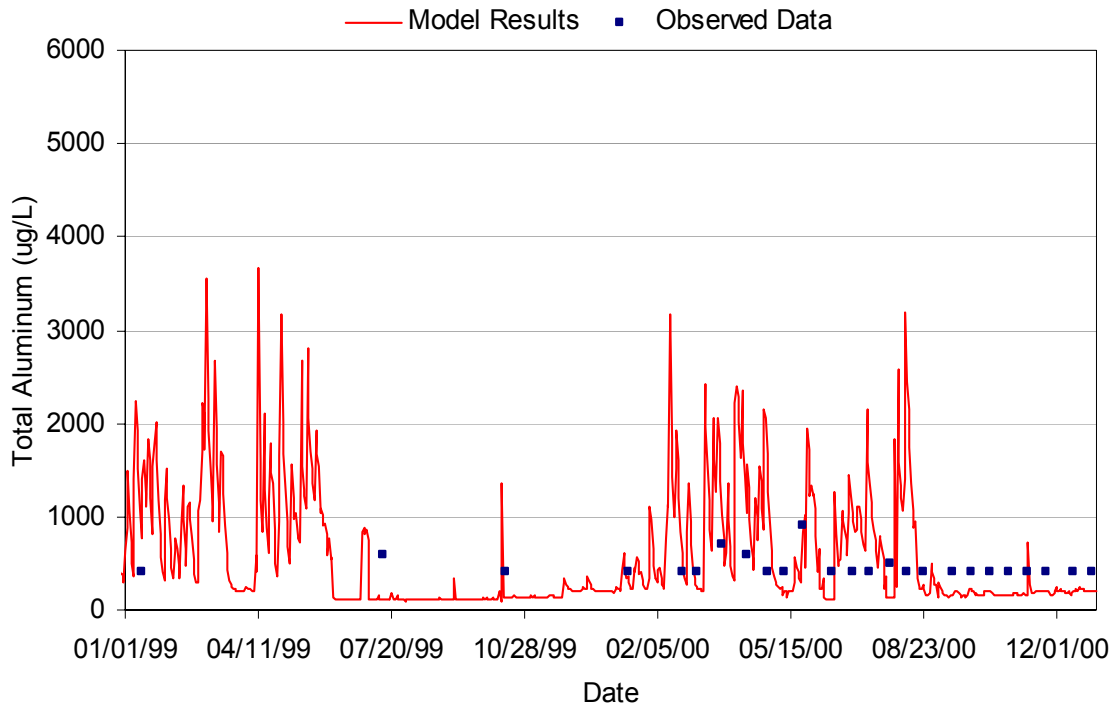


Figure D-19. Water Quality Calibration for Total Aluminum at Station WV1006657__DSSB02

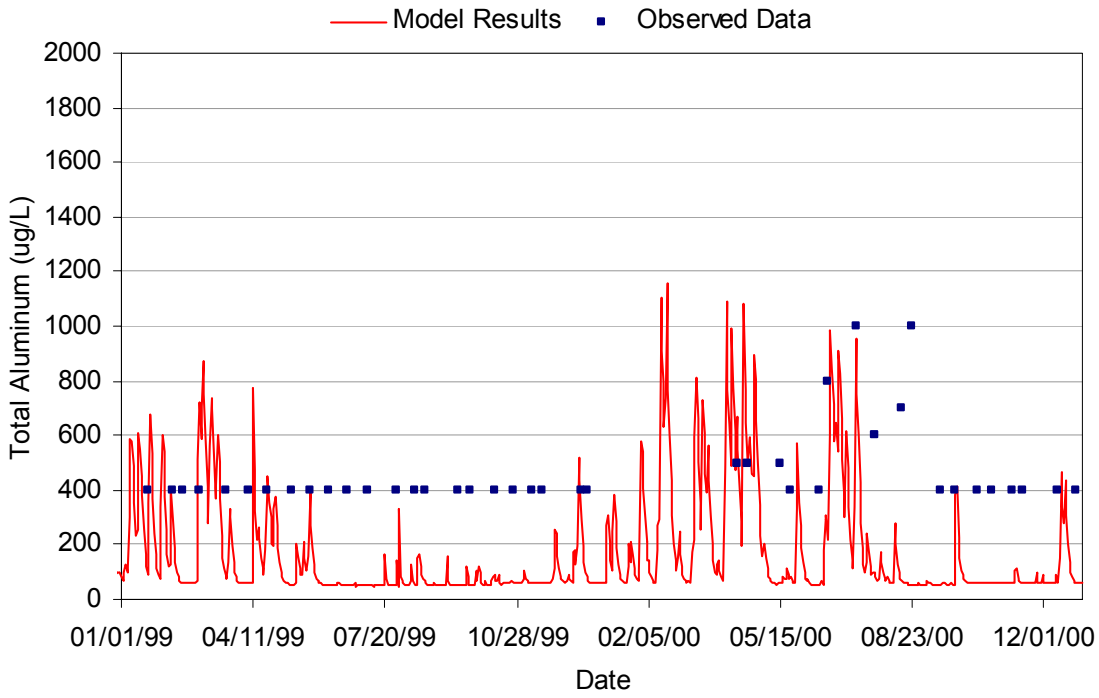


Figure D-20. Water Quality Calibration for Total Aluminum at Station WV0099414__DLFSC

Appendix E

Mining Permits in the Tug Fork Watershed

Table E-1. West Virginia Mining Permits

NPDES Permit ID	Responsible Party	Article 3 Permit ID	Status	Disturbed Acres
WV0000434	SYCAMORE FUELS, INC	U003083	Inactive	70
WV0001503	MINGO LOGAN COAL COMPANY	O502092	Inactive	202
WV0002747	SHANNON POCAHONTAS MINING COMPANY	O401794	Renewed	11
WV0003018	WEST VIRGINIA PROPERTIES INC	O017383	Active	51
WV0003018	WEST VIRGINIA PROPERTIES INC	U003385	Phase 1 Released	5
WV0021687	CONSOLIDATION COAL COMPANY	U001284	Renewed	12
WV0031607	ALPINE DEVELOPMENT COMPANY	O014483	Renewed	44
WV0041149	VIRGINIA CREWS COAL COMPANY	O005683	Inactive	18
WV0044024	CONSOLIDATION COAL COMPANY	U001784	Renewed	30
WV0044172	MARROWBONE DEVELOPMENT CO	O000885	Renewed	588
WV0044181	MARROWBONE DEVELOPMENT CO	U005785	Renewed	109
WV0044199	MARROWBONE DEVELOPMENT CO	U065000	Renewed	55
WV0044750	DUCHESS COAL COMPANY	R063000	Active	49
WV0045144	WESTWOOD MINING CO, INC	U018483	Inactive	16
WV0045691	CARETTA MINING INC	U003385	Phase 1 Released	5
WV0046141	RED ASH SALES CO INC	P068700	Renewed	52
WV0048437	CANNELTON INDUSTRIES INC	O007982	Renewed	109
WV0048593	MARROWBONE DEVELOPMENT CO	U032700	Renewed	24
WV0048810	CARETTA MINING INC	U016483	Active	13
WV0049751	CONSOLIDATION COAL COMPANY	O015083	Renewed	254
WV0049751	CONSOLIDATION COAL COMPANY	S400501	New	32
WV0049751	CONSOLIDATION COAL COMPANY	U020983	Renewed	22
WV0049751	CONSOLIDATION COAL COMPANY	U400298	New	3
WV0050865	STIRRAT COAL COMPANY	U016183	Inactive	15
WV0050946	MID-VOL LEASING INC	O014783	Renewed	268
WV0052531	U. S. STEEL MINING COMPANY, LLC	U022083	Renewed	20
WV0056634	BLACK WOLF MINING COMPANY	U050100	Renewed	7
WV0058955	PARAGON COAL CORP	O011983	Renewed	27
WV0060216	SECOND STERLING CORP.	U005284	Renewed	78
WV0060801	OLD BEN COAL CO	O500392	Inactive	119
WV0060801	OLD BEN COAL CO	U022683	Phase 1 Released	198
WV0064262	RAWL SALES & PROCESSING CO	P057200	Renewed	293
WV0064912	MINGO LOGAN COAL COMPANY	U003184	Phase 1 Released	16
WV0065536	PINE RIDGE COAL CO	O007682	Renewed	226
WV0066770	NEWHALL POCAHONTAS ENERGY, LLC	U007584	Renewed	204
WV0066788	GOLDEN FALCON RESOURCES, INC	U006184	Reinstated	66
WV0068764	HOBET MINING INC	S501492	Phase 1 Released	263
WV0068764	HOBET MINING INC	S504592	Renewed	313
WV0068764	HOBET MINING INC	S505289	Phase 1 Released	337
WV0068764	HOBET MINING INC	U503595	Phase 1 Released	21
WV0069060	RAMADA MINING, INC	S010083	Phase 1 Released	106
WV0069779	MARROWBONE DEVELOPMENT CO	S008884	Phase 1 Released	43
WV0090000	U. S. STEEL MINING COMPANY, LLC	U020483	Renewed	180
WV0090026	RAWL SALES & PROCESSING CO	D003181	Inactive	13
WV0090026	RAWL SALES & PROCESSING CO	E002800	Inactive	6
WV0090034	ANTAEUS GARY PROJECT, INC.	O002084	Renewed	322
WV0090255	MARROWBONE DEVELOPMENT CO	U006685	Renewed	70
WV0090701	CUMBERLAND VILLAGE MINING GRP	U005683	Renewed	9
WV0090930	MINGO LOGAN COAL COMPANY	O002685	Renewed	53
WV0090972	SOUTHERN MINERALS INC	U007384	Renewed	22

