Inland Empire
UTILITIES AGENCY

Date: July 13, 2009

To: Ken Manning, Chino Basin Water Master

From: Richard Atwater, Chief Executive Officer / General Manager

Subject: **Comment Letter No. 1** - 2010 Groundwater Recharge Master Plan Update: Technical Memorandum: Task 5 – Replenishment Projections and Task 7.1 – Supplemental Water Recharge Capacity (Memo)

Thank you for this opportunity to provide comments on the 2010 Groundwater Master Plan Update: Technical Memorandum: Task 5 – Replenishment Projections and Task 7.1 – Supplemental Water Recharge Capacity. We are available to meet with you to review any questions you may have.

Replenishment Characterization

Referring to the Memo, the first paragraph on page 1 of 10 states:

> "In the OBMP (Optimum Basin Management Plan) planning that was conducted in the late 1990's and in the Peace Agreement which was approved in 2000, it was assumed that the Chino Basin Watermaster (Watermaster) would construct (through the parties and others) recharge capacity to meet all of its replenishment needs through "wet water" recharge."

The emphasis on only "wet water recharge" is historically inaccurate because extensive discussion of in lieu and ASR recharge replenishment methods was a significant part of the OMBP planning. For example, the Black and Veatch Dry Year Yield proposal to MWD in 2000 (approved and funded by CBWM) actually had a preference for in lieu "puts", but emphasized the development of all three methods of recharge.

The first paragraph of the Technical Memo also states: "The effective replenishment capacity of the existing recharge facilities is estimated based on the availability of supplemental supplies and other constraints." IEUA suggests the analysis of "effective replenishment capacity" should be revised to consider the following factors:

<u>Basin Operation and Maintenance</u> - Enhance maintenance and improve real time operations to optimize existing recharge facilities for stormwater, imported water, and recycled water groundwater recharge.

ASR Wells and In-Lieu – Utilize ASR wells and in lieu of groundwater recharge to increase "effective replenishment capacity" both in the aggregate and as part of a strategy to target replenishment to areas where it is most needed.

Stormwater Management - Capture, divert and recharge greater quantities of stormwater, for example, OCWD's success storing water behind Prado Dam.

LID (Low Impact Development) – Retain greater volumes of stormwater on site, or slow, clean, infiltrate and capture stormwater runoff to increase effective replenishment capacity and increase water reuse.

Clean Water Act (CWA) Requirements - Increase effective replenishment capacity through coordinated planning and implementation of stormwater Best Management Practices (BMPs) being implemented in compliance with State Water Resources Control Board, Santa Ana Region (Regional Board) requirements. Examples include the County of Orange MS-4 (Municipal Separate Storm and Sewer System) permit adopted in May 2009, the anticipated County of San Bernardino MS-4 Permit and the anticipated CWA Section 303 (d) TMDL (Total Maximum Daily Loads) Plan.

Pricing Policies – Consider and enact policies and pricing schedules that reflect long-range water resources management goals, such as efficient water use and full utilization of MWD Tier 1 and Replenishment water supplies. The recharge master plan should consider case studies of WRD's and Orange County Water District's (OCWD) very successful in lieu pricing programs.

Recent Groundwater Production and Replenishment Projections

With respect to projections and the use of forecasting tools, the Memo relies on straight line, fixed assumptions to make a projection of future water demands and replenishment needs. Based on our experience working with RAND "Presenting Uncertainty about Climate Change to Water-Resources Managers" and the current MWD IRP planning scenarios, we strongly encourage Wildermuth Environmental Inc. (WEI) to utilize "scenario planning" in place of the current approach, which is to develop a projection based on uncertain and highly variable/unpredictable assumptions. For example, under the current approach, WEI has found it necessary to assume that for the next 30 plus years replenishment water will be available three out of every ten years. Reasonable alternative future scenarios can be constructed that would assist immensely the stakeholder's evaluation of the relevant costs and supply reliability benefits of alternative water resource management investments.

Groundwater Production and Replenishment Projections Adopted for the Recharge Master Plan

Referring to Page 2 of 10, the first paragraph, IEUA understands that the water demand projections presented in the Memo will be revised to be consistent with the 2010 UWMPs. The memo's current projections overstate future water demand. Revised projections should consider *actual* water demand information as it becomes available (see Table IE-2 attached). Revised water demand projections should also consider conservation requirements established in state law, such as AB 1420, the statewide policy to reduce water demand by 20% by the year 2020, and any relevant new laws that are adopted during the RMP preparation process.

