

MEMORANDUM

TO: ESHMC

FROM: Stacey Taylor, IWRR

DATE: January 28, 2014

SUBJECT: ESPAM water budget post ESPAM2.1

The purpose of this memorandum is to provide a brief description of the ESPAM water budget progress post ESPAM2.1 to the ESHMC. ESPAM 2.1 includes data through December 2010. As of October 2013, the data that were available at the time were added to the water budget files up through 2012 (Stress Period 392). Since October 2013, more 2012 data have become available. None of the actual water budget files (*.cel, *.cnl, etc) were created (meaning, processed through the ESPAM Recharge Tools) since it is not known what the final stress period for the next version of ESPAM will be. Only the spreadsheets required to create these files using the ESPAM Recharge Tools have been created. No changes were made where ET data are necessary, since ET-Idaho data are only available up through 2010. Also, I have not been closely following the progress with updating ET in the model so I didn't feel it was appropriate to spend time on something that may not be useful later.

Here is a summary of what is left to complete with the water budget files:

(1) CEL file

Status: This one should stay the same unless we do something drastic like adding a layer or adding/subtracting more cells.

(2) CNL file

Status: The *.csv file is updated through Stress Period 392.

Final file(s): ESPAM21_CNL_DATA_20131017.xlsx, ESPAM21_CNL_DATA_20131017.csv

(3) DIV file

Status: All diversion entities (IESW000, 001, 002 etc) are updated with the most recent data that are available from watermaster reports (some 2012 data were not yet available as of the November 2013). In November 2013, I received the 2012 histlallsnake spreadsheet (histlallsnake12.xlsx) from IDWR. These data have not yet been added to the diversions. Here is a summary of the diversions requiring action to be fully updated:

- **IESW000:** Jennifer Sukow informed me in November 2013 of changes that need to be made with acreages and volumes and the addition of Clover Creek. These changes have not yet been made.
- **IESW001:** Needs data from the updated histlallsnake12.xlsx spreadsheet.
- **IESW002:** Needs data from the updated histlallsnake12.xlsx spreadsheet.
- **IESW009:** Needs data from the updated histlallsnake12.xlsx spreadsheet.
- **IESW010:** Needs data from the updated histlallsnake12.xlsx spreadsheet.
- **IESW011:** Needs data from the updated histlallsnake12.xlsx spreadsheet.
- **IESW012:** Needs data from the updated histlallsnake12.xlsx spreadsheet.
- **IESW014:** Needs data from the updated histlallsnake12.xlsx spreadsheet.
- **IESW015:** Needs data from the updated histlallsnake12.xlsx spreadsheet.
- **IESW016:** Needs data from the updated histlallsnake12.xlsx spreadsheet.
- **IESW018:** Needs data from the updated histlallsnake12.xlsx spreadsheet.
- **IESW019:** Needs data from the updated histlallsnake12.xlsx spreadsheet.
- **IESW020:** Needs data from the updated histlallsnake12.xlsx spreadsheet.
- **IESW022:** Needs data from the updated histlallsnake12.xlsx spreadsheet.
- **IESW027:** Needs data from the updated histlallsnake12.xlsx spreadsheet.
- **IESW028:** Needs data from the updated histlallsnake12.xlsx spreadsheet.
- **IESW030:** Needs data from the updated histlallsnake12.xlsx spreadsheet.
- **IESW032:** Needs data from the updated histlallsnake12.xlsx spreadsheet.
- **IESW034:** Needs data from the updated histlallsnake12.xlsx spreadsheet.
- **IESW035:** Needs data from the updated histlallsnake12.xlsx spreadsheet.
- **IESW036:** Needs data from the updated histlallsnake12.xlsx spreadsheet.
- **IESW038:** Needs data from the updated histlallsnake12.xlsx spreadsheet.
- **IESW039:** Needs data from the updated histlallsnake12.xlsx spreadsheet.
- **IESW040:** I have recommended re-evaluating this entity. Southwest Irrigation District data for the Cassia Pipeline has been collected through 2012, but more data for this entity are required to make it complete. Prior to my maternity leave, I had spent some time on IESW040, working with Marilyn Short of the Oakley Canal Company and with Cindy Yenter of IDWR in an attempt to include all users necessary to complete this entity. I came to the conclusion that the users should include: (1) Cottonwood Creek (WD 45K), (2) Goose Creek (WD 45C), (3) Birch Creek (WD 45B), and (4) SWID Cassia Pipeline. While evaluating these watermaster reports, several problems were found in which very little data were available and/or conflicting numbers were found on the watermaster reports for Cottonwood Creek and Goose Creek. Discussion with Cindy Yenter revealed that she has come across the same problem—lots of data for this entity

are NOT recorded. Birch Creek appears to have several years available (some of which for 1980-1993 are probably available on microfiche). Dry Creek water district was used and some data were estimated for ESPAM1.1, but through GIS analysis it appears that these diversions are outside of the model boundary and it is unclear as to why they were used in ESPAM1.1.

