

Appendix A-20

Region 20

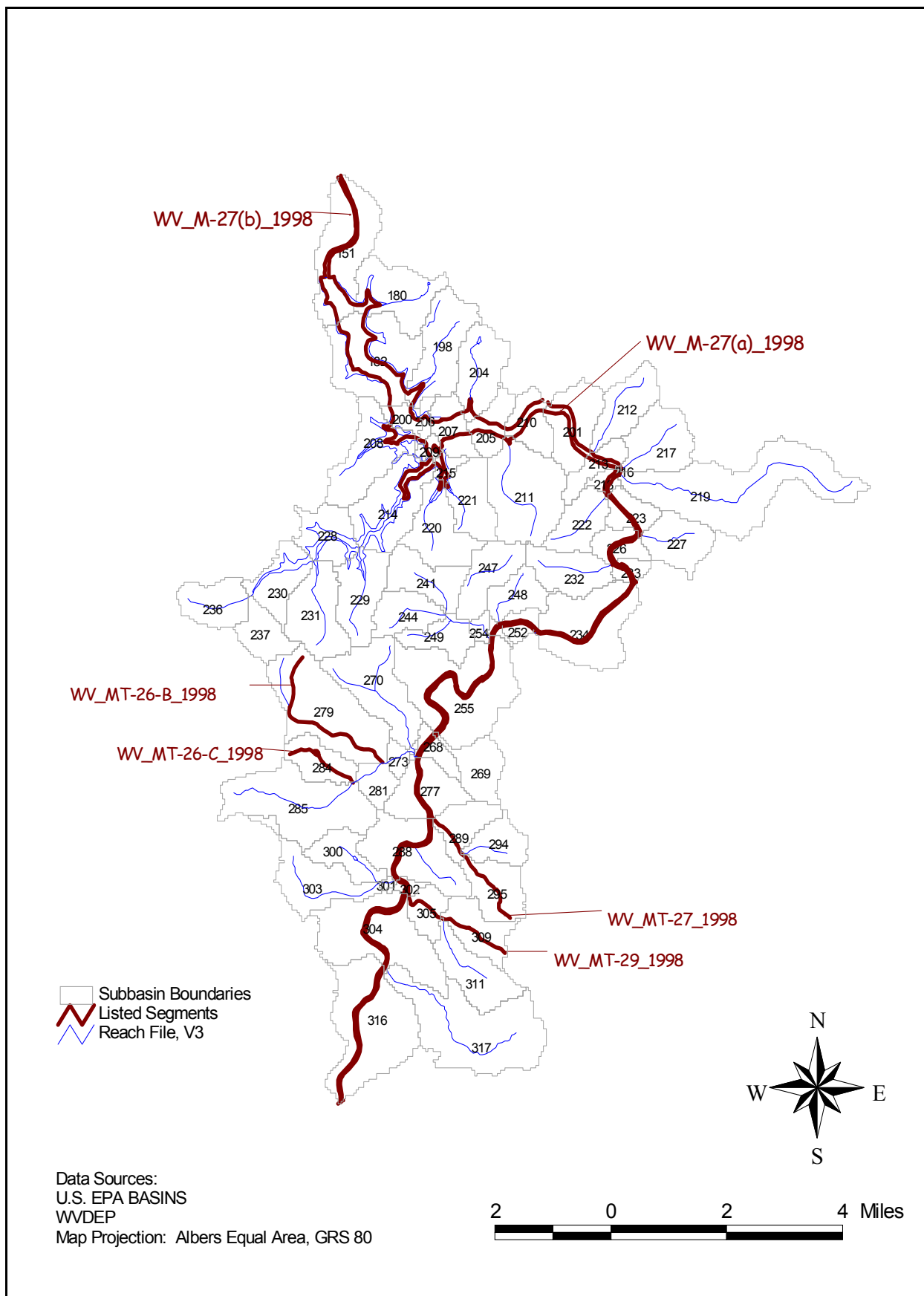


Figure 1. Region 20-Tygart Valley River, Barbour County

Table 1. Impaired waterbodies in Region 20

Stream Name	Stream Code	Pollutant	Contributing SWS	Contributing Region	Aquatic Life
Tygart River	M-27	pH, Metals	151,180,182,198,204,206,200,212,207,205,210,209,216,217,201,215,218,213,208,223,221,219,211,214,222,226,228,220,227,233,232,241,247,248,236,230,244,254,252,229,251,231,237,249,234,270,255,274,279,273,268,284,269,281,277,285,289,294,300,301,302,288,303,295,305,309,304,311,317,316	14,20,15,10,13,17,11,12,5,9,6,8,19,4,18,7,2,3,1	B-1
Foxgrape RN	MT-26-B	Aluminum	279	None	B-1
Little Hackers CK	MT-26-C	Aluminum	284	None	B-1
Ford RN	MT-27	pH, Metals	289,294,295	None	B-1
Anglins RN	MT-29	pH, Metals	305,309,311	None	B-1

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

SWS
289,305, and 309

Table 3a. Water quality data for aluminum

SWS	WQ station	Avg (ug/L)	Min (ug/L)	Max (ug/L)	Count	Start Date	End Date
