West Virginia TMDL Program

EPA Region 3 2014 NPDES States' Mining Meeting

Seven Springs, PA

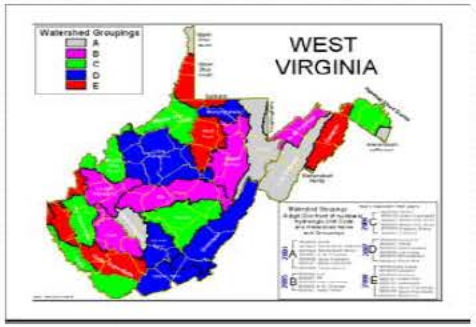
November 18, 2014

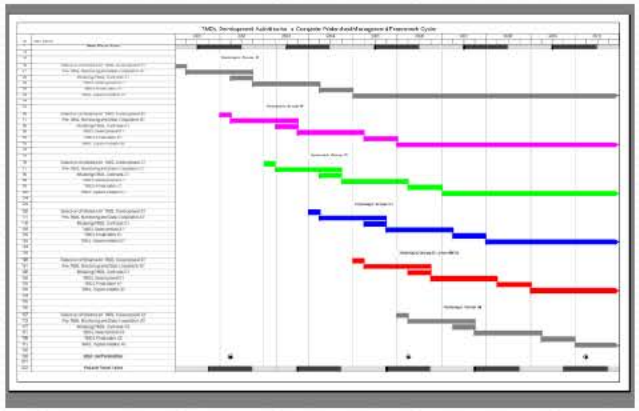
WVDEP TMDL History

- After EPA efforts, WVDEP began developing TMDLs in 2001 – First approved project January 2005
- Initially driven to address remaining mine drainage impairments in EPA consent decree
- Watershed-based with efficiency focus – attempt to develop all needed TMDLs in project watershed
- To date, 22 approved projects, approximately 3000 TMDLs for 2000 impaired streams

Process Highlights

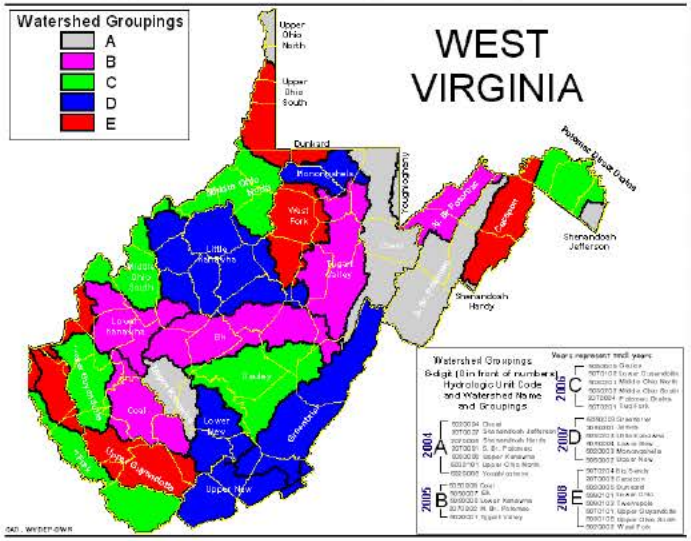
- Synchronized with WV Watershed Management Framework
- 48 month process (Stream selection– EPA approval)
- A year of pre-TMDL water quality monitoring and source tracking
- At point in time we have multiple projects at different stages
- Multiple opportunities for public outreach/stakeholder input





TMDL/WMF Synchronization

- WMF organizes 32 WV 8-digit HUCs into 5 hydrologic groups
- A new "watershed" TMDL project is initiated each year
- Pre-TMDL monitoring occurs concurrently with WMF assessment year
- TMDL completion six months prior to start of WMF implementation year (permit reissuance)



Process Steps

- Watershed/Stream Selection, monitoring plan development, TMDL 101 Mtgs. (1/2 year)
- Pre-TMDL Monitoring, Source Tracking (1 year +/-)
- Contractual Modeling, Report Development (2 yrs +/-)
- TMDL Finalization (Comments and Approval)

Source Tracking

- AML seeps - very important for model calibration of fe, al, mn, pH

- Permitted outlets – TMDL program relies heavily on permitting databases
  - Functionality – precip induced or otherwise
  - Drainage areas
  - Continuous flow components

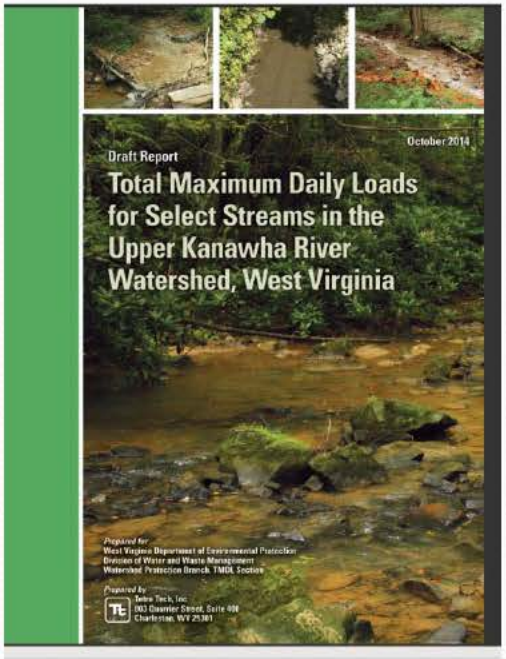
- Sediment sources of iron

AMD Work Summary

	Upper Kanawha	Lower Kanawha	Coal	Gauley	NB Potomac	Totals
Mine Seeps & Discharges	150	23	58	51	17	299
Total Q (mgd)	13	0.5	7	2	1	23.5
T. Fe Load (lbs/day)	2,160	330	580	33	81	3,184
T. Al Load (lbs/day)	1,100	125	350	15	42	1,632

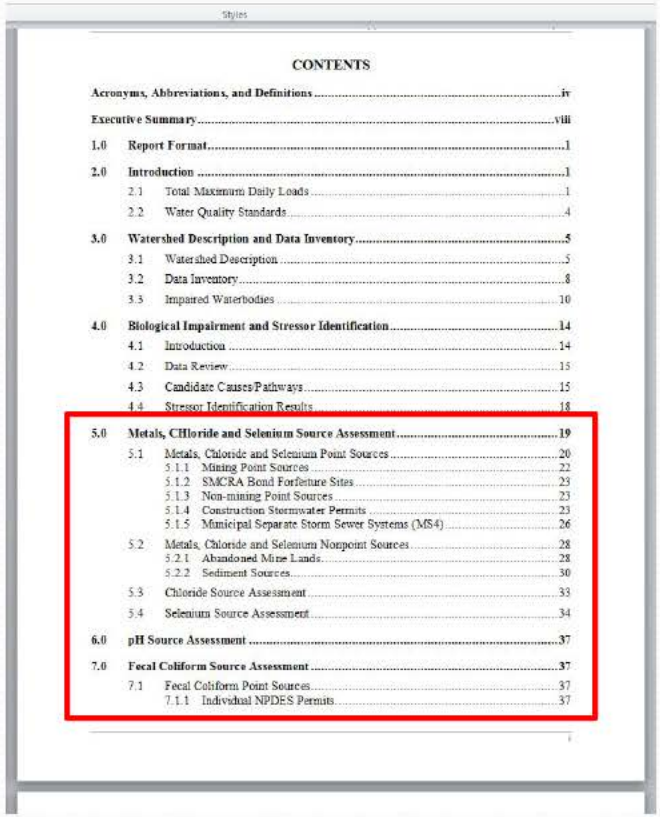
TMDL presentation

- TMDL Report
- Filterable allocation spreadsheets
- Arcview shapefiles and project
- Technical Report
- All on CD



TMDL Report

Source Description



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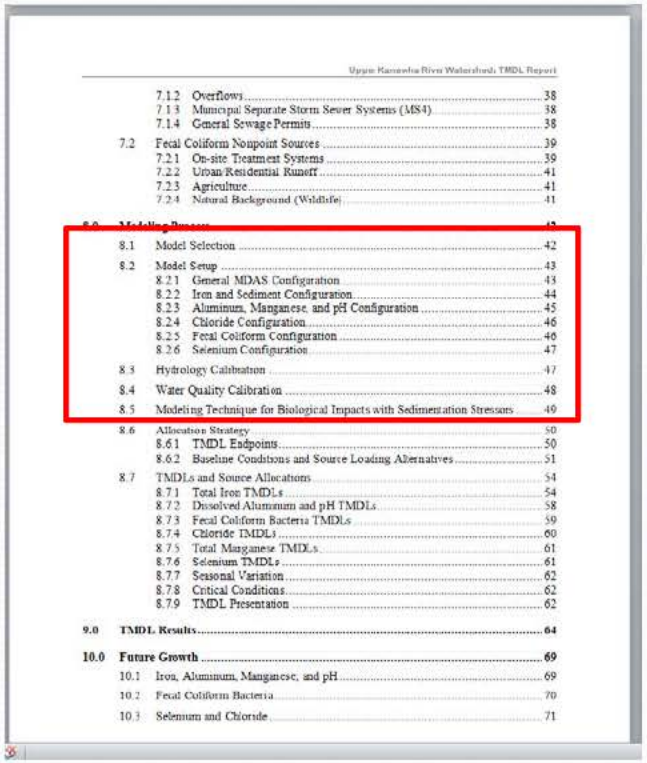
- Describe potential sources
- Number present in the project
- Point/nonpoint
- Relative impact

Model Set-up



Upper Kanawha River Watershed TMDL Report

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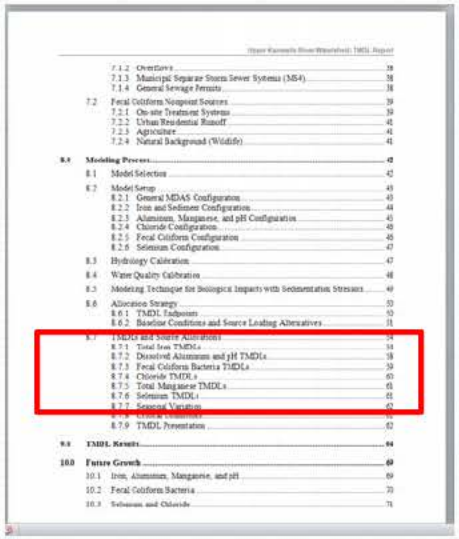
- Subwatershed delineation
- Landuse classification
- Upland vs. Instream
- Calibration
- Design Precipitation
- Baseline conditions
- Endpoints/Margin of Safety

Allocation / TMDL Presentation

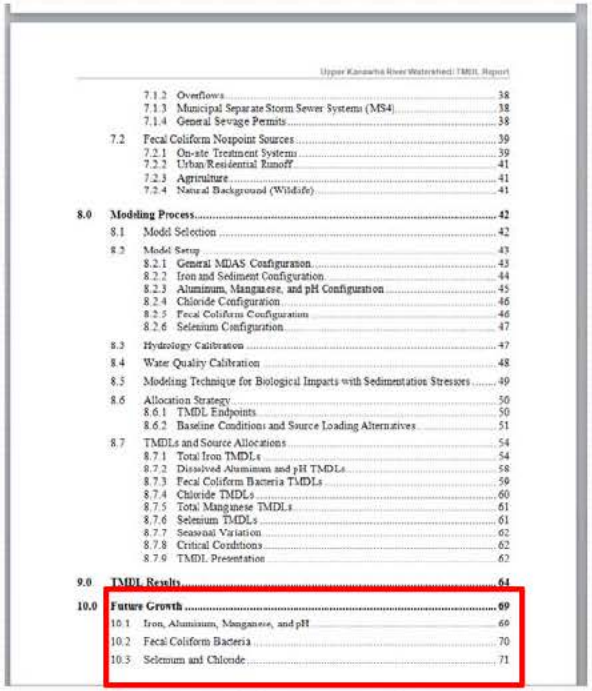


- Pollutant specific
- WLA/LA considerations
- Critical condition
- "Operable" allocations
  - Concentration
  - Area
  - Scale

Example:

The iron, chloride, manganese, aluminum, and selenium WLAs for active mining operations and bond forfeitures are presented both as annual average loads, for comparison with other pollutant sources, and equivalent allocation concentrations. The prescribed concentrations are the operable allocations and are to be implemented by conversion to monthly average and daily maximum effluent limitations using USEPA's Technical Support Document for Water Quality-based Toxics Control (USEPA, 1991). The iron WLAs for Construction Stormwater General Permit registrations are presented as both annual average loads, for comparison with other sources, and equivalent area registered under the permit. The registered area is the operable allocation.

