

**Development of TDS & Nitrogen Water Quality Objectives Based On Maximum Beneficial Use, Chino Basin Watermaster / Inland Empire Utilities Agency**

**Background**

The Chino Basin Watermaster (CBWM) is a consensus-based organization facilitating development and utilization of the Chino Groundwater Basin. The CBWM consists of various entities that pump water from the Basin, including cities, water districts, water companies, agricultural, commercial, and other private interests. The Inland Empire Utilities Agency (IEUA), which was originally named the Chino Basin Municipal Water District, was formed in 1950 to supply supplemental water to the region. The IEUA has become a recycled water purveyor, biosolids/fertilizer treatment provider, and continues as a leader in water supply salt management for the purpose of protecting the region's vital groundwater supplies.

The Porter-Cologne Water Quality Control Act (Division 7 of the California Water Code), and the Federal Clean Water Act both mandate periodic review of water quality control plans. Section 13240 of the Water Code requires, "Each regional board shall

formulate and adopt water quality control plans for all areas within the region. Such plans shall be periodically reviewed and may be revised." During consideration of adoption of the updated Basin Plan, watershed stakeholders questioned the validity of the groundwater quality objectives for TDS and nitrate nitrogen and the Regional Water Quality Control Board's (Regional Board) Nitrogen/TDS management plan that implemented those objectives.

A principal underlying concern was that the updated Basin Plan resulted in inappropriate constraints on wastewater recycling opportunities. Reuse of recycled water is a critical component of many agencies'

plans to meeting rapidly increasing water demands in the Region. In response to these concerns, the Regional Board agreed to make the review of the objectives a high triennial review priority.

**Nitrogen/TDS Task Force**

A Nitrogen/TDS Task Force (Task Force) was formed in 1995-96 to conduct studies regarding the TDS and nitrate-nitrogen objectives and other components of the N/TDS management plan. The Task Force was comprised of 22 water supply and wastewater agencies throughout the Region, including the CBWM and the IEUA. The Task Force effort was coordinated by the Santa Ana Watershed Project Authority (SAWPA). Regional Board staff were active participants in the Task Force effort. The SAWPA, acting as administrator for the Task Force, retained Wildermuth Environmental, Inc. (WEI) to conduct scientific investigations to support the Task Force.

**Consensus Building and Stakeholder Processes**

WEI, in conjunction with Risk Sciences, developed a work plan and stakeholder process to address all of the TDS and nitrogen related issues in the Basin Plan.



*Recharge basin in the Chino Basin*



## Development of TDS & Nitrogen Water Quality Objectives Based On Maximum Beneficial Use, cont'd

WEI developed and implemented methodologies to re-define groundwater quality objectives based on the best data and technology available. The findings and recommendations of WEI's work were presented to the Regional Board and the Task Force at numerous meetings and public workshops during the course of the studies.

The studies were guided by current law and regulations, and considered factors specified in Water Code Section 13241 and the state's antidegradation policy (SWRCB Resolution No. 68-16). The economic implications of all recommended changes to the N/TDS management plan were also considered. The revised Basin Plan objectives for TDS and nitrogen were adopted by the Regional Board in January 2004 with the support of all stakeholders—there were no dissenting comments or opinions.

### **Ambient Water Quality Recalculation**

WEI developed a comprehensive relational database for groundwater and surface water for the

entire Santa Ana River Watershed. WEI reviewed all available prior investigations and developed conceptual models for all of the major groundwater basins in the watershed. WEI, in conjunction with Risk Sciences and the stakeholders, developed a new methodology to estimate ambient water quality in groundwater basins. Using these new methodologies, WEI updated the groundwater sub-basin boundaries based on the most current hydrogeologic understanding within the scientific community and developed new groundwater quality objectives based on sound scientific and statistical methods.

### **Maximum Beneficial Use**

WEI, with its extensive regulatory experience and knowledge, developed a proposal to the Regional Board on behalf of Watermaster and the IEUA to establish higher TDS and nitrogen objectives that would allow for the recharge of recycled water without direct mitigation. The proposal was consistent with SWRCB Executive Order 68-16 and Cali-

fornia Water Code Section 13241, which provides the criteria to be used in establishing water quality objectives. WEI was successful in raising the TDS and nitrogen objectives to 420 mg/L and 5 mg/L for TDS and nitrogen, respectively. Through technical, financial, and institutional analyses, WEI was able to demonstrate that raising the objectives would promote the maximum beneficial use of the waters of the State and be protective of beneficial uses.

WEI was successful in obtaining similar maximum benefit-based objectives in the Beaumont, San Timoteo, and Yucaipa Basins. The Chino, Beaumont, San Timoteo, and Yucaipa Basins are the only basins in California that have TDS and nitrogen objectives that are based on maximum benefit criteria.



*Chino Creek downstream outfall*