Missouri Department of Natural Resources

DRAFT DAVIS CREEK TMDL
PUBLIC COMMENTS

2nd Public Notice
March 28 – April 28, 2003

Davis Creek
WBID #0912

Lafayette County, Mo.

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

ALLGEIER, MARTIN & ASSOCIATES, INC.

CONSULTING ENGINEERS AND SURVEYORS

JOPLIN, MISSOURI 64803

PHONE: 417-624-5703
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2820 RANGE LINE
P.O. BOX 2627

April 21, 2003

MO Department of Natural Resources
WPCP, Planning Section
PO Box 176
Jefferson City, MO 65102-0176

RE: Odessa, MO
Davis Creek Revised TMDL, Draft
Public Notice 3/28/03 to 4/28/03
Comments

Gentlemen:

In response to the public notice on the Draft Davis Creek Revised TMDL (Total Maximum Daily Load), the following comments are respectfully offered:

Background & Water Quality Problems

It is notable that new data points to nutrient contributions to the stream as a factor impacting the stream ecology. Given the low flow characteristics of the stream during 7Q10 periods, concentrations in the water would tend to increase regardless of the nature of non-point contribution.

The absence of riparian canopy, and assumed lack of sufficient border vegetation, are seen to be major deficiencies in the riparian characteristics. The absences of nutrient utilizing vegetation diminishes the likelihood of nutrient reduction in waters entering the stream.

A significant factor in the study is the finding that dissolved oxygen levels, both above and below the receiving point of the wastewater plant effluent. to sometimes be below 5.0 mg/l. Further, dissolved oxygen levels in South Davis Creek, a neighboring stream without point sources of nutrient, were found at times below 5.0 mg/l.

The above summary appears to substantiate the interpretation that non-point contributions of nutrient to the waters of Davis Creek are a major cause of stream degradation.

Anti-Degradation Policy

Tier I baseline conditions are the appropriate standards for Davis Creek and should, through recognition of numeric level for dissolved oxygen and ammonia, protect the beneficial uses, namely, livestock and wildlife watering and limited warm water fishery.

Specific Criteria

These comments offer concurrences to the statement, "Limiting discharges from the facility in and of itself may not be sufficient to ensure the DO standard is met because of the effects of in-stream photosynthesis, which depend on nutrient load, and physical characteristics controlling re-aeration".

Implementation of the TMDL in multiple phases will allow evaluation of results of separate programs taken toward load reduction to the stream. Reducing the waste load allocation for the Odessa Southeast Wastewater Treatment Facility from 45 mg/l BOD to 10 mg/l is a positive step. Odessa initiated action prior to 1997 toward the development of a mechanical type plant. These actions were, in part, from recognition that effluent quality warranted improvement. The Facilities Plan for wastewater management recommended in April 2001 that a mechanical plant be constructed with levels of treatment capable of consistently producing effluents with BOD less than 10 mg/l, and Total Suspended Solids below 15 mg/l. Utilizing the extended aeration process recommendation in the Plan, ammonia levels in the effluent can be held to below 2 mg/l.

The proposed point source limits for the Odessa system are consistent with Facility Plan recommendations and treatment to this degree is achievable through available technology.

It is pointed out that features can be incorporated in the plant to enhance the dissolved oxygen level in the effluent, thereby contributing DO to the stream. Also, it is offered that improvements in wastewater treatment will not contribute to needed upgrading of the stream above the effluent discharge point. Within this reach of the stream, non-point nutrient contributions and riparian improvements should be addressed.

Calibration of the QUAL2E Model after the mechanical plant is in operation is seen as the practical, and most meaningful procedure.

A permit requirement to follow up with alternative disposal, assuming numeric standards and BI levels are not met, is seen to be viable. However, permit requirements for the Odessa Southeast Wastewater Plant to develop riparian improvement or watershed improvement can be executed by the permitee only within property the permitee owns or has an enabling interest therein.

