

**Notes from URGWOM Steering Committee Meeting;
February 9, 2006; 10:00 AM; Corps of Engineers Conference Room,
Albuquerque**

In Attendance:

Cyndie Abeyta, USFWS	Michael Roark, USGS
Steven Bowser, USBR	April Sanders, Corps
Heather Gordon, SAIC/Corps	Nabil Shafike, ISC
William J. Miller, WJM Engineering, Inc./Corps	Andrea Sweetman, Pueblo of Santa Ana
Conrad Keyes, Jr., Consultant to Corps	Vince Tidwell, Sandia National Laboratories
Leslie McWhirter, Corps	Tim J. Ward, UNM
	Dave Wilkins, Consultant to Corps
	Edie Zagona, University of Colorado

- ❖ Comments to the draft notes of the last Steering Committee Meeting were solicited.
- ❖ Leslie McWhirter reviewed the comment period plans for the Upper Rio Grande Basin Water Operations Review and EIS:
 - 60-day comment period, with a possible extension
 - Series of public meetings to be held
 - Two tribal workshops will be held, which will serve as a technical workshop for staff to address the issues facing the pueblos. The pueblo workshops are not public meetings, but only for pueblo staff.
 - Executive summaries will be available with full document on CD. The full document can be requested at the public meetings
 - Eight public meetings will be held from February 21 to March 9, from El Paso to Alamosa
 - Get the word out in order to encourage public attendance; sending a message to relevant listservs is one possible method
 - Ads have been placed in the local papers
 - Direct people to the website, where they can make comments and have the ability to gather information
 - No comments have been received yet
 - Steering Committee members are encouraged to attend the Albuquerque meeting on February 28, 2006 at the Indian Pueblo Cultural Center
- ❖ Mike Roark discussed Tech Team Activities with one handout included at the end of these notes.
 - Some funding provided in the 2006 congressional budget for Corps, Sandia NL, and IWR to coordinate model development. What products would be best for the stakeholders? Some users want a very technical model, others a more-user friendly interface. The Corps is coordinating efforts with the technical team to look at the PowerSim model that was used for the Water Operations Review.

- ❖ Vince Tidwell of Sandia National Laboratories (NL) gave a PowerPoint presentation on System Dynamic Modeling.
 - The Corps and other agencies are developing modeling tools to address very broad issues, including water supply, quality, impact to the environment and economy, and water rights.
 - The desire is to move away from litigation towards negotiation.
 - Negotiation is a solution by compromise, in which no one wins.
 - Rather, work towards an alternative mutual gains solution.
 - This solution is difficult, so it leads to bounded rationality, where judgment is limited by information and the inability to process existing information. This in turn leads to bias and systematic errors.
 - There is a need for tools that allow us to explore science, complexity, and decision space, which are easy to use, rapid, and broad. This will enable transparency, group thinking, and learning inclusivity.
 - System Dynamics is a formal mathematical framework developed in the 1960s at MIT.
 - System Dynamics are able to quantify feedback, time delays, and coupling between subsystems components.
 - System Dynamics are not intended to model at high spatial and temporal resolutions.
 - This model works like any other mass balance model, but at lower resolution.
 - The model is spatially aggregated, temporally dynamic; i.e., lumped parameter modeling.
 - Basin size and time step are both flexible.
 - Rather than focus on groundwater or surface water, it can expand to agriculture, environmental and economic impacts, reservoir levels, etc.
 - Effective tool/interface for presenting to public
 - Accessible to users, stakeholders, and politicians
 - PC-based interface
 - Sandia NL has been developing this model using internal funding.
 - Working towards a monthly time step model with extended spatial extent, integrated surface water/groundwater systems
 - Basically extended URGWOM model
 - Same data, inputs, and outputs as URGWOM
 - Working with staff at NMSU for very complex Hydrologic Resource Unit models
 - UNM staff working on economic modeling components
 - Why is another model needed?
 - Not intended to replace ModFlow or RiverWare, but to provide additional functionality
 - Model works faster at larger temporal and spatial resolution
 - Model is more portable, making it easy for public use
 - Assuming Steering Committee wants to go forward, Sandia NL would need to speak with the technical team regarding how to handle the hydrology.

- The Steering Committee had the following comments regarding the System Dynamic Modeling presentation:
 - Paso del Norte Watershed Council might be interested
 - Would this overwhelm the already busy technical team?
 - What is the available funding?
 - City of Albuquerque was interested in a monthly time step model, which the existing model could not provide. As a result, the City created its own model. However, the System Dynamic model may be of interest to stakeholders like the City.
 - Special funds received this year to coordinate PowerSim model with Sandia NL, but will this be available in the future?
 - The four main points that the steering committee must consider before moving forward with the System Dynamic coordination are:
 - Corps funding
 - Tech Team time
 - Sandia NL funding
 - How the Corps and Sandia NL models complement and expand each other



- **Will follow up on these four points, and respond at the next steering committee meeting**
- ❖ Dave Wilkins presented Phase II testing synopsis accompanied by three handouts, one each for the three scenarios. (The Excel spreadsheet showing these results will be posted on the URGWOM website at [http://www.spa.usace.army.mil/urgwom/.](http://www.spa.usace.army.mil/urgwom/))
 - Various teams had issues with target flow analysis. The results received from the teams must be compared in order to assure consistency.
 - Software from CADSWES can/will be used to compare the different model files. However, this only runs on UNIX.
 - Hope to be finished in a few weeks and get report out comparing values the tester received versus the values the Corps received.
 - Inconsistent results may occur due to variable inputs.
 - Feedback/comments from testers not received.
 - The 'big picture' of the testing was to get the model out so users could develop familiarity. Test run was to subject model to scrutiny and increase transparency of process.
 - Testing provided exposure to URGWOM model rather than garner data quality feedback.
 - Process to ensure stakeholders could run model. However, not too many testers understood the system well enough to modify inputs to see if those results matched their expectations.

Technical Team Activities

February 9, 2006

MODEL TESTING

- Help analyze the results of the testing, as needed

SW/GW INTERACTION

Past activities

- CADSWES wanted Excel proof of concept of SW/GW interaction versus Modflow
- Finished the development of the Excel proof of concept test for new SW/GW interaction methods in Riverware and sent it to CADSWES
- Existing model had error loops taken out and existing RiverWare head dependent flux methods tested. The results of this effort were mixed. Results when compared to gage flows seemed worse, but Dave was able to modify.
- Have received the first draft design document for required changes to or development of RiverWare methods for SW/GW interaction.

Future activities

- Finished reviewing document and work with CADSWES in developing a design document for required changes to or development of RiverWare methods
- Work with CADSWES in developing a design document for a dynamic link between RiverWare and MODFLOW

TARGET FLOW CALCULATIONS

- When Brad was here found some problems that were affecting target flows
- Mark prepared a technical memorandum on fixing problems with target flows.

UPDATE OF DATA IN HEC-DSS DATABASE

- Technical team 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 the DSS database.

RULES DEVELOPMENT AND DOCUMENTATION

- Nabil and Garret will complete review of the rules documentation.

MEETINGS

- Technical Team members met with CADSWES personnel to discuss several items:
 - 1) Scope of work for the COE with CADSWES for the year;
 - 2) SW/GW interaction development;
 - 3) Target flow issues
- Technical Team members met with Sandia representatives to discuss cooperation in models development at BOR and at last Technical Team Meeting.
- There are no land use classifications south of Elephant Butte. The Corps will be giving out land use classes, and other agencies will collaborate to use those when generating data for the ET toolbox.