Notes from Upper Rio Grande Basin Water Operations Review Interdisciplinary NEPA Team Meeting; August 8, 2002; 1:00 PM; Corps of Engineers Conference Room, Albuquerque

In Attendance:

Neal Ackerly, Dos Rios/Corps
Scott Anderholm, USGS
Carolyn Brumfield, Corps
Mike Buntjer, USFWS
Deb Callahan, USBR
Art Coykendall, USBR
William DeRagon, Corps
Darrell Eidson, Corps
Susan Goodan, SAIC/Corps
Rhea Graham, NMISC
Debbie Hathaway, SSPA/NMISC
Jon Kehmeier, SWCA/NMISC
Conrad Keyes, Jr., Consultant to Corps
Steve Kolk, USBR
Signa Larralde, USBR
Bill Leibfried, SWCA/NMISC
Dagmar Llewellyn, SSPA/NMISC
Colleen Logan, R.F. Weston/Corps
Charles Lujan, San Juan Pueblo
Clay Mathers, Corps
Bob Mussetter, MEI/NMISC
Jennifer Neal, Corps
Claudia Oakes, SWCA/NMISC
Robert Padilla, USBR
Chris Perez, USFWS
Steve Piper, USBR
Michael Porter, USBR
Tim Seaman, NMSHPO
Gail Stockton, Corps
Julie Tsatsaros, NMED/SWQB
Larry White, USBR
Doug Wolf, Tetra Tech/Corps

- Gail Stockton opened the meeting and announced that this was the last meeting for Steve Kolk who is taking a job in Washington State and Julie Tsatsaros who is moving to take a job at the University of California, Davis. Gail presented each with a token from URGWOPS and expressed her appreciation for all of their work.
- Gail turned the meeting over to Clay Mathers, who explained that this meeting was intended as a workshop for all technical team members to plan for impact analysis with assistance from the support teams. It was developed after some support team members met with the Project Managers to discuss how to accomplish the impact analysis and development of the Draft EIS. The objectives for this workshop listed in the agenda included discussion by the resource teams of the:
  - Output of technical team analyses
  - Methods and models to accomplish the analyses
  - Priorities for analyses
- Ellen Dietrich reviewed the timeline that was developed by working from the date that the Records of Decision are scheduled to be signed, backwards to the distribution of the Draft EIS, impact assessment, and the finalized alternatives. The basic timeline shown by task on a large format sheet are listed below.

Tasks	Start	End
Finalize Action Alternatives	9/30/02	9/30/02
Complete Affected Environment Narratives	1/2/02	12/31/02
Preliminary impact analysis	10/1/02	12/31/02
Evaluation of impacts using models	1/2/03	4/30/03
Write Chapter 4, Analysis of Effects, develop graphics, technical editing	5/1/03	7/1/03
Prepare PDEIS–QA/QC, assembly, printing	7/2/03	8/30/03
Distribute PDEIS for internal review	8/30/03	8/30/03
Agency review period for PDEIS	8/31/03	10/1/03
Incorporate comments from internal review	10/2/03	10/31/03
Camera-ready DEIS	11/1/03	11/30/03
Print DEIS	12/1/03	12/26/03
File DEIS with EPA, Mail NOA to Fed Register	12/29/03	12/29/03
NOA in Federal Register	1/2/04	1/2/04
Public comment period	1/3/04	2/16/04
Update administrative record with all references	12/30/03	6/26/04
Comment review and ID, designate respondents	2/17/04	3/17/04
Develop responses to comments and appendix summarizing	3/18/04	5/1/04
Revise DEIS, finalize FEIS	5/2/04	8/29/04
Camera-ready FEIS	8/30/04	9/3/04
Print FEIS	9/4/04	9/30/04
JLA reviews EIS and develops RODs	10/1/04	12/29/04
Records of Decision published	12/31/04	12/31/04

- Of concern at this stage is that all technical team members recognize that they have a very short timeframe for completing the evaluation impacts and writing up the impact analysis for the Draft EIS. To facilitate meeting this short timeframe, additional workshops will be held, and resource teams are encouraged to work with support teams to communicate their needs.

❖ Clay Mathers and Doug Wolf presented information on the types of model outputs and other assistance that to be provided by the support teams. The points from their slide presentations are listed below by team.

- URGWOM Integration/Water Operations
  - Types of output include daily flow hydrographs in cfs; daily elevation and storage hydrographs for each reservoir in the system (ft and acre-feet); daily evaporation at the reservoirs (inches, acre-feet)
  - Data can be provided at each reach, gage location and reservoirs.
  - Concerns voiced by Don Gallegos are that model flows should be used within the limits of the model.
- Hydrology and Hydraulics—Flo-2D
  - Cochiti Dam to Elephant Butte: 173 river miles; 29,782 grid elements; over 400 surveyed cross sections
  - Model output will provide the area and duration of inundation

- Assumptions and limitations: Grid element size (6 acres); Rigid bed; Lack of spatial calibration; Limited number of cross sections; levees will hold
- Model output will be either ASCII data files or graphics that can be used by GIS.

