

Missouri
Department of
Natural Resources

DRAFT JAMES RIVER TMDL
PUBLIC COMMENTS

Public Notice
Jan. 19 – Feb. 18, 2001

James River
WBIDs #2347, 2362 and 2365

Webster, Greene, Christian and Stone counties, Mo.

Missouri Department of Natural Resources
Water Protection Program
PO Box 176
Jefferson City, MO 65102-0176
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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)

JERRY M. CONLEY, Director

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

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FEB 20 2001

WPCP

February 15, 2001

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

Dear Ms. Clifford:

The Department of Conservation has reviewed the draft James River TMDL and found it well written. Departmental staff deal with the problems and concerns on the James River on an almost daily basis and would ideally like to see the most stringent instream P and N limitations possible. In reality, the draft plan appears to have arrived at a reasonable compromise with the proposed 0.075 mg/l and 1.5 mg/l target loads for total phosphorus and total nitrogen, respectively.

In addition to concerns about daily discharges of N and P into the river, we are also concerned about the history of sewage spills by the City of Springfield's waste water transportation and treatment systems. For the James to meet water quality criteria, it is important for Springfield and the other municipal WWTP's that discharge into the James to remain in compliance with their discharge permit.

Some specific comments are listed below.

1. Page 5. Delete the period following the word *available* and preceding *TMDL* in the third line of the third paragraph under *Anti-degradation Policy*.
3. Page 10. There are concerns about using 25-year-old discharge data for the determination of flow duration curves for Wilsons Creek below Springfield. There have been significant changes in the Wilson's Creek watershed and an increase in impervious surface since the station was dismantled. While we understand that this data was used because there is currently no gauging station on this section of stream, we suggest that the installation of station would be a worthwhile project/expense and provide important data for restoration of this watershed. The National Park

COMMISSION

ANITA B. GORMAN
Kansas City

RANDY HERZOG
St. Joseph

RONALD J. STITES
Plattsburg

HOWARD L. WOOD
Bonne Terre

Service currently monitors water quality in Wilsons Creek at several stations within the park. They may serve as a possible source of funding or cost share for a station or assist in communication of need to the US Geological Survey.

3. Page 14. Under *Interpretation of Results*, the third line should read: a PE less **than** or equal **to**
4. Page 21. Further clarification of what the expected response to nutrient reductions might be and in what time frame that might occur would be helpful. There is apparently some public perception that a reduction in source nutrients will translate into a rapid improvement in water clarity in the lower James River and, ultimately, in Table Rock Lake. A best case/worst case discussion of projected changes might help here and could address likely FAQs up-front.
5. Page 22. MDC is becoming an increasingly important partner of the agricultural community and can play a significant role in the success of efforts to control non-point source pollution. This role could be emphasized following the fourth bullet under *Recommendations for further action in Phase I*.
6. Phosphorus limits in STP outfalls are a prominent part of this document and a key element in efforts to improve the water quality of the James River. However, tertiary treatment of wastes at these facilities will result in a larger amount of nutrient-rich sludge that must be disposed of in a proper manner. This issue should be recognized in this document and efforts to ensure that these sludges do not become another source of nutrient introduction should be addressed.

The Department appreciates the opportunity to comment on this draft. If you have any questions, please feel free to contact me.

Sincerely,

A handwritten signature in cursive script that reads "Leanna Zweig". The signature is written in black ink and is positioned above the printed name and title.

Leanna Zweig
Environmental Services Biologist



STATE OF MISSOURI
DEPARTMENT OF NATURAL RESOURCES
DIVISION OF ENVIRONMENTAL QUALITY
P.O. Box 176 Jefferson City, MO 65102-0176

Bob Holden
Governor • Stephen M. Mahfood, Director

March 30, 2001

Ms. Leanna Zweig
Columbia Research Center
1110 S. College Ave.
Columbia, MO 65201

Dear Ms. Zweig:

Thank you for reviewing the James River TMDL and taking the time to comment. The Department of Natural Resources appreciates your support of our efforts to address important water quality concerns in this basin. The following addresses the comments included in your letter.

1. All typographic errors will be corrected before submission of the final TMDL.
2. The comment regarding the age of the flow data on Wilson Creek is a legitimate concern. The average flow should be higher than it was 25 years ago because of the increase in impervious surface due to urban development. The data was used because it was the only information available. The shape of the flow duration curve, however, would basically remain the same even if the flow were increased. A grant proposal including the reinstatement of the gaging station on Wilson Creek has been submitted to EPA. But limited funding, the high cost of maintaining a gaging station and the need for extensive monitoring on the James River and throughout the state may mean this proposal will be fully funded. Other aspects of the monitoring proposal are deemed more critical than reinstatement of the Wilson Creek gaging station and if only partial funding is obtained, this station may not be reinstated.
3. See response #1.
4. Others have suggested interim goals as a way to measure the success of the TMDL implementation plan. It is, however, very difficult to predict in-stream responses. There is a paragraph in the section *Implementation Plans for the Phased James River TMDL* that discusses the lack of adequate information to determine attenuation and storage factors for this watershed. It is hoped the continuous monitoring plan will provide insight and give a scientific basis for predicting outcomes. Statements regarding expected responses at this time would be nothing more than speculation. There is anecdotal information that some agriculture producers have stopped applying phosphorus to fields and three years later, their soil phosphorus levels continue to go up. As nutrient loading to the James River is reduced, large amounts of phosphorus may be released from the sediment. This could make it impossible to reach interim goals, which would create distrust by the public in this process.

Ms. Leanna Zweig
Page 2
March 30, 2001

5. Thank you for offering the assistance of MDC for TMDL implementation. Private Lands staff were recently invited to participate in an availability session, but declined. This may be due to the short notice they received regarding this event. Future efforts will be made to solicit the assistance of MDC private lands staff.
6. Several comment letters have brought up the issue of disposal of increased amounts of nutrient enriched sludge resulting from phosphorus removal at treatment plants. If land application is the chosen method of disposal, treatment plants must obtain a land application permit. Application rates for the sludge are specified in the permit and are based on agronomic application rates. Other options include landfilling or incinerating sludge. The city of Nixa composts its sludge and it gets reused in the community. Although no option for disposal is full proof in preventing the nutrient load from re-entering the James River, if managed appropriately, approved sludge management approaches should minimize this problem. Information will be included in the TMDL regarding the sludge management issue.

Again, thank you for your comments. MDC's interest in the TMDL process and concern for the health of Missouri's water resources is appreciated. If you have other questions or wish to discuss this further, please contact Sharon Clifford of the Planning Section at (573) 751-7298.

Sincerely,

WATER POLLUTION CONTROL PROGRAM



John Madras, Chief
Planning Section

JM:scd

John H. SC

The Forrester Group
ENVIRONMENTAL MANAGEMENT CONSULTANTS

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WPCP

February 16, 2001

VIA FACSIMILE & ELECTRONIC MAIL
HARD COPY TO FOLLOW

Mr. Ed Knight
Director, Water Pollution Control Program
Missouri Department of Natural Resources
P.O. Box 176
Jefferson City, MO 65102

PHASED TOTAL MAXIMUM DAILY LOAD FOR JAMES RIVER

Dear Mr. Knight:

Thank you for the opportunity to review the Draft TMDL Analysis for the James River near Springfield. As environmental professionals and long-time residents of the Ozarks, The Forrester Group is pleased with your selection of the James River as one of the first streams in the state to implement the TMDL process. This river represents an outstanding natural resource and contributes greatly to the natural and economic vitality of this area. We also believe selection of this river is wise, due to the unique level of interest and regional organization that already exists in this area. Organizations such as the James River Basin Partnership and the Watershed Committee of the Ozarks will be of significant benefit to the success of this program.

I also would like to thank you for the opportunity to comment on this draft analysis. We offer two primary comments regarding the analysis as presented.

First the discussion in this analysis appears to focus a great deal of attention on point sources of phosphorus and nitrogen. We agree that sources that discretely discharge water into the James River watershed, specifically wastewater treatment plants, are a significant source of these chemicals in the system. Significant improvements are being made in this area. Most notably, the Springfield Southwest Wastewater Treatment Plant has recently installed equipment to dramatically improve the quality of effluent from that plant. Efforts must continue to enable other plants in the basin to improve the quality of effluent from their systems as well.

However, information recently acquired indicates that contributions from point sources, including wastewater treatment plants, account for only about one-third of the nutrient loading currently observed in the James River basin. Other significant sources include non-point source runoff and sediment erosion. Decisions made during the development of the TMDL may have resulted in an over-estimation of the contribution of point sources and consequently under estimating the significance of these non-point sources. Among these is the conservative decision to assume no

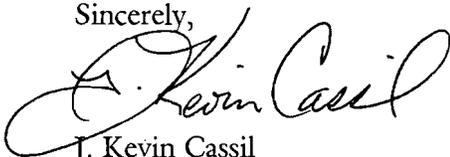
attenuation of point source contributions to the watershed. The conservative assumptions regarding point source contributions for the margin of safety also may underestimate the impact of non-point sources on the watershed.

These non-point sources are more difficult to manage and control than are point sources. The TMDL must address each of the major contributors in order to achieve its goals. We suggest that more emphasis be given to the importance of these non-point sources and their control in the TMDL.

Secondly, to accomplish the TMDL, efforts must be coordinated across a broad area, including a number of governmental jurisdictions. Recently, the MDNR and the U.S. EPA sponsored a project to develop of a unique, regional environmental master plan for the bi-county area of Jasper and Newton, in southwest Missouri. We suggest that a similar regional environmental master plan, using the framework developed through this earlier project, may greatly facilitate implementation and accomplishing the goals of the James River TMDL.

We applaud the State of Missouri for taking this positive step toward restoring and protecting the outstanding natural and economic resources of this region. We look forward to the progress that will undoubtedly come from deliberate and cooperative effort among the MDNR, local governments, and the citizens of this area. It is with this hope that we submit these comments.

Sincerely,



J. Kevin Cassil
Principal



STATE OF MISSOURI
DEPARTMENT OF NATURAL RESOURCES

Bob Holden
~~Bob Holden~~, Governor • Stephen M. Mahfood, Director

DIVISION OF ENVIRONMENTAL QUALITY
P.O. Box 176 Jefferson City, MO 65102-0176

March 30, 2001

Mr. J. Kevin Cassil
The Forrester Group
605 North Boonville Avenue
P.O. Box 6406
Springfield, Missouri 65806

Dear Mr. Cassil:

Thank you for reviewing the James River TMDL and taking the time to comment. The Department of Natural Resources also appreciates your support of our efforts to address important water quality concerns in this basin. The following addresses the two comments included in your letter.

1. Your comments regarding the relative contributions of point sources as opposed to nonpoint sources to the impairment of the James River are well founded. Staff does understand there are significant contributions from nonpoint source runoff. The Wilson Creek watershed, however, contributes a disproportional amount of the nutrient loading and thus became the initial focus of the TMDL. Also, due to inexperience with development of a remediation plan for such a large watershed with multiple sources of impairment, the agency chose to take a deliberate approach to addressing the problems. The current implementation plan contains remedial elements that were already in place prior to the development of the TMDL document. The James River basin will be a learning situation for the department and the public on how to best address nonpoint source impairments. As the regulated community progresses toward meeting the TMDL wasteload allocation, we hope to be communicating and assisting the nonpoint source community to voluntarily find methods to meet their needed load reductions. You mentioned in your letter "information recently acquired" regarding sources of loading in the James River. The department uses all available information in addressing impaired waters. We would therefore request you submit this recent information for our use in making these decisions.

As long as the target load calculated in the TMDL is correct, its allocation to nonpoint sources (Load Allocation or LA) and to point sources (Wasteload Allocation or WLA) has no effect on the amount of load reduction recommended in the TMDL. The James River TMDL is concentration driven and that concentration is derived from biological facts. The total load was calculated and divided between LA and WLA to show the present situation for comparison purposes only.

