UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

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

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30 JAN 2001

Edwin D. Knight
Director, Water Pollution Control Program
Missouri Department of Natural Resources
P.O. Box 176
Jefferson City, MO 65102

Dear Mr. Knight:

EPA has completed its review of the two total maximum daily loads (TMDLs) as submitted by your office for Cedar Creek (WBID 0737), as described in Section 303(d)(1) and which appears on your Section 303(d) list as impaired by pH and sulfate. In accordance with the Clean Water Act (33 U.S.C. 1251 et. seq.), all the required elements are adequately addressed in these two TMDLs and EPA approves all aspects of these two TMDLs.

EPA believes, as described in the attached decision document, that these TMDLs adequately address the two pollutants of concern, and upon implementation, will result in attainment of the applicable water quality standards. The separate elements of each TMDL adequately address the allocations as needed, the critical conditions, and takes into consideration seasonal variation and a margin of safety.

Thank you for your submittal. EPA appreciates Missouri's work to complete and adopt these TMDLs, and looks forward to our continuing partnership in TMDL development. If you have any questions concerning this approval, please contact Jeannette Schafer of my staff at 913-551-7297.

Sincerely,

U. Gale Hutton
Director
Water, Wetlands, and Pesticides Division

Enclosure

cc: George Van Cleve, Van Cleve & Associates, Washington D.C.
John M. Simpson, Kansas City, MO
David Bookbinder, American Canoe Association, Springfield, VA
Sharon Clifford, Missouri Department of Natural Resources, Jefferson City, MO

January 26, 2001

EPA Region 7 TMDL Review Form

TMDL ID	25
Water Body Name	Cedar Creek
Pollutants	pH and Sulfate
Tributary	
Water Body ID	MoWBID 0737
State	Missouri
HUC	10300102-190001
Basin	
Submittal Date	1/2/01 *Completion Date* 1/25/01
Approved	yes

***Submittal Letter**: State submittal letter indicates final TMDL(s) for specific pollutant(s)/ water(s) were adopted by the state, and submitted to EPA for approval under section 303(d) of the Clean Water Act.*

Received on January 2, 2001, submitted as two final TMDLs under a cover letter for pH and sulfate in Cedar Creek.

***Water Quality Standards Attainment**: TMDL and associated allocations are set at levels adequate to result in attainment of applicable water quality standards.*

The pH water quality standards require contaminants shall not cause the pH to be outside the range of 6.5 to 9.0 SU. The sulfate water quality standard is combined with chloride, the chloride plus sulfate shall not exceed 1000 milligrams per liter. The beneficial use is the protection of aquatic life. The allocations are set, with a margin of safety, at the water quality standard levels, which are adequate to result in attainment of the applicable water quality standards.

***Numeric Target(s)**: Submittal describes applicable water quality standards, including beneficial uses, applicable numeric and/or narrative criteria.*

The beneficial uses of Cedar Creek are described, and the water quality standards for those beneficial uses are described. The targets are taken directly from the water quality criteria in Missouri's water quality standards. For the impairment caused by excess acid, an additional target of Net Alkalinity was established to assure that the pH target would be attained downstream in Cedar Creek even though the pH of discharge into Cedar Creek was within the range of 6.5 to 9.0 SU.

***Source Analysis**: 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.*

The sources of acid (pH) and sulfate are described. The major contribution was determined to be abandoned mine drainage. The submittal demonstrates that all significant sources of acid (pH) and sulfate were identified and considered.

***Allocation**: Submittal identifies appropriate waste load allocations for point, and load allocations for non point sources. If no point sources are present the waste load allocation is zero. If no non point sources are present, the load allocation is zero.*

The allocations are expressed as concentrations in the discharge, such that the discharge, with a suitable margin of safety, meets the water quality concentration criteria for pH and sulfate/chloride. Since the pH may change downstream even if the discharge meets the criterion for pH, Net Alkalinity is also allocated and expressed as a concentration in the discharge. These concentration allocations for the discharge meet the applicable water quality criteria, thus assuring that the concentrations in Cedar Creek also meet the applicable water quality criteria even with no upstream flow to dilute the discharge.

***Waste Load Allocation**:*

The point-source allocations for pH and sulfate are established as zero when expressed in mass units for the pollutants.

***Load Allocation**:*

The non-point source allocation for pH is established as within the range of 6.5 to 9.0 SU. The non-point source allocation for the second acid-related endpoint, Net Alkalinity, is established as 60 mg/L or greater as the margin of safety. The non-point source allocation for sulfate plus chloride is established as 900 mg/L. These allocations are expressed as concentrations in the abandoned mine drainage, described in the discussion of the loading capacity.

***Margin of Safety**: Submittal describes explicit and/or implicit margin of safety for each pollutant.*

The margin of safety for pH is the establishment of an allocation for Net Alkalinity. This assures that the pH downstream of the discharge will remain in the range of 6.5 to 9.0 SU. The Net Alkalinity allocation is based on the historic monitoring data. The margin of safety for sulfate is 10% of the load capacity, and is based on best professional judgement regarding the uncertainty in the knowledge of the link between the allocation and the water quality in Cedar Creek.

***Link Between Numeric Target(s) and Pollutant(s) of concern**: Submittal describes relationship between numeric target(s) and identified pollutant sources. For each identified pollutant, the submittal describes analytical basis for conclusions, allocations and margin of safety that do not exceed the load capacity.*

The numeric targets are the water quality criteria for pH and sulfate/chloride. The relationship between the numeric targets and the pollutants is direct. The numeric targets apply to the discharge from the abandoned mine lands.

***Seasonal Variation and Critical Conditions**: Submittal describes the method for accounting for seasonal variation and critical conditions in the TMDL(s).*

Seasonal variation was considered, and critical conditions were indentified. Since the water quality standards for pH and sulfate do not distinguish between seasons, the allocations apply year round.

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

Six public meetings were conducted to allow public input to this and other TMDLs. A public notice was issued. Comments received were considered, but no adjustments to the TMDL were suggested. Copies of the notice, the comments, and Missouri's responses are on file with MDNR.

***Monitoring Plan for TMDL(s) Under Phased Approach**: The TMDL identifies the monitoring plan and schedule for considering revisions to the TMDL(s) (where phased approach is used).*

MDNR and USGS will conduct pre- and post-reclamation water quality studies. In addition, MDNR will conduct additional monitoring until at least 2004.

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

Nonpoint source loading reduction is not required in this TMDL.