



Missouri
Department of
Natural Resources

DRAFT LAMAR LAKE TMDL
PUBLIC COMMENTS

Public Notice
May 19 – June 18, 2006

Lamar Lake
WBID #7356

Barton County, 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

MAY 25 2006

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: Lamar Lake.

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

Lamar Lake TMDL public notice period May 19, 2006, to June 18, 2006, 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. EPA appreciates the opportunity to comment and the thoughtful effort that MDNR has put into this draft TMDL. EPA 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 Jack Generaux, TMDL Team Leader, at (913)551-7690, or Tabatha Adkins, TMDL Team, at (913)551-7128.

Sincerely,

A handwritten signature in black ink, appearing to read "John DeLashmit", written over a circular stamp or mark.

John DeLashmit
Chief
Water Quality Management Branch

cc: Ann Crawford, TMDL Chief, MO Dept of Natural Resources
Phil Schroeder, Missouri Department of Natural Resources

Enclosure

Regarding: Draft TMDL for Lamar Lake Nutrients Impairment.

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

Comment 1 - - Section 1. Background and Water Quality Problems, Area History: Statement detailing the drainage in the Southern part of the county is incorrect. The drainage is to the Spring/Neosho then to the Arkansas River, not the White River.

Comment 2 - - Appendix E. TMDL Calculation: in step 2 a lake inflow volume is calculated of 2468 ac*ft. In step 3 a mean annual inflow volume is calculated based on the residence time calculated in step 2 and a different lake volume of 1050 ac*ft. If the volume from step 2 (794 ac*ft) and the residence time are used in step 3 the inflow volume would be the same as in step 2. The use of 1050 ac*ft, as the lake volume in step 3 is inconsistent with the 794 ac*ft that was used in step 2. This change will also change all the TMDL calculations.

Attachment A

*Parson's response
to EPA comments*

Regarding: Draft TMDL for Lamar Lake Nutrients Impairment.

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Comment 2 - - Appendix E. TMDL Calculation: in step 2 a lake inflow volume is calculated of 2468 ac*ft. In step 3 a mean annual inflow volume is calculated based on the residence time calculated in step 2 and a different lake volume of 1050 ac*ft. If the volume from step 2 (794 ac*ft) and the residence time are used in step 3 the inflow volume would be the same as in step 2. The use of 1050 ac*ft, as the lake volume in step 3 is inconsistent with the 794 ac*ft that was used in step 2. This change will also change all the TMDL calculations.

Reply:

First, "lake inflow volume" is a different term from "lake volume". Lake inflow volume is based on estimated surface runoff and lake watershed area.

The lake volume of 1050 ac*ft is from Table 2 on page 5. This number (1050 ac*ft) is provided by MDNR, which is viewed as an accurate estimate. The number of 794 ac*ft is based on the following equation, which can be viewed as a gross estimate of lake volume.

$$\text{Lake Volume} = (1/4 \text{ Dam Height}) * \text{Lake Surface Area}$$

Therefore, lake volume of 1050 was used in the TMDL calculation

STATE OF MISSOURI Matt Blunt, Governor • Doyle Childers, Director
DEPARTMENT OF NATURAL RESOURCES

www.dnr.mo.gov

June 28, 2006

Mr. John DeLashmit
U.S. Environmental Protection Agency
Region VII
901 North Fifth Street
Kansas City, KS 66101

RE: Response to Comments on the Lamar Lake Total Maximum Daily Load

Dear Mr. DeLashmit:

This letter responds to comments provided by the Environmental Protection Agency (EPA) on the draft Total Maximum Daily Load (TMDL) for Lamar Lake, WBID 7356.

Comment 1 - The TMDL was corrected to read "Arkansas River".

Comment 2 - The "lake inflow volume" is a different phrase (with a different meaning) than "lake volume". Lake inflow volume is based on estimated surface runoff and lake watershed area.

The number of 794 ac-ft is based on the following standard equation and is viewed as a gross estimate of lake volume.

$$\text{Lake Volume} = (1/4 \text{ Dam Height}) * \text{Lake Surface Area}$$

This volume was used in calculating the residence time, as specified in Step 2, Page 20.

The lake volume of 1,050 ac-ft is from Table 1, Page 5. This number (1,050 ac-ft) was obtained from work done by Dr. Jack Jones and is viewed as the best estimate to use in the TMDL calculation because of its origin. The use of both numbers for lake volumes (but for different purposes) does not create a significant discrepancy in the overall results of the TMDL.