Monitoring

Monitoring of the treated wastewater effluent weekly for BOD, pH, temperature, and ammonia by the permitee is most workable. It is interpreted that ambient conditions in the stream, and biological monitoring, will be conducted by others than the point source permitee.

Implementation Plan

A three-year period, following issuance of the new permit, for compliance by the Odessa Wastewater Treatment Facility appears to be workable.

Some questions arise from the statement, "The permit will also include special conditions placing responsibility for coordinating and implementing non-point source and riparian improvements to achieve WQS". It is assumed the subject permit is that permit issued for the Odessa Wastewater Treatment Facility. While in all probability Odessa would actively participate in an assembly of parties with responsibility for formulating an improvement plan, it must be remembered that Odessa may implement only those action enabled by statute. Regulation by ordinance is limited to the municipal corporate boundaries. Protection of the environment beyond those boundaries is limited to special rights granted, or through property ownership.

Very truly yours,

ALLGEIER, MARTIN & ASSOCIATES, INC.

Eugene Spears

Eugene Spears, PE
Vice President

STATE OF MISSOURI
Bob Holden, Governor • Stephen M. Mahfood, Director
DEPARTMENT OF NATURAL RESOURCES
www.dnr.state.mo.us

June 17, 2003

Mr. Gene Spears, City Engineer
Allgeier, Martin and Associates, Inc.
2820 Range Line
P.O. Box 2627
Joplin, MO 64803

Dear Mr. Spears:

Thank you for your comment letter dated April 21, 2003, regarding the Davis Creek Revised TMDL. The revision is significant in that the City of Odessa, Environmental Protection Agency (EPA) and the Missouri Department of Natural Resources (the department) worked together to come to the best possible solution to the problem once data was obtained that indicated that a nonpoint source component was lacking in the TMDL.

Several of your comments dealt with the fact that nonpoint source contributions were not the responsibility of the city or the Odessa Southeast Lagoon System (OSLS) off city property. As the phased TMDL is implemented, it will become easier to determine what contribution point and nonpoint sources make to the impairment. Because the City will be taking the lead on restoring Davis Creek to meet water quality standards, it will be seen as an important member in developing a watershed partnership. Riparian improvements like restricting livestock access to the stream and reestablishing riparian vegetation, however, are the responsibility of individual landowners and not the responsibility of the City or OSLS off city property. It is unfair to expect the City to implement nonpoint source and riparian improvements on land not owned by the City, so language has been added to the TMDL reflecting this fact.

Your other question was concerned with ambient monitoring. According to staff in the Permit Section of the Water Pollution Control Program, the typical permit written today does mandate instream monitoring. That is part of the authority the State of Missouri has

to write permits under the National Pollutant Discharge Elimination System. The new permit that will be written for the upgraded facility will reflect that the City will have some kind of ambient monitoring that facility staff will be required to perform.

Thank you for your comments on the Davis Creek Revised TMDL. They were most helpful in clarifying the point that coordinating and implementing nonpoint source and riparian improvements are the responsibility of the landowner. We look forward to working with you as the TMDL process goes forward. If you have any questions or want to discuss further, please contact Gail Wilson at (573) 751-7428 or at Missouri Department of Natural Resources, Water Pollution Control Program, P. O. Box 176, Jefferson City, MO 65102-0176.

Sincerely,

WATER POLLUTION CONTROL PROGRAM

Becky L. Shannon, Acting Chief
Planning Section

BLS:gwd

CITY OF ODESSA

P.O. Box 128
125 S. Second
Odessa, MO 64076
816-230-5577
Fax 816-633-4985

April 22, 2003

Missouri Department of Natural Resources
WPCP Planning Section
PO Box 176
Jefferson City, MO 65102-0176

Dear Sirs,

I am writing to comment on the draft of the Davis Creek Revised TMDL. I wish to thank you for revising the TMDL and seeking public comments.

