

Wylie, Allan

From: Wylie, Allan**Sent:** Friday, June 26, 2009 11:33 AM**To:** Raymondi, Rick; Anderson, Hal; bcontor@if.uidaho.edu; 'Bryan Kenworthy'; Vincent, Sean; 'Chuck Brockway'; cmb@hydrosphere.com; 'Dar Crammond'; 'Dave Blew'; Tuthill, Dave; 'Greg Clark'; greg@spronkwater.com; Gregg S. Ten Eyck; hyqual@cableone.net; 'J. D. May'; JBowling@idahopower.com; Jeff Sondrup; 'Jennifer Johnson'; 'Jim Taylor'; John.Koreny@hdrinc.com; johnson@if.uidaho.edu; 'Jon Gould'; jrbartol@usgs.gov; Ken Skinner; 'Leslie Stillwater'; 'Linda Lemmon'; Lindgren, John; 'Mike Beus'; rallen@kimberly.uidaho.edu; 'Sharon Parkinson'; 'Stacey Taylor'; Swank, Lyle; 'Tom Wood'; Willem Schreuder**Cc:** Olenichak, Tony; 'Karen Wogsland (E-mail)'; Morse, Tony; Kramber, Bill; 'Marilyn Bragg'; Lutz, Dick; 'ann.yribar@sol.doi.gov'; Richman, Michelle**Subject:** RE: updates

All

I posted 4 files on the ESHMC web page (<http://www.idwr.idaho.gov/WaterInformation/projects/espam/>) under meetings and then the July 2009 meeting. They are all EXCEL spreadsheets containing analysis of runs conducted using the on farm water budget methodology presented by Willem and Greg at our last meeting.

I tested Willem's recharge tool and found that with the same settings, it gave almost exactly the same results as IWRRI's recharge tool. I then began to try to figure out the 'on farm module'. The on farm module has 4 adjustable parameters for each irrigation entity, 2 are easily understood, sprinkler efficiency (EffSP) and flood efficiency (EffGR).

As I understand it the other 2 (DPin and DPex) deal with the portion of the water not consumed by a crop. DPin apportions the inefficient fraction into a portion that infiltrates back to the aquifer and a portion that suffers some other fate. DPin applies even under deficit irrigation situations. DPex apportions water applied in excess of crop demand into infiltration and runoff, and therefore does not apply in water short situations. With the 6 mo stress periods we are currently using, we probably won't be able to fully appreciate DPin and DPex. Once we migrate to our 1 mo stress periods, the intricacies of how these parameters deal with excess and deficit irrigation situations may be more apparent than with our current 6 mo stress period. If I haven't got this correct, Bryce, Greg, or Willem can straighten us out.

After consulting with Bryce, Greg, and Willem, I decided I would hold DPin and DPex at a fixed value and allow PEST to adjust EffSP and EffGR plus the usual physical parameters, and trib underflow. I conducted 4 runs: DPin = DPex = 0.3 ; DPin = DPex = 0.5 ; DPin = DPex = 0.7 ; and DPin = DPex = 0.9. In each of these runs EffSP and EffGR are adjusted independently, i.e. there is no fixed relationship between EffGR and EffSP. I grouped the irrigation entities into 3 groups to control the number of adjustable parameters, those entities diverting from the Snake below American Falls, those diverting from the Snake above American Falls, and all others. I chose this grouping because the entities diverting from the Snake above American Falls tend to have a fairly high percentage of their canals and crop land in more gravely soil than the entities diverting below American Falls and therefore might have different efficiencies than the other entities. All entities in these groupings are tied and will have the same EffSP and EffGR. Thus, all diverters below American Falls have the same EffSP and the same EffGR, however, there is no fixed relationship between EffGR and EffSP.

Please look these files over and be prepared to discuss the results at our July meeting. There is a lot of material to digest as a result of this experiment. Let me know if you have any questions.

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