Table E-1. (cont.) West Virginia Mining Permits

NPDES Permit ID	Responsible Party	Article 3 Permit ID	Status	Disturbed Acres
WV0091197	EAGLEHAWK CARBON INC	U509587	Renewed	18
WV0091201	EAGLEHAWK CARBON INC	U509487	Renewed	12
WV0091341	PRESERVATI CONSTRUCT CO INC	O005585	Renewed	1
WV0091464	MINGO LOGAN COAL COMPANY	O502386	Renewed	478
WV0091464	MINGO LOGAN COAL COMPANY	S507088	Renewed	155
WV0091464	MINGO LOGAN COAL COMPANY	U507288	Phase 1 Released	23
WV0091464	MINGO LOGAN COAL COMPANY	U507388	Phase 1 Released	27
WV0091464	MINGO LOGAN COAL COMPANY	U507588	Phase 1 Released	18
WV0091952	CONSOLIDATION COAL COMPANY	U021483	Inactive	240
WV0092665	RAWL SALES & PROCESSING CO	U505086	Renewed	3
WV0092797	ANCHOR MINING INC	S500386	Phase 1 Released	109
WV0093009	CONSOL OF KENTUCKY INC	U503886	Active	6
WV0093203	ANCHOR MINING INC	S500386	Phase 1 Released	40
WV0095711	SPARTAN MINING COMPANY	E007500	Renewed	4
WV0095711	SPARTAN MINING COMPANY	P072700	Renewed	57
WV0095788	MARROWBONE DEVELOPMENT CO	S503288	Renewed	950
WV0095796	RAWL SALES & PROCESSING CO	O501792	Renewed	56
WV0095796	RAWL SALES & PROCESSING CO	U066700	Phase 1 Released	4
WV0095818	MINGO LOGAN COAL COMPANY	S003879	Phase 1 Released	635
WV0095818	MINGO LOGAN COAL COMPANY	S009780	Phase 1 Released	335
WV0095818	MINGO LOGAN COAL COMPANY	S502097	New	22
WV0095851	EAGLEHAWK CARBON INC	U503788	Phase 1 Released	10
WV0095869	MIN INC	U503988	Renewed	127
WV0096016	CONSOL OF KENTUCKY INC	O002582	Renewed	5
WV0096032	DUCHESS COAL COMPANY	D055100	Phase 1 Released	33
WV0096083	LOGAN MINING COMPANY	U506088	Active	19
WV0096083	LOGAN MINING COMPANY	U506188	Phase 1 Released	42
WV0096148	GREYEAGLE COAL COMPANY	E001700	Inactive	30
WV0096148	GREYEAGLE COAL COMPANY	O013983	Inactive	121
WV0096253	MINGO LOGAN COAL COMPANY	U501391	Renewed	192
WV0097527	BAYSTAR COAL COMPANY, INC	U002585	Renewed	7
WV0097527	BAYSTAR COAL COMPANY, INC	U007584	Renewed	14
WV0097527	BAYSTAR COAL COMPANY, INC	U400689	Phase 1 Released	5
WV0097543	BLACK WOLF MINING COMPANY	U402386	Renewed	15
WV0099970	HOBET MINING INC	S010685	Renewed	139
WV1000047	CONSOLIDATION COAL COMPANY	U401586	Phase 1 Released	35
WV1000209	BLACK WOLF MINING COMPANY	U402186	Phase 1 Released	24
WV1000373	CANNELTON INDUSTRIES INC	U003400	Phase 1 Released	8
WV1003682	MARROWBONE DEVELOPMENT CO	S007382	Phase 1 Released	18
WV1003682	MARROWBONE DEVELOPMENT CO	S007384	Phase 1 Released	327
WV1003682	MARROWBONE DEVELOPMENT CO	S009585	Renewed	125
WV1003682	MARROWBONE DEVELOPMENT CO	S017978	Phase 1 Released	188
WV1003682	MARROWBONE DEVELOPMENT CO	Z000281	Phase 1 Released	300
WV1003763	HOBET MINING INC	S506286	Phase 1 Released	515
WV1003844	DELBARTON MINING COMPANY	O508091	Inactive	121
WV1003984	RENATA MINING, INC	U509286	Phase 1 Released	10
WV1004182	LOGAN MINING COMPANY	S006482	Active	167
WV1004182	LOGAN MINING COMPANY	S008880	Renewed	641
WV1004182	LOGAN MINING COMPANY	S502094	Phase 1 Released	25
WV1004182	LOGAN MINING COMPANY	S504589	Renewed	55
WV1004280	RAWL SALES & PROCESSING CO	U501287	Phase 1 Released	6