The City of Odessa is in general agreement for the need to revise the Davis Creek TMDL. We agree that recent data from August and September, 2002, shows the dissolved oxygen readings consistent above or below the outfall of the Odessa Southeast Lagoon System (OSLS). We encourage the MDNR to keep this data prominent in the plans for permitting the OSLS and new mechanical treatment plant. We also support the plans for a phased TMDL.

The City of Odessa wishes to continue its cooperation with MDNR in the care and protection of Davis Creek. Certainly this stream is very important to citizens of Odessa, as well as to the resident of the surrounding rural area. The City of Odessa is determined to maintain the OSLS in a proper manner and plan for the enhancement of the location with the construction and operation of a new mechanical treatment plant. The new plant will serve the majority of sewer users in the City of Odessa.

I will direct our city engineer, Gene Spears, of Allgeier, Martin & Associates, to provide you with his written comments on the revised TMDL. He will provide the City's response to the technical data of the revised TMDL. I know Gene appreciates the past cooperation of the MDNR and that he looks forward to working on future improvements to the Odessa system.

The City of Odessa, lead by Mayor Tom Murry and the Board of Aldermen, will continue its major efforts to improve and enhance the local sewer system. For the City of Odessa, this includes significant expenditures of both manpower and funds. The City of Odessa desires to develop, build, and maintain a functioning sewer system, including a new mechanical treatment plant. We will continue to work closely with the MDNR. Together we can accomplish all of our sewer system goals.

Thank you,

Wade Sanders

Wade Sanders
City Administrator

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DEPARTMENT OF NATURAL RESOURCES
www.dnr.state.mo.us

June 17, 2003

Mr. Wade Sanders
Administrator, City of Odessa
P.O. Box 128
Odessa, MO 64076

Dear Mr. Sanders:

Thank you for your comment letter of April 22, 2003, regarding the Davis Creek Revised TMDL. In it you notify us that the Odessa City Engineer, Mr. Gene Spears, would be providing a response to the technical data in the revised TMDL. We have received his letter dated April 21, 2003, and will be sending him a letter responding to his comments.

The Missouri Department of Natural Resources recognizes the efforts you, Mayor Murry, the Board of Aldermen and the City have made to resolve problems with the Odessa Southeast Lagoon System and to serve the people of the City of Odessa. The process has not been an easy one, and the department appreciates the patience and professionalism the City has displayed.

Again, thank you for your comments. We look forward to working with you as the TMDL process goes forward. If you have any questions or want to discuss further, please contact Gail Wilson 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.

