Missouri Department of Natural Resources

DRAFT BIG RIVER, FLAT RIVER CREEK AND SHAW BRANCH TMDL PUBLIC COMMENTS

1ST Public Notice
Dec. 20, 2006 – Jan. 19, 2007

2nd Public Notice
Sept. 24, 2007 – Oct. 24, 2007

Big River – WBIDs # 2074 and 2080
Flat River Creek – WBID # 2168
Shaw Branch – WBID # 2170

St. Francois and Jefferson counties, Mo.

Missouri Department of Natural Resources
Water Protection Program
PO Box 176
Jefferson City, MO 65102-0176
800-361-4827 / 573-751-1300

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

REGION VII
901 NORTH 5TH STREET
KANSAS CITY, KANSAS 66101

JAN 11 2007

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WATER PROTECTION PROGRAM

Mr. Edward Galbraith, Director
Water Pollution Control Program
Water Protection and Soil Conservation Division
Missouri Department of Natural Resources
P.O. Box 176
Jefferson City, Missouri 65102

Dear Mr. Galbraith:

RE: Comments on Draft TMDL public noticed on the MDNR website: Big River, Flat River Creek, and Shaw Branch.

The U.S. Environmental Protection Agency (EPA) is providing these comments on the proposed final Total Maximum Daily Loads (TMDLs) public noticed on the Missouri Department of Natural Resources (MDNRs) website; http://www.dnr.mo.gov/env/wpp/wpcp-pn.htm.

Big River, Flat River Creek, and Shaw Branch TMDL public notice period December 20, 2006 to January 19, 2007, comments are in the enclosure.

EPA has completed its review of the draft TMDL on public notice. By this letter, EPA is submitting comments concerning the draft TMDL as listed in the enclosure. We appreciate the opportunity to comment and the thoughtful effort that MDNR has put into this draft TMDL. We will continue to cooperate with and assist, as appropriate, in future efforts by MDNR to develop TMDLs.

If you have any questions or concerns in regards to this matter, please do not hesitate to contact Tabatha Adkins, TMDL Team, of my staff, at (913)551-7128.

Sincerely,

John DeLashmit
Chief
Water Quality Management Branch

Enclosure

cc: John Hoke
Missouri Department of Natural Resources

Phil Schroeder
Missouri Department of Natural Resources

Enclosure

Regarding: Draft TMDL for Big River – MO_1074 and 2080, Flat River – MO_2168, and Shaw Branch - MO_ 2170, for zinc, lead, and non-volatile suspended solids (NVSS) impairments. The impaired designated uses are protection of aquatic life – warm water fishery (all segments) and human health protection - fish consumption (MO_1074, 2080, and 2168).

EPA has reviewed the draft document and has the following comments which need to be addressed in the final TMDL:

General Comments

Comment 1 -- Page 7, section 2.2 -The TMDL recognizes protection of warm water aquatic life and human health uses but does not address the human health impairment. If the reductions listed for protection of aquatic life are also protective of the human health use, then a discussion of this is required.

Comment 2 - - Page 22-23, section 4.1 – Waste load allocations (WLAs) are specified as the lower of either water quality based effluent limits (WQBEL) or technology based effluent limits (TBELs). The two site specific permits (St. Francois County Environmental, Corp – MO-0108774 and MDNR, St. Joe State Park – MO-0097993) should have a calculated reduction in daily load listed. These facilities account for much of the metals and sediment impairment. The TMDL states that a reverse calculation can be used to determine appropriate loading from each facility. These calculations should appear in this document for the two facilities.

Comment 3 - - Page 23, section 4.1 – General and storm water permits which apply to areas containing NVSS, lead, and zinc sources should state as an addendum which best management practices (BMPs) are in place to protect the impaired streams from potential loading for each site.

Comment 4 - - Applicable or Relevant and Appropriate Requirements (ARARs) are not addressed for this TMDL. Either monitoring data in these ARARs (MO-ARAR011 and MO-ARAR012) is shown to be protective and thereby validate the ARAR limits or WLAs are established for all ARAR documents.

Comment 5 - - Page 25, section 4.3 – The last two sentences refer to permitted facilities and should be placed in the WLA section 4.1 so permit writers can identify required activities under this TMDL and modify permits for these facilities appropriately.

"Permitted facilities shall adopt appropriate BMPs to reduce sediment and metal loading from their storm water outfalls. They should regularly measure in-stream pollutant concentration to determine the efficacy of their control measures."

Comment 6 - - Page 3-6, section 1.5 and page 25, section 4.2 – Should discuss internal movement and expansion of dissolved lead and zinc sources through resuspension and transport of tailings in the stream system.

The above noted comments are such that after their correction the TMDL will need additional public review. At that time, EPA will again review the draft Big River, Flat River Creek, and Shaw Branch TMDL in its entirety.

STATE OF MISSOURI
Matt Blunt, Governor • Doyle Childers, Director
DEPARTMENT OF NATURAL RESOURCES
www.dnr.mo.gov

September 19, 2008

Mr. John DeLashmit
Chief, Water Quality Management Branch
Water, Wetlands, and Pesticides Division
U.S. Environmental Protection Agency, Region 7
901 North 5th Street
Kansas City, KS 66101

RE: Response to Comments on the Big River, Flat River Creek and Shaw Branch Total Maximum Daily Load

Dear Mr. DeLashmit:

The Missouri Department of Natural Resources (department) appreciates the comments provided by the U.S. Environmental Protection Agency (EPA) on the draft Big River, Flat River Creek and Shaw Branch Total Maximum Daily Load (TMDL). This letter responds to comments received from EPA following the first public notice period for this TMDL that ended January 19, 2007. Please find herein the department's response to each comment and the location of the revision (if applicable) within the draft TMDL placed on public notice September 24, 2007. The department did not receive additional comments from EPA during this second public notice period and assumes the revisions were acceptable.

Comment 1 - Page 7, Section 2.2 – The TMDL recognizes protection of warm water aquatic life and human health uses but does not address the human health impairment. If the reductions listed for protection of aquatic life are also protective of the human health use, then a discussion of this is required.

The reductions listed for the protection of aquatic life use are also protective of the human health designated use. A discussion to this effect has been included on Page 9, Section 2.5.1 – Numeric Water Quality Targets, Lead and Zinc.

Comment 2 - - Page 22-23, Section 4.1 – Waste load allocations (WLAs) are specified as the lower of either water quality based effluent limits (WQBEL) or technology based effluent limits (TBELs). The two site specific permits (St. Francois County Environmental, Corp – MO-0108774 and MDNR, St. Joe State Park – MO-0097993) should have a calculated reduction in daily load listed. These facilities account for much of the metals and sediment impairment. The TMDL states that a reverse calculation can be used to determine appropriate loading from each facility. These calculations should appear in this document for the two facilities.

WLAs have been calculated or determined for all point sources within the Big River, Flat River Creek, and Shaw Branch watersheds. WLAs for site-specific and general permits can be found in Section 4.1 of the document. The St. Francois County Environmental Corporation (MO-0108774) and MDNR, St. Joe State Park (MO-0097993) facility WLAs can be found in Section 4.1.3. Reverse calculations were not necessary in these cases as the WLA was set at the loading capacity of the receiving water body during low-flow conditions for both of these facilities.

Comment 3 - Page 23, Section 4.1 – General and storm water permits which apply to areas containing NVSS, lead, and zinc sources should state as an addendum which best management practices (BMPs) are in place to protect the impaired streams from potential loading for each site.

General and storm water permits and implementation strategies for these permits are discussed in Sections 4.1.1 and 8.1, respectively. Due to the unique characteristics of each general and storm water permit and the conditions present at a given site, BMPs are not specified in the general and storm water permit templates. However, general and storm water permits that apply to areas containing NVSS, lead, and zinc shall be inspected and recommendations given for implementing and maintaining BMPs that are protective of water quality. Should these efforts fall short of achieving water quality, provisions are contained in each general permit that allow the department to revoke the general permit and issue a site-specific permit in its place that contains the necessary permit conditions to correct an impairment caused by the facility.

Comment 4 - - Applicable or Relevant and Appropriate Requirements (ARARs) are not addressed for this TMDL. Either monitoring data in these ARARs (MO-ARAR011 and MO-ARAR012) is shown to be protective and thereby validate the ARAR limits or WLAs are established for all ARAR documents.

