Spokane River DO TMDL Implementation Advisory Committee Meeting
Spokane Regional Health District
January 19th

Minutes

Committee Members or Alternates at the Table:

In Attendance: Doug Krapas, Bud Leber, David Moss, Ken Windram, Speed Fitzhugh, Bruce Rawls, Galen Buterbaugh, Steve Llewellyn, Tom Agnew, Casey Flanagan, Lars Hendron, Adriane Borgias, Charlie Kessler, Walt Edelen, Bart Mihailovich, Speed Fitzhugh,

Observers: Meghan Lunney, April Smith, Rick Noll, Dave Clark, Rob Lindsay, Ben Brattebo, Carrie Holtan, April Smith,

On Phone: Don Martin, Paul Klatt, Sarah Hubbard-Gray,

Ecology Staff: Dave Moore, Jim Bellatty, Pat Hallinan, Elaine Snouwaert, Jon Jones, Marcie Mangold, Richard Koch, Diana Washington, Lucy Peterschmidt

Spokane River Forum Staff: Andy Dunau, Tonilee Hanson.

All meeting materials, including those referenced in these minutes can be found on-line at www.spokaneriver.net/dotmdl.

Welcome and Introductions

Andy Dunau welcomed participants to the meeting, each of whom introduced themselves. Congratulations were extended for the work and dedication that ended in NPDES permits being issued in the final quarter of 2012.

Today's meeting is a first step towards a ten year DO TMDL implementation process.

Where we ended up on trading / offsets

Dave Moore provided a recap on the tools that may be used to assist permit holders with compliance needs. These include equivalency exchange (currently in use by the County and Idaho), alternate season limits (currently being used by IEP), non-point source trading, BioP – Ortho P model adjustments, septic removal credit, stormwater reduction credit, and use of a bubble permit to meet equivalency needs. The following came from discussion:

- All tools listed were of interest to at least one permit holder.
- Anyone interested in modeling possible results of using a tool to achieve a desired outcome should use the LimnoTech modeling scenario. The related hand-out is available on- line. For those conducting modeling, they must contact Dave Moore. Dave will assure they receive the correct, must up to date zip files needed to run the model.
- When conducting a model run, it's important to understand rules used to determine equivalency. The hand-out, which is also on line, should be used: "Evaluation of Alternative Effluent Limits for Consistency with the Spokane River TMDL and Compliance with Washington Water Quality Standards."

- Conducting a model run is only a first step. Ecology will work closely with permit holder(s) to develop a schedule and design QAPs (or other validation tools) needed to adopt a tool.
- Dave will create a workgroup to begin the process of prioritizing which tools to focus on, related costs and scheduling needs.

NPDES Permit Updates

Spokane County – Bruce Rawls: The County Water Reclamation Facility received its permit on 11/29/11 and started operations on 12/1/11.

Regarding trades/offsets, the County is most interested in in offsets and trades, including equivalency within a plant, as well as trades between separate entities. This includes but not limited to only septic tank elimination credits. They are also interested in bio-available phosphorus, specifically advancing research and modeling to the point where its use is acceptable to regulatory agencies.

Regarding septic tank elimination, construction work on all sewers is done with the exception of a carryover project that will be completed this spring. The cost to a homeowner is $5,800 to cover their share of the sewer construction, and then the cost to complete the connection from the home to the street is typically in the range of $2,500 to $3,500. More complicated connections can cost as much as $5,000 to $10,000. The remaining 7,000 septic tanks are scheduled for elimination by 2015, even if they request a time extension.

Inland Empire Paper: Doug Krapas: IEP is on its 10th pilot test of tertiary treatment systems to meet the forthcoming DO TMDL permit limits. 9 of the 10 pilots tested used chemical precipitation. A 1.0 million gallon per day Trident HS system was installed in September 2007 based on results from initial trials of the chemical precipitation systems. IEP has been testing this system for 4 years to demonstrate scalability, but has not yet been able to obtain consistent operation of the system. Chemical sludge produced from this process remains one of the primary concerns with this technology. IEP has not yet determined how to dewater the sludge or how to dispose of this "chemical sludge" by-product.

Currently, IEP is testing a new technology that relies on algae grown in a controlled environment . The algae based system does not use chemicals and it represents the first biological solution. This process produces algae and oxygen as byproducts and also sequesters carbon dioxide. Algae is produced as a byproduct for which there are many beneficial uses.