For example, within the IEUA service area, water demand has declined 5.4% (below prior year's use) as reported in the most current "Annual Water Use Report for IEUA Service Area, FY 2007-08 Retail Agency Water Use and Five-Year History." The first "call" year of The Metropolitan Water District of Southern California (MWD) Dry Year Yield Program concluded with program participants (IEUA and Three Valleys Municipal Water District (TVMWD)) complying with the performance targets. IEUA and TVMWD participating agencies pumped 32,509 AF (99% of their obligation of 33,000 AF) from the Chino Basin Groundwater Storage Account and reduced MWD imported water deliveries by 32,399 AF (98% of their obligation of 33,000 AF). Along with complying with the performance targets, overall water use of the twelve month period (May 2008 – April 2009), compared to the previous twelve month period, decreased by more than 5%.

Referring to Page 3 of 10, the first full paragraph, the description of production rights needs to be more fully explained. As currently written, a bulleted list of conclusions is provided with accompanying footnotes. These conclusions have a significant bearing on the RMP and merit explanation. A brief description and explanation of the key assumptions and findings would enable stakeholders to understand the individual production right components and how they together make up the total production rights for the Chino Basin. A case in point of the need to more fully describe a production right component is provided in the first bullet on page 3 of 10:

> "Safe yield is projected to decline from 140,000 acre-ft/yr in 2010 to about 122,000 acre-ft/yr in 2040 and remain constant thereafter."

It would be appropriate to briefly explain the cause of a 20,000 acre-feet/year loss of local water supply. We understand that another section of the RMP will address management measures that could mitigate or even reverse the projected decline of safe yield. The document, "WATERMASTER COMPLIANCE WITH CONDITIONS SUBSEQUENT 5 AND 6," Dated: August 21, 2008; Section II. "REQUIRED CONTENT OF UPDATED RECHARGE MASTER PLAN," The Referee recommended element No. 3 states:

3. Measures should be evaluated to lessen or stop the projected Safe Yield decline. All practical measures should be evaluated in terms of their potential benefits and feasibility.

Presuming the RMP will address such measures, it would be appropriate for this Memo to indicate this. Likewise, it would be appropriate to provide similar descriptions and background information concerning the other production right components.

Referring to page 3 of 10, with respect the replenishment obligations assumptions, the final bullet (assumption) states:

> "On a go forward basis, under-producers will transfer un-pumped rights to over-producers each year; that is; there is an efficient market that moves unused production rights from under-producers to over-producers."

Considering the RMP is a guidance document and considering the challenges it addresses, it may be appropriate to reconsider status quo water transfer practices and pricing. For example, does the current market and pricing system help or hinder Watermaster's broader water management goals? If a financial incentive were to be made available to appropriators, how much new water (under production) could be realized and made available to meet replenishment obligations; and would the cost of such incentives be less than or greater than the cost of other replenishment alternatives?

Referring to page 4 of 10, the first paragraph, a reference is made to Table 1. It is unclear how the replenishment obligations were derived in Table 1. A brief explanation is needed to accompany this table and all other tables attached to the Memo. The narrative should include an explanation of simple mathematical formulas and results. This will allow the average reader to understand the general methodology and results.

Availability of Existing Recharge Facilities for Supplemental Water Recharge

Further discussion is required to clarify and possibly correct the analysis and conclusions presented in Table 2. For example, here are opportunities to implement enhanced maintenance and improved, real time operations to optimize existing recharge facilities for stormwater, imported water, and recycled water groundwater recharge.

Referring to Page 4 of 10, reference the final bulleted item which states: "Supplemental water deliveries would resume on the next day, following a precipitation event." The operation of MWD turnouts OC 59 and CB 13 in the manner described in the Memo would require an investment in new automation including SCADA control of the turnouts and change in MWD operating procedures. The development of new replenishment connections on the Azusa Pipeline should also be discussed.

