California Regional Water Quality Control Board
Santa Ana Region

June 29, 2007

STAFF REPORT

ITEM: **6***

SUBJECT: Water Recycling Requirements, Order No. R8-2007-0039 for the Chino Basin Recycled Water Groundwater Recharge Program, Phase I and Phase II Projects – Inland Empire Utilities Agency and Chino Basin Watermaster

DESCRIPTION:

This Order prescribes requirements for the use of recycled water from Inland Empire Utilities Agency's (IEUA) Regional Water Recycling Plants No. 1 and 4, including the use of recycled water for groundwater recharge via spreading in seven Phase I recharge basin sites and six Phase II recharge basin sites within the Chino North Management Zone. This Order authorizes implementation of the Chino Basin Recycled Water Groundwater Recharge Program, which includes the Phase I and Phase II Projects. This Groundwater Recharge Program is part of the Optimum Basin Management Program (OBMP) developed by the Chino Basin Watermaster.

On April 15, 2005, the Board adopted Order No. R8-2005-0033, water recycling requirements for Inland Empire Utilities Agency and Chino Basin Watermaster (hereinafter individually referred to as IEUA and CBWM, respectively, or users) for the Phase I Project of the Chino Basin Recycled Water Groundwater Recharge Program. This project involves the use of recycled water from Inland Empire Utilities Agency's (IEUA) Regional Water Recycling Plants No. 1 and 4, for groundwater recharge via spreading in seven recharge basins within the Chino North Management Zone.

On May 9, 2007, the Discharger proposed to implement the Phase II Chino Basin Recycled Water Groundwater Recharge Project. The Phase II Recharge Project will feature six recharge sites, and incorporate a seventh existing site (Ely Basin) that was first used to recharge recycled water in 1997.

A. SUMMARY

The Phase I and Phase II Projects of the Chino Basin Recycled Water Groundwater Recharge Program as a whole are parts of a comprehensive water supply enhancement program jointly sponsored by the Inland Empire Utilities Agency (IEUA), Chino Basin Watermaster (CBWM), Chino Basin Water Conservation District, and the San Bernardino County Flood Control District. The intent of the water supply enhancement program is to improve the quality of local drinking water wells, enhance water supply reliability, and lower the cost of water to residents throughout the Chino Groundwater Basin. IEUA is the lead agency for implementing the Phase I and Phase II Recharge

Projects, since IEUA facilities will produce the recycled water to be used for recharge. However, implementation of this project in conformance with the recently amended Basin Plan requires that the Chino Basin Watermaster fulfill certain requirements and implement specific projects. Furthermore, CBWM is a user of recycled water since recycled water recharge is an integral component of the Groundwater Recharge Program and OBMP. Accordingly, these water-recycling requirements are being issued jointly to IEUA and the Watermaster (hereinafter, users).

The Chino Basin Recycled Water Groundwater Recharge Program is being implemented in phases to reduce dependence on imported water that may not be available in the future and thereby provide a local, drought-proof supply of new water. Ultimately, when fully developed, the Program will replenish the Chino Basin with a blend of about 22,000 acre-feet per year (afy) of recycled water, 21,000 afy of stormwater, and 91,000 afy of imported water for total of approximately 134,000 afy of recharge water.

The Phase I and Phase II Recharge Projects consist of three major components: (1) wastewater treatment and water recycling facilities; (2) recharge basins; and (3) a conveyance system to deliver the various water supplies from their sources to the recharge basins. Phase I has been in operation since 2005

IEUA owns and operates a regional wastewater collection system and water reclamation plants, including Regional Water Recycling Plant No. 1 (RP-1), Regional Water Recycling Plant No. 4 (RP-4), Regional Water Recycling Plant No. 5 (RP-5), and Carbon Canyon Water Reclamation Facility (CCWRF). RP-1 and RP-4 tertiary treated wastewater will be used in the Phase I and Phase II Recharge Projects. RP-1 has a tertiary treatment capacity of 44 million gallons per day (mgd) and is located near the intersection of Highway 60 and Archibald Avenue in Ontario. RP-4 has a tertiary treatment capacity of 7 mgd and is located near the intersection of Sixth Street and Etiwanda Avenue in Rancho Cucamonga. RP-4 will have a treatment capacity of 14 mgd in late 2007. The effluent flows from both plants are discharged to Cucamonga Creek and Prado Park, tributaries of the Santa Ana River, and in the last two years are also used for recharging three basins in Phase I and one (Ely) basin in Phase II. About 1,335 million gallons of recycled water was recharged during the period of July 2005 through April 2007. RP-1 and RP-4 discharges are regulated under Order No. R8-2006-0010 and NPDES No. CA0105279.

Recycled water from RP-1 and RP-4 is or will be delivered via IEUA's existing Regional Recycled Water Distribution System pump stations and pipelines to 13 recharge basins used in the Phase I and Phase II projects. The total effective recharge area of these 13 spreading facilities is nearly 383 acres (see Attachment "A" of this Staff Report for locations of recharge basins).

The Chino Basin Watermaster (CBWM) was established under a judgment from the San Bernardino County Superior Court. The Judgment adjudicated the Chino Groundwater Basin and required the Basin be operated in accordance with the provisions of the

Judgment and under the direction of a court-appointed watermaster. The Judgment mandated CBWM to develop an Optimum Basin Management Plan (OBMP). As part of the development of the OBMP, the Chino Basin Peace Agreement (Agreement) among all affected stakeholders in the Basin was finalized in 2000. Following the Agreement, the CBWM developed the Chino Basin Recharge Master Plan to identify and prioritize opportunities for groundwater recharge with the basin. IEUA completed a Recycled Water Feasibility Study in 2002 to integrate its recycled water program into the CBWM's goals and objectives for the OBMP and the Chino Basin Recharge Master Plan. The "Program Environmental Impact Report for the Wastewater Facilities Master Plan, Recycled Water Master Plan and Organics Management Master Plan" was certified and approved by the IEUA Board of Directors on June 28, 2002.

In conformance with State regulations pertaining to the use of recycled water, IEUA submitted to the California Department of Health Services (CDHS) a Title 22 Engineering Report for the Chino Basin Recycled Water Groundwater Recharge Program, Phase I and Phase II Projects in November 2003 and March 26, 2006, respectively. On May 9, 2007, IEUA submitted a request to the Regional Board to revise Order No. R8-2005-0033 to include the Phase II Recharge Project. The Phase II Recharge Project will feature six sites, and incorporate a seventh existing site (Ely Basin) that was first used to recharge recycled water in 1997.

The CDHS conducted multiple meetings and discussions with IEUA concerning this proposed groundwater recharge/reuse project. On December 4, 2003 and April 20, 2006, respectively, CDHS held a public hearing in Rancho Cucamonga, California, to consider the Phase I and Phase II Recharge Projects, as required by the California Code of Regulations Title 22 Water Recycling Criteria. During the Public Hearings held by CDHS, no letters opposed to the project were received by CDHS, the RWQCB, IEUA, or Watermaster.

CDHS found that both projects comply with Section 60320 of Article 5.1, entitled "Groundwater Recharge" of the California Code of Regulations, Title 22, Division 4, Chapter 3, entitled "Water Recycling Criteria". CDHS found that the proposed operation of the Phase I and Phase II Recharge Projects will not degrade the quality of the receiving water aquifers as a source of domestic water supply, provided that IEUA meets all of the Conditions stipulated in Attachment A. These conditions include specific requirements pertaining to the quality of the recycled water to be used for recharge and the implementation of a comprehensive monitoring program by IEUA to ensure that these requirements are satisfied. The conditions also include requirements for groundwater monitoring prior to and after project start-up to assess any effects of recycled water recharge, and for the development and periodic update of an operations, maintenance and monitoring plan.

On July 28, 2004 and April 20, 2007, CDHS sent letters with the "Findings of Fact" and "Conditions" to the Regional Board. The CDHS recommended that the Regional Board incorporate all of the "Findings of Fact" and "Conditions" into the water recycling requirements to be issued for the Phase I and Phase II Recharge Projects. CDHS has

determined that the Conditions stipulated in the Summary of Public Hearing for the Phase II Project supersede the Conditions stipulated in the Summary of Public Hearing for the Phase I Project. A Summary of Public Hearing for the Phase II Recharge Project prepared by the CDHS is included in this Order as Attachment A. Per CDHS' recommendations, this Order incorporates requirements that implement the Findings of Fact and Conditions. To the extent of any conflict between this Order and the CDHS' Conditions, the requirements of this Order shall govern.

B. DESCRIPTION OF IEUA RECYCLED WATER TREATMENT SYSTEM

CDHS' Conditions include specific requirements for the quality of the recycled water to be used for groundwater recharge, including requirements for turbidity and total coliform bacteria that reflect treatment system operations and performance, total nitrogen and total organic carbon (See Attachment A of the Order, Conditions #1, 2, 6, 7, 12, 17, 18). These conditions are reflected in the requirements of this Order. To assure that the recycled water to be used for recharge satisfies the CDHS Conditions and the requirements of this Order, IEUA is implementing the following measures and processes.

Source Control: IEUA maintains a comprehensive industrial pretreatment and source control program approved by the Regional Board for control of waste discharge from point sources into the wastewater collection system. IEUA owns and operates a non-reclaimable wastewater (NRW) collection and conveyance system that provides disposal for industrial wastewater and brines. The northern NRW system discharges these wastes to the County Sanitation District of Los Angeles County for treatment and disposal. The southern NRW system discharges industrial wastewater and brines to the Orange County Sanitation District for treatment and disposal. The industrial pretreatment program and NRW system provide source control and salinity management for the IEUA water reclamation facilities. CDHS found that the scope and purpose of this IEUA source control program needed to be expanded to include not only contaminants that may be detrimental to the facilities, but also to include contaminants specified by the CDHS that may be harmful to human health and drinking water supplies. IEUA will review its current source control program to mitigate future impacts on the groundwater recharge program. The program review will determine whether additional constituents should be included in the industry permitting process and if additional pretreatment requirements are necessary, particularly for industries that discharge wastewater to the RP-1 and RP-4 collection systems. Through a comprehensive monitoring program implemented by IEUA, IEUA will ensure that the recycled water produced at RP-1 and RP-4 for recharge into the Chino Basin is not contaminated with toxic chemicals of industrial origin that are of concern to CDHS and the Regional Board in drinking water sources. IEUA also plans to maximize use of the NRW system to dispose of industrial wastewater and brines.

The IEUA's RP-1 and RP-4 wastewater treatment processes currently consist of the following:

Primary Treatment:

RP-1: Barscreens, Grit removal and sedimentation. At times, a portion of the primary effluent is diverted to flow equalization basins to dampen the diurnal flow peaks on the downstream processes.

RP-4: Barscreens and Grit removal

Secondary Treatment: IEUA's RP-1 and RP-4 utilize anoxic/oxic secondary treatment processes that remove nitrogen as well as organics and suspended solids, consequently producing an oxidized and clarified secondary effluent.

RP-1: Anoxic and oxic bioreactors and secondary clarifiers.

RP-4: Anoxic and oxic bioreactors and secondary clarifiers.

Tertiary Treatment: Secondary effluent from RP-1 and RP-4 receives tertiary treatment in compliance with the CDHS' "Water Recycling Criteria" for disinfected tertiary recycled water.

RP-1: Coagulation followed by filtration and disinfection. Coagulation with alum and polymer addition is used intermittently as needed to enhance biological flocculation based on influent turbidity to the filters. Following dual-media (sand and anthracite) filtration, tertiary effluent is disinfected using sodium hypochlorite. A portion of the disinfected tertiary effluent is pumped for irrigation uses. The remainder is dechlorinated using sodium bisulfite and discharged to Cucamonga Creek or delivered to reuse sites, such as Prado Lake and Prado Park Lake.

RP-4: Alum and polymer addition for in-line coagulation and direct sand filtration. Filtered effluent is disinfected using ultraviolet light and adding sodium hypochlorite. In 2005, the ultraviolet disinfection system was removed and replaced with a conventional sodium hypochlorite disinfection system with a contact tank. A portion of the disinfected tertiary effluent is stored in on-site ponds and pumped to reuse customers. The balance of the flow is either discharged to the RP-4 outfall, which transports the final effluent to the RP-1 site where it is combined with RP-1 effluent and discharged to Cucamonga Creek, or used to recharge the Phase I recharge basins.

Redundant Treatment Systems: Both RP-1 and RP-4 have redundant treatment systems, standby equipment, power failure safeguards, and contingency plans to maintain process reliability and recycled water quality in accordance with the Water Recycling Criteria (WRC). To ensure that RP-1 and RP-4 produce recycled water that meets all requirements and performance criteria specified in this Order, IEUA has developed operating and contingency plans that define proper operation and cover

critical parameters of the treatment processes. These plans will be updated periodically to take into account the experiences learned from the prior years of operation.

C. GROUNDWATER RECHARGE

The Chino Groundwater Basin is a structural depression that has been filled with more than 2,000 feet of sediment derived from the San Gabriel and San Bernardino mountains. The Chino Basin encompasses approximately 235 square miles in San Bernardino, Riverside, and Los Angeles Counties. The unconsolidated sediments consist of alluvial deposits designated as the Older and Younger Alluvium. The Older Alluvium consists of floodplain, fluvial, and alluvial fan deposits, with a thickness in excess of 1,000 feet in the center of the basin. The Older Alluvium is the primary aquifer. The Younger Alluvium consists of dune sands and stream-deposited material, with a thickness up to 200 feet. The Younger Alluvium unconformably overlies the Older Alluvium and occurs above the regional water table over most of the basin. In general, the Younger Alluvium is more permeable than the Older Alluvium, such that percolation of precipitation and applied water is higher in areas underlain by Younger Alluvium. The long-term safe yield of the Chino Basin has been determined to be 140,000 afy by the 1978 Chino Basin Judgment, using 1965 to 1974 as a base period. More recent analyses estimate the Basin's safe yield at 156,000 to 162,000 afy.

As described above, the Phase I and Phase II Recharge Projects entail recharge via spreading in thirteen basins. The maximum average recycled water contribution (RWC) at each basin, based on a 60-month running average, will be determined through the Start-Up Period (see below) and approved in advance by CDHS and the Regional Board. Diluents will be stormwater and imported State Project Water from Northern California that is purchased from Metropolitan Water District of Southern California. Stormwater will be local captured runoff originating from the watersheds along the southern extent of the San Gabriel Mountains and from the developed and undeveloped areas below the mountains.

At each recharge basin, a Start-up Period not to exceed 180 days will be used at the outset of recycled water recharge operations. The purposes of each START-UP PERIOD are to establish site characteristics, including percolation rates, the physical characteristics of the vadose zone and soil aquifer treatment efficiency, and to establish a sampling regime, based on these characteristics, that is representative of recycled water following soil aquifer treatment. The length of the START-UP PERIOD at each basin will be contingent on site characteristics, including percolation rates and recycled water transit time in the subsurface. IEUA is required to submit for CDHS approval a proposed START-UP PERIOD protocol at least two weeks prior to beginning each START-UP PERIOD. A START –UP PERIOD report will be prepared at the close of each START-UP PERIOD and will include recommendations for the optimum depths and locations for placement of lysimeters that will be used to measure compliance, and for a compliance monitoring program. The report will also include recommendations for the maximum average RWC and Total Organic Carbon (TOC) limit for the initial year of

recharge operations following the START-UP PERIOD. This Order requires that the TOC limit during the START-UP PERIOD not exceed 0.5 mg/L divided by the maximum average RWC. Start-up periods have been completed for Banana and Hickory Basins, and reports filed with the Regional Board and DHS. The start-up period for Turner Basin is about to conclude. IEUA will then evaluate the test data and prepare a report. The start-up for Declez and RP3 Basins will not start for at least one year while SBCFCD works in the San Sevaine Channel. Following channel construction work, the channel will be used to convey water to Jurupa Basin where it will then be pumped to RP3 and Declez Basins.

D. CDHS RECOMMENDED MINIMUM RETENTION TIMES AND HORIZONTAL DISTANCE SEPARATIONS FOR GROUNDWATER RECHARGE WITH RECYCLED WATER

To assure that any pathogenic microorganisms that may be present in the recycled water are effectively inactivated or removed in the subsurface, the CDHS found that new drinking water wells are to be constructed outside the area required to achieve 6 months of retention time and a minimum of 500 horizontal feet separation downgradient from the spreading operation at each of the recharge basins (See Attachment A to the Order, Findings of Fact # 16 and Conditions #22, 23 and 24. CDHS found that the closest existing domestic supply wells downgradient from the Phase I (CDHS' July 28, 2004 Findings of Fact and Conditions) and Phase II recharge basins (See Attachment A to the Order, Findings of Fact #13) satisfy these minimum retention and horizontal distance separation requirements.

E. GROUNDWATER MONITORING WELLS

IEUA proposes to monitor water quality at 13 existing municipal production wells located downgradient from the recharge basins and at three existing municipal wells located upgradient from the recharge basins. Six new monitoring wells will be constructed near the recharge basins within approximately one to three months travel time along the groundwater flow paths toward the nearest domestic wells. Additional intermediate new monitoring wells and other existing industrial wells may be added to the monitoring well network as needed for travel time within one to three months along the groundwater flow paths.

F. REGULATORY BASIS FOR WATER RECYCLING REQUIREMENTS:

Section 60320 of Title 22, California Code of Regulations states: "Reclaimed water used for groundwater recharge of domestic water supply aquifers by surface spreading shall be at all times of a quality that fully protects public health." CDHS conducted the requisite hearings on December 4, 2003 for the Phase I Project and April 20, 2006, for the Phase II Project and concluded that the recharge complies with Section 60320 and

will not degrade the receiving aquifer as a source of domestic supply, provided that the Conditions identified by CDHS are met (See Attachment A of this Order). As described above, CDHS has recommended that any water recycling requirements issued by the Regional Board for the Phase I and Phase II Recharge Projects require compliance with these Conditions. This Order implements that recommendation.

Section 13523 of the California Water Code provides that each Regional Board, after consulting with and receiving recommendations from the CDHS and any interested party who has requested in writing to be consulted, and after any necessary hearing, shall prescribe water recycling requirements for water that is used or proposed to be used as reclaimed water, if in the judgment of the Board, it is necessary to protect the public health, safety, or welfare. These requirements may be placed upon the party reclaiming water, users, or both. IEUA is the producer of recycled water to be used in the Phase I and Phase II Recharge Projects. IEUA is thus both a producer and user of recycled water. Recycled water recharge is an integral part of the Groundwater Recharge Program and OBMP developed by CBWM. Implementation of the Phase I and Phase II Recharge Projects, and the OBMP as a whole, in conformance with the recently amended Basin Plan (see below), is contingent on fulfillment of commitments by CBWM. Given these circumstances, CBWM is also considered a user of recycled water for the purposes of this Order. In order to assure the protection of public health and the use of the groundwater as a source of domestic water supply, it is appropriate for the Regional Board to prescribe water-recycling requirements for IEUA and CBWM.

This Order includes requirements that implement the Water Quality Control Plan for the Santa Ana River Basin (Basin Plan). The Basin Plan specifies water quality objectives and beneficial uses for the groundwater and surface waters of the Santa Ana Region and an implementation plan, including management strategies for nitrogen and Total Dissolved Solids (TDS). A revised Basin Plan was adopted by the Regional Board on March 11, 1994 and became effective on January 24, 1995. More recently, the Basin Plan was amended significantly to incorporate revised boundaries for groundwater subbasins, now termed "management zones", new nitrate-nitrogen and TDS objectives for the new management zones, and new nitrogen and TDS management strategies applicable to both surface and ground waters. This Basin Plan Amendment, shown in the Attachment to Resolution No. R8-2004-0001, was adopted by the Regional Board on January 22, 2004. The State Water Resources Control Board and Office of Administrative Law (OAL) approved the Amendment on September 30, 2004 and December 23, 2004, respectively. The surface water components of the Amendment are awaiting EPA approval, but do not bear significantly on these proposed water-recycling requirements. The groundwater-related components of the Amendment became effective upon approval by OAL. Accordingly, these water-recycling requirements implement relevant, groundwater-related components of the Amendment.

The Amendment delineates two sets of groundwater management zone boundaries and nitrate-nitrogen and TDS groundwater objectives for specific areas within the Chino North Management Zone. The development and approval of this dual set of management zones/water quality objectives was prompted by the proposal by IEUA and

CBWM to recharge recycled water to assure a reliable, drought-proof water supply for users within the Chino Basin. Specifically, the Amendment includes the following. The Chino North Management Zone applies for regulatory purposes provided that IEUA and CBWM fulfill a specific program of projects and requirements identified in the Amendment (see table below). Implementation of this program in accordance with the schedule specified in the Amendment assures that beneficial uses of affected waters are protected and that water quality consistent with maximum benefit to the people of the State will be maintained. The Amendment specifies "maximum benefit" TDS and nitrate-nitrogen objectives that apply to the Chino North Management Zone. The Amendment also identifies the Chino 1, 2 and 3 Management Zones, which encompass the same total area as the Chino North Management Zone. More stringent TDS and nitrate-nitrogen objectives for these three management zones that are based on historical water quality are included in the Amendment. These are termed the "antidegradation" objectives. Provided that IEUA and CBWM fulfill their maximum benefit commitments, the "maximum benefit" TDS and nitrate-nitrogen objectives for the Chino North Management Zone apply for regulatory purposes. If these commitments are not fulfilled, then the "antidegradation" nitrate-nitrogen and TDS objectives for the Chino 1, 2 and 3 management zones apply for regulatory purposes.

This Order implements these Basin Plan provisions by specifying effluent limitations and other requirements that pertain to both the "maximum benefit" and "antidegradation" management zones/water quality objectives. Provided that the maximum benefit commitments shown in the table below are satisfied, then the requirements of the Order that address the Chino North Management Zone and the "maximum benefit" objectives apply. If the Regional Board finds that the maximum benefit commitments are not being met, then the requirements of the Order that address the Chino 1, 2 and 3 Management Zones and their respective "antidegradation" TDS and nitrate-nitrogen objectives apply. This Order requires IEUA and CBWM to mitigate any recharge that took place in excess of the limits based on the "antidegradation" objectives if the Regional Board makes the finding that maximum benefit is not demonstrated.

Each of the maximum benefit commitments listed in the table below is described in the Amendment, which is available for review at the Regional Board office or upon request to Regional Board staff.

Chino Basin Maximum Benefit Commitments

Description of Commitment	**Compliance Date – as soon as possible, but no later than**
1. Surface Water Monitoring Program	
a. Submit Draft Monitoring Program to Regional Board	a. January 23, 2005 (completed)
b. Implement Monitoring Program	b. Within 30 days from date of Regional Board approval of monitoring plan
c. Quarterly data report submittal	c. April 15, July 15, October 15, January 15
d. Annual data report submittal	d. February 15th
2. Groundwater Monitoring Program	
a. Submit Draft Monitoring Program to Regional Board	a. January 23, 2005 (completed)
b. Implement Monitoring Program	b. Within 30 days from date of Regional Board approval of monitoring plan
c. Annual data report submittal	c. February 15th
3. Chino Desalters	
a. Chino 1 desalter expansion to 10 MGD	a. Prior to recharge of recycled water
b. Chino 2 desalter at 10 MGD design	b. Recharge of recycled water allowed once award of contract and notice to proceed issued for construction of desalter treatment plant.
4. Future desalters plan and schedule submittal	October 1, 2005. Implement plan and schedule upon Regional Board approval
5. Recharge facilities (17) built and in operation	June 30, 2005 (Partially completed)
6. IEUA wastewater quality improvement plan and schedule submittal	60 days after agency-wide 12 month running average effluent TDS quality equals or exceeds 545 mg/L for 3 consecutive months or agency-wide 12 month running average TIN equals or exceeds 8 mg/L in any month. Implement plan and schedule upon approval by Regional Board

Chino Basin Maximum Benefit Commitments (cont.)

Description of Commitment	**Compliance Date – as soon as possible, but no later than**
7. Recycled water will be blended with other recharge sources so that the 5-year running average TDS and nitrate-nitrogen concentrations of water recharged are equal to or less than the "maximum benefit" water quality objectives for the Chino North Management Zone, i.e., 420 mg/L and 5 mg/L, respectively.	Compliance must be achieved by end of 5th year after initiation of recycled water recharge operations.
a. Submit a report that documents the location, amount of recharge, and TDS and nitrogen quality of stormwater recharge before the OBMP recharge improvements were constructed and what is projected to occur after the recharge improvements are completed	a. Prior to initiation of recycled water recharge
b. Submit documentation of amount, TDS and nitrogen quality of all sources of recharge and recharge locations. For stormwater recharge used for blending, submit documentation that the recharge is the result of CBWM/IEUA enhanced recharge facilities.	b. Annually, by February 15th, after initiation of construction of basins/other facilities to support enhanced stormwater recharge.
8. Hydraulic Control Failure	
a. Plan and schedule to correct loss of hydraulic control	a. 60 days from Regional Board finding that hydraulic control is not being maintained
b. Achievement and maintenance of hydraulic control	b. In accordance with plan and schedule approved by Regional Board. The schedule shall assure that hydraulic control is achieved as soon as possible but no later than 180 days after loss of hydraulic control is identified.
c. Mitigation plan for temporary failure to achieve/maintain hydraulic control	c. By January 23, 2005. Implement plan upon Regional Board determination that hydraulic control is not being maintained.
9. Ambient groundwater quality determination	July 1, 2005 and every 3 years thereafter

As reflected in the table (item 6) and described in the Amendment, IEUA has committed to the implementation of measures necessary to assure that the combined effluent quality from its treatment plants does not exceed 550 mg/L TDS and 8 mg/L total inorganic nitrogen on a 12-month, running average basis[1]. The recharge of this recycled water in the Chino North Management Zone is contingent, in part, on blending with other recharge sources to assure that the 5-year running average TDS and nitrate-nitrogen concentrations of the water recharged are no greater than 420 mg/L TDS and 5 mg/L, respectively (item 7). These are the water quality objectives for the Chino North Management Zone. This Order implements that requirement. This is consistent with the condition identified by CDHS (see Attachment A of the Order, Condition #6) that the recycled water, or recycled water blended with other sources of recharge, must meet 5 mg/L total inorganic nitrogen prior to reaching the regional groundwater table. The Amendment also includes a 25% nitrogen loss coefficient that can be applied in calculating total inorganic nitrogen effluent limitations to account for nitrogen transformation and loss in the subsurface. The 25% nitrogen loss coefficient will be applied in this situation to calculate recycled water nitrogen quality when determining the amount of recharge of other water sources that must be achieved to meet the 5-year running averages. Compliance with the recycled water blending requirement (item 7) must be achieved no later than the end of the 5th year after the initiation of recycled water recharge operations.

IEUA/CBWM took steps prior to the approval of the Amendment by the State Board and OAL to address the maximum benefit commitments identified in the table above. Proposed monitoring plans for surface and groundwater (items 1 and 2, above) have been submitted to the Regional Board and have been approved. The monitoring programs are being implemented. Expansion of the Chino 1 desalter to 14 mgd is complete(item 3). The construction of the Chino 2 desalter at 10 mgd is complete and the facility is fully operational (item 3). The construction of 17 facilities is complete and operational. The remaining facilities are completed. Over 5, 000 acre-feet (AF) of "new" stormwater (stormwater that would not have been captured absent these recharge facilities) and 3,000 AF of State Project Water have been recharged. With grant funding from the California Department of Water Resources, the users are initiating the design of additional recharge improvements. With respect to hydraulic control, (item 8), the construction of nine hydraulic control monitoring wells is completed. Based on coordination with the Board staff and staff of the Orange County Water District, a monitoring plan designed, in part, to evaluate hydraulic control and a contingency plan for failure of hydraulic control have been developed. The monitoring plan is now being implemented. In summary, the users are currently fulfilling the

---

1 *Item 6 specifies a TDS trigger of 545 mg/l TDS, rather than 550 mg/l, for the submittal of the wastewater quality improvement plan. This 5 mg/l buffer is included based on recognition that steps to address TDS quality problems are likely to be complicated and time-consuming to implement. No such buffer is specified for the TIN trigger since operational changes can be more readily made to assure compliance with the 8 mg/l TIN limit.*

maximum benefit commitments outlined in the preceding table in a satisfactory, timely manner.

