

## **Notes from URGWOM Steering Committee Meeting; March 17, 2006; 10:00 AM; Corps of Engineers Conference Room, Albuquerque**

### *In Attendance:*

Cyndie Abeyta, USFWS	Lesley McWhirter, Corps
Steven Bowser, USBR	Michael Roark, USGS
Tim Darden, NMDA	April Sanders, Corps
Daniel Dehn, SAIC/Corps Contractor	Brad Vickers, Wave Engineering/USBR Contractor
Deb Hibbard, Corps Contractor	Dave Wilkins, Corps Contractor
Conrad Keyes, Jr., Corps Contractor	Edie Zagona, CADSWES (via telecon)
William J. Miller, WJM Engineering, Inc./Corps Contractor	

- ❖ Comments to the draft notes of the last Steering Committee meeting were solicited.

### **URGWOM Tech Team update and activities**

- ❖ Mike Roark discussed Tech Team tasks and activities with two handouts (included at the end of these notes).

### **Action items from last meeting**

- ❖ The Steering Committee discussed how to proceed with supporting Sandia National Labs' (NL) System Dynamics Model coordination. This is an issue raised at the February 9, 2006 URGWOM Steering Committee meeting, but not decided.
  - Mike Roark addressed Steering Committee questions on the System Dynamics Model (see handout included at the end of these note).
  - USBR will take the lead on coordinating with Sandia NL on coordination efforts. An MOA should be drafted outlining the scope for this fiscal year.
  - Paso del Norte Watershed Counsel should be asked if they are interested in using the PowerSim / System Dynamics model.
  - Other items and issues discussed include the following:
    - What future funding is available for PowerSim/URGWOM coordination?
    - Should the Bureau of Reclamation purchase licenses for the Technical Team to use PowerSim this fiscal year? The cost for one license is about \$2,550. The approximate cost of the Technical Team's effort (estimated at 15 days over a 6 month period) is \$36,000.
    - Sandia NL could possibly provide temporary licenses for use by the Technical Team; the Technical Team could then consider purchasing the licenses later if desired.
    - Corps did not receive additional funding for PowerSim coordination. The Bureau of Reclamation did receive funding and is the primary contact with Sandia NL. The Corps will cooperate and provide assistance as needed.

- A monthly water operations planning model would be useful for several entities (FWS, BIA, municipalities, etc.) The benefits and use of developing a monthly URGWOM model should be considered.
- **Recommendation of Steering Committee:**
  - An MOA should be drafted by Sandia NL and Reclamation to guide future use and access of PowerSim. A draft MOA will be distributed to the Steering Committee for discussion at the next meeting.

### **Briefing on Upper Rio Grande Basin Water Operations Review Draft EIS**

- ❖ Lesley McWhirter reviewed the plans for comments and public meetings for the Upper Rio Grande Basin Water Operations Review and Draft EIS.
  - The 60-day comment period has been extended until April 20, 2006. Notice of comment period extension will appear in the Federal Register. Postcards announcing extension will be mailed soon to all attendees of public/tribal meetings and other stakeholders.
  - This extension might delay the Final EIS, depending upon the volume of public comments and time needed for developing responses.
  - Eight public meetings and two tribal workshops were held from February 21 to March 9, at locations from El Paso, Texas to Alamosa, Colorado.
  - Though turnout was generally low (2 to 15 people per meeting), those who attended were involved and provided useful feedback and comments. Some attendees were representatives of larger groups.
  - The Website is up and running; some technical issues with access to the on-line comment areas were raised. The Corps and SAIC will address these. There are multiple ways to provide comments.

### **Input on next Water Operations Review Steering Committee meeting schedule**

- The schedule for an Upper Rio Grande Basin Water Operations Review Steering Committee meeting was briefly addressed. The timing is good for the committee to meet and provide feedback about the public meetings and the DEIS. It was recommended that the meeting should be held approximately 1 month after end of public comment period.