A discussion concerning ARARs can now be found in Section 4.1.4 of the document. In responding to the above comment, the department discovered that the monitoring required by MO-ARAR011 and MO-ARAR012 has not been performed for the past two years. It is therefore not known whether the ARARs have been effective in protecting water quality. The required monitoring has since commenced and the department will be able to make a determination of the effectiveness of the ARARs once an adequate number of sampling results have been submitted by the discharger.

Comment 5 - - Page 25, Section 4.3 – The last two sentences refer to permitted facilities and should be placed in the WLA section 4.1 so permit writers can identify required activities under this TMDL and modify permits for these facilities appropriately.

"Permitted facilities shall adopt appropriate BMPs to reduce sediment and metal loading from their storm water outfalls. They should regularly measure in-stream pollutant concentration to determine the efficacy of their control measures."

The two sentences in question have been included in Section 4.1.3 (Wasteload Allocations, Non-Domestic Wastewater Permits) and Section 8.1 (Implementation Plans, Point Sources) of the document. Including the language in both the WLA and implementation sections will afford permit writers ample opportunity to identify these permit requirements.

Comment 6 - Page 3-6, Section 1.5 and Page 25, Section 4.2 – Should discuss internal movement and expansion of dissolved lead and zinc sources through resuspension and transport of tailings in the stream system.

A discussion concerning secondary sources of dissolved lead and zinc (e.g. internal movement and expansion through resuspension and transport of tailings in the stream system) was added to Sections 1.5, 4.2.1, and 8.2.3 of the document.

In addition to the revisions mentioned above, the draft Big River, Flat River Creek, and Shaw Branch TMDL placed on public notice September 24, 2007 contained the following changes from the earlier version:

- The cool water fishery designation of Big River (WBID 2074) was inadvertently omitted from the earlier draft TMDL. To correct this oversight, the designated use was added to Section 2.1 of the document. Because the cool water fishery designated use is not impaired, no revisions to wasteload or load allocations were necessary.

- The modeling approach in the earlier draft TMDL that utilized a 95% compliance rate with the water quality standards was abandoned in favor of using load duration curves. Section 3.1 (Modeling approach) of the document was updated to reflect this change. In addition, Figures 3–10 and the accompanying tables were updated to reflect the load duration curve approach.

- Tables containing load allocations (LAs) have been included in Section 4.2.2 of the document. LAs reflect the load duration curve approach and take into account any WLAs that were established for the impaired water body.

- The margin of safety section of the document was updated to reflect and discuss the implicit margin of safety utilized during the TMDL development process. The updated discussion can be found in Section 5.0 of the document.

- The monitoring section of the document was updated to include additional details and discussion of federal, state, and permitted facility monitoring activities within the Big River watershed. The monitoring section revisions can be found in Section 7.0 of the document.

Thank you again for your comments and for EPA's support in the TMDL process. If you should have questions or would like to discuss this TMDL further, please contact Mr. John Hoke of my staff at (573) 526-1446 or by mail at the Department of Natural Resources, Water Protection Program, P.O. Box 176, Jefferson City, Missouri 65102.

Sincerely,

WATER PROTECTION PROGRAM

Philip A. Schroeder, Chief
Water Quality Monitoring and Assessment Section

PAS:jhl

MISSOURI COALITION FOR THE ENVIRONMENT
6267 Delmar Blvd. 2-E • St.Louis MO 63130 • 314-727-0600 Fax: 314-727-1665 • moenviron@moenviron.org • www.moenviron.org

January 19, 2007

Missouri Dept. of Natural Resources
Water Quality Monitoring and Assessment Section
P.O. Box 176
Jefferson City, MO 65102-0176

Re: Draft TMDL for Big River, Flat River Creek, and Shaw Branch

Dear Sir or Madame:

Thank you for the opportunity to comment on the draft Total Maximum Daily Load (TMDL) for the Big River, Flat River Creek and Shaw Branch.

I submit the following comments on behalf of the Missouri Coalition for the Environment concerning the above referenced draft TMDL. I have a number of questions about the TMDL and believe that the TMDL should be modified to address the following concerns.

1. Pollution caps do not appear to be set as a daily load for point source or nonpoint sources. Please express the TMDL as a daily maximum load.
2. When calculating the baseflow, is the possibility that the groundwater itself in the area is contaminated with lead considered? If so, how is this considered?
3. All sources are not included in the TMDL. According to the draft TMDL, Flat River Glass and Vessel Mineral Products are not required to monitor for lead or zinc and neither have limits in their permits for these pollutants of concern. Glass production and mineral operations are some of the most common sources of lead. Is there adequate documentation that these facilities are an exception? The TMDL does not consider their contributions of zinc, and lead. The Missouri Department of Conservation (MDC) cites 102 point sources of pollution in the Big River watershed, including 21 from sources like landfills, quarries and mines. The draft TMDL identifies 32 general permits and 11 stormwater permits in the watershed.
4. MDC also notes 65 documented sources of nonpoint source pollution including poultry farms and mines. Among the threats from abandoned mines, MDC notes runoff and erosion from processing ponds and dams in the basin. Aren't all of these sources of TSS? And lead? How were the contributions from these other facilities included in the TMDL?

5. The draft TMDL rightly considers the most egregious sources of lead into the rivers, but cumulative impacts from numerous smaller sources might also prevent the rivers from attaining water quality standards if they are not addressed, in the event of drought conditions, or if there is a catastrophic dam failure or similar event. The TMDL must prevent negative cumulative impacts on water quality. How does the TMDL address the other sources, like landfills, quarries, and mines?

6. Lead does not biodegrade and so will continue to accumulate in the rivers' sediments and to migrate downstream. How does the TMDL consider deposition in sediment over time and the possibility that hard rain events that will not only contribute additional sediment but also stir bottom sediments?

7. The draft TMDL should consider seasonal variations in flow. During a low flow season, the rivers' ability to dilute point source discharges for the pollutants of concern is reduced. During high flow events, contaminated bottom sediments can become resuspended.

8. The draft TMDL relies on some vague, future adjustment to point source permits but fails to document when those downward adjustments will occur. Further, it is unclear whether permit requirements can or will be met, particularly at the St. Francois County Environmental Corporation site where the draft TMDL notes the percent of time that reported discharge levels exceed permit limits is 100% for lead. With that level of nonattainment, what enforcement actions can be implemented to realistically achieve compliance with the standard? What enforcement actions have already been undertaken at point sources with exceedences?

9. The draft TMDL identifies percentage reductions to make to point source discharges but does not translate these reductions into daily discharge limits. What data will be used to calculate those percentage reductions? Is it feasible for all point sources to achieve those percentage reductions?

10. Many nonpoint sources are omitted from the draft TMDL as noted above. Further, the draft TMDL is not clear as to how it will address nonpoint source pollution from active and growing sources, specifically, the soil repository from yard remediations that is expected to continue in use well into the future. What measures ensure that the soil repository is stabilized on a daily basis?

11. The implementation plan for point sources is extremely vague and fails to identify a clear monitoring plan that will ensure success of the TMDL. It states that "all permits will be evaluated" but does not detail which permits will be included. In other sections of the draft TMDL only a handful of the permits in the watershed are identified. Will the evaluation be limited to these few? The draft TMDL does not identify what Best Management Practices will be implemented, who will monitor their implementation, how the monitoring will occur, and what mechanisms exist for enforcement.

12. The implementation plan for nonpoint sources does not identify a timeline for achieving water quality standards. One crucial question is whether stabilization of the tailing sites has been documented to be effective. Is the method used working well to prevent sediments from washing into the rivers? How will the system be maintained over time? Will the PRPs establish a fund to provide for its ongoing maintenance, since it will be subject eternally to the forces of erosion and the need for ongoing maintenance will never end?
13. The section on sediment removal is vague. We share the concern about the risks of removing contaminated sediment from the river without causing further harm to its inhabitants. What methods are under consideration for this? How will they be evaluated and selected? How will their effectiveness be measured? What funding sources would pay for such a project?
14. The draft TMDL is unclear about how and when its success will be evaluated. What will trigger revisions if allocations do not meet water quality standards? When will the effectiveness of the TMDL be evaluated and how? Will fish tissue samples be used to identify lead contamination?
15. The draft TMDL relies on USGS monitoring at one location two times a year. This is woefully inadequate for a TMDL, particularly on a watershed of this size and with these particular pollution challenges. The monitoring plan should include more frequent sampling over a broader geographic range.