Future Growth



Upper Kanawha River Watershed | TMDL Report

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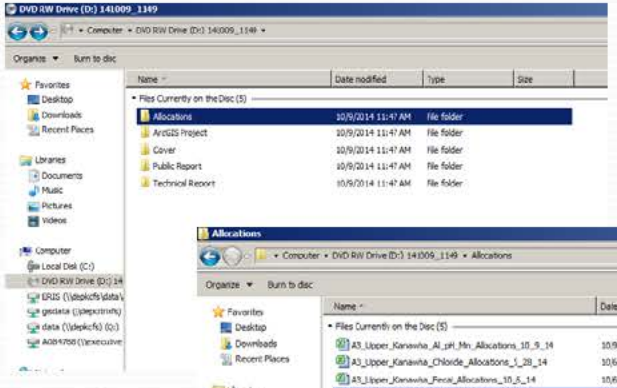
- Criteria end-of-pipe ok everywhere (new or missed)
- Recycling possible
- Remining doesn't need allocation
- Can't give alternative precipitation limits
- Aluminum translator = 1

Other Issues

- Bond Forfeitures – Point sources with individual allocations; AML still nonpoint
- Antidegradation – TMDLs not to be used to relax existing limits
- "Modeled" impairments – TMDLs presented if modeling at baseline conditions demonstrates criterion nonattainment
- *Biological Impairment*

Allocation Spreadsheets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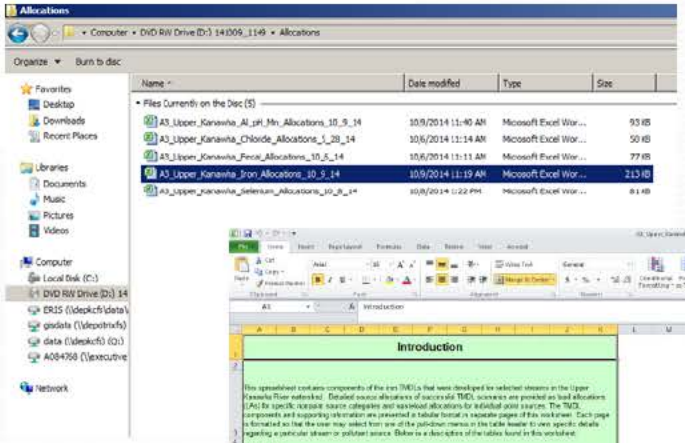
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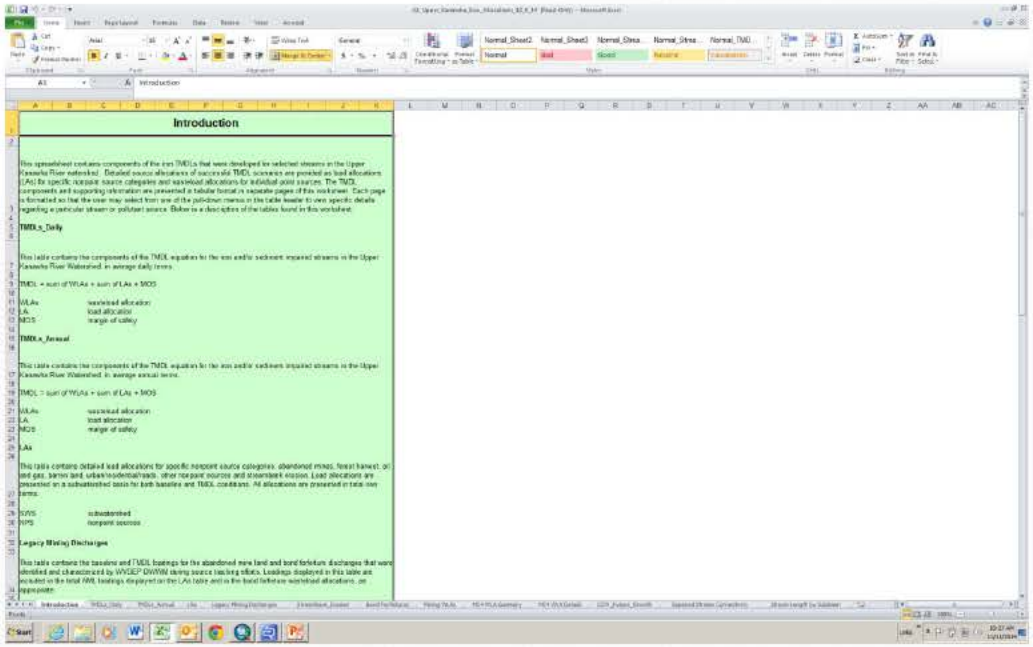

Introduction
TMDLs_Daily
TMDLs_Annual
LAs
Legacy Mining Discharges

Introduction

This spreadsheet contains components of the iron TMDLs that were developed for selected streams in the Upper Kanawha River watershed. Detailed source allocations of successful TMDL scenarios are provided as load allocations (LAs) for specific nonpoint source categories and wasteload allocations for individual point sources. The TMDL components and supporting information are presented in tabular format in separate pages of this worksheet. Each page is formatted so that the user may select from one of the pull-down menus in the table header to view specific details regarding a particular stream or pollutant source. Below is a description of the tables found in this worksheet:

TMDLs_Daily

This table contains the components of the TMDL equation for the iron and/or sediment impaired streams in the Upper Kanawha River Watershed, in average daily terms.

TMDL = sum of WLAs + sum of LAs + MOS

WLAs	wasteload allocation
LA	load allocation
MOS	margin of safety

TMDLs_Annual

This table contains the components of the TMDL equation for the iron and/or sediment impaired streams in the Upper Kanawha River Watershed, in average annual terms.

TMDL = sum of WLAs + sum of LAs + MOS

WLAs	wasteload allocation
LA	load allocation
MOS	margin of safety

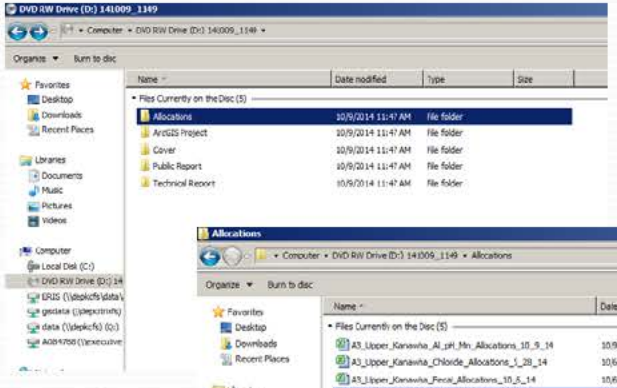
LAs

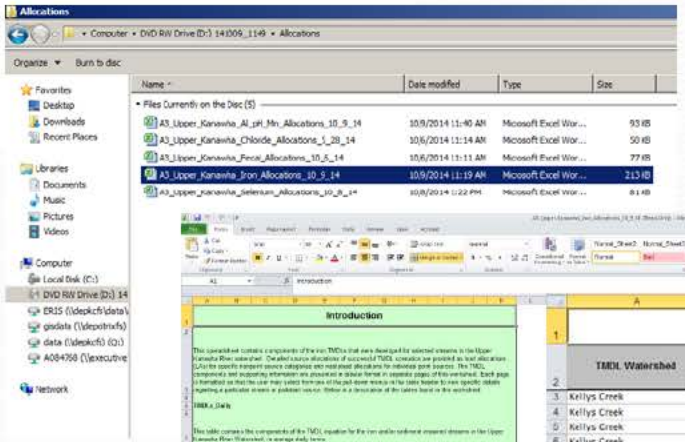
This table contains detailed load allocations for specific nonpoint source categories: abandoned mines, forest harvest, oil and gas, barren land, urban/residential/roads, other nonpoint sources and streambank erosion. Load allocations are presented on a subwatershed basis for both baseline and TMDL conditions. All allocations are presented in total iron terms.

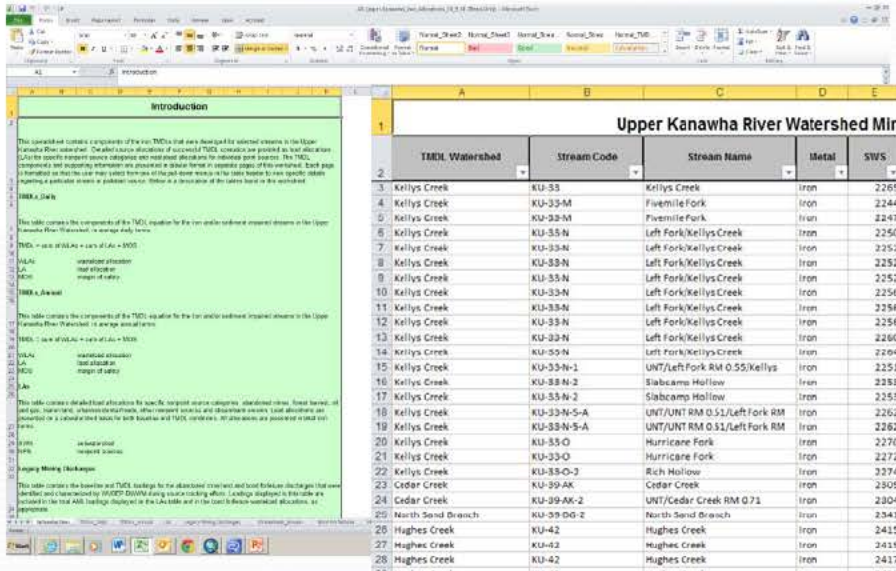
SWS	subwatershed
NPS	nonpoint sources

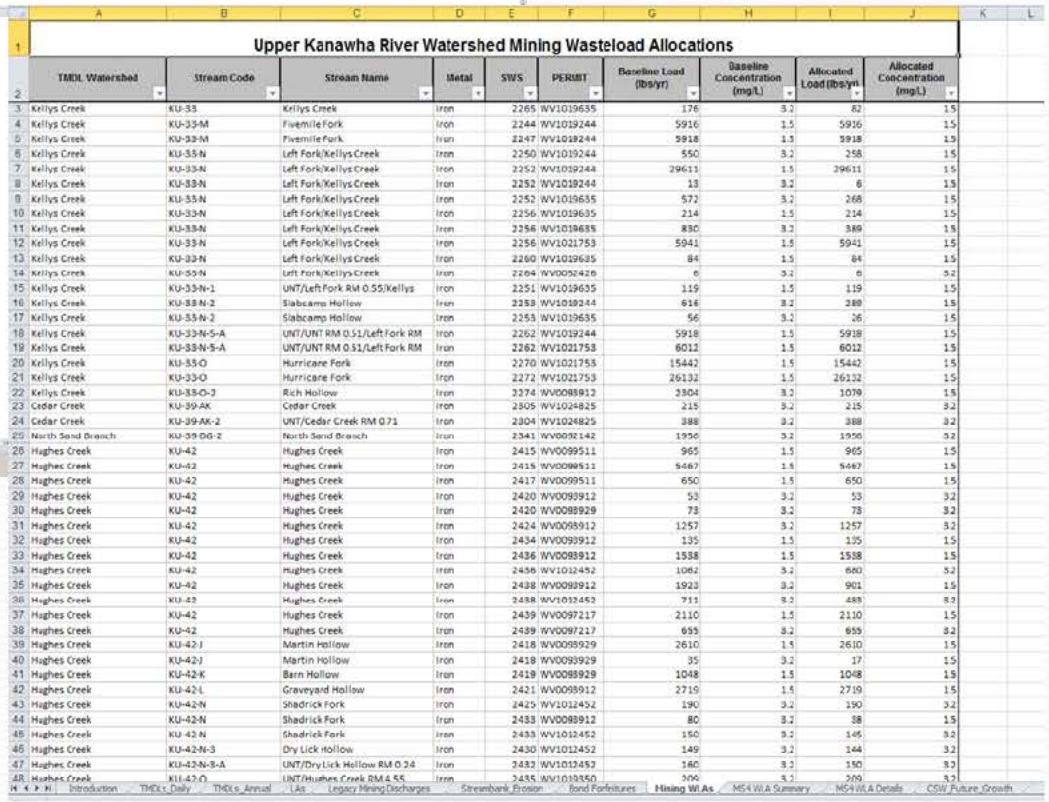
Legacy Mining Discharges

This table contains the baseline and TMDL loadings for the abandoned mine land and bond forfeiture discharges that were identified and characterized by WVDEP DWWM during source tracking efforts. Loadings displayed in this table are included in the total AML loadings displayed on the LAs table and in the bond forfeiture wasteload allocations, as appropriate.









