

Spokane River TMDL Collaboration

Full Group Meeting

September 28, 2005, 9:00a.m.-2:00 p.m.

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

Full Group Attendees

Chris Butler, Spokane Tribe of Indians
Dick Denenny, City of Spokane Valley
Tony Delgado, Stevens County
Tom Eaton, US EPA-Region 10
Rick Eichsteadt, Sierra Club
Wayne Frost, Inland Empire Paper
Bob Steed, ID Dept. of Environmental Quality (for Gwen Fransen)
Paul Klatt, Hayden Area Regional Sewer Board (for Jim Kimball)
Hank Nelson, Avista (for Bruce Howard)
Jack Lynch, City of Spokane
Rene Marc-Mangin, WA Dept. of Ecology-ERO
Todd Mielke, Spokane County Commissioner
Dave Peeler, WA Dept. of Ecology-Olympia
Mike Petersen, The Lands Council

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 to review the day's agenda. The Workgroup Co-Chairs will review the materials submitted for the information roll-up. The Full Group will then discuss the options for scenario development and the schedule and framework for the Full Group consideration of scenarios. The Full Group will also receive an update on the status of the Monitoring Workgroup and discuss questions for TMDL model runs.

Co-Chairs Todd Mielke and Dave Peeler thanked everyone for attending the meeting. Both Co-Chairs acknowledged that the Workgroups have gathered a lot of information and that the Full Group now has the challenge of determining how this information can be used to move towards a TMDL Implementation Plan.

Status Reports and Discussion of the Workgroups' Progress, Based on the Material Submitted for the Full Group Meeting

Bill Ross explained that the cover memorandum to the Workgroup roll-up materials distributed earlier in the week provided notes on how the roll-up information was assembled and listed the assumptions that were made in this process. The development of the Full Matrix was a conclusionary exercise

based, in large part, on best professional judgment. In some instances, the information received from the Workgroups was fairly detailed; in other instances, the information was not as detailed. The Full Matrix does not necessarily summarize the complete extent of Workgroup efforts, and some underlying details were left to the Workgroup memoranda and data tables. Furthermore, the Full Group should not assume that these materials represent a consensus of each Workgroup member for each reduction opportunity, but rather provide a snapshot of Workgroup progress to date. The Workgroup Co-Chairs will report on the current status of each Workgroup and on any items from their deliberations that remain to be determined.

The Full Matrix and all Workgroup materials are available on the Spokane River TMDL Collaboration website (<http://client-ross.com/spokane-river>).

Flows & Loadings Workgroup

Co-Chairs Bruce Rawls and Richard Koch reported on the status of the Flows & Loadings Workgroup. Mr. Rawls described the contents of the Flows & Loadings Workgroup submittal (Appendix A) as a memorandum and a series of updated flows and loadings spreadsheets. The Flows & Loadings Full Matrix sheet is a summary of this most recent data. The projected flows for the City of Spokane now account for City service provided to Fairchild AFB. Projected flows for the City of Spokane do not include contributions from Airway Heights or the City of Spokane Valley. Projected flows for each municipal discharger do not account for indoor conservation efforts, which have been left for the Re-Use & Conservation Workgroup to describe. Mr. Rawls made a correction to the footnote at the bottom of the Full Matrix Flows & Loadings sheet stating that the flow projections did not account for the affect on potential flows resulting from combined sewer overflow (CSO). In fact, these projected flows do account for CSO, where applicable.

Mr. Rawls reported that the Flows & Loadings Workgroup Aeration Memorandum will be available in the near future. The memorandum addresses the possibility of aeration in the hypolimnion and metalimnion of Lake Spokane, as well as the possibility that downstream dissolved oxygen (DO) levels may be affected by reductions in sediment oxygen demand (SOD). The Workgroup recommends a study to determine the role of SOD within the Lake and River systems. The Workgroup recommends that aeration be considered as an option as other elements of a TMDL Implementation Plan are monitored and their effect on DO levels within Lake Spokane and downstream are determined.

Co-Chair Richard Koch described the Workgroup's research of a ban on phosphorous in dishwashing detergents. According to the Workgroup's assessment, a regional ban would have a positive impact on overall phosphorous levels in the Spokane River, even as the primary means of phosphorous removal would continue to come through filtration and treatment. A ban and public education could comprise the preliminary efforts towards a regional ban. Mr. Rawls added that a ban on phosphorous dishwashing detergent has potential to remove up to 10% of phosphorous entering the Spokane River through the Rathdrum Prairie Aquifer via septic tank discharge.