Mr. J. Kevin Cassil
Page 2
March 30, 2001

Another issue related to your comments is the data collection for TMDL calculations can be very different from what has traditionally been collected in water quality studies. The department did not feel we had adequate data to determine the major sources of nonpoint source contributions and the areas of greatest concern to help focus our efforts. Further data also needed to be collected in order to evaluate progress toward meeting the goals of the TMDL. As reduced algal growth is the endpoint of this TMDL, information is needed to develop the relationship between nutrient loads and suspended and benthic algal growth. You brought up the topic of attenuation, which also includes the nutrient storage capacity in the river. Again, we do not have adequate data to even estimate the attenuation factors. We chose not to include attenuation in the load calculation until we can estimate what that is on a scientific basis. Also, not including attenuation factors also provides a greater margin of safety and potential room for future growth, as conservative assumptions were used.

As the James River TMDL is using a "phased" approach, flexibility exists to revise and change the document as more data is obtained and extensive public input into the process has occurred. We hope that you will continue to stay involved in this process to help guide the agency in developing the most effective TMDL possible.

In regards to your second comment, information was obtained from staff in the Hazardous Waste Program regarding the Jasper and Newton County regional environmental master plan. Basically this plan was initiated and implemented by people at the local level. It would be inappropriate for the department to initiate this type of plan, as it must have buy in from the local government entities to be successful. We would certainly support this type of effort if local groups wanted to pursue a master plan or some type of watershed management plan. I suggest you bring this idea up with local watershed groups, such as the Watershed Committee of the Ozarks or the James River Basin Partnership, and see if they are interested.

Again, thank you for your comments. The Forrester Group's interest in the TMDL process and concern for the health of Missouri's water resources is appreciated. If you have other questions or wish to discuss this further, please contact Sharon Clifford of the Planning Section at (573) 751-7298.

Sincerely,

WATER POLLUTION CONTROL PROGRAM



John Madras, Chief
Planning Section

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*James River Basin Partnership
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City Utilities of Springfield
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USDA Forest Service
NE Area State & Private
Forestry
Citizens of James River Basin

January 16, 2001

Mr. Ed Knight
Director of Water Pollution Control Program
P.O. Box 176
Jefferson City, MO 65102

Dear Mr. Knight:

We appreciate the opportunity to review the James River TMDL document and comment on the draft. Upon our comprehensive review the James River Basin Partnership is concerned with many inconsistencies, errors, and broad generalizations in a document that will affect the management of this watershed for the next decade.

Based on the research we have done during the comment period we have discovered significant and critical elements that have not been addressed which need to be addressed in the near future.

It also appears that minimal effort was made during the drafting of the TMDL to include the some of the essential people that study and understand the watershed in the dialogue that occurred during the drafting of this document. No DNR staff ever contacted our office asking for scientific or philosophical input.

We hope that our comments will receive careful consideration and we would like to see the TMDL redrafted and resubmitted for public notice.

Thank you for allowing our input on this important document that will mean so much to the future of the James River. Please contact me at the numbers listed on this letterhead if I may answer any questions.

Sincerely yours,

Diana L. Sheridan
For James River Basin Partnership

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**Comments on James River Phased Total Maximum Daily Load
Prepared by James River Basin Partnership
February 16, 2001**

Page 1 – The description of impaired waters in the September 23, 1998 Section 303 (d) waters for the State of Missouri show miles affected to be 59. This is not reflected in the number of miles impaired on the TMDL Information Page or Page 1 of these two documents should reflect the same number of 58 miles (28+26+4=58). Change to 59 miles on first page of document.

We also suggest that pollutants be modified to reflect nutrients and pathogens including fecal coliform and *E. coli*.

Page 2 - Background and Water Quality Problems - Paragraph 1. Rainfall averages 43 inches according to National Weather Service.

Page 3 – Third paragraph, fourth line. Figure 2 is noted prior to Figure 1.

In the fourth paragraph land uses are referenced. What is the source of that data. If the 1992 land use data available for Missouri was referenced this may have overestimated the amount of agricultural land used for that purpose. Since 1992 the watersheds targeted by this TMDL have seen a significant increase in urban sprawl. This TMDL may overestimate the phosphorus input from agricultural sources and underestimate the phosphorus input from septic tanks, lawn fertilizer and other non-point sources attributed to urban sprawl.

Wilson's Creek National Battlefield is not within the city limits of Springfield or any other municipality. Wilson's Creek National Battlefield is in the Springfield area, as well as Mark Twain National Forest, and many Conservation Department fishing accesses.

In the last paragraph a document prepared by Watershed Committee of the Ozarks (WCO) is referenced regarding agriculture uses in Greene county. According to Loring Bullard, director WCO, the numbers in this document were an estimate provided by Mark Green based on Greene County data. We believe the regional Natural Resource Conservation Service offices would have more accurate and current data.

Page 4 – If it has been documented by Lakes of Missouri Volunteer Water Quality Monitoring Program that there is a relationship between phosphorus concentration and chlorophyll, then why is monitoring of suspended algae ignored in the monitoring section?

Reference is made to the tourism industry – what is the economic input from tourism. (JRBP has figures around 1.5 billion, these figures represent Taney County and Stone County Tax Revenue records collected by 1999.)

“Reducing the load in the James should result in water quality improvements in Table Rock.” – Where is data to support this. What about phosphorus bound in the sediment? What if the load is decreased to Table Rock, but there is so much P bound in the sediment that there continues to be a high concentration of bioavailable P in Table Rock and the algae blooms continue. Have data from other states that have dealt with similar problems that have a similar geology been researched?

Page 5 - Description of the Applicable Water Quality Standards

“The impairment of the James River is based on exceedance of the general criteria contained in Missouri’s Water Quality Standards. The general Criteria state:

Waters shall be free from substances in sufficient amounts to cause the formation of putrescent, unsightly or harmful bottom deposits or prevent full maintenance of beneficial uses. [10 CSR 20-7.031 (3) (A)]

No mention is made in this section regarding the impact of pathogens on beneficial uses. Granted, the impairment that resulted in the James River being placed on the 1998 303(d) list was nutrients. However, since that time a significant amount of data has been collected documenting extraordinarily high concentrations of *E. coli*. These concentrations have been documented in diverse segments of the James River and Finley Creek and have resulted in restrictions against whole body contact being instituted and maintained by the Missouri Department of Health at several river locations through out the recreational season.

Some data used to support these restrictions was a result of in-stream samples collected and preserved by the Missouri Department of Natural Resources’ (MDNR) Southwest Regional Office personnel according to MDNR sampling protocol. These samples were analyzed by the Missouri Department of Health, Southwest Regional Office in Springfield and data collected was used as the basis for restricting whole body contact at several public access areas owned and maintained by the Missouri Department of Conservation.

For the last three years, the Christian County Health Department had to restrict access to Finley Creek within the City of Ozark due to high *E. coli* concentrations in-stream. The access affected is at a city park and is located **upstream** of the city’s wastewater treatment facility. No permitted point source discharge is located upstream of this location.

It is recommended that Phase I of the TMDL include the following:

1. A statement recognizing that enough evidence exists to support both nutrients **AND** pathogens as having serious negative impacts on the use of waters within the James River Basin.
2. The repeated loss of use of significant segments of the James River due to *E. coli* present in excess of Water Quality Standards should require significant action on the part of the Missouri Department of Natural Resources to

coordinate sampling at Public Access areas during the recreation season and disseminate the data collected to the news media following the same protocol used by the MDNR Public Drinking Water Program for Boil Orders.

- A. Notification of the media via FAX when *E. coli* exceeds Water Quality Standards and/or when access is restricted by the Missouri Department of Health or a county Health Department for the same.
 - B. Notification of the media via same process when restriction is lifted.
 - C. Maintain a database of sample analysis readily available for public release.
3. The monitoring plan should be amended to include *E. coli* monitoring at the proposed sample sites as well as at the Missouri Department of Conservation Public Access sites. Collection of samples at the MDC sites could be arranged through the Missouri Department of Health/county health departments that currently collect these samples.

Page 6, 7 and 8 – “A phosphorus limit near 0.070 mg/L would allow control of algal growth by creating a phosphorus limited situation.” Why was phosphorus limitation data only used in determining the P load for this TMDL? Why were only benthic algae considered? Why were the studies done by Dr. John R. Jones at University of Missouri Columbia (UMC) not used?

Dan Obrecht and Dr. John Jones, (UMC) were contacted for further information on this issue. Dr. Jones’ research indicates that the phosphorus amount in the water column could be much lower to trigger nuisance growth of algae. According to the preliminary data I received from their office they suggested a value of 0.032 mg/L P would attribute to significantly decreased Secchi depth readings. Upon further investigation of this data, conclusive evidence should be available. (See Graph 1 and 2 at the end of comments.)

Consideration of the two following journal articles is also suggested:

Knowlton, Matthew F. and John R. Jones. 1989. Summer distribution of nutrients, phytoplankton and dissolved oxygen in relation to hydrology in Table Rock Lake, a large Midwestern reservoir. Arch. Hydrobiol./ Suppl. 83. 2: 197-225.

Van Nieuwenhuysse, Erwin E. and John R. Jones. 1996. Phosphorus-chlorophyll relationship in temperate stream and its variation with stream catchment area. Can. J. fish. Aquat. Sci. 53: 99-105.

Page 9 – Determination of Target Load - No mention is made of suspended algae. It must be noted that suspended algae causes blooms in the James River.

Nutrient Target Recommendations - This section is not clear. Will the target load be measured by a composite sample, a series of samples that are averaged? If so, how many, and what is the sampling protocol. What is the definition of the word flood? Is it based on the stream exceeding the “flood stage”?

Page 10 – What is the source of water quality data? When is the most recent monitoring event reflected in Tables 5 and 6? A citation for this data is needed.

Page 11 - Annual Load Estimate Table for Phosphorus at Galena, MO – Table 5 shows a target load of 155,603 thousand pounds per period. That is a reduction of 82% in the total phosphorus load per period. This is not a reasonable estimate as most wastewater treatment facilities will not be required to have phosphorus removal on-line until November 30, 2003, six months prior to the end of Phase I of this TMDL.

Page 12 – No comment

Page 13 – Given that all point source total P loads will not be required to reach 0.5 mg/L effluent limits until November 30, 2007, and no effluent limitation from point sources will be in effect for the greater part of Phase 1, the present loads shown in Chart 1 are incorrect. The calculation problems are discussed as required to varying loads on the page 14 comments. Use of current data from the Springfield Southwest Wastewater Treatment Plant will give a much larger present load graph.

Page 14 - Waste Load Allocation (WLA) for total phosphorus. This paragraph states Total P WLA discharged from facilities with a design flow of less than 22,500 gpd was ***assigned*** an average concentration of **3.0 mg/L**. Historical data of effluent discharged from these facilities shows the actual to be **6.0 mg/L**.

This paragraph also states the WLA for facilities with greater than 22,500 gpd were assigned the 0.5 mg/L concentration that is required by permits rule. It must be noted that the facilities with design flows of less than 100,000 gallons per day, but greater than 22,500 gallons per day are not required to meet the 0.5 mg/L effluent limit for phosphorus until **November 30, 2007**. Until **November 30, 2003** these facilities are allowed to discharge any amount of phosphorus and from November 30, 2003 until November 30, 2007 these facilities must limit discharges to 1.0 mg/L of total phosphorus. (See Appendix C – “Compliance Schedule”)

Facilities discharging greater than 1 MGD are not be required to meet the 0.5 mg/L effluent limit until November 30, 2003. Until that time these facilities will not have to meet any phosphorus effluent limit. Phase I of this TMDL has a proposed effective period from June 1, 2001, until 2004. (See Appendix C – “Compliance Schedule”)

Therefore, for the greater part of Phase I, no effluent limitation from point sources will be in effect unless there is voluntary compliance which cannot be relied upon for purposes of this document.