The final TMDL must address all sources of pollution, not just the tailings piles, adequately monitor implementation, and include mechanisms for enforcement.

I encourage the Department to continue to pursue a TMDL sufficient to help restore the health of the Big River. I hope you will consider us an ally in that endeavor.

Thank you for the opportunity to participate.

Sincerely,

Kathleen Logan Smith

Kathleen Logan Smith
Executive Director

STATE OF MISSOURI
Matt Blunt, Governor • Doyle Childers, Director
DEPARTMENT OF NATURAL RESOURCES
www.dnr.mo.gov

September 19, 2008

Ms. Kathleen Logan Smith
Missouri Coalition for the Environment
6267 Delmar Boulevard, 2-E
St. Louis, MO 63130

RE: Response to Comments on the Big River, Flat River Creek and Shaw Branch Total Maximum Daily Load

Dear Ms. Smith:

The Missouri Department of Natural Resources (department) appreciates the comments provided by the Missouri Coalition for the Environment (MCE) on the draft Big River, Flat River Creek and Shaw Branch Total Maximum Daily Load (TMDL). This letter responds to comments received from MCE following the first public notice period for this TMDL that ended January 19, 2007. Please find herein the department's response to each comment and the location of the revision (if applicable) within the draft TMDL placed on public notice September 24, 2007. The department did not receive additional comments from MCE during this second public notice period and assumes the revisions were acceptable.

Comment 1 – Pollution caps do not appear to be set as a daily load for point source or nonpoint sources. Please express the TMDL as a daily maximum load.

Waste load allocations (WLAs) for point sources and load allocations (LAs) for nonpoint sources are now expressed as maximum daily loads. These revisions have been incorporated into the text and tables found in Sections 4.1 and 4.2 of the document.

Comment 2 – When calculating the baseflow, is the possibility that the groundwater itself in the area is contaminated with lead considered? If so, how is this considered?

Stream measurements taken during baseflow conditions include the physical and chemical contributions of available groundwater to the stream system. However, differentiating baseflow loading of pollutants (e.g. lead) between ground water and surface water sources can be problematic. Extensive groundwater and surface water monitoring networks would be required

to accurately quantify the contribution of pollutants from each of these sources. Should it become necessary to differentiate the contributions of pollutants from ground water and surface water sources in the future, the TMDL implementation process provides the necessary framework to conduct monitoring to make such a determination.

Comment 3 – All sources are not included in the TMDL. According to the draft TMDL, Flat River Glass and Vessel Mineral Products are not required to monitor for lead or zinc and neither have limits in their permits for these pollutants of concern. Glass production and mineral operations are some of the most common sources of lead. Is there adequate documentation that these facilities are an exception? The TMDL does not consider their contributions of zinc, and lead. The Missouri Department of Conservation (MDC) cites 102 point sources of pollution in the Big River watershed, including 21 from sources like landfills, quarries and mines. The draft TMDL identifies 32 general permits and 11 stormwater permits in the watershed.

A requirement of the TMDL process is to conduct an inventory of pollutant sources that may cause or contribute to the impairment. All known sources of TSS, lead, and zinc have been documented in Section 4.0 and Appendix D of the TMDL document. In addition to the 33 general permits (MOG) and 12 storm water permits (MOR) listed in Section 4.1.1, the TMDL mentions 98 domestic and 6 non-domestic wastewater treatment facility permits in Sections 4.1.2 and 4.1.3, respectively. The permit inventory for this TMDL was conducted using the department's permitted facility database and resulted in a list of 149 site-specific, general, and storm water permits. Data on permitted facilities generated by the department are the most current and up to date available for facilities holding National Pollutant Discharge Elimination System permits. Data obtained from static reports (e.g. Missouri Department of Conservation Watershed Inventory and Assessments) may not contain the most currently available data and statistics.

The industrial operations at Flat River Glass (MO-0098647) and Vessel Mineral Products (MO-0001422) are not expected to cause or contribute to lead or zinc loading to Flat River Creek and Big River, respectively. However, permit writers will evaluate the terms and conditions of the existing permit with those found in the TMDL upon next permit renewal. Additional monitoring and/or effluent limitations will be subject to the reasonable potential provisions found at 40 CFR 122.44(d)(1)(i) and department policies and procedures.

Comment 4 – MDC also notes 65 documented sources of nonpoint source pollution including poultry farms and mines. Among the threats from abandoned mines, MDC notes runoff and erosion from processing ponds and dams in the basin. Aren't all of these sources of TSS? And lead? How were the contributions from these other facilities included in the TMDL?

Nonpoint sources of pollution are not regulated by the department and comprehensive inventories of these sources are often not available. Because the load duration curve modeling approach collectively takes into consideration the pollutant contributions from all sources,

contributions and reductions can be established for nonpoint sources once point sources and a margin of safety have been removed from the analysis. Load allocations (LA) for nonpoint sources using the load duration curve approach can be found in Section 4.2 of the document.
Comment 5 – The draft TMDL rightly considers the most egregious sources of lead into the rivers, but cumulative impacts from numerous smaller sources might also prevent the rivers from attaining water quality standards if they are not addressed, in the event of drought conditions, or if there is a catastrophic dam failure or similar event. The TMDL must prevent negative cumulative impacts on water quality. How does the TMDL address the other sources, like landfills, quarries, and mines?

All known sources of TSS, lead, and zinc have been accounted for in the TMDL loading calculations. As indicated in a previous response, the TMDL process requires a comprehensive inventory of pollutant sources that may cause or contribute to the impairment. In reference to the facility types mentioned in Comment 5, the St. Francois County Environmental Corporation is a major landfill within the Big River Watershed and 13 quarries have been permitted within the basin. For more detailed information regarding point sources, please see Section 4.1 and Appendix D of the document. Nonpoint sources of TSS, lead, and zinc (e.g. abandoned mine lands) are accounted for in the load allocation portion of the TMDL and found in Section 4.2 of the document. Collectively, the WLA and LA portions of the TMDL account for the cumulative impact of point and nonpoint sources on water quality. To mitigate any uncertainty in the WLA and LA calculations, an implicit margin of safety was utilized and ensures the impaired waters will meet water quality standards. For details on the TMDL margin of safety, please see Section 5.0.

Comment 6 – Lead does not biodegrade and so will continue to accumulate in the rivers' sediments and to migrate downstream. How does the TMDL consider deposition in sediment over time and the possibility that hard rain events that will not only contribute additional sediment but also stir bottom sediments?

Consideration of secondary sources of lead and zinc (e.g. re-suspension, transport, and deposition) was incorporated into the revised draft TMDL placed on public notice September 24, 2007. Discussion of secondary sources can be found in Sections 1.5, 4.2.1, and 8.2.3 of the document.

Comment 7 – The draft TMDL should consider seasonal variations in flow. During a low flow season, the rivers' ability to dilute point source discharges for the pollutants of concern is reduced. During high flow events, contaminated bottom sediments can become resuspended.

A TMDL load duration curve (LDC) represents flow and pollutant loading under all possible stream conditions. Because the TMDL curve is applicable under all flow conditions, it is also applicable in all seasons. The load duration curves found within the Big River TMDL take into account seasonal variations in flow and are expected to be protective of water quality under all flow conditions and in all seasons.

Comment 8 – The draft TMDL relies on some vague, future adjustment to point source permits but fails to document when those downward adjustments will occur. Further, it is unclear whether permit requirements can or will be met, particularly at the St. Francois County Environmental Corporation site where the draft TMDL notes the percent of time that reported discharge levels exceed permit limits is 100% for lead. With that level of nonattainment, what enforcement actions can be implemented to realistically achieve compliance with the standard? What enforcement actions have already been undertaken at point sources with exceedences?

Details regarding WLAs and implementation strategies for permitted facilities can now be found in Sections 4.1 and 8.1 of the document. Where reductions in effluent limitations are required, a schedule of compliance will be included in the facility operating permit to ensure date certain compliance with the water quality standards. Noncompliance with the terms and conditions of the facility operating permit will be governed by the rules and regulations currently implemented and enforced by the department.

The St. Francois County Environmental Corporation, Outfall #003 Total Recoverable Lead result referenced in Comment 8 does not provide sufficient data to make a statistically significant determination whether the facility is in noncompliance. Additional data is required to make an accurate assessment of noncompliance with the effluent limitation.

