

February 23, 2012

*Via email*

Mr. Rick Raymondi  
Idaho Department of Water Resources  
322 Front Street  
Boise, ID 83720-0098

Re: City of Pocatello's input on trim line

Dear Mr. Raymondi:

I am writing on behalf of the City of Pocatello to respond to your invitation to members of the Eastern Snake Plain Hydrologic Modeling Committee ("ESHMC") to submit comments regarding IDWR's use of the trim line and "predictive uncertainty". Greg Sullivan, P.E., of Spronk Water Engineers has long represented the City on the ESHMC, and sent an email in November of 2011 regarding the scope and uses of a "predictive uncertainty" analysis in the context of the ESPAM itself. However, in discussions with Mr. Sullivan and representatives of the City, we concluded that it would be appropriate for the City to respond to this request through legal counsel rather than technical consultants, because it raises a policy matter regarding IDWR's handling of well curtailment in delivery calls rather than a technical matter related to the construction or refinement of the ESPAM.

We endorse generally the comments included in the January 12, 2012 letter from the Mr. Roger Warner on behalf of the Eastern Idaho Water Rights Coalition and the January 11, 2012 letter from Mr. Randy Budge sent on behalf of the Idaho Ground Water Appropriators. Consistent with the comments on behalf of those entities, Pocatello would urge you to separate the technical questions related to ESPAM modeling uncertainty analyses and the policy questions about the appropriate extent of curtailment during a delivery call.

- A. The use of a "trim line" by the Department is a valid policy decision within the discretion of the Director regarding the appropriate areal extent of well curtailment in a delivery call.**

The trim line was first imposed by Director Dreher in the Thousand Springs delivery call, and again in the Surface Water Coalition delivery call, based in part on the Director's

understanding of a 10% stream gage error associated with certain model input data.<sup>1</sup> In both cases, the Director's imposition of the 10% Trim Line reflected an agency policy decision regarding the appropriate areal extent of curtailment to satisfy senior water rights, and the development of the trim line was tied in part, to uncertainty regarding the curtailment scenario modeling results. This exercise of agency discretion was upheld by Judge Melanson on judicial review in both delivery calls, and the Idaho Supreme Court in *Clear Springs Foods, Inc. v. Spackman*, 150 Idaho 790, 252 P.3d 71 (2011).

Although the 10% Trim Line was based on the Director's understanding of the margin of error of stream gage data, the Director did not rely solely on this technical fact alone in deciding to exclude wells from curtailment. Instead, the exclusion of wells under the 10% Trim Line reflected the Director's policy decision that the amount of water to accrue to senior rights from curtailment of wells outside the line was administratively insignificant, a determination based in part on modeling results but also on a discretionary policy decision. Director Tuthill<sup>2</sup> described the policy decision to impose a trim line as being related to his "determinations of injury [in a delivery call] in that it defines users whose contributions to shortage suffered by a calling party is *de minimus*."

In the course of judicial review in these matters, Hearing Officer Schroeder, among others, recognized that as a measure of model error, the 10% stream gage error assumption could potentially be improved upon. With the finalization of ESPAM 2.0, the Department and ESHMC entities have spent several years discussing and developing an approach to an error analysis, eventually resulting in the "predictive uncertainty" analysis recently disclosed by Department staff.<sup>3</sup>

ESHMC entities (including Department staff) have been debating the approach and merits of a model error analysis since 2009, and have responded over the intervening years to requests for input from former Director Tuthill<sup>4</sup>, Director Spackman<sup>5</sup>, and Department staff<sup>6</sup>. ESHMC entities have submitted memoranda, presentations, and letters regarding their technical positions on the appropriate means to develop and use the "predictive uncertainty analysis" related to the ESPAM, and policy positions on the issues that they argue should inform the Department's development of a new "trim line" or to discourage the use of a trimline altogether.

To date, the policy input provided by ESHMC entities, breaks down, perhaps predictably, in two ways: 1) representatives of senior water users appear to suggest that there is no policy basis to exclude wells from curtailment and urge the Director to drop the "trim line" concept

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<sup>1</sup> For clarity, we've referred to the SWC and Thousand Springs delivery call trim line as the "10% Trim Line" to distinguish it from whatever policy decision the Department may make in the future regarding application of a trim line to a curtailment scenario.

<sup>2</sup> In his February, 25 2009 letter requesting technical (and not policy) advice from the ESHMC.

<sup>3</sup> Allan Wylie's January 6 Memorandum and January 23, 2012 Powerpoint presentation.

<sup>4</sup> February 25, 2009 letter.

<sup>5</sup> June 9, 2011 letter.

<sup>6</sup> Request made during December 12, 2011 meeting.

altogether (regardless of its technical basis); and 2) representatives of junior ground water users and Upper Valley water users urge the Director to maintain the “trim line” as a policy<sup>7</sup> decision and not be misled by blindly substituting results of a “predictive uncertainty” analysis for the trim line relied upon by the Director in the SWC and Thousand Springs delivery calls.