Page 15 - 3. (where is 1. and 2.???) Margin of Safety - We agree with the statement regarding the difference between design flow and the actual flow from wastewater treatment facilities in the basin. However, we strongly disagree with the assumption that discharged phosphorus levels will be less than the 0.5 mg/L. As stated in the proceeding paragraphs, phosphorus removal will not be required for most of the facilities in the basin

until Phase I is all but over, November 30, 2003. Also, it has been MDNR's experience that small wastewater treatment facilities often operate in non-compliance with BOD and TSS limits.

It must be noted that phosphorus removal at municipal treatment plants is removed from the effluent and applied to surrounding land in the watershed. This transfers the phosphorus load from point to non-point source, but does not remove it from the watershed. It simply increases the time and somewhat limits the volume of phosphorus that will enter the waters addressed in this document.

Page 16 - Data shown in Table 7 does not reflect the values collected by DNR at Branson and Hollister. Simmons Food, Inc. uses large anaerobic and aerobic lagoons (size is 11 acres) to remove P and it is questionable for use in this table because treatment methods are different than at other plants. Does this compare apples to oranges?

5. Continuous Monitoring Plan for the Phased James River TMDL - What about sampling suspended algae which are a major contributor to dissolved oxygen problems and toxicity?

We recommend the following changes to Sampling Period .

1. Need at least 2-3 diurnal (24 hour) samples in each of four seasons especially to reflect algal growth impacts on dissolved oxygen (DO). Due to photosynthetic reactions, algae give off oxygen into the water column during daylight and take up oxygen from the water column during the night. Dissolved oxygen levels are lowest at night (when fish kills occur), and particularly high during the daytime.
2. Seasonal Variations – Due to the effect seasonal variations have on in-stream phosphorus levels it is recommended that seasonal monitoring be done to include winter, spring and fall sampling.
3. Pathogen Monitoring During the Recreational Season - It is recommended that monitoring for fecal coliform and *E. coli* be conducted during the period from April 1st through October 31st in correlation with whole body contact recreation season.
4. We recommend that monitoring be conducted for orthophosphate as well as total phosphorus.
5. Analysis methods should be defined. A specific analysis protocol should be adopted that is legally defensible. It is recommended that samples be analyzed according to the most recent issue of Standard Methods for Analysis of Water and Wastewater or approved EPA method.
6. It is recommended that the frequency of monitoring be changed to bi-weekly.
7. Because Phase I monitoring will be used to determine the measures needed for non-point source pollution control during Phase II, it is recommended that storm runoff monitoring be conducted during each

of the seasons at each of the monitoring locations to determine non-point loading of the system.

Page 17 – We suggest orthophosphates be added to Table 8 – Variables to be Measured in James River TMDL Continuous Monitoring Plan. The bioavailability of P should be considered.

Page 18 and 19 - Phosphorus loading from Springfield Southwest Power Plant and the James River Power Plant is not mentioned.

It is recommended that the statements regarding the City of Springfield Southwest Wastewater Treatment Facility be removed because the city is under no obligation to meet these effluent limits prior to November 30, 2003. Although they may try to do so sooner, it is not required and cannot, without rule change or permit change, be enforced.

Page 19 - “In-stream monitoring will also be added to each permit with phosphorus limits. The permittee will be required to monitor immediately upstream and approximately 50 yards downstream of the outfall.” Careful consideration should be given to including this statement. The Cities of Seymour, Fordland, Rogersville, Sparta, and the Ozarks Correctional Center all discharge into intermittent flow streams at the head of the geologic profile. It would be impossible for these facilities to sample upstream and at most, their discharge effluent makes up the total flow 50 yards downstream. During certain times of the year, this statement would also apply to the City of Springfield.

Springfield Stormwater Permit - “The city is being encouraged to use the recommended practices for urban stormwater management that are identified in Missouri’s approved Nonpoint Source Management Plan.” -- It is recommended that a specific set of guidelines for sediment and erosion control be established and required as a part of the Springfield Stormwater Permit. Historically, the city has not enforced any erosion control measures on construction sites. This has caused a significant recurring deposition of sediment into waters of the state. Sediment is the number one transporter of phosphorus through out the basin. The City of Springfield should also be required to develop a plan to control the amount of pathogens entering waters of the state from non-point sources. In 1999-2000 the United States Geologic Survey documented significant pathogens in stormwater runoff leaving the city via the Pearson Creek and Wilson Creek watersheds. (See USGS study data that was recently released.)

Mid page, sentence referring to wet weather sampling states that the city of Springfield will collect one sample between March 1 and May 31 and that the sample will be collected not later than 48 hours after a storm event of at least 0.2 inches and less than 3.0 inches. -- Allowing 48 hours to pass between a storm event and collection of a sample set would allow the pollutants in the storm rise to pass. It is recommended that the TMDL specify an effective protocol, such as the one used by the United States Geologic Survey to sample stormwater runoff from the Springfield Urban area during their stormwater monitoring project conducted in 1999-2000. These locations currently have

flow gauging stations in place and a historical sampling that can be used for comparison to determine the effectiveness of the city's efforts to control nonpoint source pollution.

Land use in the James River Basin is primarily made up of two of the three priority pollutant categories listed in MDNR's state Non Point Source Management Plan (NPSMP), runoff from agricultural production and urban-suburban development. The NPSMP stresses that implantation of watershed specific projects addressing agricultural and urban runoff pollutants should be aggressive, particularly in 303(d) listed watersheds. Therefore, it is recommended that the James River TMDL include specific measures for reducing pollutants from the urban portion of these activities during Phase I of the TMDL.

For urban runoff these measures should include:

Specific requirements in the city of Springfield's Municipal Separate Storm Sewer System Permit to control sediment in stormwater runoff from land disturbance activities for new construction or major renovation sites that disturb land areas greater than 1.0 acres of land, the sale of lawn fertilizer containing phosphorus and pet waste. The following activities should be specifically required.

1. Stormwater detention structures be constructed, mulched and seeded or sodded before any other construction activities begin on site.
2. No permit to build issued until stormwater detention is constructed and stabilized as stated above.
3. A performance bond required from the landowner for completion of stormwater detention, prior to other construction activities beginning on the site. The bond to cover construction of detention, stabilization of the detention basin and for the establishment and maintenance of BMP's throughout the construction period. Bond cannot be released until after final inspection.
4. Final BMP's must be in place prior to occupancy permit being issued.
5. Municipal fines levied for non-compliance and the city building regulations department given citation authority to enforce these regulations.
6. The city must develop and implement an educational program to effectively control pet waste. Pet waste is a contributor to pathogenic pollution and other cities of comparable size have effective programs in place to deal with this issue.
7. The city must develop and implement a restriction on the sale of lawn fertilizer containing phosphorus in excess of 3% by weight, via adoption of an effective ordinance modeled after any of the several existing ordinances that have been adopted in many nutrient impacted watersheds in the midwest United States.

Implementation Plan ... Agricultural Nonpoint Source Inputs -- It must be noted that phosphorus removal efforts have been directed toward removal from the point source

discharges. After it has been removed from the point source discharge, phosphorus is then transferred to the land via land application of municipal sludge, land application of trade wastes, i.e. food processing by-products, etc. In the James River Basin watershed this occurs in a geologic profile that has Karst topography, steep side slopes and narrow valleys. Often, land application occurs in close proximity of receiving waters.

This transfers the phosphorus load from point to non-point source, but does not remove it from the watershed. Essentially, it simply increases the time between deposition and entry into waters of the state, and somewhat limits the volume of phosphorus entering receiving streams through nutrient uptake by vegetation.

Sludge application records kept by municipalities within the basin show that repeated application of sludge to the land has resulted in extremely elevated soil test phosphorus levels. Studies by the University of Arkansas at Fayetteville have shown that when phosphorus exceeds the plant nutrient uptake and the soil's ability to assimilate it, phosphorus will leach from the application site (soil) through downward percolation and through surface runoff.

Therefore, it is recommended that Phase I include the following.

1. MDNR, through permit modification within the twelve months following release of this TMDL, will require all municipalities that land apply municipal sludge in any form within the James River Basin, to limit application to no more than two times the crops annual phosphorus need as determined by a soil test, analyzed by the University of Missouri Soil Science Laboratory. Sludge will be applied in accordance with phosphorus nutrient recommendations for the crop, as determined by the University of Missouri Agricultural Extension Service. Soil testing is required annually. Soils shall not be sampled more than 90 days prior to application. Municipalities are required to retain a copy of the Soil Test Report as a part of their sludge application records and submit them to MDNR with the annual sludge report.
2. MDNR, through permit modification, within the twelve months following release of this TMDL, will require all municipalities that land apply municipal sludge in any form, within the James River Basin, to require that the soil pH be maintained within the 6.0 to 7.0 range. Satisfaction of this liming requirement will be determined annually, by the same soil test used to determine crop nutrient needs.
3. MDNR, will develop new general permits for all forms of land application of sludges, food and beverage wastes, grease, and all forms of by-products of food or feed manufacturing or processing, applied within the James River Basin. The amount of phosphorus in the soil will be the limiting factor and at no time will application allow soil test phosphorus to exceed two times the crop's annual nutrient needs. These products would be applied in accordance with phosphorus nutrient recommendations for the crop, as determined by the University of Missouri Agricultural Extension Service. Soil pH of permitted sites must be maintained within the 6.0 to 7.0 range. Satisfaction of the liming requirement will be determined annually, by the same soil test used to determine crop nutrient needs. Soils shall not be sampled more than 90 days prior to application. The

permittee is required to keep a copy of the Soil Test Report as a part of their sludge application records and to produce those records upon request to the Department.

The last bullet on this page refers to the Springfield Phosphorus Ban Ordinance. This statement is incorrect because the Springfield ordinance only regulates the retail sale of these items. Commercial establishments are exempt and have used and continue to use detergents that contain phosphorus often exceed 22% by weight. This could be a significant contribution coming from hospitals (St. John's Health Systems laundry has voluntarily omitted the use of P containing detergent from its laundry. This facility also handles laundry for the other hospitals in Springfield), restaurants, food processing industry, motels, car washes, and other commercial activities going to the city's treatment facilities.

Page 20 – The James River Watershed 319 Project has been modified since this document was written. Please check with John Johnson (MDNR) for the latest updates.

Page 21 – On this page storage of phosphorus in sediment is mentioned. Dr. Bob Pavlowsky (Southwest Missouri State University) has some data on P content of sediment in James River. We would like to see the TMDL more seriously address the effect of P stored in sediment. One hypothesis is that there is a lot of P in the river sediments and it cycles diurnally and releases additional P into the water column during the summer. If P is released from the anoxic sediments diurnally this will add to the P in the water column and make the 0.07 mg/L P level more difficult to attain. This is something that needs serious attention and research. There are several journal articles that address this problem in lakes around the world with similar conditions.

On page 4 this document states “reducing the load in the James should result in water quality improvements in Table Rock.” On page 21 this document states “due to the presently unknown storage factor, it is difficult to estimate when the James River will attain water quality standards”. If it is not known if or when the James River will attain water quality standards how can you be sure you will see gains in water quality in Table Rock Lake with reduction of P load in the James River. This dialogue may be appropriate for discussion, but should not be included in a document that is outlining restoration processes.

Funding to address non-point sources seems to only come from 319 grant money. What if the 319 grant system changes and less funding is available, what are alternative sources of funding for these projects. If funding is not secured, the projects outlined in this document will not happen, and P loading from non-point sources will not be reduced.