The recycled water spreading area overlies the Chino Groundwater Basin, including the Chino North Management Zone (or, if maximum benefit commitments are not being implemented, the Chino 1, 2 and 3 Management Zones). The beneficial uses of the Chino North Management Zone (and thus Chino 1, 2 and 3) include municipal and domestic supply, agricultural supply, industrial service supply, and industrial process supply.

The limitations contained in the proposed Order are intended to protect these uses and maintain water quality in this Basin. Since domestic supply is a beneficial use, limitations are based on CDHS' primary and secondary drinking water standards, maximum contaminant levels (MCLs) in the Drinking Water Quality and Monitoring Requirements, California Code of Regulations (CCR), Title 22, Chapter 15, and Basin Plan objectives. The proposed limits on total organic carbon, total coliform, turbidity, notification levels for lead and copper, and other regulated and unregulated constituents are based on CDHS' recommendations stipulated in the "Conditions" included in the "Summary of Public Hearing" (Attachment A to this Order.). Finally, to implement CDHS Condition #29, this Order requires IEUA to have in place prior to initiation of recycled water recharge a resolution adopted by the IEUA Board that IEUA will be responsible for developing and implementing a plan for providing an alternative source of domestic supply, or a CDHS approved treatment mechanism, to any user whose domestic water well is found to violate California drinking water regulations as a direct result of the Phase I and Phase II Recharge Projects or when CDHS makes an analysis and finding that the domestic water well is unsuitable for human consumption as a direct result of the Phase I and Phase II Recharge Projects.

The requirements stipulated in the proposed Order should be adequate to protect the beneficial uses of the receiving waters of the area.

RECOMMENDATION:

Adopt Order No. R8-2007-0039, as presented

Comments were solicited from the following agencies:

State Water Resources Control Board, Office of the Chief Counsel – Erik Spiess
State Water Resources Control Board, Division of Water Quality
State Water Resources Control Board, Division of Financial Assistance
State Department of Water Resources - Glendale
California Department of Health Services, Fresno - Cindy Forbes
California Department of Health Services, Carpenteria – John Curphey
California Department of Health Services, Carpenteria – Jeff Stone

California Department of Health Services, San Bernardino – Heather Collins/Sean McCarthy
California Department of Health Services, Sacramento - Bob Hultquist
California Department of Health Services, Berkeley – Rick Sakaji
State Department of Fish and Game - Long Beach
Chino Basin Water Conservation District
San Bernardino County Flood Control District -
Orange County Water District - Nira Yamachika
Inland Empire Waterkeeper - Mandy Revell
Orange County Coastkeeper- Garry Brown
Lawyers for Clean Water C/c San Francisco Baykeeper
Natural Resources Defense Council- David Beckman
Water Reuse Consultant – Jim Crook
DDB Engineering, Inc. - Debra Burris

California Regional Water Quality Control Board
Santa Ana Region

ORDER NO. R8-2007-0039

Water Recycling Requirements

For

Inland Empire Utilities Agency and Chino Basin Watermaster
Chino Basin Recycled Water Groundwater Recharge Program
Phase I and Phase II Projects
San Bernardino County

California Regional Water Quality Control Board
Santa Ana Region

ORDER NO. R8-2007-0039

TABLE OF CONTENTS

PAGE

FINDINGS: 1

A. Recycled Water Quality Specifications 10

B. Compliance Determination 15

C. Groundwater Monitoring Well Requirements 16

D. Buffer Zone Specifications for Recharged Groundwater Basins 18

E. Conditions for Suspending Groundwater Recharge 19

F. Required Notices and Reports 20

G. Provisions 24

California Regional Water Quality Control Board
Santa Ana Region

Order No. R8-2007-0039

Water Recycling Requirements
For
Inland Empire Utilities Agency and Chino Basin Watermaster
Phase I and Phase II
Chino Basin Recycled Water Groundwater Recharge Project
San Bernardino County

The California Regional Water Quality Control Board, Santa Ana Region (hereinafter, Board), finds that:

1. On April 15, 2005, the Regional Water Quality Control Board (the Regional Board) adopted Order No. R8-2005-0033, prescribing Water Recycling Requirements for the use of recycled water generated from Inland Empire Utilities Agency's (IEUA) Regional Water Recycling Plants No. 1 and 4 for the Phase I Chino Basin Recycled Water Groundwater Recharge Project.

2. On May 9, 2007, the Discharger applied for an amendment of Order No. R8-2005-0033 to include Phase II of the Groundwater Recharge Project. The Phase II Recharge Project will feature six sites, and incorporate a seventh existing site (Ely Basin) that was first used to recharge recycled water in 1997. Attachment B is a Location Map showing Phase I and Phase II Chino Basin Recycled Water Groundwater Recharge Project.

3. Inland Empire Utilities Agency (IEUA), Chino Basin Watermaster (CBWM), Chino Basin Water Conservation District (CBWCD), and San Bernardino County Flood Control District (SBCFCD) jointly sponsor the Chino Basin Recycled Water Groundwater Recharge Program (Program). This is a comprehensive water supply program to enhance water supply reliability and improve the quality of local drinking water wells throughout the Chino Groundwater Basin by using highly treated recycled water to recharge the Basin. Inland Empire Utilities Agency and Chino Basin Watermaster are hereinafter referred to individually as IEUA and CBWM, respectively, or users. IEUA is the lead agency for this Program, since IEUA's wastewater treatment plants produce the recycled water that is or will be used for groundwater recharge in the Chino Basin. Implementation of the Program in accordance with the Chino Basin Master Plan requires that the CBWM fulfill certain commitments. CBWM is a user of recycled water since the use of recycled water for recharge is an integral part of CBWM's Optimum Basin Management Program (OBMP), which includes the Recycled Water Groundwater Recharge Program. Groundwater replenishment using recycled water is consistent with the IEUA Urban Water Master Plan, the Metropolitan Water District of Southern California Integrated Resources Plan, and the Governor's Water Recycling Task Force objectives.

4. 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 thereby provide a local drought-proof supply of new water. In Phase I and Phase II, recycled water blended with stormwater and imported water is/will be recharged in the Chino North Management Zone[1]. When fully developed, the Program will replenish the Chino North Groundwater Management Zone (GMZ) with a blend of about 22,000 acre-feet per year (afy) of recycled water, 21,000 afy of storm water, and 91,000 afy of imported water, for a total of approximately 134,000 afy of recharge water.

   The Phase I Recharge Project began operation in 2005 and includes recharge capacity for about 8,000 afy of recycled water blended with about 8,000 afy of storm water and about 28,000 afy of imported water for a total of approximately 44,000 afy to replenish the Chino North GMZ. The Phase II Recharge Project includes recharge capacity for about 13,000 afy of recycled water blended with about 13,000 afy of storm water and about 64,000 afy of imported water. The addition of Ely Basin in Phase II adds an additional 600 afy of recycled water, 1,000 afy of storm water, and 1,700 afy of imported water for a total of approximately 90,000 afy, to replenish the Chino North GMZ. The goal for the Phase I and Phase II projects is to determine and achieve a maximum Recycled Water Contribution (RWC) based on demonstrated total organic carbon (TOC) removal through soil aquifer treatment (SAT).

5. Both Phase I and Phase II of the Recharge Projects consist of three major components:

   a. Wastewater treatment and water recycling facilities described in Findings 6, 7, 8, and 9;
   b. Recharge basins described in Finding 9; and
   c. A conveyance system to deliver the various water supplies from their sources to the recharge basins described in Finding 10 for groundwater recharge by surface spreading.

6. IEUA owns and operates a regional wastewater collection system and water recycling plants, including Regional Water Recycling Plant No. 1 (RP-1), Regional Water Recycling Plant No. 4 (RP-4), Regional Water Recycling Plant No. 5 (RP-5) and Carbon Canyon Wastewater Reclamation Facility. Tertiary treated wastewater from RP-1 and RP-4 is or will be used in the Phase I and Phase II Recharge Projects to supply recycled water for groundwater recharge of the Chino North GMZ.

7. RP-1 is located near the intersection of Highway 60 and Archibald Avenue in Ontario. RP-4 is located near the intersection of Sixth Street and Etiwanda Avenue in Rancho Cucamonga.

---

1 *As described in Finding Nos. 21 and 22 of this Order, the Chino North Management Zone encompasses the same area as the Chino 1, 2 and 3 Management Zones. The Chino North Management Zone designation, and the nitrate-nitrogen and TDS objectives established for this Management Zone, apply for regulatory purposes provided that the users fulfill specific commitments designed to assure the maintenance of water quality consistent with maximum benefit to the people of the state. If maximum benefit is not demonstrated, then the Chino 1, 2, and 3 Management Zones and their respective nitrate-nitrogen and TDS objectives apply for regulatory purposes. This Order addresses both scenarios.*

8. Wastewater treatment at RP-1 and RP-4 consists of preliminary, primary, and secondary treatment systems, followed by tertiary coagulation, filtration, and disinfection. RP-1 and RP-4 have tertiary treatment capacities of 44 million gallons per day (mgd) and 7 mgd, respectively. RP-4 will have a treatment capacity of 14 mgd in late 2007. In 2006, treatment rates were approximately 38 mgd and 5 mgd for RP-1 and RP-4, respectively. Of the treated wastewater, 26.7 mgd from RP-1 and 3.7 mgd from RP-4 were discharged to Cucamonga Creek and Prado Lake, both tributaries of the Santa Ana River. These discharges are regulated under Order No. R8-2006-10, NPDES No. CA0105279, which was adopted by the Regional Board on May 19, 2006.

9. Recycled water from RP-1 and RP-4 is and will be delivered via IEUA's existing and proposed regional recycled water distribution system pump stations and pipelines to seven Phase I recharge basin sites and six Phase II recharge sites. The Phase I recharge sites to received recycled water include Banana Basin, Declez Basin, Etiwanda Conservation Ponds, Hickory Basin, RP-3 Basins, Turner Basin Nos. 1 and 2, Turner Basin Nos. 3 and 4. The Jurupa Basin will be used as a recycled water storage basin because it has essentially no percolation. The Phase II recharge basin sites to receive recycled water include the 7th and 8th Street Basins, Etiwanda Spreading Grounds, Lower Day Basin, Management Zone 1 (MZ-1) Basins (individually managed basins comprised of Brooks Street Basin, College Heights Basins, Montclair Basins, and Upland Basin), San Sevaine Basin Nos. 1 through 5, and Victoria Basin. All these basins exist. The total effective recharge area of these thirteen recharge sites is approximately 383 acres (138 acres for Phase I sites and 245 acres for Phase II sites). All of the recharge basins overlie the Chino North Management Zone. If the Chino North Management Zone designation does not apply (see footnote 1 and Finding 22), the Management Zones underlying the recharge basins are as follows: the College Heights Basins, Upland Basin, Montclair Basins, Brooks Basin, and 7th/8th Street Basin overlie Chino 1 Management Zone; the San Sevaine Basins, Etiwanda Spreading Grounds, Lower Day Basin, Victoria Basin, Hickory Basin, Ely Basins, rove Basin, and Turner Basins overlie the Chino 2 Management Zone; the Banana Basin, Declez Basin, Etiwanda Conservation Ponds, Jurupa Basin and RP-3 Basins overlie the Chino 3 Management Zone

   In 1997, IEUA began recharging up to 500 afy of recycled water from RP-1 at the Ely Basins. The Ely Basins recharge operation has since been expanded to allow 2,300 afy of recycled water. This original recycled water recharge has historically been regulated under the RP-1/RP-4 discharge permit. For administrative and permitting purposes, the existing Ely Basins will become part of the Phase II Recharge Project. The Ely Basin recharge operation will now be regulated by this Order.

10. Recycled water and diluent water will be infiltrated at the Phase I and Phase II recharge sites at various times of the year. Diluent water is water of non-wastewater origin, including stormwater and imported State Water Project (SWP) water from Northern California that is purchased from the Metropolitan Water District of Southern California (Metropolitan). Stormwater is locally captured runoff originating from the watersheds along the southern extent of the San Gabriel Mountains and from the developed and undeveloped areas below the mountains. Stormwater runoff will be conveyed to the recharge basins via existing creeks and flood control channels.

SWP water is untreated surface water diverted from Lake Silverwood that is delivered to the recharge basins through Metropolitan's Foothill Feeder Pipelines and existing flood control channels.

11. At each recharge basin, a Start-Up Period will be used at the outset of recycled water recharge operations. The purposes of each Start-Up Period are to establish site characteristics, including percolation rates, the physical characteristics of the vadose zone and soil aquifer treatment efficiency, and to establish a sampling regime, based on these characteristics, that is representative of recycled water following soil aquifer treatment. The length of the Start-Up Period at each basin will be contingent on site characteristics, including percolation rates and recycled water transit time in the subsurface. The Start-up Period shall last up to 180 days following commencement of recharge of recycled water to each basin, except if recharge of recycled water at that basin is significantly interrupted, for example due to storm event(s). In the event of such interruptions in recycled water recharge, the Start-Up Period may be extended by the number of days of interruption as determined by EC at the to-be-selected compliance lysimeter. Written notice will be given to the Department and the Regional Board in the event that an extended Start-Up Period is required. This Order requires IEUA to submit for CDHS and Regional Board approval a proposed Start-Up Period protocol at least two weeks prior to beginning each Start-Up Period. A Start–Up Period report will be prepared at the close of each Start-Up Period and will include recommendations for the optimum depths and locations for placement of lysimeters that will be used to measure compliance, and for a compliance-monitoring program. The report will also include recommendations for the maximum running monthly average Recycled Water Contribution and maximum running average Total Organic Carbon (TOC) limit for the initial year of recharge operations following the Start-Up Period.

12. This Order does not establish maximum average recycled water contributions (RWC) at each basin, but requires the users to determine the maximum average RWC through the Start-Up Period for each recharge basin. The determined RWC must be approved by CDHS and the Regional Board.

13. In November 2003, IEUA submitted to the CDHS a Title 22 Engineering Report for the Phase I Recharge Project in conformance with state regulations pertaining to the use of recycled water. In March 2006, IEUA submitted to CDHS a Title 22 Engineering Report for the Phase II Recharge Project in conformance with state regulations pertaining to the use of recycled water.

14. CDHS conducted multiple meetings and discussions with IEUA about this proposed groundwater recharge/reuse project. On December 4, 2003, CDHS held a public hearing in Rancho Cucamonga, California, to consider the Phase I Chino Basin Recycled Water Groundwater Recharge Project. On April 20. 2006, CDHS held another public hearing in Rancho Cucamonga, California, to consider Phase II of the Program. No comments opposing the Program were received at either meeting. For each meeting, a "Summary of Public Hearing" prepared by CDHS is included and incorporated in this Order as Attachment A. This summary includes "Findings of Fact" and "Conditions".

15. On July 28, 2004, CDHS provided the Regional Board a copy of the Summary of Public Hearing that included the "Findings of Fact" and "Conditions" for the proposed Phase I Chino Basin Recycled Water Groundwater Recharge Project. On November 24, 2004, CDHS provided the Regional Board a letter amending and clarifying its Findings of Fact Condition No. 8. On April 27, 2007, CHDS provided the Regional Board a copy of the Summary of Public Hearing including the "Findings of Fact" and "Conditions" for the proposed Phase II Chino Basin Recycled Water Groundwater Recharge Project. CDHS found that both phases of the proposed Program comply with Section 60320 of Article 5.1, entitled "Groundwater Recharge" of the California Code of Regulations, Title 22, Division 4, Chapter 3, entitled "Water Recycling Criteria", and that the proposed operation of the Phase I and Phase II Recharge Projects would not degrade the quality of the water in the receiving aquifers as a source of domestic water supply, provided that IEUA meets the "Conditions" stipulated in the "Summary of Public Hearing".

16. The July 28, 2004 CDHS letter recommended that the Regional Board incorporate all of the "Findings of Fact" and "Conditions" contained in the "Summary of Public Hearing" into any water recycling requirements issued for the Phase I Recharge Project. Likewise, the April 27, 2007 CDHS letter recommended that the Regional Board incorporate all of the "Findings of Fact" and "Conditions" contained in the "Summary of Public Hearing" into any water recycling requirements issued for the Phase II Recharge Project. This Order implements the recommendations. The "Conditions" specified for the Phase I Project are updated to be consistent with revised "Conditions" identified by CDHS for the Phase II Project. Requirements that implement the Conditions, with certain modifications based on discussions with CDHS and IEUA, are specified in the Order. To the extent of any conflict between this Order and the CDHS "Conditions", the requirements of this Order shall govern.

17. IEUA maintains a comprehensive industrial pretreatment and source control program approved by the Regional Board to control waste discharges from point sources into the wastewater collection system. The focus of this source control program is to prevent adverse effects on the treatment facilities and the environment. The scope and purpose of this source control program need to be expanded to include not only contaminants that may be detrimental to the facilities, but also contaminants specified by the CDHS that may be harmful to human health and drinking water supplies. IEUA will review its current source control program to mitigate future impacts on the groundwater recharge program. The program review will determine whether additional constituents should be included in the industry permitting process and if additional pretreatment requirements are necessary, particularly for industries that discharge wastewater to RP-1 and RP-4 collection systems. Through a comprehensive monitoring program implemented by IEUA, IEUA will ensure that the recycled water produced at RP-1 and RP-4 for recharge into the Chino Basin is not contaminated with toxic chemicals of industrial origin that are of concern to CDHS and the Regional Board in drinking water sources. IEUA owns and operates a non-reclaimable wastewater (NRW) collection and conveyance system that provides disposal for industrial wastewater and brines. The NRW discharges either into the Orange County Sanitation District's wastewater treatment facilities or to the County Sanitation Districts of Los Angeles County wastewater treatment facilities for treatment and disposal. The industrial pretreatment program and the NRW system provide source control and salinity management for the IEUA water reclamation facilities.

IEUA plans to further mitigate wastewater constituent impacts on the Recharge Program by maximizing the use of the NRW system. Requirements pertaining to IEUA's industrial pretreatment and source control program are specified in Section VI.C.5.c. Pretreatment Program, of waste discharge requirements Order No. R8-2006-0010, NPDES No. CA0105279. Concurrent with the adoption of this Order, Order No. R8-2006-0010 will be amended to include the source control requirements recommended by CDHS.

18. As detailed in Attachment C, the users propose to monitor groundwater quality at several existing municipal production wells located down gradient from the recharge basins and at several existing municipal wells located upgradient from the recharge basins. As detailed in Attachment C, new monitoring wells will be constructed near the recharge basins within approximately one to three months travel time along the groundwater flow paths toward the nearest domestic wells. Additional new monitoring wells and other existing production wells may be added to the monitoring well network as needed. Intermediate monitoring wells along the groundwater flow paths may be required by CDHS.

19. Pathogenic microorganisms may be present in the recycled water, though this is highly unlikely provided that IEUA's treatment plants are operated properly. In order to assure that any such microorganisms that remain after treatment are effectively inactivated or removed in the subsurface, CDHS has determined that it is necessary to provide a retention time of at least 6 months for the recycled water in the groundwater basin before the water is extracted for drinking purposes and a minimum of 500 feet horizontal separation distance between all drinking water wells and recharge basins. CDHS found that the closest existing domestic supply wells down gradient from the Phase I and Phase II recharge basins satisfy these minimum retention and horizontal distance separation requirements. Also, new drinking water wells must be constructed outside the areas required to achieve the minimum retention times and horizontal separation distance identified by CDHS. To implement the relevant CDHS Condition (Attachment A, Condition 24), this Order requires the users to implement measures to assure that the County of San Bernardino Department of Environmental Health Services, the lead permitting agency for construction of all public and private domestic supply wells in the project area, adopts procedures restricting the drilling of wells within 500 feet of the recharge basins and where extracted water would not have at least 6 months underground residence time. Further, IEUA is required to use best efforts to closely monitor the well permitting activities of the County of San Bernardino Department of Environmental Health Services to assure that domestic supply wells are situated outside the 500-foot buffer and to provide a retention time of at least 6 months for the recycled water in the groundwater basin before the water is extracted for drinking purposes.

20. A revised Water Quality Control Plan (Basin Plan) became effective on January 24, 1995 and has been amended subsequently (see Finding 21). The Basin Plan contains beneficial uses and water quality objectives for surface and ground waters in the Santa Ana Region.

21. On January 22, 2004, the Regional Board adopted Resolution No. R8-2004-0001, amending the Basin Plan to incorporate revised boundaries for groundwater subbasins, now termed "management zones", new nitrate-nitrogen and TDS objectives for the new management zones, and new nitrogen and TDS management strategies applicable to both surface and ground waters.

This Basin Plan Amendment, shown in the Attachment to Resolution No. R8-2004-0001 (hereinafter referred to as "N/TDS Amendment"), was adopted by the Regional Board on January 22, 2004. The State Water Resources Control Board and Office of Administrative Law approved the N/TDS Amendment on September 30, 2004 and December 23, 2004, respectively. The surface water components of the N/TDS Amendment are awaiting EPA approval, but do not bear significantly on these proposed water-recycling requirements. The groundwater-related components of the N/TDS Amendment became effective upon approval by Office of Administrative Law. Accordingly, these water-recycling requirements implement relevant, groundwater-related components of the N/TDS Amendment.

22. This Order implements relevant portions of the N/TDS Amendment by specifying effluent limitations and other requirements that pertain to both the "maximum benefit" and "antidegradation" management zones/water quality objectives. Provided that the maximum benefit commitments shown in the N/TDS Amendment are satisfied, then the requirements of the Order that address the Chino North Management Zone and the "maximum benefit" objectives apply. If the Regional Board finds that the maximum benefit commitments are not being met, then the requirements of the Order that address the Chino 1, 2 and 3 Management Zones and their respective "antidegradation" TDS and nitrate-nitrogen objectives apply. This Order requires IEUA and CBWM to mitigate any recharge that took place in excess of the limits based on the "antidegradation" objectives if the Regional Board makes the finding that maximum benefit is not demonstrated.

23. As part of the maximum benefit commitments, IEUA will implement measures necessary to assure that the combined effluent quality from all of its treatment plants does not exceed 550 mg/L TDS and 8 mg/L total inorganic nitrogen on a 12-month, running average basis. The maximum benefit commitments included in the N/TDS Amendment also specify that the recharge of IEUA recycled water in the Chino North Management Zone is contingent, in part, on blending with other recharge sources to assure that the 5-year running average TDS and nitrate-nitrogen concentrations of the water recharged are no greater than 420 mg/L TDS and 5 mg/L, respectively. These are the water quality objectives for the Chino North Management Zone. This Order implements that requirement. The Order also specifies that if the Regional Board finds that the maximum benefit commitments are not being met, then recycled water recharge, with or without blending, would be limited to the TDS and nitrate-nitrogen objectives for the Chino 2 and 3 Management Zones (depending on the location of the recharge basin). The N/TDS Amendment also includes a 25% nitrogen loss coefficient that can be applied in calculating total inorganic nitrogen effluent limitations to account for nitrogen transformation and loss in the subsurface. The 25% nitrogen loss coefficient is applied in this Order in specifying the method of calculating recycled water nitrogen quality when determining the amount of recharge of other water sources that must be achieved to meet the 5-year running averages. Pursuant to the N/TDS Amendment, this Order requires compliance with the recycled water-blending requirement as soon as possible but no later than the end of the 5th year after the initiation of recycled water recharge operations.

24. IEUA/CBWM took steps prior to the approval of the N/TDS Amendment by the State Board and Office of Administrative Law to address the maximum benefit commitments specified therein. Monitoring plans for surface and groundwater were approved by the Regional Board and are being implemented (See Table 5-8a Resolution No. R8-2004-0001, #1 and 2).

Expansion of the Chino 1 desalter to 14 mgd is complete and is fully operational. The construction of the Chino 2 desalter at 10 mgd is also complete and the facility has been operational since June 2006. The construction of nineteen operational recharge facilities was completed in the spring of 2005. Between July 2005 and February 2007, approximately 16,000 acre-feet (AF) of stormwater and 66,000 AF of State Project Water were recharged at the improved recharge facilities. With grant funding from the California Department of Water Resources, the users are initiating the design of additional recharge improvements. With respect to hydraulic control (Table 5-8a, #8), the construction of nine hydraulic control-monitoring wells is underway. Based on coordination with the Board staff and staff of the Orange County Water District, a monitoring plan designed, in part, to evaluate hydraulic control and a contingency plan for failure of hydraulic control have been developed. The monitoring plan is now being implemented. In summary, the users are currently fulfilling the maximum benefit commitments outlined in the N/TDS Amendment in a satisfactory and timely manner.

25. The beneficial uses of the Chino North Management Zone (and Chino 1, 2 and 3 Management Zones) include:

    a. Municipal and domestic supply;
    b. Agricultural supply;
    c. Industrial services supply; and
    d. Industrial process supply.

26. The limitations contained in this Order are intended to protect these uses and maintain water quality in these basins. Since domestic supply is a beneficial use, limitations are based on CDHS' drinking water standards (both primary and secondary maximum contaminant levels (MCLs)) in the Drinking Water Quality and Monitoring Requirements, California Code of Regulations (CCR), Title 22, Chapter 15, and Basin Plan objectives. The proposed limits for total organic carbon, total coliform, turbidity, lead, copper, and other regulated and unregulated constituents are based on CDHS' recommendations stipulated in the "Conditions" included in the "Summary of Public Hearing" (Attachment A to this Order). The proposed limits for total nitrogen are consistent with CDHS' Conditions. These limitations are necessary to assure the protection of public health and the use of the groundwater basin for domestic supply.

27. Section 13523 of the California Water Code provides that a Regional Board, after consulting with and receiving recommendations from the CDHS or its delegated local health agency, and after any necessary hearing, shall, if it determines such action to be necessary to protect the health, safety, or welfare of the public, prescribe water recycling requirements for water that is used or proposed to be used as recycled water. In order to assure the protection of public health and the use of the groundwater as a source of domestic water supply, it is appropriate for the Regional Board to prescribe water-recycling requirements for IEUA and CBWM. Section 13523 further provides that water-recycling requirements shall include, or be in conformance with, the statewide uniform recycling criteria established by the CDHS pursuant to the California Water Code Section 13521.

The Regional Board has consulted with the CDHS regarding the recycling project and its use in groundwater recharge, and has incorporated their recommendations in this Order.

28. Based on Section 60323 of Title 22, California Code of Regulations, this Order requires IEUA to review and update the Engineering Report for the Recycled Water Groundwater Recharge Program every five years and to submit the updated report to CDHS and the Regional Board.

29. It is appropriate to issue a new Order for both the Phase I and Phase II Recharge Projects, and to rescind Order No. R8-2005-0033, which addresses only the Phase I Project.

30. In compliance with the California Environmental Quality Act (Public Resources Code Section 21000 et seq.), IEUA and CBWM prepared and certified an Environmental Impact Report (EIR) for the Phase I and Phase II Recharge Projects. The Optimum Basin Management Plan (OBMP) Program Environmental Impact Report (PEIR) was approved on June 29, 2000. The EIR identified no significant adverse impact to water quality as a result of the use of recycled water.