Effective Supplemental Water Recharge Capacity of Existing Recharge Facilities

Referring to Page 5 of 10, reference is made to Table 3, the second and third columns. The final bullet explains that the annual storm water recharge estimate of 10,755 AFY is based on a four year period (Fiscal Year (FY) 2004/05 through FY 2007/08). This approach does not take into account reasonably foreseeable improvements in rainfall amounts and recharge basin operations and maintenance. It leads to an estimate of only 7,500 acre-feet/year of recycled water recharge being possible, which is in direct conflict with IEUA's Three-year Recycled Water Business Plan. The Three-year Recycled Water Business Plan has a goal of 50,000 AFY of recycled water use by June 2012, including 15,000 AFY of recycled water recharge. IEUA is committed to that goal and believes that it is achievable. To demonstrate this, IEUA prepared Table IE-1, attached. This table shows that between 17,000 and 32,000 AFY of recycled water can be recharged, depending on the Recycled Water Contribution (RWC).

In Table IE-1, the imported water availability is assumed to be the same as in Table 3 of the Tech Memo (30% availability, constrained by physical limitations of recharge basins and turnouts). However, the calculated recycled water recharge is much higher than in Table 3, primarily because it was assumed that stormwater recharge will increase by a total of 8,000 AFY compared to the current average of about 11,000 AFY, due to consideration of long-term rainfall patterns, rather than just recent dry weather; optimization of recharge basin operations; and "new yield" from low impact development (LID) and other recharge facilities improvements. It is noted that in Table 1, an increase of 6,000 AFY is assumed, but this was not included in Table 3. Also, preliminary estimates of between 2,000 and 4,000 AFY of recharge due to existing LID rainwater capture have been made (Robert Wagner). This can only be expected to go up in the future. Finally, it is noted that in Table 4-1 of the "Response to Condition Subsequent No. 3…" by WEI, the amount of "Artificial Recharge" during the past 45 years was estimated at 15,211 AFY. The average of the last 10 years in the table (1997 to 2006) was even higher—17, 058 AFY. With future optimization and recharge improvements, this can be expected to increase. Therefore, a long-term recharge estimate of 19,000 AFY is believed to be reasonable.

Referring to Page 6 of 10, reference is made to Table 3, Column 20 (Maximum Supplemental Recharge Capacity if Constrained by Turnout Capacity). Several factors limit CB 13 water deliveries including the capacity limitation of CB 13, MWD Rialto Pipeline operations and the (limited) availability of imported water. IEUA would support expansion of CB 13.

Referring to Page 6 of 10, Table 3, Column 20, and the evaluation of San Sevaine Basin sources of imported water supply, this analysis needs to be updated. An updated analysis would reflect the fact that imported water can be delivered to this basin from two MWD Service Turnouts: CB 13 and CB 14. CB 14 is the primary source of MWD water supply for Etiwanda Debris Basin, Victoria Basin, and San Sevaine Basin Number 5.

Referring to Page 6 of 10, reference is made to Table 3, Column 21 (Average Recharge of MWD Replenishment Water). For the reasons previously described, the estimated amount of MWD replenishment water service, 23,694 acre-feet/year is not accurate over a 30-year period.

Referring to Page 6 of 10, the last paragraph (continuing to next page) replenishment assumptions are described. The assumptions are as follows: "…replenishment water service will be available three out of ten years or about 30% of the time." And, "Watermaster could request Tier 1 and Tier 2 water for its replenishment needs, however, this has not been the historical practice nor has it formally been suggested for planned." With respect to the first assumption, as previously stated, the assumption is not accurate over a 30-year period. With respect to the second assumption, IEUA suggests that all viable options be considered at this stage of the planning process. For example, the OCWD has recently purchased MWD Tier 2 water for groundwater replenishment. Equally or more important, policies that encourage full utilization of MWD Tier 1 water service (whenever available) and MWD replenishment water (whenever available) could be implemented. Such policies would help to maximize Chino Basin lieu and wet water recharge groundwater replenishment.

Referring to Page 7 of 10, we request the first full Paragraph be re-written as follows

> "Recycled water is available for replenishment pursuant to the recharge permit issued jointly to Watermaster and the IEUA (RWQCB Resolution R8-2007-0033). The permit allows recycled water recharge volumes based on site-specific total organic carbon (TOC) concentration measured at or before the groundwater table. The flexibility in TOC measurement location allows beneficial TOC removal through the natural process of soil-aquifer treatment (SAT) and thus increased opportunity for recharge. The TOC measurements are used to develop a ratio of allowable recycled water recharge volume to total recharge volume. This ratio is referred to as the Recycled Water Contribution (RWC), and is calculated based on a 60-month rolling average. The component of total recharge that is not recycled water is referred to as diluent water, and can be replenishment water purchased from the MWD or storm water. The site specific RWC based on TOC concentration is expected to range between 25 to 40 percent. When recharge basin capacity exists, recycled water for recharge is available 100 percent of the time. Recycled water, however, is not available to all recharge basins. The estimated recycled water contribution by recharge basin is shown in Table 3 and range from about 25 percent to about 45 percent (see Exhibit D for recycled water contribution)."

