



S P O K A N E C O U N T Y

UTILITIES DIVISION  
N. Bruce Rawls, P.E., Utilities Director

A DIVISION OF THE PUBLIC WORKS DEPARTMENT

November 11, 2007

**(Via Email & US Mail)**

Mr. Dave Knight  
Eastern Regional Office  
Washington State Department of Ecology  
4601 N. Monroe Street  
Spokane, WA 99205

Subject: September 2007 Draft Spokane River and Lake Spokane Dissolved  
Oxygen Total Maximum Daily Load

Dear Mr. Knight:

Spokane County submits the following comments to Ecology's September 2007 Draft Spokane River and Lake Spokane Dissolved Oxygen Total Maximum Daily Load ("TMDL"). The County appreciates Ecology's hard work on development of the TMDL and supports the TMDL, which is a watershed-based solution that is designed to achieve compliance with applicable water quality standards. The TMDL addresses both point and non-point sources of pollution, provides compliance schedules, provides a monitoring program, and provides for ongoing oversight to ensure that the TMDL's required actions and corresponding pollutant reductions will be achieved. The adaptive management component of the TMDL allows for additional actions and/or refinements based on the actions performed and data gathered.

In addition to the TMDL, Ecology's Watershed Planning for the Spokane River provides a coordinated and integrated method to link science, permits, water resources, and other water pollution control and prevention activities. Ecology's watershed planning for the Spokane Water Quality Management Area, therefore, provides further assurance that water quality standards will be met in the Spokane River.

The Foundational Concepts, attached and incorporated into the TMDL, provides specific details about point source implementation measures and strategies to achieve compliance with the TMDL. Implementation measures for the County include preparing a Technology Selection Protocol to select technology for a state-of the art sewage treatment plant. The County's plant will reduce

phosphorous loading to the River by approximately 90% compared to the historical treatment in the Regional Facility.

Once constructed, in addition to transferring and treating flows that the County currently sends to the Regional Facility, the County will remove septic tanks and their corresponding pollutant loads that are currently discharged to the aquifer and Spokane River. In its Delta Elimination Plan, the County has provided to Ecology a detailed technical memorandum that calculates the amount of phosphorous that will be removed by eliminating septic tanks, based on very conservative assumptions and modeling. The benefits of the septic tank removal are, therefore, tangible, accurately estimated, and capable of being confirmed.

Additionally, the County will implement water conservation and reuse, as well as non-point source (NPS) reduction activities. With regard to the non-point source program, the County has already accepted an EPA grant to fund a Bi-State Regional Non-Point Source Study to identify NPS sources, evaluate BMP's for remediation, and to develop a NPS implementation plan. Moreover, the County will be on a more aggressive compliance schedule to achieve its waste load target than other discharger, which will result in immediate benefits to water quality once the County's plant is operational.

Other point source dischargers to the Spokane River have compliance schedules to achieve their waste load allocations and target pursuit actions. Additionally, regional phosphorous reduction programs and regional non-point source reduction programs, jointly funded and implemented at \$2 Million/year, provide additional assurance of compliance with water quality standards.

Attached to this letter are detailed comments, which are intended to provide additional clarity for the TMDL, especially in regards to the activities, studies, and actions that will be included in the 10-year assessment. All comments are consistent with the Foundational Concepts and the Memorandum of Agreement signed by Ecology, Spokane County, the City of Spokane and Liberty Lake Sewer & Water District.

Finally, while the County supports the TMDL as providing reasonable assurance of compliance with water quality standards, the County wishes to comment, as it has previously, that it is not a "new source" or "new discharger." The County's new facility is not a new source because that definition only applies to industrial dischargers. (See CWA Section 306 -- new-source performance standards, which do not apply to sewage treatment plants).

The County is not a new discharger either. The County's domestic sewage is currently treated by the Regional Plant in the City of Spokane. The physical location of that Regional Plant has existed since 1950. The Regional Plant has been improved and upgraded over the years. It is important to keep in mind that the term "treatment works" (which includes POTWs) includes "sewage collection

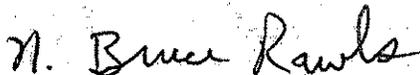
systems, pumping, power and other equipment and appurtenances, extensions, improvements, remodeling, additions, and alterations thereof. 33 USC § 1292.