Upper Kanawha River Watershed Mining Wasteload Allocations

TMDL Watershed	Stream Code	Stream Name	Metal	SWS	PERMIT	Baseline Load (lbs/yr)	Baseline Concentration (mg/L)	Allocated Load (lbs/yr)	Allocated Concentration (mg/L)
Kellys Creek	KU-33	Kellys Creek	Iron	2265	WV1019635	176	3.2	82	15
Kellys Creek	KU-33-M	Fivemile Fork	Iron	2244	WV1019244	5916	1.5	5916	15
Kellys Creek	KU-33-M	Fivemile Fork	Iron	2247	WV1019244	3918	1.5	3918	15
Kellys Creek	KU-33-N	Left Fork/Kellys Creek	Iron	2250	WV1019244	550	3.2	258	15
Kellys Creek	KU-33-N	Left Fork/Kellys Creek	Iron	2252	WV1019244	29611	1.5	29611	15
Kellys Creek	KU-33-N	Left Fork/Kellys Creek	Iron	2252	WV1019244	13	3.2	6	15
Kellys Creek	KU-33-N	Left Fork/Kellys Creek	Iron	2252	WV1019635	572	3.2	268	15
Kellys Creek	KU-33-N	Left Fork/Kellys Creek	Iron	2256	WV1019635	214	1.5	214	15
Kellys Creek	KU-33-N	Left Fork/Kellys Creek	Iron	2256	WV1019635	830	3.2	389	15
Kellys Creek	KU-33-N	Left Fork/Kellys Creek	Iron	2256	WV1021753	5941	1.5	5941	15
Kellys Creek	KU-33-N	Left Fork/Kellys Creek	Iron	2260	WV1019635	84	1.5	84	15
Kellys Creek	KU-33-N	Left Fork/Kellys Creek	Iron	2264	WV0052426	6	3.2	6	32
Kellys Creek	KU-33-N-1	UNT/Left Fork RM 0.55/Kellys	Iron	2251	WV1019635	119	1.5	119	15
Kellys Creek	KU-33-N-2	Slabcamp Hollow	Iron	2253	WV1019244	616	3.2	289	15
Kellys Creek	KU-33-N-2	Slabcamp Hollow	Iron	2253	WV1019635	56	3.2	26	15
Kellys Creek	KU-33-N-5-A	UNT/UNT RM 0.51/Left Fork RM	Iron	2262	WV1019244	5918	1.5	5918	15
Kellys Creek	KU-33-N-5-A	UNT/UNT RM 0.51/Left Fork RM	Iron	2262	WV1021753	6012	1.5	6012	15
Kellys Creek	KU-33-O	Hurricane Fork	Iron	2270	WV1021753	15442	1.5	15442	15
Kellys Creek	KU-33-O	Hurricane Fork	Iron	2272	WV1021753	26132	1.5	26132	15
Kellys Creek	KU-33-O-3	Rich Hollow	Iron	2274	WV0088912	2304	3.2	1079	15
Cedar Creek	KU-39-AK	Cedar Creek	Iron	2305	WV1024825	215	3.2	215	32
Cedar Creek	KU-39-AK-2	UNT/Cedar Creek RM 0.71	Iron	2304	WV1024825	388	3.2	388	32
North Sand Branch	KU-39-DG-2	North Sand Branch	Iron	2341	WV0052142	1956	3.2	1956	32
Hughes Creek	KU-42	Hughes Creek	Iron	2415	WV0099511	965	1.5	965	15
Hughes Creek	KU-42	Hughes Creek	Iron	2416	WV0099511	5467	1.5	5467	15
Hughes Creek	KU-42	Hughes Creek	Iron	2417	WV0099511	650	1.5	650	15
Hughes Creek	KU-42	Hughes Creek	Iron	2420	WV0093912	53	3.2	53	32
Hughes Creek	KU-42	Hughes Creek	Iron	2420	WV0088929	73	3.2	73	32
Hughes Creek	KU-42	Hughes Creek	Iron	2424	WV0093912	1257	3.2	1257	32
Hughes Creek	KU-42	Hughes Creek	Iron	2434	WV0093912	135	1.5	135	15
Hughes Creek	KU-42	Hughes Creek	Iron	2436	WV0088912	1538	1.5	1538	15
Hughes Creek	KU-42	Hughes Creek	Iron	2436	WV1012452	1062	3.2	680	32
Hughes Creek	KU-42	Hughes Creek	Iron	2438	WV0093912	1923	3.2	901	15
Hughes Creek	KU-42	Hughes Creek	Iron	2438	WV1012452	711	3.2	489	32
Hughes Creek	KU-42	Hughes Creek	Iron	2439	WV0097217	2110	1.5	2110	15
Hughes Creek	KU-42	Hughes Creek	Iron	2439	WV0097217	655	3.2	655	32
Hughes Creek	KU-42-J	Martin Hollow	Iron	2418	WV0093929	2610	1.5	2610	15
Hughes Creek	KU-42-J	Martin Hollow	Iron	2418	WV0093929	35	3.2	17	15
Hughes Creek	KU-42-K	Barn Hollow	Iron	2419	WV0088929	1048	1.5	1048	15
Hughes Creek	KU-42-L	Graveyard Hollow	Iron	2421	WV0093912	2719	1.5	2719	15
Hughes Creek	KU-42-N	Shadrick Fork	Iron	2425	WV1012452	190	3.2	190	32
Hughes Creek	KU-42-N	Shadrick Fork	Iron	2433	WV0088912	80	3.2	38	15
Hughes Creek	KU-42-N	Shadrick Fork	Iron	2433	WV1012452	150	3.2	145	32
Hughes Creek	KU-42-N-3	Dry Lick Hollow	Iron	2430	WV1012452	149	3.2	144	32
Hughes Creek	KU-42-N-3-A	UNT/Dry Lick Hollow RM 0.24	Iron	2432	WV1012452	160	3.2	150	32
Hughes Creek	KU-42-O	UNT/Hughes Creek RM 4.55	Iron	2435	WV1019350	209	3.2	209	32

Introduction | TMDLs_Daily | TMDLs_Annual | LAs | Legacy Mining Discharges | Streambank Erosion | Bond Forfeitures | Mining WLAs | MS4 WLA Summary | MS4 WLA Details | CSW_Future_Growth

Upper Kanawha River Watershed Mining Wasteload Allocations

TMDL Watershed	Stream Code	Stream Name	Metal	SWS	PERMIT	Baseline Load (lbs/yr)	Baseline Concentration (mg/L)	Allocated Load (lbs/yr)	Allocated Concentration (mg/L)
Kellys Creek	KU-33	Kellys Creek	Iron	2265	WV1019635	176	3.2	82	1.5
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Kellys Creek	KU-33-N	Left Fork/Kellys Creek	Iron	2252	WV1019244	29611	1.5	29611	1.5
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Kellys Creek	KU-33-N	Left Fork/Kellys Creek	Iron	2252	WV1019635	572	3.2	268	1.5
Kellys Creek	KU-33-N	Left Fork/Kellys Creek	Iron	2256	WV1019635	214	1.5	214	1.5
Kellys Creek	KU-33-N	Left Fork/Kellys Creek	Iron	2256	WV1019635	830	3.2	389	1.5
Kellys Creek	KU-33-N	Left Fork/Kellys Creek	Iron	2256	WV1021753	5941	1.5	5941	1.5
Kellys Creek	KU-33-N	Left Fork/Kellys Creek	Iron	2260	WV1019635	84	1.5	84	1.5
Kellys Creek	KU-33-N	Left Fork/Kellys Creek	Iron	2264	WV0052426	6	3.2	6	3.2
Kellys Creek	KU-33-N-1	UNT/Left Fork RM 0.55/Kellys	Iron	2251	WV1019635	119	1.5	119	1.5
Kellys Creek	KU-33-N-2	Slabcamp Hollow	Iron	2253	WV1019244	616	3.2	289	1.5
Kellys Creek	KU-33-N-2	Slabcamp Hollow	Iron	2253	WV1019635	56	3.2	26	1.5
Kellys Creek	KU-33-N-5-A	UNT/UNT RM 0.51/Left Fork RM	Iron	2262	WV1019244	5918	1.5	5918	1.5
Kellys Creek	KU-33-N-5-A	UNT/UNT RM 0.51/Left Fork RM	Iron	2262	WV1021753	6012	1.5	6012	1.5
Kellys Creek	KU-33-O	Hurricane Fork	Iron	2270	WV1021753	15442	1.5	15442	1.5
Kellys Creek	KU-33-O	Hurricane Fork	Iron	2272	WV1021753	26132	1.5	26132	1.5
Kellys Creek	KU-33-O-2	Rich Hollow	Iron	2274	WV0093912	2304	3.2	1079	1.5
Cedar Creek	KU-39-AK	Cedar Creek	Iron	2305	WV1024825	215	3.2	215	3.2
Cedar Creek	KU-39-AK-2	UNT/Cedar Creek RM 0.71	Iron	2304	WV1024825	388	3.2	388	3.2
North Sand Branch	KU-39-DG-2	North Sand Branch	Iron	2341	WV0092142	1956	3.2	1956	3.2
Hughes Creek	KU-42	Hughes Creek	Iron	2415	WV0099511	965	1.5	965	1.5
Hughes Creek	KU-42	Hughes Creek	Iron	2415	WV0099511	5467	1.5	5467	1.5
Hughes Creek	KU-42	Hughes Creek	Iron	2417	WV0099511	650	1.5	650	1.5
Hughes Creek	KU-42	Hughes Creek	Iron	2420	WV0093912	53	3.2	53	3.2
Hughes Creek	KU-42	Hughes Creek	Iron	2420	WV0093929	73	3.2	73	3.2
Hughes Creek	KU-42	Hughes Creek	Iron	2424	WV0093912	1257	3.2	1257	3.2
Hughes Creek	KU-42	Hughes Creek	Iron	2434	WV0093912	135	1.5	135	1.5
Hughes Creek	KU-42	Hughes Creek	Iron	2436	WV0093912	1538	1.5	1538	1.5
Hughes Creek	KU-42	Hughes Creek	Iron	2436	WV1012452	1062	3.2	680	3.2
Hughes Creek	KU-42	Hughes Creek	Iron	2438	WV0093912	1923	3.2	901	1.5
Hughes Creek	KU-42	Hughes Creek	Iron	2438	WV1012452	711	3.2	483	3.2
Hughes Creek	KU-42	Hughes Creek	Iron	2439	WV0097217	2110	1.5	2110	1.5
Hughes Creek	KU-42	Hughes Creek	Iron	2439	WV0097217	655	3.2	655	3.2
Hughes Creek	KU-42-J	Martin Hollow	Iron	2418	WV0093929	2610	1.5	2610	1.5
Hughes Creek	KU-42-J	Martin Hollow	Iron	2418	WV0093929	35	3.2	17	1.5
Hughes Creek	KU-42-K	Barn Hollow	Iron	2419	WV0093929	1048	1.5	1048	1.5
Hughes Creek	KU-42-L	Graveyard Hollow	Iron	2421	WV0093912	2719	1.5	2719	1.5
Hughes Creek	KU-42-N	Shadrick Fork	Iron	2425	WV1012452	190	3.2	190	3.2
Hughes Creek	KU-42-N	Shadrick Fork	Iron	2433	WV0093912	80	3.2	38	1.5
Hughes Creek	KU-42-N	Shadrick Fork	Iron	2433	WV1012452	150	3.2	145	3.2
Hughes Creek	KU-42-N-3	Dry Lick Hollow	Iron	2430	WV1012452	149	3.2	144	3.2
Hughes Creek	KU-42-N-3-A	UNT/Dry Lick Hollow RM 0.24	Iron	2432	WV1012452	160	3.2	150	3.2
Hughes Creek	KU-42-O	UNT/Hughes Creek RM 4.55	Iron	2435	WV1019350	209	3.2	209	3.2

2	Watershed	Stream Code	Stream Name	Parameter	SWS	PERMIT	OUTLET	Baseline Load (lbs/yr)	Baseline Concentration (mg/L)	Allocated Load (lbs/yr)	Allocated Concentration (mg/L)
3	New West Hollow	KU-19-R-1	New West Hollow	Chloride	2061	WV0065137	007	281,714.94	550.00	117,808.06	230.00
4	Longbottom Creek	KU-26-N	Longbottom Creek	Chloride	2083	WV0048101	005	1,076,328.37	350.00	707,301.50	230.00
5	Longbottom Creek	KU-26-N-5	Laurel Fork/Longbottom Creek	Chloride	2085	WV0048101	008	1,537,611.95	350.00	1,010,430.71	230.00
6	Coal Fork	KU-26-U-7-E	Left Fork/Laurel Fork	Chloride	2093	WV1015338	003	25,260.77	230.00	25,260.77	230.00
7	Coal Fork	KU-26-U-7-E	Left Fork/Laurel Fork	Chloride	2093	WV1015338	004	107,105.66	230.00	107,105.66	230.00
8	Coal Fork	KU-26-U	Coal Fork	Chloride	2099	WV0048101	014	1,010,430.71	230.00	1,010,430.71	230.00
9	Coal Fork	KU-26-U-15	UNT/Coal Fork RM 3.87	Chloride	2100	WV1019147	008	22,655.40	230.00	22,655.40	230.00
10	Coal Fork	KU-26-U	Coal Fork	Chloride	2101	WV0048101	019	2,416,247.35	550.00	1,010,430.71	230.00
11	Coal Fork	KU-26-U	Coal Fork	Chloride	2102	WV0048101	012	2,416,247.35	550.00	1,010,430.71	230.00
12	Coal Fork	KU-26-U	Coal Fork	Chloride	2102	WV0048101	022	27,186.48	230.00	27,186.48	230.00
13	Coal Fork	KU-26-U	Coal Fork	Chloride	2102	WV1019147	002	50,521.54	230.00	50,521.54	230.00
14	Coal Fork	KU-26-U-18	UNT/Coal Fork RM 4.63	Chloride	2103	WV1015265	002	1,826,222.01	900.00	466,701.18	230.00