151	4TYG20201	668	50	9600	24	08-Apr-81	07-Aug-87
151	4TYG21002	386	50	8500	38	26-Apr-83	07-Aug-87
151	550575	1105	200	3500	8	18-Mar-86	10-Apr-86
182	4TYG21004	374	50	1870	32	26-Apr-83	18-Oct-83
201	4TYG21008	135	100	170	2	31-Aug-83	31-Aug-83
207	4TYG21006	319	50	1870	33	27-Apr-83	18-Oct-83
209	4TYG22006	70	70	70	1	15-Sep-83	15-Sep-83
213	4TYG21009	346	90	2020	34	10-Sep-81	18-Oct-83
220	4TYG22007	100	100	100	1	15-Sep-83	15-Sep-83
232	MT-22	95	95	95	1	09-Sep-97	09-Sep-97
234	4TYGW0111	557	50	2823	37	28-Apr-86	14-Mar-88
234	4TYGW1111	790	50	7040	22	08-Apr-81	07-Aug-87
255	4TYG11112	900	620	1180	2	21-Feb-86	24-Mar-86
255	550576	395	0.1	2060	36	18-Mar-86	02-Jul-87
273	MT-26-{00.4}	50	50	50	1	27-Aug-97	27-Aug-97
279	MT-26-B	180	180	180	1	16-Sep-97	16-Sep-97
279	MT-26-C	50	50	50	1	27-Aug-97	27-Aug-97
288	4TYG11115	592	50	5940	59	08-Apr-81	14-Mar-88
289	4TYG12215	31478	50	118770	53	08-Apr-81	14-Mar-88
302	550577	387	100	1440	64	18-Mar-86	11-Jul-88
302	550822	318	120	600	8	11-Mar-80	10-Sep-84
305	MT-29	90	90	90	1	11-Sep-97	11-Sep-97