Table E-1. (cont.) West Virginia Mining Permits

NPDES Permit ID	Responsible Party	Article 3 Permit ID	Status	Disturbed Acres
WV1004280	RAWL SALES & PROCESSING CO	U507192	Inactive	22
WV1004301	FLEX ENTERPRISES INC	S101391	Phase 1 Released	28
WV1004531	MARROWBONE DEVELOPMENT CO	O503188	Renewed	120
WV1004531	MARROWBONE DEVELOPMENT CO	S504087	Phase 1 Released	297
WV1004590	RAWL SALES & PROCESSING CO	U504687	Inactive	13
WV1004727	H & L CONSTRUCTION, INC	U505387	Renewed	30
WV1004760	HAMPDEN COAL CO INC	U506087	Renewed	134
WV1005171	RAWL SALES & PROCESSING CO	E001800	Renewed	15
WV1005197	FLEX ENTERPRISES INC	S101391	Phase 1 Released	55
WV1005201	MATE CREEK ENERGY OF WV INC	O500788	Renewed	33
WV1005448	MARROWBONE DEVELOPMENT CO	U503497	New	7
WV1005481	EASTERN ENERGY CORP	U404186	Active	13
WV1005545	MID-VOL LEASING INC	S400487	Phase 1 Released	33
WV1005588	SOUTHERN MINERALS INC	U401494	Active	13
WV1005642	MID-VOL LEASING INC	O009083	Inactive	63
WV1005651	MID-VOL LEASING INC	O001085	Renewed	27
WV1005677	ALPINE DEVELOPMENT COMPANY	U061800	Inactive	4
WV1005685	CONSOLIDATION COAL COMPANY	U001185	Inactive	9
WV1005758	MID-VOL LEASING INC	S006879	Renewed	180
WV1005774	BLUESTONE COAL CORPORATION	E011700	Renewed	15
WV1005791	BLACK WOLF MINING COMPANY	S012382	Phase 1 Released	133
WV1005855	DEEPGREEN WEST VIRGINIA INC	O016483	Renewed	190
WV1005880	BLACK WOLF MINING COMPANY	O000384	Renewed	25
WV1005901	BELL HOLDING INC	H029000	Renewed	14
WV1005944	BLUESTONE COAL CORPORATION	U401787	Renewed	3
WV1005952	EASTERN ENERGY CORP	U400587	Renewed	8
WV1005987	BLUESTONE COAL CORPORATION	U045700	Renewed	7
WV1005995	BLUESTONE COAL CORPORATION	U042300	Phase 1 Released	8
WV1006029	BLACK WOLF MINING COMPANY	D012782	Active	30
WV1006045	BAYSTAR COAL COMPANY, INC	U002884	Renewed	8
WV1006070	BLUESTONE COAL CORPORATION	U015000	Phase 1 Released	8
WV1006118	BLACK WOLF MINING COMPANY	U400190	Renewed	12
WV1006118	BLACK WOLF MINING COMPANY	U400987	Renewed	17
WV1006126	WESTWOOD MINING CO, INC	U402287	Renewed	21
WV1006169	BETTY COAL COMPANY	U031600	Renewed	7
WV1006215	CONSOLIDATION COAL COMPANY	U021483	Inactive	71
WV1006223	MID-VOL LEASING INC	O000381	Renewed	14
WV1006258	VIRGINIA ENERGY COMPANY	S400188	Phase 1 Released	96
WV1006274	ALPINE DEVELOPMENT COMPANY	E006800	Renewed	4
WV1006304	BLUESTONE COAL CORPORATION	S007282	Active	1165
WV1006321	CONSOLIDATION COAL COMPANY	U069200	Phase 1 Released	12
WV1006347	BLUESTONE COAL CORPORATION	U400788	Renewed	4
WV1006410	ATWELL HOLDING INC	U401988	Renewed	1
WV1006428	CONSOLIDATION COAL COMPANY	U401888	Phase 1 Released	22
WV1006509	ALPINE DEVELOPMENT COMPANY	E003700	Renewed	12
WV1006533	BLUESTONE COAL CORPORATION	U015583	Phase 1 Released	7
WV1006568	WELCH MINING CO	U024700	Phase 1 Released	9
WV1006614	BLUESTONE COAL CORPORATION	O403688	Renewed	36
WV1006631	BLACK WOLF MINING COMPANY	U041900	Renewed	70
WV1006657	DAYTON RESOURCES COMPANY	O000884	Phase 1 Released	148
WV1007939	ALEX ENERGY, INC.	S501796	Active	740

Table E-1. (cont.) West Virginia Mining Permits

NPDES Permit ID	Responsible Party	Article 3 Permit ID	Status	Disturbed Acres
WV1008021	VANTAGE MINING COMPANY	E007500	Renewed	19
WV1008099	HAMPDEN COAL CO INC	S503489	Phase 1 Released	46
WV1008111	MINGO LOGAN COAL COMPANY	U503089	Phase 1 Released	13
WV1008129	MIN INC	O503789	Renewed	82
WV1008170	ALEX ENERGY, INC.	S504189	Renewed	688
WV1008188	MINGO LOGAN COAL COMPANY	S503889	Phase 1 Released	529
WV1008218	MARROWBONE DEVELOPMENT CO	U505789	Renewed	135
WV1008226	MARROWBONE DEVELOPMENT CO	O500492	Renewed	592
WV1008552	BLUESTONE COAL CORPORATION	U048100	Renewed	23
WV1008587	BELL HOLDING INC	E011600	Renewed	13
WV1008633	VIRGINIA CREWS COAL COMPANY	U400989	Renewed	20
WV1008676	SHANE COAL COMPANY	U046200	Phase 1 Released	21
WV1008684	SHANE COAL COMPANY	O001982	Phase 1 Released	10
WV1008706	STILL RUN COAL COMPANY INC	U401289	Renewed	9
WV1008714	WESTWOOD MINING CO, INC	O008183	Inactive	3
WV1008731	BLACK OAK MINING INC	S400898	New	158
WV1008781	MID-VOL LEASING INC	S400198	Inactive	287
WV1008781	MID-VOL LEASING INC	S401091	Phase 1 Released	363
WV1008781	MID-VOL LEASING INC	S402089	Renewed	170
WV1008781	MID-VOL LEASING INC	U401192	Inactive	23
WV1008803	BLUESTONE COAL CORPORATION	U402389	Phase 1 Released	10
WV1008811	D D S LEASING INC	U402689	Renewed	15
WV1008820	BLACK WOLF MINING COMPANY	U402589	Renewed	11
WV1008838	BLUESTONE COAL CORPORATION	U402889	Active	5
WV1008889	CONSOLIDATION COAL COMPANY	U402189	Phase 1 Released	10
WV1008919	BAYSTAR COAL COMPANY, INC	U400687	Renewed	40
WV1008978	BUCKEYE COAL COMPANY, INC	U400790	Inactive	8
WV1008978	BUCKEYE COAL COMPANY, INC	U402690	Renewed	7
WV1009036	WESTWOOD MINING CO, INC	O401786	Renewed	7
WV1009109	INTERLAND RESOURCES, INC	S402396	New	82
WV1010557	EAGLEHAWK CARBON INC	U505989	Renewed	5
WV1010581	MINGO LOGAN COAL COMPANY	U500590	Renewed	10
WV1010727	MINGO LOGAN COAL COMPANY	S503390	Renewed	270
WV1010735	EAGLEHAWK CARBON INC	U501891	Renewed	21
WV1010822	RED OAK, INC	R501296	Renewed	24
WV1010956	MARROWBONE DEVELOPMENT CO	S503190	Renewed	96
WV1011057	MINGO LOGAN COAL COMPANY	O504191	Renewed	21
WV1011821	CONSOLIDATION COAL COMPANY	U400491	Inactive	12
WV1011855	CARETTA MINING INC	U400891	Renewed	10
WV1011901	AUTHOR ENTERPRISES INC	U401791	Phase 1 Released	7
WV1011910	ALPINE DEVELOPMENT COMPANY	U401591	Active	5
WV1011928	SAN-WEST COAL CO., INC.	U401891	Inactive	42
WV1011961	BLACK WOLF MINING COMPANY	U402291	Renewed	17
WV1011995	WESTWOOD MINING CO, INC	O400692	Renewed	48
WV1012002	BLACK OAK MINING INC	S400794	Phase 1 Released	123
WV1012002	BLACK OAK MINING INC	S402596	Phase 1 Released	81
WV1012045	BLUESTONE COAL CORPORATION	U401892	Renewed	7
WV1012088	BLUESTONE COAL CORPORATION	U402192	Active	9
WV1012126	SOUTHERN MINERALS INC	U402492	Renewed	15
WV1012151	BLACK WOLF MINING COMPANY	O402792	Renewed	14
WV1012151	BLACK WOLF MINING COMPANY	U401599	New	13