31. The Regional Board has notified the producer and users and other interested agencies and persons of its intent to amend waste discharge requirements for the discharge and has provided them with an opportunity to submit their written views and recommendations.

32. The Regional Board, in a public meeting, heard and considered all comments pertaining to the discharge.

IT IS HEREBY ORDERED that the users, in order to meet the provisions contained in Division 7 of the California Water Code and regulations adopted thereunder shall comply with the following:

A. RECYCLED WATER QUALITY SPECIFICATIONS

1. The recycled water[2] from RP-1 and RP-4 used for recharge shall not contain constituent concentrations in excess of the limits specified in Table I below:

Table I. Recycled Water Limitations
(See Compliance Determination B.1.)

Constituent	***Concentration Limit (Units in mg/L unless noted otherwise)***
Inorganic Chemicals	
Aluminum	1
Antimony	0.006
Arsenic	0.01
Asbestos	7 MFL[3]
Barium	1
Beryllium	0.004
Cadmium	0.005
Chromium	0.05
Cyanide	0.15
Fluoride	2
Mercury	0.002
Nickel	0.1
Selenium	0.05
Thallium	0.002
Volatile Organic Chemicals (VOCs)	
Benzene	0.001
Carbon Tetrachloride	0.0005
1,2-Dichlorobenzene	0.6
1,4-Dichlorobenzene	0.005
1,1-Dichloroethane	0.005
1,2-Dichloroethane	0.0005
1,1-Dichloroethylene	0.006
cis-1,2-Dichloroethylene	0.006
trans-1,2-Dichloroethylene	0.01
Dichloromethane	0.005
1,2-Dichloropropane	0.005
1,3-Dichloropropene	0.0005
Ethylbenzene	0.3
Monochlorobenzene	0.07

2 *Recycled water is 100% effluent from RP-1 and RP-4 without any blending with other waters not of wastewater origin.*

3 *MFL = million fibers per liter; MCL for fibers exceeding 10 um in length.*

Table I. Recycled Water Limitations
(See Compliance Determination B.1.)

Constituent	***Concentration Limit (Units in mg/L unless noted otherwise)***
Methyl-tert-butyl ether (MTBE)	0.013
Styrene	0.1
1,1,2,2-Tetrachloroethane	0.001
Tetrachloroethylene	0.005
Toluene	0.15
1,2,4-Trichlorobenzene	0.005
1,1,1 Trichloroethane	0.2
1,1,2-Trichloroethane	0.005
Trichloroethylene	0.005
Trichlorofluoromethane	0.15
1,1,2-Trichloro-1,2,2-Trifluoroethane	1.2
Vinyl Chloride	0.0005
Xylenes	1.750[4]
Non-Volatile Synthetic Organic Chemicals (SOCs)	
Alachlor	0.002
Atrazine	0.001
Bentazon	0.018
Benzo(a)pyrene	0.0002
Carbofuran	0.018
Chlordane	0.0001
2,4-D	0.07
Dalapon	0.2
Dibromochloropropane (DBCP)	0.0002
Di(2-ethylhexyl)adipate	0.4
Di(2-ethylhexyl)phthalate	0.004
Dinoseb	0.007
Diquat	0.02
Endothall	0.1
Endrin	0.002
Ethylene Dibromide (EDB)	0.00005
Glyphosate	0.7
Heptachlor	0.00001
Heptachlor Epoxide	0.00001
Hexachlorobenzene	0.001
Hexachlorocyclopentadiene	0.05
Lindane	0.0002
Methoxychlor	0.03
Molinate	0.02
Oxamyl	0.05
Pentachlorophenol	0.001
Picloram	0.5
Polychlorinated Biphenyls	0.0005
Simazine	0.004
Thiobencarb	0.07

4 *Limit is for either a single isomer or the sum of the isomers.*

Table I. Recycled Water Limitations
(See Compliance Determination B.1.)

Constituent	***Concentration Limit (Units in mg/L unless noted otherwise)***
Toxaphene	0.003
2,3,7,8-TCDD (Dioxin)	3×10^{-8}
2,4,5-TP (Silvex)	0.05
Chemical	
Copper	1.3
Lead	0.015
Radionuclides	
Constituent	Concentration Limit, pCi/l
Combined Radium-226 and Radium-228	5
Gross Alpha particle activity (including Radium-226 but excluding Radon and Uranium)	15
Tritium	20,000
Strontium-90	8
Gross Beta particle activity	50
Uranium	20

2. The recycled water used for recharge, or if supplemented with diluent water, the blend of the two, prior to reaching the regional groundwater table shall not contain constituent concentrations in excess of the limits specified in Table II below[5]: For compliance determination, samples shall be collected from:

   a. the recycled water stream prior to spreading, or
   b. lysimeters in the vadose zone, or
   c. the mound prior to reaching the regional groundwater table.

Table II. Recycled Water Limitations
(See Compliance Determination B.1.)

Disinfection Byproducts	
Constituent	***Concentration Limit, mg/l***
Total Trihalomethanes (TTHM)	0.080
Total Haloacetic acids (five) (HAA5)	0.060
Bromate	0.010
Chlorite	1.0

5 *See also Compliance Determination B. 1.*

3. The recycled water used for recharge, or if supplemented with diluent water, the blend of the two, prior to reaching the regional groundwater table shall not contain constituent concentrations in excess of the limits specified in Table III below[6]: For compliance determination, samples shall be collected from:

   a. the recycled water stream prior to spreading, or
   b. lysimeters in the vadose zone, or
   c. the mound prior to reaching the regional groundwater table.

Table III. Recycled Water Limitations
(See Compliance Determination B.1.)

Constituent	***Concentration Limits***
Aluminum	0.2 mg/L
Copper	1.0 mg/L
Corrosivity	Non-corrosive
Foaming Agents (MBAS)	0.5 mg/L
Iron	0.3 mg/L
Manganese	0.05 mg/L
Methyl-tert-butyl ether (MTBE)	0.005 mg/L
Odor—Threshold	3 Units
Silver	0.1 mg/L
Thiobencarb	0.001 mg/L
Turbidity	5 Units
Zinc	5.0 mg/L

4. The recycled water[7] used for recharge shall meet any new Federal and State maximum contaminant level upon adoption.

5. Recycled water produced by RP-1 and RP-4 for recharge shall at all times, be adequately oxidized, filtered, and disinfected tertiary treated wastewater and shall meet the following limitations:

   a. The turbidity of the filter effluent shall not exceed any of the following:
      (1) Average of 2 Nephelometric Turbidity Unit (NTU) within any 24-hour period;
      (2) 5 NTU more than 5% of the time in any 24-hour period; and
      (3) 10 NTU at any time.

   b. The 7-day median number of total coliform shall not exceed a Most Probable Number (MPN) of 2.2 total coliform bacteria per 100 milliliters (ml).
   c. The number of total coliform organism shall not exceed an MPN of 23 total coliform bacteria per 100 ml in more than one sample in any 30-day period.

---

6 *See also Compliance Determination B. 2.*

7 *Recycled water is 100% effluent from RP-1 and RP-4 without any blending with other waters not of wastewater origin.*

d. No total coliform sample shall exceed an MPN of 240 total coliform bacteria per 100 ml.

6. The Total Dissolved Solids (TDS) and Total Inorganic Nitrogen (TIN) concentration of the recycled water shall not exceed a 12-month running average concentration limit of 550 mg/l and 8 mg/l, respectively from the combined effluent of all IEUA treatment plants (see also Provisions G.4. and G.5.).

7. The total nitrogen[8] concentration of the recycled water used for recharge, or if supplemented with diluent water, the blend of the two, prior to reaching the regional groundwater table shall not exceed 5 mg/L.

8. The pH of recycled water used for recharge shall at all times be within the range of 6 to 9 pH units.

9. The total organic carbon (TOC) concentration of the filtered wastewater prior to dilution with either diluent water, storm or imported water shall not exceed 16 mg/L for more than two consecutive samples and an average of the last 4 samples results.

10. At each recharge basin, the monthly average TOC concentration of the recycled water prior to reaching the regional groundwater table shall not exceed the average TOC value calculated from the following formula[9] :

$$TOC_{Average} = 0.5 \text{ mg/L} \div RWC_{Average}$$

11. For each recharge basin, during the initial year of recharge operation after the Start-Up Period (See Provisions H.9), the maximum average RWC[10] and the TOC limit shall not exceed the maximum average RWC and TOC limits identified in the approved Start-Up Period report. After the first year following the Start-Up Period, the average RWC may be increased at each recharge basin. If the users propose to increase the maximum average RWC, prior approval shall be obtained from CDHS in accordance with CDHS Condition 4 of the Phase I and Phase II Reports (See Attachment A) and from the Executive Officer of the Regional Board. (See also Compliance Determination B.7.). If the approved maximum average RWC is exceeded, the Discharger shall implement measures such that the maximum average RWC is reduced over a period of 60 months.

12. Diluent water shall be stormwater, local runoff, and imported untreated State Project Water.

13. Recycled water shall be recharged via spreading only at the Phase I and Phase II Basin sites, unless the use of additional recharge basin sites are approved by CDHS and the Regional Board's Executive Officer.

---

8 *Total nitrogen is the sum of ammonia, nitrite, nitrate, and organic nitrogen concentrations, expressed as nitrogen.*

9 *See Compliance Determination B.7. and B.8., below.*

10 *The running monthly Average RWC shall be calculated based on the total volume of the recycled water and diluent water applied.*

14. Recycled water spread into groundwater basins shall not contain any substances in concentrations toxic to human, animal, plant, or aquatic life.

15. Recycled water for recharge shall not contain oil and grease in concentrations greater than 1 mg/l.

16. Spreading of recycled water shall not cause a violation of any applicable water quality standards for receiving groundwater adopted by the Regional Board or CDHS.

17. The spreading of recycled water shall not impart tastes, odors, color, foaming, or other objectionable characteristics to receiving groundwater.

18. The recharge or use of inadequately treated wastewater at any time is prohibited.

B. COMPLIANCE DETERMINATION:

1. Compliance with Recycled Water Quality Specifications A.1, A.2. and A.3. shall be based on the running-quarterly average concentration, calculated each quarter using the previous consecutive four quarterly data for the specific constituent.

2. Compliance with Recycled Water Quality Specifications A.4. shall be based on the monitoring test results for the specific constituent or average thereof if more than one sample is taken.

3. Compliance with the turbidity limits specified in Recycled Water Quality Specifications A.5.a. shall be determined based on recorded turbidity readings taken at intervals of no more than 1.2 hours over a 24-hour period.

4. Compliance with the 12-month average limits specified in Recycled Water Quality Specifications A.6. shall be determined by the arithmetic mean of the last twelve monthly averages.

5. Compliance with Recycled Water Quality Specifications A.7. shall be determined on lysimeter-based monitoring at each individual recharge basin for total nitrogen, nitrate-nitrogen, nitrite-nitrogen, organic nitrogen, and ammonia-nitrogen, unless compliance can be demonstrated prior to recharge (See also Provision G.8.). Upon development of a soil-aquifer treatment factor using recharge demonstration studies, lysimeter based compliance monitoring may be replaced with recycled water measurements leaving the treatment plant and the application of the treatment factor with prior approval by the CDHS and the Regional Board Executive Officer.

6. Compliance with average TOC concentration limits specified in Recycled Water Quality Specifications A.11., above, shall be determined based on a lysimeter-based monitoring program performed at each individual recharge basin and allowing for recycled water percolation to the lysimeters to demonstrate soil aquifer treatment efficiency, unless recycled water TOC compliance can be demonstrated prior to recharge. Compliance shall be based on the running average of the most recent 20 lysimeter sample test results representative of recycled water samples. Determination of compliance shall begin after the START-UP PERIOD, as soon as 20 representative samples have been collected. Each week one grab or 24-hour composite sample of the recharge water (recycled water or if supplemented with diluent water, the blend of the two) shall be collected for TOC analysis from the compliance lysimeter sample point(s) and shall be averaged when there is more than one compliance lysimeter sampling point in a single basin. An alternative-monitoring plan may be approved upon submission of sampling results that demonstrate that an equal level of public health protection is achieved. (See also Provision G.8 and G.9.) Upon development of a soil-aquifer treatment factor using recharge demonstration studies, lysimeter based compliance monitoring may be replaced with recycled water measurements leaving the treatment plant and the application of the treatment factor with prior approval by the CDHS and the Regional Board Executive Officer.

7. Calculation of the running monthly average RWC shall commence after 30 months of operation and shall be based on the total volume of the recycled water and diluent water recharged over the preceding months. For each recharge basin, compliance with the current approved maximum average RWC shall be achieved no later than upon the completion of 60 months of operation after the start-up period. The average Recycled Water Contribution (RWC) shall be calculated by dividing the total volume of recycled water applied to the spreading area during the preceding 60 calendar months by the sum of the total recycled water applied to the spreading area and the diluent water applied during that 60-month period.

8. The electrical conductivity of recycled water and recharge basin operation shall demonstrate that the TOC concentration is representative of recycled water. The EC range for recycled water is 650 to 850 µS/cm.

C. GROUNDWATER MONITORING WELL REQUIREMENTS:

1. Groundwater monitoring wells shall be sited at locations within approximately one to three months underground travel time of each recharge basin and at additional intermediate points between each recharge basin and the nearest down gradient domestic water supply well, such that samples can be obtained independently from each aquifer potentially conveying the recharge water. Monitoring well locations shall be determined based on a numerical model, tracer, or other method to determine the estimated underground travel time from the recharge operation to the monitoring well sites. If a tracer is used, the tracer shall be determined prior to start-up.

2. The users shall construct/install the following new monitoring wells within the distances specified below and within one to three months underground travel time from the recharge basins towards the nearest down gradient domestic water supply wells. Monitoring wells for respective basins shall be constructed prior to recycled water being recharged at that basin.

   a. Phase I:

      (1) Monitoring well BHK-1 shall be installed within about 300 to 360 feet down gradient of Banana and Hickory Basins to sample groundwater at two depths (approximately 370-410 and 420-460 feet below ground surface (bgs)).

      (2) Monitoring well ECP-1 shall be installed within about 450 feet down gradient of the Etiwanda Conservation Ponds to sample groundwater at two depths (approximately 320-340 and 370-390 feet bgs).

      (3) Monitoring well RP3-1 shall be installed within about 200 feet down gradient of the RP-3 Basins to sample groundwater at two depths (approximately 215-235 and 265-285 feet bgs).

      (4) Monitoring well DCZ-1 shall be installed within about 300 feet down gradient of Declez Basin to sample groundwater at two depths (approximately 135-155 and 185-205 feet bgs).

      (5) Monitoring well TRN-1 shall be installed within about 100 feet down gradient of Turner Basin No. 1 to sample groundwater at two depths (approximately 330-350 and 380-400 feet bgs).

      (6) Monitoring well TRN-2 shall be installed within about 100 feet down gradient of Turner Basin Nos. 2, 3, and 4 to sample groundwater at two depths (approximately 340-360 and 390-410 feet bgs).

   b. Phase II:

      (1) Monitoring well 8th-1 shall be installed within about 150 feet down gradient of the 8th Street Basins to sample groundwater at two depths (approximately 490-530 and 580-620 feet bgs).

      (2) Monitoring well ESB-1 shall be installed between 46 to 139 feet down gradient of the Etiwanda Spreading Basins to sample groundwater at one depth (approximately 790-830 feet bgs).

      (3) Monitoring well LDY-1 shall be installed within about 43 to 128 feet down gradient of Lower Day Basin to sample groundwater at one depth (approximately 660-700 feet bgs).

      (4) Monitoring well BRK1 shall be installed within about 144 feet down gradient of Brooks Basins to sample groundwater at two depths (approximately 310-350 and 520-560 feet bgs).

      (5) Monitoring well SSV-1 shall be installed within about 39 to 116 feet down gradient of San Sevaine Basin No. 5 to sample groundwater at one depth (approximately 640-680 feet bgs).

(6) Monitoring well SSV-2 shall be installed within about 39 to 116 feet down gradient of San Sevaine Basin No. 3 to sample groundwater at one depth (approximately 650-690 feet bgs).

(7) Monitoring well VCT-1 shall be installed within about 100 feet down gradient of Victoria Basin to sample groundwater at one depth (approximately 570-610 feet bgs).

c. The users shall construct/install the following new monitoring wells within the distances specified below at intermediate distances from the first down gradient monitoring well and nearest down gradient domestic water supply wells.

(1) Monitoring well 8th-2 shall be installed within about 2,460 feet down gradient of the 8th Street Basins to sample groundwater at two depths (approximately 465-505 and 576-616 feet bgs).

(2) Monitoring well LDY-1 shall be installed within about 9,500 feet down gradient of Lower Day Basin to sample groundwater at one depth (approximately 660-700 feet bgs).

(3) Monitoring well BRK2 shall be installed within about 1,305 feet down gradient of Brooks Basins to sample groundwater at two depths (approximately 320-360 and 560-600 feet bgs).

3. Existing wells shall be incorporated in the groundwater-monitoring program as described in the Phase I and Phase II Engineering Reports. Additional monitoring wells may be required in the future depending on the results of the groundwater-monitoring program.

4. If evidence of significant infiltration is found at Jurupa Basin, a new monitoring well shall be installed as described in the Phase I Engineering Report.

D. BUFFER ZONE SPECIFICATIONS IN RECHARGED GROUNDWATER BASINS

1. At each recharge basin, the recycled water shall be retained in the groundwater basin for a minimum of 6 months prior to being withdrawn at a domestic water supply well. A tracer study using a signature compound to confirm the underground retention time shall be conducted at Turner Basin No. 1 (Phase I) prior to recharge of recycled water at that basin. Tracer studies using an introduced compound to confirm the underground retention time shall be conducted at Brooks Basin and San Sevaine Basin (Phase II) prior to recharge of recycled water at that basin. The CDHS may require tracer studies at the other recharge basins to be conducted after recharge of recycled water has begun to confirm the underground retention time at those basins. If a new well is installed at a closer distance to any of the recharge basins than the existing wells, tracer studies may need to be completed to evaluate the retention time between the recharge basin and the newly drilled well.

2. At each recharge basin, no domestic drinking water wells shall be allowed within a soil aquifer treatment zone defined by a distance of less than 500 feet and 6 months underground travel time from the basin.

3. IEUA and CBWM shall implement measures to assure that the County of San Bernardino Department of Environmental Health Services (DEHS), the lead permitting agency for construction of all public and private domestic supply wells in the project area, adopts and maintains procedures that restrict the drilling of wells within 500 feet of the spreading basins and where extracted water would not have at least 6 months underground residence time. The users shall use best efforts to closely monitor the well permitting activities of DEHS to assure that domestic supply wells are located outside the 500-foot buffer areas.

E. CONDITIONS FOR SUSPENDING GROUNDWATER RECHARGE:

1. If the filtered wastewater TOC exceeds 16 mg/L for more than two consecutive samples and an average of the last 4 samples results, then recharge of recycled water shall be suspended until the filtered wastewater TOC is less than 16 mg/L.

2. If and when turbidity performance requirements specified in Recycled Water Quality Specifications A.5.a. are exceeded, IEUA shall suspend the recharge of recycled water until such time that the cause of exceedance is identified and corrected. Any failure to meet the turbidity performance requirements shall be reported to the CDHS and the Regional Board in the next monthly report.

3. If and when the 7-day median coliform limit specified in Recycled Water Quality Specifications A.5.b. is exceeded for two consecutive days, IEUA shall suspend the spreading of recycled water until such time the cause of exceedance is identified and corrected.

4. For each individual basin, if the average total nitrogen concentration of all samples collected during any consecutive four weeks exceeds 5 mg/L, the surface spreading of recycled water shall be suspended at the basin. Surface spreading shall not resume until appropriate corrections are made to reduce total nitrogen levels to below 5 mg/l of total nitrogen for at least one week.

F. REQUIRED NOTICES AND REPORTS

1. Reporting Provisions:

   a. All reports, or information submitted to the Regional Board shall be signed by a responsible officer or duly authorized representative of the users and shall be submitted under penalty of perjury.

   b. The users shall furnish, within a reasonable time, any information the Regional Board may request to determine compliance with this Order or whether cause exists for modifying, revoking and reissuing, or terminating this Order. The users shall also furnish to the Regional Board, upon request, copies of records required to be kept by this Order.

   c. All reports prepared in accordance with the terms of this Order shall be available for public inspection at the offices of the Regional Board. Knowingly making any false statements on any such report may result in the imposition of criminal penalties as provided for in Section 13387 of the California Water Code.

2. The users shall submit a monthly report that validates recycled water for recharge is an oxidized and filtered wastewater. The report shall include:

   a. Description of when, how often and whether coagulation of the wastewater is employed in the treatment process. If coagulation is not used at all times, the users shall:

      (1) Continuously monitor the turbidity of the influent to the filters. Turbidity exceedances of 10 NTU and above at any time, and of 5 NTU for more than 15 minutes shall be included in the monthly report;

      (2) Certify that chemical addition for coagulation has been automatically employed when the filter influent turbidity exceed 5 NTU for more than 15 minutes.

   b. Description of the type and rate of filtration employed in the treatment process.

3. At least two weeks prior to commencing the Start-Up Period at each recharge basin, a report describing the protocols to be used and implemented during the Start-Up Period shall be submitted for review and approval by the CDHS. At a minimum, the proposed protocols shall identify the methods to be used to establish site characteristics, including percolation rates, the physical characteristics of the vadose zone and soil aquifer treatment efficiency, and to establish a sampling regime, based on these characteristics, that is representative of recycled water following soil aquifer treatment.

4. A Start-Up Period report shall be prepared at the conclusion of the Start-Up Period for each recharge basin. The Start-Up Period report shall include: site specific determinations of percolation rates, soil aquifer treatment efficiency and optimum depths and locations of lysimeters to obtain representative compliance samples of recycled water after soil aquifer treatment. The report shall specify the date that the Start-Up Period ended. The report shall make recommendations for final compliance lysimeter placement and the monitoring plan to be employed during the initial year of operation, the initial year maximum average RWC and corresponding TOC limit, and generalized method that will be used to track recharge water in the vadose zone. The analytical results from weekly lysimeter samples shall be evaluated and reported along with conclusions regarding soil aquifer treatment (SAT) performance. This report is subject to approval by the CDHS and the Regional Board Executive Officer. The report recommendations shall be implemented upon approval.

5. For each recharge basin, within 60-days from the end of the initial year of operation after the Start-Up Period, the users shall submit a report that evaluates the efficacy of the compliance lysimeter monitoring plan and make recommendations regarding the maximum average RWC and corresponding TOC limit, and necessary adjustments to the lysimeter monitoring placement as appropriate. Adjustments to the maximum average RWC (and corresponding TOC limit) up to the approved maximum average RWC limit determined during the Start-Up period may be made with approval of CDHS and the Regional Board. Adjustments to the lysimeter monitoring placement shall be made with prior approval from CDHS.

6. If the recycled water concentration for the specific constituent is out of compliance with Recycled Water Quality Specifications A.1., A.2., and/or A.3., a report shall be submitted to the CDHS and Regional Board that describes the reasons and the corrective actions taken.

7. If the average RWC does not comply with the maximum average RWC specified in Recycled Water Quality Specifications A.11., the users shall notify the CDHS and Regional Board within 7 days and shall submit a report to the CDHS and Regional Board within 60 days describing the reason and corrective actions taken to avoid future occurrences.

8. At each recharge basin sampling location, if the average of two consecutive sample results for total nitrogen determinations exceed 5 mg/L, the user shall notify the Regional Board and CDHS with 48 hours of being notified by the laboratory. The user shall investigate the cause of the exceedance and shall take appropriate actions to correct and reduce the total nitrogen level of the recycled water or if supplemented with diluent water, the blend of the two.

9. Within seven days of reduction of recycled water recharge, the users shall notify the CDHS and Regional Board. A report that describes the reasons and the corrective actions that have been taken to avoid future noncompliance with the TOC limit specified in Recycled Water Quality Specifications A.10. shall be submitted to the CDHS and Regional Board within 60 days, when the average of the last 20 consecutive recycled water samples exceeds the TOC concentration of 0.5 mg/L/RWC.

10. If evidence of percolation is found at Jurupa Basin, the users shall submit a geotechnical report to the CDHS and Regional Board documenting percolation at the Jurupa Basin.

11. Significant changes in the operation of any of the treatment processes shall be reported to the CDHS and Regional Board.

12. Within 60 days of suspension of recharge of recycled water, a report describing the conditions triggering the suspension and corrective measures taken to avoid future suspension conditions shall be submitted to the CDHS and Regional Board.

13. When total coliform bacteria requirements specified in Recycled Water Quality Specifications A.4. are not met, IEUA shall submit to the CDHS and Regional Board, a report describing the cause of the violation and the corrective actions taken to avoid future violations of these requirements. This report shall be included in the required monthly monitoring report immediately following non-compliance with bacteria requirements.

14. IEUA shall provide adequate notice to the Regional Board of any change in the volume or character of pollutants being introduced by an existing or new source into the treatment facility that will cause or threaten to cause a violation of this Order.

15. IEUA shall file with the Regional Board a Report of Waste Discharge at least 120 days before making any material change in the character, location, or volume of the recycled water use. A material change includes, but is not limited to, the following:

    a. Significantly changing the method of treatment.
    b. Increasing the recycled water use beyond that specified in this Order.

16. IEUA shall report any condition related to the IEUA treatment facility or distribution system that may endanger human health or the environment. All available information concerning the condition shall be provided to the Executive Officer or the Executive Officer's designee (951-782-4130) and the Office of Emergency Services (800-852-7550), as soon as the users become aware of the circumstances. A written report shall be submitted within 5 days and shall contain a description of the condition and its cause; the duration of the condition, including exact dates and times, and, if the condition has not been corrected, the anticipated time it is expected to continue; and the steps taken or planned to reduce, eliminate, and prevent recurrence of the condition, with a schedule for their implementation. The Executive Officer or the Executive Officer's designee may waive the above required written report on a case-by-case basis.

17. IEUA shall submit in hard copy to the CDHS and Regional Board, and make available an electronic copy through the internet to all down gradient public drinking water systems an annual report of findings prepared by a qualified engineer registered in California and experienced in the field of water reclamation for groundwater recharge regarding the operation of the Phase I and Phase II Recharge Project and the results of the monitoring and investigations of the impacts of recycled water spreading at the Phase I recharge basins. The report shall include summaries of compliance with recycled water quality specifications, groundwater recharge requirements and operations specified in this Order; any corrective actions taken as a result of violations and any suspensions of recharge of recycled water; detections of monitored constituents and any observed trends in the monitoring wells; information related to travel of recharge waters, including leading edge of the recharged water plume; and description of any anticipated changes, along with an evaluation of the expected impact on subsequent unit processes. This report shall demonstrate a mass balance to ensure that blending is occurring in the aquifer at each spreading basin. Spreading recharge water flow paths shall be determined annually from groundwater elevation contours and compared to the flow and transport model's flow paths. The flow and transport model shall be updated to match as closely as possible the actual flow patterns observed within the aquifer if the flow paths have significantly changed. This report shall also include Title 22 drinking water quality data for the nearest domestic water supply well in the vicinity of each spreading basin. Prior to start-up of Phase I and Phase II Recharge Project, any necessary tracers will need to be identified.

18. The users shall submit an update to the engineering report for the Recycled Water Project every five years to the CDHS and Regional Board.

