

**West Fork Black River in Missouri**  
**Draft Total Maximum Daily Load (TMDL)**  
**SUMMARY OF COMMENTS AND RESPONSES**  
Prepared by the Environmental Protection Agency (EPA), Region 7  
Water, Wetlands and Pesticides Division  
December 2010

## INTRODUCTION

EPA public noticed a draft TMDL for West Fork Black River (water body identification MO\_2755) from November 5 to December 6, 2010. A previous draft was public noticed from October 13 to November 5, 2010, but was rewritten in light of a Memorandum of Understanding between EPA and the Doe Run Resources Company. The rewritten draft TMDL was placed on public notice a full 30 days (November 5 to December 6, 2010) and the new public notice was distributed to all those who had received the first public notice.

EPA is establishing this TMDL to meet the obligations of the 2001 Consent Decree, *American Canoe Association, et al. v. EPA*, Consolidated Case No. 98-482-CV-W, (Consent Decree). This document summarizes and paraphrases comments received, EPA's response to comments and changes made to the final TMDL where appropriate. Included is a list of all commentors. This summary covers all comments received from October 13 to December 6, 2010

## RESPONSE TO COMMENTS (EPA responses in bold)

1. Comment: Several commentors wanted to know why the comment period was extended?

**1. Response: EPA made the decision to refine the wasteload allocation (WLA) calculations in West Fork Black River's TMDL and EPA extended public notice to offer the public a full 30 days to comment on the refined WLA. The extension was not made in response to a request to extend comment. EPA's decision to refine the WLA was based on a Memorandum of Understanding between the Doe Run Resources Corporation and EPA that wasn't available when the first draft was posted for public comment.**

2. Comment: According to the federal court order on the Consent Decree, this TMDL must be completed and approved by EPA Region 7 by December 31, 2010. If it isn't, EPA will be in violation of this court order.

**2. Response: EPA is working with Missouri to establish or approve all of the Consent Decree TMDLs by the December 31, 2010 deadline. EPA is ensuring that all of the TMDLs meet EPA's quality assurance protocols for scientific defensibility and provide public notice to all TMDL stakeholders.**

3. Comment: Several commentors object to sharing WLA reductions with the Doe Run continuous mine discharge outfalls because only Doe Run is contributing to the impairment of the receiving water. The commentors say that compared to Doe Run, they contribute minimal flow generated by small populations. Specifically, the actual permit flow for Bunker's WWTP [Wastewater Treatment Plant] is 20,300 gallons per day which accounts for 0.021% of West Fork Black River's flow during critical low flow conditions. The actual permit flow for Centerville's WWTP is 10,600 gallons per day which accounts for 0.011% of West Fork Black River's flow during critical low flow conditions. Both Centerville and Bunker have lost 1.2% population since the year 2000. Furthermore, the Bunker facility is a land-application (no discharge) system with only an emergency outfall from the irrigation lagoon that hasn't discharged since January 2009.

**3. Response: EPA recognizes the concerns that the communities have about the TMDL, but all regulated sources are considered to be point sources and therefore part of the assigned WLA, per Code of Federal Regulations (CFR) at 40 CFR § 130.7(c)(1)(ii). National Pollutant Discharge Elimination System (NPDES)-regulated storm water discharges must be addressed by the WLA component of a TMDL and cannot be removed from the TMDL. See 40 CFR § 130.2(h). If the source is considered non-discharging then a WLA of zero is assigned to that facility. The Missouri Department of Natural Resources (MDNR) will work with permitted facilities identified in the TMDL because the state incorporates the TMDL into its current water quality management plan for implementation (40 CFR § 130.7(d)(2). MDNR works with other Missouri communities on their Wastewater Treatment Facilities (WWTFs) and Municipal Separate Storm Sewer Systems (MS4s) and will work with communities on the economic and technical aspects of West Fork Black River's WLAs. Missouri has the authority to monitor and access state waters to ensure protection of the designated beneficial uses. Missouri may submit and EPA may approve a revised or modified TMDL for this water at any time.**

