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to: Southwest New Mexico Stakeholder Group and Gila-San Francisco Modeling Team

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subject: September 2008 Update of the Gila-San Francisco Decision Support Tool

## Background

In 2005, prompted by the 2004 Arizona Water Settlement Act, Sandia National Laboratories,, the Interstate Stream Commission, and several local, state, and federal entities formed the Gila-San Francisco Collaborative Modeling Team. One of key drivers for this collaboration is the development of the Gila San Francisco Decision Support Tool. The Tool is founded on a hydrologic model for Southwester New Mexico’s four-county area and calibrated against historical water supply and demand records for the region. Figure 1 shows the region where the model represents.

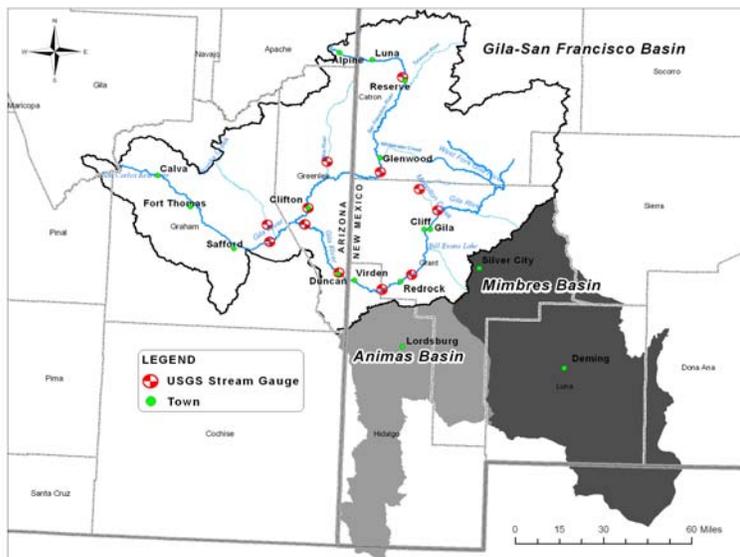


Figure 1 – Geographic boundary of the current GSF Decision Support Tool.

The goal of the model, as drawn by the collaborative group, is to answer three important questions in the context of the New Mexico Consumptive Use and Forbearance Agreement: (1) Given various constraints, how much water is available from where, when, and to what purpose? (2) Given various constraints, how much water is in demand from where, when, and to what purpose? and, (3) What are the tradeoffs among various approaches to managing this water? To address these questions, the Tool has a built-in user interface that allows “scenarios” to be set-up and played out into the future 25 to 50 years. Six categories of user

controls were created: *Hydrograph and Temperature; CUFA; Municipal demand; Agriculture; Minimum flow; and Mining leased water rights.*

### **Examples of What The Gila-San Francisco Decision Support Tool is Intended for**

- Estimation of relative consumptive use patterns and trends amongst the four-county region.
- Estimation of changes in water supply as a result of human and natural system perturbations in water demands.
- Estimation of sensitivities in water supply or demand as a function of user input in the model.
- Facilitation of community outreach and public dialogues.

### **2008 Team Accomplishments on the Gila-San Francisco Decision Support Tool**

- Addition of groundwater demand in the Animas basin.
- Re-baseline of groundwater flow through integration of Mimbres and GSF Basins.
- Re-calibration of surface water and groundwater interactions.
- Preliminary sensitivity runs of various user inputs.
- One Modeling Team workshop.
- Initial results of calibration against historical USGS gauge data based on two metrics.
- Update to Technical Committee in August 2008.
- Resume Bi-weekly WebEx Team Meetings.

### **Work In Progress**

- Solicitation of greater, more diverse modeling team membership.
- Refinement on User Interface to better visualize Executive Summary.
- Continuation of river calibration.
- Modeling Team Survey to gain feedback and insight on improvement.
- Feedback to Implementation and Technical committees on the role of the Tool in the context of BOR framework document.
- Submission of Sandia Statement of Work for additional funding.

### **Current Team Membership**

- Municipalities of Silver City and Deming.
- The Nature Conservancy
- Cliff/Gila Farm Bureau
- Gila San Francisco Water Commission.
- Gila Conservation Coalition.
- Gerald Schultz
- Bureau of Reclamation
- Sandia National Laboratories