



**Development and Implementation of Chino Basin Recycled Water Groundwater Recharge Program, Inland Empire Utilities Agency**

**Background**

The Inland Empire Utilities Agency (IEUA), originally named the Chino Basin Municipal Water District, was formed to supply supplemental water to the region. Since its formation, IEUA has expanded its areas of responsibility from a supplemental water supplier to a regional wastewater treatment agency and a recycled water purveyor, biosolids/fertilizer treatment provider, and continues as a leader in water supply salt management for the purpose of protecting the regions vital groundwater supplies.

The Chino Basin Recycled Water Groundwater Recharge Program is part of the comprehensive Water Supply Enhancement Program jointly sponsored by IEUA, Chino Basin Watermaster (CBWM), Chino Basin Water Conservation District and the San Bernardino County Flood Control District to improve the quality of local drinking water wells, enhance water supply reliability, and lower the cost of water to residents throughout the Chino Basin.

The Chino Basin Recycled Water Groundwater Recharge Program will be implemented in two phases to reduce dependence on imported water that may not be available in the future and provide a local drought-proof supply of new water.

**Phase 1 of the Project**

The Phase 1 Recycled Water Groundwater Recharge Project is the first step in the implementation of the Water Supply Enhancement Program. The Phase I project will recharge up to 44,000 acre-ft/yr of stormwater, recycled water, and imported water within the upper portion of the Chino Basin.

**Key Components of Phase 1**

Key components of the project include: improving seven existing recharge basins and stormwater diversion facilities within the cities of Ontario, Rancho Cucamonga, and Fontana; blending high quality stormwater, recycled water and imported water in the recharge basins; and recharging up to 20 percent recycled water, or about 8,000 acre-ft/yr.

Wildermuth Environmental, Inc. (WEI) played several major roles in this project, including:

- *CEQA-required analysis of the groundwater impacts,*
- *Engineering and hydrogeologic assessment of compliance with the draft CCR Title 22 regulations that involved very detailed groundwater*



*Lysimeters at recharge basin*



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*modeling investigations utilizing MODFLOW,*

- *Development of innovative compliance monitoring strategies, involving the replacement of mound monitoring wells with lysimeters,*
- *Stakeholder assistance in permit negotiations with the RWQCB and California Department of Health Services,*
- *Development and implementation of monitoring programs to establish background and post recharge water quality pursuant to the recharge permit,*

- *Design and construction of lysimeter clusters at the Phase 1 basins in-lieu of mound monitoring wells to monitor the quality of undiluted recharge water prior to blending with the local groundwater,*
- *Design, siting, and construction management of offsite nested monitoring wells to monitor the groundwater quality impacts and recycled water contribution down-gradient of the Phase 1 basins,*
- *Preparation of quarterly and annual monitoring compliance reports in accordance with permit conditions, and*



*Lysimeters installation at recharge basin*

- *Groundwater tracer investigation to determine underground retention time of recharged water.*



*Lysimeters at recharge basin*

### **Phase 2 Recycled Water Groundwater Recharge Project**

The Phase 2 Recycled Water Groundwater Recharge Project is an expansion of the Phase 1 project and will further reduce dependence on expensive imported water supplies and provide a local drought-proof supply of new water for the Chino Basin. The Phase 2 project will increase the use of stormwater, recycled water and imported water from 44,000 acre-ft/yr to 134,000 acre-ft/yr.

#### **Key Components of Phase 2**

Key components of the project included: improving nine existing recharge basins and stormwater



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diversion facilities within the cities of Montclair, Ontario, Rancho Cucamonga and Fontana; blending high quality stormwater, recycled water and imported water in the recharge basins; and recharging up to 20 percent recycled water, or about 15,000 acre-ft/yr.

WEI played several major roles in this project, including:

- *CEQA- required analysis of the groundwater impacts,*
- *Preparation of Title 22 engineering report that involved very detailed groundwater modeling investigations utilizing MODFLOW and MT3D,*
- *Development of innovative compliance monitoring strategies, involving the replacement of mound monitoring wells with lysimeters,*
- *Stakeholder assistance in permit negotiations with the RWQCB and California Department of Health Services,*
- *Development and implementation of monitoring programs to establish background and post recharge water quality pursuant to the recharge permit,*
- *Design and construction of lysimeter clusters at the Phase 2 basins in-lieu of mound monitoring wells to monitor the quality of undiluted recharge water prior to blending with the local groundwater, and*
- *Design, siting, and construction management of offsite nested monitoring wells to monitor the groundwater quality impacts and recycled water contribution down-gradient of the Phase 2 basins.*

### Value of the Recharge Program

The Chino Basin Recharge Program offers multiple benefits to all stakeholders in the Chino Groundwater Basin in accordance with the Chino Basin Peace Agreement. The Program complies with the Optimum Basin Management Plan (OBMP) and Chino Basin Recharge Master Plan, both of which were developed by the Watermaster to manage the Basin and identify and prioritize opportunities for groundwater recharge. As the lead agency for the Chino Basin Recharge Program, IEUA completed a Recycled Water Feasibility Study to integrate its recycled water program into the Watermaster's goals and objectives. The Phase 1 Recharge Project was the first step. Implementation of the Phase 2 Recharge Project will complete the Program and fully realize the benefits of a new, drought-proof water supply and improved water quality for all users of the Chino Groundwater Basin.



*Turner recharge basin*