Referring to Page 7 of 10, Table 3, Column 24 (Recycled Water Contribution in the Total Water Recharge Blend), please consider the following comments:

- For basins that can receive recycled water for groundwater replenishment, it is assumed that the maximum allowable recycled water contribution ranges from 25% to 36%. IEUA is conditionally permitted to utilize up to 50% recycled water for groundwater replenishment and is committed to achieving this goal in the near future.

- The use of recycled water for groundwater replenishment is limited by a permit requirement that calculates the RWC over a 5 year average. It is anticipated that the 5-year average requirement will be changed to a 10-year average under a revised permit. If successful, this will assist IEUA in its efforts to maximize 50% recycled water for groundwater replenishment and thereby increase total Chino Basin groundwater replenishment.

- The figures presented in Column 24 are a snapshot of the RWC starting point (limitations ranging from 25% to 36%). IEUA's intent is to reach the maximum permitted RWC (50%) through characterization of recalcitrant TOC (not derived from the wastewater treatment process). IEUA suggests that the RWC limitation be changed to 50% to reflect the current permit with appropriate discussion and footnotes. For example, IEUA anticipates that within three to five years that it will demonstrate a 50% RWC for all basins. This would occur following completion of research demonstrating that wastewater derived organic carbon is removed to 1.0 mg/L or less.

- IEUA has been actively involved in research of relevance to the use of recycled water for groundwater recharge specifically targeting increasing the RWC. Of note, IEUA supports Dr. Jörg Drewes of the Colorado School of Mines development and testing of surrogates for recycled water monitoring such as biodegradable dissolved organic carbon (BDOC) and fluorescence intensity. IEUA has also initiated bench scale assessment two flow cells to assess BDOC in its recycled water and in municipal water. The use of BDOC and other surrogates is a currently under evaluation by CDPH and its use may either replace TOC measurement or allow correction of TOC to remove non-waste TOC sources, thus increasing the RWC over a TOC-only based RWC.

The text should also be changed to explain the 50% permit limit and that TOC in the RWC formula is wastewater sourced organic carbon (page 7 of 10, paragraph beginning "recycled water is available…". With further discussion with the CDPH and the RWQCB, the source of diluent water used in the RWC calculations can also be expanded beyond direct recharge at an individual basin as currently used, such as is the practice at the Los Angeles County Montebello groundwater spreading grounds. The "bubble concept" (of grouped basins) and groundwater underflow of safe yield are acceptable ways that will be discussed with CDPH of increasing the diluent water volume of water without increasing the maximum RWC limits.

Referring to Page 7 of 10, reference is made to Table 3 Column 25 (Average Recharge of recycled water). As discussed above, using reasonable assumptions about the availability of stormwater for dilution and RWC, IEUA (see Table IE-1 attached) estimated that it is possible to recharge up to 32,000 AFY of recycled water. An RWC of 30% corresponds to recycled water recharge of 17,000 AFY, which is compatible with IEUA's adopted Three-Year Recycled Water Business Plan goal of 15,000 AFY by June 2012.

Referring to Page 8 of 10, the second paragraph, reference the statement "Increasing the availability of imported water is crucial to reaching the future replenishment capacity requirements of the basin." This statement requires more explanation. For example, does this refer to increasing turnout volume, purchasing other supplemental water supplies from MWD, such as MWD Tier I water supplies? (As previously mentioned, neighboring OCWD has adopted this approach.) Does it mean Watermaster or others should purchase supplemental water from sources other than MWD? Does it mean that Watermaster should rely on an approach to influence policy-makers to allow increased water exports to the region; or are other alternatives to be considered?

The following comments are in reference to Table 3.

- Referring to Page 8 of 10, reference the last paragraph. More explanation of Table 3 is needed as it is not self evident. For example, the text could include a discussion of Table 3 and calculations of "old" vs. "new" water: the recharge in each basin should be separated into "old water" that is part of the safe yield calculation and "new water" that is not. "Old water" being water that recharged in the basin prior to CBFIP improvements.

