



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

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

JUL 20 2006

To: Rob M

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

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2006 JUL 24 PM 12:03  
WATER PROTECTION PROGRAM

Dear Mr. Galbraith:

Re: Approval of Lamar and Spring Fork TMDLs

This letter responds to the Missouri Department of Natural Resources (MDNR) submission received on July 5, 2006, of documents addressing two Total Maximum Daily Loads (TMDLs). These TMDLs address the drinking water use impairment of Spring Fork Lake, water body identification 7187, and Lamar Lake, water body identification 7356, by nutrients.

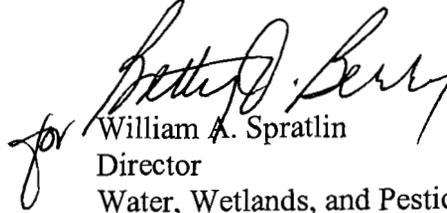
The U.S. Environmental Protection Agency (EPA) Region 7 has completed its review of these TMDL documents with supporting documentation and information. By this letter, EPA approves the submitted TMDL documents. Enclosed with this letter are Region 7 TMDL Review Forms which summarize the rationale for EPA's approval of these TMDL documents. The EPA believes the separate elements of the TMDLs described in the enclosed forms adequately address the pollutants of concern through assessment of the loading capacity, consideration of seasonal variation, and a margin of safety.

Under Section 7 of the Endangered Species Act, EPA is currently consulting with the U.S. Fish and Wildlife Service regarding this TMDL. While EPA is approving this TMDL, EPA may decide in the future that changes to the TMDL are warranted based upon the results of the consultation.

We appreciate the thoughtful effort that MDNR has put into this TMDL. We will continue to cooperate and assist MDNR in developing future TMDLs.

If you have any questions or concerns, please contact Bruce Perkins, of my staff,  
at (913)551-7067.

Sincerely,

for  
William A. Spratlin  
Director  
Water, Wetlands, and Pesticides Division

Enclosures

cc: Phil Schroeder  
MDNR

Anne Perry  
MDNR

Gerald Babao  
American Canoe Association

Scott Dye  
Sierra Club

Paul Sanford  
American Canoe Association

John Simpson  
American Canoe Association



Beneficial uses for Lamar Lake are livestock and wildlife watering, protection of warm water aquatic life, protection of human health, secondary contact recreation and drinking water supply. The use that is impaired is drinking water supply. The water quality standard (WQS) that is being exceeded is a general criterion (Missouri WQS, 10 CSR 20-7.031(3)(A) and (C)) and a taste- and odor-producing substance criterion (Missouri WQS, 10 CSR 20-7.031(4)(F)). These criteria are narrative. A numeric target of 40 ug/L of total phosphorus (TP) was developed to address the narrative; it was determined by use of a reference lake approach.

#### **Numeric Target(s) and Pollutant(s) of concern**

*An explanation and analytical basis for expressing the TMDL through surrogate measures (e.g., parameters such as percent fines and turbidity for sediment impairments, or chlorophyll-a and phosphorus loadings for excess algae) is provided, if applicable. For each identified pollutant, the submittal describes analytical basis for conclusions, allocations and margin of safety that do not exceed the load capacity.*

Nutrients are directly targeted as the pollutant responsible for the response parameter of algal biomass. Blue-green algae make up a larger proportion of the algal biomass as nutrient concentrations are elevated. These blue-green algae release compounds into the water which cause taste and odor problems in drinking water supplies. The targeted TP is linked to algal biomass as measured by chlorophyll a (Chla). The significant regression between TP and Chla gives a corresponding Chla value for the TP target of 40 ug/L (19 ug Chla/L). Achieving the target TP concentration will result in the lake concentrations of Chla being at a natural level.

