

## Johnson, Bill H (DNR)

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**From:** Peter J. Hinck <[REDACTED]>  
**Sent:** Thursday, July 19, 2012 11:40 AM  
**To:** 'Fred Marinelli'  
**Cc:** Cory D. Anderson; Tina Pint; Al Trippel; Carlson, Erik (DNR); David Blaha; Houston Kempton; Paul Haby; John L. Adams; Jim Scott ([REDACTED])  
**Subject:** RE: Cat 1 stockpile pH

Fred,

Per your request below, the Mine Site model package has been updated and posted as "Version 1.1" on the [Project Water Model Results](#) website. I have removed the previous version of the Mine Site model to avoid confusion. I have also posted a separate package containing only the output spreadsheets for the current model (Version 1 outputs remain on the website as well).

A few notes on this version:

- I used GoldSim's versioning feature, which will allow you to identify changes since the previous "Version 1" submittal. Blue highlighted containers in the GoldSim browser contain elements that have been changed; red highlighted containers or elements have been edited or added. Most changes are with respect to the results compilation and not the actual modeling. Other changes identified will be those for turning engineering controls on and off to provide results for the AWMP document.
- The model inputs and assumptions are intended to be consistent with the AWMP Version 2, submitted July 10<sup>th</sup>. Notable changes from the previous model submittal:
  - Category 1 stockpile pH is modeled as described in the AWMP (the error you identified) and is consistent with the Mine Site Workplan Version 7
  - Percolation through the Category 1 stockpile geomembrane is modeled as described in the AWMP Version 2, which is an update since publication of the Mine Site Workplan Version 7. The distribution for model element Cat1SP\_Geomem\_Perc has been updated to the lognormal distribution rather than the preliminary triangular distribution.
  - The adjusted WWTF treatment targets in closure (from AWMP Section 5) are input to the model as an on/off switch; in Version 1 this control was accomplished by editing the applicable Workplan input table. The input table to the model has been re-set to the previous treatment targets so that the effect of the change in AWMP Section 5 can be assessed.
- In the output spreadsheets you may note some exceedances of hardness-based water quality standards that were not present in the previous version. We suspect that we are not accurately representing the effects of the West Pit limestone channel and PRB on the effluent hardness and are working to correct this issue as the AWMP discussions go forward.

Please let me know if you have problems downloading the model files or need clarification on anything I've noted here.

Peter J. Hinck, PE

Water Resources Engineer

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**From:** Fred Marinelli [mailto: ]  
**Sent:** Wednesday, July 18, 2012 10:20 AM  
**To:** Peter J. Hinck  
**Cc:** Cory D. Anderson; Tina Pint; Al Trippel; Carlson, Erik (DNR); David Blaha; Houston Kempton; Paul Haby; John L. Adams; Jim Scott ( )  
**Subject:** Re: Cat 1 stockpile pH

All,

I request that the updated package be posted on the Barr website, so we can compare model results with our independent calculations. Thanks. Fred

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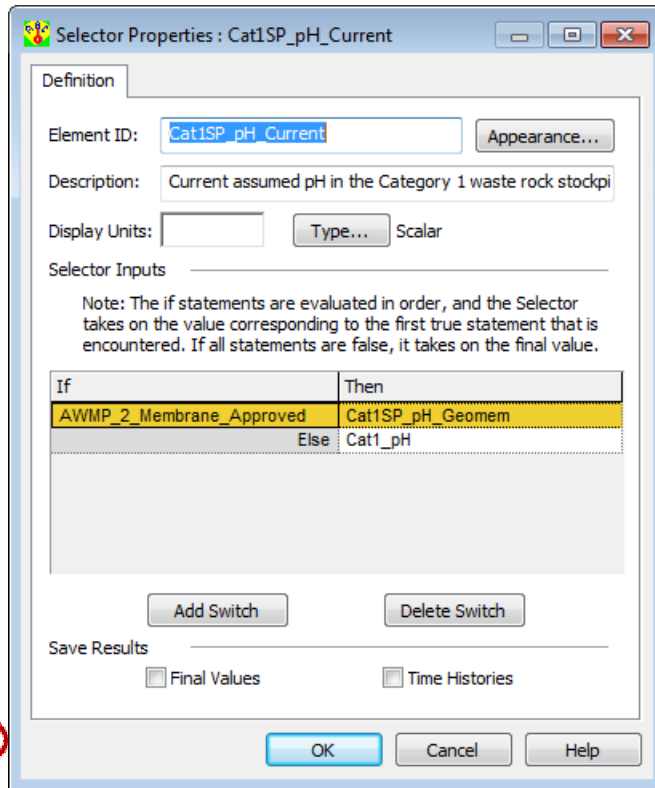
On Wed, Jul 18, 2012 at 9:09 AM, Peter J. Hinck < > wrote:

Fred & Paul,

Thanks for identifying this.

You are correct that the model files submitted 2 weeks ago did not have the pH of the Category 1 Waste Rock Stockpile modeled correctly. This was the result of some testing that I was doing, and I neglected to change the value back before submitting the models. See the screen shot below for the correct (and current) modeling of the referenced element (Cat1SP\_pH\_Current), with the line that needs to change circled (I believe the version you have just lists this as "false").

Erik et al., this error was corrected prior to performing the modeling runs used in the AWMP Version 2, submitted last week. The full package of model results posted to the project website, however, were from a modeling run that included this error. The effect of this change on the ultimate concentrations in the Partridge River and groundwater is minimal, but it does represent an inconsistency in the model. Please advise if you'd like us to update the posted results spreadsheets.



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**From:** Fred Marinelli [mailto:[REDACTED]]

**Sent:** Wednesday, July 18, 2012 9:42 AM

**To:** Peter J. Hinck; Cory D. Anderson; Tina Pint

**Cc:** Al Trippel; Carlson, Erik (DNR); David Blaha; Houston Kempton; Paul Haby; John L. Adams; Fred Marinelli

**Subject:**

Site: Mine Site

Activity: GoldSim Task 2 QA

Issue: Cat 1 stockpile

pH during closure with geomembrane installed

Model appears to be using a P50 pH = 7.25, which is appropriate for a soil cover.

Input tables indicate that the model should use P50 pH = 7.95 for a geomembrane cover.

We believe the programming issue is in Element ID: Cat1SP\_pH\_Current.

Cat 1 pH affects numerous geochemical calculations involving the concentration of constituents in Cat 1 seepage.

Recommend discussing this issue with Barr. Please provide authorization to forward this email to Peter Hinks and Tina Pint (if appropriate).

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