UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION III
1650 Arch Street
Philadelphia, Pennsylvania 19103-2029

Decision Rationale

Total Maximum Daily Loads for the

Lower Guyandotte River Watershed, West Virginia

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Water Division

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I. Introduction

The Clean Water Act (CWA) and its implementing regulations at 40 CFR 130 require that a Total Maximum Daily Load (TMDL) be developed for those waterbodies identified as impaired by a state where technology-based effluent limits and other pollution controls do not provide for the attainment of water quality standards. A TMDL establishes a target for the total load of a particular pollutant that a water body can assimilate and divides that load into wasteload allocations (WLA), given to point sources, load allocations (LAs), given to nonpoint and natural background sources, and a margin of safety (MOS) which takes into account any uncertainty. Mathematically, a TMDL is commonly expressed as an equation, shown below.

$$TMDL = \sum WLAs + \sum LAs + MOS$$

This document sets forth the U.S. Environmental Protection Agency, Region III's (EPA's) rationale for approving the TMDLs submitted by WVDEP on January 4th, 2022in the Lower Guyandotte Watershed. This includes 273 TMDLs for iron, 1 TMDL for Net Acidity (pH), 1 TMDL for aluminum, 183 for Fecal Coliform, and 8 for selenium[1]. The TMDLs were developed to address impairments of water quality standards as identified on WV's Section 303(d) list of water quality-limited segments. WVDEP submitted the report, Total Maximum Daily Loads for the Lower Guyandotte River Watershed, West Virginia (hereinafter referred to as the "TMDL Report"), to EPA for final review and action on December 2021, which was received on January 4th, 2022. EPA's decision is based upon its administrative record, which includes the TMDL Report and information in supporting files provided to EPA by WVDEP. EPA has reviewed and determined that the TMDLs meet the requirements of Section 303(d) of the Clean Water Act and its implementing regulations at 40 CFR Part 130 including but not limited to:

1. TMDLs are designed to implement applicable water quality standards.
2. TMDLs include wasteload allocations and load allocations.
3. TMDLs consider natural background sources.
4. TMDLs consider critical conditions.
5. TMDLs consider seasonal variations.
6. TMDLs include a margin of safety.
7. TMDLs have been subject to public participation.

In addition, EPA has considered and finds acceptable the reasonable assurances set forth in the TMDL Report.

[1] EPA notes that WVDEP has not submitted TMDLs for every impaired waterbody segment within the Lower Guyandotte watershed. The scope of EPA's action is limited to the TMDLs that have been submitted.

From this point forward, all references in this rationale can be found in WV's TMDL Public and Technical Report, and Total Maximum Daily Loads for the Lower Guyandotte River Watershed, West Virginia, unless otherwise noted.

II. Watershed Background

Table 3-3 of the WV's TMDL report presents the waterbodies and impairments for which TMDLs have been developed in the Lower Guyandotte River Watershed. West Virginia identified 278 impaired stream segments in the Lower Guyandotte Watershed. Documented impairments are related to numeric water quality criteria for total iron, pH, aluminum, total selenium, dissolved oxygen, and fecal coliform bacteria. In addition, as set forth below, the iron and fecal coliform TMDLs address the causes of biological impairment in certain waters in the Lower Guyandotte River Watershed that were listed as biologically impaired based on the narrative water quality criteria of 47 CSR §2-3.2.i. TMDLs were established for some impairments identified during pre-TMDL monitoring, even though those impairments had not previously been identified on West Virginia's Section 303(d) list. In certain instances, pre-TMDL monitoring demonstrated lack of impairment. In the latter instance, the pre-TMDL monitoring may be used as a basis for removing a previously listed impairment from a future Section 303(d) list. Attachment 1 of this Decision Rationale presents the impaired waterbodies in the Lower Guyandotte River Watershed for which TMDLs have been established.

As noted by WV's TMDL Report, the Guyandotte River is a tributary of the Ohio River, located within the Western Allegheny Plateau and Central Appalachian ecoregions, which joins the Mississippi and flows to the Gulf of Mexico. The Lower Guyandotte River watershed consists of land draining to the lower portion of the Guyandotte River, which begins at its confluence with Island Creek in the City of Logan and flows northward to join the Ohio River in the City of Huntington. The Lower Guyandotte River is approximately 80.5 miles (129.6 km) long from the confluence with Island Creek to the Ohio River, and its watershed encompasses 739.7 square miles (1915.9 km^2). One major tributary of the Lower Guyandotte River has been dammed to create a small lake. Mud River has been dammed just below the confluence of the Left Fork of Mud River to create Upper Mud River Reservoir. For TMDL purposes, the lake is considered an independent water body. Upper Mud River Reservoir is not considered impaired for metals or fecal coliform bacteria and did not receive TMDL allocations.

The Lower Guyandotte River watershed occupies most of West Virginia's Cabell and Lincoln Counties, as well as the northern third of Logan County, and small portions of Putnam, Boone, Kanawha, and Mason Counties. Cities and towns in the study area are Huntington, Barboursville, Milton, Hamlin, Chapmanville, and Logan. The highest point in the Lower Guyandotte River watershed is 2,124 feet above sea level on an unnamed ridge above the headwaters of Peach Creek. The lowest point in the watershed is 515 feet at the confluence of the Lower Guyandotte River and the Ohio River in the City of Huntington. The average elevation in the watershed is 897 feet. Major tributaries in the Lower Guyandotte River watershed include Mud River, Trace Fork, Middle Fork/Mud River, Fourmile Creek, Big Harts Creek, and Big Ugly

Creek. The total population living in the subject watersheds of this report is estimated to be 100,000 people.

III. TMDL Overview

WVDEP developed 466 TMDLs for total iron, total selenium, dissolved aluminum, pH and/or fecal coliform bacteria to address 278 stream segments in the Lower Guyandotte River Watershed identified as impaired because they are not achieving West Virginia's numeric water quality criterion for those parameters.[2] Section 10.0 presents the TMDLs as daily loads in pounds per day for total iron and total selenium and dissolved aluminum, average net acidity (pH) as pounds of calcium carbonate per day, and number of colonies in counts per day for fecal coliform bacteria. The TMDLs are provided in Attachment 2 below. All TMDLs are also represented in Microsoft Excel allocation spreadsheets which provide detailed source allocations and TMDL scenarios; these are not labeled as an attachment, but are included with the TMDL report as additional technical documentation during public notice and provided to EPA when the TMDL report is submitted. These allocation spreadsheets also present the TMDLs as annual loads because they were developed to meet TMDL endpoints under a range of conditions observed throughout the year. The loads expressed as applicable units per year can be divided by 365 days per year to provide a daily load expression as applicable units per day. A technical report was also included by West Virginia to describe the detailed technical approaches that were used during TMDL development and to display the data upon which the TMDLs were based. West Virginia provided an ArcGIS Viewer Project and ESRI StoryMap that explore the spatial relationships among the pollutant sources in the watershed.

The TMDL Report identifies TMDLs addressing the causes of biological impairment in 128 stream segments within the watershed. As described in Section 4.0, West Virginia utilized a stressor identification process to determine the primary causes of impairment in stream segments listed as biologically impaired within the Lower Guyandotte River Watershed based on the narrative water quality criterion of 47 CSR 2–3.2.i. Stressor identification entails reviewing available information, forming and analyzing possible stressor scenarios and implicating causative stressors associated with benthic macroinvertebrate community impact. The primary data set used for the stressor identification was generated through pre-TMDL monitoring (Technical Report, Appendix K). Stressor identification was followed by stream-specific determinations of the pollutants for which TMDLs must be developed to address biological impairment. If that analysis demonstrated that impacts on the benthic macroinvertebrate community were caused by exceedance of numeric water quality criteria and could be resolved through attainment of numeric water quality criteria, then TMDLs were developed for those numeric water quality criteria (i.e. if the significant stressors were pH toxicity and aluminum

[2] WVDEP removed selenium TMDLs from the Big Ugly Creek between the public noticed draft TMDLs and final submission. Those segments will remain on the 303(d) list and were not subject to EPA review as part of this TMDL submission.

toxicity, then pH and aluminum TMDLs were developed), eliminating any need for biological TMDL development in the future.

Table 4-1 lists 128 stream segments where the stressor identification process demonstrated that biological impairment caused by sedimentation or organic enrichment stressors will be resolved through the attainment of total iron and/or the fecal coliform bacteria numeric water quality criteria. Statistical analyses using pre-TMDL monitoring data collected throughout the subject watersheds were performed to establish the correlation between iron loads and sediment loads. For the sediment impairments identified in the watershed, it was determined that the sediment reductions necessary to ensure the attainment of iron water-quality criteria exceed those that would be needed to resolve biological stress under a sediment "reference watershed" approach in the Lower Guyandotte River Watershed. As such, iron TMDLs are acceptable surrogates for the sediment impairment in the watershed.[3]

For biological impairments with organic enrichment impairment stressors in the watershed, it was determined that the implementation of fecal coliform TMDLs would require the elimination of the majority of existing fecal coliform sources and thereby resolve organic enrichment stress. Therefore, fecal coliform TMDLs will serve as a surrogate where organic enrichment was identified as a stressor. However, where extreme DO fluctuation occurred in segments with organic enrichment stressors, it is unclear if implementation of the fecal coliform TMDL would result in elimination of the majority of sources causing organic enrichment stress, so those segments remained on the 303(d) list requiring future TMDLs. Using fecal coliform as a surrogate to address organic enrichment impairments has been WVDEP's approach for many years. With number of TMDLs that have been established and presumably implemented, EPA encourages WVDEP to use post-TMDL monitoring data to evaluate the assumption that implementation of fecal TMDL's remove the majority of sources of organic enrichment stress and resolves aquatic life impairments due to organic enrichment.

Sections 5.0 through 8.0 discuss the metals (total iron, total selenium, dissolved aluminum), pH, DO, and fecal coliform bacteria source assessments in the Lower Guyandotte River Watershed, respectively. The technical report has expanded details of the source assessment in the Lower Guyandotte River Watershed. The sources of metals and sediment in the watershed include mining permits, bond forfeiture sites, non-mining point sources for process wastewater discharges from wastewater treatment plants and industrial manufacturing operations and stormwater discharges associated with industrial and construction activity and unpermitted sources of mine drainage from abandoned mine lands (AMLs); as well as sediment sources including forestry, oil and gas operations, roads, agriculture, streambank erosion,

[3] For 23 biologically impaired streams, the stressor identification process did not indicate that TMDLs designed to achieve the numeric water quality criterion for fecal coliform or iron would resolve the biological impacts (Appendix K). West Virginia is deferring TMDL development for those 23 biological impairments and will retain those waters on the Section 303(d) list for future TMDL development. West Virginia has provided an explanation as to why it chose not to develop TMDLs for these waters at this time (Section 4.0). Because WVDEP has indicated that it is retaining these waters on the Section 303(d) list for future TMDL development, EPA considers WVDEP's explanation to be informational and not part of WVDEP's submission of 466 TMDLs for approval.

Municipal Separate Storm Sewer Systems (MS4s), and other land disturbance activities. As discussed above, WVDEP has demonstrated that the iron TMDLs are appropriate surrogates for biological impairments caused by sediment. Contributions to low pH impairments can occur from abandoned mine land, acid deposition, and low soil buffering capacity. All of these sources were modeled for the Lower Guyandotte pH TMDL.

The fecal coliform bacteria sources in the watershed include publicly owned treatment works (POTWs), combined sewer overflows (CSOs), Municipal Separate Storm Sewer Systems (MS4s), general sewage permits, unpermitted sources, including on-site treatment systems, direct discharges of untreated sewage, stormwater runoff, agriculture, and natural background (wildlife). Again, EPA strongly encourages WVDEP to review data where fecal coliform TMDLs have been used as surrogates for biological impairments due to organic enrichment and confirm the underlying assumptions.

Computational Procedures

The Mining Data Analysis System (MDAS) was used to represent the source-response linkage in the Upper Guyandotte River Watershed TMDL for iron and sediment selenium, aluminum, pH, and fecal coliform bacteria. MDAS was developed to facilitate large scale, data intensive watershed modeling applications. The model is used to simulate watershed hydrology and pollutant transport based predominantly on land use and precipitation as well as stream hydraulics and instream water quality. MDAS is capable of simulating different flow regimes and pollutant variations. A key advantage of the MDAS development framework is that it has no inherent limitations in terms of modeling size or upper limit model operations. In addition, the MDAS model allows for seamless integration with WV data management systems. Section 9.0 of the TMDL Report discusses the modeling process.

Configuration of the MDAS model involved subdividing the TMDL watershed into subwatershed modeling units connected by stream reaches. The TMDL watersheds was broken into 446 separate subwatershed units, based on the groupings of impaired streams shown in Figure 3-2 of the TMDL Report. The TMDL watershed was divided to allow for the evaluation of water quality and flow at pre-TMDL monitoring stations. The subdivision process also ensures a proper stream network configuration within the basin. The physical characteristics of the subwatersheds, weather data, land use information, continuous discharges, and stream data were used as input for the MDAS model. Flow and water quality were continuously simulated into the model on an hourly time-step. Model setup consisted of configuring four separate MDAS models: iron/sediment, selenium, aluminum and pH, and fecal coliform bacteria.

The calibrated model provides the basis for performing the allocation analysis. The first step is to simulate baseline conditions, which represent existing nonpoint source loadings and point source loadings at permit limits. Baseline conditions allow for an evaluation of instream water quality under the highest expected loading conditions. The MDAS model was run for baseline conditions using hourly precipitation data for a representative six-year simulation period (January 1, 2013 through December 31, 2018). The precipitation experienced over this period

was applied to the land uses and pollutant sources as they existed at the time of TMDL development. Predicted instream concentrations were compared directly with the TMDL endpoints. This comparison allowed for the evaluation of the magnitude and frequency of exceedances under a range of hydrologic and environmental conditions.

The MDAS model provided allocations for total iron, total selenium dissolved aluminum, pH, and fecal coliform bacteria in the 278 impaired stream segments of the Lower Guyandotte River Watershed. The TMDLs are shown in Section 10.0 and are presented as daily loads, in pounds per day, pounds of calcium carbonate per day (for pH), or counts per day. EPA has determined that these TMDLs are consistent with statutory and regulatory requirements and EPA's policy and guidance. EPA's rationale for establishing these TMDLs is set forth according to the regulatory requirements listed below.

IV. Discussion of Regulatory Requirements

EPA has determined that the TMDL is consistent with statutory and regulatory requirements and EPA's policy and guidance. EPA's rational for approving the TMDL is set forth according to the regulatory requirements listed below.

1) TMDLs are designed to meet the applicable water quality standards.

EPA regulations at 40 CFR 130.7(c)(1) states that TMDLs shall be established at levels necessary to attain and maintain the applicable narrative and numerical WQS for those pollutants for which TMDLs have been established. Water quality standards are state regulations that define the water quality goals of a waterbody. Water quality standards are comprised of three components: (1) designated uses, (2) criteria (numeric or narrative) necessary to protect those uses, and (3) antidegradation provisions that prevent the degradation of water quality.

The applicable numeric water quality criteria are discussed in Section 2.2 and shown in Table 2-1 of the TMDL Report, and Table 9-1 shows the TMDL endpoints used to attain water quality standards. Designated uses in the Lower Guyandotte River Watershed include: propagation and maintenance of aquatic life in warmwater fisheries and trout waters, water contact recreation, and public water supply. In various streams in the Lower Guyandotte River Watershed, warmwater fishery aquatic life use impairments have been determined pursuant to exceedances of total iron, total selenium, dissolved aluminum, and/or pH numeric water quality criteria. Water contact recreation and/or public water supply use impairments have also been determined in various waters pursuant to exceedances of numeric water quality criteria for fecal coliform bacteria, total iron, pH, and total selenium.

All West Virginia waters are subject to the narrative criteria in Section 3 of the West Virginia Water Quality Standards. That section, titled *Conditions Not Allowed in State Waters*, contains various general provisions related to water quality. The TMDLs presented in Section 10.0 are based upon the water quality criteria that are currently developed. Where there is an applicable numeric criterion for a particular pollutant and uses, it is reasonable to use that

criterion as the quantitative implementation of the narrative standard and designated uses. If the West Virginia Legislature adopts water quality standard revisions that alter the basis upon which the TMDL is developed, then the TMDL and allocations may be modified as warranted. Any future water quality standard revision and/or TMDL modification must receive EPA approval. Based on the foregoing, EPA finds the TMDL is designed to meet the applicable water quality standards.

2) TMDLs include wasteload allocations and load allocations.

EPA regulations at 40 CFR §130.2(i) define total maximum daily load (TMDL) as the sum of the wasteload allocations (WLAs) for point sources and load allocations (LAs) for nonpoint sources and natural background. The development of the WLAs and LAs is further discussed below.

Wasteload Allocations

According to federal regulations at 40 CFR §130.2(h), a WLA is the portion of a receiving water's loading capacity that is allocated to one of its existing or future point sources of pollution. As described in section 9.6, WLA's were developed and assigned[4] for facilities permitted to discharge iron, selenium or fecal coliform bacteria.

Outlined in detail in the technical appendix allocation spreadsheets and described in section 7.0 of the TMDL report, fecal coliform waste load allocations were assigned to 11 POTWs (including 5 CSO outlets), one mining bathhouse, one MS4 General Permit with 4 individual registrations, the WV Division of Highways (WVDOH), 43 facilities registered under the "package plant" sewer general permit, and 391 facilities registered under the home aeration unit general permit. Iron allocations were assigned to 17 mining permits, 1 solid waste landfill, 21 storm water industrial permits, 3 water treatment plant permits, one MS4 General Permit with 4 individual registrations, and 4 WVDOH permits. Selenium waste load allocations were assigned to 11 mining permits.