2	Watershed	Stream Code	Stream Name	Metal	SWS	PERMIT	Baseline Load (lbs/yr)	Baseline Concentration (mg/L)	Allocated Load (lbs/yr)	Allocated Concentration (mg/L)
3	Cedar Creek	KU-39-AK-2	UNT/Cedar Creek RM 0.71	Al	2304	WV1024825	117.48	0.92	117.48	0.92
4	Cedar Creek	KU-39-AK	Cedar Creek	Al	2305	WV1024825	64.95	0.92	64.95	0.92

2	Stream Code	Stream Name	Metal	SWS	Tracking Number	Baseline Load (lbs/yr)	Allocated Load (lbs/yr)	Allocated Concentration (mg/L)	Note
3	KU-33-B-1	UNT/Horsemill Branch RM 0.50	Al	2205	WV1025341024	854.83	212.38	0.92	Loads include seeps identified on the Legacy Mining Discharges tab
4	KU-33-B-2	UNT/Horsemill Branch RM 0.83	Al	2207	WV1025341022	12,461.45	801.67	0.92	Loads include seeps identified on the Legacy Mining Discharges tab
5	KU-33-B-1	UNT/Horsemill Branch RM 0.50	Mn	2205	WV1025341024	516.53	310.81	2.00	Loads include seeps identified on the Legacy Mining Discharges tab
6	KU-33-B-2	UNT/Horsemill Branch RM 0.83	Mn	2207	WV1025341022	6,611.04	1,032.36	2.00	Loads include seeps identified on the Legacy Mining Discharges tab
7	KU-33-D-1	UNT/Sugarcamp Branch RM 0.58	Mn	2217	WV1025341020	307.50	307.50	2.00	

2	Watershed	Stream Code	Stream Name	Parameter	SWS	PERMIT	OUTLET	Baseline Load (lbs/yr)	Baseline Concentration (ug/L)	Allocated Load (lbs/yr)	Allocated Concentration (ug/L)
3	Pointlick Fork	KU-6-F-4	UNT/Pointlick Fork RM 2.26	Selenium	2044	WV0052426	001	43.623	35.67	6.115	5
4	Pointlick Fork	KU-6-F	Pointlick Fork	Selenium	2045	WV0052426	002	80.260	17.85	22.482	5
5	Rattlesnake Hollow	KU-6-N	Rattlesnake Hollow	Selenium	2051	WV0094439	002	2.655	17.85	0.744	5
6	Rattlesnake Hollow	KU-6-N	Rattlesnake Hollow	Selenium	2052	WV0094528	008	113.356	35.67	15.890	5
7	New West Hollow	KU-19-R-1	New West Hollow	Selenium	2061	WV0065137	002	25.564	35.67	3.583	5
8	New West Hollow	KU-19-R-1	New West Hollow	Selenium	2061	WV0065137	003	3.272	35.67	0.459	5
9	New West Hollow	KU-19-R-1	New West Hollow	Selenium	2061	WV0065137	004	8.392	35.67	1.176	5
10	New West Hollow	KU-19-R-1	New West Hollow	Selenium	2061	WV0065137	007	28.700	17.85	8.039	5
11	New West Hollow	KU-19-R-1	New West Hollow	Selenium	2061	WV0065137	008	5.520	17.85	1.546	5
12	Wet Branch	KU-26-E	Wet Branch	Selenium	2071	WV0048097	001	5.297	17.85	1.484	5
13	Wet Branch	KU-26-E	Wet Branch	Selenium	2071	WV0048097	002	22.130	35.67	3.102	5
14	Wet Branch	KU-26-E	Wet Branch	Selenium	2071	WV0048097	003	0.055	17.85	0.016	5
15	Wet Branch	KU-26-E	Wet Branch	Selenium	2071	WV0048097	005	0.805	17.85	0.226	5
16	Wet Branch	KU-26-E	Wet Branch	Selenium	2071	WV0048101	002	87.506	17.85	24.512	5
17	Wet Branch	KU-26-E	Wet Branch	Selenium	2071	WV0048101	003	2.180	17.85	0.611	5
18	Wet Branch	KU-26-E	Wet Branch	Selenium	2071	WV0048101	004	1.444	17.85	0.404	5
19	Wet Branch	KU-26-E	Wet Branch	Selenium	2071	WV0048101	015	148.967	17.85	41.727	5
20	Coal Fork	KU-26-U	Coal Fork	Selenium	2091	WV1022156	011	0.129	5.00	0.129	5
21	Coal Fork	KU-26-U	Coal Fork	Selenium	2091	WV1022156	012	0.230	5.00	0.230	5
22	Coal Fork	KU-26-U	Coal Fork	Selenium	2091	WV1022156	013	0.391	5.00	0.391	5
23	Coal Fork	KU-26-U	Coal Fork	Selenium	2091	WV1022156	014	0.090	5.00	0.090	5
24	Coal Fork	KU-26-U	Coal Fork	Selenium	2091	WV1022156	015	0.090	5.00	0.090	5
25	Coal Fork	KU-26-U	Coal Fork	Selenium	2091	WV1022156	016	0.078	5.00	0.078	5
26	Coal Fork	KU-26-U	Coal Fork	Selenium	2091	WV1022156	017	0.119	5.00	0.119	5
27	Coal Fork	KU-26-U	Coal Fork	Selenium	2091	WV1022156	018	0.260	5.00	0.260	5
28	Coal Fork	KU-26-U-7-E	Left Fork/Laurel Fork	Selenium	2093	WV0093751	003	30.324	35.67	4.251	5
29	Coal Fork	KU-26-U-7-E	Left Fork/Laurel Fork	Selenium	2093	WV0093751	042	1.998	17.85	0.560	5
30	Coal Fork	KU-26-U-7-E	Left Fork/Laurel Fork	Selenium	2093	WV1015338	002	45.309	35.67	6.351	5