IEP is helping to develop the technology and the company, which just received a patent for their technology. IEP is planning to build a commercially scalable system this year. Currently, IEP treats 3 million gallons /day, a 25 % reduction from previous years, and has a long term goal of getting down to as low as 1 million gals/day due to the excessive costs associated with these tertiary treatment technologies. This will be accomplished through water conservation, reclamation and reuse.

IEP will share information with others about the technology and data results of the next phase algae system and will perform plant tours. Part of the testing includes better assessment of trade-offs between higher capital cost than other tertiary treatments vs. lower operational and maintenance cost. For instance, O & M costs can be reduced with more water reclamation and not needing to dispose of sludge.

Regarding trades/offsets, IEP believes that all options should be kept on the table, but is currently most interested in BioP—OrthoP research and pollutant equivalency. Their permit already uses an alternate season limit.

Kaiser Aluminum – Trentwood, Bud Leber: Prior to about 2000, Kaiser produced coated aluminum coil which created a high phosphate waste water stream. In about 2000, Kaiser exited the coated aluminum coil business which eliminated that waste water stream. In parallel, the use of phosphoric acid in the wastewater treatment system was eliminated, thus significantly reducing phosphorus discharge. In late 2009 and early 2010, CH2M HILL piloted on a full scale basis a chemical addition system at the secondary sewage treatment plant for additional phosphorous removal. Unlike other dischargers, aluminum limitations in their permit make the use of alum non-viable in their waste water treatment process.

Regarding trades/offsets, Kaiser is most interested in considering use of equivalency exchange. The bubble permit concept also continues to be of interest to them.

City of Spokane, Lars Hendron: Pilot data collection finished last January, but analysis was delayed due to Larry Esvelt's passing. Mark Esvelt is working on the analysis now. It currently looks like membrane is the best technology. In addition, chemically enhanced primary treatment is going to be implemented before tertiary treatment. How much chemical treatment will be used is being studied, results expected in 2013. A third digester is being built that will help with additional sludge by-product.

Reclaimed water reuse pilot on golf courses was successful. Laying purple pipe to serve Down River Golf course will be part of engineering plan. Stormwater now has a full time stormwater coordinator, Lynn Schmidt.

Regarding trades/offsets, City of Spokane is most interested is equivalency exchange, stormwater credit, bio-p/ortho-p research.

Liberty Lake, Tom Agnew: Fiver years ago plant was remodeled, resulting in a 90% reduction in phosphorus discharge. They are currently looking at Phase II technology, but have not settled on a viable technology to best meet the permit limit. Design process will start in 2014 for Phase II. They are looking at reuse and finding opportunities to install purple pipe as part of infrastructure, e.g.—road, projects. They are interested in seeing results of IEP algae system.

Idaho Dischargers: Ken Windram, Hayden Area Regional Sewer Board, noted that they are still interested in trading and use of trans-boundary bubble. He stressed the need for system monitoring to know if we have met the standard and, if not, why not.

Paul Klatt, Post Falls Consultant, noted that once permits are issued, they will need to float a bond to fund waste water treatment upgrades. In this economic environment, that will be difficult. Expansion of the BNR (biological nutrient reduction) to about half of the plant is complete with positive results. It reduces both energy and chemical use using biology while further converting nitrate to inert nitrogen gas and off gassing it to the atmosphere. Post Falls has also funded Algevolve (same company IEP is working with) to perform proof of concept level testing on their effluent using their algae and membrane approach. This technology is at an embryonic level of development with no full scale installations but some results that Post Falls will be very interested in following at IEP.

Dave Clark, Coeur d'Alene Consultant, noted they are pilot testing three technologies, including sand media and membranes. A treatment selection process is expected in 2013-2014 based on an analysis of performance at a larger scale. This includes figuring out the most strategic process for going to full scale.

Additional Discussion Points: The issue of sludge by-product was discussed throughout. Ecology noted that on the east coast the alum could be put into the soil due to its composition. That solution, however, is not workable for soil composition in our region. City of Spokane noted it's using bio solids disposal for the alum. The only other option is to transport it to a hazardous waste site, which is quite costly.

EPA noted that it's working on draft permits for Idaho dischargers. March or April is the current target for release of draft permits.