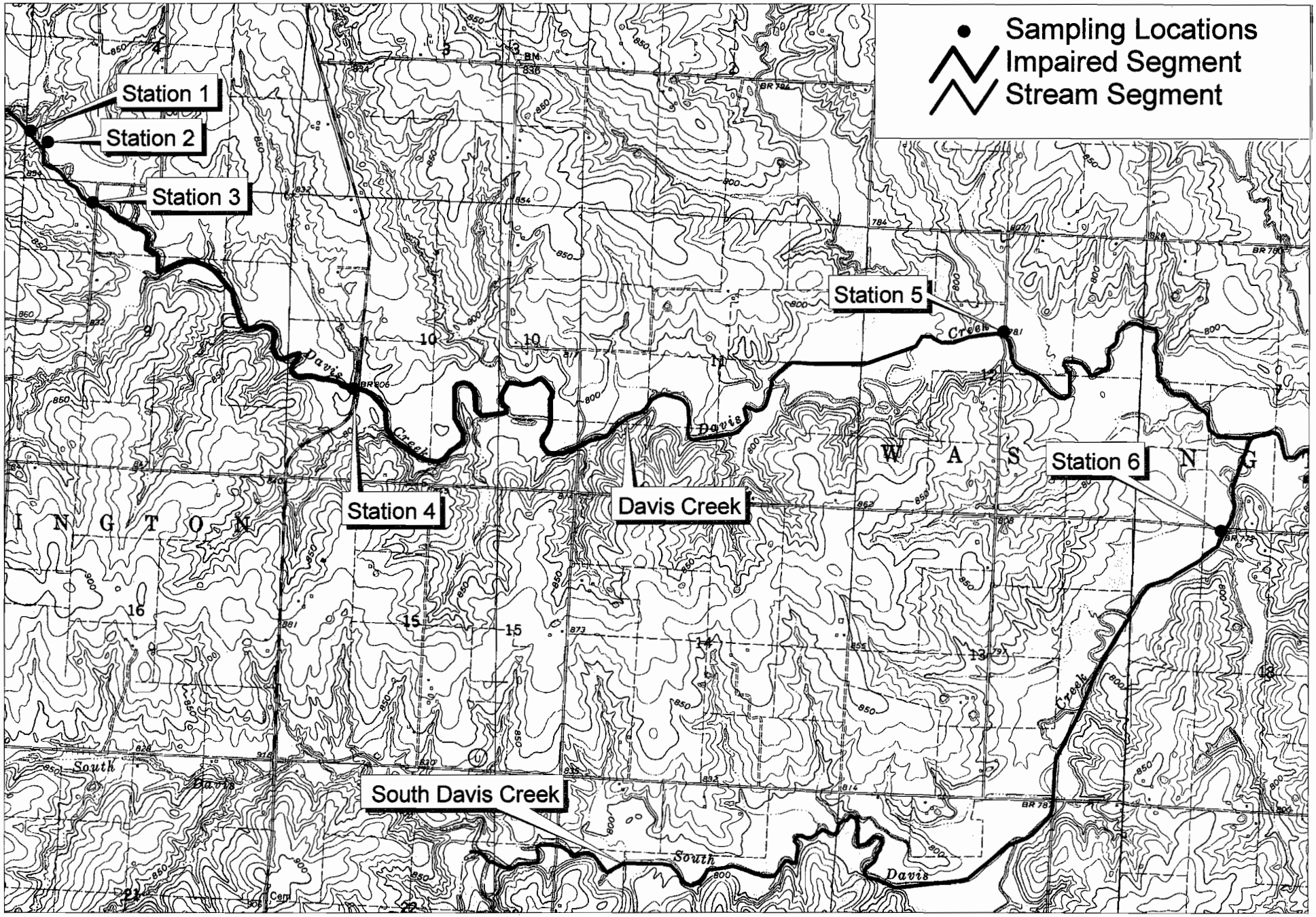
Sincerely,

WATER POLLUTION CONTROL PROGRAM

Becky L. Shannon, Acting Chief
Planning Section

BLS:gwd

Map of Davis Creek, Lafayette County, Missouri



MISSOURI DEPARTMENT OF CONSERVATION

Headquarters

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JOHN D. HOSKINS, Director

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

April 28, 2003

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

Dear Ms. Clifford:

The following are the comments of the Missouri Department of Conservation concerning the draft TMDL for Davis Creek.

The majority of our concerns with the document stem from the conclusion that dissolved oxygen levels in Davis Creek "naturally" fall below 5 mg/L. A large collection of peer reviewed literature exists as documentation of warm water fishes' inability to reproduce or survive under prolonged expose to dissolved oxygen below 5 mg/L. Previous data collected by MDNR for the Osage Plains region systems in which dissolved oxygen fall below 5.0 mg/L can be at least partially attributed to the extensive modification of these systems from pre-settlement conditions (i.e. channelization, riparian corridor removal, hydrologic changes in the watershed, nutrient enrichment, etc.). Although this does not factor into the loading calculations, we believe that such phrasing misrepresents the ecological processes occurring in Davis Creek. It should be noted that the additional data collected for Davis Creek and South Davis Creek for the revised TMDL were collected during drought years and do not adequately represent baseline water quality conditions for the Creek.

The Department concurs that there is a need for flexibility within the TMDL and that riparian removal and non-point source pollution are contributors in the impairment of Davis Creek but encourages initial focus on legacy impacts of nutrient enrichment from OSLS. Elevated ambient nutrient conditions will require an undetermined flushing time once the facility is operating consistently under compliance. Until that time, the WWTP introduced nutrients will be difficult to distinguish from non-point source inputs.