Mr. John DeLashmit
Page Two

The TMDL document was adjusted to read on Page 4, last sentence "Data on *these* lakes are synthesized from research study of "Developing nutrient criteria for Missouri lakes" by Knowlton and Jones (2003)." Also, in Step 3, Page 21 it now reads: "Estimated mean annual flow for Lamar Lake, *using the lake volume from Table 1, Page 5*".

Thank you for your comments and for EPA's support in the TMDL process. If you have other questions or wish to discuss this further, please contact Ms. Anne Peery at (573) 526-1426 or by mail at the Missouri Department of Natural Resources, Water Protection Program, P.O. Box 176, Jefferson City, Missouri 65102-0176.

Sincerely,

WATER PROTECTION PROGRAM



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

PS:apl



City of Independence

WATER POLLUTION CONTROL DEPARTMENT

P.O. BOX 1019 • INDEPENDENCE, MISSOURI 64051-0519 • (816) 325-7711 • FAX (816) 325-7722

AN EQUAL OPPORTUNITY EMPLOYER

June 6, 2006

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

Re: Draft Spring Fork Lake and Lamar Lake TMDLs

Dear Mr. Schroeder:

The City of Independence Water Pollution Control Department has reviewed the subject draft TMDLs and wishes to make the following comments. We are not directly affected by these TMDLs but are concerned about the precedent they may set for future TMDLs.

We question the way the "Reference Lake Approach" was used to derive nutrient targets. It appears that chlorophyll-a targets were set at the lower 25th percentile of the combined data for one non-impaired reference lake and the impaired lake. We consider this to be a misapplication of the reference lake approach described in U.S. EPA guidance. One alternative described in EPA's *Nutrient Criteria Technical Guidance Manual, Lakes and Reservoirs* (April, 2000) and *Ambient Water Quality Criteria Recommendations, Information Supporting the Development of State and Tribal Nutrient Criteria, Lakes and Reservoirs in Nutrient Ecoregion IX* (December, 2000) is calculating reference conditions from the lower 25th percentile from an entire population (such as the data for lake classes within an ecoregion or subecoregion.) We question the validity of using data from only two lakes to calculate the lower 25th percentile as appears to have been done in these draft TMDLs.

We appreciate the difficulty in calculating TMDLs without numeric state nutrient criteria and consider the draft TMDL implementation plans a reasonable approach for encouraging Best Management Practices for nonpoint sources.

If you have any questions about these comments, please feel free to contact me.

Sincerely,

Dorris L. Bender
Environmental Compliance Manager

STATE OF MISSOURI
DEPARTMENT OF NATURAL RESOURCES

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June 21, 2006

Ms. Dorris L. Bender
Environmental Compliance Manager
City of Independence
Water Pollution Control Department
P.O. Box 1019
Independence, MO 64051-0519

Dear Ms. Bender:

I am responding to your letter of June 6, 2006 concerning the draft Total Maximum Daily Loads (TMDLs) for Spring Fork Lake and Lamar Lake.

The use of reference lakes for the derivation of waste load allocations for nutrients in impaired lakes has some inherent uncertainties. The Environmental Protection Agency (EPA) guidelines require some assumptions and there are risks of error in each of the approaches. We determined that the use of neighboring lakes as references was the best option for this situation because of their similarity in hydrologic and watershed characteristics. The department prefers use of reference data gathered from nearby waters to the use of a broader base of data, such as from an ecoregion.

We have examined your suggested alternative of using a calculation of the 25th percentile of all the available data from lakes and reservoirs in the Osage Plain region. We found that this approach results in a total phosphorus concentration of 35 µg/L and a chlorophyll-a concentration of 11 µg/L. These figures would result in more restrictive target allocations for nutrient loading than what was recommended by the draft TMDLs. We would want to be more certain of the accuracy of this approach to avoid requiring overly restrictive TMDLs.

Furthermore, the reference condition that is cited in the EPA guidance for Nutrient Ecoregion IX is based on data from all seasons, whereas the TMDL is based on data restricted to the warm season, when the lake systems are under the greatest stress from nutrients. The reference lake concentrations for Level III Ecoregion 40, in which both the lakes in question are located, are applied to a relatively broad geographic area and may not be sufficiently site specific.

Ms. Dorris L. Bender
Page Two

It is probable that the target concentrations for total phosphorus in these TMDLs will be subject to change once nutrient criteria for lakes and reservoirs go into effect. As you know, calculation of these criteria is still under consideration.

Thank you for your comments. If you have other questions or wish to discuss this further, please contact Anne Peery of my staff at P.O. Box 176, Jefferson City, Missouri 65102 or (573) 526-1426.

Sincerely,

WATER PROTECTION PROGRAM

A handwritten signature in black ink, appearing to read "Philip A. Schroeder", written in a cursive style.

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

PS:apl