Tables 10-1, 10-4, and 10-5 of the TMDL Report provide the iron, selenium, and fecal coliform bacteria WLA, respectively, for the Lower Guyandotte River Watershed. (No WLA were assigned for pH and aluminum.) Loads are divided into assessment units. The TMDLs for iron, aluminum and selenium are presented as average daily loads derived from annual loads divided by 365 days/yr, in pounds per day. TMDLs for pH are presented as average daily net acidity load expressed in pounds of CaCO3/day derived from annual loads divided by 365 days/yr. The TMDLs for fecal coliform bacteria are presented in average number of colonies per day derived from annual colonies divided by 365 days/yr. Based on the foregoing, EPA finds that both annual and daily WLAs included in the TMDL satisfy the regulations at 40 CFR Part 130.

[4] The fact that the TMDL does not assign WLAs to any other sources in the watershed should not be construed as a determination by either EPA or WVDEP that there are no additional sources in the watershed that are subject to the NPDES program.

WVDEP is authorized to administer the National Pollutant Discharge Elimination System (NPDES) Program, which, among other duties, includes issuing NPDES permits to existing or futures point sources subject to the NPDES program. The effluent limitations in any new or revised NPDES permits must be consistent with "the assumptions and requirements of any available [WLA]" in an approved TMDL pursuant to 40 CFR §122.44 (d)(1)(vii)(B). EPA has authority to object to the issuance of an NPDES permit that is inconsistent with the assumptions and requirements of WLAs established for that point source. It is expected that WVDEP will require periodic monitoring of the point source(s), through the NPDES permit process, to determine compliance with the TMDL's WLAs.

Load Allocations

According to federal regulations at 40 CFR §130.2(g), an LA is the portion of a receiving water's loading capacity that is attributed either to one of its existing or future nonpoint sources of pollution or to natural background sources. LA are best estimates of the loading, which may range from reasonably accurate estimates to gross allotments, depending on the availability of data and appropriate techniques for predicting the loading. This requirement is addressed in sections 5.2 for iron, selenium, and aluminum, section 6.0 for pH (net acidity), and section 7.2 for fecal coliform[5].

Total iron LAs were provided for the dominant nonpoint sources of iron in the watershed, including: abandoned mine lands, background loadings associated with undisturbed forests and grasslands, and sediment contributions from barren lands, harvested forest, oil and gas well operations, agricultural land uses, urban residential land uses, roads, and streambank erosion. Streambank erosion has been determined to be a significant sediment source across the watershed.

Selenium LA's were assigned to Abandoned Mine Lands (AML) (lands affected by mining prior to passage of SMCRA in 1977), Legacy Mining (mined areas permitted and released after SMCRA was enacted), and background sources. Aluminum and pH (net acidity) LA's were assigned to AML and background sources. Sediment sources do not substantially contribute to dissolved Al, pH, or total Se impairments in this watershed. So, background sources for Al, pH, and Se in this watershed include all sources, not just undisturbed forest and grassland, which may contribute sediment to the streams.

Fecal coliform LAs were assigned to: pasture/cropland, on-site sewage systems including failing septic systems, residential loadings associated with urban/residential runoff from non-MS4 areas, and background loadings associated with wildlife sources. Discharges of sewage from the approximately 13,500 homes in the watershed that are not served by a centralized collection

[5] EPA's approval of these TMDLs does not mean that EPA has determined there are no point sources within the land use categories that are assigned load allocations in the TMDL. EPA's review and approval of these TMDLs does not represent a determination whether some of the sources discussed in the TMDL report, under appropriate conditions, might be subject to the NPDES program.

and treatment system and are within 100 meters of a stream are a significant nonpoint source of fecal coliform bacteria in the Lower Guyandotte River Watershed.

Section 10 of the TMDL report (tables 10-1, 10-2, 10-3, 10-4, and 10-5) and the technical appendices provide the iron, pH, aluminum, selenium, and fecal coliform bacteria LA, respectively, for the Lower Guyandotte River Watershed. Daily loads are based on the annual load divided by 365 days/year. Based on the foregoing, EPA finds that both annual and daily LAs included in the TMDL satisfy the regulations at 40 CFR Part 130.

3) TMDLs consider natural background sources.

According to Federal regulations at 40 CFR §130.2(g & i), natural background sources of pollutants are part of the LA and, wherever possible, natural and nonpoint source loads should be distinguished. The Lower Guyandotte River Watershed TMDLs consider the impact of natural background pollutant contributions by evaluating loadings from background sources like undisturbed forest and grasslands and wildlife. MDAS also considers background pollutant contributions by modeling all land uses. Section 7.2.4 of the TMDL Report states that on the basis of the low fecal accumulation rates for forested areas, storm water sampling results, and model simulations, wildlife is not considered to be a significant nonpoint source of fecal coliform bacteria in the watershed. In addition, Sections 9.7.1, 9.7.2 and 9.7.3 of the TMDL Report state that loading associated with undisturbed forest and grassland and wildlife sources are included in the LA. Based on the foregoing, EPA finds the TMDL accounts for natural background sources consistent with the regulations at 40 CFR §130.2(g & i).

4) TMDLs consider critical conditions.

EPA regulations at 40 CFR §130.7(c)(1) require TMDLs to account for critical conditions for stream flow, loading, and water quality parameters. West Virginia's TMDL Report explains that a critical condition represents a scenario where water quality criteria are most susceptible to violation. Analysis of water quality data for the impaired streams addressed in the Lower Guyandotte River Watershed shows high pollutant concentrations during both high- and low-flow thereby precluding selection of a single critical condition. Both high-flow and low-flow periods were taken into account during TMDL development by using a long period of weather data that represented wet, dry, and average flow periods included in a representative six-year simulation period (January 1, 2013 through December 31, 2018). Figure 9-3 of the TMDL Report presents the range of precipitation conditions and the years that were used for TMDL development. The TMDL Report addresses this requirement in section 9.7.6. Based on the foregoing, EPA finds that the TMDL accounts for critical conditions consistent with the regulations at 40 CFR §130.7(c)(1).

5) TMDLs consider seasonal variations.

EPA regulations at 40 CFR §130.7(c)(1) require TMDLs to consider seasonal variations. Seasonal variation was considered in the formulation of the modeling analysis. Continuous

simulation (modeling over a period of several years that captured precipitation extremes) inherently considers seasonal hydrologic and source loading variability. The pollutant concentrations simulated on a daily time step by the model were compared with TMDL endpoints. Allocations that met these endpoints throughout the modeling period were developed. The TMDL Report addresses this requirement in section 9.7.5. Based on the foregoing, EPA finds the TMDL has been established at levels necessary to attain and maintain the applicable water quality standards with seasonal variations consistent with the regulations at 40 CFR §130.7(c)(1).

6) TMDLs include a margin of safety.

EPA regulations at 40 CFR §130.7(c)(1) require TMDLs to include a margin of safety (MOS). The MOS is an accounting of uncertainty about the relationship between pollutant loads and receiving water quality. It can be provided implicitly through analytical assumptions or explicitly by reserving a portion of loading capacity. In the Lower Guyandotte River Watershed TMDLs, an explicit five percent MOS was included to counter uncertainty in the modeling process. Long-term water quality monitoring data were used for model calibration. Although these data represented actual conditions, they were not of a continuous time series and might not have captured the full range of instream conditions that occurred during the simulation period. Section 9.6.1 discusses the explicit MOS used in these TMDLs. Based on the foregoing, EPA finds that WVDEP has incorporated a MOS into the TMDL consistent with the regulations at 40 CFR §130.7(c)(1).

7) TMDLs have been subject to public participation.

EPA regulations at 40 CFR §130.7(c)(1)(ii) requires TMDLs to be subject to public review and the State implements a process for involving the public in development of TMDLs. This requirement is addressed in section 12.0 of the TMDL Report. The availability of draft TMDLs was advertised via email, social media, and news release. The notice was shared directly with interested stakeholders. Interested parties were invited to submit comments during the public comment period, which began on June 14, 2021 and ended on July 14, 2021. WVDEP re-published the draft with corrections on Oct 4, 2021, and the second comment period ended Nov 4, 2021. The electronic documents were also posted on the WVDEP's internet site at www.dep.wv.gov/tmdl. An ESRI StoryMap has been created to provide an overview of the TMDL at https://arcg.is/0qjmCm. Based on the foregoing, EPA finds that the TMDL has been subject to WVDEP's public participation process.

V. Discussion of Reasonable Assurance

The CWA section 303(d) requires that a TMDL be "established at a level necessary to implement the applicable water quality standard." Documenting adequate reasonable assurance increases the probability that regulatory and voluntary mechanisms will be applied such that the pollution reduction levels specified in the TMDL are achieved and, therefore, applicable water quality standards are attained.

Where a TMDL is developed for waters impaired by both point and nonpoint sources, in EPA's best professional judgment, determinations of reasonable assurance that the TMDL's LAs will be achieved could include whether practices capable of reducing the specified pollutant load: (1) exist; (2) are technically feasible at a level required to meet allocations; and (3) are likely to be implemented. Where there is a demonstration that nonpoint source load reductions can and will be achieved, a TMDL writer can determine that reasonable assurance exists and, on the basis of that reasonable assurance, allocate greater loadings to point sources.

Reasonable assurance is addressed in section 13.0 of the TMDL Report. Based on the foregoing, EPA finds acceptable the reasonable assurances set forth in the TMDL Report. To the extent public comment states that the TMDL Report lacks implementation plans for the load allocations, although TMDLs should include reasonable assurance, neither CWA Section 303(d)(1)(C) nor 40 C.F.R. § 130.2(i) require that TMDLs include plans to implement the TMDL.

Attachment 1

Waterbodies and Impairments Addressed in the Lower Guyandotte River Watershed TMDL (Provided in Table 3-3 in TMDL Report)

TMDL Watershed	NHD Code	Stream Name	WV Code	pH	DO	Fe	Al	Se	FC
Guyandotte River (Lower)	WV-OGL	Guyandotte River(Lower)	WVOG-lo			X			X
Deitz Hollow (PatsBranch)	WV-OGL-1	Deitz Hollow (PatsBranch)	WVOG-0.5						X
Russell Creek	WV-OGL-5	Russell Creek	WVOG-1			M			X
Russell Creek	WV-OGL-5-A	UNT/Russell CreekRM 0.20	WVOG-1-A			M			X
Davis Creek	WV-OGL-12	Davis Creek	WVOG-3			M			X
Davis Creek	WV-OGL-12-B	Edens Branch	WVOG-3-0.5A			M			X
Davis Creek	WV-OGL-12-D	Left Fork/Davis Creek	WVOG-3-A			M			X
Davis Creek	WV-OGL-12-C	Right Fork/Davis Creek	WVOG-3-B			M			X
Mill Creek	WV-OGL-15	Mill Creek	WVOG-6			M			X
Mill Creek	WV-OGL-15-A	UNT/Mill Creek RM0.21	WVOG-6-A			M			X
Lower Tom Creek	WV-OGL-18	Lower Tom Creek	WVOG-8			M			X
Lower Tom Creek	WV-OGL-18-B	UNT/Lower TomCreek RM 0.63				M			
Heath Creek	WV-OGL-23	Heath Creek	WVOG-9			M			X
Heath Creek	WV-OGL-23-B	Upper Heath Creek	WVOG-9-A			M			X
Heath Creek	WV-OGL-23-C	UNT/Heath Creek RM1.56				M			
Merritt Creek	WV-OGL-24	Merritt Creek	WVOG-10			M			X

TMDL Watershed	NHD Code	Stream Name	WV Code	pH	DO	Fe	Al	Se	FC
Merritt Creek	WV-OGL-24-B	Right Fork/Merritt Creek	WVOG-10-A			M			X
Smith Creek	WV-OGL-27	Smith Creek	WVOG-11			M			X
Cavill Creek	WV-OGL-28	Cavill Creek	WVOG-12						X
Tom Creek	WV-OGL-29	Tom Creek	WVOG-13			M			X
Trace Creek	WV-OGL-30	Trace Creek	WVOG-14			M			X
Trace Creek	WV-OGL-30-C	UNT/Trace Creek RM 2.88	WVOG-14-C			M			X
Tyler Creek	WV-OGL-31	Tyler Creek	WVOG-15			M			X
Madison Creek	WV-OGL-34	Madison Creek	WVOG-17			X			X
Madison Creek	WV-OGL-34-B	UNT/Madison Creek RM 2.11	WVOG-17-B			M			
Bear Creek	WV-OGL-35	Bear Creek	WVOG-18			M			X
Bear Creek	WV-OGL-35-B	UNT/Bear Creek RM 1.23				M			
Twomile Creek	WV-OGL-38	Twomile Creek	WVOG-20			M			X
Falls Creek	WV-OGL-42	Falls Creek	WVOG-22			M			
Onemile Creek	WV-OGL-44	Onemile Creek	WVOG-23			M			X
Onemile Creek	WV-OGL-44-B	UNT/Onemile Creek RM 0.55				M			
Onemile Creek	WV-OGL-46	UNT/Guyandotte River RM 33.39	WVOG-23.8			X			X
Twomile Creek	WV-OGL-47	Twomile Creek	WVOG-24			M			X
Twomile Creek	WV-OGL-47-D	Bee Branch	WVOG-24-A			M			
Fourmile Creek	WV-OGL-53	Fourmile Creek	WVOG-27			M			X
Fourmile Creek	WV-OGL-53-B	Lowgap Branch	WVOG-27-A						X
Fourmile Creek	WV-OGL-53-C	Trace Fork	WVOG-27-B			M			X

TMDL Watershed	NHD Code	Stream Name	WV Code	pH	DO	Fe	Al	Se	FC
Fourmile Creek	WV-OGL-53-D	Harless Fork	WVOG-27-C			X			X
Fourmile Creek	WV-OGL-53-G	Kentuck Fork	WVOG-27-D						X
Fourmile Creek	WV-OGL-53-O	Red River Fork	WVOG-27-G			M			X
Fourmile Creek	WV-OGL-53-O-2	Sulphur Spring Branch	WVOG-27-G-1			M			
Fourmile Creek	WV-OGL-53-W	Falls Branch	WVOG-27-H			M			X
Fourmile Creek	WV-OGL-53-X	McClarity Branch	WVOG-27-I			M			X
Sixmile Creek	WV-OGL-60	Sixmile Creek	WVOG-29			M			
Sixmile Creek	WV-OGL-60-C	Bluelick Branch	WVOG-29-B			M			
Guyandotte River (Lower)	WV-OGL-63	Stout Creek	WVOG-30			M			
Ninemile Creek	WV-OGL-64	Ninemile Creek	WVOG-31			M			X
Ninemile Creek	WV-OGL-64-D	Hager Fork	WVOG-31-0.5A			M			X
Ninemile Creek	WV-OGL-64-G	Dick Fork	WVOG-31-A			M			
Ninemile Creek	WV-OGL-64-I	Spears Fork	WVOG-31-B			M			
Tenmile Creek	WV-OGL-66	Tenmile Creek	WVOG-32			X			X
Tenmile Creek	WV-OGL-66-C	Buck Branch	WVOG-32-A			M			
Tenmile Creek	WV-OGL-66-I	Upper Twin Branch	WVOG-32-C			M			
Tenmile Creek	WV-OGL-66-O	Plum Branch	WVOG-32-F			M			
Furnett Creek	WV-OGL-69	Furnett Creek	WVOG-33			M			
Fourteenmile Creek	WV-OGL-75	Fourteenmile Creek	WVOG-34			M			X
Fourteenmile Creek	WV-OGL-75-A	Lick Branch	WVOG-34-A			M			X
Fourteenmile Creek	WV-OGL-75-B	East Fork/Fourteenmile Creek	WVOG-34-B			M			X
Fourteenmile Creek	WV-OGL-75-F	Sulphur Spring Fork	WVOG-34-D			M			X
Fourteenmile Creek	WV-OGL-75-H	Steer Fork	WVOG-34-E			M			
Fourteenmile Creek	WV-OGL-75-H-1	Nelson Fork	WVOG-34-E-1			M			

TMDL Watershed	NHD Code	Stream Name	WV Code	pH	DO	Fe	Al	Se	FC
Aarons Creek	WV-OGL-80	Aarons Creek	WVOG-35			M			X
Hamilton Creek	WV-OGL-86	Hamilton Creek	WVOG-36			M			X
Little Ugly Creek	WV-OGL-88	Little Ugly Creek	WVOG-37			M			X
Big Ugly Creek	WV-OGL-89	Big Ugly Creek	WVOG-38			M			X
Big Ugly Creek	WV-OGL-89-B	Pigeonroost Creek	WVOG-38-A			M			
Big Ugly Creek	WV-OGL-89-C	Bobby Creek	WVOG-38-B			M			
Big Ugly Creek	WV-OGL-89-E	Big Branch	WVOG-38-C			M			
Big Ugly Creek	WV-OGL-89-G	Laurel Creek	WVOG-38-D			M			X
Big Ugly Creek	WV-OGL-89-G-4	Back Fork	WVOG-38-D-0.7			M			
Big Ugly Creek	WV-OGL-89-G-5	Lick Branch	WVOG-38-D-0.8			M			
Big Ugly Creek	WV-OGL-89-G-6	Charley Trace Fork	WVOG-38-D-1			M			
Big Ugly Creek	WV-OGL-89-G-10	Chestnut Oak Creek	WVOG-38-D-4			M			
Big Ugly Creek	WV-OGL-89-G-11	Right Fork/Laurel Creek	WVOG-38-D-5			M			
Big Ugly Creek	WV-OGL-89-J	Rockhouse Branch	WVOG-38-E			M			
Big Ugly Creek	WV-OGL-89-M	Sulphur Creek	WVOG-38-G			M			X
Big Ugly Creek	WV-OGL-89-R	Broad Branch	WVOG-38-J			M			X
Big Ugly Creek	WV-OGL-89-R-2	Left Fork/Broad Branch	WVOG-38-J-1			M			
Big Ugly Creek	WV-OGL-89-T	Lefthand Creek	WVOG-38-K			M			X
Big Ugly Creek	WV-OGL-89-Y	Little Deadening Creek	WVOG-38-K.7			M			
Big Ugly Creek	WV-OGL-89-Z	Big Deadening Creek	WVOG-38-L			M			
Big Ugly Creek	WV-OGL-89-AA	Fawn Hollow	WVOG-38-M			M			
Big Ugly Creek	WV-OGL-89-AD	Skinned Poplar Branch	WVOG-38-N			M			
Big Ugly Creek	WV-OGL-89-AJ	Trace Branch	WVOG-38-O			M			
Big Ugly Creek	WV-OGL-89-AN	Grassy Fork	WVOG-38-P			M			

