

TMDL FACT SHEET

UNNAMED TRIBUTARY OF BAUGHMAN FORK AND BAUGHMAN FORK

Project Name: Unnamed Tributary: Organic Enrichment/low DO/Nutrients
Baughman Fork: Organic Enrichment/low
DO/Nutrients

Location: Boone Creek Basin, Fayette County, Kentucky

Scope/Size: Unnamed Tributary: River mile 0.0 to 1.5
Baughman Fork: River mile 1.5 to 2.7

TMDL Issues: Point Sources

Data Sources: Kentucky Department for Environmental Protection
Division of Water

Control Measures: KPDES Regulations

Water Quality Standard/Target: Maintain Dissolved Oxygen (DO) concentration greater than 5.0 milligrams per liter (mg/L). Maintain ammonia concentrations less than 4 mg/L. Eliminate effluent toxicity through the use of limits for Total Residual Chlorine and Chronic Toxicity. Reduce phosphorus concentrations to avoid nuisance algal blooms. These standards are found within regulation 401 KAR 5:031.

Summary: The unnamed tributary of Baughman Fork and Baughman Fork were determined as not supporting the designated use of aquatic life. Therefore, the streams were listed on the 303(d) list for Total Maximum Daily Load (TMDL) development. The two stream segments are impacted by organic enrichment, low DO, and nutrients. Effluent toxicity is also a severe problem. The critical

conditions are low stream flow and warm summertime conditions. The primary cause for these problems is the discharge from the Blue Sky Wastewater Treatment Plant (WWTP), which has had, and continues to have, severe KPDES permit violations. Legal action against this facility is ongoing.

TMDL Development: Total maximum daily loads in pounds per day (lbs/day) were computed based on the allowable maximum concentration for carbonaceous biochemical oxygen demand (CBOD), nitrogen ammonia (NH3-N), total residual chlorine (TRC), and total phosphorus (TP) during the critical low-flow period. An effluent limit for toxicity is also required, but these are in a measurement of "units" and cannot be converted to a load. These parameters were chosen for TMDL development because they are the pollutants of concern for these stream segments.

**Summary of Total Maximum Daily Load Allocations
(in pounds per day)**

<u>Source:</u>	<u>CBOD</u>	<u>NH3-N</u>	<u>TRC</u>	<u>TP</u>
All Sources	55.1	7.35	0.014	1.25
Background	0	0	0	0
Waste Load Allocations (WLAs)				
Existing permits	55.1	7.35	0.014	1.25

Background loads are zero based on the critical low-flow conditions of these streams, which are dry during hot, summertime conditions. Permitted discharge loads were calculated using EPA-approved water-quality modeling procedures and regulatory water-quality standards. The loadings are based on a simple conversion of discharge permit concentrations multiplied by the WWTP size (gpd). Thus, if WWTPs

are in need of expansion, the model runs and effluent limits will be revisited. An increase in loading (lbs/day) could be approved.

Existing Loads and Load Reductions:

	Existing	TMDL	Reduction
CBOD:	10 lbs/day	55.1	None - both treatment plants doing better than permit requirements
NH3:	29 lbs/day	7.35	21.65 lbs/day
Total P:	7.5 lbs/day	1.25	6.25 lbs/day
TRC:	0.04 lbs/day	0.014	0.026 lbs/day

Implementation

Controls: A formal legal complaint was filed against the Blue Sky WWTP on March 27, 2000, in order to bring this facility into compliance with existing permit requirements. Considering the long history of violations and enforcement actions concerning this facility, the outcome and time frame for resolution of these problems are unknown. The Kentucky Division of Water's (KDOW) preferred outcome would be for the Lexington Fayette Urban County Government (LFUCG) to extend sewer lines to this area and eliminate the WWTP. A second option would be for the KDOW to revoke the permit, and operation of the facility would be taken over by LFUCG or another entity. A third option would be to allow the current owner to operate this facility, and the KDOW would continue to apply enforcement action, including monetary penalties, for failure to meet permit conditions. Under either the second or third option, the existing treatment plant will require significant upgrades or replacement, and phosphorus removal will be required. Other alternatives may be considered as the legal action progresses.