In 1977, the plant was upgraded to secondary treatment, and was designated as a Regional Plant. In 1980, the City and County entered into agreements to recognize the use of the existing City wastewater treatment plant and interceptor system as a regional facility. The County was responsible for the design, financing, construction and operation of the publicly owned wastewater collection, conveyance, and processing facilities necessary to deliver wastewater to the City interceptor system. The City was to convey wastewater from the point of connection into the regional plant and operate the plant as specified by the NPDES permit.

The improved collection system that the County designed, financed, constructed, and operates is a part of the Regional Plant, which is an extension, addition and improvement to the previous plant. The land area where the County plant will be located will service the same area of the County that is currently serviced by the Regional Plant. The County is a named permittee on the City's NPDES permit. For these reasons, and others that we have previously discussed with Ecology, we continue to believe that the County is not a new source or new discharger for purposes of the TMDL.

Thank you for the opportunity to provide these comments on the draft TMDL. Spokane County supports the TMDL, and is committed to doing its part to implement the TMDL, so the Spokane River will again meet applicable water quality standards.

Sincerely,



N. Bruce Rawls, P.E.  
Utilities Director  
Spokane County Division of Utilities

CC: Board of County Commissioners  
Lori Terry, Foster Pepper  
Dave Clark, HDR Engineers  
Dave Moss, Water Reclamation Manager

**Attachment to the  
Spokane County Comment Letter  
on the Draft Spokane River TMDL**

**November 11, 2007**

Page viii. **Executive Summary.** The discussion of Table ES-1 Tributary load allocations (and Table 4 page 22) is based on the one potential load allocation of nonpoint sources from three key tributaries; Hangman Creek, Coulee Creek, and the Little Spokane River. This load allocation assigns 2.5X natural background loadings to these tributaries. The loading analysis summarized here omits nonpoint source load reductions outside of Hangman Creek, Coulee Creek, and the Little Spokane River, including mainstem Spokane River nonpoint source loadings, aquifer loadings, etc. Other combinations of nonpoint source load allocations and point source wasteload allocations might also be capable meeting the TMDL requirements for the Spokane River. As additional water quality analysis is conducted, tributary TMDLs are formulated, and nonpoint source studies are completed, the understanding of nonpoint source load allocations and point source wasteload allocations will improve. The 10<sup>th</sup> Year Assessment provides an opportunity to reconsider the mix of nonpoint source loads and point source wasteloads in context of an adaptive management plan to improve water quality management plans. Suggested additional text:

*“The tributary load allocation in Table ES-1 represents the initial allocation of Phosphorus, Ammonia and CBOD nonpoint sources from the key tributaries of Hangman Creek, Coulee Creek, and the Little Spokane River based on water quality analysis and modeling conducted thus far to support the formulation of the TMDL. The 10<sup>th</sup> Year Assessment may provide new information which improves the understanding of the load allocation and water quality impacts in the Spokane River and Lake Spokane. This may result in a need to modify the tributary load allocation and the point source load wasteload allocation in ways that result in a more optimal combination of load in pursuit of water quality improvements.”*

Page ix. **Executive Summary.** In the discussion of Table ES-2 Wasteload allocations (and Table 6 page 24) it is important to note that the 10<sup>th</sup> Year Assessment may provide new information which improves the understanding of the wasteload allocation and water quality in the Spokane River and Lake Spokane. This may result in a need to modify the wasteload allocation and the relationship between the key parameters of Phosphorus, Ammonia and CBOD. Suggested additional text:

*“The wasteload allocation in Table ES-2 represents the initial allocation of Phosphorus, Ammonia and CBOD based on water quality analysis and modeling conducted thus far to support the formulation of the TMDL. The 10<sup>th</sup> Year Assessment may provide new information which improves the understanding of the wasteload allocation and water quality impacts in the Spokane River and Lake*

*Spokane. This may result in a need to modify the wasteload allocation and the relationship between the key parameters of Phosphorus, Ammonia and CBOD in the continued pursuit of water quality improvements."*