Comment 9 – The draft TMDL identifies percentage reductions to make to point source discharges but does not translate these reductions into daily discharge limits. What data will be used to calculate those percentage reductions? Is it feasible for all point sources to achieve those percentage reductions?

Section 4.1 of the document has been revised to include WLAs for facilities that have reasonable potential to cause or contribute to the water quality impairment. The maximum daily load for a given facility was calculated to ensure compliance with the percent reduction requirements of the TMDL. Where reasonable potential is unknown, additional monitoring or reporting may be required. All maximum daily loads and additional monitoring will be incorporated into the terms and conditions of the facility operating permit upon next renewal. Only those facilities that have reasonable potential to cause or contribute to the water quality impairment will be required to achieve the percent reduction.

Comment 10 – Many nonpoint sources are omitted from the draft TMDL as noted above. Further, the draft TMDL is not clear as to how it will address nonpoint source pollution from active and growing sources, specifically, the soil repository from yard remediations that is expected to continue in use well into the future. What measures ensure that the soil repository is stabilized on a daily basis?

Nonpoint sources of TSS, lead, and zinc are accounted for in the load allocation portion of the TMDL and found in Section 4.2 of the document. Reductions in pollutant loading will be accomplished through implementation of Best Management Practices (BMPs) throughout the

watershed. Local citizen and watershed groups will be instrumental in ensuring the BMPs chosen are successfully implemented. Details regarding implementation of LA reductions through BMPs can be found in Section 8.2 of the document.

Active sources of TSS, lead, and zinc will be subject to BMPs and/or permit requirements, where appropriate. The department will work closely with the EPA and PRP to ensure yard remediations and the soil repository are operated in a manner that is consistent with the pollution reduction goals found in the TMDL.

Comment 11 – The implementation plan for point sources is extremely vague and fails to identify a clear monitoring plan that will ensure success of the TMDL. It states that "all permits will be evaluated" but does not detail which permits will be included. In other sections of the draft TMDL only a handful of the permits in the watershed are identified. Will the evaluation be limited to these few? The draft TMDL does not identify what Best Management Practices will be implemented, who will monitor their implementation, how the monitoring will occur, and what mechanisms exist for enforcement.

Section 8.1 of the TMDL document (point source implementation) has been revised to outline implementation strategies for permitted facilities within the Big River watershed. Each of the permits listed in Section 4.0 and Appendix D of the TMDL document will be re-evaluated at renewal to incorporate TMDL requirements and conditions, where appropriate. Facilities that do not cause or contribute to the TSS, lead, and zinc impairments will likely have few changes in permit limits and conditions. However, facilities that do have reasonable potential to cause or contribute to the TSS, lead, and zinc impairments will contain permit limits and conditions that ensure the facility will meet the requirements of the TMDL in a timely manner.

For facilities that have reasonable potential to cause or contribute to the TSS, lead, and zinc impairments, there may be a number of pollutant reduction strategies (BMPs and/or controls) that could be implemented to reduce pollutant loading and improve water quality. Individual BMPs and/or controls have not been identified in the TMDL because pollutant reduction strategies are facility dependant and site-specific in nature. Any pollutant reduction strategy that is implemented would need to be monitored by the person or entity responsible for the pollutant source. Monitoring results would be reported to the department on a regular basis (Discharge Monitoring Reports) and reviewed to determine whether the facility is meeting its pollutant reduction goals. Should inspection of a facility reveal the permittee has not implemented or maintained BMPs and/or controls according to the conditions of the operating permit, enforcement action may be taken to ensure pollutant loading is reduced and water quality standards met.

Comment 12 – The implementation plan for nonpoint sources does not identify a timeline for achieving water quality standards. One crucial question is whether stabilization of the tailing sites has been documented to be effective. Is the method used working well to prevent sediments from washing into the rivers? How will the system be maintained over time? Will the PRPs

establish a fund to provide for its ongoing maintenance, since it will be subject eternally to the forces of erosion and the need for ongoing maintenance will never end?

Unlike point source discharge permits that contain date certain schedules of compliance, non-point sources do not have fixed timelines for compliance with water quality standards. Monitoring in-stream water quality, biology, and sediment will allow the department to establish water quality trends and determine the effectiveness of remediation efforts within the watershed. For questions on the progress of remediation and ongoing operation and maintenance efforts, please contact Mr. Gregory Bach of the department's Hazardous Waste Program, Superfund Section at 573-751-8629.

Comment 13 – The section on sediment removal is vague. We share the concern about the risks of removing contaminated sediment from the river without causing further harm to its inhabitants. What methods are under consideration for this? How will they be evaluated and selected? How will their effectiveness be measured? What funding sources would pay for such a project?

Both active and passive methods of sediment removal are being investigated to determine their viability in removing sediment from the impaired segments. Whether active sediment removal (e.g. dredging) or passive sediment removal (e.g. deposition collection) is chosen will depend on the quantity of sediment in the stream and its location with respect to in-stream habitat. The method chosen will need to effectively remove sediment from the stream system without adversely affecting the biological community. In-stream water quality, biology, and sediment monitoring will allow the department to determine the effectiveness of the remediation strategy. The scope, duration, and funding sources for sediment removal have yet to be established.

Comment 14 – The draft TMDL is unclear about how and when its success will be evaluated. What will trigger revisions if allocations do not meet water quality standards? When will the effectiveness of the TMDL be evaluated and how? Will fish tissue samples be used to identify lead contamination?

Monitoring of in-stream water quality, biology, and sediment will allow the department to establish water quality trends and determine the effectiveness of the Big River TMDL. Water chemistry, biology (invertebrate and fish), sediment, and sediment chemistry assessments will all be used to assess water quality within the watershed. The effectiveness of point source reductions will be evaluated following installation of BMPs and/or pollutant controls at the facility. The effectiveness of nonpoint source reductions will be evaluated following installation of BMPs and/or pollutant controls at the pollutant sources. Should in-stream water quality, biology, or sediment monitoring indicate water quality standards are not being met, additional BMPs and/or pollutant controls would be implemented in an iterative manner until such time water quality standards are achieved.

Comment 15 – The draft TMDL relies on USGS monitoring at one location two times a year. This is woefully inadequate for a TMDL, particularly on a watershed of this size and with these particular pollution challenges. The monitoring plan should include more frequent sampling over a broader geographic range.

The United States Geological Survey conducts water quality monitoring on Big River near Richwood (USGS 07018000). In addition to collecting daily average discharge, the monitoring schedule includes twice a year sampling for metals and six times a year sampling for water chemistry. In addition to monitoring conducted by USGS, the Missouri Department of Natural Resources and other state and federal agencies continue to monitor the impaired waters covered by this TMDL for pollutants of concern. Additional monitoring of water chemistry, biology (invertebrate and fish), sediment, and sediment chemistry will be conducted to determine the efficacy of permitted facility pollution reductions, sediment best management practices, and to assess water quality trends.

In addition to the revisions mentioned above, the draft Big River, Flat River Creek, and Shaw Branch TMDL placed on public notice September 24, 2007 contained the following changes from the earlier version:

- The cool water fishery designation of Big River (WBID: 2074) was inadvertently omitted from the earlier draft TMDL. To correct this oversight, the designated use was added to Section 2.1 of the document. Because the cool water fishery designated use is not impaired, no revisions to wasteload or load allocations were necessary.

- The modeling approach in the earlier draft TMDL that utilized a 95% compliance rate with the water quality standards was abandoned in favor of using load duration curves. Section 3.1 (Modeling approach) of the document was updated to reflect this change. In addition, Figures 3 – 10 and the accompanying tables were updated to reflect the load duration curve approach.

- Tables containing load allocations (LAs) have been included in Section 4.2.2 of the document. LAs reflect the load duration curve approach and take into account any WLAs that were established for the impaired water body.

- The margin of safety section of the document was updated to reflect and discuss the implicit margin of safety utilized during the TMDL development process. The updated discussion can be found in Section 5.0 of the document.

- The monitoring section of the document was updated to include additional details and discussion of federal, state, and permitted facility monitoring activities within the Big River watershed. The monitoring section revisions can be found in Section 7.0 of the document.

Thank you again for your comments and support of the TMDL process. If you should have questions or would like to discuss this TMDL further, please contact Mr. John Hoke of my staff at (573) 526-1446 or by mail at the Missouri Department of Natural Resources, Water Protection Program, P.O. Box 176, Jefferson City, Missouri 65102.