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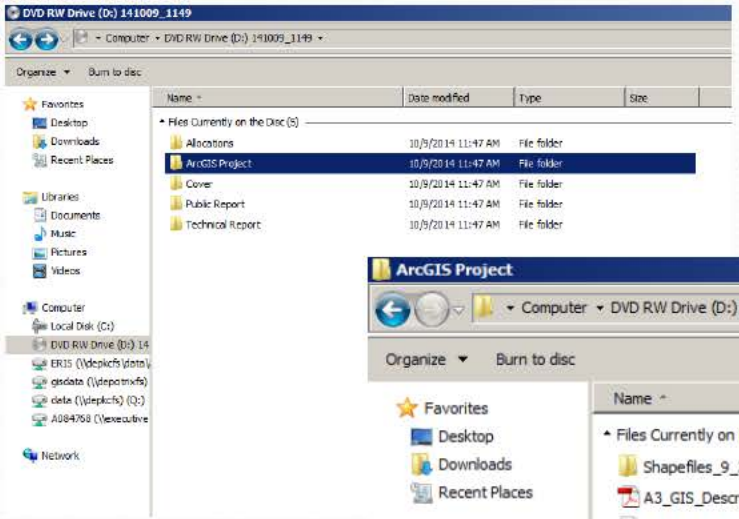
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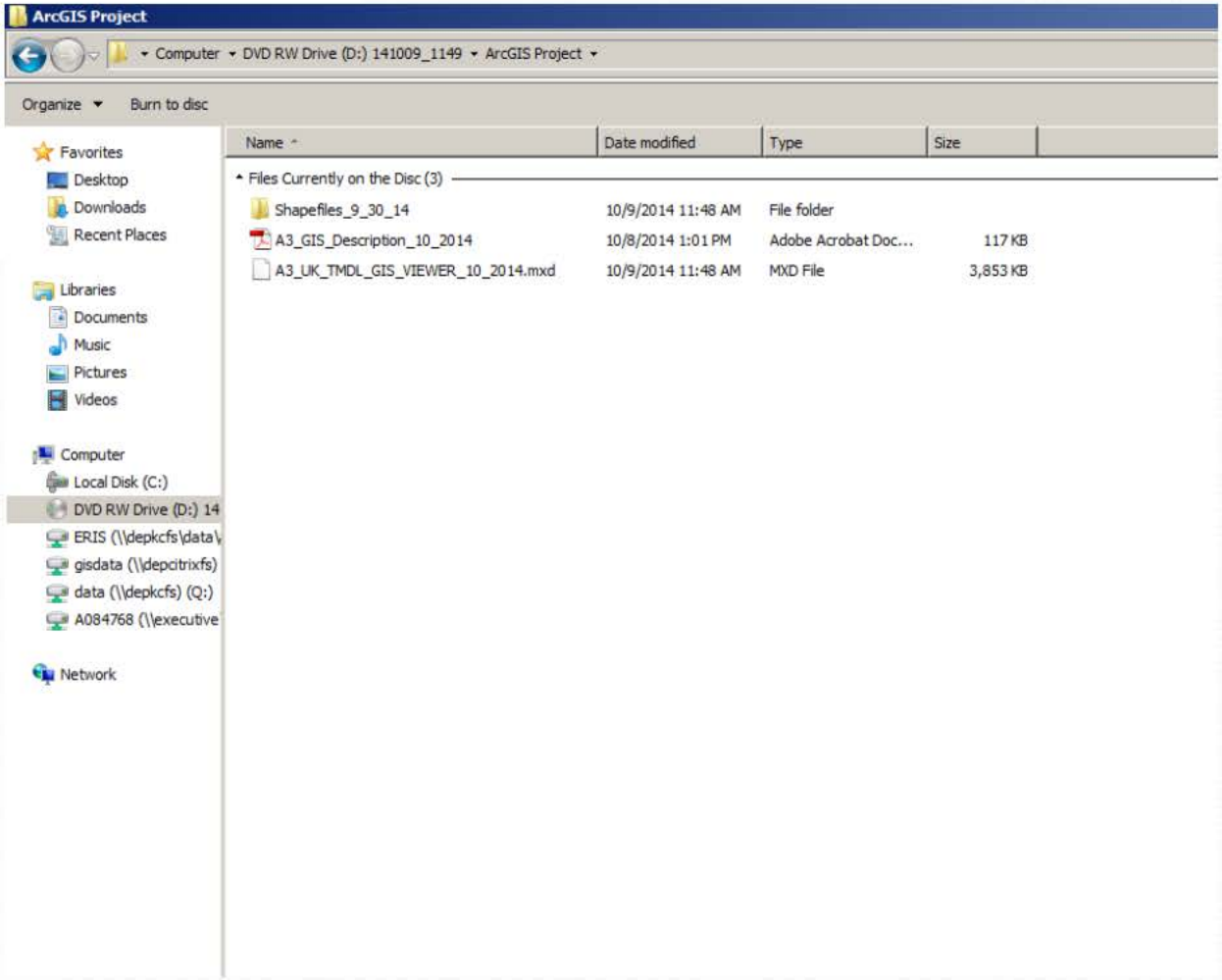
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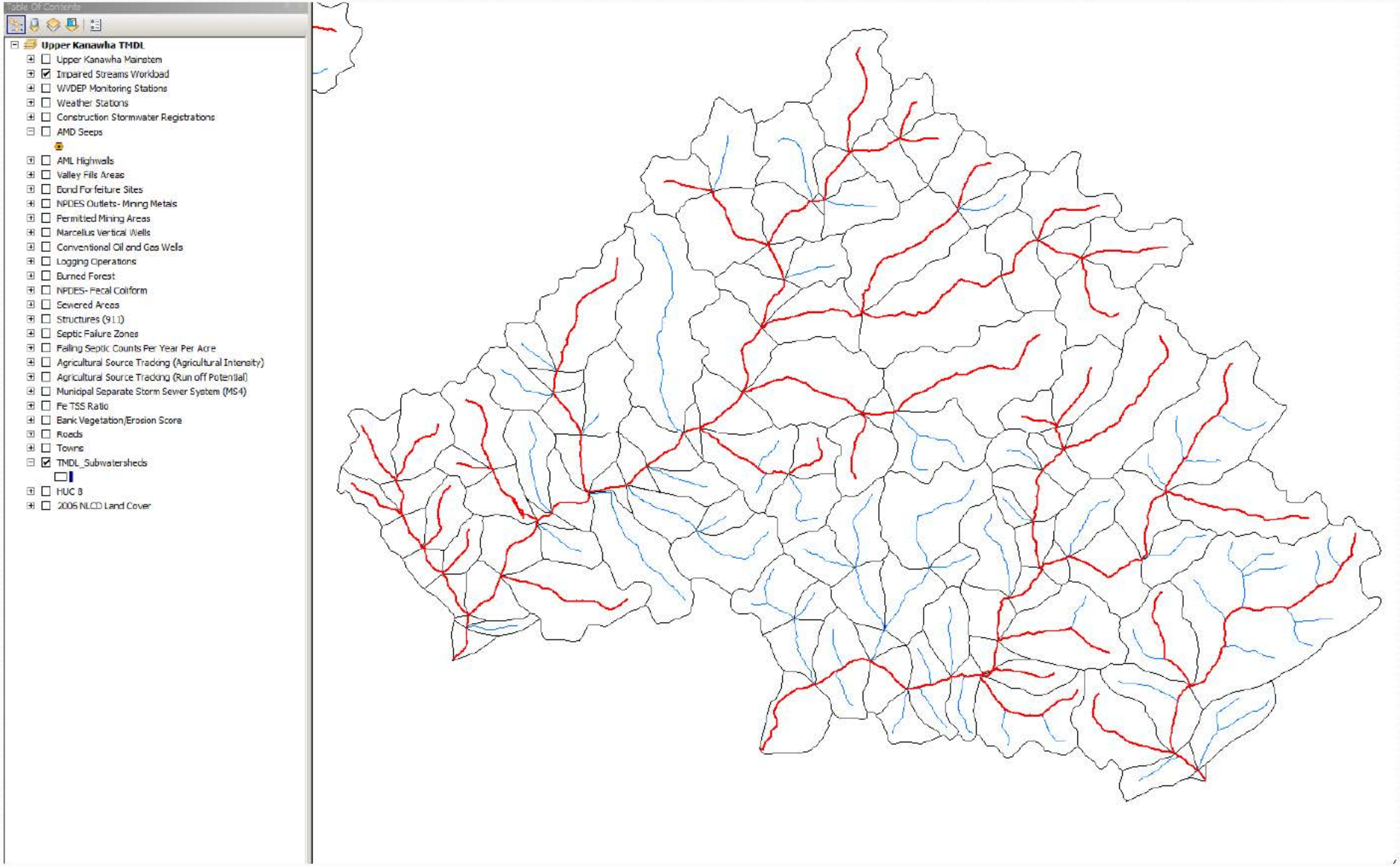
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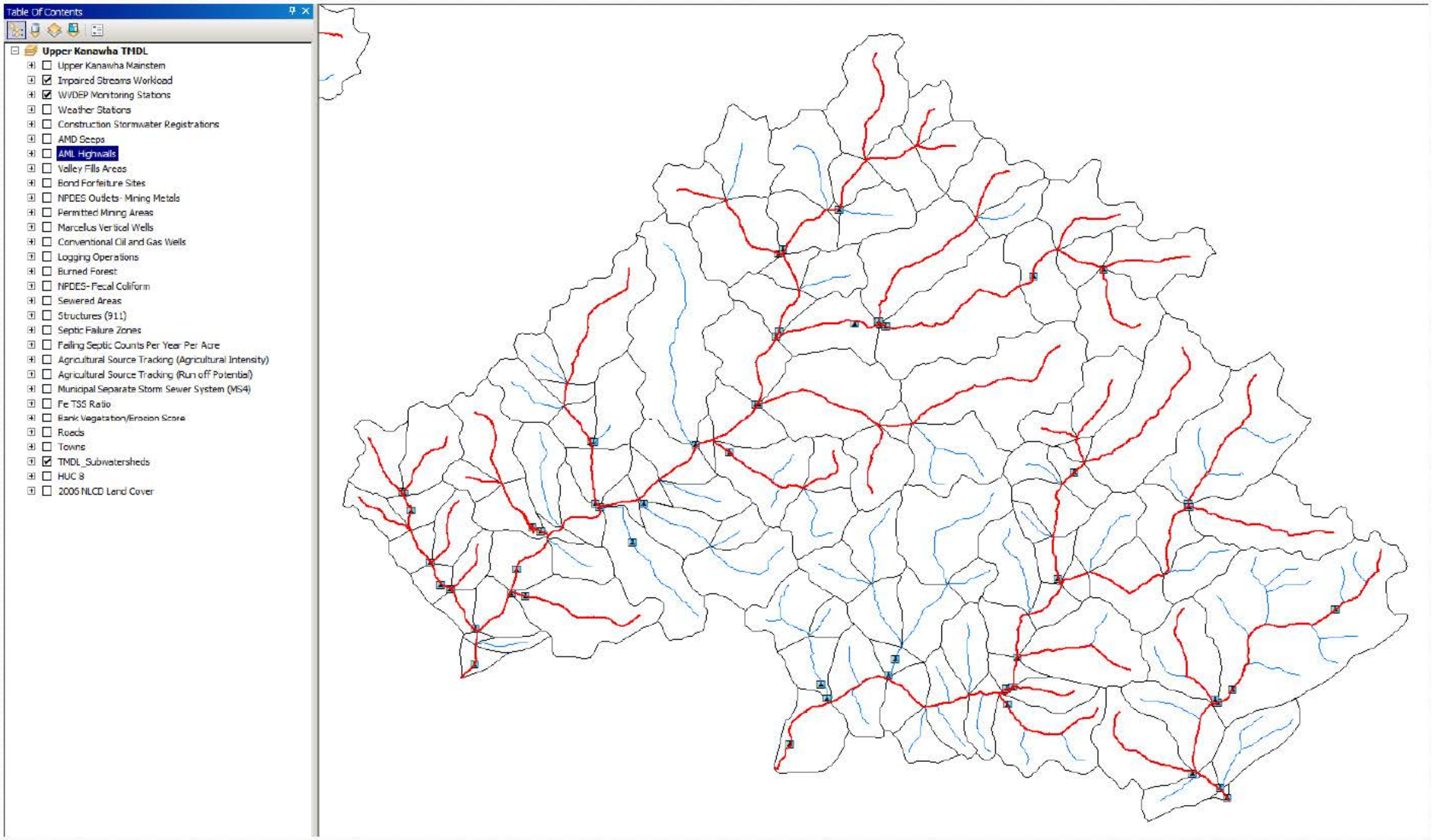
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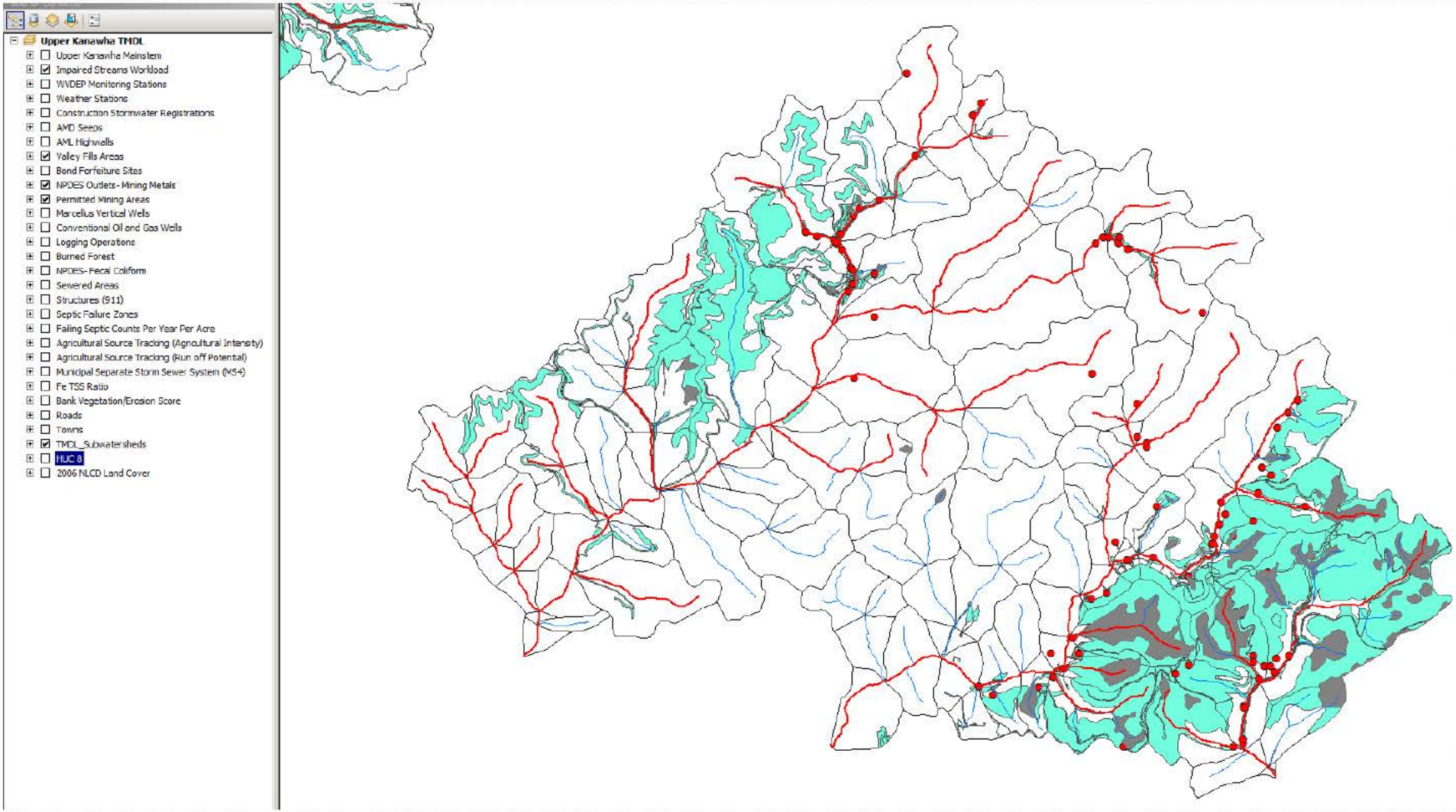
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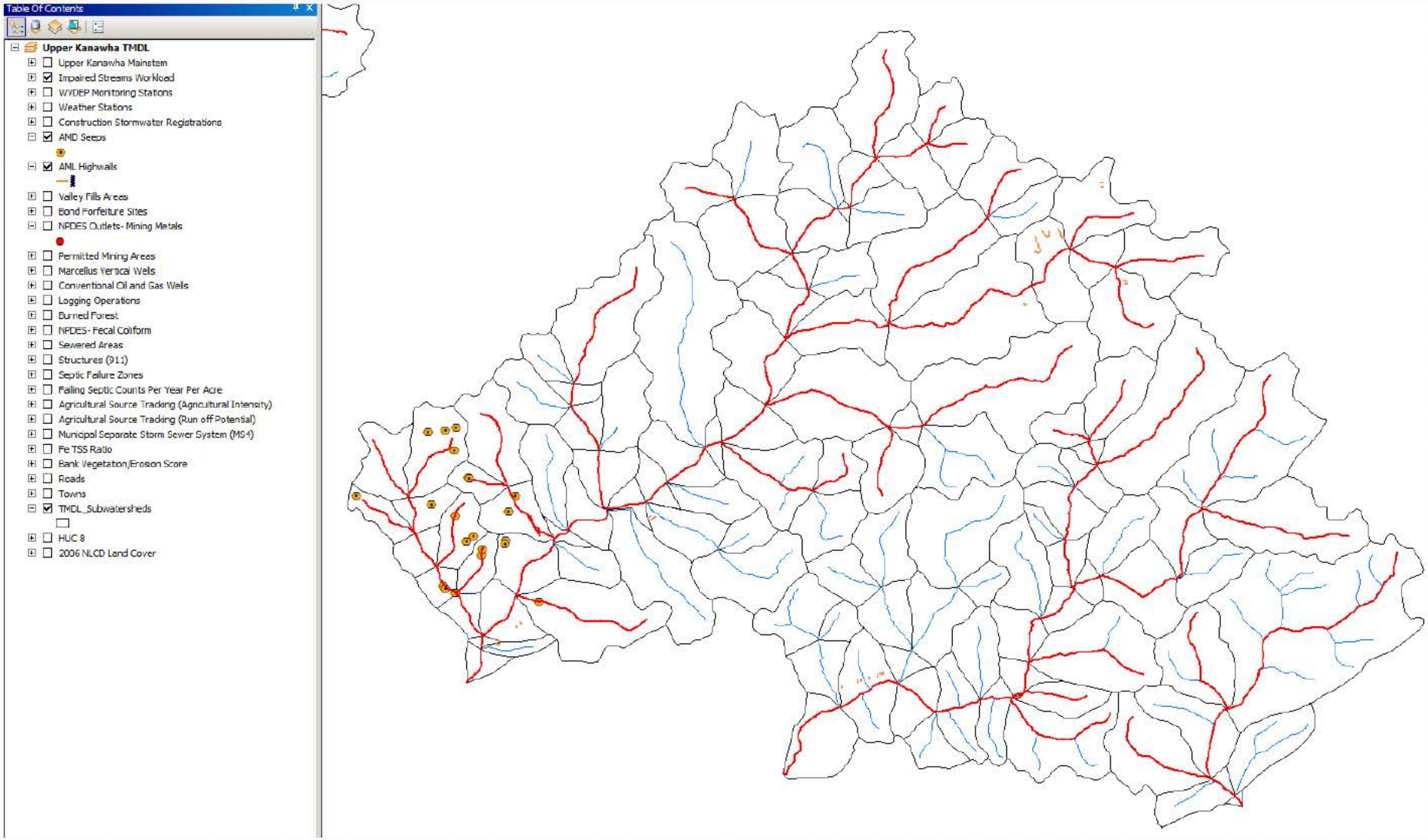