#### **Source Analysis**

*Important assumptions made in developing the TMDL, such as assumed distribution of land use in the watershed, population characteristics, wildlife resources, and other relevant information affecting the characterization of the pollutant of concern and its allocation to sources, are described. Point, non point and background sources of pollutants of concern are described, including magnitude and location of the sources. Submittal demonstrates all significant sources have been considered.*

No point sources or confined animal feeding operations are located in the watershed. All loading is from non-point sources. Distribution of this loading is given in tabular form according to land use and loading coefficient for each land use. It seems all sources have been considered.

#### **Allocation**

*Submittal identifies appropriate wasteload allocations for point, and load allocations for nonpoint sources. If no point sources are present the wasteload allocation is zero. If no nonpoint sources are present, the load allocation is zero.*

All identified loading is non-point. WLA is stated as zero and an explicit margin of safety is given.

#### **WLA Comment**

There are no point sources or confined animal feeding operations in the watershed. The waste load allocation is set at zero (0).

#### **LA Comment**

Load allocation is set at 319 pounds per year.

#### **Margin of Safety**

*Submittal describes explicit and/or implicit margin of safety for each pollutant. If the MOS is implicit, the conservative assumptions in the analysis for the MOS are described. If the MOS is explicit, the loadings set aside for the MOS are identified and a rationale for selecting the value for the MOS is provided.*

An explicit margin of safety is set at 10% of the load capacity, 36 pounds per year.

### **Seasonal Variation and Critical Conditions**

*Submittal describes the method for accounting for seasonal variation and critical conditions in the TMDL(s).*

Target TP concentrations were derived using data from the growing season when taste and odor problems are most likely to occur. The target of 40 ug/L recommended for all seasons to address any resuspension of TP which may occur outside the growing season.

Achieving this target should result in Chla concentrations of 19 ug/L.

### **Public Participation**

*Submittal describes public notice and public comment opportunity, and explains how the public comments were considered in the final TMDL(s).*

MDNR held meetings in Lamar on January 10, 2006 and February 6, 2006. The TMDL was on public notice from May 19 to June 18, 2006 and distributed to the Missouri Clean Water Commission, the Water Quality Coordinating Committee, Parsons Corporation, stream team members and legislators representing Barton County.

Public comments and responses are part of this administrative record.

### **Monitoring Plan for TMDL(s) Under Phased Approach**

*The TMDL identifies the monitoring plan that describes the additional data to be collected to determine if the load reductions required by the TMDL lead to attainment of WQS, and a schedule for considering revisions to the TMDL(s) (where phased approach is used).*

Specific monitoring is outlined for volunteer and MDNR staff. The Lakes of Missouri Volunteer Program (LMVP) includes Lamar Lake and collects samples eight times per year. MDNR staff will also schedule post implementation sampling.

### **Reasonable assurance**

*Reasonable assurance only applies when reductions in nonpoint source loading is required to meet the prescribed waste load allocations.*

As there are no point sources in the watershed reasonable assurances are not required.



Beneficial uses for Spring Fork Lake are livestock and wildlife watering, protection of warm water aquatic life, protection of human health, secondary contact recreation and drinking water supply. The use that is impaired is drinking water supply. The WQS that is being exceeded is a general criterion (Missouri WQSs, 10 CSR 20-7.031(3)(A) and (C)) and a taste- and odor-producing substance criterion (Missouri WQS, 10 CSR 20-7.031(4)(F)). These criteria are narrative. A numeric target of 36 ug/L of total phosphorus (TP) was developed to address the narrative; it was determined by use of a reference lake approach.

