A HYDROLOGIC PROJECTION

What will water operations in the Middle Rio Grande Basin (MRGB) be like in 40 years? My projections include some hopeful speculation.

Basin population may double (McDonald, and others, 1989). The available surface-water supply will be the same. Groundwater will have depleted an additional four MAF from the 100 MAF (10MAF Permittable) aquifer reserve at the average rate of 100,000 AFY from storage. Wellfield withdrawals will have grown from 130,000 to near 200,000 AFY with one half derived from the surface stream. Basin wellfields will be more extensive and further from the river. Less drawdown over a greater area of the basin will avoid a concentrated cone of depression in water levels. The Albuquerque Northeast Heights wellfields still will be operating but with new equipment at deeper pump settings. Wellfield depletion of the river will be offset by full San Juan-Chama Project imports and by leasing of old irrigation rights.

AMAFCA and MRGCD drains and canals will be buried and covered for safety, mosquito control, efficient pressurized operation and for recreational use of the rights of way (bicycle, equestrian, walking, etc.). Water will be injected into the floodplain alluvium to maintain the riparian environment with the water table at a controlled level and to prevent further subsidence in downtown Albuquerque.

The Federal agencies will provide water information in the form of data, interpretation and model projections on each watercourse, conveyance structure, diversion point, evapotranspiration, habitat and three-dimensional aquifer level. The data will be updated in a real-time system model with on-line public access. A public-access database of permits, priority and discharge plans will be available for comparison to actual use. Federal officials will provide information, State agencies will administer permits according to court decree and private parties will manage their operations for the best value.

The majority of river flow, about one MAFY, will continue to be delivered downstream. In doing so, the deliveries will be scheduled and controlled to provide valuable services for riparian, environmental, recreational and public welfare benefits from the waters passing through the MRGB. Water rights for the additional depletions due to those environmental services will have been acquired by public agencies and private groups. Elephant Butte will no longer spill because the spill water will be retained for use in the MRGB.

New water demand will be supplied from the list of initial water rights adopted by stipulation among the major interests and decreed by the court. The initial list of rights will be continually updated by transfers. Water operations managers will routinely evaluate their plans, their capacity to pay value to a previous right owner and the explicit administrative criteria for resource conservation and public welfare that were agreed upon in the court stipulation.

New developments that require water apply at the one-stop OSE where a catalog of decreed water rights and subsequent administrative actions documents the current status of all water-use rights in the State. Any degree of reliability will be available for the new development from the pool of identified rights.

Shortage in a multi-year drought will be provided for by leasing of Pueblo reserved and old Spanish historical rights. Annualized payments for intermittent use of old prior rights will have eclipsed the revenue from gaming in the valley. The Pueblo historic uses and mountain tributaries with enforceable senior priorities will have been maintained as required by Court decree.

Wastewater will be treated and extensively reused. Permitted discharges will maintain background conditions through the Pueblo stream reaches and wildlife refuges. Effluent pipelines will be constructed to by-pass sensitive recreational and environmental reaches of the stream

In the year 2040, New Mexico will remain the oldest and happiest center of habitation in North America and a center of advanced hydrologic science renown throughout the world.

Prepared for:
New Mexico Academy of Science
November 14, 1998
W. P. Balleau