Page ix. **Executive Summary.** Table ES-2 Wasteload allocations (and Table 6 page 24) includes projected 2017 and 2027 influent flows for wastewater treatment plants. Recently issued draft NPDES permits for the City of Spokane, Liberty Lake Sewer District, Kaiser Aluminum and Inland Empire Paper contain discrepancies which are inconsistent with the TMDL wasteload allocation flows given in Table ES-2 and Table 6 and require reconciliation. Table ES-2 identifies City of Spokane 2017 flows as 41.76 mgd and 2027 flows as 50.77 mgd and attributes this information to the TMDL Flow and Loading Work Group. The draft City of Spokane NPDES permit has effluent limits calculated at 35 and 42 mgd and identifies design criteria for a design year of 2015 with average dry season flow of 55.9 mgd and wet season flow of 60.6 mgd. Maximum month dry season flow is 59.6 mgd and wet season flow is 79.8 mgd are also given. Table ES-2 identifies Liberty Lake 2017 flows as 1.41 mgd and 2027 flows as 1.51 mgd. The draft Liberty Lake NPDES permit has effluent limits for flow as 2.0 mgd. Table ES-2 identifies Inland Empire Paper 2017 and 2027 flows as 4.1 mgd. The draft Inland Empire Paper NPDES permit does not identify a flow value; however the permit Fact Sheet identifies an average effluent flow value of 4.4 mgd.

Page x, **Executive Summary:** Add the following sentence to the end of the paragraph: "Through these combined actions, the TMDL is designed to achieve compliance with applicable water quality standards."

Page 13. **TMDL Analysis.** Table 3 Monthly net groundwater characteristics identifies flow and phosphorus loadings in the Spokane Valley/Rathdrum Prairie aquifer and the text states that if monitoring indicates that the original groundwater characteristics have changed significantly, then adjustments in modeling may be required. Consideration should be given to the broader issue of nonpoint source loadings on the aquifer that are tributary to the Spokane River and a distinction made between natural background levels in the aquifer and nonpoint source loadings that may be managed. Text should be included that discusses management of these aquifer loadings. Suggest adding the following text:

*"The phosphorus present in the Spokane Valley/Rathdrum Prairie Aquifer is the result of both natural background levels and nonpoint source contributions. The Spokane River modeling work to-date has utilized historical groundwater quality data as summarized in Table 3. Additional groundwater monitoring data will be gathered prior to the 10<sup>th</sup> Year Assessment that may provide new information to improve modeling assumptions and provide a basis for further nonpoint source loading reductions."*

Page 17 **TMDL Analysis** under the heading **Results of 2007 Analyses.** The discussion identifies 2.5 times the background levels in tributaries as the scenario used to establish the TMDL, with references to Appendix C. The TMDL load allocation assigns 2.5 times

natural background loadings to three key tributaries; Hangman Creek, Coulee Creek, and the Little Spokane River. It is important to note that other combinations of nonpoint source load allocations and point source wasteload allocations might also be capable meeting the TMDL requirements for the Spokane River. One key loading that is not analyzed for potential reductions in these scenarios is the Spokane Valley/Rathdrum Prairie (SVRP) Aquifer, which is known to contain substantial quantities of phosphorus and has a significant exchange with surface water in the Spokane River. SVRP aquifer phosphorus loadings are from a variety of nonpoint sources and natural background. Further, the understanding of the relationship between the key parameters of Phosphorus, Ammonia and CBOD is also expected to improve. The 10<sup>th</sup> Year Assessment provides an opportunity to reconsider the mix of nonpoint source loads and point source wasteloads, and the key loading parameters to improve water quality management plans. Suggest adding the following text:

*"The tributary load allocation for the TMDL based on 2.5 times natural background is one of many possible load reductions scenarios that could satisfy water quality requirements for the Spokane River. The 10<sup>th</sup> Year Assessment may provide new information which improves the understanding of the load allocation and water quality impacts in the Spokane River and Lake Spokane, including alternative combinations of point source and nonpoint source reductions, alternative combinations of Phosphorus, Ammonia and CBOD, and the potential for other nonpoint source load reductions, such as from the Spokane Valley/Rathdrum Prairie (SVRP) Aquifer. This may result in a need to modify the tributary load allocation and the point source load wasteload allocation in ways that result in a more optimal combination of load in pursuit of water quality improvements."*

