

# Spokane River TMDL Collaboration

## Full Group Meeting

July 22, 2005, 9:00a.m.-1:30 p.m.

City of Spokane Fire Training Center, N. 1618 Rebecca Street

### **Full Group Attendees**

Tom Agnew, Liberty Lake Sewer & Water District

Dick Denenny, City of Spokane Valley

Tom Eaton, US EPA-Region 10

Rick Eichstaedt, Center for Justice/Sierra Club

Wayne Frost, Inland Empire Paper

Gwen Fransen, ID Dept. of Environmental Quality

Sid Fredrickson, City of Coeur d'Alene

Hank Nelson, Avista (for Bruce Howard)

Jim Kimball, Hayden Area Regional Sewer Board

Jack Lynch, City of Spokane

Rene Marc-Mangin, WA Dept. of Ecology-ERO

Todd Mielke, Spokane County Commissioner

Jim Bellatty, WA Dept. of Ecology-Olympia (for Dave Peeler)

Mike Petersen, Land Council

Terry Werner, City of Post Falls

Bill Ross, Facilitator, Ross & Associates

Ryan Orth, Ross & Associates

Mike Sharar, Mike Sharar Consulting

John Spencer, CH2M Hill

### **Collaboration Update and Meeting Agenda Review**

Bill Ross opened the session shortly after 9:00 AM and reviewed the day's agenda. Each of the Workgroups will present to the Full Group their status in gathering information and data to answer their assigned Fundamental Questions. At the end of the day, the Full Group will discuss next steps and project directions for the August 24 Full Group meeting. Mr. Ross noted that Jim Bellatty of the Department of Ecology was assuming Full Group Co-Chair Dave Peeler's place in his absence.

Jim Bellatty and Todd Mielke each thanked the Collaboration participants for their hard work and contributions to progress made over the past month.

### **Status Reports and Discussion of the Workgroups' Progress, to Date, in Answering Fundamental Questions**

#### *Flows & Loadings Workgroup*

Co-Chairs Richard Koch and Kevin Cooke (alternate for Bruce Rawls) presented an update on the activities of the Flows & Loadings Workgroup. The Workgroup is nearly finished with their data-gathering efforts and reviewed a draft table displaying the current and projected flows of each of the

wastewater treatment dischargers through 2028, as well as their current and projected phosphorous loadings to the Spokane River. It was noted that there may be some inconsistency in flow data based on how each jurisdiction accounts for conservation impacts. The Full Group asks that the Workgroup ensure that the conservation factor is understood for each source they describe.

Since the July 22 Full Group Meeting, the Flows & Loadings group has continued to gather information on the contribution of detergents and fertilizers containing phosphorous to the influent reaching treatment facilities. The Workgroup's survey on the availability of household laundry detergent containing phosphorous has concluded that the County-wide ban on such products as been effective. Dishwashing detergents are not currently banned and a survey conducted by the Workgroup determined that both products containing phosphorous and those that are phosphorous-free are both found at local retailers, with the phosphorous-free products costing more, on average, than those that contain phosphorous. The Flows & Loadings Workgroup concluded that residential phosphorus reductions are more appropriately encouraged by consumer education efforts, perhaps in conjunction with discussions involving regional retail outlet managers about the availability of low and nil phosphate dish washing detergents. The Workgroup has also done preliminary research on the commercial and industrial use of detergents and solvents that contain phosphorous and concluded that it seems appropriate to revise pretreatment requirements to encourage and/or require reductions in phosphorus loading at industrial and commercial sources. Jim Bellatty offered to investigate what information Ecology has on the effect of detergent/fertilizer bans.

Tom Agnew commented that Liberty Lake continues to consider a ban on dishwashing detergents and that the studies they've consulted suggest that such bans do help to reduce phosphorous levels in wastewater influent.

Larry Esvelt commented that digested food, especially fast foods and energy foods contain high levels of phosphorous and could contribute significant levels of phosphorous to wastewater influent.

The Full Group directed the Flows & Loadings Workgroup to describe their findings in terms of pounds of phosphorous reduced for purposes of integrating this information with the findings of the other Workgroups.

In response to the Fundamental Question addressing aeration/oxygenation, the Flows & Loadings Workgroup has developed a matrix that describes outcomes and costs of various aeration/oxygenation goals. The Workgroup continues to populate this matrix with the methodology and probability of success for each goal.