Sincerely,

WATER PROTECTION PROGRAM

Philip A. Schroeder, Chief
Water Quality Monitoring and Assessment Section

PAS:jhl

NEWMAN, COMLEY & RUTH P.C.

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JOHN A. RUTH
ALICIA EMBLEY TURNER

To: Phil S

January 26, 2007

RECEIVED
2007 JAN 29 PM 1:09
WATER PROTECTION PROGRAM

Mr. Ed Galbraith
Director, Water Protection Program
Missouri Department of Natural Resources
P.O. Box 176
Jefferson City, MO 65102-0176

Re: Comment on Draft Big River TMDL

Dear Mr. Galbraith:

I am writing this letter on behalf of my client The Doe Run Company. On behalf of the company, I fully intended to submit comments on the Draft Big River TMDL. Unfortunately, the January 19, 2007 somehow slipped past me. In the next several days I will be submitting belated comments to the Water Protection Program for your consideration. I hope your department will be able to consider them. Thank you for your consideration of this request.

Sincerely,

NEWMAN, COMLEY & RUTH, P.C.

By: Robert J Brundage

Robert J. Brundage

RJB:mag
cc: Mr. Phil Schroeder
Ms. Anne Peery

1/27/07
Requested Robert to submit comments after next PN (Phil S.)

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January 31, 2007

Mr. Phil Schroeder
Chief, Water Quality Monitoring and Assessment Section
Water Protection Program
Missouri Department of Natural Resources
P.O. Box 176
Jefferson City, MO 65102-0176

Re: Draft Big River TMDL

Dear Mr. Schroeder:

On December 20, 2006 the Missouri Department of Natural Resources (MDNR) placed on public notice a draft total maximum daily load (TMDL) for the Big River. Please consider the following comments on behalf of The Doe Run Company.

I. TMDL Premature

As you are fully aware, during October, 2006 the Missouri Department of Natural Resources published a proposed 2004/2006 303(d) list of impaired waters. The draft 303(d) list proposes to de-list 53 miles of the Big River (WBID#2074). This section of the Big River is the longest stream segment of all segments that are included in the draft TMDL. According to the Department's proposed 303(d) list, fish tissue in this section of the Big River shows full attainment of the beneficial uses. In addition, the Department states that insufficient sediment data exists to classify this 53-mile segment as impaired by lead. The Department's proposed de-listing directly contradicts the draft TMDL which includes the 53-mile segment of the Big River – WBID #2074. Until such time as the Clean Water Commission adopts and the EPA approves the de-listing of this segment of the Big River, it is premature to proceed with a TMDL for this water body. Should this segment of the Big River be removed from the 303(d) list, all of the work and the regulatory controls proposed by this draft TMDL would be moot and unnecessary. Therefore, I recommend the Department of Natural Resources remove this draft TMDL from public notice and not proceed until such time as the 303(d) list is finalized and approved by EPA.

II. § 3.2 Synthesis of Flow Data

The Department states that it assigned outlet flow to certain sites for which there was no flow data for a specific water quality site. This resulted in an "over-estimation of the load." The Department suggests this conservative assumption is part of the Margin of Safety. Doe Run believes that this over-estimation creates an excessive and overly protective Margin of Safety.

III. § 4.1 Waste Load Allocations (point source load)

The Department says that the St. Francis County Environmental Corp. and the St. Joe State Park tailings piles account for much of the metal and sediment impairment. The Department states that "loads are calculated as an estimate based on the average reported discharge concentration and combined design flow of the stormwater outfalls from these two sites." Please note that the design flow is for these stormwater outfalls result in an over-estimation of the actual releases from these sites. Instead, the MDNR should have calculated loads based upon actual flows from outfalls.

The Department states that "a reverse calculation can be used to determine appropriate loading from a given facility to achieve in-stream dissolved metals water quality criteria." A reverse calculation based upon loadings from design flows from stormwater outfalls will result in a gross over-estimation of the actual stream loadings that would be calculated to determine whether the metals water quality criteria has been achieved. It is not clear whether the Department has taken into account other stormwater flows that would greatly dilute any loadings from tailings piles as calculated from specific stormwater outfalls. If not considered, the Department should take into account other flows in loading calculations.

The Department of Natural Resources did not make any specific recommendations on what permit limits should be included in the stormwater permits for the St. Francis County Environmental Corp. and the St. Joe State Park NPDES stormwater permits. Instead, the Department states that "compliance history, existing permit limits and requirements in the water quality goals established in this TMDL will be considered during re-issuance of these site-specific permits." The purpose of a TMDL is to make specific recommendations for individual sites specific permits located within the watershed of an impaired water body. Doe Run Company suggests that this TMDL must be revised to include specific recommendations for each site-specific permit in the watershed whose discharges would include lead.

IV. § 4.3 Reductions

The Department states that it is expressing the TMDL in terms of mass/time load duration curves. This method "uses pollutant concentrations regardless of the flow of the stream or the location of the drainage area." (Emphasis added.) The Department must consider other flows and their loadings or dilution effect when calculating mass/load duration curves.

The Department states that "permitted facilities shall adopt appropriate BNPs to reduce sediment and metal loading from their stormwater outfalls." The draft TMDL does not include any details on what type of BMP would be required in NPDES stormwater permits. This draft TMDL must include specifics on what BNPs would be included in these stormwater permits.

V. § 8.2 Nonpoint Sources (NPS)

The draft TMDL states that "after the tailings piles are stabilized, so that no more sediment will enter Big River, removal of contaminated sediment from the water ways must be considered." (Emphasis added.) The draft TMDL does not include any discussion of the methods and efficacy of removing fine sediment from the Big River. In fact, the Department states that "a major concern is how to remove sediment without additional harm occurring to the river environment." Until such time as the Department can say whether or not sediment removal will be included as a part of this TMDL, the TMDL must and should be postponed until the Department can address in the TMDL specific sediment removal scenarios.

Sincerely,

NEWMAN, COMLEY & RUTH, P.C.

By: Robert J. Brundage

Robert J. Brundage

RJB:mag
cc: Doe Run Company

NEWMAN, COMLEY & RUTH P.C.

ATTORNEYS AND COUNSELORS AT LAW

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CATHLEEN A. MARTIN
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October 24, 2007

Mr. John Hoke
Water Quality Monitoring and Assessment Section
Water Protection Program
Missouri Department of Natural Resources
P.O. Box 176
Jefferson City, MO 65102-0176

Re: Request for Extension of Time to Comment on Big River TMDL

Dear Mr. Hoke:

Due to the complexity of issues involved in the Big River TMDL and the pending de-listing WBID 2074 which is included in the TMDL, The Doe Run Company requests that the public comment period for this TMDL remain open until such time as EPA completes its review of the pending Missouri 303(d) list. At the very minimum, The Doe Run Company requests an additional two weeks to submit additional technical comments on the TMDL. To assist in providing comments on the TMDL, additional time is required to study several of the permits referenced in the draft TMDL document that were not available on MDNR's web site.

Thank you for your attention to this request for an extension of time to provide comment on this TMDL.

Sincerely,

NEWMAN, COMLEY & RUTH, P.C.

By: Robert J. Brundage /KA

Robert J. Brundage

RJB:mag
cc: The Doe Run Company

NEWMAN, COMLEY & RUTH P.C.

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October 24, 2007

Mr. John Hoke
Water Quality Monitoring and Assessment Section
Water Protection Program
Missouri Department of Natural Resources
P.O. Box 176
Jefferson City, MO 65102-0176

Re: Public Notice of Draft Big River TMDL

Dear Mr. Hoke:

I am submitting the following comments on the draft Big River TMDL on behalf of my client The Doe Run Company. As I have expressed in a previous letter, a 53 mile stretch of Big River which is included in this TMDL is in the process of being removed from the 303(d) list. Last spring the Missouri Clean Water Commission voted to de-list Waterbody ID No. (WBID) 2074 which covers 53 miles of the Big River. It is anticipated that the EPA will be approving this de-listing in the next month or two. Since this segment of the Big River is no longer impaired, it should be removed from and not addressed in the TMDL.