**Page 21 Results and Discussion** under the heading **Load and Wasteload Allocation**. The previous review comments highlight the need to broaden the consideration given in the TMDL to improving the initial nonpoint source load allocations and point source load allocations presented in this document. It is anticipated that an improved understanding of nonpoint source loadings, the potential for load reductions, treatment technology developments, demonstration treatment testing, and improved modeling will combine to enhance the overall perspective on water quality management as the 10<sup>th</sup> Year Assessment is approached. Suggest adding the following text:

*"The load allocations presented in the TMDL represent the best understanding of water quality conditions possible at this time based on loading analysis and water quality modeling. It is anticipated that the 10<sup>th</sup> Year Assessment will provide an opportunity to improve the understanding of the load allocation and water quality impacts in the Spokane River and Lake Spokane and give consideration to alternative combinations of point source and nonpoint source reductions, alternative combinations of Phosphorus, Ammonia and CBOD, and the potential for other nonpoint source load reductions, such as from the Spokane Valley/Rathdrum Prairie (SVRP) Aquifer. This may result in a need to modify the tributary load allocation and the point source load wasteload allocation in ways*

*that result in a more optimal combination of load in pursuit of water quality improvements.”*

Page 22. **Table 4 Tributary load allocations**; see the commentary on Table ES-1 Tributary load allocations above.

Page 24. **Table 6 Wasteload allocations** for NPDES permit holders; see the commentary on Table ES-2 above.

Page 26. **Managed Implementation Plan, What needs to be done?** under the heading **Point Sources**. The discussion identifies the Spokane County treatment plant as a new facility; however this should be clarified to note that existing Spokane County wastewater is treated and discharged at the City's Riverside Park Facility. The new Spokane County Facility will significantly improve effluent quality over current treatment levels at the City's Riverside Park facility. The County Plant will be about 90 percent more efficient for removal of phosphorus, and will decrease the phosphorus loading to the river by about 25 pounds per day for the 8 million gallons per day that will be diverted from the Riverside Park Facility.

Page 31. **Managed Implementation Plan, What needs to be done?** under the heading **Nonpoint Sources**. The discussion identifies phosphorus reduction opportunities that include among other things, “failing septic systems” however it should be noted that septic systems contribute phosphorus to the aquifer and Spokane River even if they are not failing. Normal operation of on-site septic systems contribute a soluble phosphorus loading during normal operation and once the soil column beneath the drainfield reaches its sorption capacity, breakthrough occurs and septic effluent phosphorus is no longer retained in the soil layer.

Page 31. **Managed Implementation Plan, What needs to be done?** under the heading **Nonpoint Sources**. The discussion on *Septic Tank Elimination Program* indicates that Spokane County “may submit to Ecology information and calculations demonstrating the phosphorus removal impact on the Spokane River and Lake Spokane of its Septic Tank Elimination Program.” This information has already been submitted to Ecology and reviewed in detail. The text goes on to state that “Pending Ecology’s expeditious review and decision regarding the information.....” Spokane County has assumed that Ecology has completed the review of the septic phosphorus loading analysis and based on the discussions that have taken place this year and that Ecology has concurred with the analysis and the application of a phosphorus loading offset.

Page 34, at the **end of the third paragraph**, include the following language: “These 10-year periods, together with target pursuit actions, provide plans and schedules for point source dischargers to achieve compliance with applicable water quality standards.”

Page 35, **third bullet**, add the following language at the end of the paragraph: “NPDES permits will contain compliance schedules.”

Page 40. **Managed Implementation Plan, Monitoring Progress.** The discussion of Lake Spokane's hypolimnion identifies lake oxygenation along with target pursuit actions for consideration in the 10<sup>th</sup> Year Assessment. The Foundational Concepts at page 9 states that "Ecology will address Avista Corporation's responsibilities with regard to the TMDL through the 401 Certification process." Washington's water quality standards (WAC 173201A-510) provide a 10-year compliance schedule for dams. We suggest that the following language be included in this section of the draft TMDL to provide clarity with regard to Avista's requirements: "Ecology will address Avista's responsibilities with regard to aeration in the context of the 401 Certification, which is currently being drafted, so that lake aeration is evaluated in the 10-year compliance schedule period and implemented, if necessary, in the second 10-year period to provide additional reasonable assurance that water quality standards will be met."