#### **Numeric Target(s) and Pollutant(s) of concern**

*An explanation and analytical basis for expressing the TMDL through surrogate measures (e.g., parameters such as percent fines and turbidity for sediment impairments, or chlorophyll-a and phosphorus loadings for excess algae) is provided, if applicable. For each identified pollutant, the submittal describes analytical basis for conclusions, allocations and margin of safety that do not exceed the load capacity.*

Nutrients are directly targeted as the pollutant responsible for the response parameter of algal biomass. Blue-green algae make up a larger proportion of the algal biomass as nutrient concentrations are elevated. These blue-green algae release compounds into the water which cause taste and odor problems in drinking water supplies. The targeted TP is linked to algal biomass as measured by chlorophyll a (Chla). The significant regression between TP and Chla gives a corresponding Chla value for the TP target of 36 ug/L (16 ug Chla/L). Achieving the target TP concentration will result in the lake concentrations of Chla being at a natural level.

#### **Source Analysis**

*Important assumptions made in developing the TMDL, such as assumed distribution of land use in the watershed, population characteristics, wildlife resources, and other relevant information affecting the characterization of the pollutant of concern and its allocation to sources, are described. Point, non point and background sources of pollutants of concern are described, including magnitude and location of the sources. Submittal demonstrates all significant sources have been considered.*

No point sources or confined animal feeding operations (CAFOs) are located in the watershed. All loading is from non-point sources. Distribution of this loading is given in tabular form according to land use and loading coefficient for each land use. It seems all sources have been considered.

#### **Allocation**

*Submittal identifies appropriate wasteload allocations for point, and load allocations for nonpoint sources. If no point sources are present the wasteload allocation is zero. If no nonpoint sources are present, the load allocation is zero.*

All identified loading is non-point. WLA is stated as zero and an explicit margin of safety is given.

#### **WLA Comment**

There are no point sources or CAFOs in the watershed. The waste load allocation is set at zero (0).

#### **LA Comment**

Load allocation is set at 752 pounds per year.

#### **Margin of Safety**

*Submittal describes explicit and/or implicit margin of safety for each pollutant. If the MOS is implicit, the conservative assumptions in the analysis for the MOS are described. If the MOS is explicit, the loadings set aside for the MOS are identified and a rationale for selecting the value for the MOS is provided.*

An explicit margin of safety is set at 10% of the load capacity, 84 pounds per year.

#### **Seasonal Variation and Critical Conditions**

*Submittal describes the method for accounting for seasonal variation and critical conditions in the TMDL(s).*

Target TP concentrations were derived using data from the growing season when taste and odor problems are most likely to occur. The target of 36 ug/L is recommended for all seasons to address any resuspension of TP which may occur outside the growing season.

Achieving this target should result in Chla concentrations of 16 ug/L (this section of the TMDL contains an apparent error listing the targets as 40 and 19 ug/L for TP and Chla respectively).

### **Public Participation**

*Submittal describes public notice and public comment opportunity, and explains how the public comments were considered in the final TMDL(s).*

A presentation was made to a farmer-producer group in October 2004 on TMDLs and their implementation. The Sedalia Source Water Protection Committee has been involved with the MDNR in holding public meetings and developing a watershed plan. The TMDL was on public notice from May 12 to June 11, 2006 and distributed to the Missouri Clean Water Commission, the Water Quality Coordinating Committee, Parsons Corporation, stream team members and legislators representing the two counties in which Spring Fork Lake's watershed extends.

Public comments and responses are part of this administrative record.

### **Monitoring Plan for TMDL(s) Under Phased Approach**

*The TMDL identifies the monitoring plan that describes the additional data to be collected to determine if the load reductions required by the TMDL lead to attainment of WQS, and a schedule for considering revisions to the TMDL(s) (where phased approach is used).*

Specific monitoring is outlined for volunteer and MDNR staff. The Sedalia Water Department samples eight times a year under the Lakes of Missouri Volunteer Program (LMVP) and MDNR staff will schedule post implementation sampling. Additionally, 20 volunteers have completed training and are monitoring Cheese Creek and Spring Fork Creek.

### **Reasonable assurance**

*Reasonable assurance only applies when reductions in nonpoint source loading is required to meet the prescribed waste load allocations.*

As there are no point sources in the watershed reasonable assurances are not required.