As discussed at the July 22 Full Group meeting, the effect of sediment oxygen demand (SOD) on phosphorous levels in Long Lake is not well understood. Mark Butell and Barry Moore of Washington State University have coordinated with the Workgroup and scoped a study of SOD at Long Lake, including activities and costs. Butell and Moore propose sampling for comparison to the TMDL model before moving to a larger study of SOD. Richard Koch pointed out that SOD could become comparatively more significant as the Collaboration moves forward with point source controls and the "delta" numbers get smaller.

Todd Mielke commented that the proposal for a phased study of SOD could become an element of an adaptive management program that stages lake aeration for the future. Mike Petersen added that model runs should include the non-point source findings, as well as SOD, to better disclose the appropriate measures for lake aeration/oxygenation.

Tom Eaton suggested that a separate workgroup be established to begin to scope the monitoring element of an adaptive management regime for the Spokane River. The Steering Workgroup will suggest the membership of a Monitoring Workgroup and begin to develop a list of Fundamental Questions or a Charter for the Workgroup to address.

The materials provided by the Flows & Loadings workgroup, including the current and projected flows and loadings tables, the detergent and fertilizer survey results, sediment oxygen demand and oxygenation/aeration feasibility cost estimates will be made available via the Collaboration website (<http://client.ross-assoc.com/spokane-river>).

#### *Technology Workgroup*

Lars Hendron and Len Bramble presented an update from the Technology Workgroup. The workgroup has been gathering information from facilities using one of the following six technologies:

- Tertiary Clarification and Granular Media Filtration with Chemical Precipitation
- Sequencing Batch Reactor/Membrane Bioreactor with Enhanced Biological Phosphorus Removal and Chemicals
- Post Secondary Microfiltration with Chemical Precipitation
- Two Stage Sand Filtration with Chemical Precipitation (Micromedia Filtration)
- Post Lime Treatment
- Direct Filtration with Chemical Addition

The Workgroup is currently surveying a list of over 100 facilities for detailed operational information, first by gathering general information and following-up with the facilities of greatest interest that can provide good data with which to populate the technology matrix. The Workgroup is currently 20 percent completed with this task.

The Technology Workgroup attended a presentation at Inland Empire Paper (IEP) on July 13. Three vendors, Zenon's ZeeWeed System (Post Secondary Microfiltration with Chemical Precipitation), Parkson's Dyna Sand System (Two Stage Sand Filtration with Chemical Precipitation), and US Filter's Trident System (Tertiary Clarification and Granular Media Filtration with Chemical Precipitation), presented their products and pilot programs currently in-place at IEP.

Doug Krapas, of IEP, gave the Full Group a short status report of the pilots, which are expected to complete their trials July 29. Conclusions cannot yet be drawn about the performance of each of the technologies being piloted at IEP. Up to this point, each of the three products being piloted has been challenged to produce the desired reductions of phosphorous, which is complicated by the unique influent produced by IEP's processing of wood-based material. In some cases, large amounts of chemical treatment are required to bring phosphorus levels within an acceptable range. Again, due to the nature of the materials processed at IEP, it is known that some level of phosphorous simply cannot be removed from the influent.

The Workgroup will soon attend a presentation of another product, Kruger's Actiflow, which uses tertiary clarification and granular media filtration with chemical precipitation.

For next steps between now and the August 24 Full Group meeting, the Workgroup will continue their facility data collection by following-up with facilities of interest; the Workgroup expects to have near complete results at that time. The Workgroup will also continue to compile information to respond to their assigned Fundamental Questions.

The Workgroup was directed by the Full Group to represent their findings in average effluent concentrations of phosphorus, rather than lowest concentration achieved, to help the Full Group gauge each technology's performance over time.

The presentation provided by the Technology workgroup will be made available via the Collaboration website (<http://client.ross-assoc.com/spokane-river>).

#### *Re-Use & Conservation Workgroup*

Co-Chair Kathy Cupps gave an update on the activities of the Re-Use & Conservation Workgroup. The Workgroup has been tracking both water re-use and conservation opportunities, with the bulk of their results falling on the side of re-use. The Workgroup has explored the differences between the "re-use of treated municipal wastewater" and "reclaimed water use". Reclaimed water use is described within Washington statutes as being derived from sanitary sewage, adequately treated for beneficial uses. By contrast, water re-use refers to the on-site recycling of wastewater or wastewater effluent discharge to surface waters or to soil. The Washington State standards speak to levels of treatment for specific planned use of reclaimed water only, however other statutes may apply to the re-use of treated municipal wastewater.

