

Missouri Department of Natural Resources

# Total Maximum Daily Load Information Sheet

## Sugar Creek

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### Waterbody Segment at a Glance:

**County:** Randolph  
**Nearby Cities:** Moberly, Huntsville  
**Length of impairment:** 1.5 miles  
**Pollutant:** pH  
**Sources:** Huntsville, Calfee  
Abandoned Mine Lands



State map showing location of watershed

**TMDL Priority Ranking:** TMDL Completed 2002

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### Description of the Problem

#### Beneficial uses of Sugar Creek

- Livestock and Wildlife Watering
- Protection of Warm Water Aquatic Life
- Protection of Human Health associated with Fish Consumption

#### Use that is impaired

- Protection of Warm Water Aquatic Life

#### Standards that apply

- Missouri's Water Quality Standards (WQS), 10 CSR20-7.031 (4)(E), state that water contaminants shall not cause pH to be outside of the range of 6.5-9.0 Standard Units (SU).

### Background Information and Water Quality Data

Many small coal-mining operations in the Huntsville area pre-date the 1940s. Eroding coal waste areas just east of Huntsville sent large amounts of coal wastes into Sugar Creek and a tributary and spilled coal wastes onto more than five acres of farmland. When sulfide minerals in rock are exposed to water and oxygen, they oxidize and form highly acidic (low pH) iron- and sulfate-rich drainage, which is harmful to aquatic life. These minerals make up a large amount of the coal wastes around Sugar Creek. The water draining through these coal wastes is extremely acidic and 1.5 miles of Sugar Creek has been polluted by acid mine drainage (AMD). The acid problems caused by the flow of surface water to Sugar Creek are aggravated by acid water emerging from flooded underground coal mines.

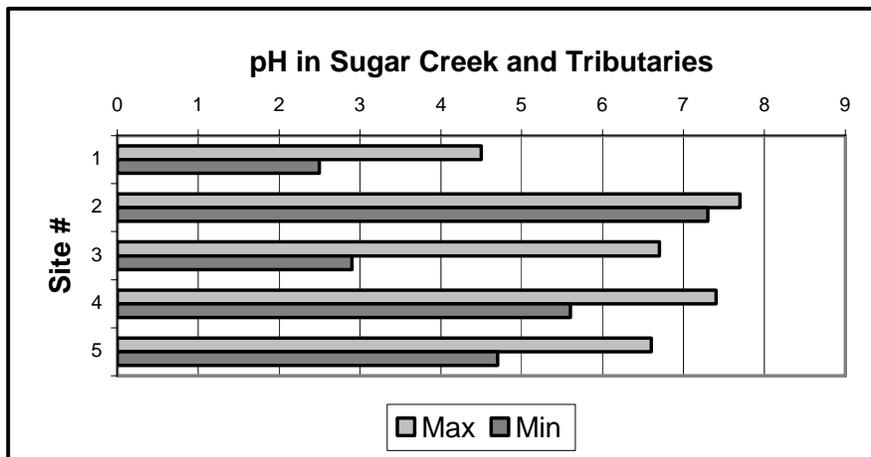
In 1993, the Missouri Department of Natural Resources completed a reclamation of the coal waste areas. Unstable banks of coal waste and places where coal waste was burning have been

reclaimed. Coal waste areas were regraded, covered with lime and clean soil and revegetated. These reclamation projects have greatly reduced the erosion of coal wastes to area streams. However, acid problems persist in the lower 1.5 miles of Sugar Creek primarily due to resurgence of acid water from flooded underground mines. The mine openings cannot be closed. The hydrostatic head would continue to build resulting in a blowout at the mine opening or at some other unknown point. Filling the mine voids to prevent groundwater contamination would be cost prohibitive. A solution has yet to be found to these problems. A map of the area and graphs summarizing the existing data may be found below.