Todd Mielke asked if the Workgroup has made any more progress in gathering data on septic tank activity in Kootenai County. Mr. Rawls responded that the Panhandle Health District is currently estimating the number of septic tanks over the aquifer as well as the number of septic tanks not directly over the aquifer, but flowing into it.

Rick Eichsteadt asked if the Flows & Loadings Workgroup addressed commercial detergents in their study. Mr. Koch replied that the Workgroup did look at specific commercial activities, such as the tourism and hospitality business West Coast Entertainment, which uses nil phosphorous detergent.

The Workgroup assumes that many commercial operations follow this example, where the national scope of distribution determines that nil phosphorous detergents are utilized to comply with the many bans nationwide. Mr. Rawls noted that some commercial sources are resistant to providing this information and that most commercial laundries have sewer hook-ups, rather than using septic tanks or drain fields. Furthermore, most phosphorous detergent bans across the country have exempted commercial sources.

Rick Eichsteadt asked if the Workgroup has any recommendations or next steps for SOD monitoring. Mr. Rawls explained that the next step is to gather more data to describe SOD, as more phosphorous may be released from sediment than the model currently predicts. Following this data-gathering effort, the cost-effectiveness of aeration in the reservoir would be explored. This assessment will need to be performed at several points along an Implementation Plan schedule.

Full Group members had several questions about what factors influenced changes to projected flows for the City of Spokane and Spokane County over time. There was some discussion about the City of Spokane's projections with respect to CSO and changing regional service over time. Mr. Rawls explained that individual dischargers were separated in the Flows & Loadings Workgroup projections to avoid confusion and double-counting. The City of Spokane's estimated flows are influenced by predictions of when changes in CSO and regional service will be made, but several Full Group members did not follow how the numbers were calculated. The Full Group requests that the City report back its findings on the intervals and explanations of flows for the City of Spokane.

Technology Workgroup

Co-Chair Lars Hendron provided an update on the status of the Technology Workgroup. Since the August 24 Full Group meeting, the Technology Workgroup attended two pilot demonstrations, including those at the Hayden, ID treatment facility and the City of Spokane's Riverside Park Water Reclamation Facility (RPWRF). The Blue Water technology piloted by Hayden, ID will not be considered by the Technology Workgroup due to issues around scalability. The City of Spokane's pilots at the Riverside Park Water Reclamation Facility (RPWRF) are yielding some promising results. The now complete Dynasand technology pilot achieved effluent phosphorous concentrations of 15-36 µg/L. The Workgroup determined that the operational cost and scalability of the Dynasand technology will require further evaluation as these results were achieved using very small flows with precise control over chemical treatment. The US Filter Trident pilot is on a larger scale than Dynasand and producing effluent phosphorous concentrations of 10-20 µg/L. US Filter may also run their "HS" unit in front of the Trident system to try to achieve better operational results. The Zenon technology pilot has just begun to run flows. Kruger will also likely pilot its technology, but would require a filtration technology added to the end of the process. The City of Spokane hopes to schedule Kruger's pilot while the Zenon technology is still active.

Mr. Hendron announced that the Technology Workgroup agreed to revise the memorandum distributed for the information roll-up, which states a performance recommendation of 50 µg/L. This revised memorandum will be distributed to the Full Group after it is reviewed by the Technology Workgroup. The Technology Full Matrix sheet for displays pounds of phosphorous removed by individual dischargers through 2028. Estimated reductions are based on each discharger's projected flows & loadings within a 10 and 50 µg/L range of technology performance. Appendix B contains a memorandum and summary data from the Technology Workgroup.

The Technology Workgroup narrowed the focus of their data organization and analysis to highlight facilities from their nationwide survey that exhibited the best phosphorous reduction performance in a

range of flow volumes, from small to large. In general, the Workgroup found differences in performance between the non-municipal and municipal treatment facilities, suggesting different influent qualities and/or flow rates. The Workgroup found that one quarter of the plans surveyed were operating between 10-30 $\mu\text{g/L}$. The Workgroup is not certain why over half of the plants are operating at or above 70 $\mu\text{g/L}$. In general, the smaller plants achieved lower effluent concentrations. Dave Peeler asked that the Workgroup provide the box plot charts from their presentation, displaying facility flow as well as facility performance, to a revised version of the Workgroup's information roll-up submittal. At John Spencer's request, the Technology Full Matrix will also be updated to include a sheet that displays pounds discharged rather than pounds removed.