TMDL Watershed	NHD Code	Stream Name	WV Code	pH	DO	Fe	Al	Se	FC
Sand Creek	WV-OGL-93	Sand Creek	WVOG-40			M			X
Sand Creek	WV-OGL-93-D	Big Fork	WVOG-40-A			M			
Dry Run	WV-OGL-95	Dry Run	WVOG-41			M			X
Little Harts Creek	WV-OGL-96	Little Harts Creek	WVOG-42			M			X
Little Harts Creek	WV-OGL-96-C	Short Bend Fork	WVOG-42-A			M			X
Little Harts Creek	WV-OGL-96-D	Harvey Fork	WVOG-42-B			M			
Little Harts Creek	WV-OGL-96-E	Laurel Fork	WVOG-42-C			M			X
Little Harts Creek	WV-OGL-96-G	Mudlick Branch	WVOG-42-D			M			X
Big Harts Creek	WV-OGL-99	Big Harts Creek	WVOG-44			M			X
Big Harts Creek	WV-OGL-99-A	West Fork/Big Harts Creek	WVOG-44-A			M			X
Big Harts Creek	WV-OGL-99-A-3	Piney Fork	WVOG-44-A-1			M			X
Big Harts Creek	WV-OGL-99-A-4	Marsh Fork	WVOG-44-A-2			M			X
Big Harts Creek	WV-OGL-99-A-5	Workman Fork	WVOG-44-A-3			M			X
Big Harts Creek	WV-OGL-99-B	Big Branch	WVOG-44-B			M			X
Big Harts Creek	WV-OGL-99-D	Coal Branch	WVOG-44-C			M			
Big Harts Creek	WV-OGL-99-E	Caney Branch	WVOG-44-C.3			M			X
Big Harts Creek	WV-OGL-99-G	Thompson Branch	WVOG-44-C.7			M			X
Big Harts Creek	WV-OGL-99-H	Rockhouse Fork	WVOG-44-D			X			X
Big Harts Creek	WV-OGL-99-J	Smokehouse Fork	WVOG-44-E			M			X
Big Harts Creek	WV-OGL-99-J-5	Browns Run	WVOG-44-E-1			M			X
Big Harts Creek	WV-OGL-99-J-9	White Oak Branch	WVOG-44-E-2			M			X
Big Harts Creek	WV-OGL-99-K	Trace Fork	WVOG-44-F			M			X
Big Harts Creek	WV-OGL-99-K-6	Ivy Branch	WVOG-44-F-3			M			X
Big Harts Creek	WV-OGL-99-L	Buck Fork	WVOG-44-G			M			X
Big Harts Creek	WV-OGL-99-M	Hoover Fork	WVOG-44-H			M			X
Big Harts Creek	WV-OGL-99-N	Henderson Branch	WVOG-44-I			M			X

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Big Harts Creek	WV-OGL-99-Q	Bulwark Branch	WVOG-44-K			M			X
Green Shoals Branch	WV-OGL-106	Green Shoals Branch	WVOG-45			M			X
Abbott Branch	WV-OGL-108	Abbott Branch	WVOG-46			M			X
Limestone Branch	WV-OGL-111	Limestone Branch	WVOG-48			X			X
Big Creek	WV-OGL-112	Big Creek	WVOG-49			M			X
Big Creek	WV-OGL-112-D	Ed Stone Branch	WVOG-49-A			M			X
Big Creek	WV-OGL-112-D-1	North Branch/Ed Stone Branch	WVOG-49-A-1			M			X
Big Creek	WV-OGL-112-E	North Fork/Big Creek	WVOG-49-B			M			X
Big Creek	WV-OGL-112-E-7	Chapman Branch	WVOG-49-B-1			M			X
Big Creek	WV-OGL-112-E-11	Harmon Branch	WVOG-49-B-2			M			X
Big Creek	WV-OGL-112-E-10	Ellis Fork	WVOG-49-B-3			M			X
Big Creek	WV-OGL-112-F	Vickers Branch	WVOG-49-C			M			
Big Creek	WV-OGL-112-G	UNT/Big Creek RM 3.28	WVOG-49-C.1	X		M	X		
Big Creek	WV-OGL-112-I	Trace Fork	WVOG-49-D			M			X
Big Creek	WV-OGL-112-I-4	Hurricane Branch	WVOG-49-D-1			M			X
Big Creek	WV-OGL-112-I-7	Dog Fork	WVOG-49-D-2			M			
Big Creek	WV-OGL-112-H	Garrett Fork	WVOG-49-E			M			X
Big Creek	WV-OGL-112-H-1	Perrys Branch	WVOG-49-E-1			M			
Big Creek	WV-OGL-112-H-2	Kanawha Branch	WVOG-49-E-2			M			X
Big Creek	WV-OGL-112-H-3	Cloverlick Branch	WVOG-49-E-3			M			
Big Creek	WV-OGL-112-H-4	Rocklick Branch	WVOG-49-E-4			M			
Big Creek	WV-OGL-112-H-5	Barker Fork	WVOG-49-E-7			M			
Big Creek	WV-OGL-112-H-5-A	Gore Fork	WVOG-49-E-6			M			
Big Creek	WV-OGL-112-H-6	Hainer Branch	WVOG-49-E-5			M			X
Crawley Creek	WV-OGL-117	Crawley Creek	WVOG-51			X			X

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Crawley Creek	WV-OGL-117-B	Canoe Fork	WVOG-51-B			M			X
Crawley Creek	WV-OGL-117-C	Striker Fork	WVOG-51-C			M			
Crawley Creek	WV-OGL-117-H	Tims Fork	WVOG-51-F			X			X
Crawley Creek	WV-OGL-117-J	Brushy Fork	WVOG-51-G			M			
Crawley Creek	WV-OGL-117-M	South Fork/Crawley Creek	WVOG-51-G.5			M			X
Crawley Creek	WV-OGL-117-M.1	Middle Fork/Crawley Creek	WVOG-51-G.6			M			X
Fowler Branch	WV-OGL-121	Fowler Branch	WVOG-51.5			M			X
Godby Branch	WV-OGL-125	Godby Branch	WVOG-53			M			X
Caney Branch	WV-OGL-129	Caney Branch	WVOG-54			X			X
Rocky Branch	WV-OGL-130	Rocky Branch	WVOG-55			M			X
King Shoal Branch	WV-OGL-134	King Shoal Branch	WVOG-58			M			X
Mill Creek	WV-OGL-135	Mill Creek	WVOG-59			M			X
Mill Creek	WV-OGL-135-F	Long Fork	WVOG-59-C			M			X
Mill Creek	WV-OGL-135-G	Butch Fork	WVOG-59-D			M			X
Big Branch	WV-OGL-136	Big Branch	WVOG-60			M			X
Buffalo Creek	WV-OGL-137	Buffalo Creek	WVOG-61			M			X
Buffalo Creek	WV-OGL-137-E	Right Fork/Buffalo Creek	WVOG-61-A			M			
Snap Creek	WV-OGL-138	Snap Creek	WVOG-62			M			X
Snap Creek	WV-OGL-138-A	UNT/Snap Creek RM 0.43				M			
Snap Creek	WV-OGL-138-B	UNT/Snap Creek RM 0.63	WVOG-62-B			X			X
Crooked Creek	WV-OGL-139	Crooked Creek	WVOG-63			M			X
Peach Creek	WV-OGL-140	Peach Creek	WVOG-64			M			X
Mud River	WV-OGL-10	Mud River	WVOGM			X		X	X

TMDL Watershed	NHD Code	Stream Name	WV Code	pH	DO	Fe	Al	Se	FC
Merrick Creek	WV-OGL-10-A	Merrick Creek	WVOGM-1			M			X
Merrick Creek	WV-OGL-10-B	Tanyard Branch	WVOGM-1.5			M			X
Cyrus Creek	WV-OGL-10-D	Cyrus Creek	WVOGM-2			M			X
Little Cabell Creek	WV-OGL-10-O	Little Cabell Creek	WVOGM-3			M			
Big Cabell Creek	WV-OGL-10-Q	Big Cabell Creek	WVOGM-4			M			X
Big Cabell Creek	WV-OGL-10-Q-6	Rush Hollow	WVOGM-4-F			M			
Big Cabell Creek	WV-OGL-10-Q-7	UNT/Big Cabell Creek RM 3.79				M			
Big Cabell Creek	WV-OGL-10-Q-9	Big Hill Hollow	WVOGM-4-I			M			X
Edmonds Branch	WV-OGL-10-R	Edmonds Branch	WVOGM-5			M			X
Fudges Creek	WV-OGL-10-S	Fudges Creek	WVOGM-6			M			X
Fudges Creek	WV-OGL-10-S-2	Wire Branch	WVOGM-6-0.5A			M			X
Fudges Creek	WV-OGL-10-S-5	Little Fudges Creek	WVOGM-6-A			M			X
Lower Creek	WV-OGL-10-AC	Lower Creek	WVOGM-7			M			X
Lower Creek	WV-OGL-10-AC-2	McComas Branch	WVOGM-7-A			M			
Lower Creek	WV-OGL-10-AC-5	Right Fork/Lower Creek	WVOGM-7-B			M			
Lower Creek	WV-OGL-10-AC-5-B	Tony Branch	WVOGM-7-B-1			M			X
Mill Creek	WV-OGL-10-AD	Mill Creek	WVOGM-8			X			X
Mill Creek	WV-OGL-10-AD-7	Long Branch	WVOGM-8-A			M			X
Mill Creek	WV-OGL-10-AD-9	Left Fork/Mill Creek	WVOGM-8-B			M			
Mill Creek	WV-OGL-10-AD-9-F	UNT/Left Fork RM 2.48/Mill Creek	WVOGM-8-B-6			M			
Mill Creek	WV-OGL-10-AD-10	Right Fork/Mill Creek	WVOGM-8-C			M			X
Saunders Creek	WV-OGL-10-AE	Saunders Creek	WVOGM-9			M			X
Dry Creek	WV-OGL-10-AF	Dry Creek	WVOGM-10			M			X
Johns Branch	WV-OGL-10-AH	Johns Branch	WVOGM-11			M			X

TMDL Watershed	NHD Code	Stream Name	WV Code	pH	DO	Fe	Al	Se	FC
Kilgore Creek	WV-OGL-10-AJ	Kilgore Creek	WVOGM-12			M			X
Kilgore Creek	WV-OGL-10-AJ-2	Indian Fork	WVOGM-12-A			X			X
Kilgore Creek	WV-OGL-10-AJ-4	Lee Creek	WVOGM-12-B						X
Kilgore Creek	WV-OGL-10-AJ-7	Little Creek	WVOGM-12-C			M			X
Brush Creek	WV-OGL-10-AM	Brush Creek	WVOGM-13			M			X
Charley Creek	WV-OGL-10-AO	Charley Creek	WVOGM-14			X			X
Charley Creek	WV-OGL-10-AO-11	Panther Lick	WVOGM-14-D			M			X
Little Twomile Creek	WV-OGL-10-AQ	Little Twomile Creek	WVOGM-15			M			X
Mud River	WV-OGL-10-AR	Big Twomile Creek	WVOGM-16			M			
Trace Creek	WV-OGL-10-AX	Trace Creek	WVOGM-19			M			
Trace Creek	WV-OGL-10-AX-1	Porter Creek				M			
Trace Fork	WV-OGL-10-AY	Trace Fork	WVOGM-20			X			X
Trace Fork	WV-OGL-10-AY-7	Coon Creek	WVOGM-20-A			X			X
Trace Fork	WV-OGL-10-AY-10	Big Creek	WVOGM-20-D			M			X
Trace Fork	WV-OGL-10-AY-10-B	Harvey Creek	WVOGM-20-D-1			M			X
Trace Fork	WV-OGL-10-AY-13	Hungry Creek	WVOGM-20-E			M			
Trace Fork	WV-OGL-10-AY-14	Sycamore Creek	WVOGM-20-F			M			X
Trace Fork	WV-OGL-10-AY-20	Clymer Creek	WVOGM-20-H			M			X
Trace Fork	WV-OGL-10-AY-22	Trace Creek	WVOGM-20-I			M			X
Trace Fork	WV-OGL-10-AY-22-A	Kellys Creek	WVOGM-20-I-1			M			X
Trace Fork	WV-OGL-10-AY-22-A-2	UNT/Kellys Creek RM 1.27	WVOGM-20-I-1-B			M			X
Trace Fork	WV-OGL-10-AY-24	Lick Creek	WVOGM-20-J			M			X
Trace Fork	WV-OGL-10-AY-26	Turkey Creek	WVOGM-20-K			M			X
Trace Fork	WV-OGL-10-AY-26-F	Lefthand Fork	WVOGM-20-K-1			M			X
Trace Fork	WV-OGL-10-AY-30	Bridge Creek	WVOGM-20-M			M			X
Trace Fork	WV-OGL-10-AY-36	Twomile Branch	WVOGM-20-O			M			

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Trace Fork	WV-OGL-10-AY-38	Trace Branch	WVOGM-20-P			M			
Trace Fork	WV-OGL-10-AY-39	Tony Branch	WVOGM-20-Q			M			
Trace Fork	WV-OGL-10-AY-40	Hayzlett Fork	WVOGM-20-R			M			X
Trace Fork	WV-OGL-10-AY-40-G	Donley Fork	WVOGM-20-R-2			M			
Trace Fork	WV-OGL-10-AY-42	Joes Creek	WVOGM-20-T			X			X
Trace Fork	WV-OGL-10-AY-42-D	Laurel Fork	WVOGM-20-T-1			M			X
Trace Fork	WV-OGL-10-AY-42-F	Tango Branch	WVOGM-20-T-2			M			X
Trace Fork	WV-OGL-10-AY-46	Dry Branch	WVOGM-20-W			M			X
Little Buffalo Creek	WV-OGL-10-AZ	Little Buffalo Creek	WVOGM-21			M			X
Buffalo Creek	WV-OGL-10-BA	Buffalo Creek	WVOGM-22			M			X
Buffalo Creek	WV-OGL-10-BA-1	Straight Fork	WVOGM-22-A			M			X
Buffalo Creek	WV-OGL-10-BA-2	UNT/Buffalo Creek RM 1.45				M			
Mud River	WV-OGL-10-BD	Laurel Creek	WVOGM-23			M			
Middle Fork/Mud River	WV-OGL-10-BL	Middle Fork/Mud River	WVOGM-25			X			X
Middle Fork/Mud River	WV-OGL-10-BL-2	Meadow Branch	WVOGM-25-A			M			X
Middle Fork/Mud River	WV-OGL-10-BL-3	Trace Creek	WVOGM-25-B			M			X
Middle Fork/Mud River	WV-OGL-10-BL-4	Middle Creek	WVOGM-25-C			M			X
Middle Fork/Mud River	WV-OGL-10-BL-10	Davis Trace Branch	WVOGM-25-D			M			X
Middle Fork/Mud River	WV-OGL-10-BL-12	Scary Creek	WVOGM-25-E			M			X
Middle Fork/Mud River	WV-OGL-10-BL-12-B	Ruffie Branch	WVOGM-25-E-1			M			
Middle Fork/Mud River	WV-OGL-10-BL-15	Merritt Creek	WVOGM-25-F			M			X
Middle Fork/Mud River	WV-OGL-10-BL-18	Straight Fork	WVOGM-25-H			X			X
Middle Fork/Mud River	WV-OGL-10-BL-18-A	Valley Fork	WVOGM-25-H-1			M			X
Middle Fork/Mud River	WV-OGL-10-BL-18-A-1	Sams Branch	WVOGM-25-H-1-A			M			
Middle Fork/Mud River	WV-OGL-10-BL-18-E	Bear Fork	WVOGM-25-H-2			M			

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Middle Fork/Mud River	WV-OGL-10-BL-18-G	Porter Fork	WVOGM-25-H-3			M			
Middle Fork/Mud River	WV-OGL-10-BL-19	Sugartree Fork	WVOGM-25-I			M			X
Middle Fork/Mud River	WV-OGL-10-BL-19-A	Big Branch	WVOGM-25-I-1			M			X
Middle Fork/Mud River	WV-OGL-10-BL-19-B	Sycamore Fork	WVOGM-25-I-2			M			X
Middle Fork/Mud River	WV-OGL-10-BL-19-E	Sand Fork	WVOGM-25-I-4			X			
Middle Fork/Mud River	WV-OGL-10-BL-19-G	Maul Fork	WVOGM-25-I-6			M			X
Mahone Creek	WV-OGL-10-BR	Mahone Creek	WVOGM-26			M			X
Big Creek	WV-OGL-10-BU	Big Creek	WVOGM-28			M			X
Little Laurel Creek	WV-OGL-10-CB	Little Laurel Creek	WVOGM-30			M			X
Sandlick Branch	WV-OGL-10-CC	Sandlick Branch	WVOGM-31			M			X
Mud River	WV-OGL-10-CF	Panther Branch	WVOGM-32			M			
Big Laurel Creek	WV-OGL-10-CH	Big Laurel Creek	WVOGM-33			M			X
Big Laurel Creek	WV-OGL-10-CH-5	Dry Fork	WVOGM-33-B			M			
Big Laurel Creek	WV-OGL-10-CH-7	Big Branch	WVOGM-33-C			M			
Fez Creek	WV-OGL-10-CK	Fez Creek	WVOGM-34			M			X
Big Creek	WV-OGL-10-CL	Big Creek	WVOGM-35			M			X
Big Creek	WV-OGL-10-CL-1	First Fork	WVOGM-35-A			M			
Big Creek	WV-OGL-10-CL-2	Second Fork	WVOGM-35-A.5			M			
Big Creek	WV-OGL-10-CL-7	Lick Fork	WVOGM-35-C			M			
Big Creek	WV-OGL-10-CL-10	Laurel Fork	WVOGM-35-E			M			
Parsner Creek	WV-OGL-10-CR	Parsner Creek	WVOGM-38			M			X
Parsner Creek	WV-OGL-10-CR-2	Pigeon Branch	WVOGM-38-A			M			
Left Fork/Mud River	WV-OGL-10-CS	Left Fork/Mud River	WVOGM-39			M			X
Left Fork/Mud River	WV-OGL-10-CS-1	Richs Branch	WVOGM-39-A			M			
Left Fork/Mud River	WV-OGL-10-CS-3	Senging Branch	WVOGM-39-B			M			
Left Fork/Mud River	WV-OGL-10-CS-5	Elkins Branch	WVOGM-39-D			M			
Left Fork/Mud River	WV-OGL-10-CS-6	Stinson Branch	WVOGM-39-E			M			X

