UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

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

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31 JAN 2001

Mr. Edwin D. Knight, Director
Water Pollution Control Program
Division of Environmental Quality
Missouri Department of Natural Resources
P.O. Box 176
Jefferson City, Missouri 65102-0176

Dear Mr. Knight:

The Environmental Protection Agency (EPA) has completed its review of the two total maximum daily loads (TMDLs) as submitted by your office for Davis Creek (WBID 0912), as described in Section 303(d)(1) and which appears on your Section 303(d) list as impaired for dissolved oxygen. These TMDLs have been established for the pollutants BOD and NH3 which cause the dissolved oxygen impairment. 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 the EPA approves all aspects of these two TMDLs.

We believe, as described in the enclosed 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. We appreciate Missouri's work to complete and adopt these TMDLs, and look forward to our continuing partnership in TMDL development. If you have any questions concerning this approval, 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

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PAPER CONTAINS RECYCLED FIBERS

January 25, 2001

EPA Region 7 TMDL Review Form

TMDL ID	18
Water Body Name	Davis Creek
Pollutants	BOD (the pollutant that causes low DO) and Ammonia
Tributary	
Water Body ID	MoWBID 0912
State	Missouri
HUC	10300104-060001
Basin	
Submittal Date	1/2/01 *Completion Date* 1/23/01
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.*

Submitted as two final TMDLs under a cover letter received 2 January 2001. The pollutants in the cover letter are BOD (dissolved oxygen appears on the approved Section 303(d) list, which describes the impairment -- BOD is the allocatable pollutant that causes the low dissolved oxygen impairment) and ammonia. The water body is ~~Cedar~~ Davis Creek.

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

The allocations for CBOD and ammonia are established at seasonal levels that will result in the attainment of the water quality standards for Davis Creek. The CBOD level is linked to the dissolved oxygen criterion using the QUAL2E water quality model. The ammonia level is linked directly to the temperature and pH dependent numeric criteria for ammonia.

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

The beneficial uses of Davis Creek are described, and the water quality standards for those beneficial uses are described. The dissolved oxygen criterion is translated into a CBOD numeric target, and the CBOD is allocated at levels that will assure the dissolved oxygen criterion is attained. The ammonia numeric seasonal targets are taken directly from the temperature and pH dependent water quality criteria found in the Missouri water quality standards.

***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 CBOD and ammonia are described. The major contribution was determined to be the Odessa Southeast Lagoon System. The non-point sources are described. The submittal demonstrates that all significant sources of CBOD and ammonia 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.*

For the point source allocation, the allocations for CBOD and ammonia are obtained from the QUAL2E water quality model, which set the seasonal levels of CBOD and ammonia such that the dissolved oxygen and the ammonia criteria will be attained in Davis Creek. The non-point allocations for CBOD and ammonia are set at the observed seasonal background levels. A margin of safety is included in the allocations.

***Waste Load Allocation**:*

The waste load allocation for CBOD that will meet and maintain the dissolved oxygen criterion is translated by the QUAL2E water quality model into the loading allowed in the WWTF end-of-pipe discharge, to facilitate later conversion of the waste load allocations of CBOD into permit limits. The QUAL2E model handles ammonia decay in a similar manner.

***Load Allocation**:*

The load allocations for CBOD and ammonia are set to the observed background levels. Future monitoring will determine if cattle access to the stream is significant.

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

The margin of safety is 10% of the load capacity for CBOD and ammonia. This level of margin of safety was established by best professional judgment regarding the inherent inaccuracies of the QUAL2E model.

***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.*

For the point source contributions of CBOD and ammonia, the QUAL2E water quality model establishes the link between CBOD and the dissolved oxygen water quality criteria, and establishes the link between ammonia loadings and the in-stream ammonia concentrations. The non-point sources are lumped together as background contributions, and are allocated at observed background levels.

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

Seasonal variation was incorporated by using seasonal parameters in the QUAL2E water quality model, to arrive at seasonal allocations. Because the major source is a WWTF, which has constant discharge rates, the critical condition is the 7Q10 low flow condition.

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

Public participation included six public meetings and a public notice. The public comments and Missouri's response to the comments 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).*

These are phased TMDLs, and a monitoring plan is included. The plan calls for self-monitoring by the WWTF, and, hiring an engineering firm to review the data and prepare a facility plan.

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

Non-point source loading reductions are not required in these TMDLs.