Table E-1. (cont.) West Virginia Mining Permits

NPDES Permit ID	Responsible Party	Article 3 Permit ID	Status	Disturbed Acres
WV1012193	MID-VOL LEASING INC	S403192	Renewed	342
WV1012193	MID-VOL LEASING INC	U401496	Active	6
WV1012215	BLACK WOLF MINING COMPANY	U400393	Renewed	37
WV1012240	BLACK WOLF MINING COMPANY	S400893	Phase 1 Released	162
WV1012274	IMPACT RESOURCES LLC (LIMITED LIA	S400993	Phase 1 Released	73
WV1012291	ALPINE DEVELOPMENT COMPANY	U401093	Phase 1 Released	14
WV1012304	REED BRANCH POCAHONTAS COAL C	U401393	Inactive	3
WV1012312	BLUESTONE COAL CORPORATION	U401493	Renewed	15
WV1012347	IAEGER SMOKELESS COAL COMPANY, IN	U400194	Renewed	5
WV1012991	JAMES COAL COMPANY	U500298	New	10
WV1013050	LAUREL CREEK CO INC	U505892	Renewed	6
WV1013076	MARROWBONE DEVELOPMENT CO	S500692	Renewed	642
WV1013084	OLD BEN COAL CO	O500392	Inactive	119
WV1013114	MARROWBONE DEVELOPMENT CO	S506291	Renewed	197
WV1013173	NEW LAND LEASING COMPANY, INC.	O502792	Renewed	104
WV1013181	MINGO LOGAN COAL COMPANY	S501492	Phase 1 Released	197
WV1013190	EAGLEHAWK CARBON INC	U500892	Phase 1 Released	9
WV1013211	NEW LAND LEASING COMPANY, INC.	U504892	Renewed	108
WV1013246	MINGO LOGAN COAL COMPANY	S507492	Renewed	164
WV1013297	MATE CREEK ENERGY OF WV INC	O505689	Renewed	163
WV1013416	RAWL SALES & PROCESSING CO	S505292	Phase 1 Released	309
WV1013467	RAWL SALES & PROCESSING CO	U505892	Renewed	2
WV1013505	MINGO LOGAN COAL COMPANY	S506692	Renewed	571
WV1013556	LAUREL CREEK CO INC	U501098	New	27
WV1013556	LAUREL CREEK CO INC	U507292	Renewed	114
WV1013572	MINGO LOGAN COAL COMPANY	U500493	Phase 1 Released	9
WV1015451	LAUREL RUN MINING COMPANY	U501393	New	28
WV1015478	MINGO LOGAN COAL COMPANY	S501693	New	558
WV1015681	CONSOL OF KENTUCKY INC	S503893	New	187
WV1015699	CONSOL OF KENTUCKY INC	O503693	New	335
WV1015702	CONSOL OF KENTUCKY INC	S503993	New	219
WV1015711	CONSOL OF KENTUCKY INC	S504093	New	201
WV1015893	MINGO LOGAN COAL COMPANY	S501994	Renewed	726
WV1015923	FALCON LAND CO INC	U502899	New	3
WV1015991	LOGAN MINING COMPANY	S501395	Phase 1 Released	274
WV1016059	U. S. STEEL MINING COMPANY, LLC	A400000	Closed	0
WV1016083	VANSANT COAL CORPORATION	U401094	Renewed	14
WV1016105	AUTHOR ENTERPRISES INC	U401294	Active	4
WV1016113	VANSANT COAL CORPORATION	U401394	Renewed	12
WV1016130	BLACK WOLF MINING COMPANY	U401694	Renewed	53
WV1016211	SOUTHERN MINERALS INC	U400495	Active	6
WV1016261	ALPINE DEVELOPMENT COMPANY	U401195	New	2
WV1016270	BLACK WOLF MINING COMPANY	U401295	Active	9
WV1016288	MINGO LOGAN COAL COMPANY	O002685	Renewed	24
WV1016288	MINGO LOGAN COAL COMPANY	O505088	Renewed	49
WV1016288	MINGO LOGAN COAL COMPANY	S401395	Renewed	749
WV1016288	MINGO LOGAN COAL COMPANY	S504988	Renewed	177
WV1016288	MINGO LOGAN COAL COMPANY	U500998	New	7
WV1016296	VANSANT COAL CORPORATION	U401495	Renewed	8
WV1016300	CONSOLIDATION COAL COMPANY	U401696	Phase 1 Released	4
WV1016326	NEWHALL POCAHONTAS ENERGY, LLC	U401995	Active	9

Table E-1. (cont.) West Virginia Mining Permits

NPDES Permit ID	Responsible Party	Article 3 Permit ID	Status	Disturbed Acres
WV1016334	VIRGINIA ENERGY COMPANY	S402095	Renewed	205
WV1016369	CARETTA MINING INC	U402495	Inactive	12
WV1016423	ALPINE DEVELOPMENT COMPANY	U400396	New	7
WV1016458	BLACK OAK MINING INC	S400897	Phase 1 Released	11
WV1016458	BLACK OAK MINING INC	S400997	Active	25
WV1016458	BLACK OAK MINING INC	U402589	Renewed	11
WV1016474	MID-VOL LEASING INC	S401096	Renewed	545
WV1016482	MYRTLE D CORP	U401196	New	3
WV1016512	CONSOLIDATION COAL COMPANY	U401696	Phase 1 Released	4
WV1016521	ALPINE DEVELOPMENT COMPANY	U401896	New	4
WV1016741	HOBET MINING INC	U503495	Phase 1 Released	31
WV1016784	MIN INC	U500196	Phase 1 Released	29
WV1016865	DELBARTON MINING COMPANY	U501996	New	17
WV1016971	MARROWBONE DEVELOPMENT CO	U500597	New	63
WV1017080	WHITE FLAME ENERGY INC	S502097	New	958
WV1017179	HERITAGE MINING CO	U503497	New	4
WV1017217	MARROWBONE DEVELOPMENT CO	S502598	New	662
WV1018485	BLACK WOLF MINING COMPANY	S402396	New	68
WV1018540	VIRGINIA ENERGY COMPANY	S400497	New	137
WV1018558	BLACK WOLF MINING COMPANY	S400597	New	176
WV1018574	MID-VOL LEASING INC	S400797	New	454
WV1018582	VIRGINIA ENERGY COMPANY	S401197	New	177
WV1018647	D D S LEASING INC	U400798	New	10
WV1018663	BLUESTONE COAL CORPORATION	U401098	New	5
WV1018671	ALPINE DEVELOPMENT COMPANY	U401198	Inactive	10
WV1018698	BLUESTONE COAL CORPORATION	U401398	New	5
WV1018701	BLUESTONE COAL CORPORATION	U401498	New	3
WV1018744	MID-VOL LEASING INC	U400499	New	14
WV1018752	BLUESTONE COAL CORPORATION	U400599	New	2
WV1018795	MID-VOL LEASING INC	U401299	New	16
WV1018809	WESLEY LEASING, INC.	U401292	Inactive	8
WV1018850	MID-VOL LEASING INC	S401999	New	681
WV1018876	NEWHALL POCAHONTAS ENERGY, LLC	U402387	Renewed	14
WV1018949	MID-VOL LEASING INC	S400700	New	66
WV1019988	MINGO LOGAN COAL COMPANY	S501998	New	573
WV1020021	LITTLE BOYD COAL CO., INC.	S503198	New	96
WV1020072	CC COAL COMPANY	O500199	New	37
WV1020137	MIN INC	U501199	New	25
WV1020196	PREMIUM ENERGY INC	S502099	New	947
WVG014001	MID-VOL LEASING INC	O005585	Renewed	1
WVG014004	BLUESTONE COAL CORPORATION	U402790	Phase 1 Released	9
WVG014004	BLUESTONE COAL CORPORATION	U402890	Phase 1 Released	9
WVG014016	BLUESTONE COAL CORPORATION	U400592	Renewed	11
WVG014018	BLUESTONE COAL CORPORATION	U400195	Phase 1 Released	7
WVG014019	BLUESTONE COAL CORPORATION	U400895	Inactive	5
WVG014020	BLUESTONE COAL CORPORATION	U402295	Active	11
WVG014022	BLUESTONE COAL CORPORATION	S401996	Active	37
WVG014022	BLUESTONE COAL CORPORATION	U400398	New	3
WVG015018	EAGLEHAWK CARBON INC	U501991	Renewed	11
WVG015018	EAGLEHAWK CARBON INC	U502091	Renewed	11
WVG015036	MARROWBONE DEVELOPMENT CO	U511586	Phase 1 Released	4