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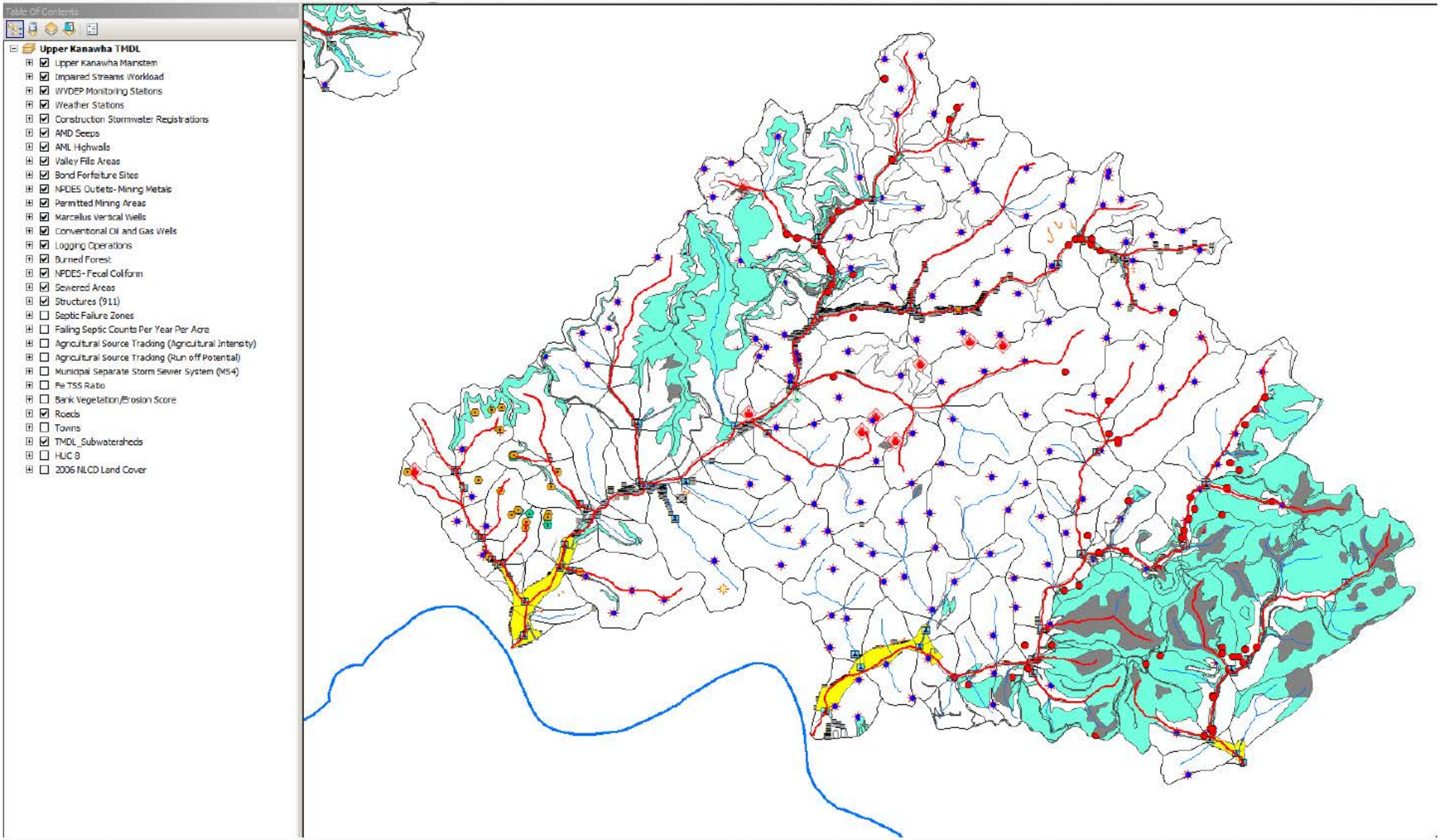
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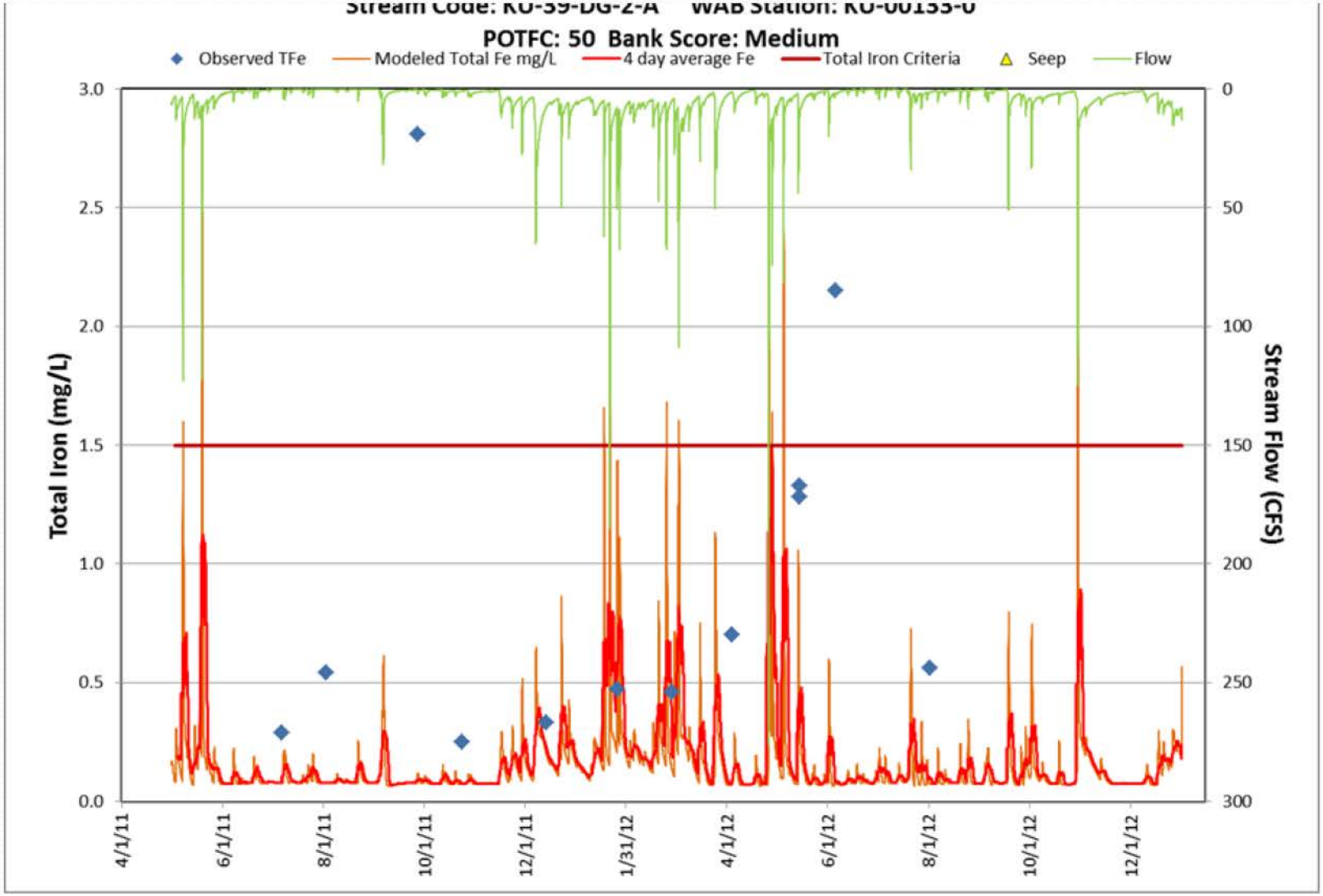
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Modeled Total Fe mg/L
4 day average Fe
Total Iron Criteria
Seep
Flow
Total Iron (mg/L)
Stream Flow (CFS)
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2.5
2.0
1.5
1.0
0.5
0.0
0
50
100
150
200
250
300
4/1/11
6/1/11
8/1/11
10/1/11
12/1/11
1/31/12
4/1/12
6/1/12
8/1/12
10/1/12
12/1/12