- **IESW052:** Watermaster reports for 1980-2001 need to be revisited. It appears as though annual data from ESPAM1.1 were converted to monthly values without using the actual watermaster reports.
- **IESW055:** Needs data from the updated histlallsnake12.xlsx spreadsheet.
- **IESW056:** Needs data from the updated histlallsnake12.xlsx spreadsheet.
- **IESW058/IESW059:** I know some changes have been made recently between the Big Wood and Little Wood Rivers. No changes have been made to these two entities as a result. In November 2013, Jennifer Sukow updated me on the changes necessary. IESW058 has remained the same. IESW059 needs to be removed. IESW60-63 need to be added.

Final file: ESPAM2_DIVS_WORK_FILE_20131022.xls

(4) ENT file

Status: Since this file is associated with ET data, no changes have been made to the ET adjustment factors. However, the sprinkler percentages have been updated through December 2012.

(5) ETI file

Status: Since this file is associated with ET data, no changes have been made. The crop mix data that are associated with the ETI file is only complete up through 2010; however, some 2011 data have been included in the crop mix data.

(6) FPT file

Status: All exchange wells (E1-E19 and F1-F6) are updated through December 2012. The urban points are also updated through December 2012. The narrow and wide wetlands points are dependent on ET data and have not been changed as a result.
Final file: ESPAM2next_FPT_20130916.xlsx (wetlands points are only current to December 2010)

(7) IAR file

Status: No work completed on this file.

(8) NIR file

Status: No work completed on this file.

(9) OFF file

Status: Since this file is associated with ET data, no changes have been made.

(10) PCH file

Status: Updated through December 2012.

Final file: PerchedRivSeepCalc_UPDATED20130930.xlsx

(11) PRE file

Status: PRISM data have been collected through December 2012 (*.gz files), but they have not been ran through the ESPAM Recharge tools.

(12) SOL file

Status: This file has not been changed.

(13) TRB file

Status: Updated through December 2012.

Final file: ESPAM21_Trib_Und_Calc_20131022.xlsx

Design Documents:

The design documents originally designed for ESPAM2.0 have been updated to refer to the model as "ESPAM2.1" and have been finalized ("DRAFT" has been removed) as PDF files. Some design documents also included outdated data/figures that needed to reflect the data current in ESPAM2.1 and these appropriate changes were made. Also, the perched river seepage design document was lacking some essential discussion on how data were calculated and this was added to the design document. Most of the wording for this section was acquired from the ESPAM2.1 final report to maintain consistency.

Additional data that I have been working on:

(1) River File

Status: I have the data updated through December 2012. I realize there may have been or will be some changes with adding the Portneuf River to the river file; however, I updated the river file with the most current data that excludes the addition of the Portneuf.

Final files: American Falls Reservoir Summary 20131024.xlsx, ESPAM2next Rbot values River and Reservoir Cells 20131024.xlsx, River_Gage_heights_monthly_20131023.xlsx, River_Head_Calculations_20131024.xlsx, ESPAM2next_RiverFile_20131028.xlsx

Future steps that I plan to take:

- Since I am not able to participate regularly in ESHMC meetings any more, I plan to update aspects of the water budget files through December 2013 (as long as 2013 data are available by September 2014 to allow for time to complete the files) that do not include making major changes that could drastically change the water budget. For instance, if/when ET estimates are updated I plan to allow IDWR to make these changes. If my assistance is needed during this process, I plan to aid in the process as much as I possibly can.
- For the current year, I plan to update the following water budget files with data that are available through December 2013. If the file is not listed, it either (1) it includes ET data or (2) it is not a file that will likely change for the next version of the model (for example, the CEL file).
 - CNL file
 - DIV file (I will plan to make the changes to IESW000 and IESW059-63 as discussed with Jennifer Sukow in November 2013)
 - ENT file (ONLY the sprinkler percentages since this involves ET adjustment factors)
 - FPT file (ALL points EXCEPT the wetlands points will be updated; wetlands points involve ET estimates)
 - PCH file
 - PRE file
 - TRB file
- In November 2013, I discussed the challenges I had with re-evaluating IESW040 (Southwest). I expect that IDWR and I will discuss further steps for improving this entity. In the mean time, I will collect and process the Cassia Pipeline data for this entity up through December 2013.
- In November 2013, I discussed with IDWR that IESW052 (Medicine Lodge) watermaster reports could be revisited to include exact monthly diversion values for 1980-2001 (these values were converted from ESPAM1.1 annual values to ESPAM2.1 monthly values by using a fraction of the annual as a monthly estimate). I plan to revisit the watermaster reports that are available on the IDWR website and update the diversions spreadsheet with the new data.