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Left Fork/Mud River	WV-OGL-10-CS-6-A	UNT/Stinson Branch RM 0.88				M			
Left Fork/Mud River	WV-OGL-10-CS-8	Sycamore Fork	WVOGM-39-G			M			X
Left Fork/Mud River	WV-OGL-10-CS-8-E	Owl Creek	WVOGM-39-G-3			M			
Left Fork/Mud River	WV-OGL-10-CS-10	Dogbone Branch	WVOGM-39-H			M			X
Left Fork/Mud River	WV-OGL-10-CS-11	Barkcamp Branch	WVOGM-39-I			M			
Upton Branch	WV-OGL-10-CY	Upton Branch	WVOGM-40			M			X
Upton Branch	WV-OGL-10-CY-1	UNT/Upton Branch RM 0.37 (Laurel Fork)	WVOGM-40-A			M			
Bear Branch	WV-OGL-10-DC	Bear Branch	WVOGM-41			M			X
Slab Creek	WV-OGL-10-DG	Slab Creek	WVOGM-42			M			X
Stonecoal Branch	WV-OGL-10-DM	Stonecoal Branch	WVOGM-43			M		X	
Berry Branch	WV-OGL-10-DN	Berry Branch	WVOGM-44			M		X	
Mullins Branch	WV-OGL-10-DO	Mullins Branch	WVOGM-45			M		X	
Connelly Branch	WV-OGL-10-DS	Connelly Branch	WVOGM-46			M		X	
Sugartree Branch	WV-OGL-10-DW	Sugartree Branch	WVOGM-47			M		X	
Stanley Fork	WV-OGL-10-DX	Stanley Fork	WVOGM-48			M		X	
Ballard Fork	WV-OGL-10-EA	Ballard Fork	WVOGM-49			M			
Lukey Fork	WV-OGL-10-EC	Lukey Fork	WVOGM-50			X		X	

Note:

RM	river mile
UNT	unnamed tributary
Trout	trout stream cold-water fishery
Fe	iron impairment
Se	selenium impairment
FC	fecal coliform bacteria impairment
M	impairment determined via modeling
X	impairment determined via sampling

Attachment 2

Individual TMDLs in the Lower Guyandotte River Watershed TMDL (Provided in Section 10 of the TMDL Report)

1.0 Iron TMDLs

TMDL Watershed	AUID Stream Code	Stream Name	WV Code	Load Allocation (lbs/day)	Wasteload Allocation (lbs/day)	Margin of Safety (lbs/day)	Iron TMDL (lbs/day)
Guyandotte River (Lower)	WV-OGL_13	Guyandotte River (lower)	WVOG-lo	11070.68	2754.98	727.67	14553.33
Russell Creek	WV-OGL-5_01	Russell Creek	WVOG-1	5.62	1.10	0.35	7.08
Russell Creek	WV-OGL-5-A_01	UNT/Russell Creek RM 0.20	WVOG-1-A	1.64	0.31	0.10	2.05
Mud River	WV-OGL-10_08	Mud River	WVOGM	1484.07	425.81	100.52	2010.41
Merrick Creek	WV-OGL-10-A_01	Merrick Creek	WVOGM-1	5.26	1.33	0.35	6.94
Tanyard Branch	WV-OGL-10-B_01	Tanyard Branch	WVOGM-1.5	0.03	1.87	0.10	2.00
Cyrus Creek	WV-OGL-10-D_01	Cyrus Creek	WVOGM-2	3.73	1.29	0.26	5.28
Little Cabell Creek	WV-OGL-10-O_01	Little Cabell Creek	WVOGM-3	5.68	0.97	0.35	7.00
Big Cabell Creek	WV-OGL-10-Q_02	Big Cabell Creek	WVOGM-4	20.07	3.13	1.22	24.42
Big Cabell Creek	WV-OGL-10-Q-6_01	Rush Hollow	WVOGM-4-F	1.85	0.33	0.11	2.30
Big Cabell Creek	WV-OGL-10-Q-7_01	UNT/Big Cabell Creek RM 3.79		1.77	0.28	0.11	2.16
Big Cabell Creek	WV-OGL-10-Q-9_01	Big Hill Hollow	WVOGM-4-I	3.16	0.54	0.19	3.90
Big Cabell Creek	WV-OGL-10-Q_01	Big Cabell Creek	WVOGM-4	6.45	1.09	0.40	7.94
Edmonds Branch	WV-OGL-10-R_01	Edmonds Branch	WVOGM-5	1.89	0.30	0.12	2.31
Fudges Creek	WV-OGL-10-S_01	Fudges Creek	WVOGM-6	17.80	2.80	1.08	21.68
Fudges Creek	WV-OGL-10-S-2_01	Wire Branch	WVOGM-6-0.5A	2.00	0.35	0.12	2.47
Fudges Creek	WV-OGL-10-S-5_01	Little Fudges Creek	WVOGM-6-A	3.39	0.58	0.21	4.17
Lower Creek	WV-OGL-10-AC_02	Lower Creek	WVOGM-7	15.41	2.28	0.93	18.63
Lower Creek	WV-OGL-10-AC-2_01	McComas Branch	WVOGM-7-A	3.00	0.49	0.18	3.67
Lower Creek	WV-OGL-10-AC-5_01	Right Fork/Lower Creek	WVOGM-7-B	5.05	0.77	0.31	6.13
Lower Creek	WV-OGL-10-AC-5-B_01	Tony Branch	WVOGM-7-B-1	1.27	0.19	0.08	1.53
Mill Creek	WV-OGL-10-AD_02	Mill Creek	WVOGM-8	22.71	3.19	1.36	27.27
Mill Creek	WV-OGL-10-AD-7_01	Long Branch	WVOGM-8-A	1.75	0.25	0.11	2.11
Mill Creek	WV-OGL-10-AD-9_01	Left Fork/Mill Creek	WVOGM-8-B	9.37	1.24	0.56	11.17
Mill Creek	WV-OGL-10-AD-9-F_01	UNT/Left Fork RM 2.48/Mill Creek	WVOGM-8-B-6	1.63	0.20	0.10	1.92

TMDL Watershed	AUID Stream Code	Stream Name	WV Code	Load Allocation (lbs/day)	Wasteload Allocation (lbs/day)	Margin of Safety (lbs/day)	Iron TMDL (lbs/day)
Mill Creek	WV-OGL-10-AD-10_01	Right Fork/Mill Creek	WVOGM-8-C	4.45	0.70	0.27	5.42
Saunders Creek	WV-OGL-10-AE_01	Saunders Creek	WVOGM-9	4.64	0.75	0.28	5.67
Dry Creek	WV-OGL-10-AF_01	Dry Creek	WVOGM-10	2.04	0.36	0.13	2.53
Johns Branch	WV-OGL-10-AH_01	Johns Branch	WVOGM-11	2.26	0.84	0.16	3.26
Kilgore Creek	WV-OGL-10-AJ_03	Kilgore Creek	WVOGM-12	29.36	10.35	2.09	41.79
Kilgore Creek	WV-OGL-10-AJ-2_01	Indian Fork	WVOGM-12-A	7.48	5.72	0.70	13.90
Kilgore Creek	WV-OGL-10-AJ_02	Kilgore Creek	WVOGM-12	19.98	3.70	1.25	24.92
Kilgore Creek	WV-OGL-10-AJ-7_01	Little Creek	WVOGM-12-C	2.75	0.45	0.17	3.36
Kilgore Creek	WV-OGL-10-AJ_01	Kilgore Creek	WVOGM-12	7.93	1.19	0.48	9.60
Mud River	WV-OGL-10_07	Mud River	WVOGM	1103.64	293.24	73.52	1470.40
Brush Creek	WV-OGL-10-AM_01	Brush Creek	WVOGM-13	1.02	0.15	0.06	1.23
Charley Creek	WV-OGL-10-AO_02	Charley Creek	WVOGM-14	22.17	3.58	1.36	27.11
Charley Creek	WV-OGL-10-AO_01	Charley Creek	WVOGM-14	9.41	1.68	0.58	11.68
Charley Creek	WV-OGL-10-AO-11_01	Panther Lick	WVOGM-14-D	1.52	0.26	0.09	1.87
Little Twomile Creek	WV-OGL-10-AQ_01	Little Twomile Creek	WVOGM-15	2.17	0.36	0.13	2.67
Mud River	WV-OGL-10-AR_01	Big Twomile Creek	WVOGM-16	6.24	1.03	0.38	7.65
Trace Creek	WV-OGL-10-AX_01	Trace Creek	WVOGM-19	8.27	1.38	0.51	10.15
Trace Creek	WV-OGL-10-AX-1_01	Porter Creek		2.84	0.52	0.18	3.53
Trace Fork	WV-OGL-10-AY_06	Trace Fork	WVOGM-20	265.96	33.04	15.74	314.75
Trace Fork	WV-OGL-10-AY-7_01	Coon Creek	WVOGM-20-A	5.46	1.05	0.34	6.85
Trace Fork	WV-OGL-10-AY-10_02	Big Creek	WVOGM-20-D	25.25	4.37	1.56	31.19
Trace Fork	WV-OGL-10-AY-10-B_01	Harvey Creek	WVOGM-20-D-1	5.31	1.01	0.33	6.65
Trace Fork	WV-OGL-10-AY-10_01	Big Creek	WVOGM-20-D	16.35	2.87	1.01	20.23
Trace Fork	WV-OGL-10-AY_05	Trace Fork	WVOGM-20	210.25	26.17	12.44	248.86
Trace Fork	WV-OGL-10-AY-13_01	Hungry Creek	WVOGM-20-E	4.95	0.95	0.31	6.21
Trace Fork	WV-OGL-10-AY-14_01	Sycamore Creek	WVOGM-20-F	9.31	1.63	0.58	11.51
Trace Fork	WV-OGL-10-AY-20_01	Clymer Creek	WVOGM-20-H	13.89	2.36	0.86	17.10
Trace Fork	WV-OGL-10-AY_04	Trace Fork	WVOGM-20	150.88	19.09	8.95	178.91
Trace Fork	WV-OGL-10-AY-22_01	Trace Creek	WVOGM-20-I	7.38	1.07	0.44	8.89
Trace Fork	WV-OGL-10-AY-22-A_01	Kellys Creek	WVOGM-20-I-1	3.38	0.51	0.20	4.09
Trace Fork	WV-OGL-10-AY-22-A-2_01	UNT/Kellys Creek RM 1.27	WVOGM-20-I-1-B	0.64	0.09	0.04	0.77
Trace Fork	WV-OGL-10-AY-24_01	Lick Creek	WVOGM-20-J	8.71	1.53	0.54	10.78
Trace Fork	WV-OGL-10-AY-26_01	Turkey Creek	WVOGM-20-K	14.30	2.34	0.88	17.52
Trace Fork	WV-OGL-10-AY-26-F_01	Lefthand Fork	WVOGM-20-K-1	2.30	0.43	0.14	2.87

TMDL Watershed	AUID Stream Code	Stream Name	WV Code	Load Allocation (lbs/day)	Wasteload Allocation (lbs/day)	Margin of Safety (lbs/day)	Iron TMDL (lbs/day)
Trace Fork	WV-OGL-10-AY-30_01	Bridge Creek	WVOGM-20-M	7.34	1.32	0.46	9.12
Trace Fork	WV-OGL-10-AY-36_01	Twomile Branch	WVOGM-20-O	2.19	0.39	0.14	2.72
Trace Fork	WV-OGL-10-AY_03	Trace Fork	WVOGM-20	72.65	9.74	4.34	86.72
Trace Fork	WV-OGL-10-AY-38_01	Trace Branch	WVOGM-20-P	2.72	0.49	0.17	3.38
Trace Fork	WV-OGL-10-AY-39_01	Tony Branch	WVOGM-20-Q	2.79	0.52	0.17	3.48
Trace Fork	WV-OGL-10-AY-40_01	Hayzlett Fork	WVOGM-20-R	16.97	2.42	1.02	20.41
Trace Fork	WV-OGL-10-AY-40-G_01	Donley Fork	WVOGM-20-R-2	3.04	0.46	0.18	3.68
Trace Fork	WV-OGL-10-AY-42_02	Joes Creek	WVOGM-20-T	23.24	3.61	1.41	28.26
Trace Fork	WV-OGL-10-AY-42-D_01	Laurel Fork	WVOGM-20-T-1	6.96	1.15	0.43	8.54
Trace Fork	WV-OGL-10-AY-42_01	Joes Creek	WVOGM-20-T	8.58	1.49	0.53	10.60
Trace Fork	WV-OGL-10-AY-42-F_01	Tango Branch	WVOGM-20-T-2	3.31	0.59	0.21	4.10
Trace Fork	WV-OGL-10-AY_01	Trace Fork	WVOGM-20	12.35	1.87	0.75	14.97
Trace Fork	WV-OGL-10-AY-46_01	Dry Branch	WVOGM-20-W	2.85	0.39	0.17	3.41
Mud River	WV-OGL-10_06	Mud River	WVOGM	644.36	251.15	47.13	942.64
Little Buffalo Creek	WV-OGL-10-AZ_01	Little Buffalo Creek	WVOGM-21	2.31	0.42	0.14	2.87
Buffalo Creek	WV-OGL-10-BA_01	Buffalo Creek	WVOGM-22	15.01	2.50	0.92	18.42
Buffalo Creek	WV-OGL-10-BA-1_01	Straight Fork	WVOGM-22-A	2.67	0.46	0.16	3.30
Buffalo Creek	WV-OGL-10-BA-2_01	UNT/Buffalo Creek RM 1.45		4.35	0.78	0.27	5.39
Mud River	WV-OGL-10-BD_01	Laurel Creek	WVOGM-23	2.97	0.54	0.18	3.69
Middle Fork/Mud River	WV-OGL-10-BL_04	Middle Fork/Mud River	WVOGM-25	161.64	21.11	9.62	192.37
Middle Fork/Mud River	WV-OGL-10-BL-2_01	Meadow Branch	WVOGM-25-A	1.71	0.32	0.11	2.14
Middle Fork/Mud River	WV-OGL-10-BL-3_01	Trace Creek	WVOGM-25-B	9.36	1.71	0.58	11.64
Middle Fork/Mud River	WV-OGL-10-BL-4_01	Middle Creek	WVOGM-25-C	6.48	1.13	0.40	8.01
Middle Fork/Mud River	WV-OGL-10-BL-10_01	Davis Trace Branch	WVOGM-25-D	3.79	0.71	0.24	4.74
Middle Fork/Mud River	WV-OGL-10-BL-12_01	Scary Creek	WVOGM-25-E	7.93	1.33	0.49	9.75
Middle Fork/Mud River	WV-OGL-10-BL-12-B_01	Ruffie Branch	WVOGM-25-E-1	1.22	0.23	0.08	1.53
Middle Fork/Mud River	WV-OGL-10-BL-15_01	Merritt Creek	WVOGM-25-F	4.35	0.78	0.27	5.40
Middle Fork/Mud River	WV-OGL-10-BL-18_02	Straight Fork	WVOGM-25-H	43.61	6.78	2.65	53.05
Middle Fork/Mud River	WV-OGL-10-BL-18-A_01	Valley Fork	WVOGM-25-H-1	10.86	1.76	0.66	13.28
Middle Fork/Mud River	WV-OGL-10-BL-18-A-1_01	Sams Branch	WVOGM-25-H-1-A	1.73	0.32	0.11	2.17
Middle Fork/Mud River	WV-OGL-10-BL-18-E_01	Bear Fork	WVOGM-25-H-2	4.87	0.87	0.30	6.05
Middle Fork/Mud River	WV-OGL-10-BL-18-G_01	Porter Fork	WVOGM-25-H-3	9.78	1.64	0.60	12.02
Middle Fork/Mud River	WV-OGL-10-BL-18_01	Straight Fork	WVOGM-25-H	9.43	1.73	0.59	11.74
Middle Fork/Mud River	WV-OGL-10-BL-19_02	Sugartree Fork	WVOGM-25-I	29.78	4.88	1.82	36.49