Table E-2. Kentucky Mining Permits

PERMIT ID	Responsible Party	Type	Status	Disturbed Acres
2985329	ADKINS & WEBB COAL CO INC	Underground	INACTIVE PERMITS	5
2985332	J & H COAL COMPANY	Underground	INACTIVE PERMITS	4
4800046	17 WEST MINING INC	Surface	ACTIVE CURRENTLY BEING MINED	218
4800073	MARTIN COUNTY COAL CORPORATION	Surface	ACTIVE CURRENTLY BEING MINED	40
4805053	MARTIN COUNTY COAL CORPORATION	Underground	PHASE I RELEASE	14
4805056	MARTIN COUNTY COAL CORPORATION	Underground	ACTIVE TEMPORARY CESSATIONS	85
4805074	MARTIN COUNTY COAL CORPORATION	Underground	ACTIVELY PRODUCING COAL	63
4807001	MARTIN COUNTY COAL CORPORATION	Roads	ACTIVE CURRENTLY BEING MINED	50
4980232	MAJESTIC COLLIERIES COMPANY	Surface	ACTIVE TEMPORARY CESSATIONS	152
4985164	CASE CARBON MINING INC	Underground	SURETY FAILURE	4
4985205	WIDOWS-GROVE COAL COMPANY INC	Underground	ACTIVE TEMPORARY CESSATIONS	7
4985319	PRICE COAL COMPANY INC	Underground	PHASE I RELEASE	3
4985417	JESSE BRANCH COAL CO	Underground	PHASE I RELEASE	12
6805012	MARTIN COUNTY COAL CORPORATION	Underground	ACTIVELY PRODUCING COAL	150
6807001	17 WEST MINING INC	Roads	ACTIVE CURRENTLY BEING MINED	200
6808002	MARTIN COUNTY COAL CORPORATION	Processing Facility	ACTIVE CURRENTLY BEING MINED	400
6808003	17 WEST MINING INC	Processing Facility	ACTIVE CURRENTLY BEING MINED	120
6808004			ACTIVE NOT CURRENTLY BEING MINED	7
6985333	J & H COAL COMPANY	Underground	PHASE I RELEASE	4
6987013	MAJESTIC COLLIERIES COMPANY	Roads	ACTIVE CURRENTLY BEING MINED	18
8640019	LOCKWORTH INC	Surface	SURETY FAILURE	130
8640076	LOCKWORTH INC	Surface	SURETY FAILURE	101
8640124	TRANSMAR LAND CORPORATION	Surface	PHASE I RELEASE	287
8640125	MARY MOUNTS COAL COMPANY INC	Surface	ACTIVE NOT CURRENTLY BEING MINED	22
8640134	FOSSIL FUEL LEASING INC	Surface	ACTIVE NOT CURRENTLY BEING MINED	114
8640135	FOSSIL FUEL LEASING INC	Surface	PHASE I RELEASE	18
8640141	M & J TRUCKING	Surface	ACTIVE NOT CURRENTLY BEING MINED	62
8640142	M & G COAL SALES INC	Surface	ACTIVE NOT CURRENTLY BEING MINED	47
8640143	M & G COAL SALES INC	Surface	ACTIVE NOT CURRENTLY BEING MINED	41
8640146	M & G COAL SALES INC	Surface	ACTIVELY PRODUCING COAL	25
8640154	MILLER BROS COAL INC	Surface	ACTIVELY PRODUCING COAL	231
8648022	M & E COAL COMPANY INC	Processing Facility	ACTIVE CURRENTLY BEING MINED	2
8648029	M & E COAL COMPANY INC	Processing Facility	ACTIVE CURRENTLY BEING MINED	1
8648034	LAWRENCE E VINSON	Processing Facility	ACTIVE CURRENTLY BEING MINED	3
8800003	17 WEST MINING INC	Surface	ACTIVE NOT CURRENTLY BEING MINED	665
8800011	17 WEST MINING INC	Surface	ACTIVE CURRENTLY BEING MINED	900
8800012	17 WEST MINING INC	Surface	ACTIVE CURRENTLY BEING MINED	2000
8800014	MARTIN COUNTY COAL CORPORATION	Surface	ACTIVELY PRODUCING COAL	950
8800018	MARTIN COUNTY COAL CORPORATION	Surface	ACTIVE CURRENTLY BEING MINED	310
8800023	MARTIN COUNTY COAL CORPORATION	Surface	ACTIVE TEMPORARY CESSATIONS	585
8800032	MARTIN COUNTY COAL CORPORATION	Surface	ACTIVE NOT CURRENTLY BEING MINED	393
8800034	MARTIN COUNTY COAL CORPORATION	Surface	ACTIVE CURRENTLY BEING MINED	17
8800041	MARTIN COUNTY COAL CORPORATION	Surface	ACTIVELY PRODUCING COAL	380
8800043	MARTIN COUNTY COAL CORPORATION	Surface	ACTIVELY PRODUCING COAL	970
8800062	MARTIN COUNTY COAL CORPORATION	Surface	ACTIVELY PRODUCING COAL	500
8800093	BEECH FORK PROCESSING INC	Surface	PHASE I RELEASE	55
8800096	LENVIL LEWIS	Surface	ACTIVE CURRENTLY BEING MINED	135
8800099	TRANSMAR LAND CORPORATION	Surface	PHASE I RELEASE	215
8800100	17 WEST MINING INC	Surface	ACTIVE NOT CURRENTLY BEING MINED	250
8800103	MARTIN COUNTY COAL CORPORATION	Surface	ACTIVELY PRODUCING COAL	1300
8800108	17 WEST MINING INC	Surface	ACTIVELY PRODUCING COAL	2000
8800109	MARTIN COUNTY COAL CORPORATION	Surface	ACTIVELY PRODUCING COAL	1250
8800111	CZAR COAL CORPORATION	Surface	ACTIVE CURRENTLY BEING MINED	30
8800113	CZAR COAL CORPORATION	Surface	ACTIVE CURRENTLY BEING MINED	12
8800114	CZAR COAL CORPORATION	Surface	ACTIVE CURRENTLY BEING MINED	8
8800121	ROCKCASTLE MINING COMPANY INC	Surface	PHASE I RELEASE	80
8800122	CZAR COAL CORPORATION	Surface	PHASE I RELEASE	108
8800124	CZAR COAL CORPORATION	Surface	ACTIVELY PRODUCING COAL	500