The TMDL relies in part upon the 303(d) listing based upon criteria which are not included in the Missouri water quality standards. For example, the 303(d) listing and the TMDL rely upon Probable Effect Levels (PELs) for heavy metals and sediments. See footnote "A" on page 9. PELs are not included in Missouri's water quality standards. In addition, the Missouri water quality standards do not include any criteria for lead in fish tissues for the protection of human health through fish consumption. Missouri's Listing Methodology regulation includes references to PELs and lead in fish tissues. However, a recent decision from the United States Court of Appeals for the 11th Circuit has ruled that listing methodology guidelines are not water quality standards and shall not be considered in 303(d) listings. *Sierra Club, Inc. v. Leavitt*, 488 F.3d 904, 913 (11th Cir. 2007). In *Sierra Club v. Leavitt*, the court held that Florida's listing methodology rule was "not part of the State's water quality standards" and that EPA was correct in not relying on the listing methodology rule in reviewing and approving Florida's 303(d) list. *Id.* at 913. Consequently, the Missouri Department of Natural Resources (MDNR) and the Environmental Protection Agency (EPA) should reassess the impaired status of this waterbody based upon existing data by excluding any data from lead in fish tissues and heavy metals and sediments that are compared to PELs.

The 2002 303(d) listing for Shaw Branch, Flat River Creek and Big River (WBID 2080) list impairment for non-volatile suspended solids (NVSS). As pointed out in the TMDL document, there are no numeric water quality standards NVSS. Section 2.5.2 states that total

suspended solids (TSS) will be used as a surrogate target for NVSS. Since total suspended solids includes organic suspended solids, it is inappropriate to use TSS as a surrogate for NVSS. Furthermore, it is inappropriate to translate a non-numeric water quality standard to a numeric water quality standard target as set forth in § 2.5.4 (TSS target set at 5 mg/L). Even non-volatile suspended solids may be comprised of soil particles free of any heavy metals or other toxic pollutants.

The TMDL states that Flat River Glass Operations (MO-0098647) is only a minor contributor of pollutant loading. (See page 25.) TMDLs also states that Flat River Glass Operations' facility is in compliance with existing effluent limitations and is not a significant contributor of zinc or lead to Flat River Creek. (See page 26.) There is a concern that Flat River Glass Operations' outfall releases water which flows across a tailings area resulting in a gully that has resulted in tailings being flushed into Flat River Creek. The MDNR should investigate the location of the outfall and work with Flat River Glass Operations to relocate the outfall to prevent any discharges of tailings into Flat River Creek.

The Doe Run Company agrees as explained in § 8.2.1 that stabilizing tailings piles is probably the most important element to removing the source of releases of tailings to Shaw Branch, Flat River Creek and Big River. The Doe Run Company has been stabilizing tailings piles since 1995. The Doe Run Company has completed three tailings piles, is presently working on a fourth and has one more pile to complete the stabilization process. However, in § 8.1 there is as reference that "all permitted facilities ... shall adopt appropriate Best Management Practices (BMPs) to reduce such loadings from their stormwater outfalls." The Doe Run Company supports the implementation of BMPs to reduce loadings and other discharges of heavy metals to these receiving water bodies. It would be inappropriate to impose unrealistic effluent limitations on the point sources in these watersheds.

Section 8.2.3 suggests that sediment removal from the waterways "must be considered" in addition to stabilizing these six tailing piles. The TMDL does not discuss or and offers any suggestions on how sediment can be safely and effectively removed from Big River and Flat River Creek without causing unnecessary and additional harm to the aquatic habitat and organisms living therein. The TMDL should also consider the option of natural attenuation in lieu of sediment removal.

That concludes The Doe Run Company's comments at this time. However, in a separate letter The Doe Run Company is requesting an additional time to submit further comments on this TMDL.

Sincerely,

NEWMAN, COMLEY & RUTH, P.C.

By: Robert J. Brundage /KH

Robert J. Brundage

RJB:mag

STATE OF MISSOURI
Matt Blunt, Governor • Doyle Childers, Director
DEPARTMENT OF NATURAL RESOURCES
www.dnr.mo.gov

September 19, 2008

Mr. Robert J. Brundage
Newman, Comley & Ruth, P.C.
601 Monroe Street, Suite 301
P.O. Box 537
Jefferson City, MO 65102-0537

RE: Response to Comments on the Big River, Flat River Creek and Shaw Branch Total Maximum Daily Load

Dear Mr. Brundage:

The Missouri Department of Natural Resources (department) appreciates the comments you provided on the draft Big River, Flat River Creek and Shaw Branch Total Maximum Daily Load (TMDL). This letter responds to comments received following the second public notice period for this TMDL which ended October 24, 2007. Please find herein the department's response to each comment and the location of the revision (if applicable) within the draft TMDL.

Comment 1 – Last spring the Missouri Clean Water Commission voted to de-list Waterbody ID No. (WBID) 2074 which covers 53 miles of the Big River. It is anticipated that EPA will be approving this de-listing in the next month or two. Since this segment of the Big River is no longer impaired, it should be removed from and not addressed in the TMDL.

The U.S. Environmental Protection Agency (EPA) has not yet approved the 2004/2006 303(d) List approved by the Missouri Clean Water Commission on April 20, 2007. Absent an approved list from EPA, the department must write TMDLs using the most recently approved 303(d) List of impaired waters. In this case, the 2002 303(d) List has been used which lists 53 miles of the Big River as impaired due to lead from the Old Lead Belt Abandoned Mine Land. The TMDL has been written in fulfillment of requirements relating to the Consent Decree[1] and toward fulfilling the Memorandum of Understanding between EPA and the department. TMDLs required by the Consent Decree must be established by December 31, 2009.

[1] Where referenced, Consent Decree shall refer to the 2001 Consent Decree entered in the case of American Canoe Association, et al. v. Carol M. Browner, et al., No. 98-1195-CV-W in consolidation with No. 98-4282-CV-W, February 27, 2001.

Comment 2 – The TMDL relies in part upon the 303(d) listing based upon criteria which are not included in the Missouri water quality standards. For example, the 303(d) listing and the TMDL rely upon Probable Effect Levels (PELs) for heavy metals and sediments. ... In addition, the Missouri water quality standards do not include any criteria for lead in fish tissues for the protection of human health through fish consumption.

The use of data without numeric limits in the state water quality standards in compilation of the Missouri 303(d) List has been approved by the Missouri Clean Water Commission for evaluating waters for compliance with the narrative criteria in the standards. While the current (2008) and previous (2004/2006) assessment cycles do not list WBID 2074, the reason for its absence from the 303(d) list has more to do with lack of data than with strong evidence of a lack of impairment. The 2008 assessment does list the section of the Meramec River downstream of WBID 2074 as impaired due to lead in sediments, and WBID 2074 is clearly the immediate source of this lead. Thus we believe WBID 2074 should remain part of the Big River TMDL.

The Big River TMDL does not rely on PELs or values of lead in fish tissue to set in-stream water quality targets for the impaired segments. Rather, the TMDL uses numeric and reference condition based values to set targets for lead, zinc, and non-volatile suspended solids (NVSS) that will ensure compliance with the water quality standards. Reductions in the quantity of contaminated sediment and suspended and dissolved lead and zinc within Big River and its tributaries are expected to decrease the concentrations of these metals available to bioaccumulate within resident aquatic species.

Comment 3 – The 2002 303(d) listing for Shaw Branch, Flat River Creek, and Big River (WBID 2080) list impairment for non-volatile suspended solids (NVSS). As pointed out in the TMDL document, there are no numeric water quality standards NVSS. Section 2.5.2 states that total suspended solids (TSS) will be used as a surrogate target for NVSS. Since total suspended solids includes organic suspended solids, it is inappropriate to use TSS as a surrogate for NVSS. Furthermore, it is inappropriate to translate a non-numeric water quality standard to a numeric water quality standard target as set forth in § 2.5.4 (TSS target set at 5 mg/L). Even non-volatile suspended solids may be comprised of soil particles free of any heavy metals or other toxic pollutants.

When the water quality standard is expressed as a narrative value, a measurable indicator of the pollutant may be selected to express the narrative as a numeric value. There are many quantitative indicators of sediment (NVSS), such as TSS, turbidity and bedload sediment, which are appropriate to describe sediment in rivers and streams[2]. TSS was selected as the numeric target for this TMDL because it enables the use of the highest quality data available and is included in permit requirements and monitoring data. While TSS includes organic suspended solids (also known as volatile suspended solids, or VSS), sources discharging VSS do not significantly contribute to the water quality impairment relative to sediment impacts on stream

[2] Framework for Developing Suspended and Bedded Sediments (SABS) Water Quality Criteria, U.S. Environmental Protection Agency, EPA-822-R-06-001, May 2006.

biology. Additionally, VSS is expected to be a small fraction of TSS within the watershed during the conditions causing impairment and not expected to accumulate and transport lead and zinc within the impaired segments. For these reasons, TSS has been used as a surrogate for NVSS.