	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R
D	TMDL SHED	StreamName	NHD_Code	WV_Code	permit	insp_uni	LatDD	LongDD	Limit	Landuse_Typ	Tot_DA_Sur	Disturbed_Are	Undisturbed_Are	Fe_CONC_AV	TSS_CONC_A	FLOW_CFS
044	Pointick Fork	UNT/Pointick Fork RM 2.26	WV-KU-8-F-4	WVK-49-F-4	WV0052426	001	38.309210	-81.475430	0	Surface	271.830000	147.530000	124.300000	2.430000	35	
045	Pointick Fork	Pointick Fork	WV-KU-8-F	WVK-49-F	WV0052426	002	38.308160	-81.473450	0	CSDP	793.650000	61.010000	732.640000	3.000000	35	0.446
051	Rattlesnake Hollow	Rattlesnake Hollow	WV-KU-8-N	WVK-49-I	WV0094439	002	38.346210	-81.463450	0	Surface	30.710000	30.710000	0.000000	2.120000	35	
052	Rattlesnake Hollow	Rattlesnake Hollow	WV-KU-8-N	WVK-49-I	WV0094526	006	38.343160	-81.460120	1	Surface	713.470000	100.310000	613.160000	1.420000	35	
061	New West Hollow	New West Hollow	WV-KU-19-R-1	WVK-58-B.8-1	WV0065137	002	38.150511	-81.571111	1	Surface	160.800000	26.740000	134.060000	1.420000	35	
061	New West Hollow	New West Hollow	WV-KU-19-R-1	WVK-58-B.8-1	WV0065137	003	38.150380	-81.566510	1	Surface	20.200000	18.520000	1.680000	1.420000	35	
061	New West Hollow	New West Hollow	WV-KU-19-R-1	WVK-58-B.8-1	WV0065137	004	38.151770	-81.567620	1	Surface	52.010000	39.720000	12.290000	1.420000	35	
061	New West Hollow	New West Hollow	WV-KU-19-R-1	WVK-58-B.8-1	WV0065137	007	38.150790	-81.575000	0	CSDP	229.900000	166.900000	63.000000	3.000000	35	0.26
061	New West Hollow	New West Hollow	WV-KU-19-R-1	WVK-58-B.8-1	WV0065137	008	38.155030	-81.588830	0	Surface	67.700000	6.770000	60.930000	3.000000	35	
071	Wet Branch	Wet Branch	WV-KU-26-E	WVK-61-C	WV0048097	001	38.173990	-81.464000	0	Surface	64.770000	9.780000	54.990000	3.000000	35	
071	Wet Branch	Wet Branch	WV-KU-26-E	WVK-61-C	WV0048097	002	38.162600	-81.463450	1	Surface	138.000000	74.140000	63.860000	1.420000	35	
071	Wet Branch	Wet Branch	WV-KU-26-E	WVK-61-C	WV0048097	003	38.165660	-81.463450	0	Surface	0.640000	0.640000	0.000000	3.000000	35	
071	Wet Branch	Wet Branch	WV-KU-26-E	WVK-61-C	WV0048097	005	38.159830	-81.467060	0	Surface	9.300000	9.300000	0.000000	2.770000	35	
071	Wet Branch	Wet Branch	WV-KU-26-E	WVK-61-C	WV0048101	002	38.165660	-81.463730	0	CSDP	15.300000	1.450000	13.850000	3.000000	35	2.453
071	Wet Branch	Wet Branch	WV-KU-26-E	WVK-61-C	WV0048101	003	38.159550	-81.466230	0	Surface	26.550000	5.480000	21.070000	3.000000	35	
071	Wet Branch	Wet Branch	WV-KU-26-E	WVK-61-C	WV0048101	004	38.166490	-81.468170	0	Surface	17.700000	1.990000	15.710000	3.000000	35	
071	Wet Branch	Wet Branch	WV-KU-26-E	WVK-61-C	WV0048101	015	38.158440	-81.472340	1	CSDP	868.200000	50.000000	818.200000	0.420000	35	2.23
082	Longbottom Creek	Left Fork/Longbottom Creek	WV-KU-26-N-2	WVK-61-F-1	WV1019503	004	38.110940	-81.502060	1	Surface	1.470000	0.340000	1.130000	1.420000	35	
082	Longbottom Creek	Left Fork/Longbottom Creek	WV-KU-26-N-2	WVK-61-F-1	WV1022156	019	38.111220	-81.475670	1	Surface	25.800000	25.800000	0.000000	0.610000	35	
082	Longbottom Creek	Left Fork/Longbottom Creek	WV-KU-26-N-2	WVK-61-F-1	WV1022156	020	38.113720	-81.475110	1	Surface	6.400000	6.400000	0.000000	0.610000	35	
082	Longbottom Creek	Left Fork/Longbottom Creek	WV-KU-26-N-2	WVK-61-F-1	WV1022156	021	38.115280	-81.476940	1	Surface	5.600000	5.600000	0.000000	0.610000	35	
082	Longbottom Creek	Left Fork/Longbottom Creek	WV-KU-26-N-2	WVK-61-F-1	WV1022156	022	38.113160	-81.473720	1	Surface	22.700000	22.700000	0.000000	0.610000	35	
082	Longbottom Creek	Left Fork/Longbottom Creek	WV-KU-26-N-2	WVK-61-F-1	WV1022156	023	38.113440	-81.483170	1	Surface	11.600000	11.600000	0.000000	0.610000	35	
082	Longbottom Creek	Left Fork/Longbottom Creek	WV-KU-26-N-2	WVK-61-F-1	WV1022156	024	38.113440	-81.488500	1	Surface	197.960000	53.440000	144.520000	0.610000	35	
082	Longbottom Creek	Left Fork/Longbottom Creek	WV-KU-26-N-2	WVK-61-F-1	WV1022156	025	38.109270	-81.489840	1	Surface	19.500000	19.500000	0.000000	0.610000	35	
082	Longbottom Creek	Left Fork/Longbottom Creek	WV-KU-26-N-2	WVK-61-F-1	WV1022156	026	38.108160	-81.492610	1	Surface	18.900000	18.900000	0.000000	0.610000	35	
082	Longbottom Creek	Left Fork/Longbottom Creek	WV-KU-26-N-2	WVK-61-F-1	WV1022156	027	38.107880	-81.495110	1	Surface	14.200000	14.200000	0.000000	0.610000	35	
082	Longbottom Creek	Left Fork/Longbottom Creek	WV-KU-26-N-2	WVK-61-F-1	WV1022156	028	38.106220	-81.498780	1	Surface	7.000000	7.000000	0.000000	0.610000	35	
082	Longbottom Creek	Left Fork/Longbottom Creek	WV-KU-26-N-2	WVK-61-F-1	WV1022156	029	38.105660	-81.499000	1	Surface	35.900000	35.900000	0.000000	0.610000	35	
082	Longbottom Creek	Left Fork/Longbottom Creek	WV-KU-26-N-2	WVK-61-F-1	WV1022156	030	38.105100	-81.501220	1	Surface	22.100000	22.100000	0.000000	0.610000	35	
082	Longbottom Creek	Left Fork/Longbottom Creek	WV-KU-26-N-2	WVK-61-F-1	WV1022156	031	38.107880	-81.503170	1	Surface	22.300000	22.300000	0.000000	0.610000	35	
082	Longbottom Creek	Left Fork/Longbottom Creek	WV-KU-26-N-2	WVK-61-F-1	WV1022156	032	38.109270	-81.505390	1	Surface	12.200000	12.200000	0.000000	0.610000	35	
082	Longbottom Creek	Left Fork/Longbottom Creek	WV-KU-26-N-2	WVK-61-F-1	WV1022156	033	38.108160	-81.508170	1	Surface	14.900000	14.900000	0.000000	0.610000	35	
082	Longbottom Creek	Left Fork/Longbottom Creek	WV-KU-26-N-2	WVK-61-F-1	WV1022156	034	38.106490	-81.510670	1	Surface	4.800000	4.800000	0.000000	0.610000	35	
082	Longbottom Creek	Left Fork/Longbottom Creek	WV-KU-26-N-2	WVK-61-F-1	WV1022156	035	38.105100	-81.511500	1	Surface	13.300000	13.300000	0.000000	0.610000	35	
082	Longbottom Creek	Left Fork/Longbottom Creek	WV-KU-26-N-2	WVK-61-F-1	WV1022377	001	38.110380	-81.510390	1	Surface	5.900000	3.200000	2.700000	1.420000	35	
082	Longbottom Creek	Left Fork/Longbottom Creek	WV-KU-26-N-2	WVK-61-F-1	WV1022377	002	38.111770	-81.510390	1	Surface	12.000000	6.400000	5.600000	1.420000	35	
082	Longbottom Creek	Left Fork/Longbottom Creek	WV-KU-26-N-2	WVK-61-F-1	WV1022377	003	38.113440	-81.506220	1	Surface	15.400000	7.600000	7.800000	1.420000	35	
082	Longbottom Creek	Left Fork/Longbottom Creek	WV-KU-26-N-2	WVK-61-F-1	WV1022377	004	38.113160	-81.504560	1	Surface	13.800000	9.900000	3.700000	1.420000	35	
083	Longbottom Creek	Longbottom Creek	WV-KU-26-N	WVK-61-F	WV0048101	005	38.135940	-81.474840	0	CSDP	210.100000	7.910000	202.190000	2.720000	35	1.561
083	Longbottom Creek	Longbottom Creek	WV-KU-26-N	WVK-61-F	WV0048101	006	38.137050	-81.468720	0	Surface	35.400000	1.600000	33.800000	2.720000	35	
083	Longbottom Creek	Longbottom Creek	WV-KU-26-N	WVK-61-F	WV0048101	007	38.136490	-81.474000	0	Surface	6.540000	3.110000	3.430000	2.720000	35	
084	Longbottom Creek	Longbottom Creek	WV-KU-26-N	WVK-61-F	WV1022377	005	38.116770	-81.501780	1	Surface	10.800000	5.600000	5.200000	1.420000	35	
084	Longbottom Creek	Longbottom Creek	WV-KU-26-N	WVK-61-F	WV1022377	006	38.112880	-81.513450	1	Surface	8.100000	6.600000	1.500000	1.420000	35	
084	Longbottom Creek	Longbottom Creek	WV-KU-26-N	WVK-61-F	WV1022377	007	38.115940	-81.506780	1	Surface	6.100000	2.300000	3.800000	1.420000	35	
084	Longbottom Creek	Longbottom Creek	WV-KU-26-N	WVK-61-F	WV1022377	008	38.115660	-81.508720	1	Surface	10.700000	6.500000	4.200000	1.420000	35	
084	Longbottom Creek	Longbottom Creek	WV-KU-26-N	WVK-61-F	WV1022377	009	38.114830	-81.511780	1	Surface	16.700000	7.700000	9.000000	1.420000	35	
084	Longbottom Creek	Longbottom Creek	WV-KU-26-N	WVK-61-F	WV1022377	010	38.113160	-81.512060	1	Surface	12.700000	7.300000	5.400000	1.420000	35	
085	Longbottom Creek	Laurel Fork	WV-KU-26-N-S	WVK-61-F.2	WV0048101	008	38.131220	-81.487610	0	CSDP	19.550000	2.800000	16.750000	2.580000	35	2.23
085	Longbottom Creek	Laurel Fork	WV-KU-26-N-S	WVK-61-F.2	WV0048101	009	38.132050	-81.490950	0	Surface	3.300000	1.020000	2.280000	2.580000	35	
091	Coal Fork	Coal Fork	WV-KU-26-U	WVK-61-H	WV1022156	011	38.104830	-81.477890	1	Surface	5.300000	5.300000	0.000000	1.420000	35	
091	Coal Fork	Coal Fork	WV-KU-26-U	WVK-61-H	WV1022156	012	38.106770	-81.473450	1	Surface	9.500000	9.500000	0.000000	1.420000	35	
091	Coal Fork	Coal Fork	WV-KU-26-U	WVK-61-H	WV1022156	013	38.108160	-81.477610	1	Surface	16.100000	16.100000	0.000000	1.420000	35	
091	Coal Fork	Coal Fork	WV-KU-26-U	WVK-61-H	WV1022156	014	38.107050	-81.475950	1	Surface	3.700000	3.700000	0.000000	1.420000	35	
091	Coal Fork	Coal Fork	WV-KU-26-U	WVK-61-H	WV1022156	015	38.105660	-81.472890	1	Surface	3.700000	3.700000	0.000000	1.420000	35	
091	Coal Fork	Coal Fork	WV-KU-26-U	WVK-61-H	WV1022156	016	38.106490	-81.472340	1	Surface	3.200000	3.200000	0.000000	1.420000	35	
091	Coal Fork	Coal Fork	WV-KU-26-U	WVK-61-H	WV1022156	017	38.108440	-81.474000	1	Surface	4.900000	4.900000	0.000000	1.420000	35	
091	Coal Fork	Coal Fork	WV-KU-26-U	WVK-61-H	WV1022156	018	38.110660	-81.472610	1	Surface	10.700000	10.700000	0.000000	1.420000	35	
093	Coal Fork	Left Fork/Laurel Fork	WV-KU-26-U-7-E	WVK-61-H-1-A	WV0093751	003	38.084830	-81.470390	1	Surface	190.970000	3.280000	187.690000	1.420000	35	
093	Coal Fork	Left Fork/Laurel Fork	WV-KU-26-U-7-E	WVK-61-H-1-A	WV0093751	042	38.085660	-81.472330	0	Surface	23.020000	23.020000	0.000000	3.000000	35	
093	Coal Fork	Left Fork/Laurel Fork	WV-KU-26-U-7-E	WVK-61-H-1-A	WV1015338	002	38.071220	-81.471780	1	Surface	284.880000	31.920000	252.740000	1.420000	35	
093	Coal Fork	Left Fork/Laurel Fork	WV-KU-26-U-7-E	WVK-61-H-1-A	WV1015338	003	38.071490	-81.468720	0	CSDP	0.770000	0.170000	0.600000	3.000000	35	0.05575
093	Coal Fork	Left Fork/Laurel Fork	WV-KU-26-U-7-E	WVK-61-H-1-A	WV1015338	004	38.072880	-81.469000	0	CSDP	0.850000	0.170000	0.680000	3.000000	35	0.23638
093	Coal Fork	Left Fork/Laurel Fork	WV-KU-26-U-7-E	WVK-61-H-1-A	WV1015338	005	38.077880	-81.467610	0	Surface	142.060000	4.290000	137.770000	3.000000	35	
094	Coal Fork	Left Fork/Laurel Fork	WV-KU-26-U-7-E	WVK-61-H-1-A	WV1022466	001	38.062330	-81.485110	1	Surface	5.110000	5.110000	0.000000	1.420000	35	