Table E-2. (cont.) Kentucky Mining Permits

PERMIT ID	Responsible Party	Type	Status	Disturbed Acres
8800132	CZAR COAL CORPORATION	Surface	PHASE I RELEASE	17
8800137	17 WEST MINING INC	Surface	ACTIVELY PRODUCING COAL	150
8800138			ACTIVE NOT CURRENTLY BEING MINED	250
8800139	17 WEST MINING INC	Surface	ACTIVELY PRODUCING COAL	300
8800140	17 WEST MINING INC	Surface	ACTIVE CURRENTLY BEING MINED	150
8800141	17 WEST MINING INC	Surface	ACTIVELY PRODUCING COAL	150
8800144	PETER CAVE MINING COMPANY	Surface	ACTIVE NOT CURRENTLY BEING MINED	75
8800148	BEECH FORK PROCESSING INC	Surface	ACTIVELY PRODUCING COAL	200
8805018	MARTIN COUNTY COAL CORPORATION	Underground	ACTIVE TEMPORARY CESSATIONS	40
8805044	MARTIN COUNTY COAL CORPORATION	Underground	ACTIVE CURRENTLY BEING MINED	45
8805059	BLAZER COAL DEVELOPMENT INC	Underground	ACTIVE TEMPORARY CESSATIONS	17
8805066	BEECH FORK PROCESSING INC	Underground	ACTIVELY PRODUCING COAL	29
8805071	MARTIN COUNTY COAL CORPORATION	Underground	ACTIVE CURRENTLY BEING MINED	45
8805081	17 WEST MINING INC	Underground	ACTIVE NOT CURRENTLY BEING MINED	75
8805086	RAVEN MINING CO	Underground	PHASE I RELEASE	11
8805113	MARTIN COUNTY COAL CORPORATION	Underground	ACTIVE TEMPORARY CESSATIONS	17
8805117	CZAR COAL CORPORATION	Underground	ACTIVE NOT CURRENTLY BEING MINED	30
8805126	CZAR COAL CORPORATION	Underground	ACTIVE TEMPORARY CESSATIONS	45
8805127	CZAR COAL CORPORATION	Underground	PHASE I RELEASE	12
8805130	CZAR COAL CORPORATION	Underground	PHASE I RELEASE	26
8805132	CZAR COAL CORPORATION	Underground	PHASE I RELEASE	1
8805138	CZAR COAL CORPORATION	Underground	PHASE I RELEASE	4
8805139	CZAR COAL CORPORATION	Underground	ACTIVE CURRENTLY BEING MINED	14
8805144	MARTIN COUNTY COAL CORPORATION	Underground	PHASE I RELEASE	25
8805148	CZAR COAL CORPORATION	Underground	ACTIVELY PRODUCING COAL	20
8805149	CZAR COAL CORPORATION	Underground	ACTIVE TEMPORARY CESSATIONS	4
8805150	CZAR COAL CORPORATION	Underground	ACTIVELY PRODUCING COAL	12
8805154	ASHLAND STEAM COAL SALES INC	Underground	ACTIVE CURRENTLY BEING MINED	8
8805156	PONTIKI COAL LLC	Underground	ACTIVELY PRODUCING COAL	43
8805161	PETER CAVE MINING COMPANY	Underground	ACTIVE TEMPORARY CESSATIONS	76
8805162	PETER CAVE MINING COMPANY	Underground	ACTIVE TEMPORARY CESSATIONS	30
8805163	PETER CAVE MINING COMPANY	Underground	ACTIVE TEMPORARY CESSATIONS	325
8805164	GREYEAGLE COAL COMPANY	Underground	ACTIVE TEMPORARY CESSATIONS	5
8805165	CZAR COAL CORPORATION	Underground	ACTIVELY PRODUCING COAL	3
8805166	TOPTIKI COAL LLC	Underground	PHASE I RELEASE	17
8805167	TOPTIKI COAL LLC	Underground	ACTIVE TEMPORARY CESSATIONS	12
8805168	TOPTIKI COAL LLC	Underground	ACTIVELY PRODUCING COAL	10
8807000	MARTIN COUNTY COAL CORPORATION	Roads	ACTIVE CURRENTLY BEING MINED	330
8807001			ACTIVE CURRENTLY BEING MINED	27
8807002	MARTIN COUNTY COAL CORPORATION	Roads	ACTIVE CURRENTLY BEING MINED	210
8807005	MARTIN COUNTY COAL CORPORATION	Roads	ACTIVE CURRENTLY BEING MINED	109
8807009	17 WEST MINING INC	Roads	ACTIVE CURRENTLY BEING MINED	85
8807010	CZAR COAL CORPORATION	Roads	ACTIVE CURRENTLY BEING MINED	195
8807012	17 WEST MINING INC	Roads	ACTIVE CURRENTLY BEING MINED	80
8807014	CZAR COAL CORPORATION	Roads	ACTIVE CURRENTLY BEING MINED	57
8807015	BEECH FORK PROCESSING INC	Roads	ACTIVE CURRENTLY BEING MINED	15
8808002	CZAR COAL CORPORATION	Processing Facility	ACTIVE CURRENTLY BEING MINED	300
8808005	PONTIKI COAL LLC	Processing Facility	ACTIVE CURRENTLY BEING MINED	15
8808006	PONTIKI COAL LLC	Processing Facility	ACTIVE CURRENTLY BEING MINED	100
8808008	PETER CAVE MINING COMPANY	Processing Facility	ACTIVE CURRENTLY BEING MINED	355
8808009	TOPTIKI COAL LLC	Processing Facility	ACTIVE NOT CURRENTLY BEING MINED	7
8980142	RAWL SALES & PROCESSING CO	Surface	PHASE I RELEASE	302
8980192	MAJESTIC COLLIERIES COMPANY	Surface	PHASE I RELEASE	30
8980213	JESSE BRANCH COAL CO	Surface	PHASE I RELEASE	224
8980272	ELKHORN CONSTRUCTION CO INC	Surface	PHASE I RELEASE	167
8980322	CORBIN COAL COMPANY	Surface	ACTIVE NOT CURRENTLY BEING MINED	480
8980342	MOUNTAIN MINERALS INC	Surface	ACTIVE TEMPORARY CESSATIONS	5
8980349	HOLSTON MINING INC	Surface	PHASE I RELEASE	761
8980361	CORBIN COAL COMPANY	Surface	ACTIVE NOT CURRENTLY BEING MINED	520