John Spencer commented that larger plants, such as the treatment facilities Upper Occoquan, are able to achieve performance averages of well below 50 $\mu\text{g/L}$. These facilities do have a permit level for phosphorous and may be representative of what the application of technology will accomplish. Rick Eichsteadt asked whether the Technology Workgroup gathered DMR data for smaller plants such as those at Stamford and Walton and whether the next step for the Workgroup was to assess scalability. Mr. Hendron replied that the Workgroup is considering scalability in terms of how performance may be reflected in larger flows, as well as the construction footprint due to anticipated flows. The Workgroup has exhausted its statistical efforts and is now focusing on those facilities with the most promising performance results. There are a handful of facilities for which the Workgroup has additional information to gather, at which point a thorough technical evaluation will need to take place to determine what factors influence their ability to achieve such performances for phosphorous reduction. Workgroup member Richard Koch responded that the Workgroup is gathering DMR data for each of the facilities, as available from an EPA website. Tim Connor asked what the vendors of the technologies achieving lower average concentrations are saying about their experience at larger plants. Mr. Hendron replied that those who are running the pilots are not necessarily familiar with their other installations. Variability in performance can be affected by the concentration of influent, variability in flow, the mix of discharges, etc. Paul Klatt asked if the Technology Workgroup has made any attempt to distinguish the total capacity of these plants from their current operating capacity. Jack Lynch added that scalability in terms of incremental cost is an important consideration in the selection of filtration technology. Mr. Hendron replied that the Workgroup identified total capacity as a key factor in their next round of information gathering.

Full Group members agreed that the Technology Workgroup should drill down into the handful of facilities with the most promising performance results. The Technology Workgroup was asked to consider factors related to performance, including scalability (including vendor feedback), design size and design life, permit limits and/or receiving water constraints; and operating costs and/or other issues applicable to the Spokane River dischargers.

Inland Empire Paper Company Technology Pilot

Doug Krapas presented a summary of the results from the Inland Empire Paper Company's (IEP) recent technology pilot. In this most recent pilot, the Parkson, US Filter, and Zenon technologies were tested concurrently to achieve lowest total phosphorous possible. Two of the four technologies (US Filter and Zenon) were able to achieve consistent average total phosphorous operation between 50 and 100 $\mu\text{g/L}$, but at a significant cost. Kruger's technology was also tested at a bench scale, with similar results. IEP reported that an average of 300-400ppm of chemical coagulant, plus polymers and acid were necessary to obtain this low level of total phosphorous. This level of chemical treatment would demand 1200-1600 gallons of chemical per day for full-scale operation and create a significant amount of chemical sludge that would need to be treated and/or disposed of. In addition, there are questions of whether excess soluble metal ions in IEP's effluent would have any

adverse effects in the River, and how the pH of effluent would be brought back up to counter the acids used during treatment. Mr. Krapas did point to one potential benefit to the River, however, as these filtration technologies produced reductions in BOD of 50-60%.

In this pilot, different chemicals were tested and evaluated for performance, with laboratory testing of the resulting effluent performed by IEP, Ecology, and an independent laboratory. The coagulant feed removed approximately 80% of total phosphorous as the chemical concentration reached 150ppm, with diminishing returns in total phosphorous reduction as more chemical was added. Mr. Krapas raised the question of what the technology suppliers would be willing to guarantee in terms of performance. In addition, there was concern about the reliability of measurement at the low level of detection required, as several samples produced very different results from the three laboratories. In light of the mixed test results and heavy dependence upon chemical treatment, Mr. Krapas identified the need for the IEP facility to obtain reliable on-line measurement for control and compliance purposes.

Mr. Krapas' full presentation is posted to the Collaboration website. IEP will produce a write-up of the pilot results in the near future.