TMDL Watershed	AUID Stream Code	Stream Name	WV Code	Load Allocation (lbs/day)	Wasteload Allocation (lbs/day)	Margin of Safety (lbs/day)	Iron TMDL (lbs/day)
Middle Fork/Mud River	WV-OGL-10-BL-19-A_01	Big Branch	WVOGM-25-I-1	1.76	0.31	0.11	2.19
Middle Fork/Mud River	WV-OGL-10-BL-19-B_01	Sycamore Fork	WVOGM-25-I-2	6.07	1.08	0.38	7.53
Middle Fork/Mud River	WV-OGL-10-BL-19-E_01	Sand Fork	WVOGM-25-I-4	5.80	1.06	0.36	7.22
Middle Fork/Mud River	WV-OGL-10-BL-19_01	Sugartree Fork	WVOGM-25-I	8.49	1.54	0.53	10.56
Middle Fork/Mud River	WV-OGL-10-BL-19-G_01	Maul Fork	WVOGM-25-I-6	3.23	0.61	0.20	4.04
Mud River	WV-OGL-10_05	Mud River	WVOGM	367.70	223.36	31.11	622.18
Mahone Creek	WV-OGL-10-BR_01	Mahone Creek	WVOGM-26	5.65	1.01	0.35	7.01
Big Creek	WV-OGL-10-BU_01	Big Creek	WVOGM-28	5.53	1.00	0.34	6.87
Little Laurel Creek	WV-OGL-10-CB_01	Little Laurel Creek	WVOGM-30	4.62	0.84	0.29	5.74
Sandlick Branch	WV-OGL-10-CC_01	Sandlick Branch	WVOGM-31	1.46	0.27	0.09	1.82
Mud River	WV-OGL-10-CF_01	Panther Branch	WVOGM-32	3.42	0.59	0.21	4.22
Big Laurel Creek	WV-OGL-10-CH_01	Big Laurel Creek	WVOGM-33	16.92	2.84	1.04	20.79
Big Laurel Creek	WV-OGL-10-CH-5_01	Dry Fork	WVOGM-33-B	2.56	0.44	0.16	3.16
Big Laurel Creek	WV-OGL-10-CH-7_01	Big Branch	WVOGM-33-C	1.01	0.17	0.06	1.24
Fez Creek	WV-OGL-10-CK_01	Fez Creek	WVOGM-34	3.73	0.68	0.23	4.65
Big Creek	WV-OGL-10-CL_02	Big Creek	WVOGM-35	23.30	3.68	1.42	28.40
Big Creek	WV-OGL-10-CL-1_01	First Fork	WVOGM-35-A	1.77	0.34	0.11	2.22
Big Creek	WV-OGL-10-CL-2_01	Second Fork	WVOGM-35-A.5	1.54	0.27	0.10	1.91
Big Creek	WV-OGL-10-CL-7_01	Lick Fork	WVOGM-35-C	2.12	0.38	0.13	2.64
Big Creek	WV-OGL-10-CL_01	Big Creek	WVOGM-35	11.22	1.92	0.69	13.83
Big Creek	WV-OGL-10-CL-10_01	Laurel Fork	WVOGM-35-E	3.75	0.65	0.23	4.64
Mud River	WV-OGL-10_04	Mud River	WVOGM	200.86	208.05	21.52	430.42
Parsner Creek	WV-OGL-10-CR_01	Parsner Creek	WVOGM-38	7.57	1.30	0.47	9.34
Parsner Creek	WV-OGL-10-CR-2_01	Pigeon Branch	WVOGM-38-A	1.42	0.27	0.09	1.77
Mud River	OGL-10_lake	Mud River	WVOGM	173.31	205.48	19.94	398.73
Left Fork/Mud River	OGL-10-CS_lake	Left Fork/Mud River	WVOGM-39	53.67	7.19	3.20	64.07
Left Fork/Mud River	WV-OGL-10-CS-1_01	Richs Branch	WVOGM-39-A	1.46	0.24	0.09	1.79
Left Fork/Mud River	WV-OGL-10-CS-3_01	Senging Branch	WVOGM-39-B	1.90	0.32	0.12	2.33
Left Fork/Mud River	WV-OGL-10-CS_02	Left Fork/Mud River	WVOGM-39	41.41	6.07	2.50	49.98
Left Fork/Mud River	WV-OGL-10-CS-5_01	Elkins Branch	WVOGM-39-D	2.19	0.37	0.14	2.70
Left Fork/Mud River	WV-OGL-10-CS-6_01	Stinson Branch	WVOGM-39-E	5.64	0.95	0.35	6.94
Left Fork/Mud River	WV-OGL-10-CS-6-A_01	UNT/Stinson Branch RM 0.88		0.65	0.11	0.04	0.80
Left Fork/Mud River	WV-OGL-10-CS-8_01	Sycamore Fork	WVOGM-39-G	9.73	1.55	0.59	11.88
Left Fork/Mud River	WV-OGL-10-CS-8-E_01	Owl Creek	WVOGM-39-G-3	1.32	0.24	0.08	1.64

TMDL Watershed	AUID Stream Code	Stream Name	WV Code	Load Allocation (lbs/day)	Wasteload Allocation (lbs/day)	Margin of Safety (lbs/day)	Iron TMDL (lbs/day)
Left Fork/Mud River	WV-OGL-10-CS_01	Left Fork/Mud River	WVOGM-39	12.75	1.97	0.78	15.50
Left Fork/Mud River	WV-OGL-10-CS-10_01	Dogbone Branch	WVOGM-39-H	3.27	0.55	0.20	4.02
Left Fork/Mud River	WV-OGL-10-CS-11_01	Barkcamp Branch	WVOGM-39-I	1.88	0.30	0.11	2.30
Upton Branch	WV-OGL-10-CY_01	Upton Branch	WVOGM-40	8.67	1.31	0.53	10.51
Upton Branch	WV-OGL-10-CY-1_01	UNT/Upton Branch RM 0.37 (Laurel Fork)	WVOGM-40-A	2.53	0.40	0.15	3.09
Mud River	WV-OGL-10_03	Mud River	WVOGM	90.88	195.71	15.08	301.67
Bear Branch	WV-OGL-10-DC_01	Bear Branch	WVOGM-41	5.48	0.84	0.33	6.65
Slab Creek	WV-OGL-10-DG_01	Slab Creek	WVOGM-42	4.42	0.69	0.27	5.38
Stonecoal Branch	WV-OGL-10-DM_01	Stonecoal Branch	WVOGM-43	2.27	3.02	0.28	5.56
Mud River	WV-OGL-10_02	Mud River	WVOGM	53.83	185.76	12.61	252.20
Berry Branch	WV-OGL-10-DN_01	Berry Branch	WVOGM-44	1.47	37.19	2.03	40.70
Mullins Branch	WV-OGL-10-DO_01	Mullins Branch	WVOGM-45	1.47	14.79	0.86	17.12
Connelly Branch	OGL-10-DS_valley fill	Connelly Branch	WVOGM-46	3.30	27.45	1.62	32.36
Sugartree Branch	WV-OGL-10-DW_01	Sugartree Branch	WVOGM-47	2.13	18.55	1.09	21.77
Stanley Fork	WV-OGL-10-DX_01	Stanley Fork	WVOGM-48	0.45	29.30	1.57	31.31
Ballard Fork	WV-OGL-10-EA_01	Ballard Fork	WVOGM-49	9.65	4.60	0.75	15.00
Lukey Fork	WV-OGL-10-EC_01	Lukey Fork	WVOGM-50	5.41	8.43	0.73	14.57
Mud River	WV-OGL-10_01	Mud River	WVOGM	11.50	4.61	0.85	16.95
Guyandotte River (Lower)	WV-OGL_12	Guyandotte River (lower)	WVOG-lo	9417.57	2101.83	606.28	12125.68
Davis Creek	WV-OGL-12_01	Davis Creek	WVOG-3	10.03	1.75	0.62	12.40
Davis Creek	WV-OGL-12-B_01	Edens Branch	WVOG-3-0.5A	0.74	0.13	0.05	0.92
Davis Creek	WV-OGL-12-C_01	Right Fork/Davis Creek	WVOG-3-B	4.19	0.72	0.26	5.16
Davis Creek	WV-OGL-12-D_01	Left Fork/Davis Creek	WVOG-3-A	3.11	0.54	0.19	3.84
Mill Creek	WV-OGL-15_01	Mill Creek	WVOG-6	3.86	0.95	0.25	5.06
Mill Creek	WV-OGL-15-A_01	UNT/Mill Creek RM 0.21	WVOG-6-A	2.27	0.69	0.16	3.11
Lower Tom Creek	WV-OGL-18_01	Lower Tom Creek	WVOG-8	5.86	1.02	0.36	7.25
Lower Tom Creek	WV-OGL-18-B_01	UNT/Lower Tom Creek RM 0.63		1.96	0.36	0.12	2.44
Heath Creek	WV-OGL-23_01	Heath Creek	WVOG-9	6.89	1.13	0.42	8.44
Heath Creek	WV-OGL-23-B_01	Upper Heath Creek	WVOG-9-A	2.40	0.42	0.15	2.97
Heath Creek	WV-OGL-23-C_01	UNT/Heath Creek RM 1.56		1.56	0.26	0.10	1.91
Merritt Creek	WV-OGL-24_01	Merritt Creek	WVOG-10	7.87	1.29	0.48	9.65
Merritt Creek	WV-OGL-24-B_01	Right Fork/Merritt Creek	WVOG-10-A	2.97	0.51	0.18	3.66
Smith Creek	WV-OGL-27_01	Smith Creek	WVOG-11	6.47	1.07	0.40	7.94

TMDL Watershed	AUID Stream Code	Stream Name	WV Code	Load Allocation (lbs/day)	Wasteload Allocation (lbs/day)	Margin of Safety (lbs/day)	Iron TMDL (lbs/day)
Tom Creek	WV-OGL-29_01	Tom Creek	WVOG-13	3.88	0.65	0.24	4.76
Trace Creek	WV-OGL-30_01	Trace Creek	WVOG-14	7.15	1.18	0.44	8.77
Trace Creek	WV-OGL-30-C_01	UNT/Trace Creek RM 2.88	WVOG-14-C	1.65	0.29	0.10	2.04
Tyler Creek	WV-OGL-31_01	Tyler Creek	WVOG-15	3.21	0.45	0.19	3.86
Madison Creek	WV-OGL-34_01	Madison Creek	WVOG-17	8.04	1.23	0.49	9.76
Madison Creek	WV-OGL-34-B_01	UNT/Madison Creek RM 2.11	WVOG-17-B	2.63	0.42	0.16	3.20
Bear Creek	WV-OGL-35_01	Bear Creek	WVOG-18	6.49	0.99	0.39	7.87
Bear Creek	WV-OGL-35-B_01	UNT/Bear Creek RM 1.23		2.10	0.31	0.13	2.54
Twomile Creek	WV-OGL-38_01	Twomile Creek	WVOG-20	4.40	0.67	0.27	5.34
Falls Creek	WV-OGL-42_01	Falls Creek	WVOG-22	5.89	0.94	0.36	7.19
Onemile Creek	WV-OGL-44_01	Onemile Creek	WVOG-23	7.27	1.12	0.44	8.83
Onemile Creek	WV-OGL-44-B_01	UNT/Onemile Creek RM 0.55		2.09	0.32	0.13	2.54
UNT/Guyandotte River RM 33.39	WV-OGL-46_01	UNT/Guyandotte River RM 33.39	WVOG-23.8	0.44	0.06	0.03	0.53
Twomile Creek	WV-OGL-47_01	Twomile Creek	WVOG-24	6.53	1.03	0.40	7.96
Twomile Creek	WV-OGL-47-D_01	Bee Branch	WVOG-24-A	1.30	0.21	0.08	1.59
Fourmile Creek	WV-OGL-53_03	Fourmile Creek	WVOG-27	40.13	5.59	2.41	48.13
Fourmile Creek	WV-OGL-53-C_01	Trace Fork	WVOG-27-B	4.26	0.67	0.26	5.19
Fourmile Creek	WV-OGL-53-D_01	Harless Fork	WVOG-27-C	3.32	0.52	0.20	4.05
Fourmile Creek	WV-OGL-53-O_01	Red River Fork	WVOG-27-G	5.49	0.81	0.33	6.64
Fourmile Creek	WV-OGL-53-O-2_01	Sulphur Spring Branch	WVOG-27-G-1	2.83	0.45	0.17	3.45
Fourmile Creek	WV-OGL-53_01	Fourmile Creek	WVOG-27	10.27	1.58	0.62	12.47
Fourmile Creek	WV-OGL-53-W_01	Falls Branch	WVOG-27-H	1.98	0.32	0.12	2.42
Fourmile Creek	WV-OGL-53-X_01	McClarity Branch	WVOG-27-I	3.34	0.54	0.20	4.09
Guyandotte River (Lower)	WV-OGL_11	Guyandotte River (lower)	WVOG-lo	7660.96	1998.60	508.40	10167.96
Sixmile Creek	WV-OGL-60_01	Sixmile Creek	WVOG-29	7.68	1.20	0.47	9.35
Sixmile Creek	WV-OGL-60-C_01	Bluelick Branch	WVOG-29-B	2.39	0.38	0.15	2.92
Guyandotte River (Lower)	WV-OGL-63_01	Stout Creek	WVOG-30	1.78	0.28	0.11	2.17
Ninemile Creek	WV-OGL-64_02	Ninemile Creek	WVOG-31	15.56	2.34	0.94	18.84
Ninemile Creek	WV-OGL-64-D_01	Hager Fork	WVOG-31-0.5A	2.56	0.40	0.16	3.12
Ninemile Creek	WV-OGL-64_01	Ninemile Creek	WVOG-31	9.39	1.42	0.57	11.38
Ninemile Creek	WV-OGL-64-G_01	Dick Fork	WVOG-31-A	1.93	0.31	0.12	2.36
Ninemile Creek	WV-OGL-64-I_01	Spears Fork	WVOG-31-B	1.70	0.27	0.10	2.07
Tenmile Creek	WV-OGL-66_02	Tenmile Creek	WVOG-32	28.76	4.66	1.76	35.18

TMDL Watershed	AUID Stream Code	Stream Name	WV Code	Load Allocation (lbs/day)	Wasteload Allocation (lbs/day)	Margin of Safety (lbs/day)	Iron TMDL (lbs/day)
Tenmile Creek	WV-OGL-66-C_01	Buck Branch	WVOG-32-A	1.08	0.19	0.07	1.34
Tenmile Creek	WV-OGL-66-I_01	Upper Twin Branch	WVOG-32-C	2.13	0.38	0.13	2.64
Tenmile Creek	WV-OGL-66_01	Tenmile Creek	WVOG-32	17.15	2.92	1.06	21.12
Tenmile Creek	WV-OGL-66-O_01	Plum Branch	WVOG-32-F	4.86	0.88	0.30	6.04
Furnett Creek	WV-OGL-69_01	Furnett Creek	WVOG-33	3.58	0.58	0.22	4.38
Fourteenmile Creek	WV-OGL-75_02	Fourteenmile Creek	WVOG-34	41.42	6.59	2.53	50.54
Fourteenmile Creek	WV-OGL-75-A_01	Lick Branch	WVOG-34-A	4.80	0.81	0.30	5.91
Fourteenmile Creek	WV-OGL-75-B_01	East Fork/Fourteenmile Creek	WVOG-34-B	9.31	1.56	0.57	11.45
Fourteenmile Creek	WV-OGL-75-F_01	Sulphur Spring Fork	WVOG-34-D	7.76	1.33	0.48	9.56
Fourteenmile Creek	WV-OGL-75_01	Fourteenmile Creek	WVOG-34	10.01	1.85	0.62	12.49
Fourteenmile Creek	WV-OGL-75-H_01	Steer Fork	WVOG-34-E	3.42	0.56	0.21	4.19
Fourteenmile Creek	WV-OGL-75-H-1_01	Nelson Fork	WVOG-34-E-1	1.54	0.27	0.10	1.90
Aarons Creek	WV-OGL-80_01	Aarons Creek	WVOG-35	3.96	0.62	0.24	4.81
Hamilton Creek	WV-OGL-86_01	Hamilton Creek	WVOG-36	4.33	0.64	0.26	5.23
Little Ugly Creek	WV-OGL-88_01	Little Ugly Creek	WVOG-37	2.20	0.33	0.13	2.66
Big Ugly Creek	WV-OGL-89_04	Big Ugly Creek	WVOG-38	92.65	21.94	6.03	120.63
Big Ugly Creek	WV-OGL-89-B_01	Pigeonroost Creek	WVOG-38-A	3.64	0.57	0.22	4.42
Big Ugly Creek	WV-OGL-89-C_01	Bobby Creek	WVOG-38-B	2.60	0.39	0.16	3.15
Big Ugly Creek	WV-OGL-89-E_01	Big Branch	WVOG-38-C	3.15	0.46	0.19	3.80
Big Ugly Creek	WV-OGL-89-G_02	Laurel Creek	WVOG-38-D	20.95	14.16	1.85	36.96
Big Ugly Creek	WV-OGL-89-G-4_01	Back Fork	WVOG-38-D-0.7	5.82	0.88	0.35	7.05
Big Ugly Creek	WV-OGL-89-G_01	Laurel Creek	WVOG-38-D	11.08	12.79	1.26	25.12
Big Ugly Creek	WV-OGL-89-G-5_01	Lick Branch	WVOG-38-D-0.8	1.75	0.25	0.11	2.10
Big Ugly Creek	WV-OGL-89-G-6_01	Charley Trace Fork	WVOG-38-D-1	1.16	0.18	0.07	1.41
Big Ugly Creek	WV-OGL-89-G-10_01	Chestnut Oak Creek	WVOG-38-D-4	1.67	7.86	0.50	10.04
Big Ugly Creek	WV-OGL-89-G-11_01	Right Fork/Laurel Creek	WVOG-38-D-5	1.66	3.90	0.29	5.85
Big Ugly Creek	WV-OGL-89_03	Big Ugly Creek	WVOG-38	47.58	5.72	2.81	56.11
Big Ugly Creek	WV-OGL-89-J_01	Rockhouse Branch	WVOG-38-E	2.07	0.31	0.13	2.51
Big Ugly Creek	WV-OGL-89-M_01	Sulphur Creek	WVOG-38-G	3.03	0.43	0.18	3.65
Big Ugly Creek	WV-OGL-89-R_01	Broad Branch	WVOG-38-J	4.41	0.66	0.27	5.33
Big Ugly Creek	WV-OGL-89-R-2_01	Left Fork/Broad Branch	WVOG-38-J-1	1.49	0.23	0.09	1.81
Big Ugly Creek	WV-OGL-89_02	Big Ugly Creek	WVOG-38	25.00	2.99	1.47	29.46
Big Ugly Creek	WV-OGL-89-T_01	Lefthand Creek	WVOG-38-K	3.05	0.45	0.18	3.68
Big Ugly Creek	WV-OGL-89-Y_01	Little Deadening Creek	WVOG-38-K.7	0.43	0.07	0.03	0.53

