Otay Water District

2010 Urban Water Management Plan

Adopted June 01, 2011

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Abbreviations

Act	Urban Water Management Planning Act
ADWF	Average Dry Weather Flow
AF	acre-feet
AF/yr	acre-feet per year
BMP	Best Management Practice
CDPH	California Department of Public Health
CII	Commercial/Industrial/Institutional
CIMIS	California Irrigation Management Information System
CLIP	Commercial Landscape Incentive Program
CUWCC	California Urban Water Conservation Council
District	Otay Water District
DMM	Demand Management Measures
DMP	Drought Implementation Plan
DWR	California Department of Water Resources
ERP	Emergency Response Plan
ESP	Emergency Storage Project
FCF	Flow Control Facility
FY	Fiscal Year
GIS	Geographical Information System
gpcd	gallons per capita per day
gpd	gallons per day
HEW	High-Efficiency Washer
IID	Imperial Irrigation District
IRP	Integrated Resources Plan
IRWMP	Integrated Regional Water Management Plan
LMSE	La Mesa-Sweetwater Extension (pipeline)
Metropolitan	Metropolitan Water District of Southern California
mg/L	milligrams per liter
mgd	million gallons per day
MOU	Memorandum of Understanding
MTBE	Methyl Tertiary Butyl Ether
MWWD	Metropolitan Wastewater Department, City of San Diego
NDRWP	North District Recycled Water Project
PALM	Professional Assistance for Landscape Management
QSA	Quantification Settlement Agreements
RO	Reverse Osmosis
RWCWRF	Ralph W. Chapman Water Recycling Facility
SANDAG	San Diego Association of Governments
SB	Senate Bill
SBWRP	South Bay Water Reclamation Plant
SBX 7-7	Senate Bill 7-7

SCADA	Supervisory Control and Data Acquisition
SPV	San Pasqual Valley
SVSD	Spring Valley Sanitation District
SWP	State Water Project
TDS	Total Dissolved Solids
TOC	Total Organic Carbon
ULFT	Ultra Low Flow Toilet
UWMP	Urban Water Management Plan
VIP	Voucher Incentive Program
Water Authority	San Diego County Water Authority
WBIC	Weather-Based Irrigation Controller
WTP	Water Treatment Plant

1.0 Introduction

Since 1984, California's Urban Water Management Planning Act (Act) has required each urban water supplier in the state to prepare an urban water management plan (UWMP). The requirement applies to each urban water supplier that provides water for municipal purposes either directly or indirectly to more than 3,000 customers or supplies more than 3,000 acre-feet (AF) of water annually. These agencies must update their UWMP at least once every five years on or before December 31, in years ending in five and zero. The deadline for submittal of the 2010 UWMP for retail water purveyors is July 31, 2011 as a result of recent legislation. Sections 10610 through 10657 of the California Water Code detail the information that must be included in these plans. In accordance with the Act, the Otay Water District (District) is required to update and adopt its plan for submittal to the California Department of Water Resources (DWR) by July 1, 2011. **Appendix A** contains the text of the Act.

The District utilized DWR's "Guidebook to Assist Urban Water Suppliers to Prepare a 2010 Urban Water Management Plan" and Senate Bill 7-7 (SBX 7-7). SBX 7-7 was passed in November 2009 with the goal of reducing California's urban per capita water use by 20% by December 31, 2020 with an incremental goal of reducing per capita water use by 10% by December 31, 2015. Each urban water supplier is also required to meet SBX 7-7 goals, which are discussed later in this report. This report includes projections of the District's future demands and supplies, based on estimates of future growth in the District's service area. It also discusses the steps the District has taken to promote water conservation and ensure water is being used wisely. The strategies outlined in this report are intended to allow the District to continue to provide a safe and reliable water supply to its customers.

The District maintains its records of water use on a fiscal year (FY) that runs from July 1 through June 30. For example, FY 2010 runs from July 1, 2009 through June 30, 2010. In this document, projections of water demand over the course of a year are reported for fiscal years. For estimates that are based on an instantaneous value and not a year-long accumulation (for example, the service area population), values are assumed to be valid on January 1 of the corresponding year.

1.1 Changes to the California Urban Water Management Planning Act

Major amendments made to the Act since preparation of the District's 2005 UWMP Plan include the following:

- Water Code Section 10631.1 requires a plan by retail water suppliers to include water use projections for single and multi-family residential housing needed for lower income and affordable households, to assist with compliance with the existing requirement under Section 65589.7 of the Government Code, that suppliers grant a priority for the provision of service to housing units affordable to lower income households.

- Water Code Section 10621(b) clarifies that every urban water supplier preparing a plan must give at least 60 days advanced notice to any city or county prior to the public hearing on the plan within which the supplier provides water supplies to allow for consultation on the proposed plan.

- Water Code Section 10631(j) deems water suppliers that are members of the California Urban Water Conservation Council (CUWCC) and comply with the Memorandum of

Understanding (MOU), as it may be amended, to be in compliance with the requirement to describe the supplier's water demand management measures in its UWMP.

- Water Code Section 10631.7 required DWR, in consultation with the CUWCC, to convene a technical panel, no later than January 1, 2009, to provide information and recommendations to DWR and the Legislature on new demand management measures, technologies, and approaches. The panel and DWR were to report to the Legislature on their findings no later than January 1, 2010 and each five years thereafter.

- Water Code Section 10633(d) clarifies that the "indirect potable reuse" of recycled water should be described and quantified in the plan, including a determination regarding the technical and economic feasibility of serving those uses.

- Water Code Section 10644(c) requires DWR to recognize exemplary efforts by water suppliers by obligating DWR to identify and report to the technical panel, described above, and "exemplary elements" of individual water suppliers' plans, meaning any water demand management measures adopted and implemented by specific urban water suppliers that achieve water savings significantly above the levels required to meet the conditions to state grant or loan funding.

- Water Code Section 10631.5 was amended to address conditions of eligibility for grants or loans from DWR. DWR will consider whether the urban water supplier has submitted an updated plan when determining eligibility for funds made available pursuant to any program administered by [DWR].

According to Water Code Section 10610.2(2), "[t]he conservation and efficient use of urban water supplies are of statewide concern; however, the planning for that use and the implementation of those plans can best be accomplished at the local level." **Appendix A** contains the text of the Act.

1.2 Senate Bills 610 and 221

Senate Bills (SB) 610 and 221 are the common names for Water Code Sections 10910 through 10914 and Government Code Sections 65867.5, 66455.3, and 66473.7. These bills amend state law to improve the link between water supply planning and land use decisions made by cities and counties. SB 610 requires that the water purveyor of the public water system prepare a water supply assessment to be included in the environmental documentation of certain large proposed projects. SB 221 requires a written verification from the water purveyor that sufficient water supplies are available for certain large residential subdivisions prior to approval of a tentative map. The District's UWMP provides information that will be used in future assessments and verifications prepared to meet the requirements of these bills.

1.3 Senate Bill 7 of the Seventh Extraordinary Session of 2009

In addition to changes in the Act listed above, the state Legislature passed Senate Bill 7 as part of the Seventh Extraordinary Session on November 10, 2009, which became effective February 3, 2010. This new law was the water conservation component to the Delta legislation package, and seeks to achieve a 20 percent statewide reduction in urban per capita water use in California by December 31, 2020. Specifically, SBX 7-7 from this Extraordinary Session requires

each urban retail water supplier to develop urban water use targets to help meet the 20 percent reduction goal by 2020 (20x2020), and an interim water reduction target by 2015.

The SBX 7-7 target setting process includes the following: (1) baseline daily per capita water use; (2) urban water use target; (3) interim water use target; (4) compliance daily per capita water use, including technical bases and supporting data for those determinations. In order for an agency to meet its 2020 water use target, each agency can increase its use of recycled water to offset potable water use and also step up its water conservation measures. The required water use targets for 2020 and an interim target for 2015 are determined using one of four "Target" methods – each method has numerous methodologies. The 2020 urban water use target may be updated in a supplier's 2015 UWMP. **Appendix A** also contains the text of SBX 7-7.

Four methods are stipulated for calculating the water use target. Three of the methods are listed in Water Code Section 10608.20(a)(1). The fourth method was developed by DWR. The four methods are:

- Method 1 – Eighty percent of the water supplier's baseline per capita potable water use
- Method 2 – Per capita daily water use estimated using the sum of performance standards applied to indoor residential use, landscape area water use, and commercial, industrial, and institutional uses
- Method 3 – Ninety-five percent of the applicable state hydrologic region target as stated in the state's 20x2020 Water Conservation Plan.
- Method 4 – Draft Provisional Target Method 4 (January 2011)

In 2015, urban retail water suppliers will be required to report interim compliance followed by actual compliance in 2020. Interim compliance is halfway between the baseline water use and 2020 target. Baseline, target, and compliance-year water use estimates are required to be reported in gallons per capita per day (gpcd). For consistent application of the Act, DWR produced Methodologies for Calculating Baseline and Compliance Urban Water Per Capita Use in October 2010. Discussion on the District's baseline and target 2020 demands are discussed in more detail in Section 3.0.

Failure to meet adopted targets will result in the ineligibility of a water supplier to receive grants or loans administered by the State unless one (1) of two (2) exceptions is met. Exception one (1) states a water supplier may be eligible if they have submitted a schedule, financing plan, and budget to DWR for approval to achieve the per capita water use reductions. Exception two (2) states a water supplier may be eligible if an entire water service area qualifies as a disadvantaged community.

1.4 Resource Maximization

The District's commitment to maximizing resources is reflected in its mission statement, which is,

> *"…to provide safe, reliable water and wastewater services to our community with innovation, in a cost-efficient, water-wise and environmentally responsible manner."*

For many years, the District has worked to reduce its reliance on imported water, and in particular treated imported water. On August 3, 1994, the District's Board of Directors established a goal of being able to meet 40% of annual demands from local water sources when water is unavailable from the San Diego County Water Authority (Water Authority). The District and the Water Authority entered into an agreement in 2006 to provide the District with treated water from the Helix Water District (Helix WD) in addition to the District's normal treated water supply from the Water Authority. A similar arrangement made with the City of San Diego in 1999 provides the District access to treated water from the City's Otay Water Treatment Plant (WTP). The District has also aggressively developed its recycled water distribution system and has entered into an agreement to purchase recycled water from the City of San Diego. These water sources are further discussed in Section 4.0.

Water conservation is an important component of the District's commitment to reducing reliance on imported water. In partnership with the Water Authority, the City of Chula Vista, and residential and commercial developers, the District's water use efficiencies and conservation efforts are expected to grow and expand. The District is also committed to continuing investigations of local groundwater, additional recycled water, desalination, and other potential water resources that could further reduce the District's reliance on imported water.

1.5 Agency Coordination

The District joined the Water Authority as a member agency in 1956. The Water Authority is responsible for the supply of imported water into the San Diego County through its membership in Metropolitan Water District of Southern California (Metropolitan). The District receives imported potable water from the aqueduct systems owned and operated by the Water Authority and Metropolitan. Together these agencies work to ensure a diverse and reliable supply for the San Diego region.

Effective water planning for the Water Authority and its member agencies requires consistent projections of supply and demand. The Water Authority facilitated an Urban Water Management Plan Working Group made up of staff from the Water Authority and its member agencies. This group provided a forum for exchanging demand and supply information. In addition, DWR and the Water Authority hosted a special workshop to review the requirements of the Act. The District participated in several workshops and meetings, providing water supply and demand information as well as recycled water opportunities.

In accordance with the Act, the District provided a 60-day notice to the Water Authority, the San Diego Association of Governments, the City of San Diego, City of Chula Vista, and County of San Diego that they were reviewing and considering amendments or changes to the UWMP and that they would be holding a public hearing prior to the adoption of the UWMP. A copy of the 60-day notice is included in **Appendix B**.

Also, in accordance with the Act, the District notified the land use jurisdictions (City of Chula Vista, City of San Diego and County of San Diego) within its service area that it was preparing the 2010 UWMP. Prior to adoption, the District has made available its Draft 2010 UWMP to stakeholders including the Water Authority, the City of Chula Vista, the County of San Diego, and the City of San Diego. The notice and instructions for downloading the Draft 2010 UWMP from the District's website was also mailed to seven planning groups listed in Table 1, and to eleven libraries either within or near the District's service area received hard copies of the draft 2010 UWMP. The Draft 2010 UWMP was first presented at a Water Resources Committee

Meeting of the District's Board of Directors. A Public Hearing regarding the 2010 UWMP was held on June 01, 2011. Notices of the Public Hearing were published in the San Diego Union-Tribune (May 17, 24 and 31, 2011), The Star News (May 20, 2011), The East County Californian (May 19 and 26, 2011), San Diego Daily Transcript (May 17 and 24 2011), and The Alpine Sun (May 19 and 26, 2011). These coordination efforts are summarized in Table 1 and copies of the public notices are included in **Appendix B**.

Table 1 Coordination with Appropriate Agencies

Coordinating Agencies	Participated in UWMP development	Commented on the draft	Attended public meetings	Contacted for assistance	Received copy of draft or Notice of Availability	Sent notice of intention to adopt
San Diego County Water Authority	X	X		X	X	X
City of San Diego					X	X
City of Chula Vista					X	X
County of San Diego					X	X
Chula Vista Planning Commission					X	X
San Diego Association of Governments					X	X
San Diego LAFCO					X	X
Constituents of the District			X		X	
Crest/Dehesa Planning Group					X	X
Jamul/Dulzura Planning Group					X	X
Otay Mesa Planning Group					X	X
Spring Valley Community Planning Group					X	X
Sweetwater Planning Group					X	X
Valle de Oro Planning Group					X	X
Eleven local libraries (for a complete listing refer to **Appendix B**)					X	

1.6 Adoption and Implementation of UWMP

This Urban Water Management Plan was adopted by the District Board of Directors on June 01, 2011. A copy of the adoption resolution (Resolution 4175) is attached in **Appendix B**.

2.0 Service Area

This section of the report provides an overview of the District's service area, its current water supply, measures to reduce water demand, and projections of future supply.

2.1 Appropriate Level of Planning

The District's service area has experienced some growth in the past five years, and the service area population is expected to increase by an additional 86,000 people by 2035. All of the District's potable demands are currently met with imported water provided through the Water Authority and Metropolitan. Much of the supply discussion in this report is based on the supply planning performed by these regional agencies.

2.2 Service Area Description

The District is located in the southern half of San Diego County and was created in 1956 by a small group of private citizens, ranchers and landowners who were concerned about the declining quality and quantity of water from their rural wells. The District joined the Water Authority as a member agency in the same year. The Water Authority is the agency responsible for the supply of imported water into the San Diego County through its membership in Metropolitan.

The District is a California special district authorized under the provisions of the Municipal Water District Law of 1911 and is revenue neutral, i.e., each end user pays their fair share of costs for capital improvements, water acquisition, and the operation and maintenance of facilities. Its elected Board of Directors sets the District ordinances, policies, taxes, and rates for providing wastewater, potable water, and recycled water services.

The District's service area is generally located within the south central portion of San Diego County and includes approximately 137 square miles, of which 125.5 square miles are within the District's boundaries and 11 square miles are in the District's Area of Influence. The topography of the service area is diverse, consisting of a variety of valleys, hills, mountains, mesas, lakes and rivers. The service area includes both urban and rural development. The major transportation arteries serving the area include State Highway 94 in the north, Interstate 805 in the southwest and the newly constructed State Route 125 to the east. Interstate 905 and State Highway 11 are in the process of being constructed in the Otay Mesa area.

The District serves a wide spectrum of communities including southern El Cajon, La Mesa, Rancho San Diego, Jamul, Spring Valley, Bonita, eastern City of Chula Vista, East Lake, Otay Ranch and Otay Mesa areas. The water purveyors that border the District include Padre Dam Municipal Water District (Padre Dam MWD) on the north, Helix WD on the northwest, and the Sweetwater Authority, and the City of San Diego on the west. The southern boundary of the District is the international border with Mexico.

There is currently no adjacent water purveyor located to the east of the District, which provides an opportunity for service for future land uses, such as the Otay Ranch General Development Plan (GDP) Area of Influence. Some of these lands to the east are outside the imported water service area of the Water Authority and Metropolitan and would require annexation to obtain service. The District's primary Area of Influence is to the east of the current service area and is bounded on the west by the Upper and Lower Otay Reservoirs. It is comprised of portions of

the Proctor Valley Parcel and all of the San Ysidro Mountains Parcel of the Otay Ranch GDP. The District's Area of Influence also includes the Sycuan Indian Reservation, located to the northeast of the District boundary. Representatives of the Sycuan Indian Reservation have expressed interest in obtaining a more reliable water supply, and may seek annexation in the future. A map showing the regional jurisdictional boundaries within the District is shown on Figure 1.

2.3 Climate Data

Climatic conditions within the service area are characteristically Mediterranean near the coast, with mild temperatures year round. Inland areas are both hotter in summer and cooler in winter, with summer temperatures often exceeding 90 degrees and winter temperatures occasionally dipping to below freezing. Most of the region's rainfall occurs December through March. Total average annual rainfall is approximately 12.17 inches per year[1].

Historic climate data were obtained from the Western Regional Climate Center for Station 042706 (El Cajon). This station was selected because its annual temperature variation is representative of most of the District's service area. While there is a station in Chula Vista, the temperature variation at the Chula Vista station is more typical of a coastal environment than the conditions in most of the District's service area.

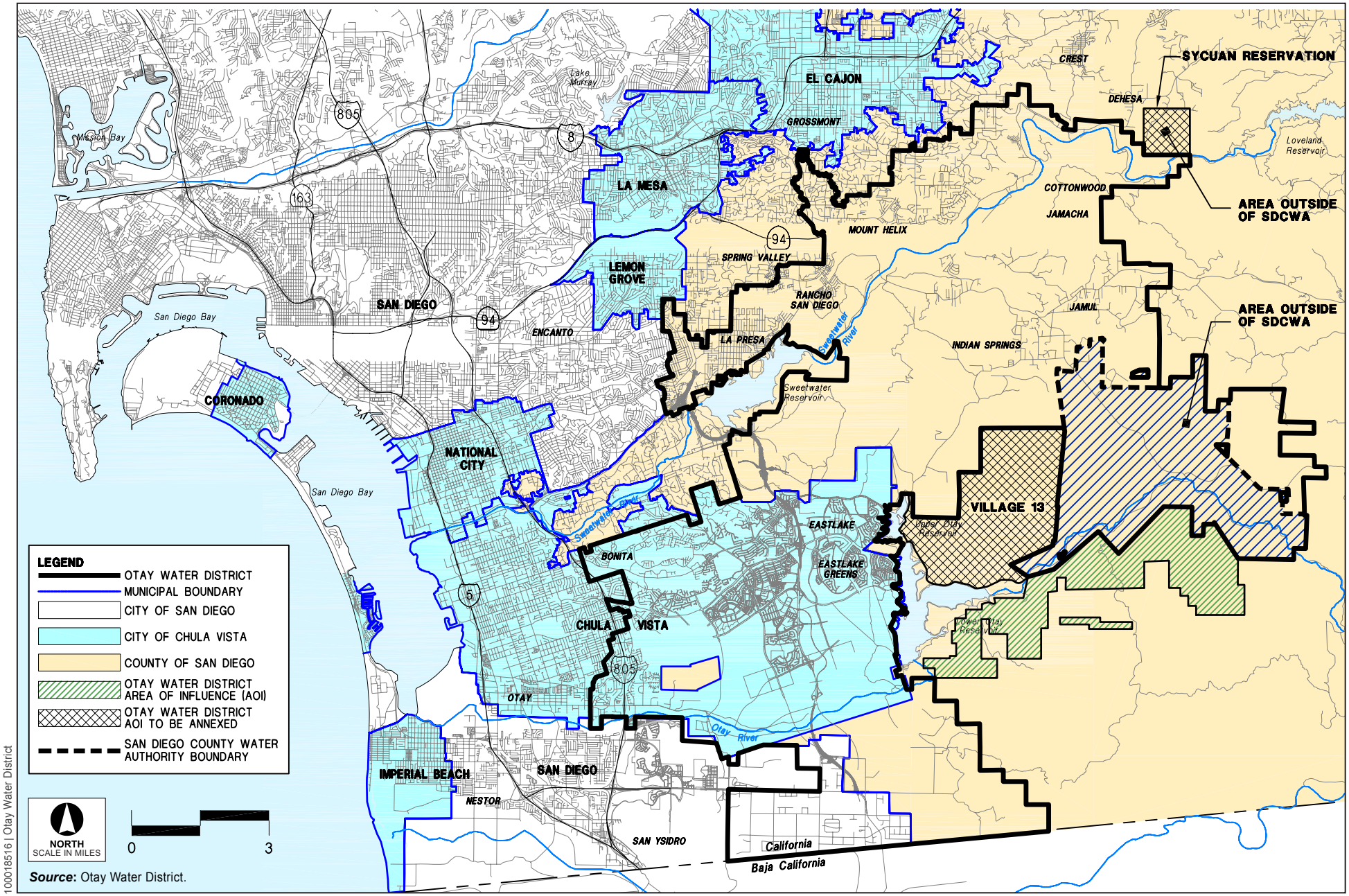
Evapotranspiration data were obtained from the California Irrigation Management Information System (CIMIS). Because conditions in the service area vary from coastal areas to inland areas, evapotranspiration data are reported for two stations: 147 (Otay Lakes), and 153 (Escondido SPV). The evapotranspiration data are based on historical data since 1999 and the long-term averages provided by CIMIS. Climate and evapotranspiration data are summarized in Table 2.

The typical annual distribution for temperature and precipitation are shown in Figure 2.

2.4 Service Area Population

The District's service area population has grown from approximately 48,300 in 1980 to a 2010 population of 198,616. Data on the future rate of growth within the District were obtained from the San Diego Association of Governments (SANDAG) 2050 Regional Growth Projection adopted by SANDAG's Board of Directors on February 26, 2010. SANDAG serves as the regional, intergovernmental planning agency and provides estimates of population and housing up to the year 2050. SANDAG has prepared forecasts of population, housing and employment in each census tract in 5-year increments between 2010 and 2035. For this analysis, the District assumed that the population within each census tract was uniformly distributed around the tract. The census tract data were intersected with the District's service area boundary using geographical information system (GIS) software. The estimated service area population is shown in Table 3.

1 Western Regional Climate Center for Station 042706 (El Cajon)



Source: Otay Water District.