Table E-2. (cont.) Kentucky Mining Permits

PERMIT ID	Responsible Party	Type	Status	Disturbed Acres
8980401	SUNNY RIDGE MINING COMPANY INC	Surface	ACTIVE CURRENTLY BEING MINED	800
8980447	SUNNY RIDGE MINING COMPANY INC	Surface	ACTIVE NOT CURRENTLY BEING MINED	261
8980448	SUNNY RIDGE MINING COMPANY INC	Surface	ACTIVE CURRENTLY BEING MINED	202
8980473	SUNNY RIDGE MINING COMPANY INC	Surface	ACTIVELY PRODUCING COAL	560
8980485	LITTLE BOYD COAL CO INC	Surface	ACTIVE NOT CURRENTLY BEING MINED	250
8980492	SUNNY RIDGE MINING COMPANY INC	Surface	ACTIVELY PRODUCING COAL	650
8980505	SUNNY RIDGE MINING COMPANY INC	Surface	ACTIVE CURRENTLY BEING MINED	189
8980529	ADDINGTON MINING INC	Surface	PHASE I RELEASE	200
8980530	ADDINGTON MINING INC	Surface	ACTIVE NOT CURRENTLY BEING MINED	510
8980540	ADDINGTON MINING INC	Surface	ACTIVE NOT CURRENTLY BEING MINED	280
8980552	LODESTAR ENERGY INC	Surface	ACTIVE TEMPORARY CESSATIONS	350
8980554	LODESTAR ENERGY INC	Surface	PHASE I RELEASE	140
8980555	LODESTAR ENERGY INC	Surface	ACTIVELY PRODUCING COAL	450
8980563	ADDINGTON MINING INC	Surface	ACTIVELY PRODUCING COAL	400
8980565	VIRGINIA ENERGY COMPANY	Surface	ACTIVELY PRODUCING COAL	75
8980570	SIDNEY COAL COMPANY INC	Surface	ACTIVE CURRENTLY BEING MINED	3
8980573	SIDNEY COAL COMPANY INC	Surface	ACTIVELY PRODUCING COAL	90
8980582	SOLOMONS MINING COMPANY	Surface	ACTIVELY PRODUCING COAL	100
8980611	ADDINGTON MINING INC	Surface	ACTIVELY PRODUCING COAL	20
8980623	SOLOMONS MINING COMPANY	Surface	ACTIVELY PRODUCING COAL	400
8980624	SOLOMONS MINING COMPANY	Surface	ACTIVELY PRODUCING COAL	500
8980625	SOLOMONS MINING COMPANY	Surface	ACTIVE TEMPORARY CESSATIONS	75
8980626	SOLOMONS MINING COMPANY	Surface	ACTIVE TEMPORARY CESSATIONS	100
8980627	SOLOMONS MINING COMPANY	Surface	ACTIVELY PRODUCING COAL	300
8984012	WELLMORE COAL CORPORATION	Underground	ACTIVE NOT CURRENTLY BEING MINED	4
8984022	WELLMORE COAL CORPORATION	Underground	ACTIVE TEMPORARY CESSATIONS	
8984033	PATRICK PROCESSING LLC	Underground	ACTIVE CURRENTLY BEING MINED	6
8984034	PATRICK PROCESSING LLC	Underground	ACTIVELY PRODUCING COAL	12
8984036	LODESTAR ENERGY INC	Underground	ACTIVE TEMPORARY CESSATIONS	15
8984037	LODESTAR ENERGY INC	Underground	ACTIVE TEMPORARY CESSATIONS	14
8984038	LODESTAR ENERGY INC	Underground	PHASE I RELEASE	12
8984039	LODESTAR ENERGY INC	Underground	ACTIVE TEMPORARY CESSATIONS	60
8984043	BERKELEY ENERGY CORPORATION	Underground	ACTIVE TEMPORARY CESSATIONS	15
8984053	MONEY BRANCH COAL COMPANY	Underground	ACTIVE NOT CURRENTLY BEING MINED	19
8984054	SIDNEY COAL COMPANY INC	Underground	ACTIVELY PRODUCING COAL	6
8984070	ADDINGTON MINING INC	Underground	PHASE I RELEASE	17
8984071	HOLSTON MINING INC	Underground	ACTIVE CURRENTLY BEING MINED	6
8984076	CLINTWOOD ELKHORN MINING COMPAN	Underground	PHASE I RELEASE	2
8984077	CLINTWOOD ELKHORN MINING COMPAN	Underground	PHASE I RELEASE	9
8984078	CLINTWOOD ELKHORN MINING COMPAN	Underground	PHASE I RELEASE	5
8984088	SIDNEY COAL COMPANY INC	Underground	ACTIVELY PRODUCING COAL	30
8984094	LODESTAR ENERGY INC	Underground	ACTIVELY PRODUCING COAL	10
8984121	GREYEAGLE COAL COMPANY	Underground	PHASE I RELEASE	3
8984122	CLINTWOOD ELKHORN MINING COMPAN	Underground	ACTIVELY PRODUCING COAL	
8984123	CLINTWOOD ELKHORN MINING COMPAN	Underground	ACTIVELY PRODUCING COAL	
8984128	AMERICAN MINING & MANUFACTURING C	Underground	ACTIVELY PRODUCING COAL	3
8984147	ROAD FORK DEVELOPMENT COMPANY I	Underground	ACTIVE CURRENTLY BEING MINED	273
8985154	HICKORY HILL DEVELOPMENT CORP	Underground	PHASE I RELEASE	2
8985167	SIDNEY COAL COMPANY INC	Underground	ACTIVE CURRENTLY BEING MINED	30
8985168	SIDNEY COAL COMPANY INC	Underground	ACTIVELY PRODUCING COAL	360
8985180			ACTIVE CURRENTLY BEING MINED	20
8985183	MAJESTIC COLLIERIES COMPANY	Underground	ACTIVE TEMPORARY CESSATIONS	8
8985228	RAWL SALES & PROCESSING CO	Underground	PHASE I RELEASE	17
8985310	BRANHAM & BAKER COAL COMPANY INC	Underground	ACTIVE NOT CURRENTLY BEING MINED	9
8985403			ACTIVE TEMPORARY CESSATIONS	16
8985432	MAJESTIC COLLIERIES COMPANY	Underground	ACTIVE TEMPORARY CESSATIONS	8
8985455	HOLSTON MINING INC	Underground	ACTIVELY PRODUCING COAL	8
8985471	SIDNEY COAL COMPANY INC	Underground	ACTIVE NOT CURRENTLY BEING MINED	18
8985499	HICKORY HILL DEVELOPMENT CORP	Underground	ACTIVE TEMPORARY CESSATIONS	2