Metals and pH TMDLs for the Tygart Valley River Watershed

Table 3b. Water quality data for iron

SWS	WQ station	Avg (ug/L)	Min (ug/L)	Max (ug/L)	Count	Start Date	End Date
151	4TYG20201	641	100	6400	24	08-Apr-81	07-Aug-87
151	4TYG21002	513	100	8100	38	26-Apr-83	07-Aug-87
151	550575	803	200	1400	8	18-Mar-86	10-Apr-86
182	4TYG21004	608	100	2900	36	26-Apr-83	18-Oct-83
201	4TYG21008	667	100	1700	3	31-Aug-83	31-Aug-83
207	4TYG21006	415	100	2500	34	27-Apr-83	18-Oct-83
209	4TYG22006	100	100	100	1	15-Sep-83	15-Sep-83
213	4TYG21009	426	100	1800	34	10-Sep-81	18-Oct-83
220	4TYG22007	100	100	100	1	15-Sep-83	15-Sep-83
232	MT-22	122	122	122	1	09-Sep-97	09-Sep-97
234	4TYGW0111	834	100	3900	37	28-Apr-86	14-Mar-88
234	4TYGW1111	1300	100	8500	23	08-Apr-81	07-Aug-87
255	4TYG11112	1100	1100	1100	1	21-Feb-86	21-Feb-86
255	550576	535	0.2	3220	36	18-Mar-86	02-Jul-87
273	MT-26-{00.4}	50	50	50	1	27-Aug-97	27-Aug-97
279	MT-26-B	180	180	180	1	16-Sep-97	16-Sep-97
279	MT-26-C	180	180	180	1	27-Aug-97	27-Aug-97
288	4TYG11115	876	100	7400	58	08-Apr-81	14-Mar-88
289	4TYG12215	61132	100	256400	52	08-Apr-81	14-Mar-88
302	390900080022539	942	180	1700	10	29-Jan-80	02-Sep-80
302	550577	465	100	2520	64	18-Mar-86	11-Jul-88
302	550822	689	180	2600	15	10-Jun-80	10-Sep-84
305	MT-29	500	500	500	1	11-Sep-97	11-Sep-97
317	390723080023139	530	360	700	2	27-Mar-80	23-Aug-80

Table 3c. Water quality data for manganese

SWS	WQ station	Avg (ug/L)	Min (ug/L)	Max (ug/L)	Count	Start Date	End Date
151	4TYG20201	211	10	450	23	08-Apr-81	07-Aug-87
151	4TYG21002	429	10	2600	37	26-Apr-83	07-Aug-87
151	550575	208	106	318	8	18-Mar-86	10-Apr-86
182	4TYG21004	245	10	1240	37	26-Apr-83	18-Oct-83
201	4TYG21008	160	60	350	3	31-Aug-83	31-Aug-83
207	4TYG21006	125	10	450	34	27-Apr-83	18-Oct-83
209	4TYG22006	20	20	20	1	15-Sep-83	15-Sep-83
213	4TYG21009	194	30	1260	34	10-Sep-81	18-Oct-83
220	4TYG22007	10	10	10	1	15-Sep-83	15-Sep-83
232	MT-22	8	8	8	1	09-Sep-97	09-Sep-97
234	4TYGW0111	147	10	380	37	28-Apr-86	14-Mar-88
234	4TYGW1111	164	10	580	21	08-Apr-81	07-Aug-87
255	4TYG11112	220	170	270	2	21-Feb-86	24-Mar-86
255	550576	94	0	500	36	18-Mar-86	02-Jul-87
273	MT-26-{00.4}	60	60	60	1	27-Aug-97	27-Aug-97
279	MT-26-B	140	140	140	1	16-Sep-97	16-Sep-97
279	MT-26-C	78	78	78	1	27-Aug-97	27-Aug-97
288	4TYG11115	247	10	4499	59	08-Apr-81	14-Mar-88
289	4TYG12215	7499	10	31620	51	08-Apr-81	14-Mar-88
302	390900080022539	147	70	210	10	29-Jan-80	02-Sep-80
302	550577	150	0	400	64	18-Mar-86	11-Jul-88
302	550822	143	78	248	14	11-Mar-80	10-Sep-84
305	MT-29	290	290	290	1	11-Sep-97	11-Sep-97
317	390723080023139	70	60	80	2	27-Mar-80	23-Aug-80

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

SWS	Permit ID	Baseline (lbs/yr)	Allocation(lbs/yr)	Allocation (mg/L)
219	u103790	938	938	4.3
255	p200300	27	27	4.3
277	e011000	445	445	4.3
277	r064900	2502	2502	4.3
279	u001583	2565	1088	2.4
284	o011383	4776	906	0.8
284	s200594	345	66	0.8
285	s200592	1917	1917	4.3
288	e010300	781	781	4.3
288	p071300	0	0	0.0
289	o010283	15	15	4.3
304	d016300	235	235	4.3
304	u001985	235	235	4.3