**B. The Department’s ongoing “predictive uncertainty analysis” attempts to evaluate modeling uncertainty, but does not dictate the Director’s determination regarding the appropriate areal extent of well curtailment in a delivery call.**

As described in memoranda prepared by members of the ESHMC, there are at least four types of uncertainty analysis. Dr. Brendecke’s July 8, 2009 memoranda ably described the types of uncertainty analysis to which the ESPAM might be subjected:

1. “Structural” or “geological” uncertainty because of lack of understanding regarding aquifer boundaries, stratigraphy or hydrogeology;
2. Parameter uncertainty related to inadequate quantification of aquifer water budget terms used as inputs;
3. Calibration uncertainty (internal) relating to the various combinations of calibration parameters (e.g., transmissivity, conductance) that can be incorporated into any given model structure and water budget;
4. Calibration uncertainty (external) relating to calibration targets such as water levels and reach gains.

The Department’s January 6, 2012 Memorandum regarding “predictive uncertainty analysis” relates to the third type of analysis described above and contains the initial results from curtailment of a well located at each of the centroids of three ESPA water districts. The following results express the impact to the flow of Clear Lakes Springs at steady state as a percentage of the pumping rate.

Centroid	Calibrated Impact	Maximized Impact	Minimized Impact
WD110	0.170%	0.170%	0.164%
WD120	0.450%	0.930%	0.390%
WD130	7.110%	7.360%	6.930%

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<sup>7</sup> And in the case of the Upper Valley water users (as embodied in the January 12, 2012, letter from Eastern Idaho Water Rights Coalition) to extend application of the policy to transfers as well.

These results indicate that the predicted impacts on the flow of Clear Lakes Spring from pumping do not vary significantly under alternative model calibrations. We understand that IDWR is performing similar analyses of the predictive uncertainty of impacts at other springs, spring reaches, and river reaches, and we look forward to reviewing those results.

It is important to note that these results do not inform the accuracy of the predicted impacts, but rather that the predicted impacts do not change much when the model calibration parameters are allowed to vary as long as the value of the calibration objective function stays within a certain specified tolerance. Comparison of the predicted and observed ground water levels, spring flows, and reach gains show that the model is able to match the observed values to varying degrees of accuracy. Nevertheless, the analysis that IDWR is performing should provide confidence that the model results are relatively “stable” under a variety of stressors, and that the ESPAM is, as confirmed by the Supreme Court, the “best available science for determining the effects of ground water diversions and surface water uses” on the ESPA. *Clear Springs*, 150 Idaho at 814, 252 P.2d at 95.

There may be some temptation for the Director to remake the 10% Trim Line into a “Predictive Uncertainty Analysis Trim Line” by reference to one of the columns of results reproduced in the table above. Initially this begs the question of “which column?”, but Pocatello submits that this is simply the wrong way to use the predictive uncertainty analysis. First, as a technical matter and as described above, the analysis that IDWR is performing does not address the accuracy of the model, and only considers one of the four elements of model uncertainty that were identified by Dr. Brendecke. There is additional uncertainty in the model results resulting from the uncertainty of the model structure, water budget parameters, and calibration targets. Without an analysis of these additional factors, it is unknown how much uncertainty they contribute to the model predictions. Further, as a policy matter, the impact percentages listed above do not answer the “trim line” question of the appropriate areal extent of curtailment because the numbers alone cannot determine what is “administratively insignificant” which is inherently an issue of agency discretion.

To illustrate the importance of applying the agency’s discretion in making this judgment call (rather than blindly relying on a quantitative evaluation), it may be useful to examine two prior analyses of the impact of the 10% Trim Line on junior and senior rights. In their June 5, 2009 “white paper”, Mr. Koreny, Dr. Brockway (and others) on behalf of certain senior water rights presented an analysis that included results of an evaluation (included in Tables 2-4) of shifting the 10% Trim Line out to create a 1% Trim Line—capturing more wells for curtailment and, at least in the view of the white paper authors, resulting in additional flows for senior water rights. The authors described curtailment of an additional 150,000 acres of ground water-irrigated land, and a curtailment of 484 cfs (or 300,000 af) of ground water pumping. In response, the model predicted an additional gain to the calling spring rights (by curtailment of ground water rights junior to a 1973 priority date) of approximately 1.81 cfs.

Dr. Brendecke examined these results in his July 8, 2009 memorandum, and added a detail that may inform policy decisions about what amount of curtailment leads to

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“administratively insignificant” amounts of water. Specifically, Dr. Brendecke pointed out that the “white paper” analysis failed to mention that it would take 50 years of curtailment for 1.81 cfs to accrue to the calling 1973 senior water right. Thus, to modify the 10% Trim Line to the “white paper” authors’ proposed 1% Trim Line would effectively require that 150,000 acres be taken out of production permanently in exchange for a minor increase in the flow at the calling spring right.

### **Conclusion**

Pocatello welcomes the Department’s and ESHMC’s efforts to improve ESPAM as a technical matter. However, as described within, the “predictive uncertainty analysis” should be viewed as a technical issue to be used to improve the ESPAM 2.0. Although it may be tempting to equate the uncertainty analysis with the trim line concept to render a policy decision on curtailment, the issues are not so simple and an uncertainty analysis does not by itself define the policy decision about what is *de minimus* contribution to injury.

With kind personal regards,



Sarah A. Klahn, Esq.

cc:\ A. Dean Tranmer, Esq.  
Greg Sullivan