Page 22 – It is stated that public meetings will be held. To our knowledge only one meeting was held. We do not feel that this was adequate notification to the public, or adequate availability of DNR staff to the public to answer questions.

Regarding stormwater, Phase II stormwater may not be implemented at any time, therefore this section should read “IF” not “WHEN” Phase II Stormwater Permit program goes into effect.

How do you plan to require agricultural nonpoint sources to meet Natural Resource Conservation Service’s (NRCS) nutrient management standards. The nutrient management standards only apply to CAFO’s, not all agricultural sources and they are already required to comply. How will we deal with real nonpoint agricultural sources through voluntary action when according to the TMDL “only 30% of farmed acres in Greene County participate in NRCS conservation plans. It is assumed that this rate of participation is fairly consistent throughout the watershed.” We feel there are not reasonable assurances that landowners will voluntarily comply.

Public participation was not adequate in developing this TMDL. There was no sign-in sheet at the one public meeting held, therefore there is no way for DNR staff to address the comments made by the public during this meeting. We would like to see the comments from the public meetings formally addressed by DNR staff.

Participants on Missouri’s TMDL Policy Advisory Committee include representatives from the James River Basin. The only one we know of is Loring Bullard and his organization primarily focuses on the Upper James River and protecting it as a drinking water source for Springfield. We would like to know who serves on this committee. Also, if public participation is encouraged why have we never seen a public notice or press release of these meeting. The Executive Director of JRBP has been wanting to attend, but cannot seem to get on the list to be notified of these meetings in a timely manner.

Page 23 – How will you respond to public comment from the February 8, 2001 public meeting in Springfield, Missouri.

Page 24 – We did not have a page 24.

Page 25 – This is a questionable map. What is it supposed to show? What is its source? When was the data contained in this map collected? (December 22, 2000???)

Page 26 – When was this data collected? There have been tremendous land uses changes in the James River Basin in the last five years and we are all curious about the latest land use data. JRBP has been working closely with NRCS and MoRAP to attain more current land use data and they assure us that the most current data available was collected during 1991-1993.

Page 27 – Appendix B is listed and there is no Appendix A. The point sources from area power plants are not listed. The Springfield Southwest Power Plant and the James River Power Plant should be added to Appendix B (Point Sources in Each Sub-Watershed). The Springfield Southwest Power Plant has a design flow of approximately 45.6 MGD. The James River Power Plant has a design flow of approximately 334.1 MGD. These

facilities have contact cooling water and stormwater discharges that based on discharge monitoring reports for the year 2000 show total phosphorus results to be right at 0.5 mg/L on average, but with the potential size of the flows from each of these facilities they need to be put on the point source list.

The property owned by James River Assembly of God has changed hands since this table was drafted.

Page 28 – No comment.

Page 29 and 30 – There are a lot more sources of information than used here.

Additional Notes:

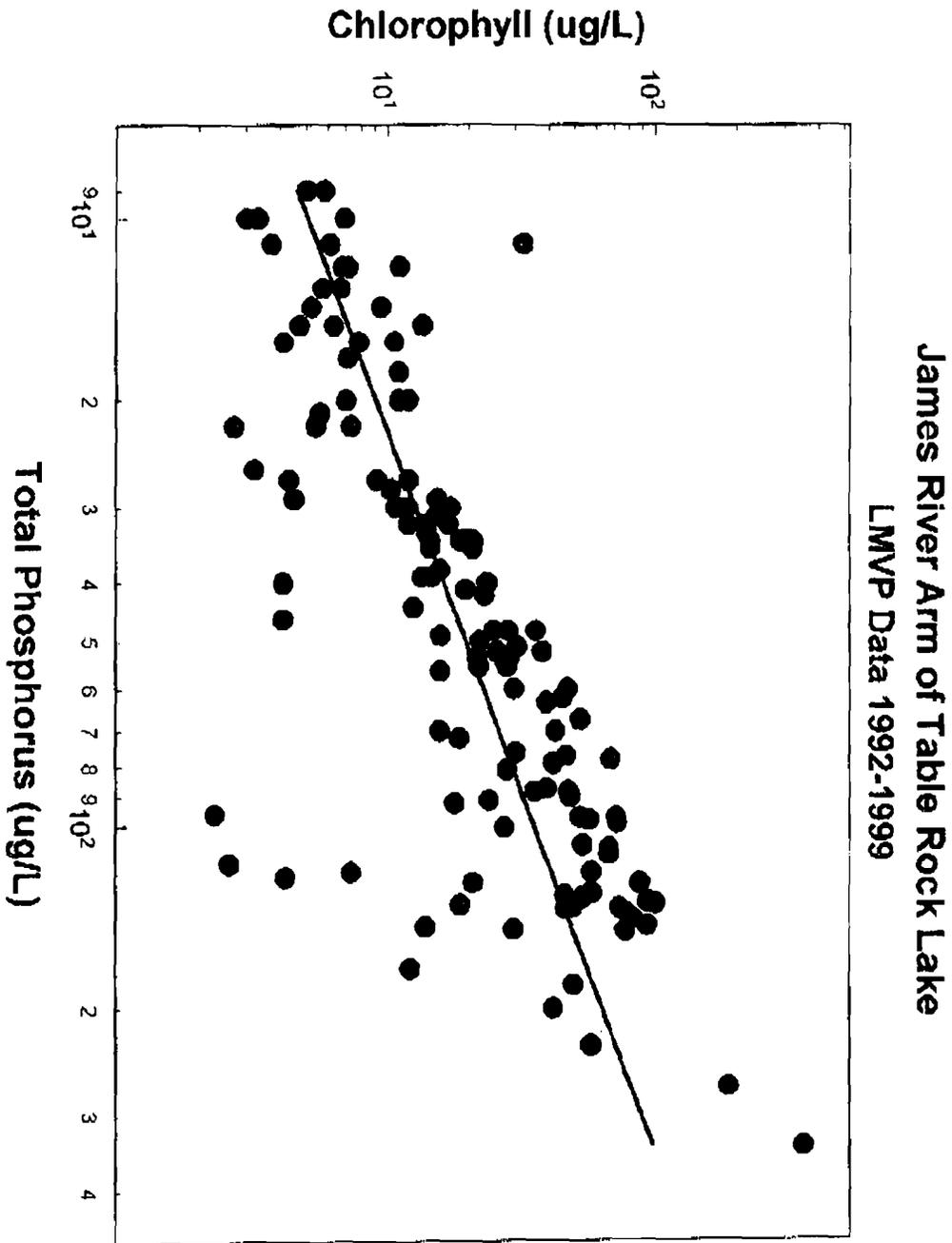
1. A glossary of terms is needed.
2. Population concerns were not addressed. The counties in the James River Basin are some of the fastest growing counties in the nation. With an increase in population we will get an increase in phosphorus loading. Sharon Clifford invited Walt Poole with America's Clean Water Foundation to address the TMDL Policy Advisory Committee. During this presentation he pointed out the failure of TMDLs nationwide that do not address an increase in population. Please refer to his comments.
3. Air Deposition of Phosphorus - Monitoring for air deposition of phosphorus within the watershed is not mentioned. This should be included in the monitoring plan.

Locations selected to monitor should be coordinated with the MDNR Air Program.

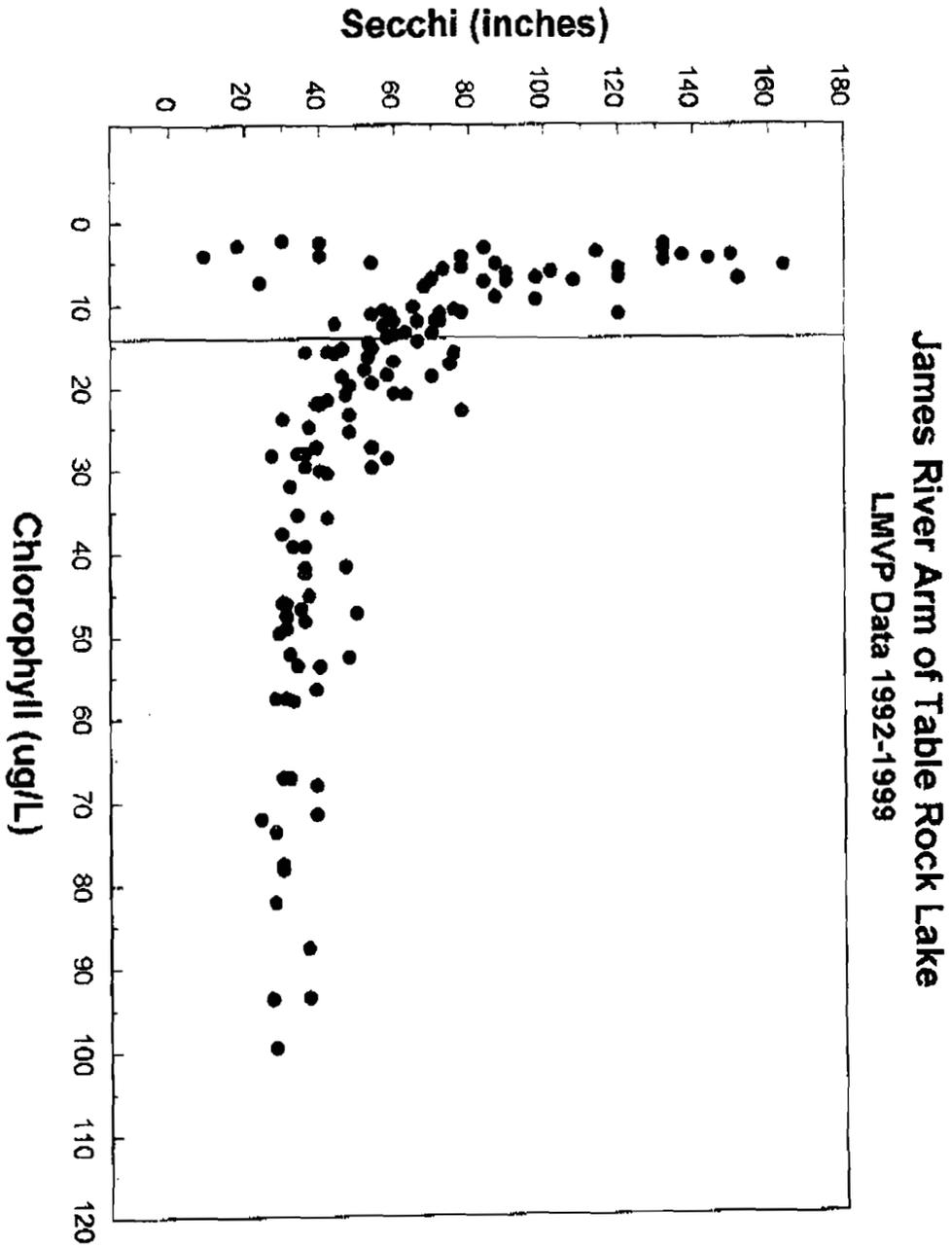
Consideration should be given for:

1. Land mass in the watershed above the nearest monitoring location.
2. Wind rose in relation to monitoring location.
3. Generators of phosphorus containing air pollutants
 - a. I-44, US Hwy 60, US HWY 65, US HWY 160 and the
 - b. City of Springfield, City of Branson
 - c. Industrial sources located outside of Springfield/Branson.

Graph 1



Graph 2





STATE OF MISSOURI
DEPARTMENT OF NATURAL RESOURCES

Bob Holden

~~Robert Holden~~, Governor • Stephen M. Mahfood, Director

DIVISION OF ENVIRONMENTAL QUALITY

P.O. Box 176 Jefferson City, MO 65102-0176

March 30, 2001

Ms. Diana L. Sheridan
James River Basin Partnership
Holland Bldg., Suite 204
205 E. St. Louis Street
Springfield, MO 65806

Dear Ms. Sheridan:

Thank you for reviewing the James River TMDL and taking the time to comment. The Department of Natural Resources appreciates your support of our efforts to address important water quality concerns in this basin. The TMDL will be modified based on public comments, but the nature of these modifications does not justify a second public comment period. As this is a phased TMDL, it will basically be a living document. It is stated in the section *Implementation Plans for the Phased James River TMDL* that as more information is gained through the continuous monitoring plan, further refinements of the TMDL may be made. The following addresses the comments included in your letter.