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

SWS	Permit ID	Baseline (lbs/yr)	Allocation(lbs/yr)	Allocation (mg/L)
219	u103790	698	698	3.2
255	p200300	20	20	3.2
277	e011000	331	331	3.2
277	r064900	1862	1862	3.2
279	u001583	1909	1909	3.2
284	o011383	926	926	3.2
284	s200594	66	66	3.2
285	s200592	1427	1427	3.2
288	e010300	581	581	3.2
288	p071300	0	0	0.0
289	o010283	14	14	3.2
304	d016300	175	175	3.2
304	u001985	175	175	3.2

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

SWS	Permit ID	Baseline (lbs/yr)	Allocation(lbs/yr)	Allocation (mg/L)
219	u103790	374	374	2.0
255	p200300	11	11	2.0
277	e011000	177	177	2.0
277	r064900	987	987	2.0
279	u001583	1194	1194	2.0
284	o011383	557	557	2.0
284	s200594	42	42	2.0
285	s200592	766	766	2.0
288	e010300	312	312	2.0
288	p071300	0	0	0.0
289	o010283	3	3	2.0
304	d016300	94	94	2.0
304	u001985	94	94	2.0

Metals and pH TMDLs for the Tygart Valley River Watershed

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

SWS	AML		Nonpoint		Revoked mine		Requires Reduction
	Baseline (lbs/yr)	Allocation (lbs/yr)	Baseline (lbs/yr)	Allocation (lbs/yr)	Baseline (lbs/yr)	Allocation (lbs/yr)	
151	0	0	1186	1186	0	0	
180	0	0	1032	1032	0	0	
182	0	0	1148	1148	0	0	
198	0	0	1096	1096	0	0	
200	0	0	98	98	0	0	
201	0	0	683	683	0	0	
204	0	0	898	898	0	0	
205	7	7	335	335	0	0	
206	0	0	72	72	0	0	
207	0	0	296	296	0	0	
208	0	0	1203	1203	0	0	
209	0	0	68	68	0	0	
210	7	7	369	369	0	0	
211	0	0	1524	1524	0	0	
212	0	0	870	870	0	0	
213	0	0	326	326	0	0	
214	0	0	1110	1110	0	0	
215	0	0	114	114	0	0	
216	0	0	3	3	0	0	
217	0	0	1093	1093	0	0	
218	0	0	98	98	0	0	
219	0	0	3333	3333	0	0	
220	7	7	883	883	0	0	
221	0	0	685	685	0	0	
222	0	0	593	593	0	0	
223	0	0	322	322	0	0	
226	0	0	322	322	0	0	
227	0	0	986	986	0	0	
228	0	0	721	721	0	0	
229	0	0	922	922	0	0	
230	7	7	1045	1045	0	0	
231	15	15	970	970	0	0	
232	7	7	804	804	0	0	
233	0	0	161	161	0	0	
234	7	7	1411	1411	0	0	
236	69	69	701	701	0	0	
237	118	118	567	567	0	0	
241	0	0	1002	1002	0	0	
244	0	0	863	863	0	0	
247	0	0	851	851	0	0	
248	0	0	489	489	0	0	
249	0	0	606	606	0	0	
251	0	0	59	59	0	0	
252	45	45	177	177	0	0	
254	0	0	177	177	0	0	
255	218	218	2301	2301	0	0	
268	161	161	231	231	0	0	
269	11	11	631	631	0	0	
270	17	17	1807	1807	0	0	
273	0	0	144	144	0	0	

