

# Notes from the Upper Rio Grande Basin Water Operations Review Steering Committee Meeting; November 15, 2002; 10:00 AM; Corps of Engineers; Albuquerque, New Mexico

*In attendance:*

\*Lee Brown, MRG Water Assembly

Steve Hansen, USBR

\*Cliff Crawford, UNM

\*Charles Lujan, Pueblo of San Juan

☉LTC Dana Hurst, Corps

☉Ken Maxey, USBR

\*Gina DelloRusso, USFWS

Gail Stockton, Corps Project Manager

Ellen Dietrich, SAIC/Corps

\*Steve Wagner, Weston Solutions

Rhea Graham, NMISC Project Manager

☉ denotes Executive Committee member or their representative.

\* denotes Steering Committee member or their representative.

- ❖ Lt. Col. Dana Hurst opened the meeting and welcomed the Steering Committee members for the Executive Committee. After self-introductions, he turned the meeting over to the Project Managers.
- ❖ Rhea Graham, the Project Manager for the New Mexico Interstate Stream Commission, gave a slide presentation on the development of a 40-year sequence of flows that has been selected for the planning period in order to evaluate the operational alternatives for the Water Operations Review and EIS. Rhea distributed a handout of the slides in the presentation and a paper that provides supporting information. The main discussion points and questions are summarized in these notes.
  - The 40-year sequence was needed to realistically represent the variation of climatic conditions over approximately 300 years. This sequence will be used in the URGWOM Planning Model for consistent analysis of all alternatives to be evaluated in the EIS.
  - Inputs to the URGWOM Planning Model require detailed daily timestep data. It was decided by the URGWOM Technical Team that, rather than synthesizing all necessary data, actual historic data should be used. Complete historic data are available from 1975 to 1999, so it was agreed that some combination of these years would be used to develop the representative 40-year period.
  - In preparation for developing the sequence, a study was made of the climatic and flow variations using paleo-climate data over the past 300 years. The Palmer Drought Severity Index (PDSI) was used to identify trends and variations over the 300-year period. Then a correlation was established between the Otowi Index Flow and the PDSI. The PSDI would be used to forecast out into the future.
  - Combinations of the hydrographs from 1975 through 1999 were randomly generated in 40-year sequences and evaluated to determine which ones best meet the criteria developed by the URGWOPS Water Operations Technical Team. These criteria required selection of a sequence that includes:
    - typical drought and wet periods, which include the most extreme year of each;
    - a 4-year run of very dry years to approximate conditions in the 1950s;
    - a mean that is similar to the past 50-year period.

- **Question:** Is the variation of the PDSI limited to a specific range?
  - **Answer:** This was not specified but in the historic record the PDSI varies between -2 and 2 most of the time. It is interesting to note that no one year of Otowi flows equates to the numerical average.
- **Question:** Can you overlay the 1700s graph with the graph of Otowi flows? They look similar.
  - **Answer:** This could be done to see the relationship but it has not been done yet. It would be an interesting exercise.
- **Question:** Are the paleo-climatic flows based on tree ring data?
  - **Answer:** Yes.
- Other discussion and comments:
  - Lou Scuderi gave a presentation at another meeting that established approximately 70 years between peaks using tree ring data. The method presented here showing a 10-year average peak obscures the real cycle. A discussion of this 70-year cycle should be added to the background information.
  - It is not unreasonable to think that we just peaked in a 24-year wet cycle.
  - The synthetic low selected is lower than any low in the 1000 years shown in the slides.
  - Information to explain why the data from the 1950s drought were not used should be added to the discussion of the selection of the 40-year sequence. These flow data were not used because the required daily timestep data are not valid through the Middle Valley for the 1950s. Flows in the river were artificially high in the 50s due to the recent completion of the drain system. The flow data reflected the draining of the lands.
  - Charlie Lujan made the point that 40 years is short for planning. The pueblos take a much longer term view of the river.
- **Question:** What is the significance of the sequence?
  - **Answer:** It represents the last 300 years with real data derived from 1975-1999. It uses a standard dataset so it is not biased.
- **Question:** How was it determined to develop a 40-year sequence?
  - **Answer:** Originally the length was selected to correspond with the planning period for the regional water plans. Other factors have supported this length since then.
- **Question:** Was the actual period of record sampled to represent the 40-year period?
  - **Answer:** Yes.
- **Question:** Explain the correlation between the PDSI and why you are not using Otowi flows directly.
  - **Answer:** Otowi flows are only available for a relatively short period from 1975-1999 that is too wet to rely on as a representative sequence. The use of the PDSI enables the development of a representative sequence that extends beyond the wet cycle. A strong relationship between the PDSI and Otowi flows has been identified.