1. A discrepancy does exist between the miles impaired indicated on the 1998 303(d) list and what is contained in the TMDL. Upon further clarification, the accurate number is 58 miles and that is the length of impairment that will remain in the TMDL.

In regard to the suggestion that pathogens be added as an impairment of the James River, the department is currently drafting the 2002 303(d) impaired waters list. This would be the only format available for adding or changing impairments on the 303(d) list. The department is currently soliciting all available data for development of the 2002 303(d) list. A request has been made of the department's Southwest Regional Office to submit all fecal coliform information available (the parameter currently used included in the Missouri Water Quality Standards) to support the listing of a bacterial impairment.

2. The average annual rainfall data cited came from the NRCS Soil Survey for Green and Lawrence counties. It listed a range of 39.5 to 41.9 inches of precipitation/year. An annual rainfall of 41 inches was used to reflect this range. The National Oceanic and Atmospheric Administration states the average rainfall in this area is 43 inches. This number will be used in the TMDL.

3. Figure 1 and Figure 2 have been switched. The map of the four sub-watersheds has been moved closer to the beginning of the TMDL.

The land use map and land use percentages included in the TMDL came from a model called BASINS. The department originally intended to use this model to arrive at the load capacity and allocations for loading in the James River. As more current information is available from the Missouri Resource Assessment Program (MoRAP) the land use map and percentages will be changed to reflect the most current information. MoRAP's information was developed using 1991-1993 Landsat data.

The TMDL document will be changed to accurately place the Wilson Creek Battlefield in the Springfield area.

NRCS data was used in the *Background and Water Quality Issues* section of the TMDL. The information came from the Greene and Lawrence County Soil Survey that was published in 1982. Attempts were made to contact NRCS and obtain more current information, but were unsuccessful due to the amount of fieldwork they perform.

4. Benthic algae are generally the primary producers in 3rd to 6th order streams. Often, detached biomass from benthic species contributes significantly to measurements of suspended chlorophyll. Systems dominated by suspended algae are slower moving rivers and lakes. While the James River Arm of Table Rock Lake experiences large suspended algae blooms, benthic algae data collected in the past indicates excessive growth ($> 100-150 \text{ mg m}^{-2} \text{ Chl}_a$) in the James River itself. The monitoring plan was therefore centered on measurement of benthic algae. Once completed, the monitoring plan identified in the TMDL document should clarify this issue. Also, the target load for total phosphorus should significantly reduce suspended algae levels and blooms that might occur in the river and in the lake.

The following information will be included in the TMDL document. This is information obtained from the Missouri Department of Tourism. Sales on 17 Standard Industrial Codes (lodging, restaurants, etc.) were used to determine an average dollar amount regarding tourism's contribution to the local economy on an annual basis. According to their figures, tourism contributes the following amounts in each county:

Christian County:	\$ 29,939,000	Taney County:	\$400,910,000 (Branson)
Greene County:	348,649,000	Webster County:	14,051,000
Stone County:	107,318,000		

The total based on this measure equals \$900,867,000. Although this does not equal the amount stated in your letter (1.5 billion for Stone and Taney counties alone), it does convey the enormous value of tourism to the area and the state.

Your comment regarding predicting responses in Table Rock Lake is well founded. There is a paragraph in the section *Implementation Plans for the Phased James River TMDL* that discusses the lack of adequate information to determine attenuation and storage factors for phosphorus. And the storage capacity in Table Rock Lake is even greater than in the James River. Dr. Bob Pavlowsky (SMSU) has data that could be used to predict ambient water column phosphorus from levels in sediment. It is clear that sediment is a reservoir for phosphorus in the James River. What is not clear from his data is the rate at which phosphorus is released from sediment during low flow "critical" conditions. Until researchers or the department can establish a link between phosphorus levels in sediment and loading rates to the water column, contributions from storage capacity are just estimates. Part of the goal of the continuous monitoring plan is to start establishing the link between nutrient loading and benthic algae and also to better understand the release of phosphorus from sediment. It is assumed that reductions in nutrient loading will eventually lead to improvements in the clarity of the James River arm of Table Rock Lake, as this problem has been previously linked to excess phosphorus loading.

Several state and national TMDL professionals have been asked about calculating a TMDL in Karst topography and no one has information on determining a total maximum daily load in this type of geology. Department staff did their best to produce a meaningful TMDL in a timely manner based on the available information.

5. See response #1. An issue related to the listing of the James River for fecal coliform impairment is that EPA research that shows a poor correlation between fecal coliform levels and the occurrence of human illness. There is, however, a strong correlation between e-coli levels and gastroenteritis. The department will be addressing this issue during the Water Quality Standards review process in the near future. Fecal coliform, however, is the parameter currently in the Water Quality Standards and coliform data would have to be used for impairment listing at this time. Much of the available data you site in your letter is e-coli data.

When impairment is caused by nonpoint sources, problems with sediment, nutrients and bacteria often exist in tandem. All three are caused by unrestricted runoff from the land. The remedy for these problems is the same, installation of management practices to reduce runoff. To calculate a load capacity on several impairments that all have the same remediation plan would be costly and time consuming with no additional benefit for the resource. The department does not mean to discourage local agencies or groups from collecting bacterial data. State microbiologists have stated it is very difficult to interpret bacteria data from streams. The variability in results from samples collected a few feet apart can be enormous. It is difficult therefore to make decisions based on limited amounts of information.

The responsibility for posting of health advisories lies with the Department of Health. We are not aware of any statewide guidelines that currently exist regarding posting of health advisories for bacteria in surface water.

6. 7. & 8. This TMDL addresses impairment of the James River, not Table Rock Lake. The reactions that occur in flowing water as opposed to an impoundment can be very different. Dr. Jack Jones (UMC) was consulted during evaluation of the TMDL endpoint variables. Many of the suggestions made by Dr. Jones were incorporated into the TMDL. Furthermore, Dr. Val Smith (KU), a noted nutrient and algae expert, made comments that improved the TMDL. SMSU was contacted last spring during the data collection phase of the TMDL. In the future, the department will continue to seek non-agency expertise in technical matters. The phosphorus limit identified by the TMDL could prove too high to prevent algal blooms and that fact is recognized in the document. That information will only be known once the in-stream target is reached and post implementation monitor is conducted. If the current target does not result in compliance with Water Quality Standards, the TMDL will continue to be modified until the James River does meet standards.

9. See response #4.

The nutrient targets will be evaluated by grab samples collected throughout the watershed. The 0.075 mg/l Total Phosphorus (TP) and 1.5 mg/l Total Nitrogen (TN) are the TMDL nutrient load concentrations apply to the whole James River watershed upstream of Galena. But the success of the implementation plan will be evaluated at Galena. Since the TMDL was derived using flow data measured at Galena, it constitutes a continuum of loading that is a function of expected probabilities. The point of disparity is that while the target is based on biological indicators (algae), the 0.5 mg/l for wastewater treatment plants is based on technology and economic feasibility. The entire watershed drains into the James River at Galena, therefore, any loading measured at that point is largely reflective of what is happening upstream. The objective is to first achieve the TMDL concentration at Galena. It needs to be kept in mind the actual end point of this TMDL is a reduction in algal growth, not the loading of nutrients. That will ultimately be the data that will determine the success or failure of the TMDL effort.

The issue of what constitutes a high flow exemption from the standards for whole body contact recreation will be determined in the Water Quality Standards review process. That process will be occurring over the next few months. Although this discussion involves bacteria, the identification of what is a high flow exemption event will likely have a more global impact, including a more precise definition of what is considered a flood event.

10. Information regarding the sources of data used in the TMDL and the period of record is stated in the first paragraph of the methodology section. The most recent monitoring data was collected by the U.S. Geological Survey (USGS) in 1998. The concentration of TP and TN are averages over a predetermined flow range. On rare occasions where there was no observed concentration for a particular flow range, a forecast method was used to estimate the missing values.

11. The total waste load reduction (load from point sources) is not expected to be achieved by the end of Phase 1. It is in 2004 that the agency expects to have adequate data and public participation to begin implementation of the nonpoint source phase of the TMDL or Phase 2. Complete implementation of the load reduction is not predicted to occur until 2007.

13. Data will continue to be evaluated to determine the need for more precise modeling and load calculations in the future. This possibility is discussed under the section *Implementation Plan for the Phased James River TMDL*.
14. Data from the Southwest Regional Office was analyzed and supports the claim that the 3.0 mg/L allocation to the less than 22,500 gallons/day treatment plants was an underestimate. An average concentration of 5.0 mg/L was used in the calculation of the waste load allocation portion of the total phosphorus load. This new calculation is now included in the TMDL.

Phase 1 of the TMDL was never intended to be the end point for point source implementation. Refer to comment #11.

15. The numbering in the document includes 1. *Background and Water Quality Problems* and 2. *Calculation of Load Capacity*. In order to provide the maximum load capacity for sources of nutrients and yet achieve the goals of the TMDL, it seemed efficient to include the actual phosphorus removal efficiencies being demonstrated by various treatment plants into the TMDL. It was most logical to include it in the implied margin of safety, rather than reduce the load capacity by a percentage that is hard to derive scientifically. It will be difficult and costly to meet the load reductions as they are currently stated in the TMDL. It is not the goal of the agency to make the nutrient loads impossible to achieve.

Several comment letters have brought up the issue of disposal of increased amounts of nutrient enriched sludge resulting from phosphorus removal at treatment plants. If land application is the chosen method of disposal, treatment plants must obtain a land application permit. Application rates for the sludge are specified in the permit and are based on agronomic application rates. Other options include landfilling or incinerating sludge. The city of Nixa composts its sludge and it is then reused. Although no option for disposal is full proof in preventing the nutrient load from re-entering the James River, this is the best assurance that can be provided. If managed appropriately, approved sludge management approaches should minimize this problem. Information will be included in the final TMDL regarding the sludge management issue.

16. The data contained in Table 7 was provided by EPA Region VII based on Discharge Monitoring Requirement (DMR) data submitted by the permitted facilities. As no method for phosphorus removal is specified by the agency, it is unknown if a facility will choose to use chemical removal of phosphorus or removal via a lagoon system. All removal technologies being used in an Ozark ecoregion were included in the table. The question regarding suspended algae was answered in comment #4.

Responses to comments on Sampling Plan:

- Included in the continuous monitoring plan developed for the James River is diurnal sampling of dissolved oxygen and temperature. This data will be collected for a two-week period at every site listed by automated data loggers.