Table E-2. (cont.) Kentucky Mining Permits

PERMIT ID	Responsible Party	Type	Status	Disturbed Acres
8985579	SIDNEY COAL COMPANY INC	Underground	ACTIVE CURRENTLY BEING MINED	3
8985646	SIDNEY COAL COMPANY INC	Underground	PHASE I RELEASE	6
8985647	SIDNEY COAL COMPANY INC	Underground	PHASE I RELEASE	9
8985648	SIDNEY COAL COMPANY INC	Underground	PHASE I RELEASE	4
8985649	SIDNEY COAL COMPANY INC	Underground	PHASE I RELEASE	5
8985651	SIDNEY COAL COMPANY INC	Underground	ACTIVE TEMPORARY CESSATIONS	27
8985652	SIDNEY COAL COMPANY INC	Underground	PHASE I RELEASE	10
8985653	SIDNEY COAL COMPANY INC	Underground	PHASE I RELEASE	4
8985698	GWENCO INC	Underground	ACTIVELY PRODUCING COAL	5
8985734	ROAD FORK DEVELOPMENT COMPANY II	Underground	ACTIVELY PRODUCING COAL	15
8985735	SIDNEY COAL COMPANY INC	Underground	PHASE I RELEASE	3
8985736	SIDNEY COAL COMPANY INC	Underground	ACTIVE NOT CURRENTLY BEING MINED	22
8985739	SIDNEY COAL COMPANY INC	Underground	ACTIVELY PRODUCING COAL	85
8985740	SIDNEY COAL COMPANY INC	Underground	PHASE I RELEASE	1
8985741	SIDNEY COAL COMPANY INC	Underground	ACTIVE TEMPORARY CESSATIONS	20
8985742	SIDNEY COAL COMPANY INC	Underground	ACTIVE TEMPORARY CESSATIONS	9
8985743	SIDNEY COAL COMPANY INC	Underground	ACTIVELY PRODUCING COAL	23
8985744	SIDNEY COAL COMPANY INC	Underground	ACTIVELY PRODUCING COAL	26
8985745	SIDNEY COAL COMPANY INC	Underground	PHASE I RELEASE	5
8985746	SIDNEY COAL COMPANY INC	Underground	PHASE I RELEASE	4
8985749	SIDNEY COAL COMPANY INC	Underground	PHASE I RELEASE	5
8985755	STONE MINING COMPANY	Underground	PHASE I RELEASE	8
8985765	JESSE BRANCH COAL CO	Underground	PHASE I RELEASE	16
8985773	SIDNEY COAL COMPANY INC	Underground	ACTIVE CURRENTLY BEING MINED	10
8985777	HOLSTON MINING INC	Underground	ACTIVE CURRENTLY BEING MINED	10
8985787	LONG FORK COAL COMPANY	Underground	ACTIVE TEMPORARY CESSATIONS	11
8985798	PHELPS COAL & LAND COMPANY INC	Underground	ACTIVE NOT CURRENTLY BEING MINED	18
8985809	ROAD FORK DEVELOPMENT COMPANY II	Underground	ACTIVELY PRODUCING COAL	32
8985818	SIDNEY COAL COMPANY INC	Underground	ACTIVELY PRODUCING COAL	55
8985834	SUNNY RIDGE MINING COMPANY INC	Underground	ACTIVE NOT CURRENTLY BEING MINED	14
8985835	SUNNY RIDGE MINING COMPANY INC	Underground	ACTIVE NOT CURRENTLY BEING MINED	20
8985836	SUNNY RIDGE MINING COMPANY INC	Underground	ACTIVE TEMPORARY CESSATIONS	17
8985850	CRYSTAL COLLIERIES INC	Underground	ACTIVE PERMITS IN FORFEITURE	5
8985892	APPCO MINING INC	Underground	ACTIVE NOT CURRENTLY BEING MINED	2
8985902	MONEY BRANCH COAL COMPANY	Underground	ACTIVE TEMPORARY CESSATIONS	20
8985908	CHISHOLM COAL COMPANY	Underground	ACTIVELY PRODUCING COAL	316
8985910	ROAD FORK DEVELOPMENT COMPANY II	Underground	ACTIVE TEMPORARY CESSATIONS	14
8985914	CLINTWOOD ELKHORN MINING COMPAN	Underground	ACTIVELY PRODUCING COAL	45
8985918	SUNNY RIDGE MINING COMPANY INC	Underground	ACTIVE TEMPORARY CESSATIONS	15
8985919	MONEY BRANCH COAL COMPANY	Underground	ACTIVE TEMPORARY CESSATIONS	
8985940	MAJESTIC COLLIERIES COMPANY	Underground	ACTIVE TEMPORARY CESSATIONS	3
8985947	MCCOY ELKHORN COAL CORPORATION	Underground	ACTIVELY PRODUCING COAL	16
8985950	BERKELEY ENERGY CORPORATION	Underground	ACTIVE CURRENTLY BEING MINED	5
8985955	BELFRY EQUIPMENT COMPANY INC	Underground	ACTIVE TEMPORARY CESSATIONS	10
8985974	BELFRY COAL CORPORATION	Underground	PHASE I RELEASE	7
8985985	JAMES H TAYLOR MINING COMPANY INC	Underground	ACTIVELY PRODUCING COAL	11
8985986	SIDNEY COAL COMPANY INC	Underground	ACTIVE CURRENTLY BEING MINED	6
8985995	ROAD FORK DEVELOPMENT COMPANY II	Underground	ACTIVE TEMPORARY CESSATIONS	19
8985997	ROAD FORK DEVELOPMENT COMPANY II	Underground	PHASE I RELEASE	8
8986029	RAWL SALES & PROCESSING CO	Other	ACTIVE TEMPORARY CESSATIONS	1
8987025	SIDNEY COAL COMPANY INC	Roads	ACTIVE CURRENTLY BEING MINED	16
8987033	ROAD FORK DEVELOPMENT COMPANY II	Roads	ACTIVE CURRENTLY BEING MINED	24
8987035	SUNNY RIDGE MINING COMPANY INC	Roads	ACTIVE CURRENTLY BEING MINED	54
8987037	MAJESTIC COLLIERIES COMPANY	Roads	ACTIVE CURRENTLY BEING MINED	7
8987040	ADDINGTON MINING INC	Roads	ACTIVE CURRENTLY BEING MINED	5
8987043	LODESTAR ENERGY INC	Roads	ACTIVE CURRENTLY BEING MINED	10
8987044	LODESTAR ENERGY INC	Roads	ACTIVE CURRENTLY BEING MINED	50
8987045	LODESTAR ENERGY INC	Roads	ACTIVE CURRENTLY BEING MINED	8
8987049	ADDINGTON MINING INC	Roads	ACTIVE CURRENTLY BEING MINED	19

Table E-2. (cont.) Kentucky Mining Permits

PERMIT ID	Responsible Party	Type	Status	Disturbed Acres
8987057	SOLOMONS MINING COMPANY	Roads	ACTIVE CURRENTLY BEING MINED	65
8987058	SOLOMONS MINING COMPANY	Roads	ACTIVE CURRENTLY BEING MINED	13
8988055	HOLSTON MINING INC	Processing Facility	ACTIVE CURRENTLY BEING MINED	18
8988068	LONG FORK COAL COMPANY	Processing Facility	ACTIVELY PRODUCING COAL	200
8988080	STONE MINING COMPANY	Processing Facility	PHASE I RELEASE	28
8988085	SUNNY RIDGE MINING COMPANY INC	Processing Facility	ACTIVE TEMPORARY CESSATIONS	5
8988100	MAJESTIC COLLIERIES COMPANY	Processing Facility	ACTIVE CURRENTLY BEING MINED	30
8988103	MAJESTIC COLLIERIES COMPANY	Processing Facility	ACTIVE TEMPORARY CESSATIONS	9
8988106	SIDNEY COAL COMPANY INC	Processing Facility	ACTIVE CURRENTLY BEING MINED	9
8988110	BERKELEY ENERGY CORPORATION	Processing Facility	ACTIVE TEMPORARY CESSATIONS	8
8988111			ACTIVE CURRENTLY BEING MINED	13
8988114	LODESTAR ENERGY INC	Processing Facility	ACTIVE CURRENTLY BEING MINED	19
8988115	LODESTAR ENERGY INC	Processing Facility	ACTIVE CURRENTLY BEING MINED	5
8988118	CLINTWOOD ELKHORN MINING COMPAN	Processing Facility	PHASE I RELEASE	9
8989055	HOLSTON MINING INC	Processing Facility	ACTIVE CURRENTLY BEING MINED	100
8989066	NEW RIDGE MINING COMPANY	Processing Facility	ACTIVE NOT CURRENTLY BEING MINED	20
8989073	STONE MINING COMPANY	Processing Facility	PHASE I RELEASE	28
8989082	SUNNY RIDGE MINING COMPANY INC	Processing Facility	ACTIVE TEMPORARY CESSATIONS	17
8989091	SIDNEY COAL COMPANY INC	Processing Facility	ACTIVE CURRENTLY BEING MINED	20
8989095	MAJESTIC COLLIERIES COMPANY	Processing Facility	ACTIVE TEMPORARY CESSATIONS	60
8989105	LODESTAR ENERGY INC	Processing Facility	ACTIVE CURRENTLY BEING MINED	50
8989109	CLINTWOOD ELKHORN MINING COMPAN	Processing Facility	ACTIVE TEMPORARY CESSATIONS	27