19. The users shall comply with the additional reporting requirements specified in Provision G.4 and G.5.

20. The Discharger shall submit a RWC Management Plan to the CDHS and the Regional Board that includes estimates of future average RWCs based on anticipated recharge operations over the first 60 months of recycled water recharge at each recharge site. The RWC Management Plan shall be submitted with the Start-Up Period Report and updated with IEUA's annual report to the Regional Board during the first 60 months and shall clearly identify the plan to achieve compliance with the maximum recycled water contribution by the 60th month at each recharge site.

21. By November 1, 2007, the Discharger shall submit a Diluent Water Monitoring Plan to CDHS and the Regional Board for approval. The Plan shall, at a minimum, include locations of monitoring station and parameters listed in Table I, II, III, and IV of Section III-Diluent Water Monitoring of MRP No. R8-2007-0039. If the diluent water is not complying with the above recycled water quality specifications, the Discharger shall:

    a. Conduct a source water evaluation of the diluent water for CDHS review and approval that includes, but not limited to:

        (1) A description of the source of the diluent water;
        (2) Delineation of the origin and extent of the diluent water;
        (3) The susceptibility of the diluent water to contamination;
        (4) The identification of known or potential contaminants, and
        (5) An inventory of the potential sources of diluent water contamination.

    b. Develop a plan that provides a means for accurately determining the volume of diluent water to be credited, including consideration of any temporal variations, and demonstrates that the diluent water will be applied in a manner such that temporal variations in the diluent water volume will not lead to an exceedance of the maximum RWC. The proposed plan shall include a schedule for implementation consistent with IEUA's approved Title 22 engineering report. The plan shall be submitted to the CDHS for review and approval.

    c. The plan shall be implemented on approval.

G. PROVISIONS

1. Neither the treatment nor the discharge of wastes or recharge of recycled water shall cause a nuisance or pollution as defined in Section 13050 of the California Water Code.

2. This Order becomes effective upon its adoption and Order No. R8-2005-0033 is hereby rescinded.

3. The users shall comply with Monitoring and Reporting Program No. R8-2007-0039 as issued by the Executive Officer. Revision of this monitoring and reporting program by the Executive Officer may be necessary to confirm that the users are in compliance with the requirements and provisions contained in this Order. Revisions may be made at any time during the term of this Order, and may include a reduction or an increase in the number of parameters to be monitored, the frequency of monitoring or the number and size of samples collected.

4. The users shall implement the following Chino Basin Maximum Benefit Commitments:

   a. The users shall implement a surface water-monitoring program within 30 days of Regional Board approval of a proposed monitoring program[11]. At least six months of data must be obtained prior to the recharge of recycled water. At a minimum, the surface water-monitoring program shall include the collection of bi-weekly measurements of general minerals and nitrogen components at the locations listed in Table 5-8b of the N/TDS Amendment. Quarterly data reports shall be submitted each year on April 15th, July 15th, October 15th and January 15th. An annual data report summarizing all data collected for the year and evaluating compliance with relevant surface water objectives shall be submitted by February 15th of each year.

   b. The users shall implement a groundwater-monitoring program within 30 days of Regional Board approval of a proposed monitoring program. The program shall be sufficient to identify potential impacts from implementation of the Phase I and Phase II Recharge Projects on water levels and water quality within the Chino Basin and in down gradient basins, and to determine whether hydraulic control is being achieved and maintained. An annual report, including all raw data, shall be submitted to the Regional Board by February 15th of each year. This report shall summarize the results of the approved groundwater monitoring program and shall include evaluations of (1) hydraulic control achievement and maintenance and (2) the effects, if any, of implementation of the Phase I and Phase II Recharge Projects on water levels and water quality within the Chino Basin and down gradient basins.

   c. IEUA and/or CBWM and/or other responsible parties deemed acceptable by the Executive Officer shall initiate building of the next desalter capacity when the 12-month running average effluent concentration (measured as an average for all IEUA wastewater treatment facilities) reaches 545 mg/L TDS for three consecutive months.

   d. The 17 recharge facilities identified in the August 2001 Watermaster Recharge Master Plan, as updated by CBWM and IEUA, shall be operated to optimize the recharge of imported water in the Chino Basin. The CBWM shall optimize the recharge of imported water in the Chino Basin to meet the goal of maximizing recharge of State Project water when the TDS of that water is lowest.

---

11 *The users have already submitted a proposed surface water monitoring program which has been approved.*

e. Within 60 days after the IEUA 12-month running average effluent concentration (measured as an average for all IEUA wastewater treatment facilities) for TDS exceeds 545 mg/L for 3 consecutive months, or the 12-month running average total inorganic nitrogen (TIN) concentration (measured as an average for all IEUA wastewater treatment facilities) exceeds 8 mg/L in any month, IEUA shall submit to the Regional Board a proposed plan and schedule for implementation of measures to insure that the 12-month running average agency-wide wastewater effluent quality does not exceed 550 mg/L and 8 mg/L for TDS and TIN, respectively. IEUA shall implement the plan and schedule upon approval

f. The use of recycled water for groundwater recharge shall be limited to the amount that can be blended on a volume-weighted basis with other source of recharge to achieve a 5-year running average concentration equal to or less than 420 mg/l TDS and 5 mg/L TIN. Compliance with this requirement is to be achieved as soon as possible but no later than by the end of the 5th year after the initiation of recycled water recharge operations. A 25% nitrogen loss coefficient may be applied when determining the amount of recharge of other water sources that must be achieved to meet the 5 mg/L TIN 5-year running average.

   (1) Prior to the initiation of recycled water recharge, the users shall submit a report that documents the location, amount of recharge, and TDS and nitrogen quality of stormwater recharge before the recharge improvements (see "4e", above) were constructed and what is projected to occur after the recharge improvements are completed.

   (2) After initiation of construction of basins/other facilities necessary to support enhanced stormwater recharge, the users shall submit documentation of the amount, TDS and nitrogen quality of all sources of recharge and recharge locations. For stormwater recharge used for blending, the users shall submit documentation that the recharge is the result of IEUA/CBWM enhanced recharge facilities. All documentation required by this paragraph shall be submitted annually, by February 15th. The annual report shall evaluate compliance with the 5-year running average TDS and TIN concentration requirements specified above ("4g").

g. The users shall implement measures necessary to maintain hydraulic control, i.e., eliminating, or controlling to de minimus levels, the discharge of groundwater from the Chino Basin to the Santa Ana River.

   (1) The users shall update as necessary the plan to mitigate water quality effects resulting from temporary failure to achieve or maintain hydraulic control. The users shall implement that plan upon a determination by the Regional Board that hydraulic control is not achieved/maintained.

   (2) The users shall submit a plan and schedule to correct loss of hydraulic control within 60 days of a determination by the Regional Board that hydraulic control is not being maintained. The schedule shall assure that hydraulic control is achieved as soon as possible but no later than 180 days after loss of hydraulic control is identified. The users shall implement the plan and schedule upon approval by the Regional Board.

h. By July 1, 2008 and every three years thereafter, CBWM shall submit a determination of ambient TDS and nitrate-nitrogen quality in the Chino North and Cucamonga Management Zones. This determination shall be accomplished using methodology consistent with the determinations used by the TDS/Nitrogen Task Force to develop the "antidegradation" TDS and nitrate-nitrogen objectives for groundwater within the Region.

5. If the users elect not to implement the maximum benefit commitments identified in Provisions 4., above, or if the Regional Board determines that the users are not meeting these commitments, then the following requirements pertaining to nitrogen and TDS management apply[12]:

a. Within 60 days after the IEUA 12-month running average effluent concentration (measured as an average for all IEUA wastewater treatment facilities) for TDS exceeds 545 mg/L for 3 consecutive months, or the 12-month running average total inorganic nitrogen (TIN) concentration (measured as an average for all IEUA wastewater treatment facilities) exceeds 8 mg/L in any month, IEUA shall submit to the Regional Board a proposed plan and schedule for implementation of measures to insure that the 12-month running average agency wastewater effluent quality does not exceed 550 mg/L and 8 mg/L for TDS and TIN, respectively. IEUA shall implement the plan and schedule upon approval.

b. The use of recycled water for groundwater recharge shall be limited to the amount that can be blended on a volume-weighted basis with other source of recharge to achieve a 5-year running average concentration equal to or less than 250 mg/l TDS and 2.9 mg/L TIN for recharge in the Chino 2 Management Zone or 260 mg/l TDS and 3.5 mg/l TIN for recharge in the Chino 3 Management Zone. Compliance with this requirement is to be achieved as soon as possible but no later than by the end of the 5th year after the initiation of recycled water recharge operations. A 25% nitrogen loss coefficient may be applied when determining the amount of recharge of other water sources that must be achieved to meet the TIN 5-year running average concentrations.

(1) Prior to the initiation of recycled water recharge, the users shall submit a report that documents the location, amount of recharge, and TDS and nitrogen quality of stormwater recharge before recharge improvements were constructed and what is projected to occur after and additional recharge improvements are completed.

---

12 *The TDS and TIN quality requirements for recycled water used for recharge that are specified in Recycled Water Specifications, A.6., continue to apply.*

(2) After initiation of construction of basins/other facilities necessary to support enhanced stormwater recharge, the users shall submit documentation of the amount, TDS and nitrogen quality of all sources of recharge and recharge locations. For stormwater recharge used for blending, the users shall submit documentation that the recharge is the result of IEUA/CBWM enhanced recharge facilities. All documentation required by this paragraph shall be submitted annually, by February 15th. The annual report shall evaluate compliance with the 5-year running average TDS and TIN concentration requirements specified in "5.i.", above.

c. By July 1, 2008 and every three years thereafter, CBWM shall submit a determination of ambient TDS and nitrate-nitrogen quality in the Chino 2 and 3 Management Zones. This determination shall be accomplished using methodology consistent with the determinations used by the TDS/Nitrogen Task Force to develop the "antidegradation" TDS and nitrate-nitrogen objectives for groundwater within the Region.

6. If discharges pursuant to the "maximum benefit" objectives for the Chino North Management Zone, as specified in Provisions 4, above, occur, and if the Regional Board determines that the maximum benefit commitments are not satisfied, then the users shall implement a plan acceptable to the Executive Officer of Regional Board to mitigate the effects of discharges of recycled and imported water that took place under the maximum benefit objectives. The mitigation plan shall address adverse effects on all affected receiving waters, including those in and downstream/down gradient of the Chino Basin. The plan shall assure that upon the implementation of the mitigation, the TDS and nitrogen loads to the Chino Basin from imported water, newly captured stormwater inputs as the result of the users' enhanced recharge facilities and recycled water are equivalent to the salt loads that would have been allowed to the Chino Basin under the "antidegradation" objectives for the Chino 2 and 3 Management Zones, as specified in Provisions 5, above. Discharges in excess of the antidegradation objectives for the Chino 2 and 3 Management Zones that must be considered for mitigation include both recycled water and imported water at TDS concentrations in excess of the antidegradation objectives. Any mitigation by groundwater extraction and desalting must be adjusted to address concentrations of TDS and nitrogen in the affected Management Zones, not just salt load. The approved mitigation plan shall be implemented as soon as possible, as determined by the Executive Office of Regional Board, but no later than 10 years following the finding by the Regional Board that maximum benefit commitments are not satisfied and that the antidegradation objectives apply.

7. Prior to the start of operation, the users shall have in place a resolution adopted by the appropriate governing board that the users will be responsible for developing a plan for providing an alternative source of domestic water supply, or CDHS approved treatment mechanism, to any user whose domestic water well is found to violate California drinking water quality regulations as a direct result of the Phase I and Phase II Recharge Projects or when the CDHS makes an analysis and finding that the domestic water well is unsuitable for human consumption as a direct result of the Phase I and Phase II Recharge Projects. Such alternative sources can include water delivered for blending of the producing well, imported water, water produced at a wellhead treatment plant, and water produced from new wells. The users shall notify the CDHS and Regional Board in a timely manner when the determination regarding an alternative supply is made

8. IEUA shall install lysimeters[13] at each recharge basin. One or two clusters of four lysimeters shall be installed at each recharge basin site at locations and depths determined in the field during installation of the lysimeters by a licensed geologist. Each cluster shall include lysimeters completed at varying depths based on the recommendations of the licensed geologist to provide detailed vertical resolution in the upper part of the vadose zone. The average value of the most representative lysimeter results shall be used to demonstrate soil aquifer treatment efficiency. An alternative-monitoring plan may be approved upon submission of sampling results that demonstrate that an equal level of public health protection is achieved.

9. The users shall commence recycled water recharge operations with a Start-Up Period at each recharge basin. No recycled water recharge shall commence at any recharge basin until the Start-Up Period protocol (See Required Notices and Report G. 3.) is reviewed and approved by CDHS. Upon approval by CDHS, IEUA shall implement the approved Start-Up Period protocols. Unless permission is granted in advance by CDHS (as discussed in Finding 11 above), the Start-Up Period shall not exceed 180 days following commencement of recharge of recycled water to each basin. Upon approval by CDHS, IEUA shall implement the approved Start-Up Period protocols.

10. For each sampling location, if the average of two consecutive samples for total nitrogen specifies exceeds the allowable 5 mg/L of total nitrogen in Recycled Water Quality Specifications A.7., the cause shall be investigated, appropriate actions to reduce the total nitrogen levels shall be taken, and the CDHS and the Regional Board shall be notified within 48 hours of IEUA being notified by the laboratory.

---

13 *A lysimeter consists of a porous cup installed in unsaturated sediment that collects undiluted samples of recharge water prior to reaching the regional groundwater table.*

11. After the Start-Up Period, if the most recent 20 sample average TOC concentration for samples collected after the end of the Start-Up Period exceeds the average TOC concentration limit specified in Recycled Water Quality Specifications A.11., the amount of recycled water used for recharge shall be reduced until the average TOC concentration limit can be met. If recycled water TOC data collected after the Start-up period demonstrate a higher maximum RWC is attainable, then written approval of the higher maximum RWC shall be obtain from CDHS and the Regional Board prior to operating at the higher maximum RWC.

12. The users shall review and modify the groundwater monitoring program every two years or sooner, based on results of the monitoring program. Changes to the monitoring program, including well locations, shall be approved by CDHS and the Regional Board's Executive Officer prior to implementation.

13. The users shall develop an operations, maintenance and monitoring plan (OMMP) for the Phase I and Phase II Projects that shall be submitted to CDHS and the Regional Board for approval at least one month prior to startup of the project. IEUA shall operate its project facilities (described in Finding No. 3, above) in accordance with the approved OMMP. Following the initial year of operation, the OMMP shall be updated and submitted to the CDHS and Regional Board for review and approval. The Phase I and Phase II projects may be incorporated into one OMMP. Significant changes in the approved OMMP, which may include provisions to comply with Source Control Program, must be approved by the CDHS and Regional Board prior to instituting changes. The OMMP shall include the following:

    a. Critical operational parameters for the wastewater treatment facilities, recycled water and diluent water conveyance systems, and recharge basins;
    b. Maintenance and calibration schedules for monitoring equipment, process alarm set points, and response procedures for alarms.
    c. Criteria for diverting recycled water if water quality requirements are not met.
    d. Start-up, seasonal, and emergency response and contingency plans.
    e. During the first year of operation of the IEUA project, all treatment processes shall be optimized to reduce contaminant levels. The results of these initial optimization efforts shall be incorporated into the OMMP.
    f. Staffing levels with applicable certifications levels for operations personnel.

14. The users shall assure that if any of the nitrogen limits specified in Section A.6. are exceeded, the testing laboratory shall report the result to IEUA within 48 hours of completion of the analysis. If the average of the two consecutive samples exceeds the allowable limit specified in Section A.6., IEUA shall investigate the causes and make appropriate corrections, and within 72 hours of receiving the second sample result, notify the CDHS and Regional Board.

15. When the TDS effluent discharges reaches or exceed 545 mg/l for three consecutive months, the users shall immediately implement a salt management program to reduce the salts, including nitrogen entering IEUA's wastewater treatment plants. This salt management program shall include:

    a. Connection of new industries that have wastewater discharges with TDS greater than 550 mg/l to the brine line;
    b. Regulation of the use of new and existing water softeners to the extent allowed by law, with incentives provided for the removal of on-site regenerative water softeners and the use of exchange canisters or other off-site regenerative systems;
    c. Connection of existing domestic system industries with high TDS waste discharges to the brine lines;
    d. Percolation of State Water Project water into the Chino North GMZ (or Chino 1, 2 and 3 GMZs) when that water is low in TDS;; and
    e. Development of a plan for sewering areas presently served by septic tanks to reduce the nitrogen loading into the Chino North GMZ (Or Chino 1, 2 and 3 GMZs).

16. The users shall monitor at reporting levels acceptable to CDHS, the recycled water quality for unregulated chemicals, priority toxic pollutants, and State notification levels, endocrine disrupting chemicals, and pharmaceuticals designated by the CDHS. Any detection shall be reported to the CDHS and the Regional Board in the next monthly report.

17. IEUA shall provide standby emergency power facilities and sufficient diversion capacity for diversion of recycled water in the event of upsets or outages at the treatment facilities.

18. IEUA shall provide adequate facilities to protect RP-1 and RP-4 from damage caused by storm flows and runoff.

19. IEUA shall maintain a copy of this Order at the site where recharge operation is controlled and managed so that it is available to site operating personnel at all times. Key operating personnel shall be familiar with its content.

20. IEUA shall promptly report to the Regional Board any proposed change in the character, location or method of use of recycled water, or any proposed change in ownership of the facility.

21. IEUA shall take all reasonable steps to minimize or correct any adverse impact on the environment resulting from noncompliance with this Order, including such accelerated or additional monitoring as may be necessary to determine the nature and impact of the noncompliance.

22. IEUA shall ensure that all facilities and systems of treatment, distribution, and control (and related appurtenances) which are installed or used to achieve compliance with conditions of this Order are at all times properly operated and maintained. Proper operation and maintenance includes effective performance, adequate funding, adequate operator staffing and training, and adequate laboratory and process controls including appropriate quality assurance procedures. This provision requires the operation of backup and auxiliary facilities or similar systems only when necessary to achieve compliance with the conditions of this Order.

23. Treatment of recycled water intended for groundwater recharge shall consist of secondary treatment, followed by tertiary filtration and disinfection in accordance with Section 60301.230 of Division 4, Chapter 3, Title 22, California Code of Regulations. Major modifications to the treatment trains at RP-1 and RP-4 shall be subject to review by the CDHS and Regional Board and, if related to the Phase I and Phase II-Groundwater Recharge Program, must be completed prior to this program startup.

24. There shall be no bypass of any treatment process for production of recycled water for groundwater recharge

25. Major modifications to the treatment systems as described in the Engineering Report and associated Addenda, technical memoranda and correspondence shall be subject to review by the CDHS and the Regional Board.

26. The discharge of recycled water to surface waters is prohibited unless authorized by an NPDES permit.

27. The discharge of any radiological, chemical, or biological warfare agent or high level radiological waste is prohibited.

28. The recycled water storage facilities shall be protected from a 100-year frequency flood.

29. IEUA shall develop, update as necessary, maintain onsite and make available to site operating personnel, a technical report on its preventive (failsafe) and contingency (cleanup) plans for controlling accidental discharges and for minimizing the effect of such events. The technical report shall:

    a. Identify the possible sources of accidental loss, untreated waste bypass, and contaminated drainage. Loading and storage areas, power outage, waste treatment outage, and failure of process equipment, tanks, and pipes should be considered.

    b. Evaluate the effectiveness of present facilities and procedures and state when they become operational. Describe facilities and procedures needed for effective preventive and contingency plans.

    c. Predict the effectiveness of the proposed facilities and procedures and provide an implementation schedule containing interim and final dates when they will be constructed, implemented, or operational.

30. The users shall allow the Executive Officer, or any authorized representative, upon the presentation of credentials and other documents as may be required by law, to:

    a. Enter upon premises where a regulated facility or activity is located or conducted, including recycled water treatment or discharge facilities, reject stream and screening disposal activities, or facilities where records must be kept under the requirements of this Order.

    b. Have access to and copy any records that must be kept under the conditions of this permit. Inspect, photograph, and sample or monitor, at reasonable times, any facilities equipment (including monitoring and control equipment), practices, or operations regulated or required under this permit, including recycled water treatment, discharge, reject streams or screenings disposal sites.

    c. To sample or monitor influent and effluent for the purposes of determining compliance with this permit.

I, Gerard J. Thibeault, Executive Officer, do hereby certify that the foregoing is a full, true, and correct copy of an order adopted by the California Regional Water Quality Control Board, Santa Ana Region, on June 29, 2007.

Gerard J. Thibeault
Executive Officer

California Regional Water Quality Control Board
Santa Ana Region

MONITORING AND REPORTING PROGRAM
NO. R8-2007-0039

for the

Inland Empire Utilities Agency and Chino Basin Watermaster
Chino Basin Recycled Water Groundwater Recharge Program
Phase I and Phase II Projects
San Bernardino County

California Regional Water Quality Control Board
Santa Ana Region

Monitoring and Reporting Program No. R8-2007-0039

For
Inland Empire Utilities Agency and Chino Basin Watermaster
Chino Basin Recycled Water Groundwater Recharge Program
Phase I and Phase II Projects
San Bernardino County

The users shall implement this monitoring and reporting program on the effective date of this Order.

I. ***MONITORING REQUIREMENTS***

A. Sampling Requirements

1. Daily samples shall be collected on each day of the week.

2. Weekly samples shall be collected on a representative day of the week.

3. Monthly samples shall be collected on the 10th working day of the month.

4. Quarterly samples shall be collected on the 10th working day of January, April, July, and October.

5. Annual samples shall be collected by the 10th working day of the following months:

Year	Annual Sampling Month
2005-2007	March, June, September, December, respectively
2008-2011	February, May, August, November, respectively
2012-2015	April, July, October, January, respectively

B. General Monitoring and Reporting Requirements

1. All chemical and bacteriological analyses shall be conducted at a laboratory certified for such analyses by the California Department of Health Services Environmental Laboratory Accreditation Program (ELAP) or approved by the Executive Officer. The status of the laboratory certification shall be stated in the annual report.

2. Recycled water samples must be analyzed within allowable holding time limits as specified in 40 CFR Part 136.3. All QA/QC analyses must be run on the same dates when samples were actually analyzed. The Discharger shall make available for inspection and/or submit the QA/QC documentation upon request by Regional Board staff. Proper chain of custody procedures must be followed and a copy of that documentation shall be furnished upon request by Regional Board staff.

3. Users shall submit all water quality data for groundwater monitoring in a format acceptable to the CDHS and Regional Board. Analytical results shall be reported to the CDHS electronically using the Electronic Deliverable Format as defined in the Electronic Deliverable Format (EDF) Version 1.2i Guidelines and Restrictions dated April 2001 and Data Dictionary dated April 2001.

4. The users shall summarize and arrange the monitoring data in tabular form to demonstrate compliance with requirements.

5. For every item where the requirements are not met, the discharger shall submit a statement of the actions undertaken or proposed which will bring the recycled water into full compliance with requirements at the earliest possible time, and submit a timetable for implementation of the corrective measures.

6. Monitoring reports shall be signed by either the principal Executive Officer or ranking elected official. A duly authorized representative of the aforementioned signatories may sign documents if:

   a. The authorization is made in writing by the signatory;
   b. The authorization specifies the representative as either an individual or position having responsibility for the overall operation of the regulated facility or activity; and
   c. The written authorization is submitted to the Executive Officer of this Regional Board.

7. The monitoring report shall contain the following completed declaration:

   "I certify under penalty of law that I have personally examined and am familiar with the information submitted in this document and all attachments thereto; and that, based on my inquiry of the individuals immediately responsible for obtaining the information, I believe that the information is true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment."

Executed on the _____day of _____ at _____
_____Signature
_____Title

8. The users shall retain records of all monitoring information, including all calibration and maintenance, monitoring instrumentation, and copies of all reports required by this Order, for a period of at least three (3) years from the date of sampling measurement, or report. This period may be extended by request of the Regional Board or the CDHS at any time and shall be extended during the course of any unresolved litigation regarding the regulated activity. Records of monitoring information shall include:

   a. The date, exact place, and time of sampling or measurements;
   b. The individual(s) who performed the sampling or measurements;
   c. The date(s) analyses were performed;
   d. The individual(s) who performed the analysis;
   e. The analytical techniques or methods used; and
   f. The results of such analyses.

9. The users shall submit to the Regional Board, together with the first monitoring report required by this Order, a list of all chemicals and proprietary additives which could affect the quality of the recycled water, including quantities of each. Any subsequent changes in types and/or quantities shall be reported promptly. An annual summary of the quantities of all chemicals, listed by both trade and chemical names, which are used in the treatment processes, shall be included in the annual report.

II. ***RECYCLED WATER MONITORING:***

1. Prior to the commencement of recycled water recharge, at least one 24-hour composite or grab sample of recycled water shall be collected and analyzed for all chemicals, radionuclides, and constituents listed in Tables I, II, and III of Recycled Water Monitoring requirement II.2., below. The results for the initial recycled water quality analysis shall be submitted to the CDHS and Regional Board.

