EPA Region 7 TMDL Review

TMDL ID	348	*Water Body ID*	KS-NE-07-567_16
Water Body Name	Cow Creek (Lawton)		
Pollutant	Sulfate		
Tributary	Long Branch 21, Taylor Branch 25, Brush Creek 26, East Cow Creek 24, First Cow Creek 27, Clear Creek 28		
State	KS	*HUC*	11070207
Basin	Neosho		
Submittal Date	01/13/2005		
Approved	1/27/2005		

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.

The Kansas submittal letter was received by EPA on January 13, 2005; submitted as a final TMDL document under a cover letter dated January 12, 2005.

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.

The endpoint for this TMDL will be to achieve the Kansas Water Quality Standards fully supporting Drinking Water Use (K.A.R.28-16-28e(c)(3)(A). The current standard of 250 mg/L of Sulfate was used to establish the TMDL. The loading capacity is set at the current numeric criterion of 250 mg/L for monitoring station 567.

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 water quality standards, beneficial uses, and numeric criteria are described. The target is the numeric criterion for sulfate of 250 mg/L.

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.

The numeric target is the numeric criterion and the link between the target and the sulfate is direct.

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.

Coal mining strip pits are located throughout the watershed. The mined land is affected by overflow and seepage from strip pits. The mining of coal exposed the underlying pyrite to the oxidation process. The pyrite can continue to weather releasing sulfate. Reclaimed mined land has improved water quality. This creates naturally high background concentrations of sulfate. All other potential sources are discussed.

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 allocation is expressed as a TMDL load duration curve in tons/day of sulfate, which is derived from the numeric criterion and the flow curve. The allocation is a function of the flow.

WLA Comment

The waste load allocation for station 567, is 5 tons/day. WLAs from all NPDES facilities are appropriate, all are set at less than end of pipe criteria levels. There are nine NPDES municipal permitted wastewater dischargers that contribute sulfate load. There are four non-discharging lagoons and one non-discharging industrial plant, their WLA is set at zero.

LA Comment

The load allocation based on the existing standard of 250 mg/L, across all flow conditions, is 18.3 tons/day at median flow (27.1cfs).

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 is maintaining a WLA based on 160 mg/L sulfate target for mechanical plants and 240 mg/L sulfate for lagoons, ensures WLA will not cause sulfate concentrations to exceed 250 mg/L.

Seasonal Variation and Critical Conditions

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

Seasonal variation is documented with the seasonal consistency of elevated sulfate levels.

Public Participation

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

Public meetings to discuss Neosho Basin TMDLs were held January 9, 2002 in Burlington, March 4, 2002 in Council Grove, and July 30, 204 in Marion. An internet Web site was established www. kdhe.state.ks.us/tmdl/ to convey information to the public. Public hearings on the TMDLs of Neosho Basin were held in Burlington and Parsons on June 3, 2002.

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).

KDHE will continue to collect bimonthly samples at station 567, including sulfate samples, in each of the three defined seasons. Based on sampling the status wil be evaluated in 2007. Monitoring of sulfate levels in effluent will be a condition of NPDES and state permits for facilities.

Reasonable assurance

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

Reasonable assurance includes numerous authorities and funding through the Kansas Water Plan. Kansas Geological Survey has shown that reclaiming mined land is an effective way to reduce sulfate loading in streams.