

**Notes from Upper Rio Grande Basin Water Operations Review
Interdisciplinary NEPA Team Meeting; February 12, 2004;
1:00 PM; Rio Grande Conference Room, Bureau of Reclamation,
Albuquerque**

In Attendance:

Neal Ackerly, Dos Rios (SAIC)/Corps	Clay Mathers, Corps
Mike Buntjer, USFWS	Bob Mussetter, MEI/NMISC
Deb Callahan, USBR	Claudia Oakes, SWCA/NMISC
Ellen Dietrich, SAIC/Corps	Jim O'Brien, Tetra Tech/Corps
Rob Dudley, UNM	Dennis Oyenque, Pueblo of San Juan
Don Gallegos, Corps	Jesse Roach, Sandia National Labs
Susan Goodan, SAIC/Corps	Nabil Shafike, NMISC
Rhea Graham, NMISC	Gail Stockton, Corps
Debbie Hathaway, SSPA/NMISC	Valda Terauds, USBR
Mark Horner, Corps	Nancy Umbreit, USBR
Jon Kehmeier, SWCA/NMISC	Jack Veenhuis, USGS
Paula Makar, USBR	Scott Waltemeyer, USGS
	Doug Wolf, Tetra Tech/Corps

- ❖ Rhea Graham chaired the meeting and requested that participants review the draft notes from the January meeting.
- ❖ Technical team representatives reported on their progress in analyzing data to evaluate the effects projected under each alternative.
 - Land Use, Socioeconomics, Agriculture, Recreation Technical Team—Susan Goodan
 - Analysis of URGWOM output is ongoing. Susan noted that February is a critical month for analysis of data.
 - She asked whether FLO-2D plans to provide the longest duration of grid cell inundation as part of its output. Doug Wolf responded that duration is reported as the total time that a cell is flooded by at least 0.5 foot, so that should provide the information that Susan needs.
 - Aquatic Systems Technical Team—Rob Dudley
 - The team has worked out the criteria for fish communities against which to compare the FLO-2D and Aquatic Habitat Model outputs.
 - Bill Miller should complete the Aquatic Habitat Model runs by mid-February.
 - Geomorphology, Sedimentation, and River Mechanics Technical Team—Paula Makar
 - Paula and Bob Mussetter have met over the past few days with the Cultural Resources, Riparian and Wetlands, Hydrology and Hydraulics, and GIS Technical Teams, mainly to discuss how to develop the Bank Energy Index (BEI) by reach for teams to use in analyses.
 - The Riparian and Wetlands Technical Team is the only team that may submit some locations for the development of the BEI.
 - The Geomorphology Technical Team will then develop the BEI and provide to all teams.

- The tech team is continuing to develop the other data requested by the technical teams, by reaches and alternatives where possible:
 - Flow duration curves
 - 1.5-, 2-, and 5-year return period flow peaks
 - Peak flow variability
 - Rating curves
 - Sediment volume changes
 - Annual tributary volumes
 - Representative bed material particle size distribution
 - Effective discharge
- Water Quality Technical Team—Jon Kehmeier
 - The water quality model is running using the URGWOM output data. The results will be statistically tested for variability and compared to gage data.
 - The team decided to drop pH and turbidity from the parameters to be evaluated because there are no meaningful relationships to operations and alternatives.
 - Team members are still determining the best methods to assess the alternatives.
 - The team also revised the weights for analysis criteria for the decision support system worksheet.
- Water Operations—Don Gallegos, Debbie Hathaway
 - Don provided the EIS editor with some descriptions to clarify the alternatives for Chapter 2.
 - Debbie explained that the team had concerns over the change in the alternatives made by the ID NEPA Team in December. To correct the elimination of one of the Heron waiver dates that the team believes is important, they combined Alternatives C3 and E3, with the primary difference being the timing of the waiver at Heron Reservoir.
- Riparian and Wetlands Technical Team—Claudia Oakes
 - The team met with the Geomorphology Technical Team to discuss the development of the BEI. They also discussed how to develop useful measures of peak flow variability to help them evaluate variable overbank flow conditions.
 - The completion of the vegetation mapping is a little behind schedule, but should be done soon.
 - Deb Callahan identified some differences between the channel banks in Reach 14 used in the vegetation mapping and that used in FLO-2D. Some of these issues were resolved at meeting held on February 19 between the GIS team and the FLO-2D support team.
- Hydrology and Hydraulics—Nabil Shafike
 - Nabil's Surface Water/Groundwater model is running and output for the reach below San Acacia will be available sometime in March. Output will include groundwater elevations by flows and riparian evapotranspiration. **Nabil will give a presentation on the model and its output at an ID NEPA Team meeting when the model runs have been completed.**
 - Doug Wolf's presentation on the FLO-2D model runs is summarized under the next main agenda item.



