



EPA Region 7 TMDL Review

TMDL ID 339 Water Body ID lake

Water Body Name Olpe City Lake

Pollutant Siltation

Tributary

State KS HUC 11070201

Basin Neosho

Submittal Date 11/19/2004

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.

EPA received a letter on November 19, 2004, formally submitting this TMDL document for approval under Section 303(d) of the Clean Water Act.

Water Quality Standards Attainment

The water body's loading capacity for the applicable pollutant is identified and the rationale for the method used to establish the cause-and-effect relationship between the numeric target and the identified pollutant sources is described. TMDL and associated allocations are set at levels adequate to result in attainment of applicable water quality standards.

This TMDL implements the Kansas narrative water quality standard for suspended solids. For this TMDL, achievement of the narrative standard for suspended solids is interpreted as an increase in average transparency as measured by improved turbidity readings and measured in formazin turbidity units (FTUs). The endpoint is an increase in average transparency as measured by secchi disc depth greater than 0.5 meter. An additional TMDL was submitted at the same time for this water body to address lake eutrophication. Nutrient reductions required in the eutrophication TMDL are related to this impairment since nutrient loading to the lake is in large part a function of the sediment load. Modeling with CNET predicts that reduction of phosphorus levels, as specified in the Olpe City Lake TMDL, should allow secchi disc depths to reach 0.5 meter, which would result in

attainment of designated beneficial uses for this lake. This is a phased TMDL.

Numeric Target(s)

Submittal describes applicable water quality standards, including beneficial uses, applicable numeric and/or narrative criteria. If the TMDL is based on a target other than a numeric water quality criterion, then a numeric expression, site specific if possible, was developed from a narrative criterion and a description of the process used to derive the target is included in the submittal.

The narrative standards and the designated beneficial uses are described. The numeric expression for water clarity was used because of high turbidity in the water column (volume loss is not a concern), due to a steady inflow of silt, and to be consistent with the water column transparency target used in the eutrophication TMDL. Targets are expressed as both FTUs and a percent improvement in transparency.

Link Between 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.

Nutrient reductions required in the eutrophication TMDL for the lake are recognized in the companion TMDL since nutrient loading to the lake is in large part a function of the sediment load. Reduction of the sediment load will result in reductions in the phosphorus load which in turn will increase the biological productivity in the lake without causing the inception of excessive eutrophic conditions.

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.

Source inventory and assessment includes descriptions of land use and the potential for non-point source pollutants, there are no point sources. The primary contribution of sediment is likely due to cropland that is adjacent to the streams that drain into the lake. Resuspension of sediment may also be a result of the carp in the lake. All significant sources are discussed and 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.

The target endpoint of 20 FTUs was selected for allocation because the principal impairment for siltation in this water body is transparency -- the stated goal is to achieve an inlake secchi depth of 0.5 meters and the FTU value associated with this level is 20. Because transparency is closely linked to algal production (addressed in a separate TMDL), this target is a balance of trying to reduce nutrient loads but not allow increased

chlorophyll production because of increased light.

WLA Comment

There are no point sources in the watershed, therefore the WLA is zero.

LA Comment

The LA is turbidity levels not to exceed 18.0 FTUs in the lake which is estimated to be a 61% reduction from the current conditions.

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.

The explicit Margin of Safety was set at 2.0 FTUs to compensate for the lack of knowledge about the relationship between the allocated loadings and the resulting water quality.

Seasonal Variation and Critical Conditions

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

Seasonal variation and critical conditions are accounted for by conducting seasonal sampling and by considering the magnitude of runoff which is chiefly generated when the rainfall rate is greater than the rate at which rain can infiltrate the soil.

Public Participation

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

Public meetings to discuss TMDLs in the Neosho Basin were held January 9, 2002 in Burlington and March 4, 2002 in Council Grove. A KDHE Internet Web site allows users to view specific TMDLs in the Neosho Basin and more general information on the establishment of TMDLs. A public hearing on the TMDLs of the Neosho Basin was held in Burlington and Parsons on June 3, 2002 and the Neosho Basin Advisory Committee met to discuss TMDLs in the basin on October 2, 2001, January 9, March 4, June 3, 2002, and July 30, 2004.

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).

Sampling and evaluation will occur once before 2007 and twice between 2007 and 2011.

Reasonable assurance

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

Reasonable assurance, although not necessary for this TMDL since there are no point sources, includes numerous authorities and funding through the Kansas Water Plan.