TMDL Watershed	AUID Stream Code	Stream Name	WV Code	Load Allocation (lbs/day)	Wasteload Allocation (lbs/day)	Margin of Safety (lbs/day)	Iron TMDL (lbs/day)
Big Ugly Creek	WV-OGL-89-Z_01	Big Deadening Creek	WVOG-38-L	1.53	0.23	0.09	1.86
Big Ugly Creek	WV-OGL-89-AA_01	Fawn Hollow	WVOG-38-M	2.08	0.18	0.12	2.37
Big Ugly Creek	WV-OGL-89_01	Big Ugly Creek	WVOG-38	11.93	1.43	0.70	14.06
Big Ugly Creek	WV-OGL-89-AD_01	Skinned Poplar Branch	WVOG-38-N	1.72	0.00	0.09	1.81
Big Ugly Creek	WV-OGL-89-AJ_01	Trace Branch	WVOG-38-O	1.32	0.20	0.08	1.60
Big Ugly Creek	WV-OGL-89-AN_01	Grassy Fork	WVOG-38-P	1.01	0.15	0.06	1.22
Guyandotte River (Lower)	WV-OGL_10	Guyandotte River (lower)	WVOG-lo	6585.48	1956.04	449.55	8991.07
Sand Creek	WV-OGL-93_01	Sand Creek	WVOG-40	10.05	1.64	0.62	12.30
Sand Creek	WV-OGL-93-D_01	Big Fork	WVOG-40-A	2.66	0.45	0.16	3.27
Dry Run	WV-OGL-95_01	Dry Run	WVOG-41	2.99	0.50	0.18	3.67
Little Harts Creek	WV-OGL-96_01	Little Harts Creek	WVOG-42	18.50	2.82	1.12	22.44
Little Harts Creek	WV-OGL-96-C_01	Short Bend Fork	WVOG-42-A	2.61	0.42	0.16	3.19
Little Harts Creek	WV-OGL-96-D_01	Harvey Fork	WVOG-42-B	2.15	0.37	0.13	2.66
Little Harts Creek	WV-OGL-96-E_01	Laurel Fork	WVOG-42-C	2.94	0.48	0.18	3.60
Little Harts Creek	WV-OGL-96-G_01	Mudlick Branch	WVOG-42-D	1.11	0.19	0.07	1.36
Big Harts Creek	WV-OGL-99_04	Big Harts Creek	WVOG-44	173.99	32.36	10.86	217.21
Big Harts Creek	WV-OGL-99-A_02	West Fork/Big Harts Creek	WVOG-44-A	26.14	4.11	1.59	31.84
Big Harts Creek	WV-OGL-99-A-3_01	Piney Fork	WVOG-44-A-1	5.02	0.88	0.31	6.21
Big Harts Creek	WV-OGL-99-A-4_01	Marsh Fork	WVOG-44-A-2	9.21	1.53	0.57	11.31
Big Harts Creek	WV-OGL-99-A-5_01	Workman Fork	WVOG-44-A-3	5.93	0.98	0.36	7.28
Big Harts Creek	WV-OGL-99-B_01	Big Branch	WVOG-44-B	4.35	0.73	0.27	5.36
Big Harts Creek	WV-OGL-99-D_01	Coal Branch	WVOG-44-C	3.13	0.55	0.19	3.88
Big Harts Creek	WV-OGL-99-E_01	Caney Branch	WVOG-44-C.3	1.49	0.26	0.09	1.83
Big Harts Creek	WV-OGL-99-G_01	Thompson Branch	WVOG-44-C.7	2.11	0.36	0.13	2.60
Big Harts Creek	WV-OGL-99-H_01	Rockhouse Fork	WVOG-44-D	3.99	0.63	0.24	4.86
Big Harts Creek	WV-OGL-99-J_02	Smokehouse Fork	WVOG-44-E	30.77	13.05	2.31	46.13
Big Harts Creek	WV-OGL-99-J-5_01	Browns Run	WVOG-44-E-1	3.88	8.88	0.67	13.43
Big Harts Creek	WV-OGL-99-J_01	Smokehouse Fork	WVOG-44-E	17.50	2.74	1.07	21.31
Big Harts Creek	WV-OGL-99-J-9_01	White Oak Branch	WVOG-44-E-2	3.79	0.61	0.23	4.63
Big Harts Creek	WV-OGL-99_03	Big Harts Creek	WVOG-44	58.64	11.05	3.67	73.36
Big Harts Creek	WV-OGL-99-K_01	Trace Fork	WVOG-44-F	11.61	4.16	0.83	16.59
Big Harts Creek	WV-OGL-99-K-6_01	Ivy Branch	WVOG-44-F-3	1.58	0.58	0.11	2.27
Big Harts Creek	WV-OGL-99-L_01	Buck Fork	WVOG-44-G	12.29	2.08	0.76	15.13
Big Harts Creek	WV-OGL-99-M_01	Hoover Fork	WVOG-44-H	7.40	1.28	0.46	9.14

TMDL Watershed	AUID Stream Code	Stream Name	WV Code	Load Allocation (lbs/day)	Wasteload Allocation (lbs/day)	Margin of Safety (lbs/day)	Iron TMDL (lbs/day)
Big Harts Creek	WV-OGL-99_01	Big Harts Creek	WVOG-44	19.31	3.10	1.18	23.58
Big Harts Creek	WV-OGL-99-N_01	Henderson Branch	WVOG-44-I	3.08	0.53	0.19	3.81
Big Harts Creek	WV-OGL-99-Q_01	Bulwark Branch	WVOG-44-K	2.89	0.50	0.18	3.57
Green Shoals Branch	WV-OGL-106_01	Green Shoals Branch	WVOG-45	6.48	1.02	0.40	7.90
Abbott Branch	WV-OGL-108_01	Abbott Branch	WVOG-46	3.20	0.53	0.20	3.92
Limestone Branch	WV-OGL-111_01	Limestone Branch	WVOG-48	4.88	0.66	0.29	5.83
Big Creek	WV-OGL-112_03	Big Creek	WVOG-49	87.96	10.98	5.21	104.15
Big Creek	WV-OGL-112-D_01	Ed Stone Branch	WVOG-49-A	3.42	0.48	0.21	4.10
Big Creek	WV-OGL-112-D-1_01	North Branch/Ed Stone Branch	WVOG-49-A-1	1.16	0.13	0.07	1.36
Big Creek	WV-OGL-112-E_01	North Fork/Big Creek	WVOG-49-B	12.96	1.95	0.78	15.69
Big Creek	WV-OGL-112-E-7_01	Chapman Branch	WVOG-49-B-1	1.21	0.20	0.07	1.48
Big Creek	WV-OGL-112-E-11_01	Harmon Branch	WVOG-49-B-2	2.92	0.47	0.18	3.56
Big Creek	WV-OGL-112-E-10_01	Ellis Fork	WVOG-49-B-3	2.95	0.47	0.18	3.61
Big Creek	WV-OGL-112-F_01	Vickers Branch	WVOG-49-C	2.02	0.34	0.12	2.49
Big Creek	WV-OGL-112-G_01	UNT/Big Creek RM 3.28	WVOG-49-C.1	0.86	0.14	0.05	1.05
Big Creek	WV-OGL-112-I_01	Trace Fork	WVOG-49-D	15.69	2.26	0.94	18.90
Big Creek	WV-OGL-112-I-4_01	Hurricane Branch	WVOG-49-D-1	1.77	0.28	0.11	2.16
Big Creek	WV-OGL-112-I-7_01	Dog Fork	WVOG-49-D-2	2.67	0.40	0.16	3.24
Big Creek	WV-OGL-112-H_02	Garrett Fork	WVOG-49-E	35.04	4.92	2.10	42.07
Big Creek	WV-OGL-112-H-1_01	Perrys Branch	WVOG-49-E-1	0.97	0.15	0.06	1.18
Big Creek	WV-OGL-112-H-2_01	Kanawha Branch	WVOG-49-E-2	3.46	0.56	0.21	4.23
Big Creek	WV-OGL-112-H-3_01	Cloverlick Branch	WVOG-49-E-3	3.66	0.62	0.23	4.51
Big Creek	WV-OGL-112-H-4_01	Rocklick Branch	WVOG-49-E-4	3.94	0.66	0.24	4.85
Big Creek	WV-OGL-112-H_01	Garrett Fork	WVOG-49-E	13.30	2.09	0.81	16.21
Big Creek	WV-OGL-112-H-6_01	Hainer Branch	WVOG-49-E-5	1.31	0.24	0.08	1.63
Big Creek	WV-OGL-112-H-5-A_01	Gore Fork	WVOG-49-E-6	3.13	0.50	0.19	3.82
Big Creek	WV-OGL-112-H-5_01	Barker Fork	WVOG-49-E-7	6.13	1.01	0.38	7.52
Guyandotte River (Lower)	WV-OGL_09	Guyandotte River (lower)	WVOG-lo	5219.70	1900.25	374.73	7494.69
Crawley Creek	WV-OGL-117_02	Crawley Creek	WVOG-51	56.66	7.40	3.37	67.44
Crawley Creek	WV-OGL-117-B_01	Canoe Fork	WVOG-51-B	1.79	0.32	0.11	2.22
Crawley Creek	WV-OGL-117-C_01	Striker Fork	WVOG-51-C	4.33	0.75	0.27	5.34
Crawley Creek	WV-OGL-117-H_01	Tims Fork	WVOG-51-F	4.57	0.71	0.28	5.56
Crawley Creek	WV-OGL-117-J_01	Brushy Fork	WVOG-51-G	3.44	0.59	0.21	4.24
Crawley Creek	WV-OGL-117-M.1_01	Middle Fork/Crawley Creek	WVOG-51-G.6	1.81	0.19	0.11	2.10

TMDL Watershed	AUID Stream Code	Stream Name	WV Code	Load Allocation (lbs/day)	Wasteload Allocation (lbs/day)	Margin of Safety (lbs/day)	Iron TMDL (lbs/day)
Crawley Creek	WV-OGL-117-M_01	South Fork/Crawley Creek	WVOG-51-G.5	4.89	0.71	0.29	5.89
Crawley Creek	WV-OGL-117_01	Crawley Creek	WVOG-51	11.80	1.28	0.69	13.77
Fowler Branch	WV-OGL-121_01	Fowler Branch	WVOG-51.5	1.37	0.21	0.08	1.66
Godby Branch	WV-OGL-125_01	Godby Branch	WVOG-53	3.53	0.60	0.22	4.35
Caney Branch	WV-OGL-129_01	Caney Branch	WVOG-54	4.65	0.74	0.28	5.68
Rocky Branch	WV-OGL-130_01	Rocky Branch	WVOG-55	7.71	0.91	0.45	9.07
King Shoal Branch	WV-OGL-134_01	King Shoal Branch	WVOG-58	3.28	0.57	0.20	4.05
Mill Creek	WV-OGL-135_01	Mill Creek	WVOG-59	17.36	2.87	1.07	21.30
Mill Creek	WV-OGL-135-F_01	Long Fork	WVOG-59-C	3.99	0.70	0.25	4.93
Mill Creek	WV-OGL-135-G_01	Butch Fork	WVOG-59-D	3.28	0.60	0.20	4.09
Big Branch	WV-OGL-136_01	Big Branch	WVOG-60	4.69	0.63	0.28	5.60
Buffalo Creek	WV-OGL-137_01	Buffalo Creek	WVOG-61	13.18	2.18	0.81	16.17
Buffalo Creek	WV-OGL-137-E_01	Right Fork/Buffalo Creek	WVOG-61-A	3.87	0.72	0.24	4.82
Snap Creek	WV-OGL-138_01	Snap Creek	WVOG-62	3.90	2.94	0.36	7.20
Snap Creek	WV-OGL-138-A_01	UNT/Snap Creek RM 0.43		1.32	0.00	0.07	1.39
Snap Creek	WV-OGL-138-B_01	UNT/Snap Creek RM 0.63	WVOG-62-B	0.79	2.69	0.18	3.66
Crooked Creek	WV-OGL-139_01	Crooked Creek	WVOG-63	8.33	1.45	0.51	10.29
Peach Creek	WV-OGL-140_01	Peach Creek	WVOG-64	6.94	1.42	0.44	8.79

UNT = unnamed tributary; RM = river mile.

2.0 pH TMDL

TMDL Watershed	AUID Stream Code	Stream Name	WV Code	LA daily average net acidity load under TMDL condition (lbs as CaCO3/day)	WLA daily average net acidity load under TMDL condition (lbs as CaCO3/day)	MOS daily average net acidity load (lbs as CaCO3/day)	TMDL daily average net acidity load (lbs as CaCO3/day)
Lower Guyandotte River	WV-OGL-112-G_01	UNT/Big Creek RM 3.28	WVOG-49-C.1	-759.94	0.00	37.80	-722.14

3.0 Aluminum TMDL

TMDL Watershed	AUID Stream Code	Stream Name	WV Code	Load Allocation (lbs/day)	Wasteload Allocation (lbs/day)	Margin of Safety (lbs/day)	Al TMDL (lbs/day)
Lower Guyandotte River	WV-OGL-112-G_01	UNT/Big Creek RM 3.28	WVOG-49-C.1	1.807	0.000	0.095	1.902

4.0 Selenium TMDLs

TMDL Watershed	AUID Stream Code	Stream Name	WV Code	Load Allocation (lbs/day)	Wasteload Allocation (lbs/day)	Margin of Safety (lbs/day)	Se TMDL (lbs/day)
Mud River	WV-OGL-10_05	Mud River	WVOGM	0.9896	0.6723	0.0875	1.7494
Mud River	WV-OGL-10_04	Mud River	WVOGM	0.5845	0.6723	0.0661	1.3229
Mud River	WV-OGL-10_03	Mud River	WVOGM	0.2688	0.6723	0.0495	0.9907
Mud River	WV-OGL-10_02	Mud River	WVOGM	0.1510	0.6533	0.0423	0.8467
Mud River	WV-OGL-10_01	Mud River	WVOGM	0.0491	0.0000	0.0026	0.0517
Stonecoal Branch	WV-OGL-10-DM_01	Stonecoal Branch	WVOGM-43	0.0213	0.0088	0.0016	0.0317
Berry Branch	WV-OGL-10-DN_01	Berry Branch	WVOGM-44	0.0088	0.1292	0.0073	0.1453
Mullins Branch	WV-OGL-10-DO_01	Mullins Branch	WVOGM-45	0.0050	0.0535	0.0031	0.0615
Connelly Branch	valley fill	Connelly Branch	WVOGM-46	0.0084	0.0944	0.0054	0.1083
Sugartree Branch	WV-OGL-10-DW_01	Sugartree Branch	WVOGM-47	0.0031	0.0733	0.0040	0.0805
Stanley Fork	WV-OGL-10-DX_01	Stanley Fork	WVOGM-48	0.0004	0.1019	0.0054	0.1076
Lukey Fork	WV-OGL-10-EC_01	Lukey Fork	WVOGM-50	0.0172	0.0343	0.0027	0.0542

5.0 Fecal Coliform Bacteria TMDLs

TMDL Watershed	AUID Stream Code	Stream Name	WV Code	Load Allocations (counts /day)	Wasteload Allocation (counts /day)	Margin of Safety (counts /day)	TMDL (counts /day)
Guyandotte River (Lower)	WV-OGL_13	Guyandotte River (Lower)	WVOG-lo	5.07E+12	1.59E+11	2.75E+11	5.50E+12
Guyandotte River (Lower)	WV-OGL_12	Guyandotte River (Lower)	WVOG-lo	3.93E+12	5.14E+10	2.10E+11	4.19E+12
Guyandotte River (Lower)	WV-OGL_11	Guyandotte River (Lower)	WVOG-lo	3.45E+12	2.91E+10	1.83E+11	3.66E+12
Guyandotte River (Lower)	WV-OGL_10	Guyandotte River (Lower)	WVOG-lo	3.09E+12	2.89E+10	1.64E+11	3.29E+12
Guyandotte River (Lower)	WV-OGL_09	Guyandotte River (Lower)	WVOG-lo	2.66E+12	2.87E+10	1.42E+11	2.83E+12
Deitz Hollow (Pats Branch)	WV-OGL-1_01	Deitz Hollow (Pats Branch)	WVOG-0.5	3.97E+08	1.28E+09	8.84E+07	1.77E+09
Russell Creek	WV-OGL-5_01	Russell Creek	WVOG-1	1.70E+10	1.05E+09	9.49E+08	1.90E+10
Russell Creek	WV-OGL-5-A_01	UNT/Russell Creek RM 0.20	WVOG-1-A	4.91E+09	3.54E+08	2.77E+08	5.54E+09
Davis Creek	WV-OGL-12_01	Davis Creek	WVOG-3	2.01E+10	4.90E+08	1.08E+09	2.17E+10
Davis Creek	WV-OGL-12-B_01	Edens Branch	WVOG-3-0.5A	2.50E+09	6.34E+05	1.32E+08	2.64E+09
Davis Creek	WV-OGL-12-D_01	Left Fork/Davis Creek	WVOG-3-A	6.59E+09	1.16E+07	3.48E+08	6.95E+09
Davis Creek	WV-OGL-12-C_01	Right Fork/Davis Creek	WVOG-3-B	8.19E+09	2.35E+07	4.32E+08	8.65E+09
Mill Creek	WV-OGL-15_01	Mill Creek	WVOG-6	9.03E+09	1.82E+09	5.71E+08	1.14E+10
Mill Creek	WV-OGL-15-A_01	UNT/Mill Creek RM 0.21	WVOG-6-A	4.56E+09	1.66E+09	3.27E+08	6.55E+09
Lower Tom Creek	WV-OGL-18_01	Lower Tom Creek	WVOG-8	1.26E+10	4.77E+06	6.65E+08	1.33E+10
Heath Creek	WV-OGL-23_01	Heath Creek	WVOG-9	1.51E+10	9.62E+07	8.02E+08	1.60E+10
Heath Creek	WV-OGL-23-B_01	Upper Heath Creek	WVOG-9-A	5.76E+09	1.21E+07	3.04E+08	6.07E+09
Merritt Creek	WV-OGL-24_01	Merritt Creek	WVOG-10	1.83E+10	1.14E+07	9.64E+08	1.93E+10
Merritt Creek	WV-OGL-24-B_01	Right Fork/Merritt Creek	WVOG-10-A	7.28E+09	0.00E+00	3.83E+08	7.66E+09
Smith Creek	WV-OGL-27_01	Smith Creek	WVOG-11	1.45E+10	3.79E+06	7.65E+08	1.53E+10
Cavill Creek	WV-OGL-28_01	Cavill Creek	WVOG-12	6.65E+09	0.00E+00	3.50E+08	7.00E+09
Tom Creek	WV-OGL-29_01	Tom Creek	WVOG-13	8.39E+09	0.00E+00	4.42E+08	8.83E+09
Trace Creek	WV-OGL-30_01	Trace Creek	WVOG-14	1.62E+10	0.00E+00	8.53E+08	1.71E+10
Trace Creek	WV-OGL-30-C_01	UNT/Trace Creek RM 2.88	WVOG-14-C	4.12E+09	0.00E+00	2.17E+08	4.34E+09
Tyler Creek	WV-OGL-31_01	Tyler Creek	WVOG-15	7.77E+09	0.00E+00	4.09E+08	8.18E+09