4. Comment: One commentor's family have been West Fork Black River stakeholders for several generations. The family used to swim in the river at a spot referred to as the Granddaddy Hole (just below where the West Fork Mine is today). Up to a 100 people gathered at the Granddaddy Hole on special occasions in the 1970s. In 1986, ASARCO opened the West Fork Mine next to the Ozark stream, West Fork Black River. ASARCO built a levy which increased flow and velocity resulting in flooding. The water quality degraded: the river water became grey, the bottom of the river turned black, there was an orange substance at outfall number 2, and the Granddaddy Hole was so foul that it smelled. No one swam in the river. The commentor included pictures from 1970 and 1992 which showed the different conditions at the Granddaddy Hole. The commentor says that Doe Run stopped using the mine when they bought it, but they continued to discharge water. Appearance improved somewhat, the black at the bottom of the river lessened. However, algae and bottom deposits continue and no one swims in the river. The commentor continues to eat fish from the river. Crayfish population has reduced to his finding only two in ten years – where crayfish had been abundant in the 1970s. The commentor says that the draft TMDL defines the problem well and thanks EPA for the efforts to clean up the river. The commentor hopes that more can be done to improve the metals in the sediment.

**4. Response: EPA thanks the commentor for his personal story of this water's importance to his family that included pictures and personal testimony about the water body's condition over time. Citizens who are interested in their watershed's health are encouraged to work with established watershed groups, such as Missouri Stream Team organization. Because the commentor took the time to put together such a comprehensive comment about the West Fork Black River, his comment is now part of the public notice record for this TMDL. All comments received during public are reviewed and organized for future reference when this water is addressed. If the data provided by commentors is found to meet MDNR's minimum quality assurance level for data inclusion, MDNR may consider submitting a revised or modified TMDL for this water at any time based on this or other data. The data needs to be representative of instream conditions and meet the Quality Assurance/Quality Control (QA/QC) levels of Missouri's Listing Methodology document in the Code of State Regulations (CSR) at (10 CSR 20-7.031 and 10 CSR 20-7.050).**

5. Comment: A commentor asserts that there is no evidence that West Fork Black River is impaired and, because it is not impaired, a TMDL is not needed. Impairment is based on land owner complaints that aren't recent or explicit. There is more recent data that indicates total phosphorus and periphyton are upstream of West Fork Black River's impaired segment. Other reasons that the commentor believes that there is no evidence of the water body's impairment is that the TMDL ignores a MDNR 2003 study, problem definition in the TMDL is vague, none of the 2009 nutrients sampled exceeded the nutrient target for total phosphorus. Data from a 2009 study greatly differs from 2003 data and that discrepancy should be explained in the TMDL.

**5. Response: Changing the impaired waters list is beyond the scope of this TMDL public notice. West Fork Black River was listed as impaired (designated beneficial uses not meeting water quality standards) under EPA's Clean Water Act (CWA) 303(d) review requirements and authority. Regulations provide that each State shall establish, for waters listed pursuant to the CWA § 303(d)(1)(A), a TMDL for those pollutants which EPA has identified as suitable for such calculation, refer to CWA § 303(d)(1)(C), from (33 United States Code (USC) § 1313(d)(1)(C)). EPA is establishing this TMDL at this time to meet the requirements of the Consent Decree and based the TMDL on the best data available. The commentor's data will be shared with MDNR and with EPA's Missouri Water Quality Standards (WQS) Coordinator for consideration during the next Missouri 303(d) List review. If the data provided by commentors is found to meet MDNR's minimum quality assurance level for data inclusion, MDNR may consider submitting a revised or modified TMDL for this water at any time based on this or other data.**

6. Comment: The TMDL target is flawed because the reference condition approach is overly simplistic resulting in arbitrary nutrient criteria which yields inefficient and ineffective pollution control efforts. (The TMDL target is inappropriate because it is based on overly conservative approaches.)