2. Sampling station(s) shall be established where representative samples of recycled water can be obtained. Representative samples shall be collected and analyzed for the parameters at frequencies specified in the following Tables I, II, and III, below:

Table I. Recycled Water Monitoring

Chemical	*Units*	*Type of Sample*	*Minimum Frequency of Sampling and Analysis*
Total Recycled Water Flow	mgd	Flow meter/totalizer	Continuous
Turbidity	NTU	continuous monitoring and recording	Continuous (see paragraph II.3., below)
Total Nitrogen[1]	mg/L	Grab[2]/composite	1/week[3]
Nitrate Nitrogen	mg/L	Grab/composite	1/week
Total Inorganic Nitrogen	mg/L	Grab/composite	1/week
Total Organic Carbon	mg/L	Grab/composite	1/Weekly
Total Coliform	MPN/100ml	Grab	Daily
pH	pH units	pH meter	Continuous
Electrical Conductivity	Micromhos/cm	Grab	Daily
Total Dissolved Solids	mg/L	Composite	Monthly
Total Hardness	mg/L	Composite	Monthly
Oil and Grease	mg/L	Grab	Quarterly
Inorganic Chemical			
Aluminum	mg/L	Grab	Quarterly
Antimony	"	"	"
Arsenic	"	"	"
Asbestos	MFL	"	"
Barium	mg/L	Grab	Quarterly
Beryllium	"	"	"
Cadmium	"	"	"
Chromium	"	"	"
Cyanide	"	"	"
Fluoride	"	"	"
Mercury	"	"	"

1 *Total Nitrogen is defined as the sum of nitrate, nitrite, ammonia, and organic nitrogen concentrations, expressed as nitrogen.*

2 *Grab sample is an individual sample collected in a short period of time not exceeding 15 minutes. Grab samples shall be collected during normal peak loading conditions for the parameter of interest, which may or may not be during hydraulic peaks.*

3 *One sample per calendar week shall be collected at least three days apart from the previous weekly sample.*

Table I. Recycled Water Monitoring

Chemical	*Units*	*Type of Sample*	*Minimum Frequency of Sampling and Analysis*
Nickel	"	"	"
Selenium	"	"	"
Thallium	mg/L	Grab	Quarterly
Volatile Organic Chemicals (VOC)			
Benzene	mg/L	Grab	Quarterly
Carbon Tetrachloride	"	"	"
1,2-Dichlorobenzene	"	"	"
1,4-Dichlorobenzene	"	"	"
1,1-Dichloroethane	"	"	"
1,2-Dichloroethane	"	"	"
1,1-Dichloroethylene	"	"	"
cis-1,2-Dichloroethylene	"	"	"
trans-1,2-Dichloroethylene	"	"	"
Dichloromethane	"	"	"
1,2-Dichloropropane	mg/L	Grab	Quarterly
1,3-Dichloropropene	mg/L	Grab	Quarterly
Ethylbenzene	"	"	"
Monochlorobenzene	"	"	"
Methyl-tert-butyl ether (MTBE)	"	"	"
Styrene	"	"	"
1,1,2,2-Tetrachloroethane	"	"	"
Tetrachloroethylene	"	"	"
Toluene	"	"	"
1,2,4-Trichlorobenzene	"	"	"
1,1,1Trichloroethane	"	"	"
1,1,2-Trichloroethane	"	"	"
Trichloroethylene	"	"	"
Trichlorofluoromethane	"	"	"
1,1,2-Trichloro-1,2,2-Trifluoroethane	"	"	"
Vinyl Chloride	"	"	"
Xylenes	mg/L	Grab	Quarterly

Table I. Recycled Water Monitoring

Chemical	*Units*	*Type of Sample*	*Minimum Frequency of Sampling and Analysis*
Non-Volatile Synthetic Organic Chemicals (SOCs)			
Alachlor	mg/L	Grab	Quarterly
Atrazine	"	"	"
Bentazon	"	"	"
Benzo(a)pyrene	"	"	"
Carbofuran	"	"	"
Chlordane	"	"	"
2,4-D	"	"	"
Dalapon	"	"	"
Dibromochloropropane (DBCP)	"	"	"
Di(2-ethylhexyl)adipate	"	"	"
Di(2-ethylhexyl)phthalate	"	"	"
Dinoseb	"	"	"
Diquat	"	"	"
Endothall	"	"	"
Endrin	"	"	"
Ethylene Dibromide (EDB)	"	"	"
Glyphosate	"	"	"
Heptachlor	"	"	"
Heptachlor Epoxide	"	"	"
Hexachlorobenzene	"	"	"
Hexachlorocyclopentadiene	"	"	"
Lindane	mg/L	Grab	Quarterly
Methoxychlor	mg/L	Grab	Quarterly
Molinate	"	"	"
Oxamyl	"	"	"
Pentachlorophenol	"	"	"
Picloram	"	"	"
Polychlorinated Biphenyls	"	"	"
Simazine	"	"	"
Thiobencarb	"	"	"
Toxaphene	"	"	"
2,3,7,8-TCDD (Dioxin)	"	"	"

Table I. Recycled Water Monitoring

Chemical	*Units*	*Type of Sample*	*Minimum Frequency of Sampling and Analysis*
2,4,5-TP (Silvex)	mg/L	Grab	Quarterly
Disinfection By-products			
Total Trihalomethanes (TTHM)[4]	mg/L	Grab	Quarterly
Total Haloacetic acids (five) (HAA5)[5]	"	"	"
Bromate	"	"	"
Chlorite	mg/L	Grab	Quarterly
Notification Levels			
Copper	mg/L	Grab	Quarterly
Lead	mg/L	Grab	Quarterly
Radionuclides			
Combined Radium-226 and Radium-228	pCi/l	Grab	Quarterly
Gross Alpha particle activity (including Radium-226 but excluding Radon and Uranium)	pCi/l	Grab	Quarterly
Tritium	"	"	"
Strontium-90	"	"	"
Gross Beta particle activity	"	"	"
Uranium	pCi/l	Grab	Quarterly

Table II. Recycled Water Monitoring

Constituents	*Units*	*Type of Sample*	*Minimum Frequency of Sampling and Analysis*
Remaining priority pollutants (See Attachment "A")	µg/L	Grab	Quarterly
Endocrine disrupting chemicals & pharmaceuticals (see Attachment "B")	µg/L	Grab	Annually

4 *Sum of bromodichloromethane, dibromochloromethane, bromoform, and chloroform.*

5 *Sum of monochloroacetic acid, dichloroacetic acid, trichloroacetic acid, monobromoacetic acid, and dibromoacetic acid),*

Table II. Recycled Water Monitoring

Constituents	***Units***	***Type of Sample***	***Minimum Frequency of Sampling and Analysis***
		Unregulated Chemicals	
Boron	mg/L	Grab	Quarterly (see II.4., below)
Chromium-6	µg/L	"	"
Dichlorodifluoromethane	"	"	"
Ethyl tertiary butyl ether	"	"	"
N-Nitrosodimethylamine (NDMA)	µg/L	Grab	"
Perchlorate	mg/L	Grab	Quarterly (see II.4., below)
Tertiary amyl methyl ether	"	"	"
Tertiary butyl alcohol	"	"	"
Vanadium	"	"	"
1,4-Dioxane	"	"	"
1,2,3-Trichloropropane	µg/L	Grab	"

Table III. Recycled Water Monitoring

Constituents	***Units***	***Type of Sample***	***Minimum Frequency of Sampling and Analysis***
Aluminum	mg/L	Grab	Annually
Corrosivity	--	"	"
Foaming Agents (MBAS)	"	"	"
Iron	"	"	"
Manganese	mg/L	Grab	annually
Odor—Threshold	units	"	"
Silver	mg/L	Grab	annually
Thiobencarb	"	"	"
Zinc	mg/L	Grab	annually

3. Turbidity shall be measured and recorded continuously and immediately before disinfection with at least one reading every 1.2 hours. Should the continuous turbidity meter and recorder fail, grab sampling at a minimum frequency of 1.2 hours may be substituted for a period of up to 24 hours.

4. For the first year of operation, all unregulated chemical constituents shall be sampled and tested quarterly. After the first year of operation and with CDHS recommendation and approval, the Executive Officer may allow the monitoring frequency to be reduced to annually for these chemicals based on the initial sample results.

III. ***DILUENT WATER MONITORING:***

1. At the commencement of recharge, at least one 24-hour composite or grab sample of diluent water at each source shall be collected and analyzed for all chemicals, radionuclides, and constituents listed in Tables I, II, III, and IV of Diluent Water Monitoring requirement III.2., below. The results for the initial diluent water quality analysis shall be submitted to the CDHS and Regional Board.

2. At each drainage feeding a recharge basin, where local runoff that includes drainage flows during non-storm events is diverted for recharge, semi-annually, at least one 24-hour composite or grab sample of the diverted local runoff shall be collected and analyzed for all chemicals, radionuclides, and constituents listed in Tables I, II, III, and IV of Diluent Water Monitoring requirement III.3., below.

3. Sampling station(s) shall be established where representative samples of diluent water can be obtained. Representative samples shall be collected and analyzed for the following parameters at frequencies specified herein:

Table I. Diluent Water Monitoring

Parameter	***Sample Station***	***Units***	***Type of Sample***	***Minimum Frequency of Analysis***
Diluent water flow	Before blending	mgd	Flow Meter/Totalizer[6], or change in basin[7]	Continuous[8], or daily[9]
Nitrate-Nitrogen and Nitrite-Nitrogen	"	mg/L	Grab	Quarterly, as available
Total Dissolved Solids	"	mg/L	Grab	Quarterly, as available
Total Coliform[10]	"	MPN/100ml	Grab	Quarterly, as available
Oil and Grease[11]	"	mg/L	Grab	Quarterly, as available

6 *For imported water.*

7 *For stormwater and local runoff.*

8 *For imported water.*

9 *For stormwater and local runoff.*

10 *Stormwater and non-stormwater flow in the storm drains (nuisance runoff)*

11 *Stormwater and non-stormwater event flow in the storm drains, local runoff.*

Table II. Diluent Water Monitoring

Chemical	*Units*	*Type of Sample*	*Minimum Frequency of Sampling and Analysis*
Inorganic Chemical			
Aluminum	mg/L	Grab	Quarterly, as available
Antimony	"	"	"
Arsenic	"	"	"
Asbestos	MFL	"	"
Barium	mg/L	Grab	Quarterly, as available
Beryllium	"	"	"
Cadmium	"	"	"
Chromium	"	"	"
Cyanide	"	"	"
Fluoride	"	"	"
Mercury	"	"	"
Nickel	"	"	"
Selenium	"	"	"
Thallium	mg/L	Grab	Quarterly, as available
Volatile Organic Chemicals (VOC)			
Benzene	mg/L	Grab	Quarterly, as available
Carbon Tetrachloride	"	"	"
1,2-Dichlorobenzene	"	"	"
1,4-Dichlorobenzene	"	"	"
1,1-Dichloroethane	"	"	"
1,2-Dichloroethane	"	"	"
1,1-Dichloroethylene	"	"	"
cis-1,2-Dichloroethylene	"	"	"
trans-1,2-Dichloroethylene	"	"	"
Dichloromethane	"	"	"
1,2-Dichloropropane	mg/L	Grab	Quarterly, as available
1,3-Dichloropropene	mg/L	Grab	Quarterly, as available
Ethylbenzene	"	"	"
Monochlorobenzene	"	"	"
Methyl-tert-butyl ether (MTBE)	"	"	"
Styrene	"	"	"
1,1,2,2-Tetrachloroethane	mg/L	Grab	Quarterly, as available
Tetrachloroethylene	"	"	"
Toluene	"	"	"
1,2,4-Trichlorobenzene	"	"	"
1,1,1Trichloroethane	"	"	"
1,1,2-Trichloroethane	"	"	"
Trichloroethylene	"	"	"
Trichlorofluoromethane	"	"	"
1,1,2-Trichloro-1,2,2-Trifluoroethane	"	"	"
Vinyl Chloride	"	"	"
Xylenes	mg/L	Grab	Quarterly, as available
Non-Volatile Synthetic Organic Chemicals (SOCs)			
Alachlor	mg/L	Grab	Quarterly, as available
Atrazine	"	"	"
Bentazon	"	"	"

Table II. Diluent Water Monitoring

Chemical	*Units*	*Type of Sample*	*Minimum Frequency of Sampling and Analysis*
Benzo(a)pyrene	"	"	"
Carbofuran	"	"	"
Chlordane	"	"	"
2,4-D	"	"	"
Dalapon	"	"	"
Dibromochloropropane (DBCP)	"	"	"
Di(2-ethylhexyl)adipate	"	"	"
Di(2-ethylhexyl)phthalate	"	"	"
Dinoseb	"	"	"
Diquat	"	"	"
Endothall	"	"	"
Endrin	"	"	"
Ethylene Dibromide (EDB)	"	"	"
Glyphosate	"	"	"
Heptachlor	"	"	"
Heptachlor Epoxide	"	"	"
Hexachlorobenzene	"	"	"
Hexachlorocyclopentadiene	"	"	"
Lindane	mg/L	Grab	Quarterly, as available
Methoxychlor	mg/L	Grab	Quarterly, as available
Molinate	"	"	"
Oxamyl	"	"	"
Pentachlorophenol	"	"	"
Picloram	"	"	"
Polychlorinated Biphenyls	"	"	"
Simazine	"	"	"
Thiobencarb	"	"	"
Toxaphene	"	"	"
2,3,7,8-TCDD (Dioxin)	"	"	"
2,4,5-TP (Silvex)	mg/L	Grab	Quarterly, as available
Disinfection By-products			
Total Trihalomethanes (TTHM)[12]	mg/L	Grab	Quarterly, as available
Total Haloacetic acids (five) (HAA5)[13]	"	"	"
Bromate	"	"	"
Chlorite	mg/L	Grab	Quarterly, as available
Notification Levels			
Copper	mg/L	Grab	Quarterly, as available
Lead	mg/L	Grab	Quarterly, as available
Radionuclides			
Combined Radium-226 and	pCi/l	Grab	Quarterly, as available

12 *Sum of bromodichloromethane, dibromochloromethane, bromoform, and chloroform.*

13 *Sum of monochloroacetic acid, dichloroacetic acid, trichloroacetic acid, monobromoacetic acid, and dibromoacetic acid),*

Table II. Diluent Water Monitoring

Chemical	*Units*	*Type of Sample*	*Minimum Frequency of Sampling and Analysis*
Radium-228			
Gross Alpha particle activity (including Radium-226 but excluding Radon and Uranium)	pCi/l	Grab	Quarterly, as available
Tritium	"	"	"
Strontium-90	"	"	"
Gross Beta particle activity	"	"	"
Uranium	pCi/l	Grab	Quarterly, as available

Table III. Diluent Water Monitoring

Unregulated Chemicals			
Constituents	*Units*	*Type of Sample*	*Minimum Frequency of Sampling and Analysis*
Boron	mg/L	Grab	Quarterly, as available
Chromium-6	µg/L	"	"
Dichlorodifluoromethane	"	"	"
Ethyl tertiary butyl ether	"	"	"
N-Nitrosodimethylamine (NDMA)	µg/L	Grab	"
Perchlorate	µg/L	Grab	Quarterly, as available
Tertiary amyl methyl ether	"	"	"
Tertiary butyl alcohol	"	"	"
Vanadium	"	"	"
1,4-Dioxane	"	"	"
1,2,3-Trichloropropane	µg/L	Grab	"

Table IV. Diluent Water Monitoring

Constituents	*Units*	*Type of Sample*	*Minimum Frequency of Sampling and Analysis*
Aluminum	mg/L	Grab	Annually
Corrosivity	--	"	"
Foaming Agents (MBAS)	"	"	"
Iron	"	"	"
Manganese	mg/L	Grab	annually
Odor—Threshold	units	"	"
Silver	mg/L	Grab	annually
Thiobencarb	"	"	"
Zinc	mg/L	Grab	annually

IV. *RECHARGED WATER MONITORING*

1. A lysimeter-based monitoring system shall be used to demonstrate soil-aquifer treatment for TOC and total nitrogen[14]. Samples of recharged water shall be collected using lysimeters in the vadose zone at each recharge basin. (See Provision H.8. of the Order).

Table I. Recharged Water Monitoring

Parameter	*Sample Station*	*Units*	*Type of Sample*	*Minimum Frequency of Analysis*
TOC[15]	lysimeter	mg/L	Grab	Weekly[16]
Total Nitrogen	lysimeter	mg/L	Grab	"
Total Inorganic Nitrogen	lysimeter	mg/L	Grab	"
Nitrate-Nitrogen	lysimeter	mg/L	Grab	"
Nitrite, Ammonia, and Organic Nitrogen	lysimeter	mg/L	Grab	"
Nitrite-Nitrogen	lysimeter	mg/L	Grab	"
Electrical Conductivity	lysimeter	Micromhos/cm	Grab	"

2. Within 90 days from the end of the initial year of operation after the Start-Up Period of any recharge basin, a report shall be submitted to the CDHS and the Regional Board that evaluates the efficacy of the compliance lysimeter monitoring plans and makes recommendations regarding the maximum recycled water contribution and corresponding average TOC, and necessary adjustments to the lysimeter monitoring placement as appropriate for each recharge basin. Any adjustments to the lysimeter monitoring placement and percentage of diluent water used shall be made following approval from the CDHS.

---

14 *With prior CDHS approval, TOC and TN compliance monitoring may be substituted with plant effluent after application of a soil aquifer treatment – reduction factor.*

15 *Each sample shall be representative of recycled water as demonstrated by EC and recharge basin operations.*

16 *Weekly sampling shall be at least 3 days apart.*

V. *GROUNDWATER MONITORING PROGRAM*

1. The groundwater-monitoring program shall begin one month prior to recharge of recycled water and as soon as the monitoring wells for each recharge basin specified in Sections D.2. and D.3. – Groundwater Monitoring Well Requirements of the Order and the list of wells shown in Attachment C of the M&RP are constructed/installed. Water quality data from wells in Attachment C that are not characterized as monitoring wells (i.e. industrial, municipal, or domestic wells) shall where feasible be compiled from sample data compiled by the well owners. Representative samples shall be taken at the groundwater monitoring wells at depths heretofore specified in Sections D.2. and D.3.-Groundwater Monitoring Well Requirements of the Order as listed in Attachment C of this M&RP for the following constituents:

Table I. Groundwater Monitoring

Parameter	*Units*	*Type of Sample*	*Minimum Frequency of Analysis*
Total Organic Carbon	mg/L	Grab	Quarterly
Total Coliform	MPN/100ml	"	"
pH	pH units	"	"
Electrical Conductivity	micromhos/cm	"	"
Aluminum	mg/L	"	"
Color	Units	"	"
Copper	mg/L	Grab	Quarterly
Corrosivity	units	"	"
Foaming Agents (MBAS)	mg/L	"	"
Iron	"	"	"
Manganese	"	"	"
Methyl-tert-butyl ether (MTBE)	mg/L	Grab	Quarterly
Odor—Threshold	Units	Grab	Quarterly
Silver	mg/L	"	"
Thiobencarb	mg/L	"	"
Turbidity	NTU	"	"
Zinc	mg/L	"	"
Total Dissolved Solids	"	"	"
Chloride	"	"	"
Hardness	"	"	"
Sodium	mg/L	Grab	Quarterly
Sulfate	mg/L	Grab	Quarterly
Water Quality Constituents[17]	"	"	"
Total Nitrogen	"	"	Quarterly
Nitrate-nitrogen	"	"	"
Nitrite-nitrogen	"	"	"
Dissolved Oxygen	"	"	"

17 *Any water quality constituents specified by the CDHS based on the results of the recycled water monitoring in Section B., above.*

2. If any of the groundwater monitoring test results indicates that a maximum contaminant level has been exceeded, that the dissolved oxygen falls below 2 mg/L, or that coliform are present, the users shall notify the CDHS within 48 hours of receiving the results and make note of any positive findings in the monthly report submitted to the Regional Board.

VI. ***REPORTING REQUIREMENTS:***

A. Quarterly Monitoring Reports

1. Quarterly monitoring reports shall be submitted in accordance with following schedule:

Table I. Reporting Requirements

Reporting Period	***Report Due Date***
January – March	May 15th
April – June	August 15th
July – September	November 15th
October – December	February 15th

2. If no reclaimed water was delivered for recharge during the quarter, the report shall so state.

3. Each quarterly monitoring report shall include, at a minimum, the following:

   a. All monitoring results for recycled water produced from the RWRP-1 and RWRP-4 facilities, diluents, recharged water with or without blending with diluents prior to recharge, and groundwater.

   b. A tabular form report showing the amount of recharged recycled water and diluent water recharge into each recharge basin including any non-compliance events, which occurred at the individual recharge sites during the reporting period. A summary of these data shall be included in the annual report.

   c. Records of any operational problems, plant upset and equipment breakdowns or malfunctions, and any diversion(s) of off-specification recycled water and the location(s) of final disposal.

   d. All corrective or preventive action(s) taken.

   e. A certification by the users that no groundwater has been pumped from the zone that extends 500 feet and 6 months underground travel time

from the recharge basin(s) where recycled water is applied for domestic water supply use.

f. The Regional Board may request supporting documentation, such as daily logs of operations.

B. Annual Monitoring Reports

1. By May 1 of each year, the users shall submit an annual report to the Board. The report shall contain both tabular and graphical summaries of the monitoring data obtained during the previous calendar year. The users shall discuss the compliance record and a summary of corrective actions taken as a result of violations, suspensions of recharge, detections of monitored constituents and any observed trends, information on the travel of the recycled water, description of any changes in operation of any unit processes or facilities, and description of any anticipated changes, including any impacts on other unit processes.

2. The annual report shall be prepared by a qualified engineer registered in California and experienced in the field of water reclamation for groundwater recharge regarding the operation of the Phase I and Phase II Recharge Projects and the results of the monitoring and investigations of the impacts of recycled water recharge at the Phase I and Phase II recharge basins.

3. The annual report shall include the following:

   a. A list of the analytical methods employed for each test and associated laboratory quality assurance/quality control procedures. The report shall restate, for the record, the laboratories used by the users to monitor compliance with this Order and their status of certification. Upon request by Regional Board staff, the users shall also provide a summary of performance.
   b. A mass balance to ensure that blending is occurring in the aquifer at each recharge basin. Recharge water groundwater flow paths shall be determined annually from groundwater elevation contours and compared to the flow and transport model's flow paths, travel of recharge waters, including leading edge of the recharged water plume, any anticipated changes. The flow and transport model shall be updated to match as closely as possible the actual flow patterns observed within the aquifer if the flow paths have significantly changed.
   c. A summary of corrective actions taken as a result of violations, suspensions of recharge, detections of monitored constituents and any observed trends, information on the travel of the recycled water (estimated location of the leading edge), description of any changes in operation of any unit processes or facilities, and description of any anticipated changes, including any impacts on other unit processes.

d. A summary of calibration records for equipments, such as pH meters, flow meters, turbidity meters, and lysimeters.
e. All downgradient public drinking water systems. A summary discussion on whether domestic drinking water wells extracted water within the buffer zone defined by the area less than 500 feet and 6 months underground travel time from the recharge basins, including the actions/measures that were undertaken to prevent reoccurrence. If there were none, a statement to that effect shall be written.
f. A summary of the results and recommendations of any tracer testing conducted during the past year.

4. At least one year after the blended recharged water has reached at least one groundwater monitoring well, the users shall submit a report to the CDHS and Regional Board evaluating the compliance with the minimum underground retention time, distance to the nearest point of extraction, blending, and the maximum RWC requirements. The annual report shall include water quality data on turbidity, coliform, total nitrogen, dissolved oxygen, regulated contaminants, TOC, and non-regulated contaminants compliance.

C. Five Years Engineering Report:

1. The users shall submit an updated engineering report every five years to the CDHS and Regional Board to address any project changes. The update shall include, but not be limited to, a demonstration that:

   a. The maximum RWC, as authorized pursuant to the terms of Order No. R8-2007-0039 (Recycled Water Quality Specifications A. 10), or amendments thereto will not be exceeded,
   b. The minimum underground retention time required pursuant to Order No. R8-2007-0039 (Buffer Zone Specifications In Recharged Groundwater Basins, E.1), or amendments thereto will be met. The update shall also identify any changes in CDHS regulations pertaining to underground retention time and evaluate compliance with any such changes.
   c. Any inconsistencies between groundwater model prediction and observation and/or measurement and how they are being addressed.

Ordered by _____
Gerard J. Thibeault
Executive Officer

June 29, 2007

State of California—Health and Human Services Agency
Department of Health Services

California Department of Health Services
SANDRA SHEWRY
Director

ARNOLD SCHWARZENEGGER
Governor

April 27, 2007

Mr. Gerald J. Thibeault
Executive Officer
California Regional Water Quality Control Board
Santa Ana Region
3737 Main St., Suite 500
Riverside, CA 92501-3339

Dear Mr. Thibeault:

INLAND EMPIRE UTILITY AGENCY'S PHASE 2 CHINO BASIN RECYCLED WATER GROUNDWATER RECHARGE PROJECT – FINDINGS OF FACT

The Inland Empire Utility Agency (IEUA) has submitted to this Department a Title 22 Engineering Report and other supplemental information and responses to the Department comments pertaining to the Phase 2 Chino Basin Recycled Water Groundwater Recharge Project. In addition, we have had multiple meetings and discussions with IEUA about this proposed groundwater recharge project. On April 20, 2006, this Department held a public hearing in Rancho Cucamonga, California, to consider the proposed Phase II Chino Basin Recycled Water Groundwater Recharge Project (Phase II Recharge Project) in compliance with the California Code of Regulations Title 22 Water Recycling Criteria. Enclosed please find this Department's Summary of Public Hearing, Findings of Fact and Conditions for the Phase 2 Chino Basin Recycled Water Groundwater Recharge Project.

The Phase 2 Chino Basin Recycled Water Groundwater Recharge Project is a water supply and water quality improvement project that will result in tertiary recycled water being recharged by surface spreading into the Chino Groundwater Basin. Phase 2 will include increase recharge capacity by approximately 87,000 acre-feet per year of recycled water that is blended with both storm water and imported water. The recycled water will be produced by the existing IEUA Regional Water Recycling Plants Nos. 1 and 4. The advanced water treatment processes include preliminary, primary and secondary treatment, followed by coagulation, filtration through media filters and disinfection.

Flex your POWER
Do your part to help California save energy. To learn more about saving energy, visit the following web site: www.consumerenergycenter.org/flex/index.html

Southern California Drinking Water Field Operations Branch
1040 E. Herndon Avenue, Suite 205, Fresno, CA 93720
(559) 447-3300; Fax (559) 447-3304
Internet Address: http://www.dhs.ca.gov/ps/ddwem/

As detailed in the Findings of Fact and Conditions, this Department considers the above treatment processes sufficient to provide a quality that fully protects public health for recycled water used for groundwater recharge by surface spreading. This Department finds that the proposed project complies with Section 60320 (update) of Article 5.1, entitled "Groundwater Recharge" of the California Code of Regulations, Title 22, Division 4, Chapter 3, entitled "Water Recycling Criteria". Furthermore, this Department finds that the proposed operation of the Phase 2 Chino Basin Recycled Water Groundwater Recharge Project will not degrade the quality of the water in the receiving aquifers as a source of domestic water supply provided that IEUA meets all of the enclosed Conditions.

It is the recommendation of this Department that the California Regional Water Quality Control Board, Santa Ana Region, incorporate all of the enclosed Findings of Fact and Conditions into the water reclamation requirements to be issued to IEUA for the Phase 2 Chino Basin Recycled Water Groundwater Recharge Project.

If you have any questions, please contact me at (559) 447-3300.

Sincerely,

Cindy A. Forbes, P.E., Chief
Southern California Branch
Drinking Water Field Operations
State of California Department of Health Services

cc: Santa Ana RWQCB - Jun Martirez
IEUA - Rich Atwater, Patrick Shields, Tom Love, Andy Campbell, Chris Berch
Wildermuth Environmental Inc. – Mark Wildermuth
Chino Basin Watermaster – Ken Manning
DDB Engineering, Inc. - Debra Burris
County of San Bernardino, DEHS – Daniel Avera
CDHS (Sacramento) - Gary Yamamoto, Bob Hultquist, Leah Walker
CDHS (Carpinteria) – Jeff Stone, Kurt Souza
CDHS (Richmond) – Rick Sakaji
CDHS (San Bernardino) - Sean McCarthy, Heather Collins
CDHS (San Diego) - Mike McKibben

SUMMARY OF PUBLIC HEARING

In the Matter of:

Inland Empire Utilities Agency)
Phase II Chino Basin Recycled Water Groundwater Recharge Project)

On April 20, 2006, the California Department of Health Services (Department) held a public hearing in Rancho Cucamonga, California, to consider the proposed Phase II Chino Basin Recycled Water Groundwater Recharge Project (Phase II Recharge Project) in compliance with the California Code of Regulations Title 22 Water Recycling Criteria. The Phase II Recharge Project is the second of two Phases of the Chino Basin Recycled Water Groundwater Recharge Program (Program). The Phase I Chino Basin Recycled Water Groundwater Recharge Project (Phase I Recharge Project) was permitted by the Santa Ana Regional Water Quality Control Board, April 15, 2005, Adopted Resolution No. R8-2005-0064, Order No. R8-2005-0033. The Phase II Recharge Project is part of a comprehensive Water Supply Enhancement Program jointly sponsored by the Inland Empire Utilities Agency (IEUA), Chino Basin Watermaster (CBWM), Chino Basin Water Conservation District (CBWCD), and the San Bernardino County Flood Control District (SBCFCD) 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. IEUA is the lead agency for both Phase I and Phase II of this Program, since IEUA's wastewater treatment plants produce the recycled water that will be used for groundwater recharge in the Chino Basin. Implementation of the Program, including the Phase II Recharge Project, is in accordance with the Chino Basin Master Plan requiring that the CBWM fulfill certain commitments.

A list of public hearing attendees is included in Attachment A.