A proposal for an Agriculture Nonpoint Source (AgNPS) Special Area Land Treatment (SALT) project for the Sugar Creek and Dark Creek watersheds was approved in May 2002. This is a seven-year project to be completed by June 30, 2009. It is geared to control soil erosion and improve water quality. Also, a 319 grant will be used for to fund a Feasibility Study to determine how to deal with the AMD still running into Sugar Creek. Partners in this study are U.S. Geological Survey and the Office of Surface Mining. The study runs from June 1, 2003, to Dec. 31, 2005 and its title is “Assessment and Options for Reclamation of Acidic Drainage from Abandoned Coal Mines near Huntsville, MO”. Quarterly reports indicate good progress.

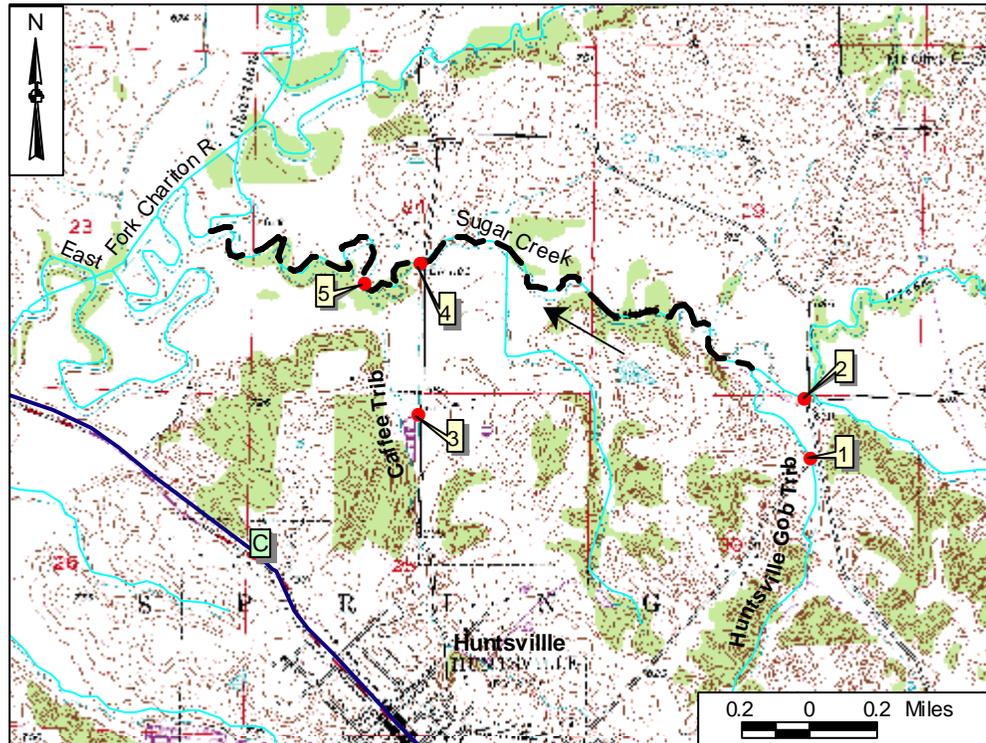
The TMDL requires the stream to meet the pH standard of 6.5 – 9.0 SU. As a margin of safety, to account for the uncertainties in a natural system, an alkalinity of 90 mg/L calcium carbonate is also required. The implementation plan will depend on the findings of the Feasibility Study. The U.S. Environmental Protection Agency approved this TMDL December 19, 2002.

### pH Data in Sugar Creek and Tributaries



Source: Missouri Department of Natural Resources

## Impaired Portion of Sugar Creek in Randolph County, Missouri, and Sampling Sites



--- Impaired portion      → Direction of flow

### Site Index

- 1 – Huntsville Gob tributary 0.1 mile above mouth
- 2 – Sugar Creek 0.2 mile above Huntsville Gob tributary
- 3 – Calfee tributary 0.1 mile above mouth
- 4 – Sugar Creek 0.1 mile above Calfee tributary
- 5 – Sugar Creek below Calfee tributary

### For more information call or write:

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Water Protection Program

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