The reference approach used in the TMDL fosters arbitrary decision-making: As an example, the selection of the TMDL's protective concentration is an arbitrary guess based on the

concentration value that is exceeded in 25% of all nutrient data of all sites in a given ecoregion (In each ecoregion observed the concentrations greatly varied.). EPA's own scientific board in 2010 described a range of approaches to be used to define nutrient criteria and said that the reference system approach is the least rigorous and does not directly consider the environmental consequences of resulting nutrient concentrations. Many states only use the reference approach in situations where insufficient resources are available to more rigorously define criteria. EPA guidance on developing nutrient criteria provides alternate methods for applying the reference conditions approach; the TMDL uses the least rigorous allowable method. The effect of combining the above assumptions (selecting the reference approach and applying it in the least rigorous method) results in an approach that defines 75% of all sites in the ecoregion to be impaired by nutrients.

**6. Response: EPA believes that the methodology described in the TMDL and its Appendices is technically defensible. MDNR has used the methodology in developing several TMDLs that were subsequently approved by EPA.**

**The development of nutrient targets using Ecoregion nutrient criteria with load duration curves follows MDNR's selection criteria for reference streams, per MDNR's Biological Criteria for Wadeable/Perennial Streams of Missouri, found online at <http://www.dnr.mo.gov/env/esp/docs/BiologicalCriteriaforWadeableStreamsofMissouri.pdf> Reference streams from the same Ecological Drainage Unit (EDU) were chosen to insure reference locations were similar to the impaired stream by virtue of what defines a collection of watersheds in one EDU: common zoogeographical history, physiography and climatic characteristics. The result of these shared characteristics is that watersheds in one EDU share similar distributions of animals, freshwater assemblages, habitats, weather and precipitation. To estimate the reference conditions of West Fork Black River, the synthetic (or representative) flow from the reference streams was derived from the average values of all the individual log transformed flow values (or median of the individual reference streams). Prior to the synthetic flow being derived from the average, all of the flows are normalized based on their respective watershed sizes. Please refer to Appendix B which discusses reference watersheds in greater depth and provides reference to additional scientific literature. Furthermore, Appendix B discusses the choice of the reference streams according to MDNR's criteria and applicable WQS (40 CFR §131).**

7. Comment: The TMDL has incorrect citations and typos. Criteria for Ecoregion 39 are provided in EPA guidance for Nutrient Ecoregion XI, not Nutrient Ecoregion IX as cited in the TMDL. The appropriate criteria are in Table 3c not Table 3e. Appendix B does not contain a detailed discussion of the method used to develop the TN and TP targets.

**7. Response: EPA thanks the commentor for information to improve the final TMDL. The typos and Appendix omission have been corrected in the final TMDL.**

8. Comment: The TMDL incorrectly identifies the West Fork Mine as the source of impairment and ignores the existence of a spring previously identified as a source of the perceived impairment.

Other research into potential impairments identified a spring across from Doe Run's West Fork Mine outfall as a key source of the historical impairment. The spring is never mentioned in the TMDL. The commentor presents information from a 2003 study that indicates that the alternate spring is the source for staining from oxidized manganese and a darkly stained river bottom. Additional information from a 1992 study describes how the black manganese coating of benthic rocks occurs where significant quantities of soluble manganese materials are brought to the surface. Even MDNR in 2003 concluded that because of the spring further studies should be done. Furthermore, data collected upstream of the mine showing higher phosphorus concentrations contradicts West Fork Mine as the source of impairment.

**8. Response: EPA appreciates feedback on the draft TMDL. EPA is establishing this TMDL at this time to meet the requirements of the Consent Decree and based the TMDL on the best data available at the time the TMDL was drafted. The commentor's information will be shared with MDNR. If the data provided by commentors is found to meet MDNR's minimum quality assurance level for data inclusion, MDNR may consider submitting a revised or modified TMDL for this water at any time based on this or other data. The data needs to be representative of instream conditions and meet the QA/QC levels of Missouri's Listing Methodology document (10 CSR 20-7.031 and 10 CSR 20-7.050).**

9. Comment: The calculations of the loading capacities and the allocation of pollutant loads are flawed. The commentor has not been able to replicate all of the allowable loads presented in the TMDL in Tables 9 and 10 using the flows provided and the specified TMDL targets. The commentor requests the detailed calculations from the TMDL to allow comment on the calculations.