NPDES: Schedule for when offsets should be modeled

Dave Moore walked participants through Gant chart for DO TMDL Implementation Activities. Discussion points:

- Milestones are not shown for the county to start meeting limits because they need to be, and are, in compliance from day 1.
- All dischargers except for Kaiser have until 2017 to meet limits. Kaiser has to have technology in by 2016 3rd quarter.
- The milestones should be thought of completion deadlines. As such, anyone needing to use item from tool box discussed earlier will need to start early enough to receive approval and have it memorialized in the permit by the milestone.
- Once Idaho gets their permits, they will be overlaid on this chart to see how they fit.
- Non-point source activities not shown. How and what to show will is a subject for further discussion.
- More detailed timelines, by activity, will emerge as different processes and activities launch.

Reclaimed Water Rule Update -

Lucy Peterschmidt from Ecology provided an update. The reclaimed water rule-making was suspended thru 2012 by Governor Gregoire. The Senior consultant working on the rule-making on the west side was not replaced. Lucy is your point of contact. Washington dischargers considering use of reclaimed water must continue to operate under 1997 standards.

Permit holders noted that a number of them spent a lot of time on the rule-making and consider very close to complete. There hope is that it will be finished. While Ecology staff agree in principle, no assurance of that outcome can be given.

There is a "purple document" that is the technical basis for the rule. While quite helpful, it's not of much use without the rule-making to go with it.

Nonpoint Source Summaries

PowerPoint presentations on TMDL and non-point source activities were given by Elaine Snouwaert from Ecology on Hangman Creek, Jon Jones from Ecology on Little Spokane and Walt Edlen from Spokane Conservation District regarding their efforts in both areas. PowerPoints are on-line.

All presentations showed the many activities being engaged in, particularly with farmers. These are voluntary programs because enforcement is very difficult except for the most egregious cases. In almost all instances, there needs to be a value proposition for the farmer to participate. Direct seed is

a good example. The benefits for NPS are clear and farmers like the result from a crop perspective. However, there is a very significant capital cost to switch from open till to direct seed.

All agree NPS trading has potential, but there are a number of challenges. Beyond cost, there is also a time lag, e.g.—it takes time for practices like restoring riparian areas to provide the benefit. Further, the modeling and monitoring required to validate the value of an NPS reduction is also significant. All parties agree that tracking in NPS reductions predicted in the current model is critical.

Avista / Long Lake DO Attainment Efforts –

Meghan Lunney summarized Avista's Dissolved Oxygen Water Quality Attainment Plan (DO WQAP) and is evaluating seven reasonable and feasible mitigation measures which could reduce non-point source loading of phosphorus around Lake Spokane. The evaluation includes determining the phosphorus load and potential load reduction associated with each of the seven potential mitigation measures. The DO WQAP is required by their Washington 401 Certification and FERC license. The DO WQAP is due to Ecology in May of 2012, and to FERC within 30 days of Ecology's approval, or by September 1, 2012, whichever is earlier.

Potential Reasonable and Feasible Mitigation Measures (not in order of priority):

1. Aquatic weed control. There are 600-700 acres of aquatic weeds in Lake Spokane. Two of the invasive weed species, water lilies and yellow floating heart, may be targeted for harvesting before they die and release phosphorus back into the water column and consume oxygen during the plants decomposition.
2. Wetlands. Acquire, restore, and/or enhance approximately 42 acres of wetlands downstream of Nine Mile Dam, preferably along Lake Spokane or potentially install a 300 – 500 foot riparian buffer to prevent agricultural loading into the lake. Both are contingent on acquiring property or property rights and willing landowners.
3. Work with Lake Spokane shoreline residents to reduce the size of their lawns and put in native vegetation buffers to reduce nutrient rich runoff from entering the lake.
4. Retain 14 miles of Avista-owned shoreline as conservation lands, preventing future development on its property.
5. Lease DNR land located adjacent to the DNR campground for open space; the land is currently leased for cattle grazing.
6. Work with Conservation Districts, Ecology and others to improve education and efficiencies of septic tanks along Lake Spokane. Currently working with Stevens County Conservation District which received a grant to assess whether septic tanks are leaching into Lake Spokane. The district will be using a fluorometer with a sensor that measures for the presence of optical brighteners, which are laundry detergent additives. Avista and the Conservation District will also obtain satellite imagery from Blue Water Satellite to access lake wide concentrations of phosphorus. Satellite imagery dates will coincide with the water quality monitoring dates.
7. Potential carp reduction - In July of 2010, there was a carp die-off in Lake Spokane. The die-off revealed a large population of carp in Lake Spokane (about 125,000 as estimated by WDFW). Carp affect water quality as they are an invasive species, their rooting activities often re-suspend sediment, and they have a large biomass factor. Avista will evaluate whether reducing their population significantly reduces phosphorus loading to the lake.

