Spokane River DO TMDL Advisory Group Meeting
Minutes
December 6, 2016

In Attendance: Adrian Borgias, Ecology; Dave Knight, Ecology; Pat Hallinan, Ecology; BiJay Adams, Liberty Lake Sewer and Water District; Jeremy Jenkins, Liberty Lake Sewer and Water District; Chris Moon, Avista; Dave Moss, Spokane County; John Beacham, Post Falls; Jeff Donovan, City of Spokane; Doug Krapas, Inland Empire Paper; Ryan Ekre, Inland Empire Paper; Adrianne Pearson, City of Spokane; Tom Agnew, Liberty Lake Sewer and Water District; Amanda Parrish, Lands Council; Cadie Olsen, City of Spokane; Meghan Lunney, Avista; Ben Brattebo, Spokane County; Jerry White, Spokane Riverkeeper; Karin Baldwin, Ecology; Monica Ott, City of Post Falls.

Phone: Brian Crossley, Spokane Tribe of Indians; Dr. David Dilks, LimnoTech; Dr. Scott Wells, Portland State University; Kris Holm, Attorney; Lisa Dally Wilson, Dally Environmental; Paul Klatt, JUB Engineering.

Spokane River Forum Staff: Andy Dunau, Tonilee Hanson

Welcome and Introductions

Andy Dunau welcomed participants to the meeting, each of whom introduced themselves. By consensus, the agenda was reorganized to accommodate the guest speaker's Dr. David Dilks and Dr. Scott Wells schedule.

Materials handed out and presentations can be found on spokaneriver.net/dotmdl web site.

How the CE-QUAL W2 Model was applied to the Spokane River – Dr. Scott Wells, Dr. David Dilks

Dr. Wells presentation provided background on how the Spokane River was modeled, key findings, calibration, and model changes introduced in 2001.

Dr. Dilks presentation focused on how the model was used to establish the TMDL, allowing for alternate limits as long as they resulted in equivalent DO impacts in Lake Spokane. Equivalent DO impact was defined as no increase in Avista responsibility. Model runs supporting alternate DO TMDL limits were adopted and later incorporated into permits. This included:

<u>Post Falls, HARSB, and Inland Empire Paper</u>

- Extend rigorous TP removal into February

<u>Coeur d'Alene</u>

- Extend rigorous TP removal into February
- More stringent CBOD removal, extended into February

<u>Spokane County</u>

- Extend rigorous CBOD removal into February
- Seasonally varying ammonia limits

Discussion, questions and clarifications across both presentations included:

- As part of a separate effort, the Spokane arm (Little Falls Dam to Lake Roosevelt) was recalibrated to include field data that was not used in the initial calibration of the model.
- The model was applied to several years of field data. The model was applied to a new year 2001 with little or no change in model calibration parameters (which some could interpret as "verification"). The only changes were a result of updated information on boundary conditions and in-situ field data. But true model "verification" is making sure a new data set is statistically independent of that used for calibration and in practice this is almost never done. Dr. Wells believes that in essence all model comparisons to field data are part of the calibration process.
- Dr. Wells and Karin will provide the monitoring work group the full list of variables and boundary data used in the model, including specificity on what was used for calibration. The monitoring work group will review what model variables and boundary conditions have changed with an eye toward determining desire for model update. Examples of boundary condition changes are different flows resulting from Avista FERC license and updated bathymetry.
- The model software has been updated, and is now at version 4.0. Dr. Wells noted, however, that new model features and added complexity does not necessarily mean a better model, e.g.--uncertainty can be higher. Also, new features may require additional field data to support those features.
- The model includes a groundwater component as a variable that changes based on river flows, e.g.—more groundwater contributions at lower flows. The model was recalibrated to include additional groundwater field data that became available.
- Dr. Wells strongly disagrees with the assertions in recent papers by Dr. Brett, and his team has provided one response. Understanding their different perspectives, however, would require far more time than available in this venue. Dr. Wells did assert that the model could be improved with good quality field data.
- Nonpoint source loading is accounted for in the model and are considered boundary conditions.
- Because the model is central to Table 7 in the TMDL document, (which expresses Avista's responsibility), it's not possible to update and adopt a new model without altering table 7 and thus the TMDL itself. As such, the current model needs to be preserved and future requests to establish alternate limits that can be incorporated into permits must use the existing model.
- Groundwater phosphorus concentrations, lake bathymetry, and flows are boundary conditions that can be updated in the model without completely changing the model. Using better data to update boundary conditions could result in the model better predicting conditions or the model error may decrease.
- The model does track phosphorus and the impacts and bio-transforming processes as it moves downstream. The model did not assume accumulation from year to year, instead used oxygen demand in the lake and historic conditions. Running the whole system model for 5 to 10 years to see impacts on sediments is possible to do, but it may or may not change management results.
- Group members see potential value in updating the model to:
    - provide data that can support 10-year assessment and look at "success"
    - better understand the river system
    - provide dischargers insights into ways to optimize their operations