Re-Use & Conservation Workgroup

Co-Chair Lloyd Brewer provided an update on the status of the Re-Use & Conservation Workgroup. Separate sheets of the Full Matrix display summaries of Re-Use and Conservation opportunities. Appendix C contains narrative descriptions from the City of Spokane, Spokane County, and Liberty Lake, as well as a full listing of re-use opportunities identified by the Workgroup within the concentric rings around each treatment plant. Mr. Brewer explained that selective re-use opportunities were identified by dischargers, but there was an overall reluctance to make stronger commitments to reuse until potential treatment performance and other uncertainties are resolved. Most Workgroup participants viewed the full list of identified opportunities as options that could technically be implemented, but they had questions about the costs and feasibility of these opportunities. Idaho dischargers did not offer a list of opportunities at the time of the roll-up submittal, but are expected to commit to some level of reuse as they determine the feasibility of land application. The Workgroup identified ranges of indoor conservation for some of the dischargers, but again were not certain how these reductions in residential water use would be achieved and what they may cost. Some Workgroup members expressed that their reluctance to commit to re-use and conservation was driven by a belief that reduction opportunities would be more effective per cost in non-point source controls.

Mr. Brewer explained that it could take approximately ten years to get the appropriate level of treatment in place before the City's effluent is ready for large scale re-use. However, pilot projects could be implemented along a shorter timeframe. The level of treatment for re-use, as determined by the Washington State Department of Health, requires that viral and microbial contamination is removed to an acceptable level. Filtration may achieve these re-use water quality standards. Another outstanding technical question relates to the re-use of water over the aquifer and in wellhead protection zones. Implementation of re-use from the treatment plants will likely occur in spurs, due to the cost of infrastructure associated with moving the water. Not all opportunities within the concentric areas considered by the Workgroup would logically fit into one of these spurs. Jack Lynch commented that location is a very important consideration for the City of Spokane, which is not in the vicinity of many large re-use opportunities. Mike Petersen commented that industrial re-use opportunities appear to be lacking from the Workgroup's list and that since irrigation re-use peaks in July with less demand in April, May and, October, year-round industrial re-use could be a more

effective means of phosphorous removal. Mr. Brewer replied that Spokane County has identified several industrial opportunities, but that the quantity of opportunities is low.

Rick Eichsteadt asked if the Workgroup addressed the impacts of outdoor conservation measures. Mr. Brewer replied that while outdoor conservation is generally less expensive with greater results, the opportunities identified by the Workgroup related to the reduction of phosphorous in treatment plant influent. The Non-Point Source workgroup was tasked with assessing the impact of outdoor conservation measures with water purveyors; while difficult to quantify, River flow could potentially be increased by conservation to offset overall phosphorous loading to the River.

Todd Mielke commented that the primary objective of this exercise is to determine how much phosphorous could be removed through various re-use and conservation measures. This information will help with the prioritization of resources to implement reductions. The community faces a challenge in understanding the sanitary nature of reuse and the fact that treated effluent may be cleaner than water directly from the Spokane River. Pilots will be helpful to convey this message, but a community-wide effort will be required in order for re-use to be successful. Dave Peeler agreed that there is an essential public education element to successful re-use development, as has been the case across the State. Mr. Peeler also agreed that it is too soon in the process to make decisions about the costs and benefits of the various approaches, especially within each separate Workgroup.

The Full Group has identified no additional work for the Re-Use & Conservation Workgroup to perform.

Non-Point Source Workgroup

Co-Chairs Neil Kersten and Dave Knight provided an update on the status of the Non-Point Source Workgroup. The Non-Point Source Full Matrix sheet displays a summary of pounds removed from the various non-point sources. Appendix D contains a cover letter and memorandum from the Workgroup, along with a detailed description of each of the non-point source areas. Mr. Kersten explained that the Non-Point Source Workgroup approached their tasks differently than the other Workgroups in that they assigned champions to investigate and report on specific non-point source areas.

The most potential for removal of phosphorous was found in the Hangman Creek and Little Spokane River tributaries. The Little Spokane River is currently under a TMDL process, to be completed by the end of 2006. The Non-Point Source Workgroup revised the current load associated with Hangman Creek as 2001, the year of flow data used for the draft TMDL, was a low-flow year. Instead, the Workgroup relied on a fifty year average flow from data provided by the Conservation District, believing that it more accurately accounted for the possibility of large episodic storm events that could bring significant sediment loads to the Spokane River and Lake Spokane system. Rick Eichsteadt asked if using higher flow data for Hangman Creek alone could then throw off the other non-point source estimates and if the nature of interaction between the elements of the model is known. Mike Petersen commented that there are different flow averages for the different tributaries, and that 2001 data was not used for each element of the TMDL. Dave Peeler commented that this is an important piece of information for the modelers to consider. The model could be asked what an episodic event in Hangman Creek means for levels of phosphorous in Lake Spokane. Another question for the model could be whether using a higher flow in Hangman Creek affects other model elements. Tom Eaton asked what plans, programs, and policies will be needed to remove phosphorous from the Little Spokane River and Hangman Creek. Walt Edelen replied that Hangman Creek's control activities

would be largely centered on agricultural best management practices, whereas the Little Spokane River's control would address more residential activities, with some livestock controls.