- Table 3, the Column 16 heading needs to be changed to "Optimal Recharge Rate". The change also needs to be made in the text on page 6 of 10 in the bullet beginning "Column 16…" These numbers are optimal recharge rates when the basins are clean as based on 2005/06 operations data.

- As previously noted, a narrative explanation is needed for this and all other tables. This should include a written or mathematical explanation of the results presented in the tables. Providing a brief explanation would enable the average reader to understand the general methodology behind the results.

- Table 3, Column 24. These figures are a snapshot of the RWC starting point. As previously stated, the CBWM/IEUA permit allows for a maximum 50% RWC. Please see prior comments.

- Further discussion is required to correct certain assumptions implicit in Table 3 that result in an underestimation of MWD supplemental water and recycled water. This underestimation occurs where and when an operational decision can be made to utilize basins receiving recycled water vs. those basins that do not receive recycled water. For example Brooks Basin receives recycled water; the basins located upstream (College Heights, Upland, and Montclair) do not receive recycled water. The Brooks Basin MWD recharge rate would be maximized prior to delivery of MWD water to the upstream basins, thus allowing a greater recycled water volume without increasing the RWC. In this example, Table 3 lists the Brooks Basin supplemental capacity at 2,453 acre-feet/year but stops the MWD deliveries at 736 acre-feet/year and lists the recycled water deliveries as 494 acre-feet/year (totaling 1,230 acre-feet/year). The remaining capacity (1,223 acre-feet/year = 2,453 acre-feet – 1,230 acre-feet) can be made up with MWD water listed in the table a recharged in upstream basins. Assuming the preliminary 25% RWC at Brooks, the 1,223 acre-feet/year of remaining capacity would be 305 acre-feet/year of recycled water and 918 acre-feet/year of MWD water. This type of evaluation should be conducted for all the basins in Table 3.

Conclusions

It would be helpful for stakeholders if the objectives described in the Memo's Introduction section were addressed the Conclusion section. The Conclusion section could restate Memo objectives, summarize the key findings and supporting information relied on to substantiate key findings.

A summary of IEUA's conclusions are:

- Memo background information, key assumptions and findings need to be more fully explained
- Memo should utilize "scenario planning" based on a set of clearly described, conservative assumptions. Reasonable alternative future scenarios can be constructed that would assist immensely the stakeholder's evaluation of the relevant costs and supply reliability benefits of alternative water resource management investments.
- Memo water demand projections are overstated revised projections should consider factors such as actual water demand as well as conservation initiatives and mandates
- Memo should consider all viable groundwater replenishment options including in-lieu and ASR and policies to incentivize use supplemental water as and when it is available
- Memo Supplemental water assumption is not correct over 30-year period
- Memo local water supply assumptions and analysis understate the availability of these recycled water and stormwater supplies.

Workshop Presentation - "Chino Basin Recharge Master Plan Update Design and Cost Development Criteria, March 26

The following are comments in response to the March 26 Workshop, a power point presentation titled, "Design and Cost Criteria." During this presentation, it was reported that various forms of "Advanced Recycled Water Treatment Process" are being considered as RMP "Facility Components." The "Advanced Recycled Water Treatment Processes" described included Micro-Filtration, Reverse Osmosis and Advanced Oxidation Process. For the record, IEUA respectfully states that the cost of these alternatives is prohibitive when compared to the benefits provided.

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TABLE IE-1

Recycled Water Recharge Projections at Various Recycled Water Contributions (RWC)

(assumes imported water is available at quantities as in WEI Table 3) [1,2,3]

