

Johnson, Bill H (DNR)

From: Fred Marinelli <[REDACTED]>
Sent: Saturday, July 21, 2012 5:34 PM
To: Tina Pint ([REDACTED]); Cory D. Anderson; Peter Hinck ([REDACTED])
Cc: Al Trippel; Carlson, Erik (DNR); David Blaha; Houston Kempton; Paul Haby; Fred Marinelli
Subject: Task 2 QA

Tina, Peter, and Cory:

I was not able to call on Friday due to an unexpected company matter. So I'm writing over the weekend to help get the ball rolling on Monday morning. The QA workplan (dated May 2, 2012) set forth a starting point for the Task 2 evaluation as described in the following text:

The starting point for this process is a detailed flow chart showing the model components and flow pathways between these components. General flow charts are provided in the Mine Site and Plant Site work plans. ERM will request that these general charts be expanded to provide more details regarding the model components and flow routing between components. The next step will be for the ERM to identify discrete points on the flow chart at which flows, concentrations, and/or storage amounts are to be evaluated. In this work plan, each of these is referred to as a Calculation Point (CP). The CPs will generally be associated with major mine facilities, on flow lines between facilities, and on flow lines between facilities and natural hydrologic features within the receiving environment (e.g., perennial streams). ERM will choose a sufficient number of CPs to provide an adequate sampling of the modeled system, but also limit the total number of CPs to provide efficiency in the Task 2 review.

After the CPs are identified, the GoldSim model will be modified by Barr to generate tabulated data files for each CP on a time step by time step basis. EXCEL spreadsheets are a convenient format for these data files, but other file structures may be agreed upon. For CPs on flow lines, the model output will be flow rates and chemical concentrations. For CPs associated with mine facilities, the model output will generally be stored water volume and chemical mass. The model output will be structured to report chemical concentrations and stored masses for any user-selected chemical constituent. The actual constituents evaluated during Task 2 will be determined by the Co-lead Agencies and communicated to Barr.

Barr provided the flow charts and detailed model documentation as requested. Also provided were a series of spreadsheets with model results. To expedite the QA process, identification of Calculation Points and development of associated spreadsheets were not requested as it was hoped that the ERM team could conduct the GoldSim QA with the materials at hand. However, after nearly a week of work, it has become apparent that the QA evaluation process is not proceeding in an efficient manner. This is caused by the extensive time for "diving" into the model and identifying the variables of interest. While these variables might be apparent to the model developer, it is difficult and time consuming for a non-developer to find them within the model code.

Given the current situation, I have called a “time out” and am recommending to ERM that we return to the original Work Plan and follow the process described in that document. This involves identification of Calculation Points on the flow charts and having Barr modify the GoldSim model to generate spreadsheets that provided time step by time step values for these points. In most cases, the values will be flow rates, chemical concentrations, water volumes, and/or stored chemical masses.

I recommend a call as soon as possible on Monday to discuss the structure of the output spreadsheets and identify perhaps six initial calculation points to use as starting point. We would then ask Barr to perform the programming to output time-step values associated with the calculation points. After review and refinement of spreadsheets based on these initial parameters, we will then mutually identify additional calculation points to added into the final spreadsheets. It is my expectation that the total number of calculation points for each site model will be about thirty. Once the initial programming is performed, I expect that adding new calculation points will be a fairly straightforward exercise. I am available to travel to St. Paul any time next week to work with Barr if this will expedite the process.

I want to emphasize that this request does not come from any concerns regarding the model functionality or lack of documentation. It is driven solely by the need to improve the efficiency of the Task 2 QA process.

Regards,

Fred Marinelli

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