TMDL Watershed	AUID Stream Code	Stream Name	WV Code	Load Allocations (counts /day)	Wasteload Allocation (counts /day)	Margin of Safety (counts /day)	TMDL (counts /day)
Madison Creek	WV-OGL-34_01	Madison Creek	WVOG-17	1.40E+10	3.79E+06	7.36E+08	1.47E+10
Bear Creek	WV-OGL-35_01	Bear Creek	WVOG-18	1.32E+10	1.14E+07	6.94E+08	1.39E+10
Twomile Creek	WV-OGL-38_01	Twomile Creek	WVOG-20	1.22E+10	1.21E+07	6.44E+08	1.29E+10
Onemile Creek	WV-OGL-44_01	Onemile Creek	WVOG-23	1.26E+10	1.52E+07	6.62E+08	1.32E+10
UNT/Guyandotte River RM 33.39	WV-OGL-46_01	UNT/Guyandotte River RM 33.39	WVOG-23.8	1.89E+09	2.73E+08	1.14E+08	2.28E+09
Twomile Creek	WV-OGL-47_01	Twomile Creek	WVOG-24	1.18E+10	0.00E+00	6.23E+08	1.25E+10
Fourmile Creek	WV-OGL-53_03	Fourmile Creek	WVOG-27	6.44E+10	1.97E+07	3.39E+09	6.78E+10
Fourmile Creek	WV-OGL-53_01	Fourmile Creek	WVOG-27	1.85E+10	0.00E+00	9.71E+08	1.94E+10
Fourmile Creek	WV-OGL-53-B_01	Lowgap Branch	WVOG-27-A	2.01E+09	0.00E+00	1.06E+08	2.11E+09
Fourmile Creek	WV-OGL-53-C_01	Trace Fork	WVOG-27-B	6.60E+09	0.00E+00	3.47E+08	6.95E+09
Fourmile Creek	WV-OGL-53-D_01	Harless Fork	WVOG-27-C	5.91E+09	3.79E+06	3.11E+08	6.23E+09
Fourmile Creek	WV-OGL-53-G_01	Kentuck Fork	WVOG-27-D	4.53E+09	0.00E+00	2.38E+08	4.77E+09
Fourmile Creek	WV-OGL-53-O_01	Red River Fork	WVOG-27-G	1.01E+10	3.79E+06	5.31E+08	1.06E+10
Fourmile Creek	WV-OGL-53-W_01	Falls Branch	WVOG-27-H	3.64E+09	0.00E+00	1.92E+08	3.83E+09
Fourmile Creek	WV-OGL-53-X_01	McClarity Branch	WVOG-27-I	5.89E+09	0.00E+00	3.10E+08	6.20E+09
Ninemile Creek	WV-OGL-64_02	Ninemile Creek	WVOG-31	2.25E+10	3.79E+06	1.18E+09	2.37E+10
Ninemile Creek	WV-OGL-64_01	Ninemile Creek	WVOG-31	1.32E+10	3.79E+06	6.97E+08	1.39E+10
Ninemile Creek	WV-OGL-64-D_01	Hager Fork	WVOG-31-0.5A	4.44E+09	0.00E+00	2.33E+08	4.67E+09
Tenmile Creek	WV-OGL-66_02	Tenmile Creek	WVOG-32	2.99E+10	7.58E+06	1.58E+09	3.15E+10
Tenmile Creek	WV-OGL-66_01	Tenmile Creek	WVOG-32	1.86E+10	0.00E+00	9.79E+08	1.96E+10
Fourteenmile Creek	WV-OGL-75_02	Fourteenmile Creek	WVOG-34	4.46E+10	6.03E+07	2.35E+09	4.70E+10
Fourteenmile Creek	WV-OGL-75_01	Fourteenmile Creek	WVOG-34	1.06E+10	5.28E+07	5.62E+08	1.12E+10
Fourteenmile Creek	WV-OGL-75-A_01	Lick Branch	WVOG-34-A	5.17E+09	0.00E+00	2.72E+08	5.44E+09
Fourteenmile Creek	WV-OGL-75-B_01	East Fork/Fourteenmile Creek	WVOG-34-B	1.14E+10	0.00E+00	5.99E+08	1.20E+10
Fourteenmile Creek	WV-OGL-75-F_01	Sulphur Spring Fork	WVOG-34-D	8.07E+09	0.00E+00	4.25E+08	8.50E+09
Aarons Creek	WV-OGL-80_01	Aarons Creek	WVOG-35	6.85E+09	0.00E+00	3.61E+08	7.21E+09

TMDL Watershed	AUID Stream Code	Stream Name	WV Code	Load Allocations (counts /day)	Wasteload Allocation (counts /day)	Margin of Safety (counts /day)	TMDL (counts /day)
Hamilton Creek	WV-OGL-86_01	Hamilton Creek	WVOG-36	7.25E+09	0.00E+00	3.81E+08	7.63E+09
Little Ugly Creek	WV-OGL-88_01	Little Ugly Creek	WVOG-37	2.32E+09	0.00E+00	1.22E+08	2.44E+09
Big Ugly Creek	WV-OGL-89_04	Big Ugly Creek	WVOG-38	1.17E+11	7.58E+06	6.15E+09	1.23E+11
Big Ugly Creek	WV-OGL-89_03	Big Ugly Creek	WVOG-38	6.16E+10	7.58E+06	3.25E+09	6.49E+10
Big Ugly Creek	WV-OGL-89_02	Big Ugly Creek	WVOG-38	3.52E+10	3.79E+06	1.85E+09	3.70E+10
Big Ugly Creek	WV-OGL-89_01	Big Ugly Creek	WVOG-38	1.74E+10	3.79E+06	9.18E+08	1.84E+10
Big Ugly Creek	WV-OGL-89-G_02	Laurel Creek	WVOG-38-D	2.94E+10	0.00E+00	1.55E+09	3.10E+10
Big Ugly Creek	WV-OGL-89-G_01	Laurel Creek	WVOG-38-D	1.36E+10	0.00E+00	7.14E+08	1.43E+10
Big Ugly Creek	WV-OGL-89-M_01	Sulphur Creek	WVOG-38-G	2.99E+09	0.00E+00	1.57E+08	3.14E+09
Big Ugly Creek	WV-OGL-89-R_01	Broad Branch	WVOG-38-J	7.28E+09	0.00E+00	3.83E+08	7.66E+09
Big Ugly Creek	WV-OGL-89-T_01	Lefthand Creek	WVOG-38-K	5.33E+09	0.00E+00	2.81E+08	5.61E+09
Sand Creek	WV-OGL-93_01	Sand Creek	WVOG-40	1.01E+10	0.00E+00	5.32E+08	1.06E+10
Dry Run	WV-OGL-95_01	Dry Run	WVOG-41	4.22E+09	0.00E+00	2.22E+08	4.44E+09
Little Harts Creek	WV-OGL-96_01	Little Harts Creek	WVOG-42	2.04E+10	1.14E+07	1.07E+09	2.14E+10
Little Harts Creek	WV-OGL-96-C_01	Short Bend Fork	WVOG-42-A	2.85E+09	0.00E+00	1.50E+08	3.00E+09
Little Harts Creek	WV-OGL-96-E_01	Laurel Fork	WVOG-42-C	3.80E+09	0.00E+00	2.00E+08	4.00E+09
Little Harts Creek	WV-OGL-96-G_01	Mudlick Branch	WVOG-42-D	1.20E+09	3.79E+06	6.33E+07	1.27E+09
Big Harts Creek	WV-OGL-99_04	Big Harts Creek	WVOG-44	1.51E+11	6.44E+07	7.94E+09	1.59E+11
Big Harts Creek	WV-OGL-99_03	Big Harts Creek	WVOG-44	5.52E+10	0.00E+00	2.90E+09	5.81E+10
Big Harts Creek	WV-OGL-99_01	Big Harts Creek	WVOG-44	2.07E+10	0.00E+00	1.09E+09	2.18E+10
Big Harts Creek	WV-OGL-99-A_02	West Fork/Big Harts Creek	WVOG-44-A	2.98E+10	7.58E+06	1.57E+09	3.14E+10
Big Harts Creek	WV-OGL-99-A-3_01	Piney Fork	WVOG-44-A-1	5.90E+09	0.00E+00	3.11E+08	6.21E+09
Big Harts Creek	WV-OGL-99-A-4_01	Marsh Fork	WVOG-44-A-2	1.22E+10	7.58E+06	6.45E+08	1.29E+10
Big Harts Creek	WV-OGL-99-A-5_01	Workman Fork	WVOG-44-A-3	6.44E+09	0.00E+00	3.39E+08	6.78E+09
Big Harts Creek	WV-OGL-99-B_01	Big Branch	WVOG-44-B	5.07E+09	0.00E+00	2.67E+08	5.33E+09
Big Harts Creek	WV-OGL-99-E_01	Caney Branch	WVOG-44-C.3	1.51E+09	0.00E+00	7.93E+07	1.59E+09

TMDL Watershed	AUID Stream Code	Stream Name	WV Code	Load Allocations (counts /day)	Wasteload Allocation (counts /day)	Margin of Safety (counts /day)	TMDL (counts /day)
Big Harts Creek	WV-OGL-99-G_01	Thompson Branch	WVOG-44-C.7	2.69E+09	0.00E+00	1.41E+08	2.83E+09
Big Harts Creek	WV-OGL-99-H_01	Rockhouse Fork	WVOG-44-D	4.07E+09	0.00E+00	2.14E+08	4.29E+09
Big Harts Creek	WV-OGL-99-J_02	Smokehouse Fork	WVOG-44-E	3.49E+10	4.55E+07	1.84E+09	3.68E+10
Big Harts Creek	WV-OGL-99-J_01	Smokehouse Fork	WVOG-44-E	2.10E+10	0.00E+00	1.11E+09	2.22E+10
Big Harts Creek	WV-OGL-99-J-5_01	Browns Run	WVOG-44-E-1	4.51E+09	0.00E+00	2.37E+08	4.75E+09
Big Harts Creek	WV-OGL-99-J-9_01	White Oak Branch	WVOG-44-E-2	5.34E+09	0.00E+00	2.81E+08	5.62E+09
Big Harts Creek	WV-OGL-99-K_01	Trace Fork	WVOG-44-F	1.05E+10	0.00E+00	5.54E+08	1.11E+10
Big Harts Creek	WV-OGL-99-K-6_01	Ivy Branch	WVOG-44-F-3	1.78E+09	0.00E+00	9.35E+07	1.87E+09
Big Harts Creek	WV-OGL-99-L_01	Buck Fork	WVOG-44-G	1.37E+10	0.00E+00	7.22E+08	1.44E+10
Big Harts Creek	WV-OGL-99-M_01	Hoover Fork	WVOG-44-H	6.79E+09	0.00E+00	3.58E+08	7.15E+09
Big Harts Creek	WV-OGL-99-N_01	Henderson Branch	WVOG-44-I	3.47E+09	0.00E+00	1.82E+08	3.65E+09
Big Harts Creek	WV-OGL-99-Q_01	Bulwark Branch	WVOG-44-K	3.45E+09	0.00E+00	1.82E+08	3.64E+09
Green Shoals Branch	WV-OGL-106_01	Green Shoals Branch	WVOG-45	8.01E+09	0.00E+00	4.22E+08	8.43E+09
Abbott Branch	WV-OGL-108_01	Abbott Branch	WVOG-46	3.35E+09	0.00E+00	1.76E+08	3.53E+09
Limestone Branch	WV-OGL-111_01	Limestone Branch	WVOG-48	5.15E+09	8.33E+06	2.72E+08	5.43E+09
Big Creek	WV-OGL-112_03	Big Creek	WVOG-49	1.07E+11	3.64E+07	5.61E+09	1.12E+11
Big Creek	WV-OGL-112-D_01	Ed Stone Branch	WVOG-49-A	5.99E+09	0.00E+00	3.15E+08	6.31E+09
Big Creek	WV-OGL-112-D-1_01	North Branch/Ed Stone Branch	WVOG-49-A-1	1.61E+09	0.00E+00	8.45E+07	1.69E+09
Big Creek	WV-OGL-112-E_01	North Fork/Big Creek	WVOG-49-B	2.35E+10	1.21E+07	1.24E+09	2.47E+10
Big Creek	WV-OGL-112-E-7_01	Chapman Branch	WVOG-49-B-1	2.39E+09	0.00E+00	1.26E+08	2.52E+09
Big Creek	WV-OGL-112-E-11_01	Harmon Branch	WVOG-49-B-2	5.23E+09	8.33E+06	2.76E+08	5.52E+09
Big Creek	WV-OGL-112-E-10_01	Ellis Fork	WVOG-49-B-3	6.07E+09	3.79E+06	3.20E+08	6.40E+09
Big Creek	WV-OGL-112-I_01	Trace Fork	WVOG-49-D	2.64E+10	1.67E+07	1.39E+09	2.78E+10
Big Creek	WV-OGL-112-I-4_01	Hurricane Branch	WVOG-49-D-1	2.70E+09	0.00E+00	1.42E+08	2.84E+09
Big Creek	WV-OGL-112-H_02	Garrett Fork	WVOG-49-E	3.97E+10	7.58E+06	2.09E+09	4.18E+10
Big Creek	WV-OGL-112-H_01	Garrett Fork	WVOG-49-E	1.66E+10	7.58E+06	8.72E+08	1.74E+10

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Big Creek	WV-OGL-112-H-2_01	Kanawha Branch	WVOG-49-E-2	4.24E+09	0.00E+00	2.23E+08	4.46E+09
Big Creek	WV-OGL-112-H-6_01	Hainer Branch	WVOG-49-E-5	1.63E+09	0.00E+00	8.55E+07	1.71E+09
Crawley Creek	WV-OGL-117_02	Crawley Creek	WVOG-51	5.50E+10	3.79E+08	2.91E+09	5.83E+10
Crawley Creek	WV-OGL-117_01	Crawley Creek	WVOG-51	9.29E+09	0.00E+00	4.89E+08	9.78E+09
Crawley Creek	WV-OGL-117-B_01	Canoe Fork	WVOG-51-B	2.42E+09	0.00E+00	1.27E+08	2.55E+09
Crawley Creek	WV-OGL-117-H_01	Tims Fork	WVOG-51-F	5.10E+09	0.00E+00	2.68E+08	5.37E+09
Crawley Creek	WV-OGL-117-M_01	South Fork/Crawley Creek	WVOG-51-G.5	4.31E+09	3.79E+08	2.47E+08	4.93E+09
Crawley Creek	WV-OGL-117-M.1_01	Middle Fork/Crawley Creek	WVOG-51-G.6	2.58E+09	0.00E+00	1.36E+08	2.72E+09
Fowler Branch	WV-OGL-121_01	Fowler Branch	WVOG-51.5	4.17E+09	0.00E+00	2.19E+08	4.39E+09
Godby Branch	WV-OGL-125_01	Godby Branch	WVOG-53	5.14E+09	0.00E+00	2.71E+08	5.42E+09
Caney Branch	WV-OGL-129_01	Caney Branch	WVOG-54	6.07E+09	3.79E+06	3.20E+08	6.39E+09
Rocky Branch	WV-OGL-130_01	Rocky Branch	WVOG-55	6.00E+09	0.00E+00	3.16E+08	6.32E+09
King Shoal Branch	WV-OGL-134_01	King Shoal Branch	WVOG-58	5.19E+09	0.00E+00	2.73E+08	5.46E+09
Mill Creek	WV-OGL-135_01	Mill Creek	WVOG-59	2.36E+10	3.79E+06	1.24E+09	2.49E+10
Mill Creek	WV-OGL-135-F_01	Long Fork	WVOG-59-C	5.40E+09	0.00E+00	2.84E+08	5.68E+09
Mill Creek	WV-OGL-135-G_01	Butch Fork	WVOG-59-D	3.83E+09	0.00E+00	2.02E+08	4.03E+09
Big Branch	WV-OGL-136_01	Big Branch	WVOG-60	3.58E+09	0.00E+00	1.88E+08	3.77E+09
Buffalo Creek	WV-OGL-137_01	Buffalo Creek	WVOG-61	1.63E+10	2.27E+07	8.59E+08	1.72E+10
Snap Creek	WV-OGL-138_01	Snap Creek	WVOG-62	3.74E+09	0.00E+00	1.97E+08	3.94E+09
Snap Creek	WV-OGL-138-B_01	UNT/Snap Creek RM 0.63	WVOG-62-B	6.08E+08	0.00E+00	3.20E+07	6.40E+08
Crooked Creek	WV-OGL-139_01	Crooked Creek	WVOG-63	1.06E+10	0.00E+00	5.55E+08	1.11E+10
Peach Creek	WV-OGL-140_01	Peach Creek	WVOG-64	7.61E+09	4.02E+09	6.12E+08	1.22E+10
Mud River	WV-OGL-10_08	Mud River	WVOGM	1.08E+12	6.43E+10	6.00E+10	1.20E+12
Mud River	WV-OGL-10_07	Mud River	WVOGM	7.45E+11	3.34E+09	3.94E+10	7.87E+11
Mud River	WV-OGL-10_06	Mud River	WVOGM	4.28E+11	2.77E+09	2.27E+10	4.53E+11