Basin	Recharge Capacity cfs	Recharge Capacity AF per day	Total Capacity (80% Usage)	Stormwater (RMC Phase II)[2] (AF)	Recycled Water (50%) (AF)	Imported Water @ 50%	Total Recharged @ 50% RWC (AF)	Recycled Water (45%) (AF)	Imported Water @ 45%	Total Recharged @ 45% RWC (AF)	Recycled Water (40%) (AF)	Imported Water @ 40%	Total Recharged @ 40% RWC (AF)	Recycled Water (30%) (AF)	Imported Water @ 30%	Total Recharged @ 30% RWC (AF)
Banana Basin	5	10	2,900	800	1,450	650	2,900	1,309	800	2,909	1,160	940	2,900	621	650	2,071
Declez Basins	6	12	3,500	1,000	1,750	750	3,500	1,575	925	3,500	1,400	1,100	3,500	750	750	2,500
Etiwanda Cons. Ponds	Not Developed			0	0	0	0	0	0	0	0	0	0	0	0	0
Hickory Basin	5	10	2,900	900	1,450	550	2,900	1,309	700	2,909	1,160	840	2,900	621	550	2,071
Jurupa Basin	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
RP-3 Basins	7	14	4,000	1,600	2,000	400	4,000	1,800	600	4,000	1,567	750	3,917	857	400	2,857
Turner Basins	6	12	3,500	1,750	1,750	0	3,500	1,432	0	3,182	1,167	0	2,917	750	0	2,500
7th & 8th Street Basins	5	10	2,900	1,450	1,450	0	2,900	1,309	150	2,909	1,160	290	2,900	866	570	2,886
Etiwanda Debris Basin	7	14	4,000	1,200	2,000	800	4,000	1,800	1,000	4,000	1,600	1,200	4,000	1,183	1,560	3,943
Lower Day Basin	9	18	5,200	1,600	2,600	1,000	5,200	2,340	1,260	5,200	2,080	1,520	5,200	1,561	2,043	5,204
Brooks Street Basins	5	10	2,900	1,450	1,450	0	2,900	1,186	0	2,636	967	0	2,417	621	0	2,071
College Heights Basins	15	30	8,700	150	0	150	300	0	150	300	0	150	300	0	0	150
Montclair Basins	40	79	23,100	2,000	0	5,050	7,050	0	3,000	5,000	0	2,000	4,000	0	0	2,000
Upland Basin	20	40	11,600	500	0	2,943	3,443	0	750	1,250	0	516	1,016	0	0	500
San Sevaine Basins	50	99	28,900	2,250	12,903	10,653	25,806	12,715	13,290	28,255	10,167	13,000	25,417	7,458	15,153	24,861
Victoria Basin	6	12	3,500	1,000	1,750	750	3,500	1,571	920	3,491	1,400	1,100	3,500	1,050	1,450	3,500
Ely Basins	5	10	2,900	1,450	1,450	0	2,900	1,309	150	2,909	1,160	290	2,900	866	570	2,886
Total			**110,500**	**19,100**	**32,003**	**23,696**	**74,799**	**29,655**	**23,695**	**72,450**	**24,987**	**23,696**	**67,783**	**17,205**	**23,696**	**60,001**

1) WEI Table 3 Refers to Table 3 of 2010 Recharge Master Plan Update Technical Memorandum, Task 5 and Task 7.1 (WEI, April 22, 2009)

2) Also assumes stormwater recharge increases by a total of 8,000 AFY compared to current, due to consideration of long-term rainfall patterns, rather than just recent dry weather; optimization of recharge basin operations; and "new yield" from LID and other recharge facilities improvements.

3) In this model, the available imported water is allocated first to the recharge basins that can take recycled water, so we will maximize the use of recycled water. At the higher RWC's, the capacities of the recharge basins limit the amount of water that can be recharged, so more of the imported water has to be recharged at Montclair, Upland, and College Heights basins, which

Attachment IE-2
Chino Basin Conjunctive Use Program (Dry Year Yield)
IEUA's & TVMWD's FY 2007-08 Monthly Retail Demand by Source of Supply & FY 2008-09 Actual DYY Performance

FY 2007-08 Monthly Retail Demand by Source of Supply

IEUA & TVMWD	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	Total
Chino Groundwater	8,148.31	9,225.60	9,555.93	9,077.09	7,785.52	7,266.47	5,922.67	4,223.07	3,716.06	3,968.32	5,111.68	6,620.29	**80,621.01**
Imported Water (MWD)	6,994.40	8,422.34	10,214.54	10,810.64	8,955.65	7,611.24	6,037.94	4,173.19	3,886.44	2,408.26	4,953.30	5,796.83	**80,264.75**
Other Groundwater	2,191.84	2,252.56	2,244.74	2,080.98	1,840.06	1,563.02	1,442.36	744.04	797.80	593.01	1,033.39	1,188.05	**17,971.85**
Local Surface Water	284.08	248.24	529.51	495.16	426.23	376.69	354.74	353.77	428.75	1,103.90	1,230.82	1,068.52	**6,900.40**
Desalter Water (CDA)	1,270.92	1,224.60	1,244.86	1,338.76	1,335.62	1,351.42	1,239.02	1,246.53	1,255.53	1,163.06	1,267.11	1,250.46	**15,187.89**
Total	**17,618.63**	**20,148.74**	**22,544.71**	**22,463.87**	**19,007.46**	**16,817.42**	**13,757.71**	**9,494.08**	**8,829.04**	**8,073.49**	**12,329.19**	**14,673.69**	**240,984.05**