Metals and pH TMDLs for the Tygart Valley River Watershed

SWS	AML		Nonpoint		Revoked mine		Requires Reduction
	Baseline (lbs/yr)	Allocation (lbs/yr)	Baseline (lbs/yr)	Allocation (lbs/yr)	Baseline (lbs/yr)	Allocation (lbs/yr)	
274	41	41	21	21	0	0	
277	282	282	601	601	0	0	
279	467	120	2849	2849	0	0	x
281	1	1	434	434	0	0	
284	22	22	664	664	0	0	
285	162	162	2261	2261	0	0	
288	35	35	1404	1404	0	0	
289	105230	737	798	798	0	0	x
294	7	7	817	817	0	0	
295	37	37	1054	1054	0	0	
300	1	1	636	636	0	0	
301	6	6	38	38	0	0	
302	30	30	74	74	0	0	
303	71	71	1516	1516	0	0	
304	120	120	2146	2146	0	0	
305	1252	1003	522	522	0	0	x
309	1680	1344	976	976	0	0	x
311	0	0	1240	1240	0	0	
316	245	245	2091	2091	0	0	
317	0	0	2741	2741	0	0	
Total	110389	5310	60269	60269	0	0	

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

SWS	AML		Nonpoint		Revoked mine		Requires Reduction
	Baseline (lbs/yr)	Allocation (lbs/yr)	Baseline (lbs/yr)	Allocation (lbs/yr)	Baseline (lbs/yr)	Allocation (lbs/yr)	
151	0	0	1205	1205	0	0	
180	0	0	1000	1000	0	0	
182	0	0	1175	1175	0	0	
198	0	0	1068	1068	0	0	
200	0	0	111	111	0	0	
201	0	0	675	675	0	0	
204	0	0	846	846	0	0	
205	7	7	332	332	0	0	
206	0	0	76	76	0	0	
207	0	0	296	296	0	0	
208	0	0	1160	1160	0	0	
209	0	0	77	77	0	0	
210	7	7	363	363	0	0	
211	0	0	1452	1452	0	0	
212	0	0	790	790	0	0	
213	0	0	320	320	0	0	
214	0	0	1108	1108	0	0	
215	0	0	121	121	0	0	
216	0	0	3	3	0	0	
217	0	0	1004	1004	0	0	
218	0	0	99	99	0	0	
219	0	0	3019	3019	0	0	
220	7	7	846	846	0	0	
221	0	0	660	660	0	0	

Metals and pH TMDLs for the Tygart Valley River Watershed

SWS	AML		Nonpoint		Revoked mine		Requires Reduction
	Baseline (lbs/yr)	Allocation (lbs/yr)	Baseline (lbs/yr)	Allocation (lbs/yr)	Baseline (lbs/yr)	Allocation (lbs/yr)	
222	0	0	570	570	0	0	
223	0	0	323	323	0	0	
226	0	0	317	317	0	0	
227	0	0	870	870	0	0	
228	0	0	714	714	0	0	
229	0	0	865	865	0	0	
230	7	7	895	895	0	0	
231	14	14	945	945	0	0	
232	7	7	745	745	0	0	
233	0	0	156	156	0	0	
234	7	7	1339	1339	0	0	
236	64	64	656	656	0	0	
237	146	146	515	515	0	0	
241	0	0	852	852	0	0	
244	0	0	744	744	0	0	
247	0	0	759	759	0	0	
248	0	0	470	470	0	0	
249	0	0	549	549	0	0	
251	0	0	57	57	0	0	
252	42	42	177	177	0	0	
254	0	0	143	143	0	0	
255	201	201	2089	2089	0	0	
268	149	149	223	223	0	0	
269	15	15	591	591	0	0	
270	15	15	1619	1619	0	0	
273	0	0	143	143	0	0	
274	38	38	25	25	0	0	
277	389	389	580	580	0	0	
279	419	419	2575	2575	0	0	
281	2	2	399	399	0	0	
284	27	27	521	521	0	0	
285	196	196	2073	2073	0	0	
288	32	32	1381	1381	0	0	
289	236075	708	822	822	0	0	x
294	7	7	771	771	0	0	
295	34	34	1024	1024	0	0	
300	2	2	592	592	0	0	
301	9	9	40	40	0	0	
302	41	41	79	79	0	0	
303	94	94	1345	1345	0	0	
304	155	155	1958	1958	0	0	
305	1668	672	537	537	0	0	x
309	2237	895	973	973	0	0	x
311	0	0	1191	1191	0	0	
316	293	293	1997	1997	0	0	
317	0	0	2496	2496	0	0	
Total	242406	4701	56513	56513	0	0	

