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Hydraulics

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Water Resources

December 5, 2011

Mr. Gary Spackman, Interim Director
Idaho Dept. of Water Resources
P.O. Box 83720
Boise, ID 83720-0098

Re: ESPAM 2.0 Groundwater Model Progress and Uncertainty

Dear Gary:

In an ESHMC meeting and later in your letter of Jun 9, 2011 you indicated, in response to the question relative to IDWR adoption of the ESPAM 2.0 model that you would require "the technical staff to subject the ESPAM2.0 to rigorous testing, including: calibration; validation; and uncertainty analysis. In addition, ESPAM2.0 must be run using factual inputs and additional hypothetical factual inputs. Simulations from these inputs must be compared with the outcomes of the previous model version" before adopting the ESPAM2.0 model. The purpose being to assure that ESPAM2.0 should be fair, reliable, consistent, and verifiable.

The ESHMC meeting discussed the various alternatives for an uncertainty analysis and on October 27 reviewed the proposed procedure which Alan Wylie offered. The procedure which Alan Wylie outlined was to utilize a 'bend but don't break' approach which essentially proposed to evaluate the minimum and maximum limits within which PEST would allow certain historical target springs to vary based on stress applied at centroids of Water Districts.

This procedure is outlined in a recent memo by Alan. This memo does portray the steps which he utilizes in running the model to obtain the limits which PEST will allow. However, it only provides some indication of the range of uncertainty which PEST will tolerate, and only for specific locations analyzed, not for every depletion and resulting impact across the aquifer. Furthermore, it does not, and cannot, explore the uncertainty inherent in our inability to fully represent the hydrogeologic structure, and uncertainty in target calibration parameters.

My understanding is that this initial draft procedure, which Alan is performing, would provide some information and guidelines for further analysis if necessary.

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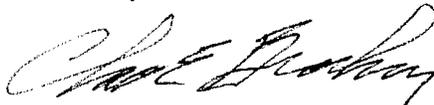
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The concern is that the procedures utilized or being utilized do, in fact, provide the necessary information relative to the total uncertainty of model simulations which you expect from this exercise and which do provide assurance that the model outcomes are fair, reliable, consistent and verifiable for confident administrative decisions.

The ESHMC has a meeting planned for December 12, 2011 and will be reviewing the results of Alan Wylie's analyses. It would seem timely and expeditious for you to attend this meeting to be fully informed of the progress and status of the analyses which you feel need to be completed. Also, I believe it would assist the ESHMC to better understand your requests, including the scope and purposes to be served by the analyses, and whether or not the Committee's work is appropriately structured or can achieve those goals. Your attendance and input would be very helpful to the Committee in evaluating the current status of the model, meeting the goals of the analyses and projecting possible completion dates.

By copy of this letter, I am requesting Rick Raymondi to include adequate time to discuss the uncertainty analyses progress and status of validation and comparison of the ESPAM 2.0 and ESPAM 1 model simulations. I hope you can attend.

Sincerely,

A handwritten signature in black ink, appearing to read "Charles E. Brockway". The signature is fluid and cursive, with a large initial "C" and "B".

Charles E. Brockway PhD, PE

Cc: Rick Raymondi