- Cultural Resources Technical Team—Neal Ackerly, Dennis Oyenque
 - The team discussed the need to provide specific locations for development of the BEI with the Geomorphology Technical Team both over the telephone and in a meeting immediately before this meeting. The result is that the Cultural Resources Technical Team will not provide site locations of interest for the index, but plans to use the BEIs for each reach to determine whether sites are likely to be affected by bank erosion.
 - The team expressed concern that the Geomorphology Technical Team did not intend to generate BEIs for the Rio Chama reaches.
 - Neal asked that the Project Managers consider whether they should request new archaeological site data from the state Archaeological Records Management System to update the dataset that is about a year old. The Project Managers agreed that the team should get new data if there has been much change since it was provided last year.
 - Dennis is looking into the language that is used by the BIA to describe Indian Trust Assets. Valda pointed out that the tech team needs to develop criteria related to this for the decision support matrix.
- GIS Technical Team—Clay Mathers
 - The team met with the Geomorphology Technical Team during part of their meeting on February 11 and along with the Cultural Resources Technical Team immediately before the ID NEPA Team meeting.
 - They would like to know if any of the technical teams needs maps of the numbered grid cells referenced by FLO-2D outputs to help locate the cells in relation to the reaches and subreaches of interest. Showing the grid cell numbers could be simplified by labeling rows instead of each grid cell.
- ❖ Doug Wolf and Jim O'Brien gave a presentation on FLO-2D results for the EIS alternatives.
 - Doug began with an overview of FLO-2D and its limitations.
 - FLO-2D is a volume conservation, 2-dimensional flood routing model. It routes a flood hydrograph and computes channel and floodplain hydraulics while conserving volume. Included in predicted hydraulics are water surface elevations, discharges, flow depths, and velocities.
 - Its limitations (related to URGWOPS support) include the following:
 - Interpolated cross sectional data are used to represent approximately ¼ of the channel data.
 - Cross section surveys were collected at different time periods.
 - FLO-2D uses the surveyed top of bank to compute overbank discharge. Overbank discharges are potentially variable within a grid element because one top-of-bank elevation represents the grid element.
 - The contour accuracy developed from some of the DTM data is on the order of ± 1 foot. The predicted water surface elevations are on the same order of accuracy.
 - **Question:** What is used to develop the grid cell elevation?
 - **Answer:** Criteria were applied to filter the DTM elevations so the value is the closest to the known elevations in the cell derived from DTM points.
 - An electronic file (.pdf) of the description of model development is available on Team Link. Doug distributed some hard copies at the meeting.

- FLO-2D is also being used for other middle Rio Grande projects.
- Doug worked with the Riparian and Water Operations Technical Teams to develop some criteria to help select the years from the URGWOM runs that would be most likely to result in overbank flooding. The main criterion used was any daily discharge data that meets or exceeds a 4,000 cfs release from Cochiti.
 - These criteria were used to reduce the number of FLO-2D model runs because they are very time-consuming, each alternative taking between 8 and 24 hours to run.
 - Doug obtained the URGWOM hydrograph data for the base run and various alternatives. Selecting a peak discharge of 4,000 cfs from Cochiti as a minimum for producing overbank flow enabled the number of years to be modeled with FLO-2D to be reduced from 40 to 21.
- **Question:** What is the link between URGWOM and FLO-2D? How do you translate between URGWOM and FLO-2D?
 - **Answer:** URGWOM diversions, irrigation return flows, and tributary inflows are assigned at the gages for the URGWOM model. These inflows are input to the appropriate grid elements at the approximate location of the inflows. There is a good match between URGWOM and FLO-2D.
- FLO-2D results include the depth, duration, and area of overbank flooding described as cumulative values by reach. The requested hydraulic results have been compiled in Excel spreadsheets for the tech teams.
- **Question:** How confident are you of the model predictions at San Marcial?
 - **Answer:** The results are reasonable, based on a comparison against all 40 years of URGWOM data at San Marcial. The USGS gage data at San Marcial is questionable, so correlation with it is subject to interpretation and judgment. Below the San Acacia diversion dam, the base run represents an extreme because there are no diversions into the Low Flow Conveyance Channel for the alternatives.
- The shapefiles that are outputs from FLO-2D Mapper display the maximum areas of inundation for each alternative run and include maximum water depth, maximum velocity, and duration.
- Doug will provide one set of CDs containing FLO-2D input and output files, the summarized results in Excel spreadsheets, and shapefiles for each alternative to the Project Managers. Distribution of this data will most likely occur through the GIS Tech team. **The Project Managers will keep a list of who receives the original data CDs.**
- ❖ Ellen Dietrich gave an overview of the data quality database.
 - The database was developed to handle all of the entries submitted by the technical teams on the data quality forms. The purpose is to organize the information for each dataset used by the teams to enable everyone to sort, group, and select the datasets as needed, as well as to summarize the data quality by reach, subject, or team.
 - In order to use the entries submitted by the teams, it was necessary to separate the datasets by reach before entering them in the database. Other changes included adding to each row the date submitted, the team name, and the point of contact for obtaining the data.
 - The most difficult task to be done before the datasets could be added to the database was to standardize the entries to meet the format (number, text, yes/no, etc.) and the field name. Ellen showed some examples of how the column that was originally in the form completed by the teams was modified in the database. In some cases, one field became two or three.