Page 41. **Managed Implementation Plan, Monitoring Progress.** The discussion of additional monitoring efforts should include groundwater monitoring and analysis to further the understanding of Spokane Valley/Rathdrum Prairie (SVRP) Aquifer phosphorus loadings.

Page 78. **Appendix C. 2007 Loading Analysis.** May 2007 Spokane River TMDL Model Simulations. The loading analysis is based on the four model scenarios summarized in Table 1. These scenarios alter tributary loads but only consider three key tributaries; Hangman Creek, Coulee Creek, and the Little Spokane River. One key loading that is not analyzed for potential reductions in these scenarios is the Spokane Valley/Rathdrum Prairie (SVRP) Aquifer, which is known to contain substantial quantities of phosphorus and has a significant exchange with surface water in the Spokane River. SVRP aquifer phosphorus loadings are from a variety of nonpoint sources and natural background. It is important to note that nonpoint source loadings of phosphorus to the SVRP aquifer can be managed and reductions in loadings can be accomplished, even though the loading scenarios in this appendix do not present model simulations of these potential load reductions.

Page 80. **Appendix C. 2007 Loading Analysis.** May 2007 Spokane River TMDL Model Simulations, Figure 2 and Tables 2, 3 and 4 present the tributary loading conditions for Hangman Creek, Coulee Creek, and the Little Spokane River at 2.5X natural background. This modeling analysis for Scenario C is the basis for the TMDL Tributary Load Allocations in Table ES-1 and Table ES-2. The loading analysis summarized here omits nonpoint source load reductions outside of Hangman Creek, Coulee Creek, and the Little Spokane River, including mainstem nonpoint source loadings, aquifer loadings, etc.

The following comments are oriented toward the data collection, monitoring, and re-calibration of the CE-QUAL-W2 model that must occur over the course of the first 10-years of the TMDL. All of the dischargers and Ecology recognize that numerous assumptions and variables have been used to create and calibrate the existing model. While the existing model is sufficient for this draft TMDL, it needs to be revised and updated as a part of the 10-year assessment. For that reason, Spokane County requests

that the TMDL language be very specific about discharge limits being interim over at least the initial 10-years of the TMDL period. The proportional allocation of loading to the river from ammonia, CBOD and phosphorus has not been optimized in the current TMDL, and needs to be re-evaluated as a part of the 10-year assessment to recognize that improvements in one of these nutrients may be sufficient to offset the loading from one of the others, and still maintain the allowable impact to DO in the River. In addition, new information will be available with regards to phosphorus loading from the tributaries and the Spokane Rathdrum Prairie Aquifer, and from sediment oxygen demand.

**Page 80. Appendix C. 2007 Loading Analysis.** May 2007 Spokane River TMDL Model Simulations, under the heading "Simulation with Washington Point Sources having total phosphorus concentrations of 50 micrograms/liter" states that dissolved oxygen criteria will "slightly exceeded the standard of 0.2 mg/l on several occasions." However, this implies that this loading scenario is not acceptable, whereas it may be appropriate, given the state of current, reliable wastewater technology. This modeling analysis should be revised in 10<sup>th</sup> Year Assessment to reflect the revised calibration of the CE-QUAL-W2 model to be compatible with the tributary TMDLs. With the corrected model, the simulations should be conducted including nonpoint source loading reductions beyond the three tributaries; Hangman Creek, Coulee Creek, and the Little Spokane River. The analysis should include nonpoint source reductions that offset the difference between point source discharges at 50 ug/l and the 10 ug/l target. Table 5 point sources assumptions for flow, CBOD, ammonia, dissolved oxygen and nitrate should all be corrected to represent current understandings.

**Page 85. Appendix C. 2007 Loading Analysis.** Draft 2007 Spokane River Model Simulations, Appendix C – Linking Idaho and Washington Models, Table 8. Suggest that clarification be provided for why the P stoichiometry for CBOD decay (BODP) differs for dischargers, sometimes by more than an order of magnitude. Describe what information can be gathered in the next 5 to 10 years to narrow the band of assumptions and eliminate uncertainty in these modeling parameters for the 10<sup>th</sup> Year Assessment.