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Figure 1

Otay Water District Service Area

ATKINS

Table 2 Climate Data

Month	Monthly Average Evapotranspiration (inches)		El Cajon (042706)	
	Otay Lakes No. 147	Escondido SPV No. 153	Average Rainfall (inches)	Average Temperature (Fahrenheit)
January	1.27	2.81	2.41	56.0
February	1.85	2.76	2.77	57.1
March	3.26	3.78	2.31	59.3
April	4.70	5.31	0.82	62.9
May	5.94	6.10	0.15	66.4
June	6.99	6.97	0.08	66.4
July	7.77	7.08	0.09	70.1
August	6.80	6.83	0.02	75.2
September	5.21	5.67	0.16	76.5
October	3.53	4.15	0.66	74.4
November	1.97	3.31	1.28	68.1
December	1.22	2.56	1.72	60.5
Annual Total	50.51	57.33	12.49	77.9

Source: CIMIS for Stations 147 (Otay Lakes), and 153 (Escondido SPV) and Western Regional Climate Center for Station 042706 (El Cajon).

Figure 2 Average Temperature and Precipitation

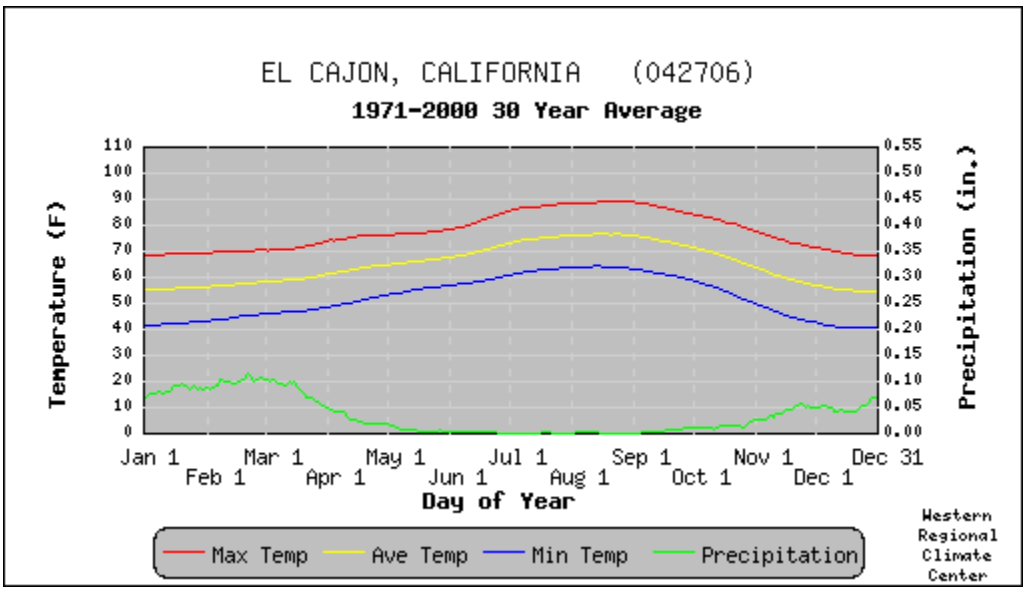


Table 3 Population – Current and Projected

	2010	2015	2020	2025	2030	2035
Service Area Population	198,616	219,223	242,241	258,037	269,522	284,997
Compound Annual Growth Rate		2.1%	2.1%	1.3%	0.9%	1.1%

Source: SANDAG Series 12 population forecast and Water Authority.

The District's long-term historic growth rate has averaged around 4 percent. In recent years, growth has occurred at a reduced rate due to a slowdown in economic conditions. The SANDAG forecast shows a growth rate of 1 to 2 percent through 2020. The growth rate is expected to slow as the inventory of developable land is diminished.

The water service planning area comprises three distinct land use planning agencies: the City of San Diego, the City of Chula Vista, and the County of San Diego. Documents that govern land use planning in these jurisdictions consist of the City of San Diego General Plan, the City of Chula Vista General Plan, and the County of San Diego's General Plan. All three include various sub-regional and community level plans within the District.

The City of Chula Vista's General Plan Update was adopted on December 13, 2005. In 1993, the City of Chula Vista and the County of San Diego adopted the Otay Ranch GDP and Subregional Plan for the Master Planned Community of Otay Ranch consisting of nearly 23,000 acres east of Interstate 805 and south of Telegraph Canyon Road. The Otay Ranch GDP land areas are defined as the Otay Valley Parcel, Proctor Valley Parcel, and the San Ysidro Mountains Parcel. Subsequent amendments have been prepared to the Otay Ranch GDP with the most recent amendments referred to as the "Land Offer Agreements." The Land Offer Agreements include the City's proposed University site and proposed residential density increases in several individual Otay Ranch Villages, as of November 2010.

The County of San Diego General Plan area includes the Spring Valley Community Plan, Crest-Dehesa Community Plan, Valle de Oro Community Plan, Jamul-Dulzura Community Plan, Sweetwater Community Plan, and the East Otay Mesa Specific Plan. The San Diego County General Plan is currently undergoing a comprehensive update and is not anticipated for approval until late 2011.

The only area in the City of San Diego served by the District is covered by the Otay Mesa Community Plan, which is also going through a major land plan update.

3.0 Service Area Demand

3.1 Water Use by Type for Past, Current and Future Deliveries

The District maintains records of its water consumption and its number of customers by customer type. Historic water use data from FY 2005 is summarized in Table 4.

Table 4 2005 Water deliveries — actual

Water Use Sectors	2005 Metered	
	# of accounts	Volume (AF)
Single-family residential	32,448	21,233
Multi-family residential	695	3,095
Commercial / Industrial	1,084	1,657
Institutional	190	2,262
Irrigation	1,060	9,105
Other	40	2,426
Unaccounted for	n/a	547
Total	35,870	40,324

Source: District 2005 UWMP and District records.

The breakdown of consumption between customer types in FY 2010 is summarized in Table 5 much of this information was obtained from the District's November 2010 update of its 2008 Water Resources Master Plan (WRMP). Table 5 also includes values for "Unaccounted-for" water, which amounts to a relatively small percentage of the total system demand. Unaccounted-for water is the total difference between the total Water Authority delivered water and the total amount billed by the District. Generally, unaccounted-for water is associated with meter inaccuracy, leaks or system losses, pipeline breaks, illegal connections, and unmetered fires. The District also associates its unaccounted-for water with its relatively new infrastructure systems. In the past, the District has observed unaccounted-for water losses of 4 to 5 percent. However, recent unaccounted-for water has averaged 1 to 2 percent, due to the District's work to minimize unauthorized connections and system losses.

In 2009, a 3-year water supply shortage required the District to impose mandatory conservation. In 2010, mandatory conservation continued and the economic recession became more severe. This resulted in FY 2010 water use decreasing by 25 percent from FY 2005 levels.

Approximately 90 percent of the District's customers are single-family residences. Much of the anticipated development in the District's service area is also single-family residential. The relative composition of the District's customers is expected to remain consistent. The other customer sectors, such as commercial, industrial, and institutional are expected to grow at the same rate to support the residential development.

The Water Authority has used its CWA-MAIN model to prepare projections of future water use within the District's service area. The CWA-MAIN model uses input data for population, demographics, climate, economic forecasts, and other variables to estimate future water use. The jurisdictional boundaries of the Water Authority, Metropolitan, and the District do not

coincide perfectly in some areas. However, the District has elected to use these forecasts of future water use to maintain consistency with planning work by the Water Authority.

Table 5 2010 Water Deliveries — actual

Water Use Sectors (Potable)	2010 Metered	
	# of accounts	Volume (AF)
Single-family residential	40,994	17,165
Multi-family residential[1]	3,420	3,605
Commercial / Industrial	1,196	2,243
Institutional	237	1,867
Dedicated Irrigation[2]	1,200	3,732
Other[3]	114	584
Fire Lines	667	23
Potable Water Delivery Subtotal	**48,845**	**29,270**
Recycled Water Dedicated Irrigation[4]	684	4,074
Water Delivery Total	**49,529**	**33,344**

Notes:
(1) Includes 2,625 single family attached homes i.e. duplexes – these were previously (2005) counted as single-family residences.
(2) Potable Irrigation demand with a dedicated landscape meter.
(3) All temporary meters e.g. construction, etc.
(4) Non-Potable Irrigation demand with a dedicated landscape meter.
Source: Otay Water District CUWCC 2010 Reporting, April 2011.

The Water Authority prepared a demand estimate for the District based on population projections within the District including baseline Total Agricultural Demand and near term annexations. These near term annexations include Otay Ranch Village 13 and parcels East of Village 13, Peaceful Valley Ranch, Sycuan Reservation, Stoddard Parcel, San Ysidro Mt. Parcel Village 17.

The District's projected potable water consumption is shown in Table 6.

Table 6 Potable Water Deliveries — projected 2015, 2020, 2025, 2030, and 2035 (AF)

Water Use Sectors	2015	2020	2025	2030	2035
Single-family residential	23,633	28,312	33,600	37,211	40,635
Multi-family residential	3,444	4,126	4,897	5,423	5,922
Commercial / Industrial	1,844	2,209	2,622	2,904	3,171
Institutional	2,518	3,017	3,580	3,965	4,330
Irrigation	10,134	12,141	14,408	15,957	17,425
Other	2,700	3,235	3,839	4,252	4,643
Unaccounted for	608	729	865	958	1,046
Total	44,883	53,768	63,811	70,669	77,171

Source: Water Authority Draft Member Agency Demand Forecast for Otay WD, March 2011.

The District's estimated growth in number of customers is shown in Table 7.

Table 7 Customer Growth — projected 2015, 2020, 2025, 2030, and 2035

Water Use Sectors	2015	2020	2025	2030	2035
Single-family residential	42,905	47,410	50,502	52,749	55,778
Multi-family residential	774	855	911	951	1,006
Commercial / Industrial	1,115	1,232	1,312	1,370	1,449
Institutional	230	254	270	282	299
Irrigation	1,655	1,828	1,948	2,034	2,151
Other	822	908	967	1,010	1,068
Unaccounted for	0	0	0	0	0
Total	47,500	52,487	55,910	58,398	61,751

3.2 Low-Income Water Demand Projections

The requirements for the 2010 UWMP call for projections of water demands for low-income customers. The District reviewed the Housing elements from the City of Chula Vista, City of San Diego, and County of San Diego's General Plans, which forecast projections to 2030. Demands for the projected low-income housing projects were estimated using the District's planning demand criteria in its 2008 WRMP (Update November 2010) at 300 gallons per day per dwelling unit. Projected water demands were then distributed equally throughout 2015 and 2030 (Table 8). These demands have been assumed as part of the general growth within the District and have been included in the District's potable water demand projections.

Table 8 Low-income projected water demands (AF)

Low Income Water Demands	2015	2020	2025	2030
Single-family residential	0	0	0	0
Multi-family residential	105	211	316	422
Total	105	211	316	422

3.3 Service Area Sales and System Losses

The District does not sell any water to other agencies as shown in Table 9.

Table 9 Sales to other water agencies (AF)

Water Distributed	2005	2010	2015	2020	2025	2030
None	0	0	0	0	0	0

System losses have been included as unaccounted-for water in Table 6. Use of recycled water by District customers is not included in the consumption values in Table 6, so it has been included as a line item in Table 10.

Table 10 Additional water uses and losses (AF)

Water Use	2005	2010	2015	2020	2025	2030	2035
Recycled water	4,090	4,000	4,400	5,000	5,800	6,800	8,000
System losses	0	0	0	0	0	0	0
Total	4,090	4,000	4,400	5,000	5,800	6,800	8,000

Table 11 Total water use (AF)

Water Use	2005	2010	2015	2020	2025	2030	2035
Total water deliveries	40,324	30,400	44,883	53,768	63,811	70,669	77,171
Sales to other water agencies	0	0	0	0	0	0	0
Additional water uses and losses	4,090	4,000	4,400	5,000	5,800	6,800	8,000
Total	44,414	34,400	49,283	58,768	69,611	77,469	85,171

3.4 Wholesale Water

The Water Authority is the wholesale water supplier to the District. The Water Authority is a member agency of Metropolitan and is responsible for obtaining imported water from Metropolitan. Metropolitan has two primary sources of imported water: the State Water Project (SWP), which transports water from the Sacramento-San Joaquin Delta in northern California, and the Colorado River Aqueduct, which transports water from the Colorado River behind Parker Dam.

The Water Authority is also developing its own sources of water to reduce its reliance on Metropolitan. A Water Resources Plan developed in 1993 and updated in 1997 emphasized the development of local supplies and core water transfers. Consistent with the direction provided in the 1997 plan, the Water Authority entered into a Water Conservation and Transfer Agreement with the Imperial Irrigation District (IID), an agricultural district in neighboring Imperial County, in 1998. Through the transfer agreement, the Water Authority received 70,000 AF in 2010, with the volume increasing annually until it reaches 200,000 AF/yr in 2021. The IID Water Conservation and Transfer Agreement supply source is considered a verifiable Water Authority supply.[2]

In 2003, as part of the execution of the Quantification Settlement Agreements (QSA) on the Colorado River, the Water Authority was contracted for 77,700 AF/yr of conserved water from projects to line the All-American and Coachella Canals (ACC and CC, respectively). Deliveries of this conserved water from the Coachella Canal reached the region in 2007, and deliveries from the All-American Canal reached the region in 2010. Expected supplies from the canal lining projects are considered verifiable Water Authority supplies.[3]

To further diversify regional supplies, the Water Authority's 2005 Plan identified seawater desalination as a potential supply for meeting future demands. In keeping with the objective of the 2005 Plan, the Water Authority is pursuing the purchase of a water supply from the Carlsbad

2 San Diego County Water Authority 2010 UWMP page 4-1.
3 San Diego County Water Authority 2010 UWMP page 4-1.

Desalination Project, a fully-permitted private desalination project at the Encina Power Station site located in the City of Carlsbad. In 2010, the Water Authority's Board of Directors approved a Term Sheet between the Water Authority and the private investor-owned company, Poseidon Resources (Poseidon), and directed staff to prepare a draft Water Purchase Agreement based on its provisions. The Carlsbad Desalination Project is considered a verifiable Water Authority supply capable of providing up to 56,000 AF/yr by 2015.[4]

Each of these projects is expected to produce a "drought-proof" supply that will not be reduced during dry years. Section 4 of the Water Authority's 2010 UWMP provides additional information about these projects. The Water Authority is expected to continue to provide water to meet the District's potable demands through 2030.

The projected demand for imported treated water from the Water Authority is shown in Table 12. These demands are based on the projections prepared by the Water Authority using the CWA-MAIN model. The demand in Table 12 does not include irrigation demands that the District expects to meet using recycled water nor does it reflect demand projections derived through gallons per capita per day calculations that were submitted to the Water Authority.

Table 12 District Baseline demand projections provided to wholesale supplier (AF)

Wholesale Sources	Contracted Volume	2010	2015	2020	2025	2030	2035
Water Authority	N/A	30,400	44,883	53,768	63,811	70,669	77,171

The Water Authority will continue to import water from Metropolitan, while developing the independent supplies discussed above. The Water Authority's projected water supplies are detailed in the Water Authority's 2010 UWMP. The supply estimates from that report are summarized in Table 13. The supply estimates in Table 13 are for the Water Authority as a whole, not just for the District. However, this shows the range of planned supplies in the Water Authority's UWMP that could be available to the District.

Table 13 Wholesale supplies — existing and planned sources of water (AF)

Wholesale Sources	2015	2020	2025	2030	2035
Desalination	0	56,000	56,000	56,000	56,000
IID Transfer	100,000	190,000	200,000	200,000	200,000
AAC & CC lining	80,200	80,200	80,200	80,200	80,200
Metropolitan	339,820	219,484	250,393	283,201	310,020
Total	700,220	871,884	922,793	955,601	982,420

Source: San Diego County Water Authority, Table 9-1. Adapted by Atkins April 2011.

A more detailed discussion of these supplies can be found in the Water Authority's 2010 UWMP.

4 San Diego County Water Authority 2010 UWMP page 4-1.

3.5 Baselines and Targets

This 2010 UWMP also includes the detailed description of how an urban water supplier calculates its baseline and targets, following the technical methods and methodologies described in DWR's Methodologies for Calculating Baseline and Compliance Urban Per Capita Water Use For the Consistent Implementation of the Water Conservation Bill of 2009. Background information and the approach used to develop baselines and targets are also to be included. A description of each of these elements follows:

- Baseline daily per capita water use — how much water is used within an urban water supplier's distribution system area on a per capita basis. It is determined using water use and population estimates from a defined range of years.

- Urban water use target — how much water is planned to be delivered in 2020 to each resident within an urban water supplier's distribution system area, taking into account water conservation practices that currently are and plan to be implemented.

- Interim urban water use target — the planned daily per capita water use in 2015, a value halfway between the baseline daily per capita water use and the urban water use target.

Following requirements provided in the DWR Methodologies for Calculating Baseline and Compliance Urban Water Per Capita Use document, the District has calculated baseline per capita water use, an urban use target for 2020, and an interim water use target for 2015. Reporting daily per capita water use compliance is not required until the 2015 UWMP cycle; at that point, actual water use will be compared to the interim 2015 target water use. Calculations and technical bases for the calculations are presented in **Appendix C**.

Two baseline periods are to be determined during the calculation of the base daily per capita water use. The legislation provides some flexibility in what actual periods of time are used to establish these baselines. This accounts for short-term water demand variations resulting from weather influences, as well as acknowledging the advances of water suppliers that have already begun using recycled water to reduce potable demands. The two baseline periods are:

- 10- to 15-year base period. This is a 10-year or 15-year continuous period used to calculate baseline per capita water use. The ending year must be between December 31, 2004 and December 31, 2010.

- 5-year base period. This is a continuous 5-year period used to determine whether the 2020 per capita water use target meets the legislation's minimum water use reduction requirements of at least a 5 percent reduction per capita water use. The ending year of the 5-year period must be between December 31, 2007 and December 31, 2010.

Methods 1, 2, 3, and 4 have been evaluated for District. The analysis of the four methods is described below:

- The Method 1 target for 2020 is 152 gpcd, with an interim 2015 target of 171 gpcd. Since the District's recycled water use is greater than 10 percent of 2008 retail water delivery, a 10 to 15-year baseline period can be used that ends no earlier than December 31, 2004. A 10-year period from 1999 to 2008 provides a baseline of 190 gpcd and a 2020

target of 152 gpcd as shown in Table 14. No adjustment is required since the 10-year baseline target is less than 95 percent of the 5-year baseline.

- The District does not have the detailed data on irrigated landscaped area at this time in order to calculate the Method 2 target for 2020. The District can choose to investigate Method 2 prior to preparing its 2015 UWMP, if they begin preparing estimates of landscaped area as defined by DWR. The DWR methodology restricts the landscaped area to include only landscape irrigated through dedicated or residential meters. The methodology also requires that the target be based on the water supplier's estimate of 2020 landscaped areas.

- Method 3 sets its target as 95 percent of the state hydrologic region target. The District is within the South Coast Hydrologic Unit, whose 2020 target is 149 gpcd and interim 2015 target is 157 gpcd. Ninety-five percent of the region's 2020 target is 142 gpcd, with an interim 2015 target of 157 gpcd. DWR's Guidebook allows each water supply to choose its preferred target method. Method 3 sets a water use target of 142 gpcd, which could hinder the District's ability to actually achieve this goal, because, the reduction in per capita demand is significantly increased above 20 percent. Therefore, as stated previously, the District can choose method that fits its service area and also achieves the 20 percent per capita reduction goal required in SBX 7-7.

- SBX 7-7 Provisional Method 4 Target Calculator Method 4 Calculates total savings subtracted from baseline water use. For this target method, savings are assumed between the baseline period and 2020 due to metering of unmetered water connections and achieving water conservation measures in three water use sectors. These savings include metering savings in the following sectors: residential savings, commercial, industrial, and institutional savings, and landscape and water loss savings. Water Code Section 10608.20(d) provides that DWR will update Target Method 4 by December 31, 2014. It is anticipated that improvements will be made to the target method based on new data and analytical techniques in the update. Provisional Target Method 4 described here will be in effect until the update by 2014. Using this method and the default indoor residential savings, the District's Method 4 target for 2020 is 151 gpcd, with an interim 2015 target of 171 gpcd. Using Method 4, the District's targets are essentially the same as those derived in Method 1; because, of assumptions used to derive the baseline and targets in Method 4 - Method 1 is more reliable for the District.

The District's recent per capita water use has been declining to the point where current water use already meets the 2020 target for Method 1. In Figure 3, the District's 2015 and 2020 gpcd targets are shown in relation to the District's historical gpcd demand and most recently its 2010 demand. In 2010, water use within the District was 140 gpcd. This recent decline in per capita water use is largely due to water use restrictions, increased water costs, and poor economic conditions. However, the District's effective water use awareness campaign and enhanced conservation mentality of its customers will likely result in some long-term carryover of these reduced consumption rates beyond the current drought period.

Table 14, Table 15, and Table 16 present the preliminary results of the baseline and target methodology calculations, in accordance with the Act.