The Full Group has not asked the Non-Point Source Workgroup to complete any further work at this time, but may have additional assignments for the Workgroup in the future.

Discussion of Options for Scenario Development & Framework and Schedule for Scenarios

Bill Ross described the notion of scenarios as having different parties propose what they consider the right mix of reduction elements to comprise a framework for a TMDL Implementation Plan, including timeframes for evaluation. The Workgroups have discussed areas for additional research, some of which could be done more immediately, while other research tasks will require more time to complete. In addition, the monitoring element of an Implementation Plan continues to be developed by the Monitoring Workgroup and will be added at a later point. The question posed to the Full Group at this time is whether we are now ready to develop and consider scenarios of what a TMDL Implementation Plan could look like, even as there are outstanding elements that remain to be addressed. The Steering Workgroup indicated at their meeting on September 23 that the Collaboration process is ready to develop scenarios, but they were also interested in what Ecology feels these scenarios should entail.

Dave Peeler presented the Ecology concept for scenarios as a description of a suite of actions that constitute genuine, good-faith and achievable efforts to reach a phosphorous removal target. The phosphorous removal target for this TMDL is not known at this point, but a series of actions and commitments, combined with a schedule for determining the status of the Spokane River and the effect of these actions on water quality can produce an agreement for a TMDL Implementation Plan. Mr. Peeler expressed that Ecology is committed to thoroughly reviewing these scenarios and working collaboratively to choose the best balance of opportunity, cost, and risk for the Spokane River and the regional community.

Todd Mielke commented that the Full Group could spend more time gathering data, but is not certain this would provide more clarity for the purposes of moving forward on an agreement. The discharger community will need to initiate a discussion amongst themselves to bring forward a scenario. At the October 28 Full Group meeting draft scenarios could be shared, with each category of reductions addressed in detail, including how they could be implemented. Mr. Mielke anticipates that the dischargers' proposal will have significant detail but that the first drafts of scenarios will not necessarily garner absolute consensus. Therefore, at subsequent meetings of the Full Group the details of each category may need to be discussed and then adjusted in order to develop a TMDL Implementation Plan that all parties could agree to.

Rick Eichsteadt indicated that the Sierra Club will also develop a scenario. The Sierra Club developed a Summary Implementation Strategy for the draft TMDL in July 2004 and plan to build off of the suite of options described therein as influenced by what has been learned in the Collaboration, including a discussion of adaptive management. Mr. Eichsteadt commented that there are also TMDLs for ammonia and BOD on the Spokane River, and that they expect a PCB TMDL in the future. Mr. Eichsteadt posed the question of whether proposed technology can also deal with these items' costs and requirements. By thinking about these additional regulations now, the region can avoid additional processes. Mr. Eichsteadt also commented that a check-in schedule harmonized with the five-year NPDES permit cycle makes sense. Another element of the scenario should address consequences for commitments that are not met, for both short-term and long-term actions.

Full Group members discussed the form an agreement for a TMDL Implementation Plan could take. Dave Peeler commented that he felt some sort of an agreement should be made, but was not certain how many documents this would represent. In his opinion, a regional agreement signed by all parties would be best to ensure accountability to this process. Mike Petersen commented that there may be examples of watershed agreements that could be emulated by the Collaboration. Bruce Rawls and Tom Eaton both suggested that the previous phosphorous agreement from 1989 be reviewed to determine what worked well and what details could be added. The 1989 agreement described goals and objectives for phosphorous reductions with thresholds that triggered specific activities. A phosphorous technical advisory committee met quarterly to monitor the River and make recommendations for actions. Jack Lynch asked how an agreement would include Idaho dischargers. Dave Peeler replied that in order to address this question, we will first need to review scenarios to determine that a basic level of agreement can be met.