- As she was entering the information in the data quality forms into the database, Ellen had to make some assumptions and modified some of the information provided by the teams. For this reason, she will need to review the entries with each team at meetings, or with the people who submitted the forms.
- The new forms will be distributed to each technical team and must be used for all additional datasets. **Ellen will be sending these out and contacting the technical teams within the next few weeks. The new data quality form will be posted on Team Link.**
- Ellen distributed a handout that showed the number of datasets submitted by each team in each reach and how many of those were rated for data quality. Many teams did not assign data quality ratings (good, fair, poor) to the datasets submitted.
- It was pointed out that some teams did not assign quality ratings because they did not want to reflect negatively on the data collected by someone else. However, the important point to remember is that these **ratings do not reflect on the overall data quality or data collection process, but are intended to evaluate the usefulness of the data for analysis of the alternatives.** The ratings are necessary to disclose to the public the quality of the data used in the analysis as well as to identify where future improvements can be made for evaluating the effects of water operations.
- ❖ Deb Callahan distributed a handout showing a suggested format for maps. The GIS Technical Team has been discussing what formats and standard information should be used on all maps in the EIS. **It has been agreed that maps will be in color and, whenever possible, should be on letter-sized paper.**
 - As the technical teams are writing their sections, they need to consider where they want to use maps to illustrate their points, both in the technical reports and in Chapters 3 and 4 of the EIS. The teams must call out the map, i.e. Map 3-1 Geomorph, numbered internally to their section. **For every map called out in the section, the technical team should provide to the GIS Team with a sketch and a brief description of what should be displayed.** It would help if the narrative that refers to the map is included with the description.
 - **Reservoirs will be displayed at full operating pool on all maps.**
 - The GIS Technical Team will decide who will develop the map and what format will be used, but they are looking for input from the other teams.
 - The Project Managers are looking for good photographs showing both wet and dry conditions at reservoirs, along the rivers, and of different land uses that can be used in the EIS. **Any technical team members with photos should send them to the GIS Technical Team.**
- ❖ Claudia Oakes stressed the importance of using Team Link to check in with other teams, post written sections, and keep up to date with information related to URGWOPS. Time is becoming critical so teams must communicate using all of the resources available. Claudia reviewed how team members can get access to Team Link.
 - Those who have lost their password or need help in accessing Team Link should contact Colleen Logan at (505) 837-6523 or 250-1799. Her e-mail address is colleen.logan@westonsolutions.com.
 - Technical teams should post meeting information to help coordinate with other teams.
 - Rhea Graham encouraged people to fax or mail information from or about their meetings to Chuck Braden at BIA, especially when they may need input from that agency. Chuck's fax number is (505) 364-7593 and phone number is (505) 346-7587. He does not have e-mail at this time, so the links sent through Team Link will not reach him.
 - Technical teams must place all files for Chapter 4 of the EIS (Impact Analysis) in the new Chapter 4 section on Team Link.

- ❖ Claudia Oakes distributed a draft list of reasonable and foreseeable future actions that have been analyzed in draft or final NEPA documents. These projects are those that may affect water operations, affect the assumptions for or the analysis of the URGWOPS alternatives, or may provide important baseline data in the future.
 - Also included in the handout is a list of projects, planning guidance, or policies that are in the early planning stages that may affect Rio Grande water operations. Some recommended additions include the New Mexico State Drought Plan, other regional water plans, and the Texas-New Mexico Sustainable Water Project.
- **Technical teams must submit additional items for this list to Claudia by the end of February.**
- ❖ Valda Terauds reported that the Project Managers received draft copies of Chapters 1 and 2 from the USBR technical editor.
 - After a quick review, the Project Managers determined that there is a need for major revisions and will decide next week how to proceed. They expect to receive a draft of Chapter 3 in two weeks.
 - Rhea reminded the teams that they must work hard to clearly explain their information and results of analyses to the public.
- ❖ Rhea stressed that this is the last year of major funding for the URGWOPS project. The Project Managers do not anticipate time extensions so the technical teams must keep making progress toward completing the EIS, and identify any problems early so they do not cause delays.
- ❖ **The next Interdisciplinary NEPA Team meeting will be held on March 11 at 1:00 p.m. in the Corps conference room.**