Figure 3 Historical and Projected per Capita Water Use

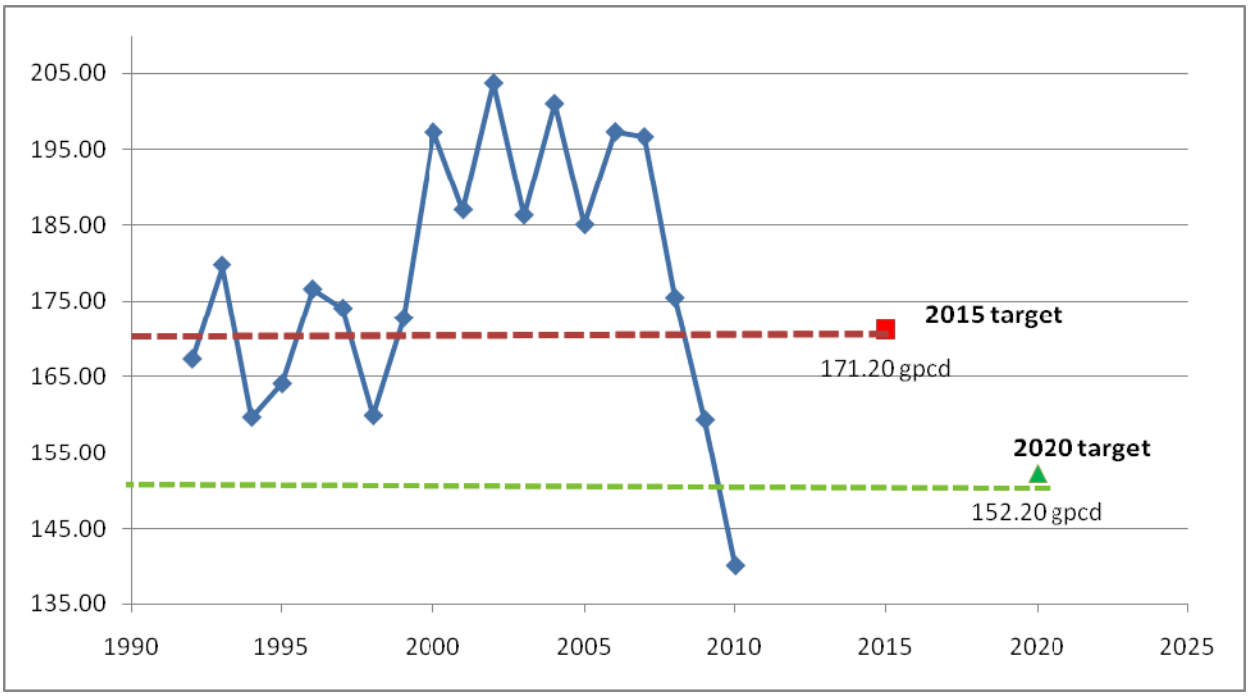


Table 14 Base period ranges

Base	Parameter	Value	Units
10- to 15-year base period	2008 total water deliveries	38,148	AF/yr
	2008 total volume of delivered recycled water	4,867	AF/yr
	2008 recycled water as a percent of total deliveries	12.8	percent
	Number of years in base period(1)	10	years
	Year beginning base period range	1999	
	Year ending base period range(2)	2008	
5-year base period	Number of years in base period	5	years
	Year beginning base period range	2004	
	Year ending base period range(3)	2008	

Notes:
(1) If the 2008 recycled water percent is less than 10 percent, then the first base period is a continuous 10-year period.
(2) The ending year must be between December 31, 2004 and December 31, 2010.
(3) The ending year must be between December 31, 2007 and December 31, 2010.
Source: Otay Water District, Water Historical Water Use Data adapted from DWR 2011 UWMP Guidebook

Table 15 Base daily per capita water use — 10-year range

Base period year		Distribution System Population	Daily system gross water use (mgd)	Annual daily per capita water use (gpcd)
Sequence Year	Fiscal Year			
Year 1	1999	131,499	22,713,422	173
Year 2	2000	135,301	26,694,071	197
Year 3	2001	143,228	26,783,247	187
Year 4	2002	155,946	31,762,527	204
Year 5	2003	165,514	30,831,575	186
Year 6	2004	172,868	34,743,573	201
Year 7	2005	181,792	33,636,751	185
Year 8	2006	186,688	36,687,966	197
Year 9	2007	190,263	37,026,137	195
Year 10	2008	193,586	34,056,786	176
Base Daily Per Capita Water Use				**190**

Source: Otay Water District, Water Historical Water Use Data adapted from DWR 2011 UWMP Guidebook

Table 16 Base daily per capita water use — 5-year range

Base period year		Distribution System Population	Daily system gross water use (mgd)	Annual daily per capita water use (gpcd)
Sequence Year	Fiscal Year			
Year 1	2004	172,868	34,743,573	201
Year 2	2005	181,792	33,636,751	185
Year 3	2006	186,688	36,687,966	197
Year 4	2007	190,263	37,026,137	195
Year 5	2008	193,586	34,056,786	176
Base Daily Per Capita Water Use				**191**

Source: Otay Water District, Water Historical Water Use Data adapted from DWR 2011 UWMP Guidebook

Pursuant to SBX 7-7, baseline per capita water use is 190 gpcd using a 10-year average beginning in FY 1999 and ending in FY 2008 and 183 gpcd using a 5-year average beginning in Fiscal Year 2004 and ending in FY 2007.

The District has adopted Method 1 to set its 2015 interim and 2020 water use targets. Method 1 requires setting the 2020 water use target to 80 percent of baseline per capita water use target as provided in the State's Draft 20x2020 Water Conservation Plan. Using the methodology in the Guidebook, Table 17 shows the interim 2015 gpcd target and the 2020 gpcd target. The District's 2015 target is 171 gpcd and the 2020 gpcd target at 80 percent of baseline is 152 gpcd.

Table 17 20x2020 Baseline and Water Conservation Target Method

20x2020 Requirement	gpcd
Baseline gpcd water use	
10-year average	190
5-year average	191
2020 Daily Water Use Target (Method 1)	
80 percent of baseline demand	152
95 percent of 5-year average	182
2015 Interim Daily Water Use Target	171
2020 Daily Water Use Target	152

Source: Otay Water District, Water Historical Water Use Data adapted by PBS&J, March 2011.

In order to confirm that the District's 20x2020 urban water use target meets the minimum water savings, it compares the 5-year baseline daily per capita water use value to the 20x2020 daily per capita urban water use target. If necessary, adjustments are made to ensure conformance. To accomplish this comparison, the Guidebook uses the following steps, first, determine if the 5-year base daily per capita water use value is less than or equal to 100 gpcd. If not, a second step is necessary. This step requires, calculating 95 percent of the 5-year average base daily per capita water use and then comparing the results to the 2020 daily per capita target.

To check conformance, 95 percent of 191 gpcd is 182 gpcd, which is greater than 100 gpcd. Following the second step guidance, the District's 2020 daily water use target of 152 gpcd is less than 182 gpcd. Therefore, the District is not required to make a target daily water use adjustment. As stated above, the District's interim 2015 target is 171 gpcd and the 2020 target is 152 gpcd.

3.6 Gallons per Capita per Day Demand Projection

The District through its on-going efforts of regional water coordination with the Water Authority has submitted its demand projections based on its gpcd calculations. Table 18 presents a linear progression of projected demand through the 2035 planning horizon. It should be noted that these projections are assumed to occur at a linear rate; however, based on market conditions changes in the development sector, specifically, new housing and commercial development accounts could alter the growth in demand projections. Table 18 shows water demand projections as a function of utilizing the 152 gpcd and population changes over the planning horizon. This is demand that is expected in all sectors including recycled water. Notably, these demands would be met by a combination of local supplies (groundwater and recycled water) and those delivered by the Water Authority.

Table 18 Gallons per Capita per Day Demand Projection - Water Use Target Method 1

	2015	2020	2025	2030	2035
Total Baseline Demand w/ SBX 7-7 gpcd Target[(1)]	44,883	46,321	49,815	52,774	56,614

(1) Target Method 1 = 152 gpcd in 2020

Source: Otay Water District, Demand Projection submitted to San Diego County Water Authority March 2011.

3.6.1 Influences of Water Demand - Issues to Watch and Monitor.

Within the District's service area, a number of factors have the potential to influence the District's overall water demand projections. Therefore, it will be important for the District to continue to monitor these potential influences and then, if necessary, add new programs and adjust its current water demand reduction programs accordingly.

3.6.1.1 Weather normalization

The summer of 2010 was recently highlighted as being the coolest in nearly 70 years, but this influence on water demand is not currently known. Currently, the CUWCC is working on a weather normalization model (weather model) to use and share with DWR. Once complete, the District will run its water usage figures through the weather model and at that point, the District can determine the full impacts of weather patterns on District-wide water use such as summer 2010. Note: Weather normalization is a component of Methodology 8, which is not yet complete (See Guidebook – Section M for a full description).

3.6.1.2 Future Growth and Economic Impacts on Water Usage

Although currently unknown, the District anticipates an increase in gpcd when the local economy recovers and population growth returns to the District as projected in Table 3. The District service area is approximately 50 percent built out but will not reach full build out until after 2040. The 2050 SANDAG forecast anticipates a doubling of current housing stock within the District's service area, which would certainly influence residential water demand. Figure 4 presents a visual representation of SANDAG's Series 12 projections that shows the potential growth over the next 40 years that could occur in the District's service area.

3.6.1.3 Growth in Commercial and Institutional Sector

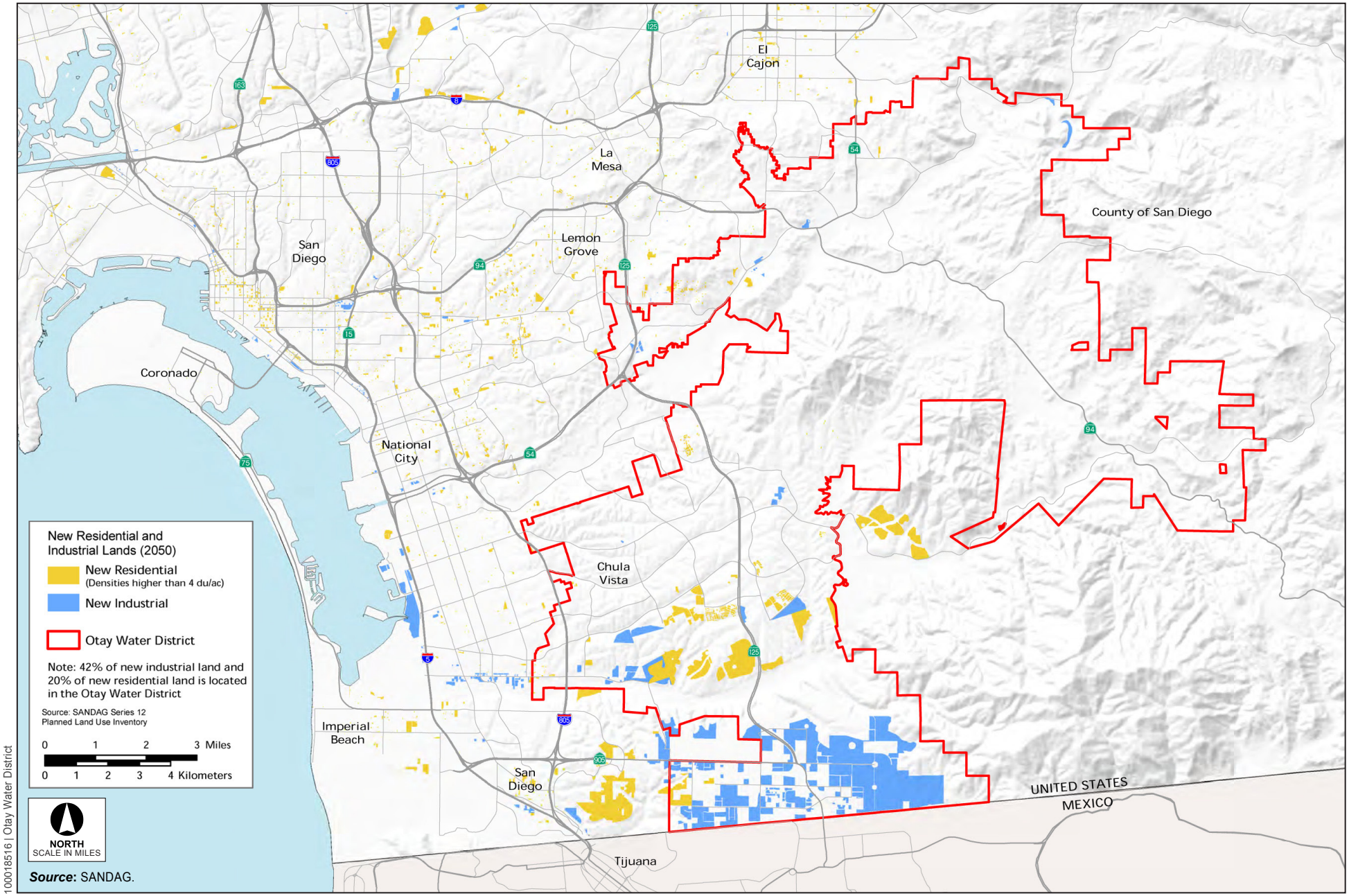
By 2050, the largest percentage of commercial and industrial growth in the San Diego region has been forecasted to occur within the District's service area. Figure 4 presents a visual representation of SANDAG's Series 12 projections that shows the potential growth over the next 40 years that could occur in the District's service area. It should be noted, that over the District's eleven year base period (FY 1997-2007), the baseline commercial/industrial/industrial (CII) water use was up to 23.77 gallons per day per employee. However, due to economic conditions, over FY's 2007-2008 and 2008-2009, CII water use averaged of 19.76 gallons per day. Therefore, the District will need to monitor CII usage closely and if applicable, will be eligible for an exemption if CII growth increases water use beyond the CII average water usage baseline.[5]

3.6.1.4 Revision of Statewide Demand Reduction Target

By December 31, 2016, DWR is required to submit a report to the California Legislature. This report may recommend that the statewide targets are adjusted in order to achieve the necessary 20 percent statewide reduction in base year water use. In fact, Legislation may also arise from this report that could potentially change the methods to achieve the 2020 target water use.

See Section 9 for the District's presentation of its Water Use Reduction Plan (page 64).

5 The baseline is calculated by taking the annual commercial and institutional water use, dividing it by the population and converting it to daily usage.



Source: SANDAG.

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Figure 4

SANDAG Series 12 Growth Projections

ATKINS

4.0 Service Area Supplies

4.1 Water Sources

This section discusses the water sources available to the District.

4.1.1 Potable Water

The District currently meets all its potable demands with imported treated water from the Water Authority. The Water Authority, as a wholesale agency, imports both raw water and treated water through separate pipelines for delivery to its member agencies in San Diego County. The Water Authority's current and future supply portfolio is discussed in more detail in its draft 2010 UWMP.

Existing potable water supply sources available to the District include the Water Authority, Helix WD, and the City of San Diego. The facilities associated with delivering water to the District from these agencies are described below.

4.1.1.1 San Diego County Water Authority

The District receives potable water from Pipeline Number 4 (Pipeline No. 4) of the Second San Diego County Aqueduct (Second SD Aqueduct) that are owned and operated by the Water Authority.

Pipeline No. 4 delivers potable water treated at the Metropolitan Skinner Water Treatment Plant (WTP) located in Riverside County. Pipeline No. 4 is the District's primary supply system. The Water Authority has multiple flow control facilities (FCFs) or connections to Pipeline No. 4 that feed into the District's water system. During normal operations, most of the District's potable demand is met with water from Pipeline No. 4.

The Water Authority does not have contractual agreements with its member agencies to guarantee flow rates or hydraulic gradients at its various FCF connections. Generally, if the Water Authority cannot obtain sufficient treated and/or raw water, or has delivery limitations for the water requests of its 24 member agencies, the Water Authority will attempt to allocate the water delivery shortfall to its member agencies on a proportional basis.

The Water Authority discourages direct service from its transmission systems, since it reduces operational flexibility, allows for the possibility of peaking on the system, and can potentially create hydraulic transients. The Water Authority has an Operational Surcharge Ordinance for the purpose of maximizing pipeline capacity and reducing potential surge pressures in its pipelines. The intent of the ordinance is to encourage member agencies to withdraw water from Water Authority pipelines at constant rates throughout the day until a revised order is placed with operations personnel. Surcharges may be imposed for delivered flows that vary by more than 10 percent of the daily flows requested at each FCF.

4.1.1.1.1 San Diego County Water Authority and Otay Water District - Otay 14 Flow Control Facility Modification.

The District entered into the Otay 14 Flow Control Facility Modification Agreement on January 24, 2007 with the Water Authority to increase the physical capacity of the Otay 14 Flow Control Facility. This recently negotiated agreement provides for a water supply delivery of 12 mgd on-

peak, and 16 mgd off-peak. The Water Authority and the District shared the capital cost to expand its capacity from the existing 8 mgd to 16 mgd.

The transmission main project constructed about 26,000 feet of a 36-inch diameter steel pipeline from the Otay 14 Flow Control Facility to the 640-1 and 640-2 Reservoirs project. The new Otay 14 Flow Control Facility can provide at least 12 mgd of on-peak capacity and 16 mgd of off-peak capacity. Construction of both of these projects was completed in October 2010.

Historically, the District has considered its supply of water from the Levy WTP to be an alternative source for use when the Water Authority Pipeline No. 4 is out of service. However, the District now anticipates transitioning its use of the Levy WTP supply to more of a baseload use at delivery rates of up to its 16 mgd off-peak entitlements. The District will reduce its use of the Water Authority Pipeline No. 4 FCF connection (Otay 11 FCF), while maintaining full redundant capacity in these connections.

4.1.1.2 Helix Water District

The District's planning objective is to have sufficient capacity through Pipeline No. 4 to meet ultimate demands. However, the District has entered into arrangements with the Water Authority and neighboring water agencies to provide potable water to its northern service area during periods when supply from Pipeline No. 4 is unavailable. One of these arrangements is based on a 1976 policy adopted by the Water Authority's Board of Directors. In addition, the District entered into another agreement with the Water Authority, known as the East County Regional Treated Water Improvement Program (ECRTWIP Agreement). The ECRTWIP Agreement provides for transmission of raw water to the Helix Water District's R. M. Levy WTP for treatment and delivery to the District. The ECRTWIP Agreement allows access to the region's raw water supply system and also provides treatment at the local facility. The District is required to take a minimum of 10,000 AF/yr of treated water (8.9 mgd) from the R.M. Levy WTP. This supply system facilities within the ECRTWIP Agreement consists of typical transmission, pumping, storage, flow control, and appurtenances to receive and transport the potable water from the R. M. Levy WTP.

4.1.1.3 City of San Diego

Through a 1999 agreement with the City of San Diego, the District may obtain up to 10 mgd of supply from the City's Otay WTP. The Otay WTP was originally constructed in 1940, and has a current rated capacity of 34.4 mgd. The Otay WTP has hydraulic capacity to increase to 40 mgd in the future. In order to do so, approval is required from the California Department of Public Health (CDPH) and would require a treatment process study (High Filtration Rate Study). The City of San Diego's typical demand for treated water from the Otay WTP is approximately 20 mgd. Under the terms of the agreement, the City's obligation to supply treated water to the District is contingent upon its surplus treatment capacity, beyond what the City needs for its own area system.

The agreement also provides the District with the option of funding an expansion of the Otay WTP in return for additional capacity rights. Although in the past the City has planned for expansion of the plant to a capacity of 60 mgd, the City currently has no committed plans or budget for expansion of the plant.

The District does not currently have permanent facilities in place to take delivery of water from the Otay WTP; instead a temporary "Lower Otay PS" conveys flows to an Otay Interconnect.

The District has completed the design of a permanent Lower Otay PS (LOPS), but has yet to start construction of the facility.

The District considers the supply of water from the Otay WTP to be an alternative source for use in the South District area system when the Water Authority Pipeline No. 4 is out of service. Use of this water in the North District would be dependent on the District completing the construction of the remaining portion of the planned South-to-North interconnection and transmission facilities. As of April 2011, design activities are underway; construction has yet to begin.

The agreement with the City of San Diego for potable water from the Otay WTP is included in **Appendix D**.

4.1.1.4 Emergency Supplies

The District has established a goal to sustain a 10-day outage of supply from the Water Authority Pipeline No. 4 at any time of the year without a reduction in service level. The District seeks to obtain this level of supply reliability through the development of alternative water supplies, through agreements with neighboring water districts, and through treated water storage.

For emergency events longer than the 10-day aqueduct shutdowns noted previously, the District will utilize emergency supplies developed by the Water Authority's Emergency Storage Project (ESP). The ESP is designed to provide treated water service to all Water Authority member agencies during a two-month interruption in service of imported water deliveries into San Diego County. The ESP is sized to deliver up to 75 percent of each agency's peak two-month summer demand. The key facilities of the ESP include the Olivenhain Dam and Conveyance System, the Lake Hodges Interconnect, the San Vicente-Miramar Pipeline, and the expansion of San Vicente Reservoir.

4.1.2 Recycled Supply

The District has two sources of recycled water supply: Recycled water produced locally at the District's Ralph W. Chapman Water Recycling Facility (RWCWRF) and a recycled water supply produced at the City of San Diego's South Bay Water Reclamation Plant (SBWRP). The RWCWRF is located near the intersection of Campo Road/Highway 94 and Singer Lane within the Middle Sweetwater River basin. The RWCWRF was originally constructed in 1979 and upgraded in 1990. It has a rated design capacity of 1.3 mgd.

The agencies that participate in recycled water planning for the District's service area are as follows:

- Otay Water District - Owns and operates RWCWRF and the recycled water distribution network
- City of San Diego Metropolitan Wastewater Department (MWWD) - Owns and operates regional interceptors, SBWRP, and Point Loma WTP

The RWCWRF provides tertiary treatment that meets the State of California's Title 22 requirements for reuse. Effluent from the plant is pumped to lined and covered reservoirs in the District's property located north of Proctor Valley Road adjacent to the Rolling Hills Ranch Development project.

In order to serve the District's existing demand for recycled water without supplementing with potable water, the District entered into an agreement to purchase recycled water from the City of San Diego's SBWRP. The SBWRP has a rated capacity of 15 mgd and is located at Monument and Dairy Mart Roads near the international border, adjacent to the Tijuana River. The SBWRP receives wastewater flow from the Grove Avenue Pump Station that scalps flow from the existing interceptor system that conveys flow northward to the Point Loma Treatment Plant for treatment and ocean outfall disposal. The existing interceptor system flows are thereby reduced freeing up additional capacity for future growth in the South Bay region. The SBWRP in essence is a scalping plant and is designed for a relatively constant flow rate depending upon recycled water demands and interceptor capacity limitations.

The agreement between the District and the City of San Diego for purchase of recycled water from the SBWRP was finalized on October 20, 2003. In accordance with the agreement, the City of San Diego will provide an annual amount of at least 6 mgd of recycled water to District. The term of the agreement is 20 years from January 1, 2007. The agreement with the City of San Diego for water from the SBWRP is included in **Appendix E**. The City of San Diego has agreed to meet all applicable federal, state and local health and water quality requirements for recycled water produced at the SBWRP to the point of delivery. The point of delivery is located at the intersection of Dairy Mart Road and Camino de la Plaza. As part of the agreement, the District has constructed a 30-inch transmission main to deliver the recycled water from the point of delivery to the District. The City of San Diego has retained 1 mgd of capacity in this transmission pipeline that runs through the City of San Diego's system.

The District's total current and planned supplies are shown in Table 19. The values given for 2010 are actual deliveries based on the District's data inputs for its CUWCC 2010 reports. After 2010, projected supplies are based on growth projections (with near-term annexations) in the District's service area as forecasted by SANDAG Series 12. Refer to Table 6 (Potable Water Deliveries - projected) and Table 7 (Customer Growth – projected).

Table 19 Water supplies — current and projected (AF)

Water purchased from:	Wholesaler supplied volume (yes/no)	Actual	Projected Supplies				
		2010	2015	2020	2025	2030	2035
Water Authority	Yes	29,270	44,883	53,768	63,811	70,669	77,171
Recycled Water	No	4,074	4,400	5,000	5,800	6,800	8,000
Total Supplies		33,344	40,483	48,768	58,011	63,869	69,171

Note: Water Authority supplies based on 2020 target demands and additional conservation targets.

4.2 Recycled Water

4.2.1 Wastewater Collection & Treatment

Wastewater collection services within the Middle Sweetwater River basin, known as the Jamacha Basin, are provided by two agencies, the Otay Water District and the Spring Valley Sanitation District (SVSD), which is operated by the County of San Diego. Current wastewater collection system flows for both agencies total approximately 2.04 mgd average dry weather flow (ADWF), of which approximately 1.3 mgd is diverted to the RWCWRF. Approximately 1.36 mgd is collected from District customers and 0.68 mgd is collected from SVSD customers.

