

## Johnson, Bill H (DNR)

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**From:** Peter J. Hinck <[REDACTED]>  
**Sent:** Sunday, December 18, 2011 9:58 PM  
**To:** Arkley, Stuart (DNR); Liljegren, Michael W (DNR); Carlson, Erik (DNR)  
**Cc:** John Borovsky; Tina Pint; Greg Williams  
**Subject:** RE: Co-lead review of Barr mine site QAPP document

Stuart and Mike,

Tina asked me to pass along some of my big-picture comments on the GoldSim model evaluation plans. These are primarily just to clarify what can and can't be done in the current modeling construct.

- 1) Requests for specific outputs are very helpful as we build the model to ensure that we are collecting the desired information (ex. "The GoldSim model will be set to write parameter values to a Microsoft Excel spreadsheet..."). If these desired outputs are tabulated we will be less likely to overlook some of them.
- 2) GoldSim has three primary modes for running simulations:
  - a. Probabilistic (Monte Carlo) simulation: this will be the primary simulation mode for producing model results (can be run from GoldSim Player)
  - b. Deterministic simulation: all inputs set to their mean or other specified input values (can be run from GoldSim Player if set up by model designer)
  - c. Sensitivity analysis: all inputs set to their deterministic values, with desired inputs varying one at a time (requires full GoldSim license)
- 3) Several of the model verification methods included statements like "Set concentration caps to deterministic values". Note that we can easily allow an all-deterministic simulation to be run from the GoldSim Player, but if the reviewers want to set individual parameters to deterministic (and allow the rest to run with uncertainty) we will need confirmation on the specific requirements so that we can build in the ability in the model.
- 4) Several of the model verification methods requested the ability to run a deterministic simulation while allowing several parameters to vary. This is similar to a sensitivity analysis, which can only be performed one parameter at a time in GoldSim. This mode also requires the full GoldSim license to perform. **I suggest that the reviewers contact the model developers at Barr (myself for starters) to clarify what abilities are requested and whether they are possible.**

Please feel free to contact me Monday (cell phone number below) if you need any clarification on this before your meeting.

Thanks,  
Peter

Peter J. Hinck

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**From:** Arkley, Stuart (DNR) [mailto: ]  
**Sent:** Friday, December 16, 2011 2:58 PM  
**To:** Tina Pint; John Borovsky  
**Cc:** Liljegren, Michael W (DNR); Carlson, Erik (DNR)  
**Subject:** RE: Co-lead review of Barr mine site QAPP document

Tina,  
After an internal discussion of the ERM document the DNR has determined that it needs to be redrafted to reflect the evolving concept of model preparation, execution and review. We DNR team will be conferring with ERM on Monday morning.

At this time it is not necessary for Barr to submit comments on the current draft, given that it will likely undergo some significant change. If there are some big picture concerns that you want the technical team to consider, please either forward them to me by Monday at 10 a.m. or alternatively discuss with Mike Liljegren, who will be able to represent those concerns during the meeting.

Thanks,  
Stuart

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**From:** Tina Pint [mailto: ]  
**Sent:** Thursday, December 15, 2011 1:32 PM  
**To:** Arkley, Stuart (DNR); John Borovsky  
**Cc:** Liljegren, Michael W (DNR)  
**Subject:** RE: Co-lead review of Barr mine site QAPP document

Stuart-  
Did I ever get back to you on this? If not, I apologize. Let us know when a call would work for you guys. Friday and Monday aren't ideal but we could probably make it work.

Tina

Tina Pint, PG

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**From:** Arkley, Stuart (DNR) [mailto: ]  
**Sent:** Wednesday, December 07, 2011 10:37 AM  
**To:** Tina Pint; John Borovsky  
**Cc:** Liljegren, Michael W (DNR)  
**Subject:** RE: Co-lead review of Barr mine site QAPP document

Tina,  
Thanks for the early feedback.

It would be best to schedule a conference call with Houston (plus Dave Blaha and Mike L) rather than wait for written comments, as we would like to have the plan in good shape (if not final, then at least reflecting what is possible within GoldSim) before giving a final approval on the modeling work plans. Please let me know when you will be ready for a call, and I will work with Mike to schedule.

Thanks,  
Stuart

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**From:** Tina Pint [mailto: ]  
**Sent:** Wednesday, December 07, 2011 10:24 AM  
**To:** Arkley, Stuart (DNR); John Borovsky  
**Cc:** Liljegren, Michael W (DNR)  
**Subject:** RE: Co-lead review of Barr mine site QAPP document

Stuart-  
We have not had a chance to fully review this document yet, but based on our preliminary review, there are some aspects of what Houston has proposed that will not be possible given constraints within GoldSim. I would recommend not finalizing this memo until we have been able to provide comments and potentially have discussions with Houston so we are all on the same page regarding what is and is not possible.

Thanks,  
Tina

Tina Pint, PG

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**From:** Arkley, Stuart (DNR) [mailto: ]  
**Sent:** Monday, November 28, 2011 9:07 AM  
**To:** Tina Pint; John Borovsky  
**Cc:** Liljegren, Michael W (DNR)  
**Subject:** Co-lead review of Barr mine site QAPP document

Tina, John –  
The co-lead agency small technical team for water modeling has looked at the mine site QAPP as requested by Barr and has developed some suggestions. This review had been completed before you left a voice message for me last week but we did not have sufficient time in the issues meeting to provide an update.

There are not many items to discuss so the plan is for Mike Liljegren to call Tina to communicate the suggestions. Tina, if this has not happened yet please feel free to call Mike.

The Barr plan has been forwarded to the ERM team (Blaha, Kempton, Marinelli) charged with developing a co-lead QA/QC plan. The ERM team had no comments on the Barr plan.

Stuart