FY 2008-09 - Actual DYY Performance

IEUA & TVMWD	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	Total
Chino Groundwater	8,814.26	9,561.19	10,391.57	9,663.63	8,695.12	8,430.13	6,741.53	5,968.26	6,966.87	5,500.69	7,768.97	7,840.47	**96,342.70**
Imported Water (MWD)	4,724.27	5,556.26	6,592.80	7,412.17	6,418.15	6,148.97	4,234.24	2,483.36	1,965.67	68.15	104.89	2,157.13	**47,866.04**
Other Groundwater	1,835.69	2,389.48	2,751.72	2,313.18	2,288.89	2,011.71	1,807.76	972.24	1,422.65	1,039.06	1,658.24	1,863.29	**22,353.91**
Local Surface Water	926.54	807.16	394.56	293.38	261.37	296.55	244.94	292.83	390.27	632.82	955.25	879.02	**6,374.69**
Desalter Water (CDA)	1,310.11	1,264.72	1,310.13	1,378.30	1,353.76	1,166.79	1,299.35	1,297.70	1,287.54	1,152.24	1,185.64	1,109.62	**15,115.90**
Total	**16,300.76**	**18,314.09**	**20,130.66**	**19,682.36**	**17,663.52**	**16,887.36**	**13,028.46**	**9,716.69**	**10,745.45**	**7,240.72**	**10,487.35**	**12,739.92**	**228,091.38**

Potable Water Demand Tracking

Potable Water Performance	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	Total
Change in Chino Groundwater	665.96	335.59	835.65	586.54	909.59	1,163.66	818.86	1,745.19	3,250.82	1,532.37	2,657.29	1,220.18	**15,721.70**
Change in Imported Water (MWD)	(2,270.14)	(2,866.08)	(3,621.74)	(3,398.48)	(2,537.50)	(1,462.28)	(1,803.70)	(1,689.83)	(1,920.77)	(2,340.11)	(4,848.41)	(3,639.70)	**(32,398.72)**
Change in Other Groundwater	(356.15)	136.92	506.99	232.19	448.83	448.69	365.40	228.20	624.85	446.04	624.85	675.24	**4,382.06**
Change in Local Surface Water	642.46	558.92	(134.95)	(201.78)	(164.86)	(80.14)	(109.80)	(60.94)	(38.49)	(471.08)	(275.57)	(189.50)	**(525.71)**
Change in Desalter Water (CDA)	39.19	40.12	65.27	39.54	18.14	(184.63)	60.33	51.17	32.01	(10.82)	(81.47)	(140.84)	**(71.99)**
Change in Potable Demand	**(1,278.67)**	**(1,834.65)**	**(2,414.05)**	**(2,781.52)**	**(1,343.94)**	**69.94**	**(729.25)**	**222.62**	**1,916.42**	**(832.77)**	**(1,841.84)**	**(1,933.78)**	**(12,781.48)**

Non-Potable Water Demand Tracking

Non-Potable Water Performance	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	Total
FY 2007-08 Recycled Water	496.80	776.20	919.00	800.12	1,094.67	642.20	457.82	338.05	280.48	219.37	662.67	586.58	**7,273.94**
FY 2008-09 Recycled Water	914.95	1,026.94	1,233.58	1,201.40	1,308.07	1,331.43	942.97	574.57	272.75	507.43	313.85	703.96	**10,331.90**
Change in Non-Potable Demand	**418.15**	**250.74**	**314.59**	**401.29**	**213.40**	**689.23**	**485.15**	**236.52**	**(7.73)**	**288.06**	**(348.82)**	**117.38**	**3,057.96**

DRAFT CUP Certification Plan	**5,359.33**	**6,081.84**	**5,845.99**	**4,324.06**	**3,630.07**	**3,174.79**	**2,307.08**	**1,429.88**	**285.00**	**285.00**	**201.00**	**-**	**32,924.00**
Actual CUP Certification	**4,040.77**	**6,024.77**	**7,746.32**	**5,213.14**	**2,827.00**	**1,189.69**	**2,815.40**	**2,056.99**	**522.30**	**72.10**	**-**	**-**	**32,508.48**

DYY Obligation = 33,000 AF