The RWCWRF has the ability to produce approximately 1.3 mgd of recycled water meeting Title 22 requirements. The RWCWRF is a scalping treatment facility: wastewater that is not treated by the facility for beneficial reuse continues to flow in the Rancho San Diego Outfall Facilities to the City of San Diego Metropolitan Wastewater System. Some of this wastewater is treated by MWWD at its SBWRP at the secondary level, and the remainder is sent to the Point Loma Wastewater Treatment Plant for treatment at the advanced primary level and disposed through an ocean outfall. At RWCWRF, tertiary treatment of the 1.3 mgd has the ability to reliably produce approximately 1,100 AF/yr of recycled water. The estimated annual treated flow is shown in Table 20.

Table 20 Recycled water — wastewater collection and treatment (AF)

Type of Wastewater	2010	2015	2020	2025	2030	2035
Wastewater collected & treated in service area	3,047	3,081	3,137	3,181	3,215	2,285
Volume that meets recycled water standard	1,033	1,100	1,100	1,100	1,100	1,100

Source: SVSD Rancho San Diego Pump Station Sewer Flow Projection Study, PBS&J, April 2010.

Table 21 summarizes the estimated wastewater treated by other agencies.

Table 21 Recycled water — non-recycled wastewater disposal (AF)

Method of Disposal	Treatment Level	2010	2015	2020	2025	2030
City of San Diego Metropolitan Wastewater System	Secondary/advanced primary	835	1,597	1,631	1,687	1,731

4.2.2 Recycled Water Uses

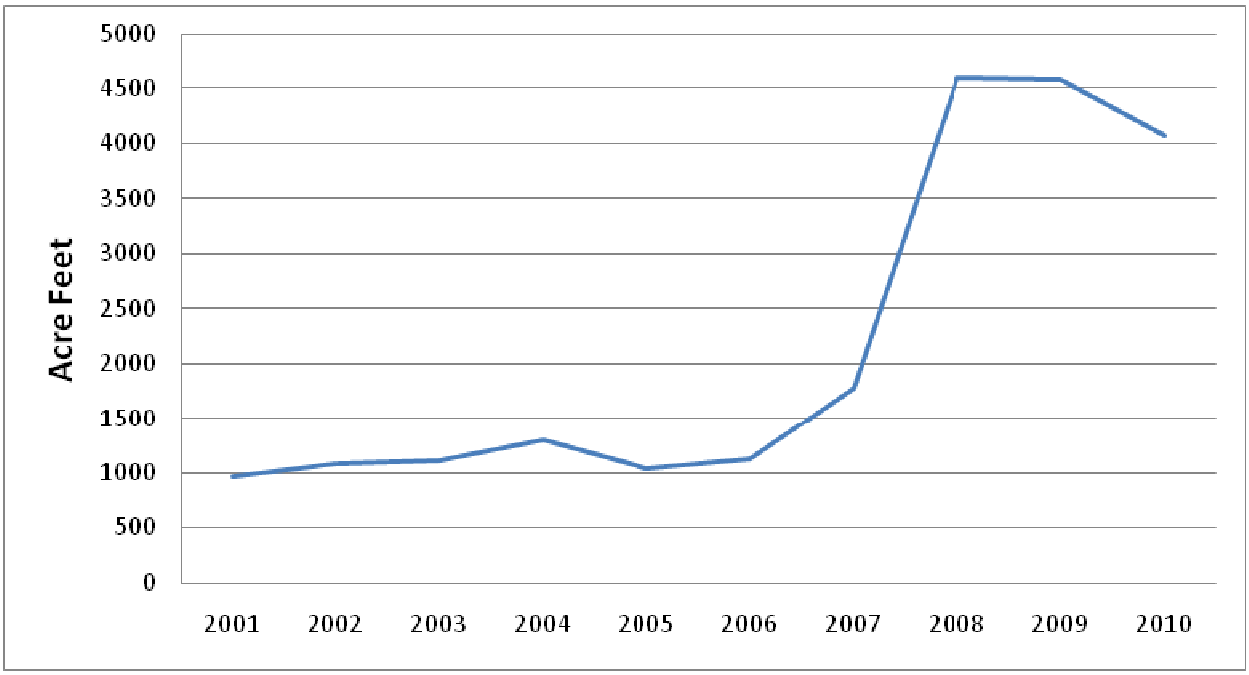
Currently, there are 684 customers receiving recycled water produced from the RWCWRF. Figure 5 shows a progression of recycled water use within the District's service area. In 2010, approximately 4,074 AF of recycled water was supplied to recycled water users. Current uses consist primarily of commercial landscape irrigation, golf course irrigation, and irrigation of public places like parks, streetscapes, schools, highway medians, and open space areas. The Olympic Training Center facility in Chula Vista also uses recycled water to irrigate practice fields and common areas around the campus. These users collectively demand more water than the output of RWCWRF, and the District uses recycled water from the City of San Diego's SBWRP to supplement the recycled system.

The District's 2005 UWMP discussed the use of recycled water from RWCWRF to meet non-potable demands. The District's 2010 recycled water use compared to FY 2005 is summarized in Table 22.

Table 22 Recycled water — 2005 UWMP use projection compared to 2010 actual (AF)

Use type	2010 actual use	2005 Projection for 2010
Landscape irrigation	4,000	4,040
Total	4,000	4,040

Figure 5 Otay Water District Recycled Water Use



4.2.3 Potential Uses of Recycled Water

The District's service area is still experiencing growth and development in the geographic area where recycled water is approved for use. Expansion of the District's recycled water system is critical to reducing demands on imported water. Areas with the greatest potential for expansion include the existing Central Area, the Otay Mesa area, and the North District area. The District anticipates maximizing the use of recycled water by converting large potable irrigation users to recycled water and continuing to require new developments within the District to use recycled water, wherever feasible.

The District's 2008 WRMP (Update November 2010) included an assessment of current and future demand for recycled water based on approved Subarea Master Plans or water studies. For areas without development plans, the projected water demand for the District at ultimate development was determined by applying irrigated area percentages and recycled water irrigation duty factors. Most of the currently identified uses are for outdoor irrigation. Other opportunities for the expanded uses of recycled water are being examined, including but not limited to wetlands and other habitat restoration, groundwater recharge, brackish water intrusion barriers and industrial process water. The East Mesa Private detention facility in Otay Mesa was constructed with a dual distribution system to allow the use of recycled water for toilet flushing. When the District's recycled water system is expanded to serve this area, the East Mesa Private detention facility will be served with recycled water.

A significant potential recycled water market may develop across the international border resulting from manufacturing or other activities in Mexico. Also, significant recycled water demands could become a possibility on Otay Mesa from pharmaceutical manufacturing or other types of industrial processes. The District may also want to consider extending its Otay Mesa

recycled water service to City of San Diego customers in west Otay Mesa. The City of San Diego currently has no plans to extend its recycled water system into west Otay Mesa; however, this area will be experiencing growth and increased water demands. Recycled water service in west Otay Mesa could benefit both the District and the City of San Diego. The data presented in this UWMP does not include these possibilities.

4.2.3.1 North District Recycled Water Concept Project

The District continues the quest to investigate all viable opportunities to expand the successful recycled water program into areas that are not currently served. One of these areas is in the portion of the service area designated as the North District, located within the Middle Sweetwater River Basin watershed upstream of the Sweetwater River. The close proximity of the recycled water markets in the North District to the District's water reclamation facility means that the distribution system to serve this area could be constructed relatively cost effectively. Therefore, the North District is a logical location for the expansion of the recycled water system and market area.

The Phase I study components of the North District Recycled Water Project (NDRWP) encompassed the preparation of six technical memorandums including the project definition, a discussion of the regulatory process, a discussion of the protection of the watershed that would be affected by recycled water use in the North District, identification of stakeholders, public outreach, and an implementation plan.

Implementation of the NDRWP would result in a reduction of 800 AF/yr of demand on the potable water system and maximizing recycled water resources which in turn minimizes treated wastewater discharges to the local ocean outfall. Other opportunities are a possible partnership with Sweetwater Authority to monitor any benefits and impacts of increased recycled water use in the watershed and stakeholder outreach to resolve any water quality concerns and to retain consumer confidence. Two major constraints associated with the NDRWP include: 1) water quality objectives for the Middle Sweetwater Basin that will affect the effluent limitations for the recycled water produced at the water reclamation facility, and 2) the cost of the infrastructure needed to convey and store recycled water in the North District.

There are two additional phases proposed for the NDRWP. Phase II would include further investigation of the issues identified in Phase I as requiring further study. These include stakeholder outreach, regulatory issues, and facility planning. The third phase of the effort would include the facility planning, permitting, environmental compliance, design, and construction of the improvements necessary for delivery of recycled water to the North District markets.

4.2.3.2 Otay Mesa Recycled Water System Link

This project is intended to plan, design, and construct the conveyance, distribution, and storage facilities to link the District's two recycled water supply sources to the existing and future customers on Otay Mesa. Projected ultimate annual average demand for recycled water on Otay Mesa is 1,658 AF/yr and the existing demand (FY 2008) for recycled water is about 300 AF/yr. The 300 AF/yr is currently being supplied with imported treated water.

4.2.3.3 Potable Irrigation Meters to Recycled Water Conversions

The existing multi-family, commercial, and industrial development customer accounts are good candidates to separate outside landscape irrigation uses from indoor uses. A project has been developed to proceed with implementation of the concept. The irrigation system retrofits will require Board approval of a capital improvement program project budget, customer outreach, research of existing onsite irrigation system configuration, irrigation system supply redesign, CDPH approval, service lateral and meter installation, inspection, testing, and customer billing account modification.

The District's existing Code of Ordinances requires outside or landscape irrigation systems for multi-family, commercial, and industrial development projects to have a separate service and water meter under specific conditions, as noted below:

- Commercial Parcels - 5,000 square feet or Larger Irrigated Landscape - When a customer requests water service on a parcel of land with irrigated landscape equal to 5,000 square feet or more, a separate meter is required for irrigation purposes on the site.

- Reclaimed Water Service Areas - In areas designated as reclaimed water service areas, the customer shall be required to install a separate reclaimed water service lateral and meter to supply irrigation to the parcel.

The District is continuing to pursue the potable water to recycled water conversion opportunity to save 100 to 200 AF/yr.

Due to regulatory or financial constraints, there are a number of potential uses of recycled water that were not considered for conversion. The 2008 WRMP (Update November 2010) concluded that the use of recycled water for irrigation of single-family dwelling landscapes was not considered as a viable, cost effective recycled water market, and although this use is allowed in other parts of California, the local health departments have expressed concerns regarding public health and safety of individual homeowners operating their own irrigation systems. However, the District may want to continue to pursue this opportunity as regulatory changes may allow this use to occur in the future.

The identified potential uses for recycled water are shown in Table 23. Potential recycled water demands are based on ultimate projections from the 2008 WRMP (Update November 2010) and distributed from 2015 through 2030.

Table 23 Recycled water — potential future use (AF)

User Type	Description	Feasibility	2015	2020	2025	2030
Landscape irrigation	North District Recycled Water Concept Project, Potable Irrigation Meters		250	500	750	1,000
Commercial irrigation	Otay Mesa Recycled Water System Link		300	753	1,205	1,658
Energy Plant	Calpine, Pio Pico Energy Plants		112	223	595	446
Total			1,409	662	1,476	2,550

Source: District 2008 WRMP (Update November 2010) and conversations with District staff.

4.2.4 Proposed Actions to Encourage Use of Recycled Water

The District made the commitment and commenced its wastewater recycling efforts over 15 years ago. A major component of the commitment to recycle was to enact an ordinance that requires recycled water be used for any and all appropriate and approved non-potable uses. The requirement continues today, with all new applications for water service being reviewed for opportunities to use recycled water. The District has also established financial incentives for the use of recycled water within its service area. The District's Code of Ordinance Section 26 details the requirements for the use of recycled water whenever feasible. The incentives for using recycled water are available in Section 26 of the Code of Ordinance (**Appendix F)**. While the District does offer financial incentives to use recycled water in place of potable water, current irrigation customers may be hesitant to convert to recycled water use due to retrofit costs. Because of this, it is uncertain how many customers will switch to recycled water in the future or how much potable demand may be reduced from increased recycled water use.

4.3 Groundwater

The District as part of its water supply portfolio has not used local groundwater to meet any of its demands in the last 5 years (2006-2010) (see Table 24). Although groundwater supplies are less plentiful in the San Diego region than in some other areas of southern California, sufficient undeveloped supplies may exist to help meet a small portion of the region's future water needs. In the past, the District has studied numerous groundwater options with mixed results.

Table 24 Groundwater — volume pumped (AF)

San Diego Formation	Metered or Unmetered	2006	2007	2008	2009	2010
Rancho Del Rey		0	0	0	0	0
Groundwater as a percent of total water supply		0.0%	0.0%	0.0%	0.0%	0.0%

Both the geology and the semi-arid hydrologic conditions of the region limit groundwater supplies within the service area. Narrow river valleys with shallow alluvial deposits are characteristic of some of the more productive groundwater basins. Additionally, irrigation with saline imported water and over-pumping has led to excessive salinity in many of the most promising basins. Outside of these alluvial basins, much of the geology consists of fractured crystalline bedrock and fine-grained sedimentary deposits that are generally capable of yielding only small amounts of groundwater to domestic wells.

The District is investigating the potential for developing local groundwater to reduce its dependence on imported water. As illustrated in Table 25, for water supply planning purposes, the District anticipates adding groundwater pumped from the Rancho del Rey well into its water supply portfolio. Although the quantity is limited to 500 AF/yr these supplies could be used in future years to bolster the District's reliability within its local supply portfolio. It should be noted that these groundwater supplies are not considered "verifiable" local supplies by the Water Authority because all the necessary documentation is still outstanding. As such, these groundwater supplies are not carried through in Section 5. Future groundwater projects are discussed in more detail in Section 4.5 (Planned Water Supply Projects and Programs).

Table 25 Groundwater — volume projected to be pumped (AF)

San Diego Formation	2015	2020	2025	2030	2035
Rancho Del Rey(1)	500	500	500	500	500
Percent of total water supply	1.2%	1.2%	1.1%	1.1%	1.0%

Note:
(1) Considered as Additional Planned supplies for CWA water planning purposes and used as supplies in Section 5.
Source: Rancho del Rey studies and personal communication with District staff

4.4 Transfer or Exchange Opportunities

The District currently has arrangements to receive water from the Water Authority (through the Helix WD) and the City of San Diego in times when its normal treated supply from Pipeline No. 4 is limited or curtailed. These connections are for use during emergencies or during planned interruptions in the supply of treated water from Pipeline No. 4. The water provided by these agencies, in most cases, will still be imported water from the Water Authority. However, the agreements to receive treated water from the Water Authority (through the Helix WD) and the City of San Diego help decrease the District's vulnerability to outages in Pipeline No. 4.

At the wholesale level, the Water Authority has engaged in a transfer with the IID. Under this agreement, water conserved by IID will be transported by Metropolitan through the Colorado River Aqueduct and delivered to the Water Authority. Further information about this agreement can be found in the Water Authority's 2010 UWMP.

Table 26 Transfer and exchange opportunities (AF)

Transfer Agency	Transfer or exchange	Short term or long term	Proposed Volume
Helix Water District	Emergency transfer	Short term	13,500
City of San Diego	Emergency transfer	Short term	11,200
Total			24,700

Source: District 2008 WRMP (Update November 2010)

4.5 Planned Water Supply Projects and Programs

In 2007, the District completed an Integrated Water Resources Plan (IRP) which examined potential, future supply options and its performance with regard to long-term, comprehensive water resource objectives. The 2007 IRP provides a comprehensive and defensible implementation strategy to meet the District's water supply objectives, while allowing flexibility in adapting to anticipated changes in the water industry, market and regulatory conditions. The IRP proposes a phased implementation of projects from now to 2030 to meet growing future water demands, while making adjustments as necessary to respond to changing technology, supply levels, regulations, market conditions, costs, and partnership opportunities.

The overall implementation strategy developed in the IRP is intended to assist the District in addressing uncertainties surrounding future water supply by reducing dependence on imported sources. The IRP concludes that implementation of the plan will support the District in attaining its multiple objectives of achieving reliability, maintaining affordability, increasing flexibility, increasing diversity, and addressing environmental and institutional constraints.

The IRP identified eight (8) supply options, including water conservation, groundwater development, desalination, recycled water, additional imported water alternatives, and regional water banking and transfers. Within these eight (8) source categories, the IRP assessed 27 individual water supply project options in terms of costs and non-monetary factors. Upon screening for feasibility, the IRP reduced the number of options from 27 to 23. These options were integrated into a set of eight (8) alternative water supply strategies, termed portfolios, addressing established District objectives by considering various arrangements and timing. The District then selected from these portfolios to identify an implementation path or roadmap to keep the District on track in accomplishing long-term goals, while strategically making investments only if and when necessary.

The IRP recommended the following short-term and long-range projects for implementation. The short-term actions are intended to serve as a foundation for possible implementation of one or more of the recommended long-range projects.

Short-Term

- Additional conservation (water use efficiency) measures, such as those listed in Section 8 of this 2010 UWMP
- SD17 agreement with City of San Diego to treat raw water at Alvarado WTP
- Additional purchases from recycled water from the SBWRP
- North District Recycled Water Project
- Water banking agreements

Long-Range (2010-2030)

- Central Valley and Land Fallowing Transfers
- Groundwater projects (Demineralization and Conjunctive Use)
- Ocean Desalination (Poseidon, Sweetwater/SD South Bay, located in Rosarito, Mexico, or other similar projects)
- Stripping (Scalping) Plant along the County of San Diego's Spring Valley Trunk Sewer
- North of Delta Transfers

In evaluating the availability of sufficient water supply, new development project proponents who anticipate a water demand that exceeds what was planned for that area are required to acquire a water supply source and/or participate in the development of alternative water supply projects to offset the anticipated additional demand. These new water supply projects are in response to the regional water supply issues related to the Sacramento-San Joaquin Delta and the current ongoing western states drought conditions. They are in various states of the planning process and are intended to increase water supplies to serve new development project water supply needs. It is anticipated that future Water Management Plans prepared by the District, the Water Authority, and Metropolitan will include any increases in water demand associated with adopted changes in land use, as well as any new local water supply resources, and will provide the planning tools necessary to ensure a water supply plan to meet the needs of future planned development. However, until those plans are adopted, it is necessary to address the current regional water supply shortage by offsetting projected increases in water demands with local

water supply offset projects. The following future water supply projects summarized in Table 27 have been proposed and the current status of each is described in the paragraphs below.

Table 27 Future water supply projects (AF)

Project name[1]	Projected start date	Projected completion date	Potential project constraints	Normal-year supply	Single-dry year supply	Multiple-dry year first year supply	Multiple-dry year second year supply	Multiple-dry year third year supply
Rancho Del Rey Groundwater Well	2010	2015	In design[2]	500	500	500	500	500
Middle Sweetwater River Basin Groundwater Well	2025	2030	conceptual	1,000	1,000	1,000	1,000	1,000
Otay Mesa Lot 7 Groundwater Well	2025	2030	conceptual	400	400	400	400	400
Otay Water District Desalination Project	2010	2015	conceptual	20,000	20,000	20,000	20,000	20,000
Total				21,900	21,900	21,900	21,900	21,900

(1) Otay Water District Water Resources Master Plan 2008, Updated November 2010.
(2) Considered as Additional Planned supplies for CWA water planning purposes and used as supplies in Section 5.
Source: Personal Conversation with Otay Water District staff. January – March 2011

4.5.1 Rancho del Rey Groundwater Well

In 1991, the McMillin Development Company drilled the Rancho del Rey Groundwater Well to augment grading water supplies for its Rancho del Rey development projects. Although the well was considered a “good producer,” little was known regarding its water quality and sustainable yield because the water was used solely for earthwork (i.e. dust control and soil compaction). The well was drilled to 865 feet, with a finished depth of 830 feet and produced approximately 400 AF/yr of low quality water for four years until its use was discontinued in April 1995 when the well was no longer needed. McMillin notified the District of its intent to sell off the groundwater well asset.

In 1997, the District purchased an existing 7-inch well and the surrounding property on Rancho del Rey Parkway from the McMillin Company with the intent to develop it as a source of potable water. Treatment was required to remove salts and boron, among other constituents, using reverse osmosis membranes and ion exchange.

In 2000, having received proposals for the design and construction of a reverse osmosis treatment facility that far exceeded the allocated budget, the Board of Directors instructed staff to suspend the project until such time as it became economically viable.

In January 2010, citing the rising cost of imported water and the District's interest in securing its own water source for long-term supply reliability, the Board authorized Phase 1 for drilling and development of the Rancho del Rey Well.

In September 2010, a new 12-inch production well was drilled to 900 feet through the groundwater formation and into fractured bedrock. Testing showed the long-term yield of the

new well to be 450 gpm, higher than previous studies had estimated. Separation Processes, Inc. (SPI), a highly qualified membrane treatment firm, was hired to conduct a detailed economic feasibility study to confirm that the annualized unit cost of the new water source was economically competitive with other sources. The economic study estimated the unit cost of water to be $1,510 per acre-foot for an alternative that utilizes a seawater membrane for treating both salts and boron. When compared with the current imported treated water rate from the Water Authority, and with the knowledge that this rate will continually increase as Metropolitan and the Water Authority raise its rates, the Rancho del Rey Well project appears to be economically viable.

The District is continuing to pursue the Rancho del Rey groundwater well opportunity with due consideration of the recommendations of the existing reports and plans to develop a groundwater well production facility to extract approximately 500 AF/yr. For water planning purposes, production of groundwater from the Rancho del Rey well is considered “additional planned” for local supplies. During preparation of this 2010 UWMP, the District has contracted for design services for the wellhead treatment facilities.

4.5.1.1 San Diego Groundwater Basin Description

The Rancho Del Rey well is located within the Lower Sweetwater Hydrologic Area (HA 909.10), and develops supply from what is believed to be the eastern edge of the San Diego Formation. The San Diego Formation is comprised of thick semi-consolidated and unconsolidated older sediments that underlie a large portion of San Diego, National City, and Chula Vista. The Formation extends to depths of 1000 feet or more, and is characterized by complex geology with extreme vertical and horizontal non-uniformity. The San Diego Formation extends eastward to the Rose Canyon and La Naçion faults, but the western, northern, and southern boundaries of the aquifer are less well documented.

Little is known about the recharge sources of the San Diego Formation, and overdraft and seawater intrusion implications are yet to be assessed. In 2001, the U.S. Geological Survey, City of San Diego, the District, Sweetwater Authority, and San Diego County Water Authority engaged in a long-term, multi-phase study of the San Diego Formation aimed at: (1) achieving better understanding of the San Diego Formation hydrogeology; and, (2) assessing the potential for additional groundwater extraction and recharge.

