

Weaver, Mathew

From: Weaver, Mathew
Sent: Thursday, December 13, 2012 1:16 PM
To: Saxton, Craig
Cc: Peppersack, Jeff
Subject: Mitigation Plan Review for Permit 37-8205

Craig,

This email is in response to your request from your memo dated November 26, 2012, in which you asked for a review of the technical merits of the Mitigation Plan submitted by Brockway Engineering, PLLC (Brockway) on October 29, 2012.

Please note, I have limited my review to the Brockway Mitigation Plan provided and Michele Edl's previous review memos from June 19, 2012 (Re: Proposed data submittal) and August 6, 2012 (Re: relevance of weather data). I did not review any of the other documents in the back file.

Let me now address two of Michele's concerns before proceeding. Her June 19 memo concludes with a single technical recommendation, *"The Department should be reluctant to accept the proposed one or two year weather sample."* I agree with this sentiment, the single year of weather data that has been provided does not adequately address average conditions, nor perhaps more meaningfully, 20% exceedance conditions. Michele's August 6 memo makes the closing recommendation, *"Even if a short term trend between the Hailey Airport and the Clarendon weather station can be recognized, the Department should hesitate to apply that trend as a constant in a mitigation plan."* Again, I strongly agree with this statement. The application of a mathematical transformation or regression from the local data set to the Hailey weather station data set should take into account the strength of the underlying predictive relationship.

With the previous thoughts in mind I propose the following recommendations for moving the current mitigation plan forward into a final version that the Department can feel comfortable in approving.

- 1) Direct reliance on a one year data set of weather parameters used to determine evaporation, and thereby a mitigation volume, is inappropriate. However, as consistent with other approaches the department has taken when faced with similar data limitations, the following procedure should be acceptable. Brockway should evaluate the long term weather data (long term is assumed on my part I did not confirm) from the Hailey station and establish monthly 20% exceedance values for all pertinent weather parameters. Those values should be regressed with the measured monthly average values determined by Brockway. The regression will link local measured data to a data set of appropriate length to ensure we do not make a decision based on transient or non-typical conditions. The regression equation should then be applied to the 20% exceedance values, with a 1-2 stand error correction, to establish design values that can be used in the mitigation analysis to develop volumetric evaporative losses. Reliance on a 20% exceedance value properly ensures that injury to senior water users is less likely to occur for any given year. Reliance on a 1-2 standard error correction helps to offset any potential injury associated with the variation in the regression analysis, which is not explained by the Hailey weather data. In other words, if a really bad fit is found between the Hailey weather data and the Brockway data, compensation for the poor fit is not borne by the senior water users.
- 2) To calculate evaporation Brockway has relied up the average of values obtained from four different indirect methods used to determine evaporation. The methods were obtained from references that were mentioned, but not provided nor fully cited. Rather than rely on a straight average, I would recommend that Brockway provide explanation for a single method that best fits the physical and data realities of the project at hand and rely on that single supported method to determine evaporation. If Brockway feels that an average of all available methods is the best course of action available, then I think discussion and support of this decision is warranted.

That concludes my comments. Depending on how you choose to move forward, I could be happy to revisit this matter in the future. I'm also open to discussing it in person to fill in any blanks I have left.

Thank you,

Mat Weaver, P.E.

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