➢ Hydrology and Hydraulics—Surface Water/Groundwater model

- Model output includes spatial and temporal output distributed over a 1000 ft. grid.
  - Groundwater elevations at different times
  - Flow hydrograph locations below San Acacia
  - River and LFCC loss/gain
  - Riparian vegetation ET
  - Water budget
- Data format would be in XYZ coordinates and/or ArcView shapefiles that are based on a uniform 1000 x 1000 ft. grid from San Acacia to Elephant Butte reservoir.
- Use of Surface Water/Groundwater model output:
  - Results of modeling scenarios from alternatives interpreted within the assumptions of each scenario within limits of the overall model assumptions
  - Some model outputs are regional, such as water table elevation and specific local phenomenon may not be represented

➢ River Geomorphology, Sedimentation, and Mechanics

- Output from research and models
  - Qualitative and some quantitative assessments of channel response by alternative, including channel width, depth, slope, and sinuosity
  - Under various hydrologic regimes may include but are not limited to channel velocity, width, depth, wetted area, stage, overbank potential, shear values, sediment transport capacity, erosion/deposition tendencies, and bed material sizes.
- Formats for output would be graphical or tabular, related to reaches and point locations.
- The team recommends that their information be used to evaluate the potential river channel morphological response to any of the proposed operational alternatives.
- The Geomorphology tech team is concerned that other teams might be expecting more specific and quantitative information than can be provided for this project.

➢ GIS

- The types of output to be provided by the GIS Team include:
  - Points (for example, nesting locations affected)
  - Lines (for example, acequias located within the area of effect)
  - Polygons (for example, portion of Reach 7 that has water quality problems and silvery minnow habitat)
  - Graphs (for example, acres of land inundated in each Reach)
  - Maps (for example, areas of greatest impact and greatest benefit from an alternative)

- Statistics (for example, acres of overbank flooding by reach or percentage of National Register archaeological sites within area of effect)

▪ Data will be formatted as follows:

- Grids, terrain models, GIS coverages, orthophotography, and hardcopy output
- The original spatial units (such as feet or meters) will be retained wherever possible and reprojected only as necessary.
- All changes to the original data will be recorded in metadata files.
- Supporting documentary data scanned.

▪ The uses of GIS data are recommended to:

- Support team-specific analyses and recommendations concerning resource protection and water operations policies;
- Support the qualitative and quantitative assessment of each team's results so that a synthesis of all their results is coherent, accurate and defensible;
- Be used throughout the process of assessment, interpretation, and synthesis.

▪ GIS Team concerns regarding the use of modeling and data include:

- Data from other teams and outside sources will be formatted so they cannot be integrated effectively or will require a difficult and expensive process to integrate with the information collected by others;
- Poor communication with GIS Team may result in confusion about the interpretative limits of datasets;
- Resource Teams need to understand the important role they play in advising the GIS (and other Support Teams) about the direction their different analyses are taking, as well the results that are being derived and the likely direction of future analyses;
- The overt importance of data quality is being overlooked or underestimated in the analysis, synthesis, and summary phase of the project.

❖ Following this presentation, each tech teams separated into their own group to discuss the types of output that they anticipate will come from their analysis of alternatives. Members of the support teams were available to assist them by explaining how their teams could help accomplish the needed analyses. After approximately a half-hour, the teams were called on to list their decisions, which were recorded on flip charts. The notes were scanned and are attached to the end of these notes.

❖ The discussion of the methods for analysis and the priorities of each resource team was not completed in this workshop, so it will continue at the next meeting scheduled for Thursday, September 12 at 1:00 p.m. at the Corps. All tech team members are asked to attend.

Outputs Needed from Support Teams

Riparian

- For the snowmelt runoff period:
  - Duration/extent/frequency of overbank flooding (May – July)
  - % of years when overbank flooding occurs by designated areas of interest (technical team to identify locations)
- Intersect FLO-2D with veg/habitat types
- At selected points, difference in stage between alternatives
- For specific points, period of duration of overbank flooding
- GIS maps of channel changes with habitat
- Rate of groundwater decline by reach correlated to surface water elevation
- Average annual flow volume (af/yr) left in Rio Grande below San Acacia Diversion Dam vs. Low Flow Conveyance Channel
- Effects of any alternatives on reservoir levels at Elephant Butte (monthly elevation)

Cultural Resources

- Archeological sites by 500-ft grid cell – from Abiquiu downstream
- Duration/extent/frequency of overbank flooding by alternative (year-round or twice a month?)—average, minimum, maximum
- Cell-specific—number of times cell inundated over a year
- From Geomorph Technical Team and GIS— aggradation/degradation by alternative, by reach

Water Quality

- Bathymetric maps of reservoirs
- Flows for each alternative (plus range of flows)—daily flows by URGWOPS reach
- Changes in reservoir volumes by alternatives over time
- Stream-bottom deposition:
    - Depth of deposition
    - Particle size by reach
- Sediment discharge
- Fine sediment concentration (load) from daily discharges
- Aggradation/degradation
- Projected development and impermeable surface
- Fish and invertebrate response data—indices for water quality impacts
- Period of inundation in reservoirs

Aquatic Systems

- Identify surface areas of low velocity by reach
- Overbank flooding—duration, frequency, timing
- Stream velocities by reach/alternative—average velocities per reach
- Channel change, substrate particle size, by reach and by alternative
- Reservoirs—bathymetry, elevations, volumes by alternative and season (under wet, dry, normal years)
- Annual hydrographs by reach and alternative (wet, normal, dry)

Land use

- Duration/extent of overbank flooding where structures are located
- Reservoir depth and surface area
- Average, maximum, minimum of water depth and surface area (monthly)