Both the Sweetwater Hydrologic Area and the San Diego Formation are unadjudicated and neither has an adopted groundwater management plan. Sweetwater Authority in 2001, however, adopted an interim groundwater management plan for the San Diego Formation that limits groundwater production to prevent seawater intrusion and land subsidence.

4.5.2 Middle Sweetwater River Basin Groundwater Well Project

The Middle Sweetwater River Basin Groundwater Well is an additional water supply project that was thoroughly studied and documented in the 1990s. The Middle Sweetwater River Basin is located within the Sweetwater River watershed and that reach of the river extends from Sweetwater Reservoir to the upstream Loveland Reservoir. The next step in development of the Middle Sweetwater River Basin Groundwater Well is the implementation of a pilot well project. The ultimate objective of the District is to develop a groundwater well production system within the Middle Sweetwater River Basin capable of producing a sustainable yield of potable water as a local supply.

The purpose of the Middle Sweetwater River Basin Groundwater Well Pilot project is to identify the feasibility of developing a groundwater resource production system and then determine and assess any limitations or constraints that may arise. The Middle Sweetwater River Basin Groundwater Well Pilot Project will accomplish six primary goals:

- Update project setting
- Update applicable project alternatives analysis
- Prepare groundwater well pilot project implementation plan
- Construct and test pilot monitoring and extraction wells
- Provide recommendations regarding costs and feasibility to develop a groundwater well production system within the Middle Sweetwater River Basin capable of producing a sustainable yield of potable water
- Prepare groundwater well production project implementation plan and scope of work

The groundwater conjunctive use concept is described as the extraction of the quantity of water from the groundwater basin that was placed there by customers of the District, Helix WD, and Padre Dam MWD by means of its use of imported treated water that contributed to the overall volume of groundwater within the basin. An estimated quantity was developed to be approximately 12.5 percent of the total consumption of the District customers within that basin, as measured by water meters. In the 1994-1995 period, the quantity of water that was returned to the groundwater basin by District customers was estimated to be 810 AF/yr. Currently, that 12.5 percent quantity could be on the order of 1,000 AF/yr. A scope of work addresses this concept while further development of the groundwater basin as an additional supply resource is appropriately considered. If it is deemed that a Middle Sweetwater River Basin Groundwater Well Production Project is viable then the consultant will develop and provide a groundwater well production project implementation plan, cost estimate, and related scope of work.

Further development of the groundwater basin to enhance the total groundwater production could be accomplished by the District by means of additional extraction of water from the basin that is placed there by means of either injection and/or spreading basins using imported untreated water as the resource supply. The existing La Mesa Sweetwater Extension Pipeline, owned by the Water Authority, once converted to an untreated water delivery system, could be the conveyance system to transport untreated water for groundwater recharge in support of this conjunctive use concept. These two distinct water resource supply conjunctive use concepts will be addressed so they may coexist and to allow development in separate phases.

4.5.3 Otay Mesa Lot 7 Groundwater Well

In early 2001 the District was approached by a landowner representative about possible interest in purchasing an existing well or alternatively, acquiring groundwater supplied from the well located on Otay Mesa. The then-landowner, National Enterprises, Inc., reportedly stated that the well could produce 3,200 AF/yr with little or no treatment required prior to introducing the water into the District potable water system or alternatively, the recycled water system. In March 2001 authorization to proceed with testing of the Otay Mesa Lot 7 Groundwater Well was obtained and the District proceeded with the investigation of this potential groundwater supply opportunity.

In May 2001 an investigation was conducted to assess the Otay Mesa Lot 7 Well. The scope of work included a geohydrologic evaluation of the well, analyses of the water quality samples, management and review of the well video log, and documentation of well pump testing. The primary findings, as documented in the "Otay Mesa Lot 7 Well Investigation" report, formed the basis of the following recommendations:

- For the existing well to be used as a potable water supply resource, a sanitary seal must be installed in accordance with the CDPH guidelines.
- Drawdown in the well must be limited to avoid the possibility of collapsing the casing.
- Recovery from pumping drawdown is slow and extraction would need to be terminated for up to 2 days to allow for groundwater level recovery.
- The well water would need to be treated and/or blended with potable water prior to introduction into the potable water distribution system.

The existing Otay Mesa Lot 7 Well, based upon the above findings was determined not to be a reliable municipal supply of potable water and that better water quality and quantity could be discovered deeper or at an alternative location within the San Diego Formation.

The District may still continue to pursue the Otay Mesa groundwater well opportunity with due consideration of the recommendations of the existing report. Based on the recommendations of the investigation report, a groundwater well production facility at Otay Mesa Lot 7 could realistically extract approximately 300 AF/yr.

4.5.4 Otay Water District Desalination Project

The District is currently investigating the feasibility of purchasing desalinated water from a seawater reverse osmosis plant that is planned to be located in Rosarito, Mexico, known as the Otay Water District Desalination (Desalination) project. The treatment facility is intended to be designed, constructed, and operated in Mexico by a third party. The District's draft Desalination Feasibility Study, prepared in 2008discusses the likely issues to be considered in terms of water treatment and monitoring, potential conveyance options within the United States from the international border to potential delivery points, and environmental, institutional, and permitting considerations for the District to import the Desalination project product water as a new local water supply resource.

While the treatment facility for the Desalination project will likely not be designed or operated by the District as the lead agency, it is important that the District maintain involvement with the planning, design, and construction of the facility to ensure that the implemented processes provide a product water of acceptable quality for distribution and use within the District's system as well as in other regional agencies' systems that may use the product water, i.e. City of San Diego, the Water Authority, etc. A seawater reverse osmosis treatment plant removes constituents of concern from the seawater, producing a water quality that far exceeds established United States and California drinking water regulations for most parameters, however, a two-pass treatment system may be required to meet acceptable concentrations of boron and chlorides, similar to the levels seen within the existing District supply sources. The Desalination Feasibility Study addresses product water quality that is considered acceptable for public health and distribution.

The District or any other potential participating agencies will be required to get approval from the CDPH in order to use the desalinated seawater as a water source. Several alternative approaches are identified for getting this approval including certification of the desalination project in Mexico by CDPH, and disinfection treatment only in the United States, and receiving a waiver of specific filtration requirements through CDPH. It should be noted, that these alternatives all vary in cost and also meeting the necessary CDPH approvals.

The District is proceeding with negotiations among the parties to establish water supply resource acquisition terms through development of a Principles of Understanding document.

5.0 Water Service Reliability

5.1 Reliability of Supply

The Act states that every urban water supplier shall include, as part of its plan, an assessment of the reliability of its water supplies. The water supply and demand assessment must compare the total projected water use with the expected water supply over the next 25 years in 5-year increments. This reliability assessment is required for normal, single dry-year and multiple dry water years.

The District currently obtains 100 percent of its potable water supply as imported water from the Water Authority. The Water Authority, in turn, obtains imported water from Metropolitan. The reliability of the District's potable supply is dependent on these wholesale agencies. The District is committed to investing alternative water sources, such as groundwater or desalination that would reduce its dependence on imported water. At this point in time for water planning purposes, the Rancho Del Rey groundwater well project is considered an "additional planned" supply source.

Metropolitan's 2010 UWMP includes a discussion of supply reliability. Metropolitan used a computer model to evaluate 70 years of historic hydrology and develop estimates of water surplus or shortage. The driest year on record was 1977, and the driest three-year period was 1990-92. The analysis determined that Metropolitan could maintain reliable supplies during normal or dry-year conditions if they re-occurred during the period 2010 through 2035.

The Water Authority's 2010 UWMP also includes a discussion of supply reliability. The Water Authority will continue to rely on Metropolitan to help meet water demands. The Water Authority prepared an assessment of its supply reliability during a normal year hydrology, a dry year hydrology (1989), and multiple dry years scenarios (1989-1991). The Water Authority's analysis showed that it would meet demands under single dry conditions through the year 2035. However, as shown in Tables 9-3 through 9-6 of the Water Authority's 2010 UWMP under multiple dry year conditions, these tables present potential water supply shortages of varying degrees over the 25-year planning horizon. If these shortfalls occur as projected, additional conservation measures will be necessary to balance supply against the regional demands in the Water Authority's service area. Section 9.5 of the Water Authority's 2010 UWMP describes its additional planned supply projects.

The District continues to work closely with the Water Authority and Metropolitan for future water supply planning. These agencies [Water Authority and Metropolitan] have determined that they will be able to meet its projected demands through 2035, which include potable water demands for the District. The District has concluded that these wholesale agencies will be able to provide water to meet the District's projected demands. Based on the information provided by Metropolitan and the Water Authority, the water supply available to the District is considered to be reliable. Individual components of the supply, such as the Colorado River and SWP, will experience dry years or extended droughts; however, this is a natural hydrological occurrence in California. The diversified improvements put in place by Metropolitan and the Water Authority have led these agencies to state that they will be able to meet demands of their respective member agencies for the next 25 years. The Water Authority has provided the District documentation of this supply. The documentation is included in **Appendix G**.

The tables presented in this Section show projected demand and supply during normal years, dry years, and multiple dry years. The projected supply in these tables is equal to the projected demand, based on the information provided by the Water Authority and Metropolitan. If the District's future demands are slightly more or less than currently projected, it is anticipated that the supply portfolio maintained by the Water Authority and Metropolitan will be flexible enough to continue to meet the District's demands.

Recycled water demands are to be met with recycled water from the District's RWCWRF and the City of San Diego's SBWRP. During dry periods, many conservation measures are focused on reducing outdoor water use, which does not contribute to wastewater flow. In addition, because both of these recycled water facilities are scalping plants, the recycled water output is limited by the treatment capacity and not by the supply of raw wastewater. Therefore, the District's recycled supply is not expected to be subject to reduction during dry periods.

Throughout this section, projected supplies are shown to match projected demands. This level of reliability is based on the documentation in the UWMPs prepared by Metropolitan and the Water Authority, as listed in **Appendix G**. These agencies have determined that they will be able to meet the District's potable demands, during normal, single dry and multiple dry year conditions through 2035 with the exception of rare protracted dry year conditions, as noted in the Water Authority's 2010 UWMP. In the event of extended dry conditions, the Water Authority can implement its Drought Management Plan (DMP), which has established metrics for allocating supplies under the DMP. However, the DMP does not contain quantifiable reductions for each member agency; it merely presents a methodology for reaching those allocations through sample agency models. (Refer to the Water Authority's 2010 UWMP Appendix G for a complete discussion). Because the Water Authority and Metropolitan have determined that they will be able to meet the District's potable demands, during normal, single dry and multiple dry year conditions through 2035 and the DMP does not provide specific allocations for the District, this 2010 UWMP assumes potable supplies will remain unchanged under all hydrologic conditions (except where noted in the following tables)

The District currently relies on these agencies for its potable supply, and the District has worked with Metropolitan and the Water Authority to prepare consistent demand projections for the District's service area. To maintain consistency in planning efforts, the District has shown future supplies meeting future demands.

For the purposes of estimating demands, base water years are defined in Table 28.

Table 28 Basis of water year data

Water Year Type	Base Year(s)
Normal Year	1922-2004
Single-Dry Year	1977
Multiple-Dry Years	1990-1992

Source: Metropolitan draft 2010 UWMP

Table 29 Factors resulting in inconsistency of supply

Water supply sources	Specific source name, if any	Limitation quantification	Legal & Environmental	Water quality	Climatic
Water Authority			Current supply from the Delta is occasionally inconsistent due to legal and environmental decisions. Future supply may not be consistent due to delays in construction, legal rulings, or environmental decisions. Legal decisions regarding the QSA could reduce supplies from the Colorado River.	None	Drought and climate change could result in reductions of imported water supply. Colorado River supply may be reduced due to extended drought period
Recycled Water			None	None	None

Water supply reliability based on an average water year is summarized in Table 30. Assuming that 2011 is a normal water year the District could expect to purchase approximately 33,268 AF/yr[6] of imported supplies to meet potable demand within its service area. Table 30 also illustrates a potential occurrence of single or multiple dry years increases (up to 6.4 percent in each year) commencing in 2012 and extending for up to three years. As demonstrated in Table 31, imported supplies become a function of demand – as demand increases in dry years supplies are increased to balance demand against supply. The Water Authority uses a computer model known as CWA-MAIN to estimate water demands. CWA-MAIN uses demographic and economic data, as well as weather data, to estimate water demands. Using CWA-MAIN, the Water Authority estimated dry-year demands for five-year increments from 2015 through 2035. According to models used during preparation of the Water Authority's 2010 UWMP, water demand is expected to increase in the dry years. In fact, dry year demand was 6.4 percent higher than the normal demands over the period of record used in the CWA-MAIN model. Recycled water supply is also expected to increase in 5-year increments as demand for recycled increases relative to increasing irrigation demand (see Table 19).

Table 30 Supply reliability (AF) Current Water Sources

	Normal Year Supply	Single Dry Year (1)	Multiple Dry Years (1,2)		
Water supply sources	2011	2012	2013	2014	2015
Water Authority	33,268	37,535	39,460	42,108	45,891
Recycled Water	3,908	4,031	4,154	4,277	4,400
Groundwater	0	0	0	0	0
Total	37,176	41,566	43,614	46,385	50,291
Percent of Normal (%)		106.3%	106.3%	108.0%	112.1%

Notes:
(1) District Demand totals with SBX7-7 conservation target achievement plus 6.4% dry year increases based on the CWA-MAIN model using period of record.
(2) The Water Authority could implement its DMP. In this instances, the Water Authority may have to allocate supply shortages based on it equitable allocation methodology in its DMP.

6 Quantity based on 2010 water use within Otay Water District's service area.

5.2 Projected Normal Year Supply and Demand

The District's potable water supply is expected to continue to be supplied by Metropolitan via the Water Authority. As stated previously, these agencies have determined that they will be able to meet the District's potable demands, during normal, single dry and multiple dry year conditions through 2035 with the exception of rare protracted dry year conditions, as noted in the Water Authority's 2010 UWMP. In the event of extended dry conditions, the Water Authority can implement its DMP, which has established metrics for allocating supplies under the DMP. However, the DMP does not contain quantifiable reductions for each member agency; it merely presents a methodology for reaching those allocations through sample agency models. (Refer to the Water Authority's 2010 UWMP Appendix G for a complete discussion). Because the Water Authority and Metropolitan have determined that they will be able to meet the District's potable demands, during normal, single dry and multiple dry year conditions through 2035 and the DMP does not provide specific allocations for the District, this UWMP assumes potable supplies will increase under this normal year hydrologic condition and extend over the planning horizon. Recycled water supply is also expected to increase in 5-year increments as demand for recycled water increases relative to increasing irrigation demand (see Table 19).

The projected supply and demand comparison under normal conditions is shown in Table 31. The District has implemented water conservation measures and currently maintains a per capita demand of 140 gpcd. In order to meet its projected conservation targets, the District will continue to encourage water conservation and implement the measures outlined in its Water Shortage Response Program (District Code of Ordinance Section 39).

Table 31 Supply and demand comparison — normal year (AF)

Water supply sources	2015	2020	2025	2030	2035
Water Authority(1)	40,483	41,321	44,015	45,974	48,614
Recycled Water	4,400	5,000	5,800	6,800	8,000
Groundwater	0	0	0	0	0
Supply totals	44,883	46,321	49,815	52,774	56,614
District Demands(2)	44,883	53,768	63,811	70,669	77,171
Additional Conservation Target(3)	0	-7,447	-13,996	-17,895	-20,557
Demand totals with conservation	44,883	46,321	49,815	52,774	56,614
Difference	0	0	0	0	0
Difference as % of Supply	0.0%	0.0%	0.0%	0.0%	0.0%
Difference as % of Demand	0.0%	0.0%	0.0%	0.0%	0.0%

Notes:
(1) Water Authority supplies assume that the District demands meet its 2010 and 2015 SBX 7-7 gpcd water use targets.
(2) District demand projections based on SANDAG population projections and near-term annexations. Table 6, Potable Water Deliveries - Projected, page 12
(3) Additional conservation target is conservation required for District to meet its 2010 and 2015 SBX 7-7 gpcd target demands

5.3 Projected Single-Dry-Year Supply and Demand Comparison

Changes in weather can lead to changes in water use. During dry years, water demands can be expected to increase. The Water Authority uses a computer model known as CWA-MAIN to estimate water demands. CWA-MAIN uses demographic and economic data, as well as weather data, to estimate water demands. Using CWA-MAIN, the Water Authority estimated dry-year demands for five-year increments from 2015 through 2035. According to models used during preparation of the Water Authority's 2010 UWMP, water demand is expected to increase in the dry-years. In fact, dry year demand was 6.4 percent higher than the normal demands. Notably, the District's recycled water was assumed to be "drought-resistant" and not subject to reduction during dry periods.

The District's potable water supply is expected to continue to be supplied by Metropolitan via the Water Authority. As stated previously, these agencies have determined that they will be able to meet the District's potable demands, during normal, single dry and multiple dry year conditions through 2035 with the exception of rare protracted dry year conditions, as noted in the Water Authority's 2010 UWMP. In the event of extended dry conditions, the Water Authority can implement its DMP, which has established metrics for allocating supplies under the DMP. However, the DMP does not contain quantifiable reductions for each member agency; it merely presents a methodology for reaching those allocations through sample agency models. (Refer to the Water Authority's 2010 UWMP Appendix G for a complete discussion). Because the Water Authority and Metropolitan have determined that they will be able to meet the District's potable demands, during normal, single dry and multiple dry year conditions through 2035 and the DMP does not provide specific allocations for the District, this UWMP assumes potable supplies will increase under this single year hydrologic condition and extend over the planning horizon. Recycled water supply is also expected to increase in 5-year increments as demand for recycled water increases relative to increasing irrigation demand (see Table 19).

The projected single dry-year supplies and demands are compared in Table 32.

Table 32 Supply and demand comparison — single dry year (AF)[(1)]

Water supply sources	2015	2020	2025	2030	2035
Water Authority[(1)]	40,483	41,321	44,015	45,974	48,614
Recycled Water	4,400	5,000	5,800	6,800	8,000
Groundwater	0	0	0	0	0
Supply totals	44,883	46,321	49,815	52,774	56,614
Demand totals with conservation	44,883	46,321	49,815	52,774	56,614
Difference	0	0	0	0	0
Difference as % of Supply	0.0%	0.0%	0.0%	0.0%	0.0%
Difference as % of Demand	0.0%	0.0%	0.0%	0.0%	0.0%

Notes:
(1) Water Authority supplies assume that the District demands meet its 2010 and 2015 SBX 7-7 gpcd targets with single dry years increases of 106.3 % of normal year demand and 6.4% dry year increase as shown in Table 32.
(2) District demand projections based on SANDAG population projections and near-term annexations. Table 6, Potable Water Deliveries - Projected, page 12.

5.4 Projected Multiple-Dry-Year Supply and Demand Comparison

The Act requires water agencies to project demands and supplies during multiple dry years. Projections were prepared for five time frames: five-year periods ending in 2015, 2020, 2025, 2030, and 2035. Changes in weather can lead to changes in water use. During dry years, water demands can be expected to increase. Using CWA-MAIN, the Water Authority estimated dry-year demands for five-year increments from 2015 through 2035. According to models used during preparation of the Water Authority's 2010 UWMP, water demand is expected to increase in the dry-years. In fact, dry year demand was 6.4 percent higher than the normal demands. Notably, the District's recycled water supply was assumed to be "drought-resistant" and not subject to reduction during dry periods.

The District's potable water supply is expected to continue to be supplied by Metropolitan via the Water Authority. As stated previously, these agencies have determined that they will be able to meet the District's potable demands, during normal, single dry and multiple dry year conditions through 2035 with the exception of rare protracted dry year conditions, as noted in the Water Authority's 2010 UWMP. In the event of extended dry conditions, the Water Authority can implement its DMP, which has established metrics for allocating supplies under the DMP. However, the DMP does not contain quantifiable reductions for each member agency; it merely presents a methodology for reaching those allocations through sample agency models. (Refer to the Water Authority's 2010 UWMP Appendix G for a complete discussion). Because the Water Authority and Metropolitan have determined that they will be able to meet the District's potable demands, during normal, single dry and multiple dry year conditions through 2035 and the DMP does not provide specific allocations for the District, this UWMP assumes potable supplies will increase under this multiple dry year hydrologic conditions and extend over the planning horizon. Recycled water supply is also expected to increase in as demand for recycled water increases relative to increasing irrigation demand (see Table 19). Recycled water will provide additional supply for irrigation purposes.

The estimated supply and demand for multiple dry years beginning after 2015 and extending over the planning horizon to 2038 are summarized in Table 33 through Table 37.

Table 33 Supply and demand comparison — multiple dry-year events (AF)
Multiple-dry year Scenario (2016-2018)(1)

	2016	2017	2018
Supply Totals (2,4)	47,716	49,087	51,258
District Demand Totals (3)	47,716	49,087	51,258
Difference	0	0	0
Difference as % of Supply	0%	0%	0%
Difference as % of Demand	0%	0%	0%

Notes:
(1) Table 18, Water Supplies Current and Projected.
(2) Water Authority normal year supply combined with supplemental water (from the Water Authority) and recycled water to meet dry year demand increase and projected growth) Water Authority supplies assume that the District demands meet its 2010 and 2015 SBX 7-7 gpcd targets with single dry years increase of 106.3 % of normal year demand.
(3) District demand projections based on SANDAG population projections and near-term annexations with SBX 7-7 conservation achievement plus population growth and 6.4% dry year increase. Table 6, Potable Water Deliveries – Projected.
(4) The Water Authority could implement its DMP. In this instances, the Water Authority may have to allocate supply shortages based on it equitable allocation methodology in its DMP.

Table 34 Supply and demand comparison — multiple dry-year events (AF) Multiple-dry year Scenario (2021-2023)[1]

	2021	2022	2023
Supply Totals [2,4]	49,795	51,804	54.564
District Demand Totals [3]	49,795	51,804	54,564
Difference	0	0	0
Difference as % of Supply	0%	0%	0%
Difference as % of Demand	0%	0%	0%

Notes:
(1) Table 18, Water Supplies Current and Projected.
(2) Water Authority normal year supply combined with supplemental water (from the Water Authority) and recycled water to meet dry year demand increase and projected growth) Water Authority supplies assume that the District demands meet its 2010 and 2015 SBX 7-7 gpcd targets with single dry years increase of 106.3 % of normal year demand.
(3) District demand projections based on SANDAG population projections and near-term annexations with SBX 7-7 conservation achievement plus population growth and 6.4% dry year increase. Table 6, Potable Water Deliveries – Projected.
(4) The Water Authority could implement its DMP. In this instances, the Water Authority may have to allocate supply shortages based on it equitable allocation methodology in its DMP.