**9. Response: EPA believes that the methodology described in the TMDL and its Appendices is technically defensible. Graphs and data in the draft TMDL have been analyzed and presented consistent with the procedures included in the Appendices; 40 CFR 130.2(i) and 40 CFR 130.7(c)(1). Additionally, MDNR has used the methodology in developing several TMDLs that were subsequently approved by EPA. (The commentor may go to the Appendices and Section 6 of the TMDL for detailed calculations.)**

**The following information will help the commentor better replicate the TMDL:**

- **The sources for all raw data used in the draft TMDL are listed in the References Section.**
- **The commentor is directed to the Appendices cited at relevant points in the body of the TMDL to find specific data and further analyses,**
- **Data used in the TMDL's calculations that are not in the draft TMDL is being placed into STORET for better data sharing, and**
- **All data used to list a water during any Missouri 303(d) listing cycle is on file with MDNR.**

**The STORET Data Warehouse is EPA's repository of the water quality monitoring data collected by water resource management groups across the country. The new water quality**

exchange (WQX) makes uploading data to STORET easier so more groups are able to share data. Please access data for this TMDL at the following Website: [http://www.epa.gov/STORET/dw\\_home.html](http://www.epa.gov/STORET/dw_home.html). Assistance on using STORET is available at <http://www.epa.gov/STORET/owners.html>.

For data that was obtained from MDNR, the state's website offers several locations to retrieve water body data: <http://www.dnr.mo.gov/env/wpp/waterquality/303d/2008/proposed-2008-303d-list-data.htm> and <http://www.dnr.mo.gov/env/wpp/tmdl/index.html>. The commentor may also call MDNR's Water Quality Monitoring and Assessment Section who maintains information on the past and current quality of water in Missouri and makes the information available to other agencies and the general public (573-751-6623).

10. Comments on the TMDL's calculations include:

- The TMDL did not allow for mixing or dilution.
- Point source flows in the calculations were average flows, not the maximum permitted flows.
- Because Stormwater is included as a point source, the wasteload allocations for point sources should increase at higher flows, rather than being held constant at the low-flow allocation.
- The draft TMDL allocates 75% of the allowable loads at low flow to nonpoint sources. This is unfounded because the majority of nonpoint sources are from runoff, which is expected to be associated with wet weather, elevated-flow conditions.
- The TMDL should quantify contributions from nonpoint sources and provide an equitable allocation for all flow conditions, including higher WLAs for the point sources.

**10. Response:** All of the comments are addressed through the implementation of the TMDL, rather than when calculating the TMDL because TMDLs set a cumulative WLA and are written to meet water quality standards. Permit limits are calculated by MDNR to be consistent with the assumptions used in the TMDL. The draft TMDL allocates 75% of the allowable loads at low flow to nonpoint sources because Missouri targets the 25th percentile of low flow in TMDLs and does not allow for flow variable point sources in TMDLs. Flow variable permit limits and mixing zones are considered during the calculation of permit limits.

Per EPA regulations, the state incorporates the TMDL into its current water quality management plan for implementation (40 CFR 130.7(d)(2)). The conversion of WLAs to permit limits is specifically the purview of the MDNR's NPDES Permits and Engineering Section. Should you have questions regarding the determination of permit effluent limits, please contact Mr. Refaat Mefrakis, Chief, NPDES Permits and Engineering Section, at (573) 526-2928 or via email [refaat.mefrakis@dnr.mo.gov](mailto:refaat.mefrakis@dnr.mo.gov).

## **LIST OF COMMENTORS**

1. Ken Midkiff, Sierra Club, Missouri
2. Robert J. Brundage, Newman, Comley And Ruth, PC for Doe Run Resources Corporation, Missouri
3. Philip K. Walsack, Missouri Public Utility Alliance with the City of Bunker, Missouri
4. Dale Brooks, Citizen, Boss, Missouri
5. Philip K. Walsack, Missouri Public Utility Alliance with the City of Centerville, Missouri and for Ron Keeney the Contract Operator of the City of Centerville Waste Water Treatment Plant
6. Brittany A. Barrientos, Newman, Comley and Ruth, PC for Doe Run Resources Corporation, Missouri

## **END SUMMARY OF COMMENTS AND RESPONSES**