### **Project Manager updates and other items**

- ❖ Dave Wilkins presented a synopsis of URGWOM Phase II testing, now concluded, accompanied by one handout. The final report will be placed on the URGWOM website (<http://www.spa.usace.army.mil/urgwom>).
- ❖ Other items discussed included the following:
  - April Sanders and Lesley McWhirter will be presenting at the NM chapter of ASCE in Las Cruces on March 24. Topics will be URGWOM and the URGWOPS Review and Draft EIS.
  - The Corps will present two papers at the 3<sup>rd</sup> Federal Interagency Hydrologic Modeling Conference, April 2-6 in Reno, Nevada. Topics will be the Upper Rio Grande Basin Water Operations Review and Draft EIS and URGWOM modeling. Steve Bowser (BOR) will also present a paper at this conference.
  - Upcoming UNM Law Conference on Rio Grande Reservoir Storage Symposium might be a contentious meeting. Presentation of the Water Operations Review DEIS will be general, with a presentation of results.
  - Full funding for the CADSWES contract has been awarded to the Corps. They are currently revising the scope and determining if contract modifications are needed for development of

groundwater/surface water components in URGWOM for the area south of Elephant Butte Reservoir. The Corps is coordinating with Paso del Norte Watershed Council and CADSWES on this effort.

## **Technical Team Activities—Mike Roark**

March 17, 2006

### **MODEL TESTING**

- Reviewed the final Phase II testing document and gave comments to Dave Wilkins.

### **MIDDLE VALLEY DEVELOPMENT AND SW/GW INTERACTION**

- Finish reviewing design document for required changes to or development of RiverWare methods for SW/GW interaction. CADSWES will give a time and cost estimate to April in the near future.
- Have started on the mockup of the new middle valley using RiverWare 4.7 development. This version allows linking of objects without a mess of confusing lines.
- Had meeting with Brad Vickers to discuss rule changes that will need to be done for the new middle valley simulation.
- Tech. Team will be working to develop the middle valley simulation at the same time that CADSWES is developing the SW/GW interface objects for RiverWare.
- Dave mapped the crop types from the Ikonos designations to the set that is used by URGWOM.

### **TARGET FLOW CALCULATIONS**

- Brad Vickers has been at the COE all this week working with Mark on fixing problems that were affecting target flows

### **UPDATE OF DATA IN HEC-DSS DATABASE**

- Technical team continues updating the model database with 2000 through 2004 data.
- Technical team is working with BOR to receive data from ET Toolbox since 2000 in a form that will allow entry into DSS database.

### **SANDIA COLLABORATION**

- The Tech Team put together a scope of work for the collaboration with Sandia.
- Discussions with Garret Ross indicated that the funds given to the Bureau of Reclamation were already obligated, but that they could put a little money to the effort.

### **RULES AND LOGIC DEVELOPMENT**

- Mark has been moving the logic for the Rio Grande Compact from the Rules to expression slots in data objects. This will decrease the number of rules.
- Mark and Brad modified rules for hydrologically based targets and other release schedules, e.g., BO targets

### **MEETINGS**

- Technical Team members met with personnel from the Collaborative Program to discuss deficiencies in the proposal that the Tech. Team through the COE submitted for simulating alternatives for use of storage in Abiquiu Reservoir. The Tech Team needs to resubmit a modified proposal to the program.
- Some of the Tech Team attended the Annual RiverWare Users Group Meeting in Boulder last week. Nabil and Mike gave presentations on the use of RiverWare for the EIS, Phase II testing, and the development of the SW/GW objects in RiverWare and how they needed in the middle valley

## Technical Team Tasks - CY2006 and beyond

### TESTING OF MODEL

Priority: 1 (COMPLETED)

### DOCUMENTATION OF RULES

Priority: 1 (COMPLETED)

### REFINE MIDDLE VALLEY AND GW/SW INTERACTION

Priority: 1 (CY2006 and 2007)

The technical team will pursue the development of the middle valley with the SW/GW objects in RiverWare. The middle valley part of the model will be completely updated to the current knowledge and data available. Development will occur parallel to the CADSWES development of the SW/GW objects. The Tech Team will also work with CADSWES on a design document for a dynamic link between RiverWare and MODFLOW

Approximate Technical Team time required: All 8 months

### COORDINATE WITH DEVELOPERS OF MODEL BELOW ELEPHANT BUTTE

Priority: 1 (ongoing)

The Water-ops Model will need to be developed beyond just flood control capabilities. The Technical Team will coordinate with the Paso del Norte Watershed Counsel with their development of the RiverWare Model below Elephant Butte. We are going to invite the southern developers to our monthly Tech Team meetings to coordinate.

Approximate Technical Team time required: All undetermined

### TRACKING TYPES OF RIO GRANDE WATER THROUGH THE MODEL

Priority: 2 (not started)

There is a need to be able to track the different types of Rio Grande water through the model, especially during drought conditions. The different types of water that need to be tracked are: Prior and Paramount water, ESA supplemental water, MRGCD drought water, and Rio Grande Conservation water. This change to the Water-Operations Model would require that new methods be written by CADSWES for routing and tracking the water. Some existing rules will need to be changes and new rules written by the Technical Team.