Table 35 Supply and demand comparison — multiple dry-year events (AF) Multiple-dry year Scenario (2026-2028)[1]

	2026	2027	2028
Supply Totals [2,4]	53,682	55,779	58,831
District Demand Totals [3]	53,682	55,779	58,831
Difference	0	0	0
Difference as % of Supply	0%	0%	0%
Difference as % of Demand	0%	0%	0%

Notes:
(1) Table 18, Water Supplies Current and Projected.
(2) Water Authority normal year supply combined with supplemental water (from the Water Authority) and recycled water to meet dry year demand increase and projected growth) Water Authority supplies assume that the District demands meet its 2010 and 2015 SBX 7-7 gpcd targets with single dry years increase of 106.3 % of normal year demand.
(3) District demand projections based on SANDAG population projections and near-term annexations with SBX 7-7 conservation achievement plus population growth and 6.4% dry year increase. Table 6, Potable Water Deliveries – Projected.
(4) The Water Authority could implement its DMP. In this instances, the Water Authority may have to allocate supply shortages based on it equitable allocation methodology in its DMP.

Table 36 Supply and demand comparison — multiple dry-year events (AF) Multiple-dry year Scenario (2031-2033)[1]

	2031	2032	2033
Supply Totals [2,4]	57,094	59,641	62,794
District Demand Totals [3]	57,094	59,641	62,794
Difference	0	0	0
Difference as % of Supply	0%	0%	0%
Difference as % of Demand	0%	0%	0%

Notes:
(1) Table 18, Water Supplies Current and Projected.
(2) Water Authority normal year supply combined with supplemental water (from the Water Authority) and recycled water to meet dry year demand increase and projected growth) Water Authority supplies assume that the District demands meet its 2010 and 2015 SBX 7-7 gpcd targets with single dry years increase of 106.3 % of normal year demand.
(3) District demand projections based on SANDAG population projections and near-term annexations with SBX 7-7 conservation achievement plus population growth and 6.4% dry year increase. Table 6, Potable Water Deliveries – Projected.
(4) The Water Authority could implement its DMP. In this instances, the Water Authority may have to allocate supply shortages based on it equitable allocation methodology in its DMP.

Table 37 Supply and demand comparison — multiple dry-year events (AF) Multiple-dry year Scenario (2036-2038)[1]

	2036	2037	2038
Supply Totals [2,4]	60,368	62,173	64,546
District Demand Totals [3]	60,368	62,173	64,546
Difference	0	0	0
Difference as % of Supply	0%	0%	0%
Difference as % of Demand	0%	0%	0%

Notes:
1) Table 18, Water Supplies Current and Projected.
(2) Water Authority normal year supply combined with supplemental water (from the Water Authority) and recycled water to meet dry year demand increase and projected growth) Water Authority supplies assume that the District demands meet its 2010 and 2015 SBX 7-7 gpcd targets with single dry years increase of 106.3 % of normal year demand.
(3) District demand projections based on SANDAG population projections and near-term annexations with SBX 7-7 conservation achievement plus population growth and 6.4% dry year increase. Table 6, Potable Water Deliveries – Projected.
(4) The Water Authority could implement its DMP. In this instances, the Water Authority may have to allocate supply shortages based on it equitable allocation methodology in its DMP.

6.0 Water Shortage Contingency Plan

6.1 Stages of Action

The Act requires that urban water agencies conduct a water shortage contingency analysis as part of its 2010 UWMP. As a member agency of the Water Authority, the District is a participant in the Water Authority's shortage contingency analysis, which addresses a catastrophic shortage situation and the District's water shortage management measures as its responses to the Water Authority's DMP as shown in Table 38. Essentially, the District's Code of Ordinance Section 39 establishes water management requirements necessary to conserve water, enable effective water supply planning, assure reasonable and beneficial use of water, prevent waste of water, prevent unreasonable use of water, prevent unreasonable methods of water use within the District in order to assure adequate supplies of water to meet the needs of the public, and further the public health, safety, and welfare, recognizing that water is a scarce natural resource that requires careful management not only in times of a water shortage, but at all times.[7] This Section establishes regulations to be implemented during times of declared water shortages, or declared water shortage emergencies. It establishes four (4) levels of actions to be implemented in times of shortage, with increasing restrictions on water use in response to worsening water shortage conditions and decreasing available supplies.[8]

Table 38 Water Authority Water Supply Conditions Water Stages

Water Authority Water Supply Conditions	DMP Stage
A temporary general water supply shortage due to increased demand or limited supplies such as a disruption to the potable water treatment, distribution or storage facilities of Metropolitan or the Water Authority, or of other agencies whereby such systems become inadequate to meet local or regional demand.	Stage 1
A long-term scheduled or unscheduled shutdown, major system disruption, or multi-year drought.	Stage 2
A major unscheduled shutdown or disruption to the treated or untreated water systems such as those caused by natural disaster, major system failure, or acts of war.	Stage 3

Table 39 shows the water supply stages the District has codified in its Code of Ordinances Section 39, included as Appendix H.

Table 39 District Water Shortage Responses — stages of water supply shortages

Water Shortage Response Levels	Water Use Restrictions	Conservation Target	DMP Stage
1 – Supply Watch	Voluntary	Up to 10%	Stage 1 or 2
2 – Supply Alert	Mandatory	> 10% - 20%	Stage 2 or 3
3 – Supply Critical	Mandatory	> 20% - 40%	Stage 3
4 – Supply Emergency	Mandatory	Above 40%	Stage 3

7 Otay Water District, Code of Ordinance Section 39. Water Shortage Response Program
8 Otay Water District, Code of Ordinance Section 39. Water Shortage Response Program

Table 40 through Table 43 present each of the District's water shortage response levels that will be implemented during times of water supply shortages.

Table 40 District Level 1 Water Shortage Response

Water Shortage Response Levels	Voluntary or Mandatory Water Use Restrictions	Retail Conservation Levels	Water Authority DMP Stage
1 – Supply Watch	Voluntary	Up to 10%	Stage 1 or 2

Water Use Restrictions

1. Stop washing down paved surfaces, including but not limited to sidewalks, driveways, parking lots, tennis courts, or patios, except when it is necessary to alleviate safety or sanitation hazards.
2. Stop water waste resulting from inefficient landscape irrigation, such as runoff, low head drainage, or overspray, etc. Similarly, stop water flows onto non-targeted areas, such as adjacent property, non-irrigated areas, hardscapes, roadways, or structures.
3. Irrigate residential and commercial landscape before 10 a.m. and after 6 p.m. only. Suggest that customers water no more than three days per week, using the watering schedule found on the District's web page. New plantings and newly seeded areas are exempt for 30 days.
4. Use a hand-held hose equipped with a positive shut-off nozzle or bucket to water landscaped areas, including trees and shrubs located on residential and commercial properties that are not irrigated by a landscape irrigation system.
5. Irrigate nursery and commercial grower's products before 10 a.m. and after 6 p.m. only. Watering is permitted at any time with a hand-held hose equipped with a positive shut-off nozzle, a bucket, or when a drip/micro-irrigation system/equipment is used.

   Irrigation of nursery propagation beds is permitted at any time. Watering of livestock is permitted at any time.
6. Use re-circulated water to operate ornamental fountains.
7. Wash vehicles using a bucket and a hand-held hose with positive shut-off nozzle, mobile high pressure/low volume wash system, or at a commercial site that re-circulates (reclaims) water on-site. Avoid washing during hot conditions when additional water is required due to evaporation.
8. Serve and refill water in restaurants and other food service establishments only upon request.
9. Offer guests in hotels, motels, and other commercial lodging establishments the option of not laundering towels and linens daily.
10. Repair all water leaks within forty-eight hours (48) of notification by the District unless other arrangements are made with the District.
11. Use recycled or non-potable water for construction purposes when available.

Note: Restrictions shall not apply to use of water from private wells or to the use of recycled water

Table 41 District Level 2 Water Shortage Response

Water Shortage Response Levels	Voluntary or Mandatory Water Use Restrictions	Retail Conservation Levels	Water Authority DMP Stage
2 – Supply Alert	Mandatory	Up to 20%	Stage 2 or 3

Water Use Restrictions

<u>All Level 1 water-use restriction</u>, plus:

1. Limit residential and commercial landscape irrigation to no more than three assigned days per week on a schedule established by the General Manager and posted by the District. During the months of November through April, landscape irrigation is limited to no more than once per week on a schedule established by the General Manager and posted by the District. This section shall not apply to commercial growers or nurseries.
2. Limit lawn watering and landscape irrigation using sprinklers to no more than fifteen (15) minutes per watering station per day. This provision does not apply to landscape irrigation systems using water efficient devices, including but not limited to, weather based controllers, drip/micro-irrigation systems and stream rotor sprinklers.
3. Water landscaped areas, including trees and shrubs located on residential and commercial properties, and not irrigated by a landscape irrigation system on the same schedule set forth above, by using a bucket, hand-held hose with positive shut-off nozzle, or low-volume non-spray irrigation.

   Water Shortage rate pricing begins at Level 2

Note: Restrictions shall not apply to use of water from private wells or to the use of recycled water.

Table 42 District Level 3 Water Shortage Response

Water Shortage Response Levels	Voluntary or Mandatory Water Use Restrictions	Retail Conservation Levels	Water Authority DMP Stage
3 – Supply Critical	Mandatory	Up to 40%	Stage 3

Water Use Restrictions

Level 1 and 2 water-use restriction, plus:

1. Limit residential and commercial landscape irrigation to no more than two assigned days per week on a schedule established by the General Manager and posted by the District. During the months of November through April, landscape irrigation is limited to no more than once per week on a schedule established by the General Manager and posted by the District. This section shall not apply to commercial growers or nurseries.
2. Water landscaped areas, including trees and shrubs located on residential and commercial properties, and not irrigated by a landscape irrigation system, on the same schedule set forth above, by using a bucket, hand-held hose with a positive shut-off nozzle, or low-volume non-spray irrigation.
3. Stop filling or re-filling ornamental lakes or ponds, except to the extent needed to sustain aquatic life, provided that such animals are of significant value and have been actively managed within the water feature prior to declaration of a water shortage response level under this ordinance.
4. Stop operating non-residential ornamental fountains or similar decorative water features unless recycled water is used 5. Stop washing vehicles except at commercial carwashes that re-circulate water, or by high pressure/low volume wash systems. If a commercial car wash cannot accommodate the vehicle because its size or type, RVs, horse trailers, boats and commercial vehicles will be allowed to wash vehicles using a bucket and a hand-held hose with positive shut-off nozzle, mobile high pressure/low volume wash system.
5. No new potable water service shall be provided, no new temporary meters or permanent meters shall be provided, and no statements of immediate ability to serve or provide potable water service (such as, will serve letters, certificates or letters of availability) shall be issued, except under the following circumstances:
   a. A valid, unexpired building permit has been issued for the project; or
   b. The project is necessary to protect the public's health, safety, and welfare; or
   c. The applicant provides substantial evidence of an enforceable commitment that water demands for the project will be offset prior to the provision of a new water meter(s) to the satisfaction of the District.

   This provision shall not be construed to preclude the resetting or turn-on of meters to provide continuation of water service or to restore service that has been interrupted.
6. Upon declaration of Water Shortage Response Level 3 condition, District will suspend consideration of annexations to its service area.
7. The District may establish a water allocation for property served by the District using a method that takes into consideration of the implementation of conservation methods or the installation of water saving devices.

Table 43 District Level 4 Water Shortage Response[1]

Water Shortage Response Levels	Voluntary or Mandatory Water Use Restrictions	Retail Conservation Levels	Water Authority DMP Stage
4 – Supply Emergency	Mandatory	Above 40%	Stage 3

Water Use Restrictions

Level 1, 2, and 3 water-use restriction, plus:

1. Stop all landscape irrigation, except crops and landscape products of commercial growers and nurseries. This restriction shall not apply to the following categories of use unless the District has determined that recycled water is available and may be lawfully applied to the use.
   A. Maintenance of trees and shrubs that are watered on the same schedule set forth in as noted in the Level 3 Critical Condition by using a bucket, hand-held hose with a positive shut-off nozzle, or low-volume non-spray irrigation;
   B. Maintenance of existing landscaping necessary for fire protection as specified by the Fire Marshal of the local fire protection agency having jurisdiction over the property to be irrigated;
   C. Maintenance of existing landscaping for erosion control;
   D. Maintenance of plant materials identified to be rare or essential to the well being of rare animals;
   E. Maintenance of landscaping within active public parks and playing fields, day care centers, school grounds, cemeteries, and golf course greens, provided that such irrigation does not exceed two (2) days per week according to the schedule established under the District's Level 3 Critical Condition;
   F. Watering of livestock; and
   G. Public works projects and actively irrigated environmental mitigation projects.
2. Repair all water leaks within twenty-four (24) hours of notification by the District unless other arrangements are made with the District.

NotE:

(1) The District may establish a water allocation for property served by the District.

6.2 Estimate of Minimum Supply for Next Three Years

The Act requires an estimate of the minimum supply available during the next three years (2011 – 2013). It is suggested that the estimate be based on the driest three-year historic sequence for the water supply. The District's supply of potable water comes from the Colorado River basin and the SWP, through Metropolitan and the Water Authority. Since the 1987-1992 droughts, Metropolitan has sought to diversify its supply and reduce its vulnerability to drought. Metropolitan's IRP outlines projects such as increased storage, groundwater storage, financial incentives for local projects and conservation, and long-term water transfers that provide Metropolitan with supply during dry years on the Colorado River and the SWP. Implementation of Metropolitan's IRP is expected to provide sufficient water to its member agencies even during dry years.

The District's recycled supply is currently provided by the RWCWRF. This plant has an effective capacity of approximately 1.3 mgd; raw wastewater flows that exceed the plant's capacity are sent downstream to the MWWD for treatment. (As stated in Section 4.1.2, the District also receives recycled water from the SBWRP up to a contracted rate of 6 mgd; however, for minimum supply planning purposes over the next three years as shown in Table 44 only the District's recycled water is presented – substantial quantities of SBWRP recycled water are available after 2015.) During a water shortage event, reduced water consumption could lead to reduced raw wastewater flows. Under these conditions, the District observed a reduction in indoor water usage; however, much of the reduction in water use is expected to come through a reduction in outdoor use, which should not impact wastewater flows. The supply of recycled water is considered to remain constant during multiple dry years. Table 44 shows the supply

the District could expect to receive under this minimum supply scenario based on current supply resources with the District's supply portfolio.

Table 44 Estimate of Minimum Supply for Next Three Years

Water supply sources	Normal Year Supply	Single Dry Year (1)	Multiple Dry Years (1,2)		
	2011	2012	2013	2014	2015
Water Authority	33,268	37,535	39,460	42,108	45,891
Recycled Water	3,908	4,031	4,154	4,277	4,400
Groundwater	0	0	0	0	0
Total	37,176	41,566	43,614	46,385	50,291

Notes:
(1) District Demand totals with SBX7-7 conservation target achievement plus 6.4% dry year increases based on the CWA-MAIN model using period of record.
(2) The Water Authority could implement its DMP. In this instances, the Water Authority may have to allocate supply shortages based on it equitable allocation methodology in its DMP.

6.3 Prohibitions, Penalties and Consumption Reduction Methods

The District has established prohibitions that become effective during different stages of water shortage. For the complete Otay Code of Ordinance, Section 39. The mandatory prohibitions are shown in Table 45. See **Appendix H** for Section 39 of the Code of Ordinance or linked at http://www.otaywater.gov/owd/pages/board/codeOrdinance.aspx.

Table 45 Water shortage contingency — mandatory prohibitions

Prohibitions	Stage When Prohibition Becomes Mandatory
Allowing water to leave a customer's property by drainage onto adjacent property due to inefficient irrigation, poor design and/or neglect	At all times
Not repairing leaks within 48 hours	At all times
Lawn watering or irrigation during daylight	2 (25% reduction goal)
Use of hand-held hose without automatic shut-off nozzle	2 (25% reduction goal)
Use of potable water for commercial street cleaning	2 (25% reduction goal)
Filling of swimming pools, ponds or lakes	2 (50% reduction goal)
Operation of non-residential fountains	2 (50% reduction goal)
Residential car washing	2 (50% reduction goal)
All outdoor irrigation	3 (50% reduction goal)

In addition to the prohibitions above, the District has identified a number of methods to reduce water consumption during a water shortage. These methods have been grouped into categories intended to reduce demands by 15 percent, 25 percent, and 50 percent. These methods are summarized in Table 46.

Table 46 Water shortage contingency — consumption reduction methods

Consumption Reduction Method	Stage When Method Takes Effect	Projected Reduction
Ask large irrigation customers to reduce usage.	2	15% goal
Require a 20-foot clearance for construction near water lines (will reduce losses due to accidental line breaks)	2	
Reduce or suspend deliveries to Mexico	2	
Notify customers of need for additional conservation	2	25% goal
Enforce water conservation and use restrictions	2	
Consider mandating water budgets for large landscape accounts	2	
Coordinate with Metropolitan and the Water Authority to issue press notification to the media	2	50% goal
Ask customers to reduce irrigation	2	
Establish reduction targets for commercial landscape accounts	2	
Reduce or suspend augmentation of the recycled water distribution system with potable water	2	
Consider mandating water budgets for all customers	2	
Consider reassigning personnel to enforce water use regulations	2	
Suspend all water use from temporary meters	2	

The District has established and published conservation measures set forth in Section 39 of the Code of Ordinance. Commencing with declared Level 2 conditions, the District may assess water shortage rates and charges previously adopted. In addition, after notice of the declared water shortage level is given as required by law, any person who uses, causes to be used, or permits the use of water in violation of such requirements (other than a person who qualifies for an applicable exemption, if any) may be assessed damages, penalties and fines. The District may impose surcharges or other penalties for noncompliance with the requirements or prohibitions in accordance with Section 72 of its Code of Ordinance (Section 72.05 D. A). These penalties are summarized in Table 47. See **Appendix J** for Section 72 of the Code of Ordinance or also linked at http://www.otaywater.gov/owd/pages/board/codeOrdinance.aspx.

Table 47 Water shortage contingency — penalties and charges

Penalty	Situation when Penalty May Take Effect
Written letter of warning to the customer	1st Violation of Section 39
Notice of Violation	2nd Violation of Section 39 within a 12-month period
$100 surcharge (declared Level 2 conditions)	1st Violation of Section 72 within a 12-month period
$200 surcharge (declared Level 2 conditions)	2nd Violation of Section 72 within a 12-month period
$500 surcharge (declared Level 2 conditions)	Any subsequent violation within a 12-month period
Temporarily deactivate recycled or potable water meter	At any time if a customer is in violation of Section 72
Temporary installation of a flow restrictor, or temporary deactivation of a meter	2nd Violation of Section 72 within a 12-month period
Discontinuance of service to a meter	Repeated violations of Section 72
30 days imprisonment, or $1,000 fine	Any violation of Section 72

6.4 Catastrophic Supply Interruption Plan

Catastrophic events such as earthquakes or regional power outages can impact water supply. As a member agency of the Water Authority, the District is a participant in the Water Authority's Emergency Response Plan (ERP) and ESP. The ERP provides information to allow staff to respond to an emergency that impedes the Water Authority's ability to provide reliable water service to the District. The ERP includes:

- Authorities, policies, and procedures associated with emergency response activities;
- Emergency Operations Center activities, including activation and deactivation guidelines;
- Multi-agency and multi-jurisdictional coordination, particularly between the Water Authority, its member agencies (including the District), and Metropolitan;
- Emergency staff, management, and organization required to assist in mitigating any significant emergency or disaster;
- Mutual Aid agreements and covenants that outline the terms and conditions under which mutual aid assistance will be provided; and
- Pre-emergency planning and emergency operations procedures.

The ESP is a system of reservoirs, pipelines, and other facilities that will work together to store and move water around the county in the event of a natural disaster. The entire project is expected to be completed by 2012. When completed, the ESP will provide 90,100 AF of storage water for emergency purposes in the Water Authority's service area. This amount is anticipated to meet the Water Authority's emergency water needs through at least 2030.

The District has constructed storage reservoirs to provide water during an interruption in the Water Authority's supply to the District. These reservoirs provide approximately 190 million gallons of storage, equal to approximately five days of average demand. The District has also established emergency interconnections with neighboring agencies to provide water during an emergency. The District has planned for potable water availability from the City of San Diego Otay WTP (10 mgd) and the Water Authority through the Levy WTP (currently 8 mgd and proposed 16 mgd).

The District has also established minor emergency interconnections with neighboring water agencies for use during short-term outages. The District has four (4) minor interconnections with Helix WD, three (3) with Sweetwater Authority, and four (4) with the City of San Diego that are capable of supplying the District with water. These minor interconnections are intended primarily for short-term repairs or emergencies. During an extended outage or water shortage, these neighboring agencies may not have sufficient supply at these minor interconnections to share significant amounts with the District.

6.5 Revenue Impacts of Reduced Sales During Shortages

An extended water shortage would reduce the amount of water sold by the District to its customers. Since water bills are based on water consumption, the revenue received by the District would also be reduced. The most severe restrictions are intended to reduce

consumption by 50 percent. The impacts of such a reduction on the District's revenue are shown in Table 48.

Table 48 Actions and Conditions that Impact Revenues

Type	Anticipated Revenue Reduction
Reduced water sales (50% reduction)	$19.1 million, or 29% of revenues

A 50 percent reduction in consumption would also reduce the District's expenditures. The District's costs for acquiring and delivering the water to its customers would be reduced, as shown in Table 49. Some of the District's costs might be increased, such as additional staff time for monitoring water use or enforcing conservation policies. However, these efforts will be achieved by temporarily re-directing staff from other tasks. These changes in operation are not expected to cause a significant increase in the District's total expenditures.

Table 49 Actions and Conditions that Impact Expenditures

Category	Anticipated Cost Reduction
Reduction in water purchase from Water Authority (50% reduction)	$13.5 million, or 20% of expenditures

The tables above show a potential shortfall of $5.6 million annually if consumption were reduced 50 percent. If the reduction was due to a short-term situation, the District could absorb the entire shortfall by drawing on its general fund reserves, which are maintained at a minimum of $11.5 million. After conditions returned to normal, the District would replenish its reserves. The reserve fund could be restored to its full level by increasing rates 1 percent in each of the next three years.

The District's response would be more complex if the 50 percent reduction in consumption was expected to be permanent. The District would need to raise the average water bill by 4.5 percent per year over five (5) years. Two factors would mitigate the need for more immediate increases. First, the District's general fund reserves could be used to temporarily fill the gap between expenditures and revenues. Second, the $5.6 million shortfall mentioned above includes a significant reduction that would go to the Water Authority as it raise its rates, assuming the reduction was occurring across the region. The Water Authority would likely spread its rate increases over several years, allowing the District to do the same.

A summary of the District's anticipated response is shown in Table 50.

Table 50 Proposed Measures to Overcome Revenue Impacts

Measure	Summary of Effects
Rate adjustment	5% annual increase for four years; 20% increase in average water bill
Development of reserves	Reserves are currently maintained at a minimum of $12 million. With the rate adjustment, the District would replenish any draw-down of reserves that occurred.