- Often when modeling and developing monitoring plans, efforts are focused on certain periods where the impairment is most evident to gain optimum benefit from expenditures of both time and money. The department acknowledges that algae blooms can and do take place outside the proposed sampling season. It is felt however that a more intensive, critical period of study is the best choice in explaining the relationship between algae and nutrient levels in the James River.
 - See comment #1.
 - The most meaningful nutrient load of the TMDL is being evaluated by the Total Phosphorus parameter and, therefore, that is the parameter being measured. The continuous monitoring plan currently proposed has a budget estimate of more than \$250,000 annually. Funding does not allow for the addition of more parameters at this time.
 - In the methodology notes following Table 8, it is stated a Quality Assurance Project Plan (QAPP) will be in place prior to the initiation of monitoring. This is a requirement for EPA grant funding and also a requirement of the state to ensure quality data. The QAPP is developed by the entity receiving the money to perform the sampling and must be approved by the funding agencies.
 - Refer to previous comments regarding the decision-making process and costs associated with the current sampling plan. The agency does not intend to alter the sampling plan at this time.
 - Sampling dates during the study will be random and thus potentially include high-flow, runoff events. The current monitoring plan also includes a few high-flow sampling events to be performed by USGS. Additionally, the city of Springfield will be monitoring high-flow events for their MS4 stormwater permit. It should be noted that the continuous monitoring plan will give direction to the nonpoint source phase of the TMDL, but it will not be the sole basis for the implementation of Phase II. Public participation will also provide direction for the resulting implementation plan for nonpoint sources.
17. See comments under #16.
18. & 19. As you noted, there are two power plants in the watershed, the Springfield James River Power Plant (MO0001961) and Springfield Southwest Power Plant (MO0089940). Their combined design flow is 380 mgd and their combined actual flow is approximately 127 mgd. These two facilities are required to monitor for phosphorus and submit the results to Southwest Regional Office. The phosphorous contributed by these facilities is independent of the plants' respective design flow. They use a phosphorus-based detergent (mainly tri-sodium phosphate and phosphate polymer) to prevent calcium build-up in the boilers and to control scaling in the cooling towers. The James River Power Plant and Southwest Power Plant outputs into the stream average 0.4 and 5.2 pounds of phosphorus/day respectively. These additional loads are now considered in the current determination of the point source contribution of Total Phosphorus in the James River.

EPA requested the information regarding the early implementation of phosphorus removal at the Springfield Southwest Treatment Plant be included in the TMDL document. Since the formal announcement of the implementation of this system has occurred, it seems reasonable to recognize the fact the plant has implemented this permit requirement ahead of schedule and is demonstrating progress toward load reduction. Also, the city of Springfield did not object to the inclusion of this information in the TMDL. The early implementation of phosphorus removal, or the failure to do so, in no way effects the overall goals of the TMDL.

19. While the setup and location of each permitted facility is different, data is needed upstream and downstream from the discharge whenever possible. The department will take into consideration the circumstances of each facility when NPDES permits are reopened. Monitoring locations and sampling parameters for each facility should be established at that time. A discharge to an effluent dominated stream with intermittent upstream flow, would exempt the facility from being required to always submit upstream data.

EPA also recommends best management practices be identified directly in stormwater permits. Although this is not possible in some instances, due to the lack of data documenting the existing impairments, your comments regarding enforcement of land disturbance permits and erosion are valid. The department's goal is to identify the measures used to achieve water quality improvements will be decided in conjunction with local stakeholders. That includes the City of Springfield Public Works. It would be inappropriate for the TMDL to dictate to the city and agency permit staff what practices will be employed to address stormwater issues.

The information regarding the recent USGS data and the concerns regarding permit content, including the wet weather sampling protocol and management practices, will be shared with permit staff. The Springfield stormwater permit is still being drafted. It will be the permit unit's decision as to whether your suggestions will be incorporated. You may choose to participate in the public comment period on the stormwater permit and reiterate your concerns at that time if they are not included. When the stormwater permit is finalized, the information it contains will be utilized in implementing the James River TMDL.

For information regarding sludge, see comment #15. Your concerns regarding land application permits will be shared with appropriate permit staff. It is not the purview of the TMDL to dictate what will be included in land application permits. Your concerns will be discussed, as it may be appropriate to require stricter requirements in the James River basin.

The language in the TMDL regarding the Phosphorus Ban Ordinance has been changed to accurately represent the information you provided.

20. The information regarding the James River 319 grant has been changed to reflect the more current information. It should also be noted that on-going watershed efforts have been moved from the implementation plan to the beginning of the document under the *Background and Water Quality Problems* section.

21. See comments under #4. There is very little information available on the storage capacity in rivers as opposed to lakes.

The TMDL identifies current projects in the watershed that are being funded by 319 Grants (federal money) and SALT Projects (state money). Additional funding sources for nonpoint source implementation will be further addressed in Phase 2. It will include the two grant programs noted and other sources of funding such as the NRCS EQIP and WHIP programs, assistance available from the Department of Conservation, State Revolving Funds, etc. The level of funding for these programs is never totally secure, but in recent years the funding to assist agricultural NPS issues has continually increased. It is impossible to address "potential" problems with funding or the many other variables that exist, such as malfunctions at sewage treatment plants or extreme weather conditions. We will continue to proceed with the TMDL implementation utilizing whatever resources are available.

22. The TMDL states that meetings for the public will be scheduled to allow for public participation in this process. That is one of the major reasons this document was written as a phased TMDL. The schedule required for the development of the TMDL did not allow for adequate public involvement to ensure an effective and detailed implementation plan. Again, this phased TMDL is a process and not meant to be a final product.

Both EPA and DNR are moving toward implementation of the Phase II stormwater regulations. To speculate these rules may never be implemented would be inappropriate based on current information.

The department cannot require nonpoint sources to meet NRCS nutrient management standards. The verbiage in the TMDL will be changed to say a goal of the implementation plan is to have agricultural nonpoint sources meet the NRCS nutrient standards.

There is a great deal of attention currently focused on the TMDL process. This presents an opportunity to educate the NPS community on watershed issues and encourage their participation in finding solutions. When people are given ownership of a problem, buy-in into the process is greatly increased. Another factor that may encourage participation from the NPS community is they do not want to be regulated. They may therefore participate in this voluntary effort to avoid regulation. But ultimately, the department cannot guarantee compliance with a voluntary program.

A distinction needs to be made between an Availability Session and a Public Meeting or Public Hearing. It was an Availability Session that was held in Springfield, which is an opportunity for the public to meet with staff and ask questions. It was an oversight that a sign-in sheet was not available, the primary use of which would be to identify those citizens who have an interest in this process. The agency never intended to provide written responses to questions received during the Availability Session. Written responses are only being provided to public comments received during the public notice period. The future public meetings noted in the TMDL will have a set agenda and results of the meetings will be documented.

Your name has been included in the mailing list for the TMDL Policy Advisory Committee. Only formally invited participants, however, are allowed to participate in the discussions. Other interested parties may participate in sub-committees on areas of interest. The number of formal participants in this group was limited purposely to ensure a productive work group. Balanced representation was a goal and the intent was that those concerned with TMDL policies would share their concerns with a participant who represents their interests. It would be impossible to have a functional group if the committee include individuals from every impaired watershed and every interest group that exists within each watershed. A request has been made to post the meeting information and minutes on the DNR web site. Approval for posting has not yet been received.

23. See comment under #22.
24. None of the draft TMDLs contained a page 24. This was related to a computer problem with the page numbering format.
25. The map was produced on December 22, 2000. That is not the date the data was collected. Please refer to comment regarding land use information under #3. The purpose of the map is to show the relative distribution of various land uses within the watershed.
26. Refer to comment under #3.
27. The land use map on page 25 is identified as Appendix A. See comments under #18 & 19. These Power Plant discharges will be added to the table in Appendix B.
29. & 30. The purpose of the Bibliography was to identify the sources of information used to develop the TMDL.

Additional Notes:

1. A glossary might prove useful, but TMDL documents are written for a technically literate audience, not the general public. A glossary, therefore, was not deemed necessary. It would be helpful to receive a list of terms you feel need to be defined.

The population growth issue was evaluated. Staff felt the Margin of Safety identified regarding the difference between design capacity and actual current discharges allowed for some future growth. Also any new discharges to the James River, regardless of size, will be required to implement phosphorus removal as outlined in the Water Quality Standards. But ultimately, any expansion of additional of new pollutant sources would have to share the existing TMDL load capacity. Options for achieving this include hooking up to an existing treatment facility, pollutant trading or land application of effluents at agronomic rates. It is also hoped that as TMDLs are developed across the country, improved technology and more effective management practices will evolve.

Ms. Diana L. Sheridan
Page 10
March 30, 2001

Example:

A developer wants to build a new subdivision on the South side of Springfield. Sewage treatment options for the subdivision include:

- Connecting to the Springfield Southwest Treatment Plant
- Paying the costs of increased phosphorus removal at the southwest plant and assuming a portion of its load allocation for a separate discharge from a new treatment system
- Building a no discharge sewage treatment system and land apply the effluent

3. The National Air Deposition Program does not currently monitor phosphorus. Some phosphorus would be expected in both precipitation and as dry deposition. Any additions of phosphorus from air deposition become part of the total phosphorus available to be delivered to streams from nonpoint sources, and would therefore be covered by any phosphorus reduction goals set for nonpoint sources.

Again, thank you for your comments. The James River Basin Partnership's interest in the TMDL process and your concern for the health of Missouri's water resources is appreciated. If you have other questions or wish to discuss this further, please contact Sharon Clifford of the Planning Section at (573) 751-7298.

Sincerely,

WATER POLLUTION CONTROL PROGRAM



John Madras, Chief
Planning Section

JM:scd

SWRO Comments on the James River Draft TMDL
February 16, 2001

Page 1 of 10

***Page 3 Background and Water Quality Problems**

It states that approximately 1.1 to 2 tons/acre/year of sediments reach impoundments or streams in the area.

- Is the 1.1 to 2 tons/acre/year taking into account all types of erosion and clay sediment that stays in suspension for long periods of time? This number seems to be very low. It is recommended that other sources such as the Natural Resource Conservation Service be contacted for more accurate information.

Page 5. Description of the Applicable Water Quality Standards

“The impairment of the James River is based on exceedance of the general criteria contained in Missouri’s Water Quality Standards. The general Criteria state:

“Waters shall be free from substances in sufficient amounts to cause the formation of putrescent, unsightly or harmful bottom deposits or prevent full maintenance of beneficial uses. [10 CSR 20-7.031 (3) (A)]

- No mention is made in this section regarding the impact of pathogens on beneficial uses. Granted, the impairment that resulted in the James River being placed on the 1998 303d list is nutrients. However, since 1998, a significant amount of data has been collected documenting extraordinarily high concentrations of fecal coliform and E-coli. These concentrations have been documented in diverse segments of the James River and Finley Creek and have resulted in restrictions against whole body contact being instituted and maintained by the Missouri Department of Health at several different locations for long periods of time during the recreational season.

Some data used to support these restrictions was a result of in-stream samples collected and preserved by the Missouri Department of Natural Resources’ (MDNR) Southwest Regional Office personnel according to MDNR sampling protocol. These samples were analyzed by the Missouri Department of Health, Southwest Regional Office in Springfield. Data collected was used as the basis for restricting whole body contact at several public access areas owned and maintained by the Missouri Department of Conservation.

Several times during the past three years, the Christian County Health Department has restricted access to Finley Creek within the City of Ozark due to high E-coli concentrations in-stream. The access affected is at a city park and is located *upstream* of the city’s wastewater treatment facility. No permitted point source discharge is located upstream of this location.

SWRO Comments on the James River TMDL

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- Missouri's Nonpoint Source Management Plan, approved by the United States Environmental Protection Agency in June 2000, states that the 303 (d) process requires a strategy for bringing 303 (d) listed waterbodies back into compliance. That is, improving water quality to the point where recognized beneficial uses of the water are fully supported, within a reasonable period of time. The primary strategy for achieving this goal is through the development of TMDLs.

