Memorandum

To: URGWOM Technical Team Members
Date: January 24, 2017
Subject: Notes of January 17, 2017, URGWOM Technical Team Meeting

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These notes summarize the salient matters discussed at the January 17, 2017 Upper Rio Grande Water Operations Model (URGWOM) Technical Team meeting. The meeting began at 9:00 am in the conference room at the NMISC office in Albuquerque, NM. An attendance list is included on page five.

The principal Agenda topics included Lower Rio Grande diversion / release patterns and monthly model ruleset merge, reservoir account zero storage issue, stepped release rule options, scoping of climate change study, URGWOM Five-year plan update, URGWOM master document and USACE website structure.

Lower Rio Grande diversion and release pattern development

John Craven (Hydros) led the Team on a discussion of the Caballo Reservoir release and canal diversion patterns. Currently, the starting year is 1975, however Hydros will incorporate data back to 1950. Hydros proposed defining water supply in terms of the Caballo releases as wet (> 700 KAF/yr.), average (435-700 KAF/yr., and dry (<435 KAF/yr.). The diversion / release ratio varied from 0.75 in the dry years to 1.2 in the wet years. The wet and average year patterns were similar, but the plot of daily diversion as a percent of the total diversion showed that there was a pattern shift in the dry years after 2011. This shift is attributed to implementation of the Rio Grande Project operating agreement and lower river channel transportation efficiency. The Team agreed that the post-2011 dry year pattern should be applied in planning runs and the pre-2011 dry year patterns should be applied in historic model runs. A shift in pattern could be applied if the project allocation were changed during the initial portion of the irrigation season. Project allocation is computed based on forecasted inflow and available water in storage.

Merging monthly models and rules

Hydros requested that a short time period be set aside when the master model would be out of service to allow for the update of the model based on recent method and rule changes (merge the Hydros model and the master model). Update to the most current monthly model rules will also be required. The hybrid operating ruleset (daily and monthly) will be incorporated into the master model. Marc will coordinate with Hydros in the update / merge of the models prior to March 1st since running the accounting model becomes more important due to water operations. Reclamation could either continuing running the accounting application or wait until the master model is updated. Then Marc could incorporate any accounting applications into the updated master model. Jesse also requested that changes to the model developed by Tetra Tech during the recent months also be incorporated into the master model during this update.

Reservoir accounting, zero storage values

Carolyn presented to the Team a problem associated with the precision of account data where there are many decimal places that round to zero and are inconsequential, unless they are allowed to accumulate over time. This causes an increase in the storage account when actually there is no water in storage. David reported that this issue is caused by two separate problems:

1. Saving without extended precision introduces very small errors when values re-loaded. This could be fixed by saving with extended precision, but this would increase model size substantially. CADSWES has a plan to address this in the future that will be discussed at the upcoming sponsor meeting. As a result, CADSWES does not suggest turning on extended precision now.
2. The reservoir account gain loss methods are trying to reconcile the reservoir. There are existing negative values in the storage slots that are leading to these small values. CADSWES will scope out a plan to address this. In the meantime, setting initial storage to zero, instead of small meaningless numbers will help the issue.

Stepped release rule

Jesse reported on a conflict in priorities used to control stepped releases from Abiquiu and Cochiti that could result in negative storage values. Stepped releases are controlled by either

a fixed increment of change in release or the amount of water available in storage. Jesse requested feedback from the Team as to whether and how these issues should be handled, such as setting a threshold for negative storage values. Marc suggested that the intent of the scope was to see if stepped releases could be implemented so that negative storage could be avoided and stepped release rules also followed. He suggested that estimates of the five-day inflow forecast be used to see if that has any impact on the timing of the stepped releases. Jesse will look into this further.

Climate change model scoping

Jesse presented an outline of the work required to build and run a long-term planning model to simulate impacts of climate change on river and reservoir operations. Jesse summarized the requirements for acquisition of a usable dataset, converting and setting up a monthly model, running dozens to hundreds of monthly timestep, 150 year duration scenarios and then the simulation of a small number of screened scenarios on a daily time step. To date, only 50 year runs have been completed at a daily timestep. The simulated historic period for climate change runs is often 1950-2099. Data for some sites are limited during the 1950-1975 period. Jesse requested that Team members review the draft outline and provide him with any comments by the end of January.

URGWOM Five-Year Plan

Miller presented a draft of tasks for inclusion in the 2017 URGWOM Five-Year Plan, which has been previously circulated to Team members. He summarized changes to the plan that reflect the completion of previous tasks and the addition of new ones. Team members commented on tasks related to monthly model development, water quality modeling, model calibration and ESA planning runs based on the recent 2016 Biological Opinion. Additional comments received from Team members will be incorporated into the document. Comments were requested by January 24, 2017.

URGWOM master document and USACE website

Miller reviewed with the Team members an outline of the proposed organization of the URGWOM USACE website and sections of the master document that includes all aspects of

model development and use. The metadata on the website needs to be updated. The Team discussed the dynamic nature of the master document and the extent and frequency of updating the document, including the possible interaction with the model tables and rules. The RiverWare report writer can be used to pull tables and rules from URGWOM. The report writer will not be used for the entire document because RiverWare is not available to the public to update the master document. The target audience of the master document and website will have to be accurately identified. Amy suggested that the master document information would be drawn from all completed documentation, but that each entire document itself would not be included. Miller requested that Team members provide any additional comments on the master document and website organization outline by January 27, 2017.

Other topics

Miller reported to the team that the myUSGS website will be updated with a new file structure to accommodate work done on projects during 2017. Team members were requested to place all 2017 work products under the 2017.12.31_Project Period file folder.

Marc reported that he had run and posted results of an AOP model run based on the January 1, 2017 forecast. He posted the results in the 2016 project file folder He will relocated the files, but would relocate the files after the 2017 project file folder is added. He also reported that the model run has not incorporated 2017 reservoir storage or release coordination and that the snow pack has increased since the January 1, 2017 forecast. After a short discussion, the Team elected to retain on the myUSGS website the results of the previous year's AOP model runs for each monthly forecast. Marc also reported that it now only takes approximately 5 minutes to process input data and set up the AOP runs instead of approximately 4 hours. Marc posted the modeled verses observed flows for last year's AOP runs in the 2016 file folder.

The next meeting of the Team has been scheduled for February 14, 2017 at the NMISC office in Albuquerque beginning at 9:00 am.

The meeting adjourned at about 11:30 am.

ATTENDANCE LIST
URGWOM TECHNICAL TEAM MEETING
January 17, 2017

NAME	REPRESENTING
Amy Louise	USACE
Marc Sidlow	USACE
Jesse Roach	Tetra Tech / USACE Contractor
Kyle Douglas-Mankin	USGS
William Miller	WJM Engineers/USACE Contractor
Nabil Shafike	NMISC
Cindy Stokes	NMISC
Carolyn Donnelly	USBR
Tom Hastings	USBR
Lucas Barrett	USBR

Those participating via telephone conference:

David Neumann	CADSWES
Nick Mander	Hydros Consulting
John Craven	Hydros Consulting
Steve Setzer	Hydros Consulting
John Carron	Hydros Consulting
Conrad Keyes Jr.	USACE Contractor
Brian Westfall	Keller Bliesner Engineering / BIA