

## Johnson, Bill H (DNR)

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**From:** David Blaha <[REDACTED]>  
**Sent:** Monday, April 30, 2012 6:14 AM  
**To:** Carlson, Erik (DNR); Fred Marinelli; Melinda Todorov  
**Cc:** Houston Kempton  
**Subject:** RE: Revised QA Phase I and II workplan

Fred

Houston and I discussed this and concluded that we expect the model as currently structured should be able to handle the co-variance issue and it is much preferred to use the Model Evaluation Process to confirm this than to try to re-work the model to more overtly address this issue (which would be a big deal). so all we are doing as part of the model evaluation review is to confirm that constituents that we would expect to behave (trend) similarly are – I know this will require some additional detail but I believe Houston and I can provide that guidance

let me know if you still see a problem with our looking at this issue as part of the Model Evaluation process

thanks

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**From:** Carlson, Erik (DNR) [[mailto:\[REDACTED\]](mailto:[REDACTED])]  
**Sent:** Tuesday, April 24, 2012 8:39 AM  
**To:** Fred Marinelli; Melinda Todorov  
**Cc:** David Blaha; Houston Kempton  
**Subject:** RE: Revised QA Phase I and II workplan

Fred,  
If comments 18 and 19 need resolution outside the QA activities then I will get a response from Barr on these before you guys jump in to the QA work. For covariance, Dave has recommended evaluating trends between constituents that are expected to be related at the same time as ERM does its model evaluation-QA/QC process. If there is a better way or better time to get this done, discuss and let me know.  
Thanks,  
Erik

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**From:** Fred Marinelli [[mailto:\[REDACTED\]](mailto:[REDACTED])]  
**Sent:** Monday, April 23, 2012 8:14 PM  
**To:** Melinda Todorov  
**Cc:** David Blaha; Carlson, Erik (DNR); Houston Kempton; Fred Marinelli  
**Subject:** Revised QA Phase I and II workplan

All,

I am incorporating and revising the Phase I and II workplan. Should have a new version tomorrow morning.

Houston, when it's completed, can you give it a review?

Erik, I am incorporating nearly all the comments. However, I question the inclusion of comments 18 and 19 from the unresolved spreadsheet and the issue of covariance. It seems these technical issues should be resolved and, if agreed upon, built into the model structure prior to QA activities. QA would then be used to verify that the agreed upon model approach is properly input and calculated in the model. I'm open to your opinion on this issue.

Thanks,

Fred

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**Fred Marinelli**

Senior Groundwater Hydrologist

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