ing_Bond Forfeiture Details | Mining_BF Permit Metals&TSS | Non-mining Metals & TSS | Negligible Metals Point Sources | Fecal Coliform Permit Details

	A	B	C	D	E	F	G	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X
1	Watershed	SAMP	STATION_(	ANCODE	NHD Code	Stream Name	SAMPLI	SURVEY_TYPE	Lat_DD	Long_DD	MILE_I	TF	BIO	Flo	Flow(	pl	pH (std	Sp	Sp_Cond(	DI	DO(m	Tem	Ter
147	Upper Kanawha	4076	KU-00005-0.2	WVK-49	KU-6	Campbells Creek	7/11/2001	TMDL-Initial	38.3188583	-81.5594222	0.2				9.77		6.88		525		9.56		19.2
148	Upper Kanawha	4077	KU-00005-2	WVK-49	KU-6	Campbells Creek	7/11/2001	TMDL-Initial	38.3127389	-81.5395333	2				11.14		7.36		523		11.21		24.2
149	Upper Kanawha	4078	KU-00005-3	WVK-49	KU-6	Campbells Creek	7/11/2001	TMDL-Initial	38.3163194	-81.5225611	3				9.26		8.05		526		11.69		24.24
150	Upper Kanawha	4079	KU-00005-3.9	WVK-49	KU-6	Campbells Creek	7/11/2001	TMDL-Initial	38.3233806	-81.5097333	3.9				9.91		7.89		514		11.65		23.33
151	Upper Kanawha	4080	KU-00005-5.4	WVK-49	KU-6	Campbells Creek	7/11/2001	TMDL-Initial	38.3351806	-81.4896222	5.4				7.02		7.81		509		11		23.57
152	Upper Kanawha	4081	KU-00005-7.3	WVK-49	KU-6	Campbells Creek	7/11/2001	TMDL-Initial	38.3409306	-81.4695306	7.3				6.6		7.9		467		11.38		23.45
153	Upper Kanawha	4082	KU-00005-10.2	WVK-49	KU-6	Campbells Creek	7/11/2001	TMDL-Initial	38.3215722	-81.4360611	10.2				3.91		8.02		463		11.33		21.64
154	Upper Kanawha	4083	KU-00005-11.6	WVK-49	KU-6	Campbells Creek	7/11/2001	TMDL-Initial	38.3090222	-81.4259	11.6				3.54		7.75		519		11.66		19.45
155	Upper Kanawha	4084	KU-00005-13.1	WVK-49	KU-6	Campbells Creek	7/11/2001	TMDL-Initial	38.3068028	-81.4070278	13.1				1.16		7.35		426		11.73		18.73
156	Upper Kanawha	4085	KU-00006-0.7	WVK-49-A	KU-6-A	Dry Branch	7/9/2001	TMDL-Initial	38.3267667	-81.5447639	0.7				0.39		7.06		65		10.76		19.58
157	Upper Kanawha	4086	KU-00006-0	WVK-49-A	KU-6-A	Dry Branch	7/9/2001	TMDL-Initial	38.3187694	-81.5540333	0				0.81		7.35		302		10.94		18.08
158	Upper Kanawha	4087	KU-00216-0.2	WVK-49-B	KU-6-B	Spring Fork	7/9/2001	TMDL-Initial	38.3123667	-81.5326722	0.2				0.71		7.64		219		11.12		20.26
159	Upper Kanawha	4088	KU-00216-1.6	WVK-49-B	KU-6-B	Spring Fork	7/9/2001	TMDL-Initial	38.2977917	-81.5219917	1.6				0.65		7.26		214		10.93		20.01
160	Upper Kanawha	4089	KU-00216-2.2	WVK-49-B	KU-6-B	Spring Fork	7/9/2001	TMDL-Initial	38.2967917	-81.5167611	2.2						7.4		77		10.67		19.64
161	Upper Kanawha	4091	KU-00002-0	WVK-49-B-2	KU-6-B-2	Left Fork/Spring Fork	7/9/2001	TMDL-Initial	38.2968194	-81.5205306	0				0.19		7.07		351		11.2		19.19
162	Upper Kanawha	4092	KU-00010-0	WVK-49-D	KU-6-D	Coal Fork	7/9/2001	TMDL-Initial	38.315611	-81.5196222	0				0.36		7.66		141		10.93		22.94
163	Upper Kanawha	4093	KU-00010-0.3	WVK-49-D	KU-6-D	Coal Fork	7/9/2001	TMDL-Initial	38.3140694	-81.5158111	0.3				0.42		7.85		136		10.81		22.31
164	Upper Kanawha	4094	KU-00012-0	WVK-49-F	KU-6-F	Pointlick Fork	7/10/2001	TMDL-Initial Old	38.3238194	-81.5077611	0				1.21		7.68		988		11.91		20.67
165	Upper Kanawha	4095	KU-00012-1.2	WVK-49-F	KU-6-F	Pointlick Fork	7/10/2001	TMDL-Initial	38.3195694	-81.4872028	1.2				0.82		7.65		980		10.55		23.22
166	Upper Kanawha	4096	KU-00012-2.3	WVK-49-F	KU-6-F	Pointlick Fork	7/10/2001	TMDL-Initial	38.30935	-81.4762611	2.3				0.1		7.53		636		10.21		20.91
167	Upper Kanawha	4097	KU-00014-0	WVK-49-F-4	KU-6-F-4	UNT/Pointlick Fork RM 2.26	7/10/2001	TMDL-Initial	38.309361	-81.4754444	0				0.74		7.68		1065		10.7		22.91
168	Upper Kanawha	4098	KU-00013-0.1	WVK-49-F.5	KU-6-G	Vask Branch	7/9/2001	TMDL-Initial	38.3290389	-81.5049917	0.1				0.03		7.7		211		10.1		22.64
169	Upper Kanawha	4099	KU-00015-0	WVK-49-G	KU-6-H	Cline Branch	7/9/2001	TMDL-Initial	38.3315306	-81.4987611	0				0.02		8.1		286		10.64		24.17
170	Upper Kanawha	4100	KU-00016-0	WVK-49-H	KU-6-I	Big Bottom Hollow	7/11/2001	TMDL-Initial	38.3350694	-81.4934222	0				0.03		7.5		274		11.43		21.89
171	Upper Kanawha	4101	KU-00017-0	WVK-49-H.8	KU-6-M	Fivemile Fork	7/10/2001	TMDL-Initial	38.3446	-81.4755611	0				0.2		6.85		175		9.04		19.83
172	Upper Kanawha	4102	KU-00018-0	WVK-49-I	KU-6-N	Rattlesnake Hollow	7/10/2001	TMDL-Initial Old	38.3401	-81.4678417	0				0.48		7.69		609		11.3		24.65
173	Upper Kanawha	4103	KU-00019-0	WVK-49-J	KU-6-O	UNT/Campbells Creek RM 7.5 (Spruce)	7/10/2001	TMDL-Initial	38.3365194	-81.4664222	0				0.28		7.35		687		10.53		22.05
174	Upper Kanawha	4104	KU-00021-0	WVK-49-K.1	KU-6-Q	Big Thompson Hollow	7/10/2001	TMDL-Initial	38.3282917	-81.4543417	0				0.04		8.11		534		11.4		20.53
175	Upper Kanawha	4105	KU-00025-0	WVK-49-O	KU-6-X	Little Tenmile Fork	7/11/2001	TMDL-Initial	38.3039917	-81.4122778	0				0.2		7.03		410		11.58		18.03
176	Upper Kanawha	4106	KU-00026-0	WVK-49-P	KU-6-Y	Big Tenmile Fork	7/10/2001	TMDL-Initial	38.3053222	-81.4070278	0				0.71		7.79		500		11.1		20.86
177	Upper Kanawha	4107	KU-00032-0.3	WVK-53	KU-13	Lens Creek	7/17/2001	TMDL-Moved	38.2405722	-81.5633111	0.3				2.24		8		418		10.83		20.66
178	Upper Kanawha	4108	KU-00032-3.8	WVK-53	KU-13	Lens Creek	7/17/2001	TMDL-Initial	38.2233194	-81.6039528	3.8				1.53		7.78		544		9.58		18.63
179	Upper Kanawha	4109	KU-00032-6.3	WVK-53	KU-13	Lens Creek	7/16/2001	TMDL-Initial	38.195211	-81.6225111	6.3				0.3		7.73		458		9.4		17.81
180	Upper Kanawha	4110	KU-00034-0	WVK-53-A	KU-13-D	Left Fork/Lens Creek	7/17/2001	TMDL-Initial	38.225961	-81.5804028	0				1.35		7.84		356		9.77		18.34
181	Upper Kanawha	4111	KU-00034-2.5	WVK-53-A	KU-13-D	Left Fork/Lens Creek	7/17/2001	TMDL-Initial	38.1953606	-81.5601722	2.5				0.44		7.67		165		8.95		19.56
182	Upper Kanawha	4112	KU-00037-0	WVK-53-A-0.6	KU-13-D-5	UNT/Left Fork RM 2.34/Lens Creek	7/17/2001	TMDL-Initial	38.1954306	-81.5833722	0				0.31		7.71		272		8.75		19.69
183	Upper Kanawha	4113	KU-00038-0	WVK-53-A-1	KU-13-D-7	Frey Hollow	7/16/2001	TMDL-Initial	38.1721333	-81.5605415	0						7.79		126		9.56		17.06
184	Upper Kanawha	4114	KU-00039-0	WVK-53-B	KU-13-H	Ring Hollow	7/17/2001	TMDL-Initial	38.2259306	-81.6031722	0				0.1		8		166		8.85		19.75
185	Upper Kanawha	4115	KU-00040-0.1	WVK-53-C	KU-13-I	Fourmile Fork	7/16/2001	TMDL-Initial	38.221211	-81.6071722	0.1				0.5		7.97		466		10.36		22.67
186	Upper Kanawha	4116	KU-00041-0	WVK-53-C-1	KU-13-I-1	Spruce Fork	7/16/2001	TMDL-Initial	38.21935	-81.6155333	0				0.5		7.88		570		9.52		19.7
187	Upper Kanawha	4117	KU-00045-0.7	WVK-57	KU-18	Vitcher Creek	7/16/2001	TMDL-Initial	38.2262417	-81.51395	0.7				4.51		7.65		264		10.56		19.24
188	Upper Kanawha	4118	KU-00045-5.1	WVK-57	KU-18	Vitcher Creek	7/18/2001	TMDL-Initial	38.2562211	-81.45765	5.1				2.17		6.91		255		8.8		17.5
189	Upper Kanawha	4119	KU-00046-0	WVK-57-A	KU-18-B	Dry Branch	7/12/2001	TMDL-Initial	38.2281833	-81.5101694	0				0.63		7.43		181		10.59		20.53
190	Upper Kanawha	4120	KU-00048-0	WVK-57-C	KU-18-G	Left Fork/Witcher Creek	7/17/2001	TMDL-Initial	38.2432211	-81.4792	0				1.85		7.3		299		8.08		20.34
191	Upper Kanawha	4121	KU-00049-0	WVK-57-D	KU-18-K	Counterfeit Branch	7/18/2001	TMDL-Initial	38.2534333	-81.4591694	0				0.46		6.95		95		9.97		19.04
192	Upper Kanawha	4122	KU-00050-0	WVK-57-D.5			7/18/2001	TMDL-Discontinued	38.2581333	-81.4564194	0				0.02		5.15		150		8.76		18.01
193	Upper Kanawha	4123	KU-00052-0	WVK-57-F	KU-18-N	Little Ugly Branch	7/18/2001	TMDL-Discontinued	38.2559528	-81.44115	0						6.9		96		9.71		17.76
194	Upper Kanawha	4124	KU-00054-0.2	WVK-58	KU-19	Fields Creek	7/18/2001	TMDL-Initial	38.2137722	-81.5257	0.2				7.04		7.65		436		8.7		19.51
195	Upper Kanawha	4125	KU-00054-1.5	WVK-58	KU-19	Fields Creek	7/18/2001	TMDL-Initial	38.2012917	-81.5372306	1.5				5.14		7.42		440		9.67		22.02
196	Upper Kanawha	4126	KU-00054-3.5	WVK-58	KU-19	Fields Creek	7/26/2001	TMDL-Initial	38.1865222	-81.5676694	3.5				3.64		7.93		638		9.71		20.33
197	Upper Kanawha	4127	KU-00054-4.9	WVK-58	KU-19	Fields Creek	7/26/2001	TMDL-Initial	38.1701333	-81.5637806	4.9				5.21		7.89		631		9.96		19.23
198	Upper Kanawha	4128	KU-00054-5.3	WVK-58	KU-19	Fields Creek	7/25/2001	TMDL-Initial	38.1596333	-81.5643083	5.3				0.32		7.8		565		9.31		23.21
199	Upper Kanawha	4129	KU-00055-0	WVK-58-A	KU-19-A	Mill Branch	7/18/2001	TMDL-Initial	38.2087917	-81.5344194	0						7.71		105		9.26		18.56
200	Upper Kanawha	4130	KU-00056-0	WVK-58-B	KU-19-B	Scott Branch	7/18/2001	TMDL-Initial	38.2042417	-81.5367306	0				0.25		7.61		76		9.13		18.36
201	Upper Kanawha	4131	KU-00057-0	WVK-58-B.1	KU-19-C	Vollpen Hollow	7/18/2001	TMDL-Initial	38.2013528	-81.53695	0				0.15		4.52		614		9.22		19.35
202	Upper Kanawha	4132	KU-00058-0	WVK-58-B.5	KU-19-D	UNT/Fields Creek RM 1.68	7/18/2001	TMDL-Initial	38.1985417	-81.5413111	0						7.53		136		9.12		20.04
203	Upper Kanawha	4133	KU-00059-0	WVK-58-B.2	KU-19-E	Sawmill Hollow	7/18/2001	TMDL-Initial	38.195711	-81.5405806	0						6.86		137		9.31		19.51
204	Upper Kanawha	4134	KU-00060-0	WVK-58-B.3	KU-19-F	Coopers Hollow	7/18/2001	TMDL-Initial	38.1932722	-81.5452306	0				0.14		7.73		137		9.12		21.42
205	Upper Kanawha	4135	KU-00061-0	WVK-58-B.4	KU-19-I	Schoolhouse Hollow	7/18/2001	TMDL-Initial	38.191711	-81.56595	0				0.1		7.32		254		9.24		19.13
206	Upper Kanawha	4137	KU-00063-0.1	WVK-59	KU-23	Carroll Branch	7/18/2001	TMDL-Initial	38.2021639	-81.5028194	0.1				1.32		5.61		372		8.56		20.79
207	Upper Kanawha	4138	KU-00063-1.6	WVK-59	KU-23	Carroll Branch	7/18/2001	TMDL-Initial	38.2147917	-81.4877583	1.6				0.56		3.56		538		8.89		18.67
208	Upper Kanawha	4139	KU-00070-0.3	WVK-60	KU-25	Slaughter Creek	7/25/2001	TMDL-Initial	38.1929833	-81.5004	0.3				1.73		7.25		467		9.44		26.41
209	Upper Kanawha	4140	KU-00070-3	WVK-60	KU-25	Slaughter Creek	7/25/2001	TMDL-Initial	38.1857444	-81.5082583	3				1.88		7.32		513		8.83		21.31
210	Upper Kanawha	4141	KU-00070-4.3	WVK-60	KU-25	Slaughter Creek	7/17/2001	TMDL-Initial	38.1779944	-81.5096083	4.3				0.73		7.43		202		9.022		19.9
211	Upper Kanawha	4142	KU-00071-0	WVK-60-A	KU-25-A	Little Creek	7/24/2001	TMDL-Initial	38.1920222	-81.5014778	0				0.12		7.61		650		8		30.72

Intro Sheet | Description | **Water Quality Data** | Habitat and Bio Assessment | Invertebrate_Data

Summary/Review

- Represented sources determinable
- Allocation methodology defined
- WLA implementation transparent
- Future Growth/New source expectations provided

Discussion