The reference stream approach used to establish the TSS water quality target for the Big River TMDL is similar to that used to establish other TMDL targets where sediment is the contaminant of concern. Due to the abundance of lead and zinc contaminated sediment within the Big River watershed, reductions in TSS (sediment) loading are expected to result in a reduction of lead and zinc available to impact the impaired segments. Details on the approach and the data used can be found in Section 2.5.4 of the document.

Comment 4 – The TMDL states that Flat River Glass Operations (MO-0098647) is only a minor contributor of pollutant loading. (See page 25.) TMDLs also states that Flat River Glass Operations' facility is in compliance with existing effluent limitations and is not a significant contributor of zinc or lead to Flat River Creek. (See page 26.) There is a concern that Flat River Glass Operations' outfall releases water which flows across a tailings area resulting in a gully that has resulted in tailings being flushed into Flat River Creek. The MDNR should investigate the location of the outfall and work with Flat River Glass Operations to relocate the outfall to prevent any discharges of tailings into Flat River Creek.

The department appreciates your concern regarding outfall locations at the Flat River Glass Operations facility causing or contributing to the sediment impairment of Flat River Creek. The information you provided will be forwarded to the department's Southeast Regional Office (SERO) which has purview over the Flat River Glass Operations facility operating permit. DMR data from the facility indicate it is currently not a major source of TSS, lead, or zinc to the impaired segment. Should investigation by SERO staff reveal the facility causes or contributes to the sediment impairment in Flat River Creek, additional Best Management Practices (BMPs), pollutant controls, and/or facility modifications (e.g. outfall relocation) may be required.

Comment 5 – The Doe Run Company agrees as explained in § 8.2.1 that stabilizing tailings piles is probably the most important element to removing the source of releases of tailings to Shaw Branch, Flat River Creek, and Big River. The Doe Run Company has been stabilizing tailings piles since 1995. The Doe Run Company has completed three tailings piles, is presently working on a fourth and has one more pile to complete the stabilization process. However, in § 8.1 there is as reference that "all permitted facilities ... shall adopt appropriate Best Management Practices (BMPs) to reduce such loadings from their stormwater outfalls." The Doe Run Company supports the implementation of BMPs to reduce loadings and other discharges of heavy metals to these receiving water bodies. It would be inappropriate to impose unrealistic effluent limitations on the point sources in these watersheds.

The department appreciates the efforts of the Doe Run Company to stabilize the tailings piles found within the Big River watershed. The department also appreciates Doe Run Company's support in utilizing Best Management Practices (BMPs) to reduce pollutant loading and other discharges to the impaired segments. We agree that BMPs are often the most effective controls toward eliminating stormwater sources of pollutants and improving water quality. However, 40 CFR 122.44 (d)(1)(i) requires effluent limitations for all pollutants that are or may be discharged at a level that will cause or have the reasonable potential to cause or contribute to an in-stream excursion above a narrative or numeric water quality standard. In these instances, some permitted facilities may be required to meet the more protective of technology or water quality based effluent limits where BMPs alone may not be sufficient to ensure compliance with the water quality standards.

Comment 6 – Section 8.2.3 suggests that sediment removal from the waterways "must be considered" in addition to stabilizing these six tailing piles. The TMDL does not discuss or and offers any suggestions on how sediment can be safely and effectively removed from Big River and Flat River Creek without causing unnecessary and additional harm to the aquatic habitat and organisms living therein. The TMDL should also consider the option of natural attenuation in lieu of sediment removal.

Both active and passive methods of sediment removal are being investigated to determine their viability in removing contaminated sediment from the impaired segments. Whether active sediment removal (e.g. dredging) or passive sediment removal (e.g. deposition collection) is chosen will depend on the quantity of contaminated sediment in the stream and its location with respect to in-stream habitat. The method chosen will need to effectively remove contaminated sediment from the stream system without adversely affecting the biological community. Natural attenuation in lieu of contaminated sediment removal will also be explored as an option.

Thank you again for your comments. If you should have questions or would like to discuss this TMDL further, please contact Mr. John Hoke of my staff at (573) 526-1446 or by mail at the Department of Natural Resources, Water Protection Program, P.O. Box 176, Jefferson City, Missouri 65102.

Sincerely,

WATER PROTECTION PROGRAM

Philip A. Schroeder, Chief
Water Quality Monitoring and Assessment Section

PAS:jhl

Fw: TMDL for Big River , includes Shaw Branch and Flat River Creek

Adkins.Tabatha to: John Hoke 02/11/2009 07:25 AM

History: This message has been forwarded.

John,

Here is the FWS review. Please let me know your thoughts. Numbers 2 and 3 seem to be easily added. Not sure what number 1 will entail. Let's discuss. Thanks.

TJ

----- Forwarded by Tabatha Adkins/R7/USEPA/US on 02/11/2009 07:20 AM -----

Andy_Roberts@fws.gov

02/10/2009 01:33 PM

To: Tabatha Adkins/R7/USEPA/US@EPA

cc: Dave_Mosby@fws.gov, Charlie_Scott@fws.gov

Subject: Re: TMDL for Big River, includes Shaw Branch and Flat River Creek

TJ,

Thank you for the last minute, second opportunity to provide comments to the final Total Maximum Daily Loads for Big River, Flat River Creek, and Shaw Branch in Missouri. We have the following comments for your consideration. We understand that these may come to you too late in the process to be incorporated into the document.

1. In evaluating heavy metal contamination of sediment, the Probable Effects Level (PEL) from Ingersoll, C.G., et. al. 1996. "Calculation and Evaluation of Sediment Effect Concentrations for the Amphipod Hyalella azteca and the Midge Chironomus riparius". J.Great Lakes Res. 22 (3):602-623 is used. We recommend Probable Effects Concentrations from "MacDonald, D.D., Ingersoll, C.G. and Berger, T.A. 2000. Development and Evaluation of Consensus-Based Sediment Quality Guidelines for Freshwater Ecosystems. Arch. Environ. Contam. Toxicol. 39, 20-31" instead. The two principle authors for these studies are the same, but the MacDonald et al. (2000) paper contains a more comprehensive evaluation and is more widely cited and accepted.

2. It should be clarified in section 4.1.3 Non-Domestic Wastewater Permits,
that the St. Francois County Environmental Corporation facility is located at the former Desloge (Big River) Tailings Pile and that MDNR, St. Joe State Park, is located at the Federal Tailings Pile, and that the mine/mill waste is contributing the metal load not the non mining operations of these facilities.

3. It might be helpful (at least for the record or future references of the document) to state within this document (or perhaps in an accompanying EPA document) that there are two federally listed mussel species and several other species of conservation concern that occur in the Big River.

If you have any questions regarding these comments, feel free to contact Dave Mosby or me at (573) 234-2132.

Andy

Andy Roberts
U.S. Fish and Wildlife Service
Ecological Services
101 Park DeVille Drive, Suite A
Columbia, Missouri 65203

Phone: 573-234-2132 x 110
fax: 573-234-2181
e-mail: andy_roberts@fws.gov

Adkins.Tabatha@epamail.epa.gov

To

02/06/2009 02:38 PM Andy_Roberts@fws.gov

cc

Subject

Re: TMDL for Big River, includes Shaw Branch and Flat River Creek

Andy,

Per our phone conversation earlier today, this TMDL was submitted as a final TMDL on 10/01/2008. We are pushing against consent decree deadlines for this year and TMDLs have 30 days to be approved (this one has taken longer). We have language included so that the TMDL can be revoked but I believe that would place us into a formal consultation. It would greatly help if your review could happen rather quickly, especially if I need to have qualifying language placed in the decision

document or in the approval letter. I have asked that the TMDL be placed on hold after it is approved by counsel, to give you some time for the review. I am including as an attachment a pre-decision draft copy of our review document and the pre-decision draft TMDL (that was edited to include EPA comments). Please keep me posted on the updates. Thanks.