A permanent 50 percent reduction in water consumption might allow the District to achieve cost savings in some areas. The need for additional pumping, storage, and pipeline capacity might be reduced. The District might not require as much equipment or staff to maintain its infrastructure. However, the District might see higher expenditures in other areas, such as water use monitoring or answering questions from customers. Overall, these changes are not expected to have a significant impact on District expenditures.

6.6 Water Shortage Contingency Ordinance and Use Monitoring Procedure

6.6.1 Water Shortage Contingency Ordinance/Resolution

The District's Code of Ordinance Section 39 contains specific information on handling water shortages and is included as **Appendix H**.

6.6.2 Mechanism to Determine Reductions in Water Use

Mechanisms to determine reductions in water use include Water Authority water purchase invoices and records, which show prior use for comparison with District customer billing showing 36-month prior consumption history for each customer, and its Supervisory Control and Data Acquisition system, as described below.

The District has implemented and has operated for many years a Supervisory Control and Data Acquisition (SCADA) system to control, monitor, and collect data regarding the operation of the water system. The major facilities that have SCADA capabilities are the water supply source, transmission network, pumping stations, and water storage reservoirs. The SCADA system allows for many and varied useful functions. Some of these functions provide for operating personnel to monitor the water supply source flow rates and reservoir levels, as well as turn pumps on or off. The SCADA system aids in the prevention of water reservoir overflow events and increases energy efficiency. The SCADA system can be used to monitor demands and evaluate the effectiveness of conservation measures.

The District's mechanisms for monitoring water use are summarized in Table 51.

Table 51 Water Use Monitoring Mechanisms

Mechanisms for determining actual reductions	Type and quality of data expected
Daily production and distribution records	System-wide changes in demand
Customer billing data	Month-to-month changes in water use, and year-to-year changes for key customers
SCADA system	Short-term changes in pumping, flow rates, or reservoir levels showing increased water use

7.0 Water Quality Impacts on Reliability

The District is committed to providing high-quality water to its customers. Each of the District's water sources has water quality issues, as discussed below. However, all of these potential issues are being addressed through source control, treatment, or both.

7.1 Potable Water

The District's existing potable supply is provided by the Water Authority and Metropolitan from two sources: the Colorado River and the SWP. The District also has an agreement with the City of San Diego to receive water from the City's Otay WTP, which at certain times may treat local surface water. The District's future potable supply may include desalinated ocean water or local groundwater. Each of these sources has unique water quality issues. Much of this water quality discussion is based on information compiled by the Water Authority.

7.1.1 Colorado River

Two areas of concern about the quality of Colorado River water are perchlorate and salinity as measured by total dissolved solids (TDS).

Ammonium perchlorate is used as the main component in solid rocket propellant, and it can also be found in some types of munitions and fireworks. The primary human health concern related to perchlorate is its effects on the thyroid. Perchlorate has been detected at low levels in Metropolitan's Colorado River water supply.

In 2002 Metropolitan adopted a Perchlorate Action Plan. Metropolitan is actively monitoring perchlorate levels and working to prevent the introduction of perchlorate into the Colorado River system. Monitoring indicates that the perchlorate originates from a contaminated area in Nevada that leads to the Las Vegas Wash and eventually the Colorado River. The Nevada Department of Environmental Protection is managing a remediation program for this site. According to data compiled by Metropolitan, the amount of perchlorate entering the Colorado River from this site has dropped from 900 pounds per day in 1997 to less than 150 pounds per day in 2004. Metropolitan will continue to monitor its system for signs of perchlorate contamination.

The salinity in Colorado River water is due to naturally occurring saline sediments in the basin and to high-salinity return flows from agriculture. The range of TDS in the Colorado River Aqueduct diversion to Southern California is 525 milligrams per liter (mg/L) during high flows and 900 mg/L during drought conditions, averaging around 650 mg/L during normal water years. High TDS in water supplies causes high TDS at wastewater plants and can limit the eventual use of the recycled water. Additionally, high levels of TDS can damage water delivery systems and home appliances.

Metropolitan has adopted a Salinity Management Plan to deal with the TDS issues. One part of this plan is to blend Colorado River water with other sources to achieve a blended TDS of less than 500 mg/L. Metropolitan is also involved in the Colorado River Basin Salinity Control Forum, which seeks to intercept and control sources of salt in the basin.

7.1.2 State Water Project

Water supplies from the SWP typically have significantly lower TDS levels than the Colorado River, averaging 250 mg/L. Because of this lower salinity, Metropolitan blends SWP water with higher salinity Colorado River water to reduce the salinity levels of delivered water. However, both the supply and the TDS levels of SWP water can vary significantly in response to hydrologic conditions in the Sacramento-San Joaquin watersheds.

Water from the SWP also has higher levels of bromide and total organic carbon (TOC) than Colorado River water. These constituents can lead to the formation of disinfection-by-products during treatment. The formation of disinfection-by-products can be controlled through appropriate technology selection and careful monitoring of water quality in the treatment process and in the distribution system. The California Urban Water Agencies retained an expert panel that identified target concentrations of bromide (50 parts per billion) and TOC (3 parts per million) in raw source water. These goals have been adopted as targets for the SWP intakes in the Sacramento-San Joaquin Delta.

7.1.3 Local Surface Water

Under its agreements with neighboring agencies, it is possible for water from local watersheds to be delivered to the District. In the past, the quality of local water sources has been considered good. The most significant reported problem is algae blooms, which can lead to taste and odor issues.

The Water Authority, the City of San Diego, and the County of San Diego have formed a Regional Water Management Group to develop an Integrated Regional Water Management Plan (IRWMP) for the San Diego region. The IRWMP will include measures to protect and enhance the quality of local water sources. The Water Authority is also working with its member agencies to improve watershed awareness and management.

7.1.4 Pacific Ocean

The proposed Otay Water District Desalination project in Rosarito will draw water from the Pacific Ocean. The TDS of the Pacific Ocean adjacent to San Diego County averages approximately 34,000 mg/L. The water will undergo a pretreatment process to remove suspended solids and organic material. The desalination facility will then use a reverse osmosis (RO) membrane treatment process to reduce the TDS to less than 350 mg/L. The product water will be post-treated to improve its aesthetic quality and help prevent corrosion in the distribution system. A residual disinfectant will also be added to the water. The product water will meet all applicable drinking water regulations. The brine discharge will be returned to the ocean through the existing outfall used for cooling water at the power plant. This dilution is expected to minimize any adverse impacts on ocean water quality or the marine environment.

7.1.5 Groundwater

The District continues to evaluate the potential for local groundwater supply development. Two possible water quality issues with groundwater are contamination with Methyl Tertiary Butyl Ether (MTBE) and high salinity levels.

Until recently, MTBE was used as an additive to gasoline in order to reduce air pollution. MTBE can leak from underground storage tanks and make its way to groundwater aquifers. MTBE is very soluble in water and has a low affinity for soil, making treatment of MTBE more difficult

than treatment of other gasoline components. Because of these issues, California has eliminated the use of MTBE as a gasoline additive. As leaking underground storage tanks are replaced, the risk of MTBE contamination will be reduced.

Increased salinity in groundwater can result from seawater intrusion or return flows from irrigation that is high in salinity. Water quality officials may restrict the salinity level of water used for irrigation to protect groundwater supplies. In fact, the District's permit for use of recycled water from RWCWRF calls for a maximum TDS of 1,000 mg/L, to protect the underlying groundwater.

7.2 Recycled Water

The primary water quality issue for use of recycled water is salinity, as measured by TDS. Conventional wastewater treatment processes are not designed to remove salinity. Metropolitan's goal for potable water delivery is a TDS level of 500 mg/L, and residential use of water can add 200 to 300 mg/L of TDS. TDS concentrations over 1,000 mg/L in recycled water can lead to restrictions on use in irrigation or other applications.

Recycled water from the District's RWCWRF has consistently had less than 1,000 mg/L TDS. The District's contract with the City of San Diego for water from SBWRP calls for delivery of water with less than 1,000 mg/L TDS.

None of the above water quality issues is expected to reduce the District's available water supply. The District's supply is not considered subject to reduction due to poor water quality.

Table 52 Water Quality — current and projected water supply impacts

Water source	Description of condition	2010	2015	2020	2025	2030	2035
Surface Water	Taste and odor	0	0	0	0	0	0
Pacific Ocean	TDS	0	0	0	0	0	0
Groundwater	MTBE, salinity	0	0	0	0	0	0
Recycled Water	TDS	0	0	0	0	0	0

8.0 Demand Management Measures

Water conservation is a critical part of the District's 2010 UWMP and its long-term strategy for meeting the water needs of the District. The goals of the District's water conservation program are to:

- reduce the demand for more expensive, imported water
- demonstrate continued commitment to the Best Management Practices (BMPs)
- ensure a reliable water supply

The District is a signatory to the Memorandum of Understanding (MOU) Regarding Urban Water Conservation in California, which created the CUWCC in 1991. As a signatory, the District is required to submit biannual reports that detail the implementation of current water conservation practices. The District voluntarily agreed to implement the fourteen water conservation BMPs beginning in 1992. The District submits its annual report to the CUWCC every two years. The District's BMP Reports for 2005 to 2010, as well as the BMP Coverage Reports for 2007, 2008, 2009, and 2010 are included in **Appendix I**.

In 2009, the CUWCC reorganized the BMPs and grouped them into five categories. Two categories, Operations and Education, are Foundational BMPs because they are considered to be essential water conservation activities by any utility and are ongoing practices with no time limits. The remaining BMPs are Programmatic BMPs and are organized into Residential, Commercial, Industrial, and Institutional (CII), and Landscape categories. Agencies can comply with the Programmatic BMPs through one of three compliance options: 1) traditional approach to BMP compliance; 2) the Flex Track Compliance Option; or, 3) the gallons per capita per day (GPCD) Compliance approach (this approach provides a reporting mechanism)

Water utilities throughout California are implementing water conservation programs and providing services to their customers to promote water use efficiencies and water savings. As a water retailer and signatory of the MOU, the District submits biennial reports on its compliance with the BMPs as applicable through the GPCD Option (BMP 1.1.3 applies only to wholesale agencies). In addition to the BMPs, the District also reports on the number of accounts by customer class and details its supply sources. A short description of the CUWCC BMP programs and an overview of the progress of the District's compliance with each BMP are demonstrated in Table 53.

Foundational BMPs

- Utility Operations Programs - According to the CUWCC, this practice consists of several key actions that utilities shall take to better enable conservation program implementation, to supplement conservation incentives with regulations where appropriate, and to assist one another through the wholesaler-retailer relationship.
- Education Programs - California water agencies have played a major role in stressing the need for their customers to conserve water through both public information and school education programs. The specifics of how these programs are to be implemented are detailed below.
    - Public Information Programs present opportunities to use public information programs as an effective tool to inform customers about the need for water

conservation and ways they can conserve, and to influence customer behavior to conserve.

- School Education Programs have been implemented to reach the youngest water users at an early age and enforce the need to engage in water conservation as a life-long behavior.

Programmatic BMPs

According to the CUWCC, as stated above, each signatory has the option of implementing and complying with each of the Programmatic BMPs through one of three (3) approaches: 1) the traditional approach to BMP Compliance; 2) the Flex Track alternative included in each Programmatic BMP or the GPCD Compliance Option. The District will be reporting its compliance through the GPCD Compliance Option. As such, Table 53 presents the District's CUWCC Programmatic BMPs as GPCD Compliance Option.

- Residential - Residential water users throughout California depend on a reliable and safe supply of water for their homes. This BMP defines the best and most proven water conservation methods and measures those residents, working in conjunction with water agencies, can implement. By implementing these methods and measures homeowners, multi-family property owners, and tenants will increase water use efficiency and improve regional or local reliability.

- Commercial, Industrial, and Institutional (CII) - CII water demands make up a large percentage of total demand for California. CII water use varies dramatically between business sectors as well as within a given water agency's territory as is the case with the District. The goal of this BMP is to implement comprehensive yet flexible BMPs, allowing the District to tailor the implementation of each practice to fit local needs, opportunities and businesses in its service area. The end result is a practice that is successful and will produce the greatest amount of cost-effective water savings.

- Landscape - Outdoor irrigation accounts for a large portion of urban water use. Irrigation water use varies dramatically depending on water pricing and availability, plant choice, geographic locations, seasonal conditions, and the level of commitment to sound water efficiency practices. The goal of this BMP is that irrigators, with assistance from MOU signatories, will achieve a higher level of water use efficiency consistent with the actual irrigation needs of the plant materials. Achieving this goal would ultimately reduce overall demands for water, especially during the peak summer months when temperatures are high and irrigation is essential for plant life.

According to the BMP Reports (for years 2005 - 2010) submitted by the District, the District conservation programs meet the requirements as a signatory to the MOU. By choosing the GPCD Option and its reporting mechanism and achieving per capita reductions, the District can demonstrate its successes in water use reductions, efficiencies and conservation savings.

Table 53 Best Management Practices for Urban Water Conservation in California

CUWCC BMPs by Type, Organization and Compliance Measure					
Type	**Category**	**BMP**	**Description**	**Conservation Programs**	**Compliance**
Foundation	Operations Practices	1.1.1	Conservation Coordinator	Full-time Coordinator Full-time Water Conservation Specialist	Yes
		1.1.2	Water Waste Prevention	By Ordinance	Yes
		1.1.3	Wholesale Agency Assistance Programs	Education Programs (Public and School) co-funded Water Authority and Metropolitan	YES-Participant
		1.2	Water Loss Control (System Water Audits, Leak Detection and Repair)	Distribution System Auditing Program	Yes
		1.3	Metering with Commodity rates for all New Connections and Retrofit of Existing Connections	Metered By Type	Yes
		1.4	Retail Conservation Pricing	By Ordinance	Yes
	Education Programs	2.1	Public Information Programs	Water Conservation Garden Pipeline and Communiqué Newsletters Special Events Website	Yes
		2.2	School Education Programs	Classroom Kits Tours of the Water Conservation Garden Video Library Awards Programs Grants for School-site Gardens $1,000 CSDA Scholarship	Yes
Programmatic	Residential	3.1	Residential Assistance Program (Plumbing Retrofit)	Showerhead Distribution	**GPCD Compliance**
		3.2	Landscape Water Survey (Water Survey Programs for Single-Family and Multi-Family Residential Customers)	Residential Survey Program Residential Weather-Based Irrigation Controller Program	**GPCD Compliance**
		3.3	High-Efficiency Washing Machine Rebate Programs	Residential High-Efficiency Clothes Washer (HEW) Program	**GPCD Compliance**
		3.4	WaterSense Specification (WSS) Toilets	Residential Voucher Program	**GPCD Compliance**
	CII	4	Commercial, Industrial, Institutional (CII)	CII Voucher Program	**GPCD Compliance**
	Landscape	5	Landscape	Professional Assistance for Landscape Management (PALM) Protector Del Agua Commercial Landscape Incentive Program (CLIP) Commercial Weather-Based Irrigation Controller Program	**GPCD Compliance**

Source: Otay Water District, adapted from Department of Water Resources Guidebook to Assist Urban Water Suppliers to Prepare a 2010 UWMP, February 2011.

8.1 Water Conservation Programs and Water Efficiency Practices

The District has long been a leader in the field of water conservation. Since the early 1990's, water conservation programs have been developed and conducted on the premise that water conservation increases the water supply by reducing the demand on available supply, which is vital to the optimal operation of the District. Education is an important component to all of these programs. As a member agency of the Water Authority, the District also participates in many water conservation programs designed and conducted as a shared-cost participation program among the member agencies, the Water Authority and Metropolitan.

The District continues to promote water conservation at a variety of events, including those involving developers in its service area. In addition, the District developed and manages a number of its own programs such as the Cash for WaterSmart Plants retrofit program, the Water Smart Irrigation Upgrade Program, and the Commercial Process Improvement Program.

The District is currently engaged in a number of conservation and water use efficiency activities Listed below are the current programs that are either on-going or were recently concluded:

- Residential Water Surveys: 1,349 completed since 1994
- Large Landscape Surveys: 194 completed since 1990
- Cash for Water Smart Plants Landscape Retrofit Program: over 217,600 square feet of turfgrass replaced with water wise plants since 2003
- Rotating Nozzles Rebated: 3,170
- Residential Weather-Based Irrigation Controller (WBIC) Incentive Program: 231 distributed or rebated since 2004
- Residential High Efficiency Clothes Washers: 7,187 rebates since 1994
- Residential ULFT/HET Rebate Program: 22,376 rebates provided between 1991-2010
- Outreach Efforts to Otay Water District Customers - the District promotes its conservation programs through staffing outreach events, bill inserts, articles in the District's quarterly customer *Pipeline* newsletter, direct mailings to District customers, the District's webpage and through the Water Authority's marketing efforts.
- School Education Programs- the District funds school tours of the Water Conservation Garden, co-funds Splash Labs, provides classroom water themed kits, maintains a library of school age appropriate water themed books, DVDs, and videos, and runs both a school poster contest and a water themed photo contest.
- Water efficiency in new construction through Cal Green and the Model Water Efficient Landscape Ordinance
- Focus on Commercial/Institutional/Industrial through Promoting Metropolitan's Save a Buck (Commercial) Program in conjunction with the District's own Commercial Process Improvement Program

The District participates in a Joint Powers Authority with the Helix WD, Grossmont-Cuyamaca Community College District, the San Diego County Water Authority, the City of San Diego, and the Padre Dam MWD to operate the nearly five-acre Water Conservation Demonstration

Garden. The Garden's mission is to, "promote water conservation in the southern California landscape through excellent exhibits and programs that educate and inspire the public." The Garden educates customers about reducing landscape water use through the use of water-efficient landscapes.

8.2 Determination of DMM Implementation

The District is a member of the CUWCC and a signatory to the MOU. The District's 2005 to 2010 Annual Reports and the District's 2007, 2008, 2009 and 2010 Annual BMP Coverage Reports are included in **Appendix I**. The CUWCC database was recently updated to produce a 2009-2010 Activity and Annual Reports. The District is in full compliance with the CUWCC's MOU regarding Urban Water Conservation in California.

9.0 Water Use Reduction (compliance with Water Conservation Bill of 2009)

As discussed previously, the District has been a leader in water conservation for many years. Since the early 1990's, water conservation programs have been developed and conducted on the premise that water conservation increases the water supply by reducing the demand on available supply, which is vital to the optimal operation of the District. As a member agency of the Water Authority, the District also participates in many water conservation programs designed and conducted as a shared-cost participation program among the member agencies, the Water Authority and Metropolitan.

Pursuant to Water Code Section 10608.26, the District continues to implement its current programs to reduce water demand throughout its service area and ultimately meet or surpass its gpcd targets in 2015 and 2020. Section 8.1 above, lists a number of the District's on-going water conservation programs – these programs in combination with the initiatives and future programs described herein will provide means for the District to comply with the Water Conservation Bill of 2009 and reach its gpcd targets.

9.1 Water Use Reduction – the approach to achieving 20x2020

The District fully expects to meet and/or surpass its gpcd water use targets primarily because of its continued investment in recycled water in combination with the District's Water Conservation efforts.

In FY 2008, the District began receiving additional recycled water from the SBWRP. Since then the District has reduced its potable annual demand by approximately 3,600 AF. By 2020, the District anticipates purchasing up to 5,312 AF of recycled water from the City of San Diego, and will produce an additional 1,200 AF of recycled water from its own RWCWRF (See Section 4.1.2 of this 2010 UWMP). The District requires new developments to use recycled water for irrigation purposes where allowed by the County. Currently, potable water is used during construction for grading and dust control, and to establish newly planted landscapes. However, in the near future, use recycled water could also be expanded for dust control and grading operations within new development projects. Currently, the District is proactively expanding its existing recycled water system and is also starting to fund plumbing retrofits at large mixed use sites, such as Southwestern College.

In addition, its customers are responding to the increasing cost of water by reducing their demand. Since 2007, its customers have continued to lower their demand, mainly, in response to rate increases that were required to cover the increased cost to obtain, convey and transport water to Southern California (see Figure 3).

The District anticipates that CALGREEN impacts will lower the indoor per capita consumption for those who purchase new homes within the District, and the recently revised landscape water conservation ordinances adopted by the City of Chula Vista, the County of San Diego and the City of San Diego will result in more efficiently designed and irrigated landscapes and further contribute to a lower agency-wide gpcd.

Public education is critical to the success of long-term per capita reduction. The District will continue public outreach to its customers and may choose to offer incentives to accelerate the

retrofit of high water use landscapes. Should water use rise dramatically in the future, the District may choose to create programs that specifically target large water use sectors that are likely to cause the District's overall gpcd to increase.

9.1.1 Ongoing Water Conservation Programs and Communication Efforts

As presented in Section 8.1 above, the District will continue its outreach efforts to educate its customers regarding water smart landscapes through its website, articles within its quarterly newsletter, regular bill inserts, and it presence at outreach events throughout the community.

The District may also continue to offer incentives when feasible. Currently, the District offers a rebate toward the replacement of existing turfgrass with waterwise landscape. The District continues to offer its customers free residential and large landscape surveys.

The District is currently in a voluntary Supply Watch stage and as part of its public outreach campaign regularly communicates this information to its customers. More information is available on the District's website at www.otaywater.org.

9.1.2 Influences of Water Demand - Issues to Watch and Monitor.

Within the District's service area, a number of factors have the potential to influence the District's overall water demand projections. Please refer to Section 3.6.1 for brief discussions of each of these potential demand influences.

- Weather normalization
- Future Growth and Economic Impacts on Water Usage
- Growth in Commercial and Institutional Sector
- Revision of Statewide Demand Reduction Target

It will be important for the District to continue to monitor these potential influences and then if necessary, add new programs and adjust its current water demand reduction programs accordingly.

10.0 Climate Change

10.1 Climate Change

Climate change adds its own new uncertainties to the challenges of planning. Changes in weather significantly affect water supply planning, irrespective of the debate associated with the sources and cause of increasing concentrations of greenhouse gasses. Typically, water supplies that are dependent on natural hydrology are vulnerable to climate change, especially if the water source originates from mountain snow pack. The most vulnerable water sources subject to climate change impacts are the District's imported water supplies from the Water Authority. In addition to water supply impacts, changes in local temperature and precipitation are expected to alter water demand patterns. The District is committed to performing its due diligence with respect to climate change.

10.2 Potential Impacts

While uncertainties remain regarding the exact timing, magnitude, and regional impacts of these temperature and precipitation changes, researchers have identified several areas of concern for California water planners. These include:

- Reduction in Sierra Nevada snowpack;
- Increased intensity and frequency of extreme weather events; and
- Rising sea levels resulting in increased risk of damage from storms, high-tide events, and the erosion of levees.