Kevin Cooke made a report on the effort the Workgroup has made to identify individual re-use opportunities within Spokane County and the City of Spokane, including their locations, and seasonality characteristics. The Workgroup continues to identify these opportunities and prioritize them based on their proximity to existing treatment plants.

Jim Kimball reported on the current land application opportunities for the City of Post Falls, the City of Rathdrum, and the Hayden Area Regional Sewer Board, which amount to approximately 1400 acres. However, further land discharge of wastewater in this area may require the purchase of land away from the urban and peri-urban areas, which will reduce land costs, but increase transport costs.

The Workgroup has identified a number of key questions for which they continue to gather information. With respect to aquifer recharge, the Workgroup has specific questions about the hydrogeologic conditions of the aquifer and whether any statutory requirements are of particular concern for aquifer recharge by land application (percolation) or direct injection. The Workgroup has additional questions about appropriate assumptions for estimating flows reductions, including the costs of new versus old construction, and potential reductions in utility revenue from conservation activities. Furthermore, the Workgroup has a question about the potential impact of outdoor conservation on river flows.

To better understand conservation opportunities the Workgroup is considering a Conservation Workshop with contributions from around the Pacific Northwest. The Spokane Chapter of the American Society of Civil Engineers has offered to assist with the development of such a Workshop. The Full Group indicated that the Re-Use & Conservation Workgroup Co-Chairs should make their proposal for a Conservation Workshop to the Steering Workgroup for their next meeting.

The Full Group directed the Re-Use & Conservation Workgroup to describe the pounds reduced and the element of timing for each identified opportunity.

The presentation provided by the Re-use & Conservation workgroup will be made available via the Collaboration website (<http://client.ross-assoc.com/spokane-river>).

### *Non-Point Source Workgroup*

As the Co-Chairs were not present at the meeting, alternates Lars Hendron and Jim Bellatty presented the current activities of the Non-Point Source Workgroup. The Workgroup has adopted a new matrix to organize its information around non-point sources of phosphorous, which displays for each source: location on the river, the methods could be employed to gain reductions, estimates of likely reductions, probability of reductions due to distance, seasonality factors, and a discount/probability factor. The new matrix, which was developed with input from Rob Greenwood's water quality trading analysis framework, is designed to help the Workgroup make progress in the complex area of non-point sources.

Jim Bellatty explained that a robust non-point source control program for the Spokane River is essential to the Spokane River TMDL Collaboration effort. Mr. Bellatty qualified this by stating that the Workgroup will need to provide estimates and ranges in some cases to move forward and refine these assumptions as more information becomes available. While non-point sources now seem to make comparatively small contributions to the search for pounds, as the overall effort makes progress with reducing pounds to the River from point sources, the non-point sources will become more significant as a potentially cost-effective means for reducing phosphorous in the Spokane River system. Mr. Bellatty also noted that the Department of Ecology will look to a similar approach when developing TMDLs for Latah Creek and Little Spokane River tributaries.

The Non-Point Source Workgroup has expressed that assistance will be needed in order to succeed in answering their assigned Fundamental Questions in a timely manner. On behalf of the Workgroup, Mr. Bellatty requested that additional resources be applied to their efforts for facilitation and research support. The Full Group membership concurred with this request. Tom Eaton commented that EPA's contract with Rob Greenwood and Brewster Boyd could help with this effort. Bill Ross also indicated that his contract would allow for some direct assistance to the Workgroup.

John Spencer commented that the Workgroup should consider adding agricultural soil erosion as a source within their matrix.

The presentation provided by the Non-point Source Workgroup will be made available via the Collaboration website (<http://client.ross-assoc.com/spokane-river>).

### **Next Steps and Expectations for August 24 Full Group Meeting**

Bill Ross explained that the Full Group will begin to roll-up the Workgroup findings at the August Full Group meeting. At the August meeting, the Full Group will for the first time begin to see the Workgroup efforts integrated into a larger picture of where pounds are entering and being removed from the River. By the September Full Group meeting, the overall geographic and temporal picture of the various contributions of pounds of phosphorous to the River should be even clearer, including detailed descriptions of any needed interim steps or analysis for items within the purview of each of the Workgroups. In the next month each Workgroup should focus on being able to describe the influential parameters of their research geographically, over time, and within their given matrices, so the Full Group can begin to consider the delta of pounds and think about what a negotiation framework could look like at the August meeting.

### **Adjourn**