Approximate Technical Team time required: Garrett Ross undetermined  
Ed Kandel undetermined

### MODIFY RULES FOR HYDROLOGICALLY BASED TARGETS AND OTHER RELEASE SCHEDULES, E.G., BO TARGETS

Priority: 2 (work completed, testing starting)

Currently the Water-ops and Planning models are set up to accept only targets and other release factors based on one annual target schedule (that would repeat every year in the Planning model). To model targets such as those in the BO, requires being able to change the targets year to year based on hydrologic conditions, such changing the location and amount of the target whether in dry, average or wet hydrologic conditions each year. Requires some modifications to the rules and setting slots to allow changing targets and other operation scenarios (e.g., movement and amount of San Juan-Chama water).

Approximate Technical Team time required: M. Sidlow 3 weeks  
Brad Vickers 3 weeks

### **SNOWMELT MODELING FOR STREAMFLOW FORECAST**

Priority: 3 (ongoing)

Work is on hold with MMS due to problems with model. The Corps is pursuing developing its own rainfall/snowmelt runoff modeling for the Rio Grande using HEC-HMS and CWMS.

Approximate Technical Team time required:                      Mark Sidlow     undetermined

### **Develop formal procedure for model and rules enhancements and bug fixes**

Priority: 1 (new task - start 3/2006)

Need to scope out if any software available to make process of updating rules and models more formal

Approximate Technical Team time required:                      Mark Sidlow     2 weeks  
   Mike Roark     2 weeks

### **Development of Short-Period Forecast Water Operations Model**

Priority: 2 (new task, start CY2007)

Develop the infrastructure to use URGWOM for weekly to daily model runs for real time water operations. The infrastructure will include:

1. A means to handle and format real-time data
2. Running of models to supply input forecasts of weather, ET, etc. data
3. Automated way to gather resources and run URGWOM

Approximate Technical Team time required:                      All                      undetermined

**Responses to Steering Committee Concerns on System Dynamics Model Coordination (Mike Roark)**

From February 9, 2006 Meeting

1. **Sufficiency with Corps Funding:** It has been established that the Corps funding alone is insufficient to fund this activity. Efforts are currently being made to meet with the Bureau of Reclamation to determine with URGWOM earmark funds are available to support this effort. There are potentially other avenues that can be pursued if Bureau of Reclamation funding is insufficient.
2. **Tech Team Time:** An evaluation of expected time required to support this effort has been developed. A single day meeting to familiarize the team with the model followed by bi-weekly meetings to review in detail each critical component of the model is suggested. Some minimal time between the meetings would be required to review model components and make comparative analyses. Total effort would be spread over a 6 month period and would require approximately 10-15 days of time for each participant. Each technical team member felt they could afford this level of effort if the aforementioned funding issues could be resolved.
3. **Sandia Funding:** For the current year Sandia has sufficient funding to perform the project. An operational model will be developed and delivered as part of this effort. Any additional efforts in out years would only be pursued if “additional” funding was secured. Members of the technical team will collaborate to the extent appropriate to identify such “additional” funding.
4. **Relationship between URGWOM and System Dynamics (SD) Model:** The SD model would be developed and calibrated to carefully reproduce results from the existing URGWOM model. The big difference is in the spatial and temporal resolution of the SD model. The SD model will run on a monthly time step rather than daily, have a similar river reach discretization, and lower spatial resolution on the groundwater modeling component (when URGWOM is linked to MODFLOW). The reasons for creating the SD model are the following:
  - a. The SD model provides a venue for stakeholders, decision makers and the public to interactively explore alternative water management scenarios. The model would be used to help educate and engage the non-water management community in resource planning and management issues.
  - b. Need a model that the water management community can use to run rapid scoping analyses. Such simulations would be valuable for narrowing the range of acceptable management alternatives, investigating long term consequences of today’s management decisions, and exploring issues of system sensitivity and uncertainty. Structural changes to the SD model can be made in a more timely fashion than to the more complex URGWOM model, thus facilitating scoping analyses prior to full scale modification to URGWOM.
  - c. In the future, the SD modeling framework can be used to integrate other critical subsystems. Specifically, issues concerning changing water use patterns, population growth, economic diversification/growth, ecologic impacts, water quality issues, and climate change can be integrated with the natural and engineered water resource system. In this way the broader impacts of resource management decisions can be investigated with a single integrated tool.