Therefore, in order to mitigate the negative effects the presence of pathogens has in restricting the beneficial uses of various waters within the James River Basin, it is recommended that Phase I of the TMDL include the following:

1. A statement recognizing that enough valid scientific data exists to support both nutrients *AND* pathogens as having serious negative impacts on the use of waters within the James River Basin.
2. The repeated loss of use of significant segments of the James River due to E-coli present in excess of Water Quality Standards requires significant action on the part of the Missouri Department of Natural Resources to mitigate these effects.
3. MDNR will co-ordinate sampling at Public Access areas during the recreation season and, in the interest of public safety, disseminate the data collected to the news media when access is restricted due to excess levels of pathogens. It is recommended that process follow the same type of protocol used by the MDNR Public Drinking Water Program for Boil Orders; including:
 - A. Notification of the media via FAX when fecal coliform/E-coli exceeds Water Quality Standards and/or when access is restricted by the Missouri Department of Health or a county Health Department for the excess levels of the same.
 - B. Notification of the media via same process when restriction for a given area is lifted.
 - C. Maintain a database of sample analysis readily available for public inspection.
4. The monitoring plan contained in the TMDL should be amended to include Fecal Coliform and E-coli monitoring at the proposed sample sites as well as at the Missouri Department of Conservation Public Access sites.

Collection of samples at the MDC sites could be coordinated with/through the Missouri Department of Health, county health departments that currently collect these samples, with analysis conducted according to Missouri Department of Health protocol.

SWRO Comments on the James River TMDL

Page 3 of 10

Page 9 Determination of Target Load

- No mention is made of suspended algae. It must be noted that suspended algae cause algal blooms, not benthic algae.

Page 9 Nutrient Target Recommendations

- This section is not clear. Will this be determined by a composite sample, a series of samples that are averaged? If so, how many, and what are the sampling protocol.
- What is the definition of the word flood? Is it based on the stream exceeding the “flood stage”?
- No glossary of terms is included in this TMDL. It is recommended that a glossary be developed.

Page 10 Methodology

- This section describes the data sets used to develop the flow duration curves, flow ranges and averages used for flow data in Table 5, Page 11. However, it is not clear what data was used to determine the Total Phosphorus and Nitrogen concentrations recorded in Table 5 and 6.
- It is recommended that the data set(s) used be referenced in the TMDL.

Page 11 Annual Load Estimate Table for Phosphorus at Galena, MO

- This table shows a target load of 155,603 pounds per year for Total Phosphorus. This figure represents a reduction of 82% in the total phosphorus in pounds per day. We believe that this is not a reasonable estimate as given the largest wastewater treatment facilities will not be required to have phosphorus removal on-line until November 30, 2003, six months prior to the end of Phase I of this TMDL. Earlier phosphorus removal by Springfield may make progress towards this goal, but other communities may struggle to meet this compliance date. Therefore, we believe an erroneous assumption has been made regarding the projected vs. actual total phosphorus loading which will occur within this time frame.

SWRO Comments on the James River TMDL

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***Page 13 Chart 1. Present, Target and Point Source Total P Loads in Sub-Watersheds**

- We feel this chart is inaccurate due to the assigned values used in determination of the point source loads.

***Page 14 Waste Load Allocation for Total Phosphorus.**

- This paragraph states the WLA for total phosphorus discharged from facilities with a design flow of less than 22,500 gpd is **assigned** an average concentration of 3.0 mg/L. Historical data of effluent discharged from these facilities shows a more realistic assumption to be around 6.0 mg/L. This statement is based on 3 years of actual sampling in the Table Rock Lake area.
- This paragraph also states the WLA for facilities with greater than 22,500 gpd were assigned the 0.5 mg/L concentration that is required by permits rule. It must be noted that the facilities with design flows of less than 100,000 gpd but greater than 22,500 gpd are not required to meet the 0.5 mg/L effluent limit for phosphorus until November 30, 2007. Facilities with flows greater than 100,000 gpd but less than 1,000,000 gpd, may, until November 30, 2003, discharge any amount of phosphorus. From November 30, 2003 until November 30, 2007 these facilities must limit discharges to 1.0 mg/L of total phosphorus, and will not be required to meet discharge limits of 0.5 mg/L after November 30, 2007. Facilities with design flows exceeding 1,000,000 gpd may discharge any amount of phosphorus until November 30, 2003, at which time they must meet the 0.5 mg/L effluent limit. Phase 1 of this TMDL has a proposed effective period from June 1, 2001 until 2004.

Therefore, for the greater part of Phase 1 of this TMDL, no effluent limitation for phosphorus discharged from point sources within the James River Basin will be in effect.

***Page 15 Margin of Safety**

As stated in the preceding paragraphs, phosphorus removal will not be required for most of the facilities in the basin until Phase 1 is all but over, November 30, 2003. It must be noted that after that time, the cost of operating the phosphorus removal process may well prove costly and facilities may choose to stay very near or at the 0.5 mg/L limit.

SWRO Comments on the James River TMDL

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***Page 16 5. Continuous Monitoring Plan for the Phased James River TMDL**

- We feel the statement "...benthic algae blooms" is inaccurate and should be re-phrased. Blooms of benthic algae do not occur, only suspended algae "bloom".

***Page 16 Sampling Period**

- We recommend the following changes to the monitoring efforts:
 1. Sampling regimen must include diurnal monitoring. Due to the photosynthetic reactions involved, algae give off oxygen into the water column during daylight hours and take-up oxygen from the water column during the night. Because of this process, dissolved oxygen levels are lowest at night (when fish kills occur), and inaccurately high during the daytime.

Therefore, we recommend nighttime monitoring of dissolved oxygen levels no less than twice per month. Alternately, continuous monitoring stations are also now available.
 2. Seasonal Variations – Due to the effect seasonal variations have on in-stream phosphorus levels it is recommended that seasonal monitoring be done to include winter, spring and fall sampling.
 3. Pathogen Monitoring During the Recreational Season - It is recommended that monitoring for fecal coliform and E-coli be conducted during the period from April 1st through October 31st in correlation with the recreation season for whole body contact recreation.
 4. We recommend that monitoring be conducted for orthophosphate as well as total phosphorus.
 5. Analysis methods should be defined. A specific analysis protocol should be adopted that is legally defensible. It is recommended that samples be analyzed according to the most recent issue of Standard Methods for Analysis of Water and Wastewater.
 6. It is recommended that the frequency of monitoring be changed to bi-weekly.

SWRO Comments on the James River TMDL

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7. Because monitoring from Phase I will be used to determine the measures needed for non-point source pollution control during Phase II, it is recommended that storm runoff monitoring be conducted no less than once during each of the four seasons at each of the monitoring locations to determine non-point loading of the system.

***Page 19 Implementation Plans**

- The TMDL states that in-stream monitoring will also be added to each permit with phosphorus limits. The permittee will be required to monitor immediately upstream and approximately 50 yards downstream of the outfall.

The cities of Seymour, Fordland, Rogersville, Sparta and the Ozark Correctional Center all discharge into intermittent flow streams at the head of the geologic profile. It would be impossible, in most instances, for these facilities to sample upstream (no flow) and the discharge from these facilities is often 100 % of the flow at 50 yards downstream. During certain times of the year this would also apply to the City of Springfield.

It is recommended that the TMDL state that in-stream monitoring requirements will be tailored to each facility, based on receiving stream conditions and will include upstream monitoring when flow is present in order that impact of the facility discharge on the receiving stream can be measured.

***Page 19 Implementation Plan. . .**

- Mid page, sentence referring to wet weather sampling states that the city of Springfield will collect one sample between March 1 and May 31 and that the sample will be collected not later than 48 hours after a storm event of at least 0.2 inches and less than 3.0 inches.

Allowing 48 hours to pass between a storm event and collection of a sample set would allow the pollutants in the storm rise to pass. It is recommended that the TMDL specify an effective protocol, such as the one used by the United States Geologic Survey to sample stormwater runoff from the Springfield Urban area during their stormwater monitoring project conducted in 1999-2000. These locations currently have flow gauging stations in place and a historical sampling that can be used for comparison to determine the effectiveness of the city's efforts to control nonpoint source pollution. The TMDL states that the city of Springfield is being encouraged to use the recommended practices for urban stormwater management that are identified in Missouri's approved Nonpoint Source Management Plan. Land use in the James River Basin is primarily made up of two of the three priority pollutant categories listed in MDNR's state Non Point Source Management Plan.

SWRO Comments on the James River TMDL

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(NPSMP); runoff from agricultural production and urban-suburban development. The NPSMP stresses that implantation of watershed specific projects addressing agricultural and urban runoff pollutants should be aggressive, particularly in 303(d) listed watersheds. Therefore, it is recommended that the James River TMDL include specific measures for reducing pollutants from both the urban and agricultural portion of these activities during Phase I of the TMDL.

For urban runoff these measures should include:

Specific requirements in the city of Springfield's Municipal Separate Storm Sewer System Permit to control; sediment in stormwater runoff from land disturbance activities for new construction or major renovation sites that disturb land areas greater than 1.0 acres of land, and the sale of lawn fertilizer containing phosphorus.

To effectively address these issues, the following activities should be specifically required:

1. Stormwater detention structures must be constructed, mulched and seeded or sodded before any other construction activities begin on site where 1 acre or more of land is disturbed.
2. No permit to build issued until stormwater detention is constructed and stabilized as stated above.
3. A performance bond requiring the landowner to complete construction of stormwater detention, prior to other construction activities beginning on the site. The bond to cover construction of detention, stabilization of the detention basin and the establishment and maintenance of BMP's throughout the construction period.
Bond cannot be released until after final inspection.
4. Final BMP's must be in place prior to occupancy permit being issued.
5. Municipal fines levied for non-compliance and the city building regulations department given citation authority to enforce these regulations.
6. The City should develop and implement a restriction on the sale of lawn fertilizer containing phosphorus in excess of 3% by weight, via adoption of TMDL ordinances that have been developed in other nutrient impacted watersheds in the Midwest United States.

***Page 19 Implementation Plan. . .Agricultural Nonpoint Source Inputs**

It must be noted that phosphorus removal efforts have been directed toward removal from the point source discharges. After it has been removed from the point source discharge,

SWRO Comments on the James River TMDL

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phosphorus is then transferred to the land via land application of municipal sludge, land application of trade wastes, i.e. food processing by-products, etc. In the James River Basin watershed this occurs in a geologic profile that has Karst topography, steep side slopes and narrow valleys. Often, land application occurs in close proximity of receiving waters.

This transfers the phosphorus load from point to non-point source, but does not remove it from the watershed. Essentially, it simply increases the time between deposition and entry into waters of the state, and somewhat limits the volume of phosphorus entering receiving streams through nutrient uptake by vegetation.

Sludge application records kept by municipalities within the basin show that repeated application of sludge to the land has resulted in extremely elevated soil test phosphorus levels. Studies by the University of Arkansas at Fayetteville have shown that when phosphorus exceeds the plant nutrient uptake and the soil's ability to assimilate it, phosphorus will leach from the application site (soil) through downward percolation and through surface runoff.

Therefore, it is recommended that Phase I include the following.

1. MDNR, through permit modification within the twelve months following release of this TMDL, will require all municipalities that land apply municipal sludge in any form within the James River Basin, to limit application to no more than two times the crops annual phosphorus need as determined by a soil test, analyzed by the University of Missouri Soil Science Laboratory. Sludge will be applied in accordance with phosphorus nutrient recommendations for the crop, as determined by the University of Missouri Agricultural Extension Service. Soil testing is required annually. Soils shall not be sampled more than 90 days prior to application. Municipalities are required to retain a copy of the Soil Test Report as a part of their sludge application records and submit them to MDNR with the annual sludge report.
2. MDNR, through permit modification, within the twelve months following release of this TMDL, will require all municipalities that land apply municipal sludge in any form, within the James River Basin, to require that the soil pH be maintained within the 6.0 to 7.0 range. Satisfaction of this liming requirement will be determined annually, by the same soil test used to determine crop nutrient needs.