- **Question:** Is it correct to assume that 2002 is a very dry year when comparing to the 300 years shown in the summary graphs?
  - **Answer:** It looks that way because flows this year were unusually low at Otowi and it had the worst runoff on record, but during the late fall there has been unusual moisture, so this is yet to be determined.
- **Comment:** No very dry years occurred in the wet cycle based on historic data shown in the slides. If this is a very dry year, this may indicate the end of a wet cycle and the probable beginning of a drought period.
- **Comment:** The data do not take into account the seasonality of flows. It makes a huge difference from the biological standpoint.
  - When running the model for analysis, we can and will consider the seasonality of flows.
- **Question:** What is the relevance of the information to the decision to be made?
  - **Answer:** The analysis must relate these data to the “hands dealt” or the alternatives considered and the impact analyses in the EIS. This must be presented in a non-scientific way that the public can understand.
  - In the analysis, we should be able to predict the probability of having an event or scenario occur and relate that to resource needs in evaluating impacts. This would help water operations managers to plan actions and costs.
- **Comment:** This shows that the EIS is really being conducted in an unbiased way, without proposing an “agenda.” It will be important to clearly explain and support the choice of the 40-year sequence so that those inclined to object could understand its importance and realize that the flows were not manipulated to promote a specific point of view. It will also be important to explain how the hydrology will be used to analyze the alternatives.
- **Comment:** The timing of the flows is important in the sequence. Trying to manage a known sequence of flows would help illustrate where and when agencies have the operational flexibility to satisfactorily manage water operations within their existing authorities. In the future, this information could be used to change agency authorities to gain flexibility.
  - It would be interesting for water managers to determine whether they can manage satisfactorily over this 40-year sequence within existing authorities even when the hydrographs are known. It may be useful to determine how much better they can make operational decisions if the future is known.
- **Question:** What is the impact of this presentation on the Middle Rio Grande Water Assembly? It could be useful to policy-makers to present the supply picture and match up with the projected demands. It could convey the message that, even if next year is wet, it would not mean that the region is out of a drought cycle in the long-term. This could be presented by starting at the end with a series of hydrographs that visually depict the sequence, then taking questions from those interested in the details.
  - There are no plans right now to present this to the Water Assembly or to the public before the Draft EIS is released. We should not present predecisional information. However, people are free to attend any URGWOPS meetings, if they wish.
- **Comment:** It may be useful to consider a longer period than 40 years because the river may take longer to recover than would be accounted for in this period.

- **Question:** Would the initial conditions in the URGWOM Planning Model be those for 2002?
  - **Answer:** Yes.
- ❖ Gail Stockton and Rhea Graham discussed the next steps in the URGWOPS project using a flow chart.
  - The current step includes the development of inputs to the Planning Model.
  - Then will assemble and complete development of the action alternatives. The No Action alternative has been described. The Water Operations Technical Team is currently evaluating the feasibility of each of the draft alternatives that were presented in the public meetings.
  - Tech teams are on track to begin analysis in January.
  - The Joint Lead Agencies have the resources to continue the project through 2004.
- ❖ Other items discussed:
  - The comments on the draft alternatives received during the public and Steering Committee meetings from December 2001 through June 2002 have been assembled, categorized, and summarized in a report that will soon be posted on the URGWOPS web site.
  - The Project Managers raised the question of the extent of analysis permitted below Elephant Butte and whether the gag order is still in effect. When the project began, the alternatives and analysis were limited to flood control operations below Elephant Butte, as advertised in the Notice of Intent. According to Ken Maxey of the Bureau of Reclamation, this constraint (ongoing litigation) is still in place.
- ❖ Lt. Col. Hurst adjourned the meeting. The next URGWOPS Steering Committee meeting will be held in June 2003.