In addition, Ecology and Avista completed nutrient monitoring in Lake Spokane during 2010 and 2011 at six lake stations. Avista will continue the Lake Spokane nutrient monitoring from May through October in 2012. Ecology has posted the results of the nutrient monitoring from 2010 and 2011 in its EIM database, which is available to the general public, just search for Lake Spokane in the EIM subject line.

Meghan also mentioned that Galen Buterbaugh, technical representative of the Lake Spokane Association, has been working with Ecology to monitor and sample blue-green algae blooms that occur in Lake Spokane. Samples, if collected, are submitted through Ecology's Freshwater Algae Program. Results of the sampling are available through Ecology's Freshwater Algae website.

Speed Fitzhugh, Avista, added that through one of their FERC License wetland conditions Avista has acquired approximately 360 acres in Upper Hangman Creek on the Coeur d'Alene Reservation. This land will be taken out of agricultural use and restored to wetlands (riparian and upland habitat). Avista will continue to look for opportunities to acquire land along Hangman Creek, to remove it from agriculture use which will improve water quality.

Charlie Kessler with Stevens County Conservation District and Galen Buterbaugh with Lake Spokane Association also noted continuing education and outreach efforts with Lake Spokane shoreline residents, Lake Spokane schools, and the Lake Spokane Association. For instance, reduction of fertilizers and sampling of algae blooms.

County NPS study

Ben Brattebo reported the County completed the bi-state 2007 – 2011 non-point (NPS) phosphorus study. Hard copies of the NPS phosphorus reduction plan are available from Ben, and the study is available via the county web site: http://www.spokanecounty.org/WQMP/content.aspx?c=1810

The four year study used modeling to identify non-point source loading upstream of Long Lake Dam, including Idaho and upstream of Lake Coeur d'Alene Spokane into Idaho and CDA. It was a large study area with specific prioritized areas including: Hangman Creek, Little Spokane, Lower Spokane, with higher priority near Lake Spokane. The study showed that virtually every major lake in the Spokane River watershed WA is impaired for phosphorus. There is no single source that is dramatically higher than another, it's everywhere. Therefore, a number of opportunities exist for throughout the watershed. The study compiled 100 BMPs, which were narrowed to 22 categorized by land use.

An additional focused task was added at the end of the study to examine septic system loading from area chosen was Suncrest. Results showed a possible contribution of 1.5 lbs. /day to Lake Spokane. Septics tanks can be failing, but with the highly transmissive nature of the soil (sandy/gravel) makes it hard to detect and even properly functioning systems can result in high rates of phosphorus loading to the lake. Residents don't see a problem, so therefore resist the idea there is a problem. Finding a way to better engineer a drain field is needed, but is also costly. Due to degradation of septic systems, if no additional action taken is taken loading could increase to 10/lbs. day in forty years. One solution may be to collect wastewater in the area in a sewer system for treatment.

The study also noted a lack of lack of information available on nonpoint source reduction activities that have been completed or are planned. The final study task created a framework to track nonpoint source reduction activities in the watershed.

Discussion noted that Northeast Tri County Health District is responsible for onsite septic systems in Stevens County. The Stevens has purchased land for the future possibility of a wastewater treatment facility. With the support of the PUD, the Conservation District has applied for an Ecology grant to work with USGS to obtain groundwater flow data to determine if the septic systems are indeed affecting the lake.

Next Steps

Two workgroups will be formed. The first will be called “DO TMDL Tool Box.” They will meet to prioritize which tools to work on, identify modeling, sampling or research needs, preliminary schedule of action, and consider how related costs will be handled.

The second workgroup will be called “Monitoring, Accounting and Tracking.” Who is monitoring what, data gaps that may need to be filled, collection and validation of data from different sources, etc. The end result is to determine if the system as a whole will meet standards over time.

Next advisory meeting will be held in May or June based on outcomes of workgroup activities.