SWRO Comments on the James River TMDL

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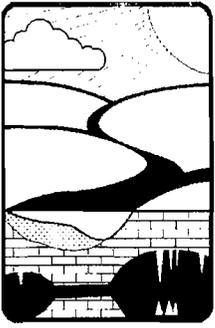
3. MDNR, will develop new general permits for all forms of land application of sludges, food and beverage wastes, grease, and all forms of by-products of food or feed manufacturing or processing, applied within the James River Basin. The amount of phosphorus in the soil will be the limiting factor and at no time will application allow soil test phosphorus to exceed two times the crop's annual nutrient needs. These products would be applied in accordance with phosphorus nutrient recommendations for the crop, as determined by the University of Missouri Agricultural Extension Service. Soil pH of permitted sites must be maintained within the 6.0 to 7.0 range. Satisfaction of the liming requirement will be determined annually, by the same soil test used to determine crop nutrient needs. Soils shall not be sampled more than 90 days prior to application. The permittee is required to keep a copy of the Soil Test Report as a part of their sludge application records and to produce those records upon request to the Department.

***Page 19 Last paragraph**

- This paragraph refers to the Springfield Phosphorus Ban Ordinance. The paragraph incorrectly states that, "...and dishwashing detergents containing more than 8.7% phosphorus to be used, sold, manufactured distributed or discharged into the City of Springfield's sewer system." This statement is incorrect in that the Ordinance only regulates the retail sale of these items. Commercial establishments are exempt and have used and continue to use detergents that contain phosphorus that can exceed 22% by weight. This is a significant contribution to the city's Southwest Wastewater Treatment Facility. Commercial and industrial contributors include institutional laundries, restaurants, the food and beverage processing industry, car and truck washes, motels, etc.

***Page 27 Appendix B**

- The Springfield Southwest Power Plant and the James River Power Plant should be added to Appendix B (Point Sources in Each Sub-Watershed). The Springfield Southwest Power Plant has a combined contact cooling water and stormwater design flow of approximately 45.6 MGD. The James River Power Plant has a combined design flow of approximately 334.1 MGD. These facilities have contact cooling water and stormwater discharges that based on discharge monitoring reports for the year 2000 show total phosphorus results to be right at 0.5 mg/L on average, but with the potential size of the flows from each of these facilities they need to be put on the point source list and their loading calculations included.



Watershed
Committee
of the Ozarks

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FEB 20 2001

WPCP

February 16, 2001

Planning Section
Water Pollution Control Program
Missouri Dept. of Natural Resources
P. O. Box 176
Jefferson City, MO 65102

Dear Planning Section,

The Watershed Committee of the Ozarks has a very direct interest in the James River TMDL that is currently under public notice. The city of Springfield utilizes the river for a significant portion of its raw drinking water supply. As you are probably aware, we are supportive of the TMDL process and are ready to assist in nutrient reduction efforts. To that end, we will also be reviewing the draft stormwater permit for the city of Springfield.

We have reviewed the public notice for the Draft TMDL Analysis and offer the following comments:

- The document is not clear where in the basin the 0.075 mg/l goal applies. It is our understanding that this would apply in all waters. However, in streams such as Wilsons Creek, which is dominated by treated wastewater, and with limits on Springfield's treatment plant at 0.5 mg/l, it would seem impossible to achieve the goal for many miles downstream of this source. Also, since this flow makes up a significant portion of the James River below the confluence, the goal may be difficult to achieve even here. The same or similar situations may apply below other wastewater plants in the basin. How will allowances be made for potential "zones of non-attainment?"
- The stated approach is a phased TMDL. However, there is only one target goal for TP, presumably to be obtained at the completion of both phases. It might be helpful to have an "interim goal" for TP, based on the predicted results from Phase I. In this way, the success (or failure) of phase I in bringing about the desired results could be determined. The attainment or near-attainment of this interim goal might also provide added impetus for the successful fulfillment of the potentially much more difficult phase II.
- We will not comment on the scientific appropriateness of the numeric goal. However, we hope that the modeling and technical staff of DNR have or will consult closely with noted experts on algae such as Jack Jones of the University of Missouri and Dr. Russ Rhodes of SMSU on the technical validity of the proposed goals. Since the document refers repeatedly to "benthic algae" we have some concerns that planktonic algae have also been considered. Further, we would suggest that for

Sponsors:

City Utilities of Springfield • City of Springfield • Greene County

future TMDL studies, especially when considering non-point source related pollutants such as nutrients, that the DNR technical staff make a concerted effort to involve local watershed groups in the front-end technical studies (for example, how models are set up, what the uncertainties are, data that is used, how instantaneous concentration goals may relate to annual loadings, etc.) These groups can then become better informed and educated proponents for any technical goals that are established.

As we mentioned, we are very supportive of the TMDL process and the agency's strong emphasis on local involvement. This local involvement should be a component of the TMDL development at every stage, from discussions about technical methods that will be used to plans for improving water quality in the watershed. If you would like to discuss these comments, please feel free to contact our office. Thank you for providing us with the opportunity to review and comment on this important document.

Respectfully,

A handwritten signature in black ink, appearing to read "Loring Bullard". The signature is fluid and cursive, with a large initial "L" and "B".

Loring Bullard, Director



STATE OF MISSOURI
DEPARTMENT OF NATURAL RESOURCES

Bob Holden

~~XXXXXXXXXX~~ Governor • Stephen M. Mahfood, Director

DIVISION OF ENVIRONMENTAL QUALITY

P.O. Box 176 Jefferson City, MO 65102-0176

March 30, 2001

Mr. Loring Bullard, Director
Watershed Committee of the Ozarks
320 North Main
Springfield, MO 65806

Dear Mr. Bullard:

Thank you for reviewing the James River TMDL and taking the time to comment.

The following responses correspond to the bullets in the Watershed Committee of the Ozarks public comment letter.

- The 0.075 mg/l Total Phosphorus (TP) and 1.5 mg/l Total Nitrogen (TN) are concentrations that apply to the whole James River watershed upstream of Galena if reductions in algal mass are to be achieved throughout the system. The ability of various reaches to meet the concentration levels, however, will be more used as an indication of success of the implementation plan and will help identify areas that need further effort. The overall success of the TMDL, however, will be evaluated by the nutrient concentrations measured in-stream at Galena. As the TMDL was derived using flow data measured at Galena, it constitutes a continuum of loading that is a function of expected probabilities. The point of disparity is that while the target is based on biological indicators, the 0.5 mg/l for wastewater treatment plants is based on technology and economic feasibility. Hence, the primary objective of the TMDL is to achieve the TP and TN concentrations at Galena. The department is already aware that the river will probably never meet the target concentrations below the confluence of Wilson Creek due to existing land use and the Springfield Southwest Treatment Plant. Staff will take that into consideration when evaluating the overall success of the TMDL.
- Based on current information and available data, it is almost impossible to set an interim target. Although that would be useful to the public and would appear to give needed direction in the future, the setting of a goal would be largely speculation at this point in time. The compounding factor is briefly addressed in the last paragraph of section 6, Implementation Plans for the Phased James River TMDL. We do not currently have enough information on attenuation and storage factors in the James River system. Anecdotal information has been shared that some agricultural producers have stopped applying phosphorus to fields and after several years, their soil phosphorus levels continue to rise.

Mr. Loring Bullard

Page 2

March 30, 2001

This is logical as phosphorus gets bound to soil particles. As the loading of phosphorus to the James River decreases, it is not known whether there will be an observed increase of leaching of phosphorus out of the sediment. Or will high water events quickly flush the entire system. To set an interim goal that we have no reasonable assurance the river will even approach, could produce a great deal of controversy and concern as we enter Phase II of the TMDL.

- Regarding your comment about use of information from local experts, Dr. Jack Jones (UMC) was consulted during evaluation of TMDL endpoint variables. Many of the suggestions made by Dr. Jones were incorporated into the TMDL. Furthermore, Dr. Val Smith (KU), a noted nutrient and algae expert, made comments that improved the TMDL. Dr. Russ Rhodes (SMSU) was not contacted directly by DNR staff. However, SMSU was contacted last spring during the data collection phase of the TMDL. In the future, the department will continue to seek non-agency expertise in technical matters where appropriate.

The James River represents the first large-scale TMDL that the agency has developed. Due to agreements made in conjunction with a federal lawsuit, the schedule for the development of the James River TMDL was very short. This did not allow for the public participation that we hope to solicit prior to the development of future TMDLs. As with any scientific endeavor, there are always lessons to be learned. Additional public participation during the development stage would be beneficial to involved stakeholders and more importantly, the natural resources that we are all seeking to protect.

Again, thank you for your comments. The Watershed Committee of the Ozarks' interest in the TMDL process and concern for the health of Missouri's water resources is appreciated. If you have other questions or wish to discuss this further, please contact Sharon Clifford of the Planning Section at (573) 751-7298.

Sincerely,

WATER POLLUTION CONTROL PROGRAM



John Madras, Chief
Planning Section

JM:scd



Lavaty,Ann@epamail.e
pa.gov

02/20/2001 07:23
AM

To: nrclifs@mail.dnr.state.mo.us, nrdkxim@mail.dnr.state.mo.us,
nrzellc@mail.dnr.state.mo.us
cc: Schafer.Jeannette@epamail.epa.gov,
Generaux.Jack@epamail.epa.gov
Subject: draft James comments

Hi,

Sorry this is so informal but I have made 3 attempts to get the comments into a formal decision doc format and for some reason the computer keeps eating them. So, I'm keeping this simple and really the comments are pretty simple anyway - just thought I would save some time up front by completing as much of the final decision doc as possible so that you could have the approval as soon as possible after the final comes in.

Comments:

1) Interpretation of Results: It would be helpful to explicitly state what the WLA and LA actually are. An example could be: "allocations of wasteloads and loads are made by demarcating the TMDL load duration curves for TN and TP at a particular flow duration level (or % exceedence) such that the TMDLs represent a continuum of desired loads over all flow conditions, rather than fixed at a single value. The WLA is defined as loads between 65% and 100% on the TMDL curves for each of the pollutants...., and the LA is defined as"

The method for determining where the demarcation falls in dividing the WLA and LA should also be explained - i.e. what is 65% based upon?

You could also add more explanation to clarify the curves such as: "These load curves represent the TMDL since any point along the curve represents the attainment of the target value at that flow."

It still would be nice if the actual WQ data were plotted along with the curves - e.g., see the attached excel file, it also shows how the load is reduced after applying the point source permit limits for TP - i.e. TMDL load, current load, and future load based on point source reductions - we realize that this would only be possible for TP for future predictions based on point sources.

2) MOS: We were a bit concerned that the current MOS is focused solely on providing a MOS for the point sources so did an analysis to see if there is some wiggle room for another MOS that may address the nps. Check out the reduction in point sources in the excel file based on permit limits - the shift in % exceedences shifts to the left to approximately .45 which could potentially serve as an additional MOS for the NPS based on reductions in the point sources. Although we realize that this is not a strong MOS for NPS, it does provide a bit more safety in the uncertainty of the TMDL until phase II is going.

3) Figure 3 title could say TMDL load duration curve.....

4) Section 5 - Continuous monitoring.... - you actually state the targeted endpoint here, i.e., to reduce the frequency of benthic algal blooms in excess.....through in-stream nutrient limits..... This should also be stated up front in the targeted endpoint section as well - the way it is stated here is much more clear than what is up front,

i.e., keeping benthic algal between 100 and 200 mg/m² etc. is not very clear.

5) Section 6. Implementation - There are several points in this section that could also be used in a source assessment section, or as you have it now, in the current WQ condition section at the beginning of the TMDL.

6) Appendix B. For thoroughness, you could also add a couple of columns that show what the permit limits for each of the facilities actually do to reduce TP. Also, Fordland was omitted from this table and probably should be included.

Nice job. Let me know if you have any questions.

Ann Lavaty
Environmental Scientist
Water Quality Technical Support Team
USEPA Region 7
901 N. 5th St.
Kansas City, KS 66101
(913) 551-7370

(See attached file: jamesgalenaTN&TP.zip)



- jamesgalenaTN&TP.zip