TJ

(See attached file: MO 2074-2006-DDOC1.xml)(See attached file: Big-River-TMDL-Final.doc)

Andy_Roberts@fws.gov

02/06/2009 10:55 AM

To: Tabatha Adkins/R7/USEPA/US@EPA

cc:

Subject: Re: TMDL for Big River, includes Shaw Branch and Flat River Creek

I'm going to can get together with our contaminant biologists to see if we can review this document under our current work load. We are interested because of federally listed mussels in the Big River and we have been conducing a NRDA in the Big River. Maybe we can provide some comments to help your review.
Andy

Andy Roberts
U.S. Fish and Wildlife Service
Ecological Services
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Columbia, Missouri 65203

Phone: 573-234-2132 x 110
fax: 573-234-2181
e-mail: andy_roberts@fws.gov

Adkins.Tabatha@epamail.epa.gov

02/05/2009 01:24 PM

To: Andy_Roberts@fws.gov

cc:

Subject:

Re: TMDL for Big River, includes Shaw Branch and Flat River Creek

Andy,

MDNR has developed it and public noticed it. It was submitted to EPA and is in our concurrence process. Once counsel signs it we will mail it as approved to MDNR. Any thoughts?

TJ

Andy_Roberts@fws.gov

02/05/2009 12:36 PM

To: Tabatha Adkins/R7/USEPA/US@EPA

cc:

Subject: Re: TMDL for Big River, includes Shaw Branch and Flat River Creek

Hi Tabatha,

I apologize that we have not done well working with you. We have not responded to your e-mail below (sent last year) that I know of. Where is EPA/DNR at on developing the TMDL for the Big River?

Andy

Andy Roberts
U.S. Fish and Wildlife Service
Ecological Services
101 Park DeVille Drive, Suite A
Columbia, Missouri 65203

Phone: 573-234-2132 x 110
fax: 573-234-2181

e-mail: andy_roberts@fws.gov

Adkins.Tabatha@epamail.epa.gov

11/13/2008 07:37 PM

To: rick_hansen@fws.gov, andy_roberts@fws.gov, charlie_scott@fws.gov

cc:

Subject: TMDL for Big River, includes Shaw Branch and Flat River Creek

Charlie,Rick, or Andy,

Hi, I wanted to let you know that we have an MDNR developed TMDL formally submitted to EPA.

Big River, WBID-2074, Jefferson, St. Francois and Washington Counties, Lead, Zinc and Non-Volatile Suspended Solids, Indiana bat, Pink Mucket, Scaleshell, Gray bat and any Critical Habitat.

Big River, WBID-2080, Jefferson, St. Francois and Washington Counties, Lead, Zinc and Non-Volatile Suspended Solids, Indiana bat, Pink Mucket, Scaleshell, Gray bat and any Critical Habitat.

Shaw Branch, WBID-2170, Jefferson, St. Francois and Washington Counties, Lead, Zinc and Non-Volatile Suspended Solids, Indiana bat, Pink Mucket, Scaleshell, Gray bat and any Critical Habitat.

Flat River Creek, WBID-2168, Jefferson, St. Francois and Washington Counties, Lead, Zinc and Non-Volatile Suspended Solids, Indiana bat, Pink Mucket, Scaleshell, Gray bat and any Critical Habitat.

EPA is in the process of approving these TMDLs and believe that they do not meet the 2 exceptions stated, whereby USFWS would conditionally concur on TMDL approvals except in the cases of:

1. Any TMDL developed that requires modification of flows from impoundments either within the state of Missouri or outside the state on a water body containing federally listed species would need to have formal consultation conducted.
2. If a TMDL for a water body containing federally listed species is proposed or implemented, but it is determined that meeting the standard criteria is unattainable for any reason, a formal consultation would need to be conducted for that water body.

I am attaching a link to MDNRs website for you to review the TMDLs . Please let me know if you have any questions . Thanks.

http://www.dnr.mo.gov/env/wpp/tmdl/wpc-tmdl-progress.htm

Tabatha Adkins, WQMB
WWPD, USEPA Region 7
901 North 5th Street
Kansas City, KS 66101
913.551.7128
adkins.tabatha@epa.gov

(See attached file: MO 2074-2006-DDOC1.xml)(See attached file: Big-River-TMDL-Final.doc) MO 2074-2006-DDOC1.xml Big-River-TMDL-Final.doc

Final TMDL for Big River , includes Shaw Branch and Flat River Creek

John Hoke to: Adkins.Tabatha 03/25/2009 08:57 AM
Cc: Anne Peery
Bcc: All Message Store

TJ,

Attached below is the final TMDL for Big River, Shaw Branch, and Flat River Creek that incorporates comments submitted by Andy Roberts (U.S. Fish & Wildlife Service) to EPA Region 7 in e-mails dated 2/10/09 and 2/11/09. The location where the comments were incorporated or rationale for exclusion can be found below. If you have questions or would like to see additional revisions, please let me know. Thank you again for all of your help and assistance with this and other Missouri TMDLs .

Big-River-TMDL-FINAL.doc

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1. Link provided to the University of Missouri-Rolla website on footnote 6, page 4, is invalid and should be replaced withhttp://web.mst.edu/~whmcinfo/shelf21/r520/info.html. **Done (see pg 4).**

2. On page 4, it is incorrectly noted that barite mining began in the 1970s. Barite mining was occurring at least 100 years prior to 1970s (see “The Barite Deposits of Missouri and the Geology of the Barite District” by William Tarr, 1918) and had largely ceased by the 1980s (see http://www.epa.gov/superfund/sites/narr/nar1768.pdf). **Done (see pg 4).**

3. On page 4, it is incorrectly noted that tailings from the Leadwood pile enter Big River directly . Lead contaminated tailings first enter the Eaton Branch, a small stream, which subsequently enters the Big River (see http://www.dnr.mo.gov/env/wpp/waterquality/303d/2008/2166-eaton-br.pdf). **Done (see pg 4).**

4. Section 8.2.1 should be updated to reflect current Superfund actions at the mine sites. **Not incorporated . The final TMDL contains information on Superfund actions current as of the time of Public Notice . When the Big River , Shaw Branch, and Flat River Creek TMDL is revised in 2010 to incorporate new pollutants found on Missouri 's 2004/2006 303(d) List, Section 8.2.1 and other implementation sections will be updated to include the most current information on mine site activities and permitted facilities .**

5. In evaluating heavy metal contamination of sediment, the Probable Effects Level (PEL) from Ingersoll, C.G., et. al. 1996. "Calculation and Evaluation of Sediment Effect Concentrations for the Amphipod Hyalella azteca and the Midge Chironomus riparius". J.Great Lakes Res. 22 (3):602-623 is used. We recommend Probable Effects Concentrations from “MacDonald, D.D., Ingersoll, C.G. and Berger, T.A. 2000. Development and Evaluation of Consensus-Based Sediment Quality Guidelines for Freshwater Ecosystems. Arch. Environ. Contam. Toxicol. 39, 20-31” instead. The two principle authors for these studies are the same, but the MacDonald et al. (2000) paper contains a more comprehensive evaluation and is more widely cited and accepted. **Not incorporated . The department acknowledges the updated PELs found in MacDonald et al . (2000) and will incorporate this information when the Big River , Shaw Branch, and Flat River Creek TMDL is revised in 2010 to incorporate new pollutants found on Missouri's 2004/2006 303(d) List. The targets found in the attached final TMDL are water quality , rather than sediment toxicity , based and changing these values would have no impact on the TMDL targets. Even so, additional calculations and analysis would be required to incorporate this information into document (e.g. Section 2.5.1. and Table 1). The future revision of this TMDL will include a more thorough analysis and discussion of sediment toxicity using MacDonald et al . (2000) and may incorporate this science as sediment toxicity endpoints.**

6. It should be clarified in section 4.1.3 Non-Domestic Wastewater Permits, that the St. Francois County

Environmental Corporation facility is located at the former Desloge (Big River) Tailings Pile and that MDNR, St. Joe State Park, is located at the Federal Tailings Pile, and that the mine/mill waste is contributing the metal load not the non mining operations of these facilities. **Done (see pg. 26).**

7. It might be helpful (at least for the record or future references of the document) to state within this document (or perhaps in an accompanying EPA document) that there are two federally listed mussel species and several other species of conservation concern that occur in the Big River. **Done (see pg. 5)**

John Hoke
Environmental Specialist IV, TMDL Unit Chief
Water Quality Monitoring & Assessment Section
Missouri Department of Natural Resources
Phone: (573) 526-1446 Fax: (573) 522-9920

Tabatha Adkins, TMDL Coordinator
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