

Johnson, Bill H (DNR)

From: Fred Marinelli <[REDACTED]>
Sent: Tuesday, July 24, 2012 5:43 PM
To: Carlson, Erik (DNR)
Cc: Al Trippel; Fred Marinelli
Subject: Fwd: Task 2 QA/QC approach

Erik,

This string provides a status on the QA/QC activities.

Fred

----- Forwarded message -----

From: Al Trippel <[REDACTED]>
Date: Tue, Jul 24, 2012 at 3:44 PM
Subject: Re: Task 2 QA/QC approach
To: "[REDACTED]" <[REDACTED]>

Ok I think its fine to let him know. I generally follow it.

Call me if we should talk about it more.

Thanks

From: Fred Marinelli [mailto:[REDACTED]]
Sent: Tuesday, July 24, 2012 10:42 PM
To: Al Trippel
Subject: Re: Task 2 QA/QC approach

Al,

I did not send this string to Erik. Wanted you to see it first.

Fred

On Tue, Jul 24, 2012 at 3:39 PM, Fred Marinelli <[REDACTED]> wrote:
All,

Interralogic generally concurs with the direction the Cory is taking on the output spreadsheets. There will no doubt be details to work out, which is why we're starting with just two control volumes. A few comments:

The headings for the columns should be a verbal description such as "North PRB Outflow" AND the GoldSim variable name associated with the value.

With regard to flows, should there be two tabs (one for inflows and one for outflows) or one tab with inflows as positive values and outflows as negative values?

For stored water tab, prefer to have a separate column for each component within the CV that has storage. Then total storage in the CV at a particular time step is equal to the row sum. Same comment for the tab with chemical mass.

We will continue to work with Cory on the spreadsheet format. Will then work out the CV(s) for the tailings basin, which will be challenging.

Regards,

Fred

On Tue, Jul 24, 2012 at 12:49 PM, Cory D. Anderson <[REDACTED]> wrote:

All, while thinking about this I realized the proposed spreadsheet is missing a critical element.

There needs to be a fifth tab which exports GENERATED or REMOVED/TREATED mass within the control volume.

For example, the tailings are generating a load (Mass/Time) which is not associated with a flow or concentration, but is simply a mass rate of addition to the system.

Without accounting for this, the mass balance will be grossly off.

I will be adding this fifth tab to the spreadsheet.

Cory D. Anderson

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resourceful. naturally.



From: Cory D. Anderson
Sent: Tuesday, July 24, 2012 12:14 PM
To: Cory D. Anderson; 'Fred Marinelli'; Tina Pint
Cc: Peter J. Hinck
Subject: RE: Task 2 QA/QC approach

Woops, here's the attachment...

Cory D. Anderson

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From: Cory D. Anderson
Sent: Tuesday, July 24, 2012 12:13 PM
To: 'Fred Marinelli'; Tina Pint
Cc: Cory D. Anderson; Peter J. Hinck
Subject: Task 2 QA/QC approach

All, I just talked with Fred and we have come to some good common ground to start with and we'll see where it takes us.

We are going to start with 2 control volumes at the Plant Site to develop the programming in GoldSim and the output spreadsheets so that they are useful for both Interrallogic and Barr.

The two control volumes are shown on the attachment outlined in red. The first is the Embarrass River including from PM-12.2 through PM-13. The second is the set of north features, including all of mud lake creek, the north flow path and the north collection system and PRB.

The output spreadsheet developed will have 4 timeseries tabs. The **first tab** will be instantaneous flow of all inflows and outflows at all times. Rows will be time steps (maybe 2400 rows or so for 200 years), and the columns will be each individual water inflows and outflows.

The **second tab** is the concentrations of a SINGLE constituent at each inflow and outflow through time. Again, rows are time steps and columns are the individual inflow and outflow elements. There should be the same number of columns and rows in the first two tabs I believe. *We will have to build into the model an option to select which constituent will be reviewed and the model will have to output the right data. Needs a little thought...but I think Fred and I talked through it enough that it's possible.*

The **third tab** will account for stored water volume within the control volume. This should be 2 columns; one for the time and one for the instantaneous water volume in the control volume at a given time. This may be a constant number for many things such as the river or a groundwater flow path. But then at least, the inflows and outflows should balance so that we see there is no change in storage.

The **fourth tab** will account for stored chemical mass within the control volume. This should be 2 columns; one for the time and one for the instantaneous mass in the control volume at a given time.

Mass flux rates can be calculated in the spreadsheet and used to additionally calculate what should be the change in mass within the control volume. This will be done by Interralogic as part of their independent review.

This approach allows for checking the mass/water balance of each control volume (with a little bit of additional calculations within the excel spreadsheet) and also will show ALL inflows and outflows so that any or all of them can be used as calculation points because the instantaneous flows and concentrations have been exported.

I also expressed to Fred our concern with doing too many control volumes, such as were shown on Fred's schematic. I expressed that four might be the reasonable limit for what we need to do to be able to do it quickly. Fred was understanding and said that there is language in the work plan that will allow for limiting the scope; language such as we will not check every calculation but a sufficient number to have confidence in the model (notice it's not quoted!).

Fred has an opportunity here to correct anything that I have not captured correctly before we send this to Erik.

I will get started on the two control volumes we thought were both a high priority and were clear enough to actually get started. I plan to have those done and sent to Fred at the end of tomorrow for his review to make sure that the spreadsheets are what he is expecting. We need to still give a little more thought to handling the Tailings Basin itself.

Thanks everyone. I hope this is good compromise for all parties.

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