TMDL Watershed	AUID Stream Code	Stream Name	WV Code	Load Allocations (counts /day)	Wasteload Allocation (counts /day)	Margin of Safety (counts /day)	TMDL (counts /day)
Mud River	WV-OGL-10_05	Mud River	WVOGM	2.61E+11	5.77E+08	1.38E+10	2.75E+11
Mud River	WV-OGL-10_04	Mud River	WVOGM	1.59E+11	5.33E+08	8.39E+09	1.68E+11
Mud River	WV-OGL-10_03	Mud River	WVOGM	7.34E+10	7.46E+07	3.86E+09	7.73E+10
Mud River	WV-OGL-10_02	Mud River	WVOGM	3.92E+10	0.00E+00	2.06E+09	4.12E+10
Mud River	WV-OGL-10_01	Mud River	WVOGM	1.09E+10	0.00E+00	5.75E+08	1.15E+10
Merrick Creek	WV-OGL-10-A_01	Merrick Creek	WVOGM-1	1.56E+10	1.60E+09	9.06E+08	1.81E+10
Tanyard Branch	WV-OGL-10-B_01	Tanyard Branch	WVOGM-1.5	4.01E+07	5.22E+09	2.77E+08	5.54E+09
Cyrus Creek	WV-OGL-10-D_01	Cyrus Creek	WVOGM-2	7.36E+09	2.05E+09	4.95E+08	9.90E+09
Big Cabell Creek	WV-OGL-10-Q_02	Big Cabell Creek	WVOGM-4	3.60E+10	3.79E+06	1.90E+09	3.79E+10
Big Cabell Creek	WV-OGL-10-Q_01	Big Cabell Creek	WVOGM-4	1.31E+10	0.00E+00	6.91E+08	1.38E+10
Big Cabell Creek	WV-OGL-10-Q-9_01	Big Hill Hollow	WVOGM-4-I	5.82E+09	0.00E+00	3.06E+08	6.13E+09
Edmonds Branch	WV-OGL-10-R_01	Edmonds Branch	WVOGM-5	3.63E+09	8.43E+06	1.92E+08	3.83E+09
Fudges Creek	WV-OGL-10-S_01	Fudges Creek	WVOGM-6	3.53E+10	3.19E+07	1.86E+09	3.72E+10
Fudges Creek	WV-OGL-10-S-2_01	Wire Branch	WVOGM-6-0.5A	3.74E+09	8.70E+06	1.97E+08	3.95E+09
Fudges Creek	WV-OGL-10-S-5_01	Little Fudges Creek	WVOGM-6-A	5.92E+09	0.00E+00	3.12E+08	6.23E+09
Lower Creek	WV-OGL-10-AC_02	Lower Creek	WVOGM-7	3.19E+10	7.58E+06	1.68E+09	3.36E+10
Lower Creek	WV-OGL-10-AC-5-B_01	Tony Branch	WVOGM-7-B-1	3.22E+09	0.00E+00	1.69E+08	3.39E+09
Mill Creek	WV-OGL-10-AD_02	Mill Creek	WVOGM-8	3.85E+10	4.89E+08	2.05E+09	4.10E+10
Mill Creek	WV-OGL-10-AD-7_01	Long Branch	WVOGM-8-A	3.19E+09	3.79E+06	1.68E+08	3.36E+09
Mill Creek	WV-OGL-10-AD-10_01	Right Fork/Mill Creek	WVOGM-8-C	7.81E+09	3.79E+06	4.11E+08	8.23E+09
Saunders Creek	WV-OGL-10-AE_01	Saunders Creek	WVOGM-9	8.89E+09	1.29E+08	4.75E+08	9.50E+09
Dry Creek	WV-OGL-10-AF_01	Dry Creek	WVOGM-10	4.35E+09	3.64E+07	2.31E+08	4.62E+09
Johns Branch	WV-OGL-10-AH_01	Johns Branch	WVOGM-11	3.37E+09	1.32E+09	2.47E+08	4.94E+09
Kilgore Creek	WV-OGL-10-AJ_03	Kilgore Creek	WVOGM-12	5.36E+10	9.89E+09	3.34E+09	6.68E+10
Kilgore Creek	WV-OGL-10-AJ_02	Kilgore Creek	WVOGM-12	3.17E+10	8.80E+08	1.72E+09	3.43E+10

TMDL Watershed	AUID Stream Code	Stream Name	WV Code	Load Allocations (counts /day)	Wasteload Allocation (counts /day)	Margin of Safety (counts /day)	TMDL (counts /day)
Kilgore Creek	WV-OGL-10-AJ_01	Kilgore Creek	WVOGM-12	1.30E+10	0.00E+00	6.84E+08	1.37E+10
Kilgore Creek	WV-OGL-10-AJ-2_01	Indian Fork	WVOGM-12-A	1.92E+10	8.37E+09	1.45E+09	2.90E+10
Kilgore Creek	WV-OGL-10-AJ-4_01	Lee Creek	WVOGM-12-B	8.46E+09	3.79E+08	4.65E+08	9.31E+09
Kilgore Creek	WV-OGL-10-AJ-7_01	Little Creek	WVOGM-12-C	4.72E+09	0.00E+00	2.48E+08	4.97E+09
Brush Creek	WV-OGL-10-AM_01	Brush Creek	WVOGM-13	2.13E+09	0.00E+00	1.12E+08	2.24E+09
Charley Creek	WV-OGL-10-AO_02	Charley Creek	WVOGM-14	3.80E+10	3.93E+08	2.02E+09	4.04E+10
Charley Creek	WV-OGL-10-AO_01	Charley Creek	WVOGM-14	2.00E+10	3.89E+08	1.07E+09	2.15E+10
Charley Creek	WV-OGL-10-AO-11_01	Panther Lick	WVOGM-14-D	2.84E+09	0.00E+00	1.49E+08	2.99E+09
Little Twomile Creek	WV-OGL-10-AQ_01	Little Twomile Creek	WVOGM-15	4.27E+09	0.00E+00	2.24E+08	4.49E+09
Trace Fork	WV-OGL-10-AY_06	Trace Fork	WVOGM-20	2.22E+11	1.65E+08	1.17E+10	2.34E+11
Trace Fork	WV-OGL-10-AY_05	Trace Fork	WVOGM-20	1.81E+11	1.42E+08	9.56E+09	1.91E+11
Trace Fork	WV-OGL-10-AY_04	Trace Fork	WVOGM-20	1.38E+11	1.31E+08	7.27E+09	1.45E+11
Trace Fork	WV-OGL-10-AY_03	Trace Fork	WVOGM-20	6.94E+10	1.05E+08	3.66E+09	7.32E+10
Trace Fork	WV-OGL-10-AY_01	Trace Fork	WVOGM-20	1.47E+10	2.73E+07	7.75E+08	1.55E+10
Trace Fork	WV-OGL-10-AY-7_01	Coon Creek	WVOGM-20-A	5.76E+09	7.58E+06	3.04E+08	6.07E+09
Trace Fork	WV-OGL-10-AY-10_02	Big Creek	WVOGM-20-D	2.62E+10	1.52E+07	1.38E+09	2.76E+10
Trace Fork	WV-OGL-10-AY-10_01	Big Creek	WVOGM-20-D	1.67E+10	7.58E+06	8.79E+08	1.76E+10
Trace Fork	WV-OGL-10-AY-10-B_01	Harvey Creek	WVOGM-20-D-1	5.62E+09	0.00E+00	2.96E+08	5.91E+09
Trace Fork	WV-OGL-10-AY-14_01	Sycamore Creek	WVOGM-20-F	9.84E+09	3.79E+06	5.18E+08	1.04E+10
Trace Fork	WV-OGL-10-AY-20_01	Clymer Creek	WVOGM-20-H	1.48E+10	0.00E+00	7.79E+08	1.56E+10
Trace Fork	WV-OGL-10-AY-22_01	Trace Creek	WVOGM-20-I	9.41E+09	1.14E+07	4.96E+08	9.92E+09
Trace Fork	WV-OGL-10-AY-22-A_01	Kellys Creek	WVOGM-20-I-1	3.77E+09	0.00E+00	1.98E+08	3.97E+09
Trace Fork	WV-OGL-10-AY-22-A-2_01	UNT/Kellys Creek RM 1.27	WVOGM-20-I-1-B	8.40E+08	0.00E+00	4.42E+07	8.84E+08
Trace Fork	WV-OGL-10-AY-24_01	Lick Creek	WVOGM-20-J	1.08E+10	3.79E+06	5.66E+08	1.13E+10
Trace Fork	WV-OGL-10-AY-26_01	Turkey Creek	WVOGM-20-K	1.67E+10	3.79E+06	8.77E+08	1.75E+10

TMDL Watershed	AUID Stream Code	Stream Name	WV Code	Load Allocations (counts /day)	Wasteload Allocation (counts /day)	Margin of Safety (counts /day)	TMDL (counts /day)
Trace Fork	WV-OGL-10-AY-26-F_01	Lefthand Fork	WVOGM-20-K-1	3.12E+09	0.00E+00	1.64E+08	3.29E+09
Trace Fork	WV-OGL-10-AY-30_01	Bridge Creek	WVOGM-20-M	7.88E+09	3.79E+06	4.15E+08	8.30E+09
Trace Fork	WV-OGL-10-AY-40_01	Hayzlett Fork	WVOGM-20-R	1.71E+10	1.89E+07	9.00E+08	1.80E+10
Trace Fork	WV-OGL-10-AY-42_02	Joes Creek	WVOGM-20-T	2.56E+10	3.56E+07	1.35E+09	2.69E+10
Trace Fork	WV-OGL-10-AY-42_01	Joes Creek	WVOGM-20-T	1.08E+10	2.05E+07	5.71E+08	1.14E+10
Trace Fork	WV-OGL-10-AY-42-D_01	Laurel Fork	WVOGM-20-T-1	8.25E+09	1.52E+07	4.35E+08	8.70E+09
Trace Fork	WV-OGL-10-AY-42-F_01	Tango Branch	WVOGM-20-T-2	4.50E+09	7.58E+06	2.37E+08	4.74E+09
Trace Fork	WV-OGL-10-AY-46_01	Dry Branch	WVOGM-20-W	3.50E+09	3.79E+06	1.84E+08	3.69E+09
Little Buffalo Creek	WV-OGL-10-AZ_01	Little Buffalo Creek	WVOGM-21	2.52E+09	0.00E+00	1.33E+08	2.65E+09
Buffalo Creek	WV-OGL-10-BA_01	Buffalo Creek	WVOGM-22	1.30E+10	3.79E+06	6.83E+08	1.37E+10
Buffalo Creek	WV-OGL-10-BA-1_01	Straight Fork	WVOGM-22-A	2.61E+09	0.00E+00	1.37E+08	2.75E+09
Middle Fork/Mud River	WV-OGL-10-BL_04	Middle Fork/Mud River	WVOGM-25	1.29E+11	2.89E+08	6.80E+09	1.36E+11
Middle Fork/Mud River	WV-OGL-10-BL-2_01	Meadow Branch	WVOGM-25-A	1.87E+09	3.79E+06	9.86E+07	1.97E+09
Middle Fork/Mud River	WV-OGL-10-BL-3_01	Trace Creek	WVOGM-25-B	8.38E+09	0.00E+00	4.41E+08	8.82E+09
Middle Fork/Mud River	WV-OGL-10-BL-4_01	Middle Creek	WVOGM-25-C	7.93E+09	4.55E+06	4.18E+08	8.35E+09
Middle Fork/Mud River	WV-OGL-10-BL-10_01	Davis Trace Branch	WVOGM-25-D	3.85E+09	7.58E+06	2.03E+08	4.06E+09
Middle Fork/Mud River	WV-OGL-10-BL-12_01	Scary Creek	WVOGM-25-E	8.31E+09	0.00E+00	4.37E+08	8.75E+09
Middle Fork/Mud River	WV-OGL-10-BL-15_01	Merritt Creek	WVOGM-25-F	4.37E+09	9.09E+06	2.30E+08	4.61E+09
Middle Fork/Mud River	WV-OGL-10-BL-18_02	Straight Fork	WVOGM-25-H	3.96E+10	2.25E+08	2.10E+09	4.19E+10
Middle Fork/Mud River	WV-OGL-10-BL-18_01	Straight Fork	WVOGM-25-H	8.52E+09	1.21E+07	4.49E+08	8.99E+09
Middle Fork/Mud River	WV-OGL-10-BL-18-A_01	Valley Fork	WVOGM-25-H-1	1.11E+10	1.06E+07	5.83E+08	1.17E+10
Middle Fork/Mud River	WV-OGL-10-BL-19_02	Sugartree Fork	WVOGM-25-I	3.15E+10	1.14E+07	1.66E+09	3.32E+10
Middle Fork/Mud River	WV-OGL-10-BL-19_01	Sugartree Fork	WVOGM-25-I	1.04E+10	3.79E+06	5.46E+08	1.09E+10
Middle Fork/Mud River	WV-OGL-10-BL-19-A_01	Big Branch	WVOGM-25-I-1	1.44E+09	0.00E+00	7.58E+07	1.52E+09
Middle Fork/Mud River	WV-OGL-10-BL-19-B_01	Sycamore Fork	WVOGM-25-I-2	5.88E+09	7.58E+06	3.10E+08	6.20E+09

TMDL Watershed	AUID Stream Code	Stream Name	WV Code	Load Allocations (counts /day)	Wasteload Allocation (counts /day)	Margin of Safety (counts /day)	TMDL (counts /day)
Middle Fork/Mud River	WV-OGL-10-BL-19-G_01	Maul Fork	WVOGM-25-I-6	4.59E+09	0.00E+00	2.42E+08	4.83E+09
Mahone Creek	WV-OGL-10-BR_01	Mahone Creek	WVOGM-26	5.26E+09	7.58E+06	2.77E+08	5.54E+09
Big Creek	WV-OGL-10-BU_01	Big Creek	WVOGM-28	6.05E+09	3.79E+06	3.19E+08	6.38E+09
Little Laurel Creek	WV-OGL-10-CB_01	Little Laurel Creek	WVOGM-30	4.53E+09	0.00E+00	2.38E+08	4.77E+09
Sandlick Branch	WV-OGL-10-CC_01	Sandlick Branch	WVOGM-31	1.99E+09	0.00E+00	1.05E+08	2.09E+09
Big Laurel Creek	WV-OGL-10-CH_01	Big Laurel Creek	WVOGM-33	1.62E+10	3.79E+06	8.52E+08	1.70E+10
Fez Creek	WV-OGL-10-CK_01	Fez Creek	WVOGM-34	3.84E+09	3.79E+06	2.02E+08	4.04E+09
Big Creek	WV-OGL-10-CL_02	Big Creek	WVOGM-35	2.31E+10	3.79E+06	1.22E+09	2.44E+10
Big Creek	WV-OGL-10-CL_01	Big Creek	WVOGM-35	1.18E+10	0.00E+00	6.23E+08	1.25E+10
Parsner Creek	WV-OGL-10-CR_01	Parsner Creek	WVOGM-38	9.57E+09	0.00E+00	5.04E+08	1.01E+10
Left Fork/Mud River	lake	Left Fork/Mud River	WVOGM-39	4.95E+10	3.29E+08	2.62E+09	5.25E+10
Left Fork/Mud River	WV-OGL-10-CS_01	Left Fork/Mud River	WVOGM-39	1.52E+10	2.17E+08	8.10E+08	1.62E+10
Left Fork/Mud River	WV-OGL-10-CS-6_01	Stinson Branch	WVOGM-39-E	6.79E+09	1.25E+07	3.58E+08	7.16E+09
Left Fork/Mud River	WV-OGL-10-CS-8_01	Sycamore Fork	WVOGM-39-G	1.13E+10	8.14E+07	6.00E+08	1.20E+10
Left Fork/Mud River	WV-OGL-10-CS-10_01	Dogbone Branch	WVOGM-39-H	4.59E+09	5.30E+07	2.44E+08	4.88E+09
Upton Branch	WV-OGL-10-CY_01	Upton Branch	WVOGM-40	8.34E+09	0.00E+00	4.39E+08	8.78E+09
Bear Branch	WV-OGL-10-DC_01	Bear Branch	WVOGM-41	5.52E+09	6.25E+07	2.94E+08	5.88E+09
Slab Creek	WV-OGL-10-DG_01	Slab Creek	WVOGM-42	4.39E+09	0.00E+00	2.31E+08	4.62E+09

NA = not applicable; UNT = unnamed tributary; RM = river mile.

"Scientific notation" is a method of writing or displaying numbers in terms of a decimal number between 1 and 10 multiplied by a power of 10. The scientific notation of 10,492 for example, is 1.0492×10^4 or 1.0492E+4.