- input new boundary conditions and test calibration toward more recent years and see if we can keep the calibration the same.

Considering these options may trigger policy considerations that Ecology and the work group will need to work through. To update the model for the assessment we would need to collect as much data as possible to make sure the model is as accurate as possible.

- Ecology and Avista agreed to postpone doing a 2016 model run called for in their water quality attainment plan. Avista's data will be valuable in checking the model.

Pathway to 10 Year Assessment – Karin Baldwin

Karin Baldwin reviewed and asked for input on work plan to support the 10-year assessment.

2017 primarily focuses on establishing goals and objectives for the 10 year assessment, completing the literature search scope of work supporting the assessment, and conducting the literature review. Tools for assessment coming out of the literature review will require a policy assessment by Ecology regarding if and how they can be used. The biennial report is also being done in 2017, which provides a snapshot of what was done with some trend lines based on available data.

The group discussed adding to 2017 review of model variables and boundary conditions that could possibly be updated in the model. Currently, a modeling workshop is scheduled for the 3rd quarter of 2018. In 2019--2020, the objective is to achieve clarity on the assessment tools to be used (including the model), develop necessary Quality Assurance Plans, and collection of data as needed.

The time line, particularly after 2019, may be adjusted as policy decisions and circumstances evolve. For example, needs to collect data over one or two years and determination that implementation of technologies are sufficiently reflected in river conditions.

The group reached consensus to reconvene the monitoring workgroup in January. Topics will be the biennial report, literature review scope of work, and goals and objectives for 10 year assessment. Karin will work on scheduling the meeting, including use of video conference or webinar to support exchange with Paul Pickett.

Literature Review Scope of Work

A draft scope of work was distributed, but there was not enough time to review. This will be reviewed at January monitoring work group meeting with Paul. The deadline for comments on the draft scope of work is Jan. 31st.

NPDES Update – Pat Hallinan

Due to EPA promulgation of updated human health criteria, Ecology had to update draft permits currently in process for Kaiser, City of Spokane, and Liberty Lake Sewer and Water District to reflect the new standards. As such:

- Ecology is hoping to issue new draft permits on February 1st
- There will be a 30 day public comment period.
- Responses to comments previously provided will be provided and are being integrated into the February 1st draft permit.

- There will not be a second open house and public hearing.

For Inland Empire Paper and Spokane County:

- 1st draft of permits will go out with the other permits, again aiming for February 1st
- There will be a 60-day public comment period
- An open house and public hearing will be scheduled. Stay tuned for more information on when those will be held.

USGS Groundwater Study Funding – Karin Baldwin

Spokane Conservation District submitted a 319 grant proposal for USGS to sample 30 sites on the Spokane County side between October 2017 and Sept. 2018. Grant proposals are currently being evaluated and a ranking and draft proposed funding list should come out in January 2017. Spokane County has also expressed interest in supporting this work.

Zinc Inhibition – Jim Ross

This agenda item was deferred to a future meeting.

Action Items

- Karin Baldwin will follow-up with Scott Wells to get a comprehensive list of boundary conditions used in the model.
- Karin Baldwin will follow up with Scott Wells to validate that flows in Avista FERC relicense were included as a scenario or as part of the model's boundary condition.
- A monitoring work group meeting will be scheduled for January.
- Ecology will notify group of NPDES public comment and open house dates.

Next Meeting will be the week of February 27, 2017.