The Full Group determined they were ready to consider scenarios. Bill Ross explained that a brief guidance document, the draft Framework for the Development of Scenarios, had been developed with the Steering Workgroup. Full Group members that intend to develop scenarios should refer to this document (available on the Collaboration website), for guidance on scenario content and the process for scenario submission. The Framework sets a deadline of close of business October 24 for the submittal of scenarios; no consistent format is required. Those Full Group members who intend to develop scenarios should contact Mr. Ross within a week. The Full Group expects to have at least two scenarios to consider at their October 28 meeting, each with different strengths and levels of detail, and will not consider additional scenarios after this review. Ecology has agreed to be available for consultation with those Full Group members who intend to develop scenarios. These consultations do not amount to negotiations with Ecology, but are rather for Ecology to provide initial feedback about the relative weight of scenario elements and level of commitment.

Mr. Ross reminded the Full Group that they will not have a complete cost-benefit analysis at its disposal in the next month but that the Collaboration can still move forward even as the distribution of costs is not yet determined. However, as ideas come forward about what a draft TMDL Implementation Plan could look like, a sense of commitment from the dischargers will be important. The target range will become clearer as model runs, new data, and reduction activities are implemented. Over time the Collaboration may change its approach, but relative to a baseline of commitment. Within a year, completed technology pilots and additional studies will provide a better idea of overall costs.

Todd Mielke asked how the Collaboration will measure reasonable assurance as it is comparing and potentially merging scenario elements, given the need for a nexus with one's ability to deliver on commitments. Mr. Ross replied that the dischargers will need to convene to negotiate among themselves what can be reasonably assured and how risk will be shared and anticipates that the Sierra Club will put forward more aggregate recommendations. In submitting a scenario, the Sierra Club has the challenge of making appropriate recommendations with respect to costs and allocation of responsibility across the different dischargers.

Discussion of Monitoring Workgroup Status & Charter

All nominees have agreed to participate in a Monitoring Workgroup and will convene their first meeting in the next few weeks. The Steering Workgroup approved a draft Monitoring Workgroup Charter to guide these discussions and recommendations. It is anticipated that the Monitoring Workgroup will meet approximately three times. Bruce Rawls suggested that since Avista has agreed to a water quality monitoring component in their recent license application, that they also participate in the Monitoring Workgroup. Hank Nelson agreed to participate for Avista.

The draft Monitoring Workgroup Charter can be found on the Collaboration website.

Questions for TMDL Model Runs

Dave Peeler presented four key questions relating to the TMDL model identified throughout the Collaboration process. In order of timing to evaluate, the question topics are as follows: river flow augmentation scenarios, variability of phosphorous inputs during the critical season, non-point source pollution inputs from Hangman Creek, and sediment oxygen demand sensitivity analysis. The Full Group discussed the interrelationship of the questions and protocols necessary to move questions forward to provide critical feedback to the Collaboration process.

Jack Lynch asked if the Little Spokane River should also be included in the question addressing Hangman Creek. Mr. Peeler responded that the model uses a low-level constant run from both Hangman Creek and the Little Spokane River, but the Little Spokane River does not have the same episodic sediment events as Hangman Creek.

John Spencer provided an amendment to the question addressing the variability of phosphorous inputs during the critical season: If a pound is removed during the critical season, does this contribute more value in terms of estimating algae growth in Lake Spokane?

Todd Mielke asked if there is a difference in impact to Lake Spokane between the Little Spokane River and Hangman Creek. Mr. Peeler replied that this is a simpler question that Ecology has likely already addressed. This relationship could be the case for any source, whether a non-point source or a point source.

The Full Group agreed that sharpening the questions for modelers is a good next step. Bill Ross proposed that any feedback on the model questions should be sent to Dave Peeler within a week's time and that Dave will then release the revised question to the Full Group and the modelers for a final, "fatal flaw" review.

The Modeling Questions are posted on the Collaboration website.

Next Steps & Future Schedule

The Full Group briefly discussed what steps would follow an October 28th Full Group meeting. The pace at which the Full Group meets could accelerate to capture the momentum generated by the proposal of scenarios. Of course, this schedule assumes that the Full Group is on the path to providing reasonable assurance. Todd Mielke expressed a hope to be finished with the Collaboration process by end of the year, if possible. Mr. Mielke suggests that the Full Group meet every other week after October 28th to convene three meetings before the holiday season. Ross & Associates will survey the Full Group Co-Chairs' schedules to determine future meeting dates and send confirmation of dates to the Full Group.

Tom Eaton suggested that after the first of the year the Collaboration organize a plant tour from the small list of plants that demonstrate the best performance among the various technologies evaluated by the Technology Workgroup.

The session concluded at approximately 2:00pm.