Additional monitoring of both adequate water quality and biological parameters will be crucial to determining the success of the TMDL. MDC offers whatever assistance that we can provide to that end.

A potential significant problem associated with the placement of WWTP on intermittent streams is that the artificial increase in base flow creates a trap for fish populations. Normally during dry periods, fish would move out of intermittent tributaries into permanent streams. In WWTP influenced streams, high base flows and increased food supply from nutrient enrichment draw fish high into the watershed late in the summer where they are often trapped in pools. Subsequent dissolved oxygen drops in these nutrient enriched pools would result in reduced feeding, reproduction or mortality.

The primary concern with the establishment of criteria for Davis Creek is the past history of non-compliance of the OSLS. The TMDL can only be successful in support of warm water aquatic life if OSLS continues consistent compliance and upgrades in treatment efficiency occur to reduce pollutant discharges.

The TMDL uses South Davis Creek as reference stream but does not reference biological or water quality data for the encoded reference streams for Davis Creek's Ecological Drainage Unit (EDU), Heaths Creek or East Fork of Crooked River?

The Department supports efforts by DNR to improve Missouri's aquatic resources and appreciates the opportunity to comment on this TMDL.

Sincerely,

Leanna Zweig
Environmental Services Biologist

STATE OF MISSOURI
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DEPARTMENT OF NATURAL RESOURCES
www.dnr.state.mo.us

June 17, 2003

Ms. Leanna Zweig
Environmental Services Biologist
Missouri Department of Conservation
1110 S. College Avenue
Columbia, MO 65201

Dear Ms. Zweig:

Thank you for your comment letter of April 28, 2003, regarding the Davis Creek Revised TMDL. The Missouri Department of Natural Resources (MoDNR) appreciates Missouri Department of Conservation's continued commitment to protecting the state's natural resources and ongoing offer of assistance.

Many of your comments dealt with dissolved oxygen levels found in Davis Creek. Data gathered by MoDNR indicate dissolved oxygen in waters of the Osage Plain ecoregion can dip below 5.0 mg/L on occasion with causing a chronic impact on aquatic life. There is no question, however, that the extensive modification of creeks in northern Missouri has affected the natural processes. Channelization, hydraulic changes and riparian corridor removal are the circumstances that currently exist in the Odessa area and we need to achieve water quality improvements despite these changes to the natural hydrology and morphology of the system. Data was collected without regard to whether the year was above or below average in quantity of rainfall. The TMDL had to be completed and could not be postponed another year. Further data will be collected by MoDNR and by the permittee following construction of the new wastewater plant.

The new facility when constructed will vastly improve the quality of the effluent discharged into Davis Creek. The TMDL was revised to enable Odessa to move forward with the construction of the plant, as this will provide a major improvement in water quality and conditions conducive to aquatic life. As the TMDL utilizes the adaptive management approach, once the improvements provided by the new plant are quantified, the steps that need to be taken in the nonpoint source area will be easier to identify. This provides the opportunity to target specific problems and remediation efforts in order to get the maximum benefit for the resource.

The TMDL does not use South Davis Creek as a reference stream. South Davis Creek was used in the waste load allocation study. The use of data from South Davis allowed MoDNR to determine the load coming from the South Davis watershed into Davis Creek. It also provided water chemistry data from a similar creek with similar land uses, but without a treatment plant. This department does not consider South Davis Creek to be a true reference condition for Davis Creek.

Again, thank you for your comments. We look forward to working with you as the TMDL process goes forward. If you have any questions or want to discuss further, please contact Gail Wilson at (573) 751-7428 or at Missouri Department of Natural Resources, Water Pollution Control Program, P. O. Box 176, Jefferson City, MO 65102-0176.

Sincerely,

WATER POLLUTION CONTROL PROGRAM

Becky L. Shannon, Acting Chief
Planning Section

BLS:gwd