The hearing panel included:

Hearing Officer

Cindy Forbes, P.E., Chief of the Southern California Branch, Drinking Water Field Operations, State of California Department of Health Services

A brief presentation on the project was made by IEUA and CBWM staff. They described the relationship between the project stakeholders and the regional benefits of the proposed groundwater replenishment program. With IEUA serving as the lead agency, each of the program sponsors is involved in protecting, replenishing, treating, distributing, and conveying waters in and throughout the Chino Basin. Noting that groundwater recharge has been widely practiced in California,

groundwater replenishment using recycled water is consistent with the IEUA Urban Water Master Plan, the Metropolitan Water District of Southern California (Metropolitan) Integrated Resources Plan, and the Governor's Water Recycling Task Force objectives. A background description of the groundwater recharge master plan was presented. The overall program is supported by the Chino Basin Optimum Basin Management Program, Wastewater Facilities Plan, Recharge Master Plan, Recycled Water Feasibility Study, Recycled Water Implementation Plan, and other engineering studies and legal agreements.

IEUA began recharging a blend of recycled water and storm water at spreading basins in Ely Basin in 1997 and intends to add imported water in 2008. Implemented in two phases, the Chino Basin Groundwater Recharge Program will expand the spreading operation. The Phase I Recharge Project began operation in 2005 and upon build-out will provide a blend of approximately 44,000 acre-feet per year (afy) of recycled water, storm water, and imported water to seven recharge basins and one storage basin to replenish the groundwater basin. The Phase II Recharge Project will be the second component of the Chino Basin Groundwater Recharge Program. The Phase II Recharge Project will feature six sites, and incorporate a seventh existing site (Ely Basin) that was first used to recharge recycled water in 1997. The Phase II sites will be used to recharge a blend of approximately 90,000 afy of recycled water, storm water, and imported water. With completion of the second phase, the Chino Basin Groundwater Recharge Program will provide a total of approximately 134,000 afy of water to replenish the groundwater supply to serve the increasing water demands forecasted in this area.

Water quality monitoring for the Phase I Recharge Project has demonstrated the effectiveness of the multiple barrier approach. Multiple barriers include industrial pretreatment, industrial source control, tertiary wastewater treatment and disinfection, soil aquifer treatment (SAT), underground blending, a minimum 6 month underground retention time, and municipal water supply disinfection. Water quality is routinely monitored at the treatment facilities, recharge basins, lysimeters, and groundwater monitoring wells.

In conclusion, the agencies affirmed their commitment to the project, which will enhance water supply reliability and improve water quality in a cost effective manner.

The presentation was followed by four members of the audience who read written statements that had been submitted to the Department. A total of 20 entities submitted their comments in writing to the Department. All commenters favored the proposed project and pledged their support for its implementation.

FINDINGS OF FACT

1. Section 60320 entitled "Groundwater Recharge" of Title 22, California Code of Regulations states:

   "(a) Reclaimed water used for groundwater recharge of domestic water supply aquifers by surface spreading shall be at all times of a quality that fully protects public health. The State Department of Health Services' recommendations to the Regional Water Quality Control Boards for proposed groundwater recharge projects and for expansion of existing projects will be made on an individual case basis where the use of reclaimed water involves a potential risk to public health.

   (b) The State Department of Health Services' recommendations will be based on all relevant aspects of each project, including the following factors: treatment provided; effluent quality and quantity; spreading area operations; soil characteristics; hydrogeology; residence time; and distance to withdrawal.

   (c) The State Department of Health Services will hold a public hearing prior to making the final determination regarding the public health aspects of each groundwater recharge project. Final recommendations will be submitted to the Regional Water Quality Control Board in an expeditious manner."

2. IEUA, formerly the Chino Basin Municipal Water District, was formed in 1950 and became a member of Metropolitan for the purpose of importing supplemental water from the Colorado River and Northern California to augment local water supplies. Located in western San Bernardino County, IEUA serves the cities of Chino, Chino Hills, Fontana, Montclair, Ontario and Upland, and the service areas of the Monte Vista Water District and Cucamonga Valley Water District. The current population of the IEUA service area is approximately 750,000. Since its formation, IEUA has expanded its services beyond serving imported water to encompass regional wastewater treatment and production of recycled water, distribution of imported water and recycled water supplies, groundwater desalination, co-composting of wastewater biosolids, digestion of manure, and disposal of non-reclaimable industrial wastes and brine. IEUA owns and operates a regional wastewater collection system and five water reclamation plants. Regional Water Recycling Plant No. 1 (RP-1) has a rated capacity of 44 million gallons per day (mgd) and is located near the intersection of Highway 60 and Archibald Avenue in Ontario. Regional Water Recycling Plant No. 4 (RP-4) has a capacity of 7 mgd and is located near the intersection of Sixth Street and Etiwanda Avenue in Rancho Cucamonga. Regional Water Recycling Plant No. 5 (RP-5) has a capacity of 15 mgd and is located along Kimball Avenue near El Prado Road in Chino. The Carbon Canyon Wastewater Reclamation Facility (CCWRF) has a capacity of about 11 mgd and is located on Telephone Avenue near Chino Hills Parkway and Central Avenue in Chino.

Regional Water Recycling Plant No. 2 (RP-2) is a regional wastewater solids treatment facility at El Prado Road and Pine Avenue, just east of the 71 Expressway in Chino. Besides these wastewater facilities, IEUA also operates the Chino Basin Desalter, a brackish groundwater treatment facility owned by the Chino Desalter Authority. The Chino Basin Desalter produces approximately 8 mgd of high quality drinking water and exports about 10,000 tons of salt annually from the Chino Basin.

3. The CBWM was established under a Judgment entered in the Superior Court of the State of California for the County of San Bernardino, entitled "Chino Basin Municipal Water District v. City of Chino *et al*," (originally Case No. SCV 164327, file transferred August 1989, by order of the Court and assigned new Case No. RCV 51010). The Honorable Judge Howard B. Wiener signed the Judgment on January 27, 1978. The effective date of this Judgment for accounting and operations was July 1, 1977. The Judgment required that the Chino Basin be adjudicated and operated in accordance with the provisions of the Judgment under the direction of a court-appointed watermaster. The Judgment mandated that the CBWM, as an arm of the court, develop an Optimum Basin Management Plan (OBMP). As part of the development of the OBMP, a historic Chino Basin Peace Agreement (Agreement) between all affected stakeholders in the Basin was finalized in 2000. Following the Agreement, the CBWM developed the Chino Basin Recharge Master Plan to identify and prioritize opportunities for groundwater recharge within the basin. IEUA completed a Recycled Water Feasibility Study in 2002 to integrate its recycled water program into the CBWM's goals and objectives for the OBMP and the Chino Basin Recharge Master Plan. The Program Environmental Impact Report (EIR) for the Recycled Water Feasibility Study was certified and approved by the IEUA Board of Directors on June 28, 2002.

4. The CBWCD was established in 1949 to help ensure that current and future water needs will be met in the Chino Basin. Serving the cities of Chino, Chino Hills, Montclair, Ontario, Rancho Cucamonga and Upland, the CBWCD replenishes the groundwater basin, directing rainfall and storm runoff via channels to its percolation basins in order to increase the local water supply. The CBWCD also promotes water conservation through an active public education program.

5. The SBCFCD was formed when State legislation was enacted in 1939 to provide flood control functions and related water conservation services throughout the County. The SBCFCD has developed an extensive system of facilities, including dams, conservation basins, channels, and storm drains, to intercept and convey flood flows through and away from the major developed areas of the County.

6. IEUA submitted the *Title 22 Engineering Report for the Phase II Chino Basin Recycled Water Groundwater Recharge Project* to the Department in March 2006. IEUA submitted the *Phase II Chino Basin Recycled Water Groundwater Recharge Project Title 22 Engineering Report March 2006, Addendum 1 –*

Inclusion of Ely Basin in Phase II Recycled Water Groundwater Recharge Project, August 2, 2006 to the Department in August 2006. In January 2007, IEUA informed CDHS that the diluent water from the GE Flatiron site would not be included in the compliance calculation for RWC unless diluent water monitoring requirements are met. The Chino Basin Recycled Water Groundwater Recharge Program is part of a comprehensive water supply enhancement program jointly sponsored by the IEUA, CBWM, CBWCD, and SBCFCD to enhance water supply reliability and improve the quality of local drinking water wells throughout the Chino Basin. IEUA is the lead agency for the proposed project.

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. Ultimately, when fully developed, the Program will replenish the Chino Basin with approximately 22,000 afy of recycled water, 21,000 afy of storm water, and 91,000 afy of imported water for a total of approximately 134,000 afy of recharge water.

In 1997, IEUA began recharging up to 500 afy of recycled water from RP-1 at Ely Basins. The Ely Basins recharge operation has since been expanded to allow 2,300 afy of recycled water. This original recycled water recharge has historically been regulated under the RP-1 discharge permit (see below). For administrative and permitting purposes, the existing Ely Basins will become part of the Phase II Recharge Project.

The Phase I Recharge Project began operation in 2005 and consists of three major components: (1) wastewater treatment and water recycling facilities; (2) recharge basins; and (3) conveyance systems to deliver the various water supplies from their sources to the recharge basins. The initial project provides approximately 9,000 afy of recycled water, 8,000 afy of storm water, and 27,000 afy of imported water for a total of approximately 44,000 afy to replenish the Chino Basin. The project's goal is to determine and achieve a maximum recycled water contribution (RWC) based on demonstrated total organic carbon (TOC) removal through SAT using a running 60-month average. IEUA will determine compliance with the RWC by measuring the volumes of recycled water and diluent water recharged at the basin, and making the 60-month rolling average RWC calculation. Using the IEUA recommended Recycled Water Management Plan, IEUA will track the RWC and make adjustments as required. IEUA is in the process of designing an imported water turnout that can provide diluent water to Ely and can maintain the maximum allowable recycled water contribution.

The Phase II Recharge Project will be an expansion of the Phase I project. The Phase II Recharge Project will consist of two components: (1) recharge basins; and (2) conveyance systems to deliver the various water supplies from their sources to the recharge basins. The Phase II sites (including the existing Ely

Basins) will receive approximately 13,000 afy of recycled water, 13,000 afy of storm water, and 64,000 afy of imported water for a total of approximately 90,000 afy to replenish the Chino Basin. The project's goal for Phase II is the same as that for the first phase – to determine and achieve a maximum RWC based on demonstrated TOC removal through SAT using a running 60-month average.

Recycled water for both project phases will be tertiary effluent produced by RP-1 and RP-4 wastewater treatment and water reclamation facilities. RP-1 is located at 2450 East Philadelphia Avenue in Ontario, California 91761, and RP-4 is located at 12811 Sixth Street in Rancho Cucamonga, California 91729. IEUA operates these two facilities under California Regional Water Quality Control Board, Santa Ana Region (SARWQCB) Order No. R8-2006-0010 and National Pollutant Discharge Elimination System (NPDES) Permit No. CA0105279. Recent average daily flows are about 38 mgd at RP-1 and about 5 mgd at RP-4.

The Phase I Recharge Project features seven recharge sites that include Banana Basin, Declez Basin, Etiwanda Conservation Ponds, Hickory Basin, RP3 Basins, Turner Basin Nos. 1 and 2, and Turner Basin Nos. 3 and 4, plus one storage basin, Jurupa Basin. Recycled water is to be delivered to the Jurupa flood control basin and then pumped to RP3 Basins. The Jurupa basin serves as a forebay for the pump station. Geotech data indicate infiltration at Jurupa Basin is negligible. This site will be used once SBCFCD completes its improvements to the San Sevaine Channel near Jurupa Basin. All of these basins are owned by SBCFCD, with the exception of the RP3 Basins, which are owned by IEUA. The total effective recharge area of these eight Phase I facilities is nearly 138 acres, and their combined annual recharge capacity is approximately 44,000 afy.

The Phase II Recharge Project features six new recycled water recharge sites and one existing recycled water recharge site. The new recycled water recharge sites are at the following existing basins: (1) 7th & 8th Street Basins, (2) Etiwanda Spreading Basins, (3) Lower Day Basin, (4) Management Zone 1 (MZ-1) Basins (individually managed basins comprised of Brooks Street Basin, College Heights Basins, Montclair Basins, and Upland Basin), (5) San Sevaine Basin Nos. 1 through 5, and (6) Victoria Basin. The existing recycled water recharge site that will be added to the Phase II Recharge Project for administrative purposes is Ely Basins. Of the Phase II basins, four basins are owned by SBCFCD (7th and 8th Street Basins, Lower Day Basin, San Sevaine Basin Nos. 1-5 and Victoria Basin); one basin is owned by CBWCD (Brooks Basin); one basin is co-owned by both SBCFCD and CBWCD (Ely Basins) and one basin is owned by the City of Upland (Upland Basin). The total effective recharge area of these spreading facilities is about 245 acres, and their combined annual recharge capacity is approximately 90,000 afy.

Recycled water, storm water, and imported water will be infiltrated at the Phase II recharge sites at various times of the year. At the MZ-1 Basins site, recycled

water will be recharged only at the Brooks Street Basin. Diluent sources proposed for Brooks Street Basin include storm water and imported water. College Heights, Upland, and Montclair Basins will receive only storm water and imported water (no recycled water). The other Phase II sites, 7th & 8 Street Basins, Etiwanda Spreading Basins, Lower Day Basin, San Sevaine Basin Nos. 1 through 5, Victoria Basin, and Ely Basins will all receive recycled water, storm water, and imported water.

Recycled water will be delivered to the Phase II recharge basins via IEUA's Regional Recycled Water Distribution System pump stations and pipelines. This Regional Recycled Water Distribution System currently allows delivery of recycled water to Ely Basins and the Phase I Recharge Project basins. New components of the expanded distribution system serving the Phase II Recharge Project will include the 7th& 8th Street Basin Pipeline, San Antonio Channel Pipeline, East Reservoir Phase 1 Pipeline, Etiwanda Spreading Basins Pipeline, Day Creek Pipeline, and the San Sevaine Spreading Basin Pipeline. These pipelines range from 16 to 36 inches in diameter and total nearly 12 miles in length. Storm water and imported water will be delivered to the recharge basins via pipelines, flood control channels, and flow control structures.

The recycled water treatment technology used for the proposed Phase II Recharge Project is the same as that used for the Phase I Recharge Project and consists of:

Source Control: IEUA maintains a comprehensive industrial pretreatment and source control program approved by the SARWQCB to control waste discharges from point sources into the wastewater collection system. IEUA owns and operates a non-reclaimable wastewater (NRW) collection and conveyance system that provides disposal for industrial wastewater and brines. The northern NRW system discharges these wastes to the County Sanitation Districts of Los Angeles County for treatment and disposal. The southern NRW system discharges industrial wastewater and brines to the Orange County Sanitation District for treatment and disposal. The industrial pretreatment program and NRW system provide source control and salinity management for the IEUA water reclamation project and the groundwater basin.

- Primary and Secondary Treatment: Wastewater is treated at IEUA's RP-1 and RP-4. Both facilities have anoxic/oxic secondary treatment processes to remove nitrogen as well as organics and suspended solids, producing an oxidized and clarified secondary effluent.
    - RP-1 utilizes preliminary, primary, and secondary treatment processes. Preliminary treatment consists of bar screens and grit removal. Primary treatment consists of sedimentation. At times, a portion of the primary effluent is diverted to flow equalization basins to dampen the diurnal flow peaks on the downstream processes. Following primary clarification is the

secondary treatment process, which is composed of anoxic and oxic bioreactors and secondary clarifiers.

- RP-4 utilizes preliminary and secondary treatment processes. Preliminary treatment consists of bar screens and grit removal. Secondary treatment consists of anoxic and oxic bioreactors and secondary clarifiers.

- Tertiary Treatment: Secondary effluent from RP-1 and RP-4 receives tertiary treatment in compliance with the Department's "Water Recycling Criteria" for disinfected tertiary recycled water.
    - RP-1 features coagulation, followed by filtration and disinfection. Coagulation with alum and polymer addition is used intermittently as needed to enhance biological flocculation, based on influent turbidity to the filters. Following dual-media (sand and anthracite) filtration, tertiary effluent is disinfected using sodium hypochlorite. A portion of the disinfected tertiary effluent is used for irrigation, industrial process water, and groundwater recharge (Ely and Phase I basins). The remainder is dechlorinated using sodium bisulfite and discharged to Cucamonga Creek or outfall reuse sites, such as Prado Lake and Prado Park Lake.
    - RP-4 features alum and polymer addition for in-line coagulation and direct sand filtration. Filtered effluent is disinfected using sodium hypochlorite and contact tanks. Disinfected tertiary effluent is used for irrigation, industrial process water, and groundwater recharge (Phase I basins). The balance of the treated effluent flow is combined with RP-1 effluent and discharged to Cucamonga Creek near the RP-1 site.

RP-1 provides reliable treatment in compliance with Title 22 Water Recycling Criteria for an annual average flow of 44 mgd as demonstrated by the *RP-1 Title 22 Engineering Report* that was submitted to and approved by the Department in 2004. RP-4 provides reliable treatment in compliance with Title 22 Water Recycling Criteria for an annual average flow of 7 mgd as demonstrated by the *RP-4 Title 22 Engineering Report* that was submitted to and approved by the Department in 2005. Construction of new facilities that will expand RP-4's capacity up to 14 mgd is in progress. IEUA plans to submit a revised Engineering Report for RP-4 to the Department to validate its expanded capacity.

7. To protect the treatment facilities, an effective source control program is currently implemented by IEUA to minimize the risk that wastewater treated at RP-1 and RP-4 will be contaminated with toxic chemicals to protect the treatment facilities. The scope and purpose of the IEUA source control program have been expanded as part of the Phase I Recharge Project to include not only contaminants that may be detrimental to the facilities, but also to include contaminants specified by the Department that may be harmful to human health

and drinking water supplies. IEUA proposes to continue to review its current source control program to mitigate future impacts on the groundwater recharge program. The source control program review will determine if additional constituents should be included in the industry permitting process, and if additional pretreatment requirements are necessary, particularly for industries that discharge wastewater to the RP-1 and RP-4 collection systems. IEUA, through a comprehensive monitoring program, will be able to reasonably ensure that the recycled water produced at RP-1 and RP-4 for recharge into the Chino Basin is not contaminated with health-significant levels of toxic chemicals of industrial origin that are of concern to the Department in drinking water sources. In addition, IEUA plans to further mitigate wastewater constituent impacts on the Chino Basin Recycled Water Groundwater Recharge Program by maximizing use of the NRW system, which segregates these waste streams and discharges them to Los Angeles and Orange Counties.

8. IEUA has operated RP-1 since 1972 and RP-4 since 1997. Both facilities have redundant treatment systems, standby equipment, power failure safeguards, and contingency plans to maintain process reliability and recycled water quality in accordance with the Water Recycling Criteria. To ensure that RP-1 and RP-4 produce recycled water that meets all requirements and performance criteria specified in the SARWQCB permit, IEUA has developed operating and contingency plans that define proper operation and cover critical parameters of the treatment processes. These plans will be updated periodically to take into account the experiences learned from the prior years of operation.

9. Recycled water from RP-1 is currently used to recharge the Chino Basin via Ely Basins, which are located just northwest of RP-1, at a permitted rate of 2,300 afy. The existing recycled water groundwater recharge operation at Ely Basins is on-going and for administrative purposes will be added to the scope of the Phase II Recharge Project.

10. Recycled water from RP-1 and RP-4 is currently used to recharge the Chino Basin via the spreading basins comprising the Phase I Recharge Project at a rate of approximately 9,000 afy, consistent with its approved *Title 22 Engineering Report* dated November 2003. The Phase I Recharge Project is on-going.

11. A minimum 6-month retention time will be provided for the recycled water recharged in the Chino Basin before the water is extracted for drinking purposes, and a minimum 500-foot horizontal separation distance between the recharge sites and all drinking water wells will be provided as one of the multiple barriers against pathogenic microorganisms.

12. The Chino Groundwater Basin is a structural depression that has been filled with more than 2,000 feet of sediment derived from the San Gabriel and San Bernardino mountains. The Chino Basin encompasses approximately 235 square miles in San Bernardino, Riverside, and Los Angeles Counties. The

natural geological boundaries of Chino Basin include: (1) Red Hill and San Jose Faults to the north; (2) Rialto-Colton Fault to the east; (3) Jurupa Hills to the southeast; (4) La Sierra Hills and the Prado Flood Control Basin to the south; and (5) Chino Hills to the southwest. The unconsolidated sediments consist of alluvial deposits designated as the Older and Younger Alluvium. The Older Alluvium consists of floodplain, fluvial, and alluvial fan deposits, with a thickness in excess of 1,000 feet in the center of the basin. The Older Alluvium is the primary aquifer. The Younger Alluvium consists of dune sand and stream-deposited material, with a thickness up to 200 feet. The Younger Alluvium non-uniformly overlies the Older Alluvium and occurs above the regional water table over most of the basin. In general, the Younger Alluvium is more permeable than the Older Alluvium, such that percolation of precipitation and applied water is higher in areas underlain by Younger Alluvium. The aquifer system is considered to be largely unconfined, with semiconfined to confined conditions occurring at depth. Based on water quality, the deeper portions of the Basin appear to be somewhat isolated from the shallower saturated zone. The long-term safe yield of the Chino Basin has been determined to be 140,000 afy by the 1978 Chino Basin Judgment, using 1965 to 1974 as a base period. More recent analyses estimate the Basin's safe yield at 156,000 to 162,000 afy.

13. IEUA passed two resolutions as a condition of the Phase I GWR SARWQCB permit with respect to not locating, drilling wells within the separation requirement zone. IEUA is prepared to pass similar resolutions for Phase II basins. The well permitting review material IEUA previously prepared for the San Bernardino County, Division of Environmental Health Services (DEHS) and for Phase I included the Phase II basin sites. Included in the provided materials were detailed maps of the basins and separation requirements, including a list of township, range, and sections that overlap with the basins and separation requirements.

    Resolution 2005-2-6 was adopted on February 16, 2005 and is titled: *RESOLUTION OF THE BOARD OF DIRECTORS OF THE INLAND EMPIRE UTILITIES AGENCY* (IEUA), SAN BERNARDINO COUNTY, CALIFORNIA, ADOPTING A POLICY TO PROHIBIT WELL DRILLING WITHIN SPECIFIED DISTANCES OF A GROUNDWATER RECHARGE SITE THAT WILL BE USED FOR RECHARGING RECYCLED WATER*

    Resolution 2005-2-7 was also adopted on February 16, 2005 and is titled: *RESOLUTION OF THE BOARD OF DIRECTORS OF THE INLAND EMPIRE UTILITIES AGENCY* (IEUA), SAN BERNARDINO COUNTY, CALIFORNIA, ADOPTING A POLICY TO PROTECT ALL PUBLIC AND PRIVATE WATER PRODUCERS AGAINST IMPACTS ASSOCIATED WITH RECYCLED GROUNDWATER RECHARGE PROJECTS DEVELOPED BY INLAND EMPIRE UTILITIES AGENCY*

14. The Phase II Recharge Project will replenish the Chino Basin via spreading recycled water and diluent water, which is water of non-wastewater origin. Recycled water will be effluent only from RP-1 and RP-4. Diluent water will be storm water and imported State Water Project (SWP) water from Northern California that is purchased from Metropolitan. Storm water will be locally

captured runoff originating from the watersheds along the southern extent of the San Gabriel Mountains and from the developed and undeveloped areas below the mountains. Storm runoff will be conveyed to the recharge basins via existing creeks and flood control channels. SWP water will be untreated surface water diverted from Lake Silverwood, delivered to the recharge basins through Metropolitan's Foothill Feeder Pipeline (Rialto Reach) and existing flood control channels. The electrical conductivity (EC) of the recycled water is consistently higher than that of the diluent waters. Recycled water EC consistently ranges from about 650 to 850 µmhos/cm. Storm water EC typically ranges from about 200 to 300 µmhos/cm. SWP water EC typically ranges from 250 to 350 µmhos/cm. EC will be used to determine the blend of these recharge waters for determination of SAT efficiency.

15. Groundwater generally flows from north to south and southwest across the Chino Basin. Extensive hydrogeologic studies have been prepared for the Chino Basin using data from the CBWM, and local groundwater flow models have been developed in the vicinity of the recharge basins. Transmissivity of the aquifer at various locations has been estimated from well completion reports and specific capacity tests at nearby production wells. Groundwater levels have been monitored and hydraulic gradients have been determined. These analyses and modeling efforts were used to estimate the underground retention times from the recharge basins to nearby drinking water wells. The estimated recycled water underground retention time from all of the Phase II recharge basins to the nearest drinking water well exceeds the minimum 6-month requirement.

16. It is important that new drinking water wells are constructed in a manner to achieve a minimum of 6 months of underground retention time and a minimum of 500-foot horizontal separation down gradient from the spreading operation at each of the recharge basins as one of the multiple barriers to assure inactivation of pathogenic microorganisms. The County of San Bernardino, Division of Environmental Health Services (DEHS) is the lead permitting agency for construction of all public municipal and/or private domestic supply wells within the project area. IEUA will closely monitor the well permitting activities of DEHS to make sure municipal or domestic supply wells are located outside these separation requirement zones around each recharge basin. The 500-foot separation requirement documentation has been provided by IEUA to San Bernardino County Department of Environmental Health Services for control of future well permits within a 500-foot separation requirement around recharge basins that are to receive recycled water for groundwater recharge.

17. The closest active municipal or domestic wells to the Phase II recharge basins are described below. The estimated retention times noted below are based on flow models as discussed under item #15.

    - <u>7th & 8th Street Basins</u>: The closest active drinking water production well is City of Ontario Well No. 35 (CBWM No. 600493), which is located down gradient about 10,000 feet southwest of the basins. The retention time

prior to extracting water of recycled water origin at this well is estimated at 7,853 days. San Antonio Water Company Well No. 12 (SAWC-12) (CBWM No. 3601561) was noted in the Title 22 Engineering Report as the closest active drinking water production well. However, SAWC-12 has been taken out of service as a potable water supply well due to the lack of a sanitary annular seal and elevated nitrates. The well would need nitrate blending treatment and disinfection if it were to be returned to service although no such plans currently exist.

- Etiwanda Spreading Basins: The closest active drinking water production well is Cucamonga Valley Water District Well No. 39, which is located down gradient about 11,000 feet south-southwest of the basins. The retention time prior to extracting water of recycled water origin at this well is estimated at 1,815 days.
- Lower Day Basin: The closest active drinking water production well is Cucamonga Valley Water District Well No. 5, which is located down gradient about 19,000 feet southwest of the basin. The retention time prior to extracting water of recycled water origin at this well is estimated at greater than 9,125 days.
- MZ-1 Basins (Brooks Basin only): The closest active drinking water production well is City of Pomona Well No. P-10 (CBWM No. 1901719), which is located down gradient about 2,000 feet west-southwest of Brooks Street Basin. The retention time prior to extracting water of recycled water origin at this well is estimated at 263 days.
- San Sevaine Basin Nos. 1 through 5: The closest active drinking water production well is Unitex Well 91090, which is located down gradient about 1,200 feet east of Basins 1,2, and 3. If recycled water is recharged at all five basins, the retention time prior to extracting water of recycled water origin at this well is estimated at 282 days.
- Victoria Basin: The closest active drinking water production well is Cucamonga Valley District Well No. 39, which is located down gradient about 4,200 feet southwest of the basin. The retention time prior to extracting water of recycled water origin at this well is estimated at 1,810 days.
- Ely Basins: The closest active drinking water production well is the Bishop of San Bernardino Corp. well (SWN 02S07W04M), which is located down gradient about 4,300 feet southwest of the basins. The retention time prior to extracting water of recycled water origin at this well is estimated at 2,100 days.