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

Metals and pH TMDLs for the Tygart Valley River Watershed

SWS	AML		Nonpoint		Strip mine		Requires Reduction
	Baseline (lbs/yr)	Allocation (lbs/yr)	Baseline (lbs/yr)	Allocation (lbs/yr)	Baseline (lbs/yr)	Allocation (lbs/yr)	
151	0	0	640	640	0	0	
180	0	0	582	582	0	0	
182	0	0	647	647	0	0	
198	0	0	620	620	0	0	
200	0	0	58	58	0	0	
201	0	0	358	358	0	0	
204	0	0	527	527	0	0	
205	11	11	183	183	0	0	
206	0	0	41	41	0	0	
207	0	0	159	159	0	0	
208	0	0	703	703	0	0	
209	0	0	41	41	0	0	
210	11	11	191	191	0	0	
211	0	0	831	831	0	0	
212	0	0	507	507	0	0	
213	0	0	173	173	0	0	
214	0	0	609	609	0	0	
215	0	0	64	64	0	0	
216	0	0	1	1	0	0	
217	0	0	664	664	0	0	
218	0	0	53	53	0	0	
219	0	0	2029	2029	0	0	
220	11	11	481	481	0	0	
221	0	0	370	370	0	0	
222	0	0	316	316	0	0	
223	0	0	167	167	0	0	
226	0	0	175	175	0	0	
227	0	0	616	616	0	0	
228	0	0	417	417	0	0	
229	0	0	503	503	0	0	
230	11	11	659	659	0	0	
231	22	22	525	525	0	0	
232	11	11	450	450	0	0	
233	0	0	89	89	0	0	
234	11	11	750	750	0	0	
236	101	101	381	381	0	0	
237	117	117	317	317	0	0	
241	0	0	584	584	0	0	
244	0	0	541	541	0	0	
247	0	0	486	486	0	0	
248	0	0	258	258	0	0	
249	0	0	359	359	0	0	
251	0	0	35	35	0	0	
252	68	68	90	90	0	0	
254	0	0	104	104	0	0	
255	324	324	1283	1283	0	0	
268	240	240	120	120	0	0	
269	9	9	354	354	0	0	
270	25	25	1143	1143	0	0	
273	0	0	80	80	0	0	
274	61	61	11	11	0	0	

Metals and pH TMDLs for the Tygart Valley River Watershed

SWS	AML		Nonpoint		Strip mine		Requires Reduction
	Baseline (lbs/yr)	Allocation (lbs/yr)	Baseline (lbs/yr)	Allocation (lbs/yr)	Baseline (lbs/yr)	Allocation (lbs/yr)	
277	216	216	336	336	0	0	
279	383	383	1586	1586	0	0	
281	1	1	272	272	0	0	
284	23	23	340	340	0	0	
285	167	167	1374	1374	0	0	
288	52	52	876	876	0	0	
289	36862	922	371	371	0	0	x
294	11	11	335	335	0	0	
295	55	55	409	409	0	0	
300	1	1	380	380	0	0	
301	5	5	25	25	0	0	
302	23	23	40	40	0	0	
303	59	59	987	987	0	0	
304	108	108	1311	1311	0	0	
305	835	835	212	212	0	0	
309	1119	1119	414	414	0	0	
311	0	0	485	485	0	0	
316	258	258	1232	1232	0	0	
317	0	0	1656	1656	0	0	
Total	41211	5271	33983	33983	0	0	