

Missouri
Department of
Natural Resources

DRAFT SUGAR CREEK TMDL
PUBLIC COMMENTS

Public Notice
Oct. 11 – Nov. 10, 2002

**Sugar Creek
WBID # 0686**

Randolph County, Mo.

Missouri Department of Natural Resources
Water Protection Program
PO Box 176
Jefferson City, MO 65102-0176
800-361-4827 / 573-751-1300

Phone comment on the Sugar Creek TMDL

Kim Dickerson of AECI (Associated Electric Cooperative Incorporated) called on October 26, 2002 with questions about the TMDL. AECI is one of the supporting entities for the Ag NPS SALT grant in the Sugar Creek-Dark Creek watershed. Kim asked for the department to clarify in the TMDL how long it would be before the TMDL is reopened if the pH does not improve. Her phone number is (660) 261-4221 ext. 316.

The department responded favorably and added the following words to the TMDL under "Monitoring Plan for TMDLs Developed Under the Phased Approach", Section 8.

After the restoration plan (to be determined by the Feasibility Study) has been implemented, time will be allowed for the stream to respond. If post-implementation monitoring reveals that water quality standards are still not being met for pH (6.5 to 9.0 SU) or the numeric target is not being met for alkalinity (90 mg/L or more), then this TMDL will be re-opened and re-evaluated.

In a follow-up phone call to Kim on November 22, 2002, she was satisfied with the wording.



MISSOURI DEPARTMENT OF CONSERVATION

Headquarters

2901 West Truman Boulevard, P.O. Box 180, Jefferson City, Missouri 65102-0180
Telephone: 573/751-4115 ▲ Missouri Relay Center: 1-800-735-2966 (TDD)

JOHN D. HOSKINS, Director

REPLY TO: Columbia Research Center
1110 S. College Ave.
Columbia, MO 65201
Telephone: 573/882-9880
FAX: 573/882-4517

November 8, 2002

Ms. Sharon Clifford
Department of Environmental Quality
Water Pollution Control Program
Missouri Department of Natural Resources
PO Box 176
Jefferson City, MO 65102-0176

RECEIVED
NOV 12 2002
WPCP

Dear Ms. Clifford:

The Department of Conservation has reviewed the draft Sugar Creek (Randolph County) TMDL and found it well written. MDC has no additional fish community or water quality data for this stream. We do offer one comment on the linear regression performed to model the relation between pH and alkalinity. The analysis assumes that the same linear relation occurs at all three sampling locations. For verification, we suggest:

- 1) Assigning location as a categorical variable and performing an ANCOVA to verify that each of the three site relations was the same as for the pooled data.
- 2) Plot residual to check for normality
- 3) Reference for equations for predicting x from y (Rolf. 1981. Biometry, p. 496)
<http://www.fcr.gov.bc.ca/research/biopamph/pamp29.pdf>

We realize that a through discussion of the regression analysis was not present in the draft document and this analysis may have already been performed but omitted. The Department appreciates the opportunity to comment on this draft. Please feel free to contact me if you have any questions or if MDC can be of further assistance in the implementation of this TMDL.

Sincerely,

Leanna Zweig
Environmental Services Biologist

COMMISSION

STEPHEN C. BRADFORD
Cape Girardeau

ANITA B. GORMAN
Kansas City

CYNTHIA METCALFE
St. Louis

HOWARD L. WOOD
Bonne Terre

STATE OF MISSOURI Bob Holden, Governor • Stephen M. Mahfood, Director
DEPARTMENT OF NATURAL RESOURCES

www.dnr.state.mo.us

November 25, 2002

Ms. Leanna Zweig
Missouri Department of Conservation
Columbia Research Center
1110 S. College Avenue
Columbia, MO 65201

RE: Comments on Sugar Creek TMDL (Waterbody ID#: 0686)

Dear Ms. Zweig:

Thank you for the comment letter dated November 8, 2002, regarding the Sugar Creek TMDL. The following corresponds to comments made regarding the Sugar Creek linear regression model between pH and alkalinity.

Department of Natural Resources staff recognize that mixing multiple sampling locations and times for the regression analysis may lead to masking of spatial and temporal trends within the data. However, due to sampling frequency limitations all available data from Sugar Creek were pooled to perform the linear regression analysis between pH and alkalinity. Department staff believe the data used are representative of all conditions that may be reasonably expected to occur and sufficient to construct a regression model for Sugar Creek.

Department staff agree that the regression analysis assumes the linear relation for pH and alkalinity occurs at all three sampling locations. This assumption is reasonable because chemical reactions that determine the assimilative capacity of natural waters to acidity are occurring at each site under similar conditions. As requested, ANOVA calculations were performed at each sampling location to verify that pH and alkalinity relations were similar to that of the pooled data. In addition, the residuals from each sampling location regression analysis were plotted for normality.

Results of the ANOVA calculations show a linear relation for pH and alkalinity similar to that of the pooled data occurring at the impaired Sugar Creek sampling locations above and below the Calfee mine tributary. The linear relation was not as significant, however, on the unimpaired

Integrity and excellence in all we do



Ms. Leanna Zweig

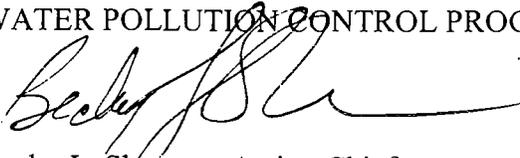
Page 2

segment of Sugar Creek above the Huntsville Gob tributary where little variance existed between pH and alkalinity values. Although the linear relation was not maintained at this upstream sampling location, these data were included in the regression analysis to strengthen the available data and aid in the determination of appropriate in-stream pH and alkalinity water quality targets. Normality plots and analysis indicate that residuals from the pooled and individual regression analyses exhibit normal behavior. Results of the ANOVA calculations and normality analyses will be sent under separate cover.

We appreciate your comments and interest in this TMDL. If you have any further questions or comments, please contact John Hoke of the department's Water Pollution Control Program at (573) 751-7428 or at the Missouri Department of Natural Resources, Water Pollution Control Program, P. O. Box 176, Jefferson City, MO 65102-0176.

Sincerely,

WATER POLLUTION CONTROL PROGRAM

A handwritten signature in black ink, appearing to read "Becky L. Shannon", written over the typed name below.

Becky L. Shannon, Acting Chief
Planning Section

BLS:jhd