18. A conveyance system monitoring program or a lysimeter-based monitoring program that evaluates the SAT will be used for compliance with the TOC and total nitrogen removal requirements. Since the recharge basins are a combination of off-river and flow through basins, samples of recycled water used

for recharge will be collected at each recharge basin either from the conveyance system prior to spreading or from lysimeters in the vadose zone after spreading. Compliance samples collected in lysimeters will be predominantly recycled water (based on EC concentration) prior to reaching the regional groundwater table. A lysimeter consists of a porous cup installed in unsaturated sediment that collects undiluted samples of recharge water prior to reaching the regional groundwater table. One or two clusters of lysimeters will be installed at each recharge site at locations and depths determined in the field during installation of the lysimeters by a licensed geologist. Each cluster will include lysimeters installed at varying depths based on the recommendations of the licensed geologist to provide detailed vertical resolution in the upper part of the vadose zone. The most representative lysimeter results will be used to demonstrate SAT efficiency. The representative lysimeter to be sampled for compliance will be determined during the Start-Up Period of each recharge site and documented in a Start-Up Report.

19. Prior to spreading recycled water at each Phase II basin, new monitoring wells will be constructed near the recharge basins that include screened intervals and at locations between one and three months travel time from the spreading basin(s) and at additional point(s) between the spreading basin(s) along the groundwater flow paths toward the nearest municipal or domestic wells as follows:

    - 7th & 8th Street Basins: Monitoring well 8TH-1 will be installed about 50 to 170 feet down gradient of this recharge site to sample groundwater at two depths (approximately 490-530 and 600-640 feet below ground surface (bgs)).
    - Etiwanda Spreading Basins: Monitoring well ES-1 will be installed about 50 to 150 feet down gradient of this recharge site to sample groundwater at one depth (approximately 790-830 feet bgs).
    - Lower Day Basin: Monitoring well LDY-1 will be installed about 50 to 150 feet down gradient of this recharge site to sample groundwater at one depth (approximately 660-700 feet bgs).
    - MZ-1 Basins: Monitoring well BRK-1 will be installed about 240 to 720 feet down gradient of Brooks Street Basin to sample groundwater at two depths (approximately 320-360 and 560-600 feet bgs).
    - San Sevaine Basin Nos. 1 through 5: Monitoring well SSV-1 will be installed about 50 to 120 feet down gradient of this recharge site to sample groundwater at one depth (approximately 640-680 feet bgs).
    - Victoria Basin: Monitoring well VCT-1 will be installed about 50 to 120 feet down gradient of this recharge site to sample groundwater at one depth (approximately 570-610 feet bgs).

20. Two existing monitoring wells are located along groundwater flow paths between Ely Basins and the nearest domestic water supply well (Bishop of San Bernardino Corp. well) as follows:

- Ely Basins: The closest monitoring well is MW-1 located on Philadelphia Street at Ely Basin 3, which is about 50 feet down gradient of this recharge site and is used to sample groundwater at three depths (45 to 65 feet bgs, 200 to 220 feet bgs, and 280 to 300 feet bgs). This well has historically been referred as the Philadelphia Well.

- Ely Basins: The intermediate monitoring well is MW-2 located on Walnut Street, which is about 2,700 feet down gradient of this recharge site and is used to sample groundwater at two depths (approximately 206 to 226 feet bgs and 290 to 310 feet bgs). This well has historically been referred as the Walnut Well.

21. Water quality at existing municipal or domestic water supply production wells located down gradient from the recharge basins is monitored in accordance with current source water quality monitoring frequencies for required constituents as required by Federal and State drinking water standards. Background water quality information is provided in a 2005 report prepared for the Chino Basin Watermaster entitled *"State of the Basin Report - 2004 Chino Basin Optimum Basin Management Program"*.

22. The Title 22 Engineering Report indicated that a tracer study would be conducted at 7th & 8th Street Basins based on the estimated underground retention time to the nearest domestic water supply well, which at that time was SAWC-12. Since then, SAWC-12 has been taken out of service as a domestic water supply well due to the lack of a sanitary annular seal. As such, the nearest active domestic water supply well to the 7th & 8th Street Basins is now Ontario Well 35 as noted in Finding No. 17. The estimated underground retention time to Ontario Well 35 significantly exceeds the minimum 6- month requirement. Therefore, a tracer study for 7th & 8th Street Basins will not be conducted unless an active domestic water supply well is located less than a 549-day (18-month) underground retention time from the 7th & 8th Street Basins.

23. An operations, maintenance, and monitoring plan (OMM Plan) for the Phase II Recharge Project will be submitted for review and approval by the Department and SARWQCB prior to recharging recycled water. The Phase II OMM Plan will consist of an update of the Phase I Plan to include the Phase II sites. The OMM Plan will describe operating, maintenance, and monitoring procedures for normal, start-up, seasonal flow, upset, off-spec, and emergency conditions. The OMM Plan will address source control concerns, water quality issues, and include a contingency plan and an emergency response plan.

24. Documents submitted or prepared in support of the project include:

    "IEUA Responses To CDHS Comments On Addendum 1 – Inclusion of Ely Basin in the Phase II Recycled Water Groundwater Recharge Project Title 22 Engineering Report", January 26, 2007

"Requested Information By CDHS To Supplement Draft Phase 2 Findings Of Fact", November 18, 2006

"Phase II Chino Basin Recycled Water Groundwater Recharge Project Title 22 Engineering Report March 2006, Addendum 1 – Inclusion of Ely Basin in Phase II Recycled Water Groundwater Recharge Project", Wildermuth Environmental, Inc., October 12, 2006

"Phase II Chino Basin Recycled Water Groundwater Recharge Project Title 22 Engineering Report March 2006, Addendum 1 – Inclusion of Ely Basin in Phase II Recycled Water Groundwater Recharge Project", Wildermuth Environmental, Inc., August 2, 2006

"Title 22 Engineering Report, Phase II Chino Basin Recycled Water Groundwater Recharge Project", DDB Engineering, Inc. and Wildermuth Environmental, Inc., March 2006

"Recharge Operations Manual, Draft Report", Wildermuth Environmental, Inc., March 2006

"Responses from IEUA to the Department's Comments", March 13, 2006

"Letter from the Department to IEUA with comments on the Draft Title 22 Engineering Report, Phase II Chino Basin Recycled Water Groundwater Recharge Project", February 27, 2006

"Chino Basin Groundwater Recharge Project, Groundwater Recharge Project Workshop, Phase 2 Permit", IEUA, January 30, 2006

"Chino Basin Groundwater Recharge Project, Hickory and Banana Basins Water Quality Data Review and Basin Tour", IEUA, December 23, 2005

"Letter from the Department to IEUA with comments on the Draft Title 22 Engineering Report, Phase II Chino Basin Recycled Water Groundwater Recharge Project", October 14, 2005

"Responses from IEUA to the Department's Comments", October 3, 2005

"Letter from the Department to IEUA with comments on the Draft Title 22 Engineering Report, Phase II Chino Basin Recycled Water Groundwater Recharge Project", August 26, 2005

"Draft Title 22 Engineering Report, Phase II Chino Basin Recycled Water Groundwater Recharge Project", DDB Engineering, Inc. and Wildermuth Environmental, Inc., July 2005

"State of the Basin Report – 2004 Chino Basin Optimum Basin Management Program", Prepared for the Chino Basin Watermaster, Wildermuth Environmental, Inc., July 2005

"Chino Basin Recharge Facilities Operation Procedures", Draft Report, Wildermuth Environmental, Inc., June 2005

"Start-Up Protocol Plan for Hickory Basin, Chino Basin Recycled Water Recharge Program", Wildermuth Environmental, Inc., June 2005

"Start-Up Protocol Plan for Banana Basin, Chino Basin Recycled Water Recharge Program", Wildermuth Environmental, Inc., June 2005

"*IEUA Recycled Water Implementation Plan*", *Final Draft*, MWH, May 2005

"*IEUA Phase I Chino Basin Recycled Water Groundwater Recharge Project Operation, Maintenance & Monitoring Plan"*, DDB Engineering, Inc., May 2005

"*Recycled Water Recharge Program, Draft Start-Up Protocol Plan*", Wildermuth Environmental, Inc., May 2005

"Recycled Water Recharge Program, Draft Sampling and Analysis Plan", Wildermuth Environmental, Inc. May 2005

"*Chino Basin Recharge Facilities Operation Procedures*", Draft Report, Wildermuth Environmental, Inc., April 2005

"*IEUA Regional Plant No. 4 Title 22 Engineering Report*", DDB Engineering, Inc., March 2005

"*IEUA Regional Plant No. 1 Title 22 Engineering Report*", DDB Engineering, Inc., August 2004

November 2003 - "*Title 22 Engineering Report, Phase I Chino Basin Recycled Water Groundwater Recharge Project*", CH2M-Hill, November 2003

"*Memorandum of Understanding*" for watershed protection and agree to maximize use of recycled water for mutual benefit, IEUA and Orange County Water District, October 2002

"*Program Environmental Impact Report for the Wastewater Facilities Master Plan, Recycled Water Master Plan and Organics Management Master Plan*", Tom Dodson & Associates, Draft in April 2002, Final certified by IEUA Board in June 2002

"*Memorandum of Understanding*" for recharge of recycled water in Chino Management Zone 3 (MZ-3), IEUA and Jurupa Community Services District, June 2002

"*Chino Basin Facilities Improvement Project, Executive Summary, Basin Descriptions and Appendix G (Geotechnical Report)*", URS, March 2002

"*Memorandum of Understanding on Recharge Master Plan*", approved by IEUA, CBWCD, SBCFCD, and CBWM, February 2002

"*IEUA Recycled Water System Feasibility Study*", IEUA, January 2002

"*Chino Basin Recharge Master Plan*", CBWM, 2001

"*Optimum Basin Management Program, Recharge Master Plan, Phase II Report*", Wildermuth Environmental, Inc., August 2001

"*Chino Basin Recycled Water Groundwater Recharge Project Facilities Plan*", Camp Dresser & McKee, August 2000

"*Chino Basin Optimum Basin Management Program, Phase I Report*", Wildermuth Environmental, Inc., August 1999

CONDITIONS

Based on the above FINDINGS OF FACT, which are made pursuant to the information provided by IEUA in the *"Title 22 Engineering Report on the Phase II Chino Basin Recycled Water Groundwater Recharge Project"* dated March 2006, the *"Phase II Chino Basin Recycled Water Groundwater Recharge Project Title 22 Engineering Report March 2006, Addendum 1 – Inclusion of Ely Basin in Phase II Recycled Water Groundwater Recharge Project"* dated August 2, 2006, subsequent correspondence, presentations by IEUA and CBWM staff, and written statements and comments from members of the public at the Public Hearing held by the California Department of Health Services, Drinking Water Field Operations Branch, on April 20, 2006, in Rancho Cucamonga, California, the Department FINDS that the proposed operation of the Phase II Recharge Project will provide groundwater recharge of the domestic water supply aquifers by surface spreading of a quality that fully protects public health PROVIDED THAT ALL OF THE FOLLOWING CONDITIONS ARE MET:

1. At a minimum, the recycled water used for groundwater recharge shall consist of wastewater having received secondary treatment, followed by tertiary filtration, disinfection, and soil aquifer treatment.

2. Only recycled water from RP-1 and RP-4 shall be used for groundwater recharge. Recycled water produced by RP-1 and RP-4 for recharge via spreading shall, at all times, be adequately oxidized, filtered, and disinfected in accordance with the Title 22 Water Recycling Criteria. There shall be no bypassing of any treatment process for production of recycled water for groundwater recharge.

3. The wastewater collection system shall be operated under a SARWQCB approved comprehensive industrial pretreatment and pollutant source control program for the control of discharge of toxic wastes from point sources. If the Department identifies any contaminants in concentrations that may pose a health risk in a drinking water supply, the Department may designate those contaminants for inclusion in the pretreatment and source control program requirements and IEUA shall minimize the possibility that the influent wastewater to RP-1 and RP-4 will be contaminated with such toxic chemicals. Quarterly composite and/or grab samples shall be taken of the recycled water prior to recharge and analyzed for contaminants designated by the Department. During Phase I composite samples were collected at the Reliant Energy Recycled Water turnout located north of RP-4 on Etiwanda. Any detected contaminants shall be included in the monitoring plan referenced in Condition No. 19.

   The source control program shall include:

   - An assessment of the fate of the specified contaminant compounds through the wastewater and recycled water treatment systems;

- A source investigation and monitoring program focused on the specified contaminants and their potential to persist through the treatment systems;
- An outreach program to industrial, commercial, and residential communities within the sewage collection agency's service area to manage and minimize the discharge of compounds of concern at the source; and
- A proactive program for maintaining an inventory of compounds discharged into the wastewater collection system so that new compounds of concern can be evaluated rapidly.

4. The recycled water to be recharged via spreading at 7th & 8th Street Basins, Ely Basin, Etiwanda Spreading Basins, Lower Day Basin, MZ-1 Basins (Brooks Street Basin only), San Sevaine Basin Nos. 1 through 5, and Victoria Basin shall only be effluent from RP-1 and RP-4. A water quality-driven approach shall be used to derive a RWC as a maximum allowable fraction of recycled water that can be recharged based on site-specific TOC reduction using SAT and a 60-month running average as set forth in Condition No. 13. The maximum RWC shall be approved by CDHS and the RWQCB based on a recharge site's Start-up Report. The RWC is defined as the quantity of recycled water divided by the sum of the quantities of the recycled water and diluent water. Diluents shall be storm water runoff and/or imported State Project Water. The RWC at each recharge site shall be determined during the Start-Up Period (See Condition Nos. 12 and 13). The Start-Up Period for each recharge site shall demonstrate the effectiveness of SAT in determining the maximum allowable RWC and the corresponding average TOC value for that specific site. This RWC shall be designated as the maximum recycled water contribution for that recharge site. Each month, the running monthly average RWC shall be calculated based on the total volume of the recycled water and diluent water applied for the preceding 60 calendar months. The running monthly average shall not exceed the maximum allowable recycled water contribution.

   Calculation of the running monthly average RWC shall commence after 30 months of operation; and shall be based on the total volume of the recycled water and diluent water recharged over the preceding months, and shall be in compliance with the maximum RWC following 60 months of operation.

5. A RWC Management Plan shall be submitted to the Department and SARWQCB that estimates future average RWCs based on anticipated recharge operations over the first 60 months of recycled water recharge at each recharge site. The RWC Management Plan shall be submitted with the Start-Up Period Report and updated with IEUA's annual report to the RWQCB during the first 60-months and shall clearly identify the plan to achieve compliance with the maximum recycled water contribution by the 60th month at each recharge site. Following the initial 60 months, if the average RWC does not comply with the maximum recycled water contribution, IEUA shall notify the Department and SARWQCB within 7 days and submit a report to the Department and the

SARWQCB within 60 days describing the reason and corrective actions taken to avoid future exceedances.

6. The recycled water used for recharge shall meet all maximum contaminant levels specified in the Drinking Water Quality and Monitoring Requirements, California Code of Regulations (CCR), Title 22, Chapter 15, which includes the following:

   - Primary maximum contaminant levels (MCLs) specified in Chapter 15;
   - Inorganic chemicals in Table 64431-A (except for nitrogen compounds);
   - Radionuclides in Table 4, Section 64443;
   - Organic chemicals in Table 64444-A;
   - Action levels for lead and copper in Section 64678;
   - Any new Federal maximum contaminant level upon adoption; and
   - Any new State maximum contaminant level upon adoption.

   Recycled water shall be monitored on a quarterly basis at regular 3-month intervals by analyzing a 24-hour composite or grab sample, representative of the recycled water being applied, to determine compliance with primary maximum contaminant levels referenced above for inorganic chemicals, radionuclides, organic chemicals, and disinfection byproducts and with action levels for lead and copper referenced above. Compliance shall be based on the running-quarterly average, calculated each quarter using the previous four quarters of data. Recycled water quality monitoring results during the Phase I Recharge Project that have already been submitted to the Department and SARWQCB may be used as the initial recycled water quality monitoring for the Phase II Recharge Project. The recycled water shall meet all maximum contaminant levels specified in the Drinking Water Quality and Monitoring Requirements, California Code of Regulations (CCR), Title 22, Chapter 15.5 as follows:

   - Disinfection byproducts in Tables 64533-A and 64533-B in Section 64533.

   Recycled water used for recharge, prior to reaching the regional groundwater table shall be monitored on a quarterly basis at regular intervals by analyzing a 24-hour composite or representative grab sample to determine compliance with primary maximum contaminant levels for disinfection byproducts listed above. Compliance shall be based on the running-quarterly average, calculated each quarter using the previous four quarters of data. If the recycled water or blend of the recycled water and diluent water is out of compliance, a report shall be submitted to the Department and SARWQCB that describes the reasons and the corrective actions taken.

7. The recycled water used for recharge, prior to reaching the regional groundwater table shall meet all maximum contaminant levels specified in the Drinking Water Quality and Monitoring Requirements, California Code of Regulations (CCR), Title 22, Chapter 15 as follows:

   - Secondary maximum contaminant levels in Tables 64449-A and 64449-B ("Upper" levels), with the exception of color.

   Recycled water used for recharge, prior to reaching the regional groundwater table shall be monitored on an annual basis by analyzing a representative grab sample to determine compliance with secondary maximum contaminant levels listed above. If the single sample result (or average of samples collected during the year, if more than one) exceeds a secondary maximum contaminant level, a report shall be submitted to the Department and SARWQCB that describes the reasons and corrective actions taken.

8. Each week, at least three days apart, IEUA shall collect one sample (grab or 24-hour composite) of recycled water or, if supplemented with diluent water, the blend of the two, prior to reaching the regional groundwater table. Such sampling shall be performed at each individual recharge basin utilizing lysimiter-based monitoring or from a location prior to entering the recharge basin. If collected from a lysimeter, the lysimeter location shall be determined during the Start-Up Period as described in Condition Nos. 12 and 13. The sample shall be analyzed for total nitrogen (the sum of nitrogen concentrations in ammonia, nitrite, nitrate, and organic nitrogen-containing compounds), with the laboratory being required by IEUA to complete each analysis within 72 hours and report to IEUA, within the same 72 hours, each result exceeding 5 mg/L. For each sampling location, if the average of two consecutive samples exceeds 5 mg/L total nitrogen, the cause shall be investigated, appropriate actions to reduce the total nitrogen levels shall be taken, and the Department and the RWQCB shall be notified within 48 hours of IEUA being notified by the laboratory. For each individual basin, if the average of all samples collected during any consecutive four weeks exceeds 5 mg/l, the surface spreading of recycled water shall be suspended at the basin. Surface spreading shall not resume until appropriate corrections are made to reduce total nitrogen levels to below 5 mg/l for at least one week.

   Within 60 days of suspension of recharge of recycled water, a report describing the causes of the exceedance and corrective measures taken to avoid future exceedances of the requirements shall be submitted to the Department and SARWQCB.

9. A Corrective Action Plan shall be submitted to the Department and SARWQCB if the recycled water is out of compliance with the requirements outlined in Condition Nos. 5, 6, 7 and 8. The report shall include the reasons for non-compliance and the corrective actions taken.

10. Diluent water, when available, shall be monitored quarterly for nitrate and nitrite. Within 48 hours of being informed by the laboratory of a nitrate and/or nitrite result greater than their respective maximum contaminant level, a confirmation sample shall be collected and analyzed. If a confirmation sample is not taken within 48 hours or the average of the initial and confirmation samples exceeds the maximum contaminant level, IEUA shall:

    - If a confirmation sample is taken, notify the Department and SARWQCB within 48 hours of receiving the confirmation sample result.
    - Investigate the cause(s) of the exceedance and take corrective actions within 10 days.
    - Collect and analyze two grab or 24-hour composite samples at least three days apart each week for two weeks.
    - If the average of all samples collected over the ensuing two-week period exceeds the applicable criterion, suspend application of diluent water until appropriate corrections are made.

11. Diluent water shall also be monitored in accordance with a Department-approved water quality-monitoring plan. At a minimum, the plan shall include diluent monitoring for:

    (1)Primary maximum contaminant levels specified in chapter 15: Inorganic chemicals in table 64431-A (except for nitrogen compounds); radionuclides in sections 64442 and 64443; and organic chemicals in table 64444-A (new state and federal maximum contaminant levels are to be added as they are adopted);

    (2) MCLs for disinfection byproducts in section 64533, chapter 15.5;

    (3) Action levels in section 64678 for lead (0.015 mg/L) and copper (1.3 mg/L);

    (4) Secondary MCLs for the constituents and characteristics in tables 64449-A and B ("Upper" levels), chapter 15, with the exception of color; and,

    (5) Unregulated chemicals in table 64450, chapter 15.

    If the diluent water is non-compliance with a water quality requirement outlined above:

    (1) IEUA shall conduct a source water evaluation of the diluent water for Department review and approval that includes, but is not limited to:
    (1) A description of the source of the diluent water,
    (2) Delineation of the origin and extent of the diluent water,

(3) The susceptibility of the diluent water to contamination,
(4) The identification of known or potential contaminants, and
(5) An inventory of the potential sources of diluent water contamination.

(2) IEUA shall develop a plan that provides a means for accurately determining the volume of diluent water to be credited, including consideration of any temporal variations, and demonstrates that the diluent water will be applied in a manner such that temporal variations in the diluent water volume will not lead to an exceedance of the maximum RWC. The plan shall be submitted to the Department for review and approval and be conducted at a frequency specified in IEUA's approved Title 22 engineering report.

12. The TOC concentration of the filtered wastewater prior to dilution with either diluent, storm or imported water shall not exceed 16 mg/L for more than two consecutive samples, and an average of the last 4 sample results. If the filtered wastewater TOC exceeds 16 mg/L for more than two consecutive samples, then recharge of recycled water shall be suspended until the filtered wastewater TOC is less than 16 mg/L. For one year after initial startup of the Phase I Recharge Project, 24-hour composite samples of filtered wastewater were collected and analyzed twice per week for TOC compliance. Subsequently, based on its review of the first year of Phase I data, the Department may allow 24-hour composite samples of filtered wastewater to be collected and analyzed weekly for TOC compliance. No additional sampling or TOC analysis of filtered wastewater shall be required for the Phase II Recharge Project because its recycled water is the same as that for the Phase I Recharge Project.

13. For each recharge site, the 20-sample average TOC of the recycled water prior to reaching the regional groundwater table shall not exceed a TOC limit equal to 0.5 mg/l divided by the 60-month average of the recycled water contribution.

    The maximum recycled water contribution shall be determined during the Start-Up Period as set forth in Condition No. 4. IEUA compliance determination of the recycled water with the average TOC concentration shall be based on a lysimeter-based monitoring program performed at each recharge site, allowing for recycled water percolation to the lysimeters to demonstrate SAT efficiency, unless recycled water TOC compliance can be demonstrated prior to recharge. Compliance shall be based on the running average of the most recent 20 sample test results. Each week one-grab sample of the recharge water shall be collected for TOC analysis from the compliance lysimeter. Each weekly sample shall be representative of recycled water as demonstrated by EC and recharge basin operations. Compliance determination shall begin after the Start-Up Period, as soon as 20 representative samples have been collected (See Condition Nos. 14 and 15.). If the most recent 20-sample average TOC concentration for samples collected after the end of the Start-Up Period exceeds the TOC limit determined above, the amount of recycled water used for

recharge shall be reduced until the TOC average meets the TOC limit. An alternative-monitoring plan may be approved if the plan demonstrates that an equal level of public health protection is achieved.

14. Recycled water recharge shall commence with a Start-Up Period at each recharge basin. The Start-up Period shall last up to 180 days following commencement of recharge of recycled water to each basin, except if recharge of recycled water at that basin is significantly interrupted, for example due to storm event(s). In the event of such interruptions in recycled water recharge, the Start-Up Period may be extended by the number of days of interruption as determined by EC at the to-be-selected compliance lysimeter. Written notice will be given to the Department and SARWQCB in the event that an extended Start-Up Period is required. At least two weeks prior to commencing the Start-Up Period at each recharge basin, a report describing the protocols to be used and implemented during the Start-Up Period shall be submitted for review and approval by the Department. At a minimum, the Start-Up Protocols shall identify the methods to be used to establish site characteristics, including percolation rates, the physical characteristics of the vadose zone, EC, recycled water TOC removal, and SAT efficiency, and establish a sampling regime based on these characteristics that is representative of recycled water following SAT.

15. A Start-Up Period report shall be submitted to the Department and SARWQCB for approval at the conclusion of the Start-Up Period for each basin. The Start-Up Period report shall include: site specific determinations of percolation rates; SAT efficiency and optimum depths and locations of lysimeters to obtain representative compliance samples of recycled water after SAT; and the date that the Start-Up Period ended. The report shall make recommendations for final compliance lysimeter placement, a monitoring plan to be employed during the initial year of operation to ensure that the maximum recycled water contribution and corresponding average TOC and EC can be tracked in the vadose zone. The report shall include and evaluate the analytical results from weekly lysimeter samples along with conclusions regarding SAT performance. Based on EC data for the various sources of water recharged during the Start-up Period, the report shall clearly define the parameters for various sources of water and the methods of use of EC measurements to indicate and track the percentage of recycled water in the lysimeter samples. The report shall compare TOC reduction with the percent recycled water in the compliance lysimeter samples to develop a means of determining the minimum percent recycled water cutoff for limiting the selection of TOC data used in the 20-sample running average. The report shall include an evaluation of overall TOC reduction documented by analytical results from RP-1 and RP-4 recycled water, the recharge basin surface water, and recharged water samples from the lysimeter following SAT, which may be utilized as a TOC reduction efficiency credit if an alternative monitoring plan is submitted.

16. Within 90 days from the end of the initial year of operation after the Start-Up Period of any recharge basin, a report shall be submitted to the Department and

the SARWQCB that evaluates the efficacy of the compliance lysimeter monitoring plans and makes recommendations regarding the maximum recycled water contribution and corresponding average TOC, and necessary adjustments to the lysimeter monitoring placement as appropriate for each recharge basin. Any adjustments to the lysimeter monitoring placement and percentage of diluent water used shall be made following approval from the Department.

17. Filter effluent shall be oxidized wastewater that has been coagulated and passed through dual media gravity filters at a rate that does not exceed 5 gallons per minute per square foot of surface area. Coagulation need not be used at all times provided that the filter effluent quality does not exceed 2 Nephelometric turbidity units (NTU), the turbidity of the influent to the filters is continuously measured, the influent turbidity does not exceed 5 NTU for more than 15 minutes and never exceeds 10 NTU, and there is the capability of automatically activating chemical addition to meet the turbidity requirements in the event the filter influent turbidity exceed 5 NTU for more than 15 minutes.

    The turbidity of the filter effluent shall not exceed an average of 2 NTU within any 24-hour period, shall not exceed 5 NTU more than 5 percent of the time in any 24-hour period, and shall not exceed 10 NTU at any time. The turbidity of the filtrate shall be continuously measured with at least one reading every 1.2 hours and recorded. Compliance with the daily average turbidity shall be determined based on the recorded turbidity taken at intervals of no more than 1.2 hours over a 24-hour period. Should the continuous turbidity meter and recorder fail, grab sampling at a minimum frequency of 1.2 hours may be substituted for a period of no more than 24 hours. The results of the daily average turbidity determinations shall be reported quarterly to the Department and the SARWQCB. A failure to meet the turbidity performance requirements shall result in the suspension of recharge of recycled water until such time the cause of the failure has been identified and corrected. Any failure to meet the turbidity performance requirements shall be reported to the Department and the SARWQCB in the next monthly report.

18. The recycled water intended for recharge via spreading shall be disinfected such that the 7-day median number of total coliforms shall not exceed 2.2 total coliform bacteria per 100 milliliters (mL) and the number of total coliform organisms do not exceed 23 total coliform bacteria per 100 mL in more than one sample in any 30-day period prior to spreading. No sample shall exceed 240 total coliform bacteria per 100 mL. A grab sample shall be analyzed daily for total coliform bacteria. If these requirements are not met, a report describing the cause of the failure and the corrective actions taken to avoid future violations of these requirements shall be submitted within 30 days. Failure to meet the 7-day median coliform requirement for two consecutive days shall result in the suspension of the spreading of recycled water until such time the cause of the failure has been identified and corrected. Any failure to meet the total coliform requirements shall be reported to the Department and SARWQCB in the next monthly report.

19. Each year, samples of the recycled water shall be collected and analyzed as follows and any positive results shall be reported to the Department and SARWQCB in the next monthly report:

    - Unregulated chemicals in Table 64450, Chapter 15, Title 22, CCR, Drinking Water Quality and Monitoring Requirements;
    - Priority toxic pollutants (chemicals listed in the Water Quality Standards, Establishment of Numeric Criteria for Priority Toxic Pollutants for the State of California, and 40 CFR Part 131, Federal Register 65 (97), May 18, 2000, p. 31682); and
    - The following chemicals with State action or Notification levels: N-nitrosodimethylamine (NDMA), 1,4-dioxane, and perchlorate.

    The Phase I Recharge Project recycled water quality analysis for the above chemicals has already been completed and submitted to the Department and SARWQCB and maybe used as the initial recycled water quality analysis for the Phase II Recharge Project.

20. Each year, samples of the recycled water shall be collected and analyzed for endocrine disrupting chemicals and pharmaceuticals specified by the Department, using methods accepted by the Department. The results of this monitoring shall be submitted to the Department and SARWQCB annually.

21. An operations, maintenance, and monitoring plan (OMM Plan) shall be developed for the Phase II Recharge Project and submitted to the Department and the SARWQCB for approval prior to startup of the project. IEUA shall operate its project facilities in accordance with the approved OMM Plan. After the initial year of operation, and each year thereafter, the OMM Plan shall be updated and submitted to the Department and SARWQCB for review and approval.

    The OMM Plan shall cover critical operational parameters for the wastewater treatment facilities, recycled water and diluent water conveyance systems, recharge basins, maintenance and calibration schedules for monitoring equipment, process alarm set points, response procedures for alarms, criteria for diverting recycled water if water quality requirements are not met, start-up procedures, seasonal flow, emergency response plans, and contingency plans. During the first year of operation of the IEUA project, all treatment processes shall be optimized to minimize contaminant levels. The results of the initial optimization efforts shall be incorporated into the OMM Plan and implemented. The OMM Plan shall also include staffing levels with applicable certifications levels for operations personnel.

    During the first year of operation and at all times thereafter, IEUA shall ensure that all treatment processes shall be operated in a manner providing optimal reduction of all contaminants including:

(1) Microbial contaminants,

(2) Regulated contaminants identified in Section 60320.030, and

(3) Nonregulated contaminants identified in Section 60320.047.

Within 6 months of optimizing treatment processes and anytime thereafter operations are optimized resulting in a change in operation, IEUA shall update their operations plan to include such changes in operational procedures and submit the operations plan to the Department for review.

Significant changes in the operation of any of the treatment processes shall be reported to the Department and SARWQCB. Significant changes in the approved OMM Plan, which may include provisions to comply with Condition No. 3, must be approved by the Department and SARWQCB prior to instituting the changes.

22. At each recharge basin, the recycled water shall be retained in the groundwater basin for a minimum of 6 months prior to being withdrawn at a municipal or domestic water supply well. IEUA shall develop tracer study work plans and initiate tracer studies prior to initiating the recharge of recycled water as follows:

    - For San Sevaine Basin Nos. 1 through 5: A tracer study using intrinsic, or signature compound(s), shall be conducted to determine the underground retention time. The retention time shall be greater than 6 months between this site and the nearest domestic water supply well.
    - For MZ-1 Basins: A tracer study using customized tracer compound(s) shall be conducted to determine the underground retention time. The retention time shall be is greater than 6 months between Brooks Street Basin and the nearest domestic water supply well.

    If recharge volumes greatly exceed the expected volumes or the intrinsic tracers reveal shorter travel times than originally estimated, a plan for evaluations of additional basins shall be submitted. If the tracer has not been detected in the nearest down gradient municipal well or domestic well within 6 months of the initiation of the tracer study, recycled water recharge may begin.

23. The Department may require additional tracer studies at individual recharge basins to be conducted after recharge of recycled water has begun to confirm the underground retention time at those basins. If a new municipal or domestic well is installed at a closer distance to any of the recharge basins than the existing closest municipal or domestic wells, tracer studies shall be completed to evaluate the retention time between the recharge basin and the newly drilled well if requested by the Department. At each recharge basin, no municipal or domestic drinking water wells shall be located within 500 feet of a basin or within a distance corresponding to 6 months groundwater travel time from a basin.

24. IEUA shall implement measures to assure that the County of San Bernardino Division of Environmental Health Services (DEHS), the lead permitting agency for construction of all public municipal and/or private domestic supply wells in the project area, adopt and maintain ordinances that restrict the drilling of any municipal or domestic supply wells within 500 feet of the spreading basins or where extracted water would not have at least 6 months underground retention time. IEUA shall certify on an annual basis to the Department and the SARWQCB that DEHS has not allowed the construction of any municipal or domestic supply wells located within the separation requirement zone around each recharge basin.

25. Groundwater monitoring shall be performed to measure the impact of the Phase II Recharge Project on the local groundwater quality and groundwater levels. Prior to applying recycled water, IEUA shall install groundwater monitoring wells as described below. Each monitoring well shall be located intermediately between each recharge basin, at locations that reflect the screened interval of the water bearing zones, and the nearest down gradient municipal or domestic water supply well and within a distance corresponding to one to three months groundwater travel time.

    - 7th & 8th Street Basins: Two new monitoring wells shall be installed for these recharge basins. Monitoring well 8TH-1 shall be installed about 50 to 170 feet down gradient of this recharge site to sample groundwater at two depths (approximately 490-530 and 600-640 feet below ground surface (bgs)). Monitoring well 8TH-2 shall be installed at an intermediate distance towards active municipal well Ontario Well 35 down gradient of this recharge site to sample groundwater at two depths (490-530 and 600 640 feet bgs).
    - Etiwanda Spreading Basins: One new monitoring well shall be installed for these basins. Monitoring well ES-1 shall be installed about 50 to 150 feet down gradient of this recharge site to sample groundwater at one depth (approximately 790-830 feet bgs). This recharge site shall use monitoring well V-2 (described below) as an intermediate monitoring point.
    - Lower Day Basin: Two new monitoring wells shall be installed for this basin. Monitoring well LDY-1 shall be installed 50 to 150 feet down gradient of this recharge site to sample groundwater at one depth (approximately 660-700 feet bgs). Monitoring well LDY-2 shall be installed at an intermediate distance towards active well CVWD No. 5 down gradient of this recharge site to sample groundwater at one depth (approximately 660-700 feet bgs).
    - MZ-1 Basins/Brooks Street Basin: Two new monitoring wells shall be installed for Brooks Street Basin. Monitoring well BRK-1 shall be installed about 240 to 720 feet down gradient of Brooks Street Basin to sample groundwater at two depths (approximately 320-360 and 560-600 feet

bgs). Monitoring well BRK-2 shall be installed about 1,100 feet down gradient of Brooks Street Basin to sample groundwater at two depths (approximately 320-360 and 560-600 feet bgs).

- San Sevaine Basin Nos. 1 through 5: If recycled water is recharged at all five basins, three new monitoring wells (SSV-1, SSV-2 and SSV-3) shall be installed for this recharge site. If recycled water is recharged only at Basin 5, one new monitoring well (SSV-1) shall be installed. Monitoring well SSV-1 shall be installed 50 to 120 feet down gradient of Basin 5 to sample groundwater at one depth (approximately 640-680 feet bgs). Monitoring well SSV-2 shall be installed (if recycled water is recharged in all five basins) 50 to 120 feet down gradient of Basin 3 to sample groundwater at one depth (approximately 650-690 feet bgs). Monitoring well SSV-3 shall be installed (if recycled water is recharged in all five basins) at an intermediate distance towards active well Unitex 91090 (or approximately 750 feet down gradient of Basin 3) to sample groundwater at one depth (approximately 650-690 feet bgs).
- Victoria Basin: Two new monitoring wells shall be installed for this Basin. Monitoring well VCT-1 shall be installed 50 to 120 feet down gradient of this recharge site to sample groundwater at one depth (approximately 570-610 feet bgs). Monitoring well VCT-2 shall be shared by Victoria Basin and the Etiwanda Spreading Basins and shall be installed approximately 2,000 feet down gradient of these recharge sites to sample groundwater at one depth (approximately 570-610 feet bgs).
- Ely Basins: Two existing monitoring wells shall be used for these basins: MW-1 on Philadelphia Street shall be located approximately 50 feet down gradient of this recharge site to sample groundwater at three depths (approximately 45 to 65 feet bgs, 200 to 220 feet bgs, and 280 to 300 feet bgs); and MW-2 on Walnut Street, located approximately 2,700 feet down gradient of the basin to sample groundwater at two depths (approximately 206 to 226 feet bgs and 290 to 310 feet bgs).

Existing wells shall be incorporated in the groundwater monitoring program as described in the Engineering Report. Additional monitoring wells may be required in the future depending on the results of the groundwater monitoring program.

26. The groundwater monitoring program shall be reviewed and modified every 2 years or sooner, based on results of the monitoring program. Changes to the monitoring program, including well locations, shall be approved by the Department and SARWQCB.

27. Compliance monitoring samples shall be collected from each monitoring well listed in Condition No. 25 at the corresponding depths. Each sample shall be analyzed as follows:

    Quarterly for:

- TOC;
- Constituents and characteristics in CCR, Title 22, Chapter 15, Tables 64449-A and 64449-B;
- Total coliform levels;
- Total nitrogen;
- Nitrate;
- Nitrite;
- Dissolved Oxygen; and
- Any water quality constituents specified by the Department based on the results of the recycled water monitoring conducted pursuant to these analyses.

Annually for:

- Primary maximum contaminant levels (MCLs) specified in Chapter 15;
- Inorganic chemicals in Table 64431-A (except for nitrogen compounds);
- Radionuclides in Table 4, Section 64443;
- Organic chemicals in Table 64444-A;
- Action levels for lead and copper in Section 64678;
- Any new Federal maximum contaminant level upon adoption; and
- Any new State maximum contaminant level upon adoption; and

If any of the monitoring results exceeds a maximum contaminant level, or coliforms are present, IEUA shall notify the Department within 48 hours of receiving the results and include the results in the quarterly report submitted to the SARWQCB.

28. IEUA shall submit all water quality data for groundwater monitoring in a format acceptable to the Department and SARWQCB. Except for coliform results, all analytical results shall be reported to the Department electronically using the Electronic Deliverable Format as defined in the Electronic Deliverable Format's (EDF) most current version and data dictionary, which can be found at http://www.dhs.ca.gov/ps/ddwem/EDT/default.htm.

29. Prior to the onset of Phase II operations, IEUA shall have in place a resolution adopted by its governing board that it will be responsible for developing a plan for providing an alternative source of municipal or domestic water supply, or a Department approved treatment mechanism, to any user whose municipal or domestic water well is found to violate California drinking water quality regulations as a direct result of the Phase II Recharge Project, or when the Department makes an analysis and finding that the municipal or domestic water well is unsuitable for human consumption as a direct result of the Phase II Recharge Project, or to any user whose municipal or domestic water well receives water that fails be retained underground for the minimum time period of six months prior to extraction. Such alternative sources can include water delivered for blending of the producing well, imported water, water produced at a wellhead treatment plant, and water produced from new wells. IEUA shall notify the Department and SARWQCB in a timely manner when such a determination is made.

30. Each year, IEUA shall submit a report to the Department, SARWQCB, and make available to all down gradient public water systems that includes the following:

    - A summary of the impacts of the recharge project on the aquifer based on monitoring results and investigations
    - A summary of compliance with the conditions of this permit
    - Corrective actions taken as a result of any violation of a permit condition, including any suspensions of recycled water application
    - All constituent detections and corresponding trends from monitoring wells
    - Information related to the travel of recharge water, including the leading edge of the recharge water plume
    - A description of any anticipated changes to unit processes
    - A mass balance calculation that demonstrates that blending is occurring in the aquifer at each spreading basin
    - Recharge water flow paths determined from groundwater elevation contours, as compared to the flow and transport model's flow paths
    - An updated flow and transport model, adjusted to match as closely as possible the observed flow paths
    - Title 22 drinking water quality data from the nearest municipal or domestic water supply well and any observed impacts
    - The results of any tracer study conducted in the past year.

    The report shall be prepared by a qualified engineer registered in California and experienced in the field of water reclamation. The report may include both Phase 1 and Phase II data.

31. IEUA shall submit an updated engineering report every 5 years to the Department and SARWQCB.

Provided that IEUA meets all of the above conditions and findings of fact, the Department finds that the Phase II Recharge Project will provide groundwater recharge of the municipal or domestic water supply aquifers by surface spreading of a quality that fully protects public health. The Department recommends that the above conditions of approval be incorporated into the provisions of the Water Recycling Permit issued by the SARWQCB.

April 27, 2007
Date

Cindy A. Forbes, P.E.
Chief of the Southern California Branch
Drinking Water Field Operations
State of California Department of Health Services
Hearing Officer

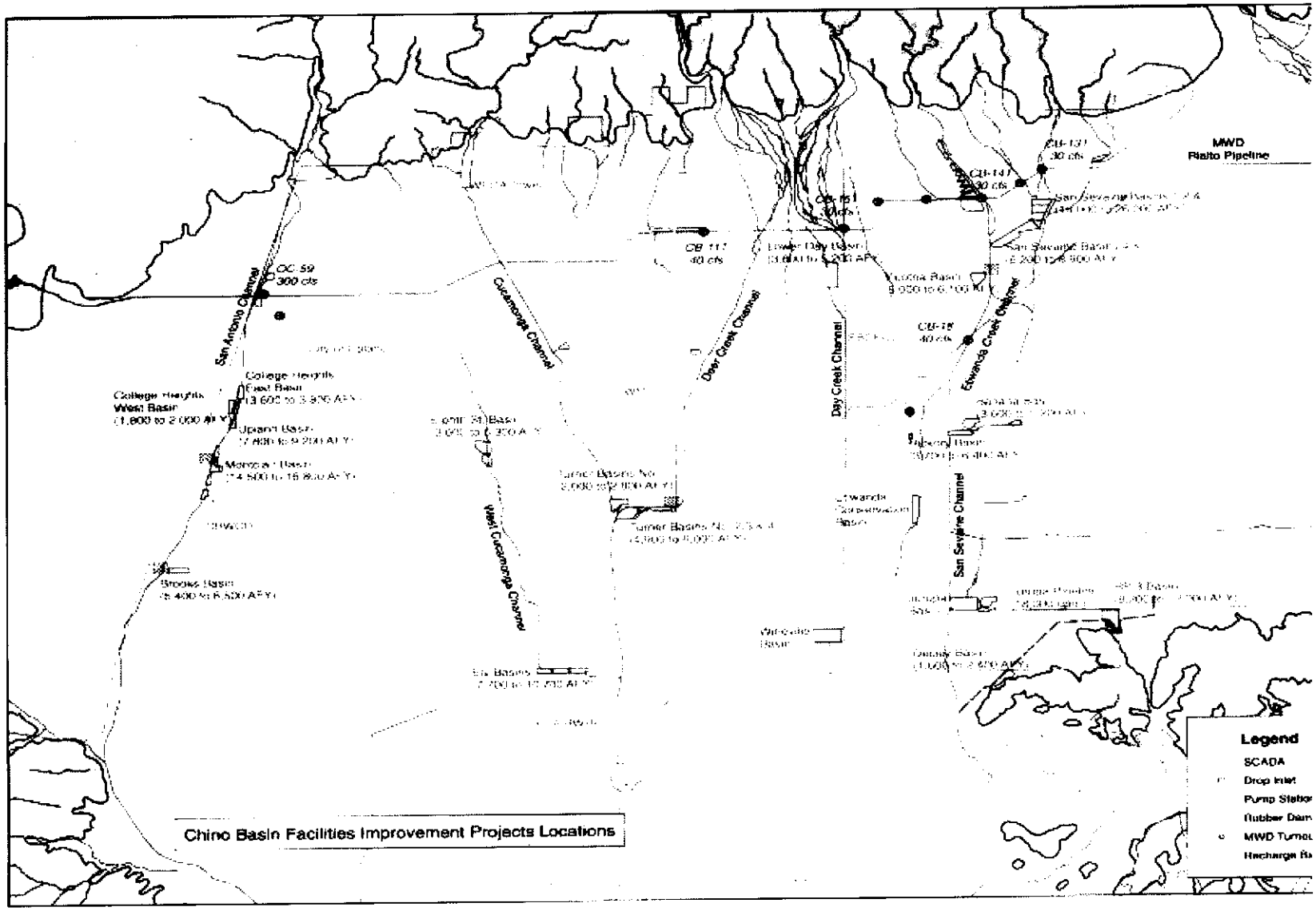
MWD
Rialto Pipeline
CC-59
300 cfs
CB-117
40 cfs
CB-151
CB-147
30 cfs
CB-131
30 cfs
CB-18
40 cfs
San Antonio Channel
Cucamonga Channel
Deer Creek Channel
Day Creek Channel
Etiwanda Creek Channel
San Sevaine Channel
West Cucamonga Channel
College Heights
West Basin
(1,800 to 2,000 AFY)
Upland Basin
Brooks Basin
Turner Basins No.
Etiwanda
Conservation
Basin
Legend
SCADA
Drop Inlet
Pump Station
Rubber Dam
MWD Turnout
Recharge Ba
Chino Basin Facilities Improvement Projects Locations

Table XX
Summary of Groundwater Monitoring Wells
Recycled Water Groundwater Recharge Program

PROGRAM	BASIN	CBWM_ID	OWNER/LOCAL NAME	SEPARATION DISTANCE (feet)	SCREENED INTERVAL(S) (feet bgs)	CASING DIAMETER (inches)	SWL (ft-bgs)	STATUS	TYPE
Phase I	Hickory and Banana Basins	3600573	Fontana Water Company - F37a	2240 upgradient	378-810	20	422	Active	Municipal
		600660	California Speedway - Infield Well	2070 downgradient	NA	NA	390	Active	Industrial
		3601365	California Speedway 2	2780 downgradient	451-455, 491-603, 664-780	20	379	Active	Industrial
		3600371	Reliant Energy - East Well	4070 downgradient	434-467, 500-513, 553-580, 593-652, 825-847	20	420	Active	Industrial
		3602267	City Of Ontario - 20	14500 downgradient	NA	20	378	Active	Municipal
		601001	Inland Empire Utilities Agency - BH-1/1	340 downgradient	365-405	4	404	Active	Monitoring
		601002	Inland Empire Utilities Agency - BH-1/2	340 downgradient	435-475	4	420	Active	Monitoring
	Turner Basins	3601065	City Of Ontario - 19	2200 upgradient	NA	16	400	Active	Municipal
		3600010	City Of Ontario - 25	2530 crossgradient	370-903	20	380	Active	Municipal
		600453	City Of Ontario - 29	2810 downgradient	400-1095	18	400	Active	Municipal
		600997	Inland Empire Utilities Agency - T-1/1	50 downgradient	340-360	4	356	Active	Monitoring
		600998	Inland Empire Utilities Agency - T-1/2	50 downgradient	380-400	4	357	Active	Monitoring
		600999	Inland Empire Utilities Agency - T-2/1	50 downgradient	350-370	4	348	Active	Monitoring
		601000	Inland Empire Utilities Agency - T-2/2	50 downgradient	392-412	4	350	Active	Monitoring
	Declez Basin	300208	Jurupa Community Services District - 19	8900 downgradient	230-390	18	240	Active	Municipal
		300207	Jurupa Community Services District - 17	5240 downgradient	259-290, 300-400	NA	130	Active	Municipal
		300200	Jurupa Community Services District - 13	5730 downgradient	220-446	16-34	NA	Active	Municipal
		--	Inland Empire Utilities Agency - D-1/1	50 downgradient	135-155	4	NA	NA	Monitoring
		--	Inland Empire Utilities Agency - D-1/2	50 downgradient	185-205	4	NA	NA	Monitoring
	RP-3 Basins	600492	Fontana Water Company - F23a	7900 upgradient	450-740	18	350	Active	Municipal
		600477	Inland Empire Utilities Agency - Southridge JHS	5500 downgradient	NA	NA	NA	Active	Municipal
		600848	Alcoa - Offsite Mw1	9480 downgradient	NA	NA	NA	Active	Monitoring
		600850	Alcoa - Offsite Mw3	4725 downgradient	NA	NA	NA	Active	Monitoring
		--	Inland Empire Utilities Agency - RP3-1/1	100 downgradient	215-235	4	NA	NA	Monitoring
		--	Inland Empire Utilities Agency - RP3-1/2	100 downgradient	265-285	4	NA	NA	Monitoring
	Etiwanda Conservation Ponds	600455	City Of Ontario - 31	5460 downgradient	400-980	18	300	Active	Municipal
		600454	City Of Ontario - 30	6433 downgradient	420-1014	18	300	Inactive	Municipal
		600551	City Of Ontario - 37	10500 downgradient	400-860	4-35.25	300	Active	Municipal
		600837	Kaiser Steel Corporation - Mp1-A	1546 crossgradient	270-350	4	NA	Active	Monitoring
		600838	Kaiser Steel Corporation - Mp1-B	1546 crossgradient	370-410	4	NA	Active	Monitoring
		600839	Kaiser Steel Corporation - Mp1-C	1546 crossgradient	440-575	4	NA	Active	Monitoring
		600841	Kaiser Steel Corporation - Mp2-A	5010 downgradient	240-300	4	NA	Active	Monitoring
		600842	Kaiser Steel Corporation - Mp2-B	5010 downgradient	370-410	4	NA	Active	Monitoring
		600843	Kaiser Steel Corporation - Mp2-C	5010 downgradient	430-520	4	NA	Active	Monitoring
		--	Inland Empire Utilities Agency - E-1/1	100 downgradient	320-340	4	NA	NA	Monitoring
		--	Inland Empire Utilities Agency - E-1/2	100 downgradient	370-390	4	NA	NA	Monitoring
	Jurupa Basin	Not currently planned for recharge							
Phase II	7th & 8th Street Basins	3601561	San Antonio Water Company No. 12	740 downgradient	379-480, 525-563, 578-609,	16	427	Inactive	Municipal
		3601772	City of Ontario No. 4	3429 downgradient	526-910	16-20	415	Inactive	Municipal
		--	City of Ontario No. 51	3402 downgradient	NA	NA	NA	NA	Municipal
		600493	City of Ontario No. 35	9695 downgradient	580-1020	18-36	402	Active	Municipal
		--	Inland Empire Utilities Agency - 8th-1/1	150 downgradient	490-530	4	NA	Active	Monitoring
		--	Inland Empire Utilities Agency - 8th-1/2	150 downgradient	580-620	4			
		--	Inland Empire Utilities Agency - 8th-2/1	2460 downgradient	465-505	4			
		--	Inland Empire Utilities Agency - 8th-2/2	2460 downgradient	576-616	4	NA	Active	Monitoring
	Etiwanda Spreading Basins	600905	Cucamonga Valley Water District No. 39	10750 downgradient	750-870, 940-960, 970-1060, 1080-1130,	20	553	Active	Municipal
		--	Inland Empire Utilities Agency - ES-1/1 and 1/2	~46-139 downgradient	790-830	4	NA	NA	Monitoring
	Lower Day Basin	3602000	Cucamonga Valley Water District Well No. CB-5	19150	538-1238	NA	443	Active	Municipal
		--	Inland Empire Utilities Agency - LD-1/1 and 1/2	~43-128 downgradient	660-700	NA	NA	NA	Monitoring
		--	Inland Empire Utilities Agency - LD-2/1 and 2/2	~ 9500 downgradient	660-700	NA	NA	NA	Monitoring
	MZ-1 Basins	1901719	City of Pomona P-10	1983 downgradient	295-784	20	378	Active	Municipal
		1901713	City of Pomona P-04	2620 downgradient	254-338, 403-452	NA	344	Active	Municipal
		1903156	City of Pomona P-30	2160 crossgradient	565-875	20	444	Active	Municipal
		1903016	City of Pomona P-2	3455 downgradient	NA	NA	380	Active	Municipal
		1901725	City of Pomona P-17	4500 downgradient	454-536	20	328	Active	Municipal
		--	Inland Empire Utilities Agency - BRK-1/1	144 downgradient	310-350	4	320	Active	Monitoring
		--	Inland Empire Utilities Agency - BRK-1/2	144 downgradient	520-560	4	320	Active	Monitoring
		--	Inland Empire Utilities Agency - BRK-2/1	1305 downgradient	320-360	4	320	NA	Monitoring
		--	Inland Empire Utilities Agency - BRK-2/2	1305 downgradient	560-600	4	320	NA	Monitoring
	San Sevaine Basins Nos. 1-5	600905	Cucamonga Valley Water District No. 39	8300-13170 downgradient	750-870, 940-960, 970-1060, 1080-1130,	20	553		Municipal
		--	Inland Empire Utilities Agency - SS-1/1 and 1/2	~39-116 downgradient	640-680	4	NA	NA	Monitoring
		--	Inland Empire Utilities Agency - SS-2/1 and 2/2	~39-116 downgradient	650-690	4	NA	NA	Monitoring
		--	Inland Empire Utilities Agency - SS-3/1 and 3/2	~750 downgradient	650-690	4	NA	NA	Monitoring
		600576	Unitex IRR	~ 1338 downgradient	NA	NA	NA	NA	Private Irrigation
		600462	Unitex 91090	~1601 downgradient	NA	NA	414	Active	Private Domestic
		600369	Unitex CalDOT	~ 2850 downgradient	400-684	NA	NA	NA	Irrigation
	Victoria Basin	600905	Cucamonga Valley Water District No. 39	4329 downgradient	750-870, 940-960, 970-1060, 1080-1130,	20	553	Active	Municipal
		3600213	Cucamonga Valley Water District No. 36	7886 downgradient	688-796	20	480	Inactive	Municipal
		3600212	Cucamonga Valley Water District No. 35	8000 downgradient	485-510, 516-550, 560-790	20	475	Inactive	Municipal
		--	Inland Empire Utilities Agency - SS-1/1 and 1/2	~39-116 downgradient	570-610	4	NA	NA	Monitoring
		--	Inland Empire Utilities Agency - SS-1/1 and 1/2	~ 2000 downgradient	570-610	4	NA	NA	Monitoring
	Ely Basin	601003	Ely Basin MW-1_Philadelphia St.	100 downgradient	NA	NA	NA	NA	Monitoring
		601004	Ely Basin MW-2_Walnut St	3050 downgradient	NA	NA	NA	NA	Monitoring
		3600975	43840-CWW	6046 downgradient	NA	NA	NA	Active	Private Irrigation
		600134	Bishop Of San Bernardino Corp. - DOM	6500 downgradient	NA	NA	200	Active	Private Domestic

Notes:
1) = Wells have multiple screened intervals. Only the top and bottom of the screened portion of the Well shown.
2) = Monitoring well sited within 30 to 90 days groundwater travel time from the down gradient edge of their respective recharge basin
NA = Data not available
CBWM I.D. = Chino Basin Watermaster well identification number, -- where none assigned
bgs = below ground surface