Other important issues of concern due to global climate change include:

- Effects on local supplies such as groundwater;
- Changes in urban and agricultural demand levels and patterns;
- Impacts to human health from waterborne pathogens and water quality degradation;
- Declines in ecosystem health and function; and
- Alterations to power generation and pumping regimes.

10.3 Metropolitan Adaption and Mitigation

Metropolitan is taking an active approach to adapt and mitigate against climate changes in its operations. Adaption and mitigation measures include:

- Investments in local resources to diversify Metropolitan's water supply portfolio
- Tracking climate change legislation – Metropolitan provides input and direction on legislation
- Collaborating on climate change with state, federal, and non-governmental agencies
- Monitoring state and local climate change actions
- Investigating the water supply and energy nexus
- Coordinating with large water retailers

APPENDIX A

Text of Urban Water Management Planning Act

Section K: California Water Code, Division 6, Part 2.6: Urban Water Management Planning

The following sections of California Water Code Division 6, Part 2.6, are available online at http://www.leginfo.ca.gov/calaw.html.

Chapter 1. General Declaration and Policy	§10610-10610.4
Chapter 2. Definitions	§10611-10617
Chapter 3. Urban Water Management Plans	
Article 1. General Provisions	§10620-10621
Article 2. Contents of Plans	§10630-10634
Article 2.5. Water Service Reliability	§10635
Article 3. Adoption And Implementation of Plans	§10640-10645
Chapter 4. Miscellaneous Provisions	§10650-10656

Chapter 1. General Declaration and Policy

10610. This part shall be known and may be cited as the "Urban Water Management Planning Act."

10610.2.

(a) The Legislature finds and declares all of the following:

(1) The waters of the state are a limited and renewable resource subject to ever-increasing demands.

(2) The conservation and efficient use of urban water supplies are of statewide concern; however, the planning for that use and the implementation of those plans can best be accomplished at the local level.

(3) A long-term, reliable supply of water is essential to protect the productivity of California's businesses and economic climate.

(4) As part of its long-range planning activities, every urban water supplier should make every effort to ensure the appropriate level of reliability in its water service sufficient to meet the needs of its various categories of customers during normal, dry, and multiple dry water years.

(5) Public health issues have been raised over a number of contaminants that have been identified in certain local and imported water supplies.

(6) Implementing effective water management strategies, including groundwater storage projects and recycled water projects, may require specific water quality and salinity targets for meeting groundwater basins water quality objectives and promoting beneficial use of recycled water.

(7) Water quality regulations are becoming an increasingly important factor in water agencies' selection of raw water sources, treatment alternatives, and modifications to existing treatment facilities.

(8) Changes in drinking water quality standards may also impact the usefulness of water supplies and may ultimately impact supply reliability.

(9) The quality of source supplies can have a significant impact on water management strategies and supply reliability.

(b) This part is intended to provide assistance to water agencies in carrying out their long-term resource planning responsibilities to ensure adequate water supplies to meet existing and future demands for water.

10610.4. The Legislature finds and declares that it is the policy of the state as follows:

(a) The management of urban water demands and efficient use of water shall be actively pursued to protect both the people of the state and their water resources.

(b) The management of urban water demands and efficient use of urban water supplies shall be a guiding criterion in public decisions.

(c) Urban water suppliers shall be required to develop water management plans to actively pursue the efficient use of available supplies.

Chapter 2. Definitions

10611. Unless the context otherwise requires, the definitions of this chapter govern the construction of this part.

10611.5. “Demand management” means those water conservation measures, programs, and incentives that prevent the waste of water and promote the reasonable and efficient use and reuse of available supplies.

10612. “Customer” means a purchaser of water from a water supplier who uses the water for municipal purposes, including residential, commercial, governmental, and industrial uses.

10613. “Efficient use” means those management measures that result in the most effective use of water so as to prevent its waste or unreasonable use or unreasonable method of use.

10614. “Person” means any individual, firm, association, organization, partnership, business, trust, corporation, company, public agency, or any agency of such an entity.

10615. "Plan" means an urban water management plan prepared pursuant to this part. A plan shall describe and evaluate sources of supply, reasonable and practical efficient uses, reclamation and demand management activities. The components of the plan may vary according to an individual community or area's characteristics and its capabilities to efficiently use and conserve water. The plan shall address measures for residential, commercial, governmental, and industrial water demand management as set forth in Article 2 (commencing with Section 10630) of Chapter 3. In addition, a strategy and time schedule for implementation shall be included in the plan.

10616. "Public agency" means any board, commission, county, city and county, city, regional agency, district, or other public entity.

10616.5. "Recycled water" means the reclamation and reuse of wastewater for beneficial use.

10617. "Urban water supplier" means a supplier, either publicly or privately owned, providing water for municipal purposes either directly or indirectly to more than 3,000 customers or supplying more than 3,000 acre-feet of water annually. An urban water supplier includes a supplier or contractor for water, regardless of the basis of right, which distributes or sells for ultimate resale to customers. This part applies only to water supplied from public water systems subject to Chapter 4 (commencing with Section 116275) of Part 12 of Division 104 of the Health and Safety Code.

Chapter 3. Urban Water Management Plans

Article 1. General Provisions

10620.

(a) Every urban water supplier shall prepare and adopt an urban water management plan in the manner set forth in Article 3 (commencing with Section 10640).

(b) Every person that becomes an urban water supplier shall adopt an urban water management plan within one year after it has become an urban water supplier.

(c) An urban water supplier indirectly providing water shall not include planning elements in its water management plan as provided in Article 2 (commencing with Section 10630) that would be applicable to urban water suppliers or public agencies directly providing water, or to their customers, without the consent of those suppliers or public agencies.

(d) (1) An urban water supplier may satisfy the requirements of this part by participation in areawide, regional, watershed, or basinwide urban water management planning where those plans will reduce preparation costs and contribute to the achievement of conservation and efficient water use.

(2) Each urban water supplier shall coordinate the preparation of its plan with other appropriate agencies in the area, including other water suppliers that share a common source, water management agencies, and relevant public agencies, to the extent practicable.

(e) The urban water supplier may prepare the plan with its own staff, by contract, or in cooperation with other governmental agencies.

(f) An urban water supplier shall describe in the plan water management tools and options used by that entity that will maximize resources and minimize the need to import water from other regions.

10621.

(a) Each urban water supplier shall update its plan at least once every five years on or before December 31, in years ending in five and zero.

(b) Every urban water supplier required to prepare a plan pursuant to this part shall, at least 60 days prior to the public hearing on the plan required by Section 10642, notify any city or county within which the supplier provides water supplies that the urban water supplier will be reviewing the plan and considering amendments or changes to the plan. The urban water supplier may consult with, and obtain comments from, any city or county that receives notice pursuant to this subdivision.

(c) The amendments to, or changes in, the plan shall be adopted and filed in the manner set forth in Article 3 (commencing with Section 10640).

Article 2. Contents of Plans

10630. It is the intention of the Legislature, in enacting this part, to permit levels of water management planning commensurate with the numbers of customers served and the volume of water supplied.

10631. A plan shall be adopted in accordance with this chapter that shall do all of the following:

(a) Describe the service area of the supplier, including current and projected population, climate, and other demographic factors affecting the supplier's water management planning. The projected population estimates shall be based upon data from the state, regional, or local service agency population projections within the service area of the urban water supplier and shall be in five-year increments to 20 years or as far as data is available.

(b) Identify and quantify, to the extent practicable, the existing and planned sources of water available to the supplier over the same five-year increments described in subdivision (a). If groundwater is identified as an existing or planned source of

water available to the supplier, all of the following information shall be included in the plan:

(1) A copy of any groundwater management plan adopted by the urban water supplier, including plans adopted pursuant to Part 2.75 (commencing with Section 10750), or any other specific authorization for groundwater management.

(2) A description of any groundwater basin or basins from which the urban water supplier pumps groundwater. For those basins for which a court or the board has adjudicated the rights to pump groundwater, a copy of the order or decree adopted by the court or the board and a description of the amount of groundwater the urban water supplier has the legal right to pump under the order or decree. For basins that have not been adjudicated, information as to whether the department has identified the basin or basins as overdrafted or has projected that the basin will become overdrafted if present management conditions continue, in the most current official departmental bulletin that characterizes the condition of the groundwater basin, and a detailed description of the efforts being undertaken by the urban water supplier to eliminate the long-term overdraft condition.

(3) A detailed description and analysis of the location, amount, and sufficiency of groundwater pumped by the urban water supplier for the past five years. The description and analysis shall be based on information that is reasonably available, including, but not limited to, historic use records.

(4) A detailed description and analysis of the amount and location of groundwater that is projected to be pumped by the urban water supplier. The description and analysis shall be based on information that is reasonably available, including, but not limited to, historic use records.

(c) (1) Describe the reliability of the water supply and vulnerability to seasonal or climatic shortage, to the extent practicable, and provide data for each of the following:

(A) An average water year.

(B) A single dry water year.

(C) Multiple dry water years.

(2) For any water source that may not be available at a consistent level of use, given specific legal, environmental, water quality, or climatic factors, describe plans to supplement or replace that source with alternative sources or water demand management measures, to the extent practicable.

(d) Describe the opportunities for exchanges or transfers of water on a short-term or long-term basis.

(e) (1) Quantify, to the extent records are available, past and current water use, over the same five-year increments described in subdivision (a), and projected water use, identifying the uses among water use sectors, including, but not necessarily limited to, all of the following uses:

(A) Single-family residential.

(B) Multifamily.

(C) Commercial.

(D) Industrial.

(E) Institutional and governmental.

(F) Landscape.

(G) Sales to other agencies.

(H) Saline water intrusion barriers, groundwater recharge, or conjunctive use, or any combination thereof.

(I) Agricultural.

(2) The water use projections shall be in the same five-year increments described in subdivision (a).

(f) Provide a description of the supplier's water demand management measures. This description shall include all of the following:

(1) A description of each water demand management measure that is currently being implemented, or scheduled for implementation, including the steps necessary to implement any proposed measures, including, but not limited to, all of the following:

(A) Water survey programs for single-family residential and multifamily residential customers.

(B) Residential plumbing retrofit.

(C) System water audits, leak detection, and repair.

(D) Metering with commodity rates for all new connections and retrofit of existing connections.

(E) Large landscape conservation programs and incentives.

(F) High-efficiency washing machine rebate programs.

(G) Public information programs.

(H) School education programs.

(I) Conservation programs for commercial, industrial, and institutional accounts.

(J) Wholesale agency programs.

(K) Conservation pricing.

(L) Water conservation coordinator.

(M) Water waste prohibition.

(N) Residential ultra-low-flush toilet replacement programs.

(2) A schedule of implementation for all water demand management measures proposed or described in the plan.

(3) A description of the methods, if any, that the supplier will use to evaluate the effectiveness of water demand management measures implemented or described under the plan.

(4) An estimate, if available, of existing conservation savings on water use within the supplier's service area, and the effect of the savings on the supplier's ability to further reduce demand.

(g) An evaluation of each water demand management measure listed in paragraph (1) of subdivision (f) that is not currently being implemented or scheduled for implementation. In the course of the evaluation, first consideration shall be given to water demand management measures, or combination of measures, that offer lower incremental costs than expanded or additional water supplies. This evaluation shall do all of the following:

(1) Take into account economic and noneconomic factors, including environmental, social, health, customer impact, and technological factors.

(2) Include a cost-benefit analysis, identifying total benefits and total costs.

(3) Include a description of funding available to implement any planned water supply project that would provide water at a higher unit cost.

(4) Include a description of the water supplier's legal authority to implement the measure and efforts to work with other relevant agencies to ensure the implementation of the measure and to share the cost of implementation.

(h) Include a description of all water supply projects and water supply programs that may be undertaken by the urban water supplier to meet the total projected water use as established pursuant to subdivision (a) of Section 10635. The urban water supplier shall include a detailed description of expected future projects and programs, other than the demand management programs identified pursuant to paragraph (1) of subdivision (f), that the urban water supplier may implement to increase the amount of the water supply available to the urban water supplier in average, single-dry, and multiple-dry water years. The description shall identify specific projects and include a description of the increase in water supply that is expected to be available from each project. The description shall include an estimate with regard to the implementation timeline for each project or program.

(i) Describe the opportunities for development of desalinated water, including, but not limited to, ocean water, brackish water, and groundwater, as a long-term supply.

(j) For purposes of this part, urban water suppliers that are members of the California Urban Water Conservation Council shall be deemed in compliance with the requirements of subdivisions (f) and (g) by complying with all the provisions of the "Memorandum of Understanding Regarding Urban Water Conservation in California," dated December 10, 2008, as it may be amended, and by submitting the annual reports required by Section 6.2 of that memorandum.

(k) Urban water suppliers that rely upon a wholesale agency for a source of water shall provide the wholesale agency with water use projections from that agency for that source of water in five-year increments to 20 years or as far as data is available. The wholesale agency shall provide information to the urban water supplier for inclusion in the urban water supplier's plan that identifies and quantifies, to the extent practicable, the existing and planned sources of water as required by subdivision (b), available from the wholesale agency to the urban water supplier over the same five-year increments, and during various water-year types in accordance with subdivision (c). An urban water supplier may rely upon water supply information provided by the wholesale agency in fulfilling the plan informational requirements of subdivisions (b) and (c).

10631.1.

(a) The water use projections required by Section 10631 shall include projected water use for single-family and multifamily residential housing needed for lower income households, as defined in Section 50079.5 of the Health and Safety Code,

as identified in the housing element of any city, county, or city and county in the service area of the supplier.

(b) It is the intent of the Legislature that the identification of projected water use for single-family and multifamily residential housing for lower income households will assist a supplier in complying with the requirement under Section 65589.7 of the Government Code to grant a priority for the provision of service to housing units affordable to lower income households.

10631.5.

(a) (1) Beginning January 1, 2009, the terms of, and eligibility for, a water management grant or loan made to an urban water supplier and awarded or administered by the department, state board, or California Bay-Delta Authority or its successor agency shall be conditioned on the implementation of the water demand management measures described in Section 10631, as determined by the department pursuant to subdivision (b).

(2) For the purposes of this section, water management grants and loans include funding for programs and projects for surface water or groundwater storage, recycling, desalination, water conservation, water supply reliability, and water supply augmentation. This section does not apply to water management projects funded by the federal American Recovery and Reinvestment Act of 2009 (Public Law 111-5).

(3) Notwithstanding paragraph (1), the department shall determine that an urban water supplier is eligible for a water management grant or loan even though the supplier is not implementing all of the water demand management measures described in Section 10631, if the urban water supplier has submitted to the department for approval a schedule, financing plan, and budget, to be included in the grant or loan agreement, for implementation of the water demand management measures. The supplier may request grant or loan funds to implement the water demand management measures to the extent the request is consistent with the eligibility requirements applicable to the water management funds.

(4) (A) Notwithstanding paragraph (1), the department shall determine that an urban water supplier is eligible for a water management grant or loan even though the supplier is not implementing all of the water demand management measures described in Section 10631, if an urban water supplier submits to the department for approval documentation demonstrating that a water demand management measure is not locally cost effective. If the department determines that the documentation submitted by the urban water supplier fails to demonstrate that a water demand management measure is not locally cost effective, the

department shall notify the urban water supplier and the agency administering the grant or loan program within 120 days that the documentation does not satisfy the requirements for an exemption, and include in that notification a detailed statement to support the determination.

(B) For purposes of this paragraph, "not locally cost effective" means that the present value of the local benefits of implementing a water demand management measure is less than the present value of the local costs of implementing that measure.

(b) (1) The department, in consultation with the state board and the California Bay-Delta Authority or its successor agency, and after soliciting public comment regarding eligibility requirements, shall develop eligibility requirements to implement the requirement of paragraph (1) of subdivision (a). In establishing these eligibility requirements, the department shall do both of the following:

(A) Consider the conservation measures described in the Memorandum of Understanding Regarding Urban Water Conservation in California, and alternative conservation approaches that provide equal or greater water savings.

(B) Recognize the different legal, technical, fiscal, and practical roles and responsibilities of wholesale water suppliers and retail water suppliers.

(2) (A) For the purposes of this section, the department shall determine whether an urban water supplier is implementing all of the water demand management measures described in Section 10631 based on either, or a combination, of the following:

(i) Compliance on an individual basis.

(ii) Compliance on a regional basis. Regional compliance shall require participation in a regional conservation program consisting of two or more urban water suppliers that achieves the level of conservation or water efficiency savings equivalent to the amount of conservation or savings achieved if each of the participating urban water suppliers implemented the water demand management measures. The urban water supplier administering the regional program shall provide participating urban water suppliers and the department with data to demonstrate that the regional program is consistent with this clause. The department shall review the data to determine whether the urban water suppliers in the regional program are meeting the eligibility requirements.

(B) The department may require additional information for any determination pursuant to this section.

(3) The department shall not deny eligibility to an urban water supplier in compliance with the requirements of this section that is participating in a multiagency water project, or an integrated regional water management plan, developed pursuant to Section 75026 of the Public Resources Code, solely on the basis that one or more of the agencies participating in the project or plan is not implementing all of the water demand management measures described in Section 10631.

(c) In establishing guidelines pursuant to the specific funding authorization for any water management grant or loan program subject to this section, the agency administering the grant or loan program shall include in the guidelines the eligibility requirements developed by the department pursuant to subdivision (b).

(d) Upon receipt of a water management grant or loan application by an agency administering a grant and loan program subject to this section, the agency shall request an eligibility determination from the department with respect to the requirements of this section. The department shall respond to the request within 60 days of the request.

(e) The urban water supplier may submit to the department copies of its annual reports and other relevant documents to assist the department in determining whether the urban water supplier is implementing or scheduling the implementation of water demand management activities. In addition, for urban water suppliers that are signatories to the Memorandum of Understanding Regarding Urban Water Conservation in California and submit annual reports to the California Urban Water Conservation Council in accordance with the memorandum, the department may use these reports to assist in tracking the implementation of water demand management measures.

(f) This section shall remain in effect only until July 1, 2016, and as of that date is repealed, unless a later enacted statute, that is enacted before July 1, 2016, deletes or extends that date.

10631.7. The department, in consultation with the California Urban Water Conservation Council, shall convene an independent technical panel to provide information and recommendations to the department and the Legislature on new demand management measures, technologies, and approaches. The panel shall consist of no more than seven members, who shall be selected by the department to reflect a balanced representation of experts. The panel shall have at least one, but no more than two, representatives from each of the following: retail water suppliers, environmental organizations, the business community, wholesale water suppliers, and academia. The panel shall be convened by January 1, 2009, and shall report to the

Legislature no later than January 1, 2010, and every five years thereafter. The department shall review the panel report and include in the final report to the Legislature the department's recommendations and comments regarding the panel process and the panel's recommendations.

10632. The plan shall provide an urban water shortage contingency analysis which includes each of the following elements which are within the authority of the urban water supplier:

(a) Stages of action to be undertaken by the urban water supplier in response to water supply shortages, including up to a 50 percent reduction in water supply, and an outline of specific water supply conditions which are applicable to each stage.

(b) An estimate of the minimum water supply available during each of the next three water years based on the driest three-year historic sequence for the agency's water supply.

(c) Actions to be undertaken by the urban water supplier to prepare for, and implement during, a catastrophic interruption of water supplies including, but not limited to, a regional power outage, an earthquake, or other disaster.

(d) Additional, mandatory prohibitions against specific water use practices during water shortages, including, but not limited to, prohibiting the use of potable water for street cleaning.

(e) Consumption reduction methods in the most restrictive stages. Each urban water supplier may use any type of consumption reduction methods in its water shortage contingency analysis that would reduce water use, are appropriate for its area, and have the ability to achieve a water use reduction consistent with up to a 50 percent reduction in water supply.

(f) Penalties or charges for excessive use, where applicable.

(g) An analysis of the impacts of each of the actions and conditions described in subdivisions (a) to (f), inclusive, on the revenues and expenditures of the urban water supplier, and proposed measures to overcome those impacts, such as the development of reserves and rate adjustments.

(h) A draft water shortage contingency resolution or ordinance.

(i) A mechanism for determining actual reductions in water use pursuant to the urban water shortage contingency analysis.

10633. The plan shall provide, to the extent available, information on recycled water and its potential for use as a water source in the service area of the urban water

supplier. The preparation of the plan shall be coordinated with local water, wastewater, groundwater, and planning agencies that operate within the supplier's service area, and shall include all of the following:

(a) A description of the wastewater collection and treatment systems in the supplier's service area, including a quantification of the amount of wastewater collected and treated and the methods of wastewater disposal.

(b) A description of the quantity of treated wastewater that meets recycled water standards, is being discharged, and is otherwise available for use in a recycled water project.

(c) A description of the recycled water currently being used in the supplier's service area, including, but not limited to, the type, place, and quantity of use.

(d) A description and quantification of the potential uses of recycled water, including, but not limited to, agricultural irrigation, landscape irrigation, wildlife habitat enhancement, wetlands, industrial reuse, groundwater recharge, indirect potable reuse, and other appropriate uses, and a determination with regard to the technical and economic feasibility of serving those uses.

(e) The projected use of recycled water within the supplier's service area at the end of 5, 10, 15, and 20 years, and a description of the actual use of recycled water in comparison to uses previously projected pursuant to this subdivision.

(f) A description of actions, including financial incentives, which may be taken to encourage the use of recycled water, and the projected results of these actions in terms of acre-feet of recycled water used per year.

(g) A plan for optimizing the use of recycled water in the supplier's service area, including actions to facilitate the installation of dual distribution systems, to promote recirculating uses, to facilitate the increased use of treated wastewater that meets recycled water standards, and to overcome any obstacles to achieving that increased use.

10634. The plan shall include information, to the extent practicable, relating to the quality of existing sources of water available to the supplier over the same five-year increments as described in subdivision (a) of Section 10631, and the manner in which water quality affects water management strategies and supply reliability.

Article 2.5. Water Service Reliability

10635.

(a) Every urban water supplier shall include, as part of its urban water management plan, an assessment of the reliability of its water service to its customers during normal, dry, and multiple dry water years. This water supply and demand

assessment shall compare the total water supply sources available to the water supplier with the total projected water use over the next 20 years, in five-year increments, for a normal water year, a single dry water year, and multiple dry water years. The water service reliability assessment shall be based upon the information compiled pursuant to Section 10631, including available data from state, regional, or local agency population projections within the service area of the urban water supplier.

(b) The urban water supplier shall provide that portion of its urban water management plan prepared pursuant to this article to any city or county within which it provides water supplies no later than 60 days after the submission of its urban water management plan.

(c) Nothing in this article is intended to create a right or entitlement to water service or any specific level of water service.

(d) Nothing in this article is intended to change existing law concerning an urban water supplier's obligation to provide water service to its existing customers or to any potential future customers.

Article 3. Adoption and Implementation of Plans

10640. Every urban water supplier required to prepare a plan pursuant to this part shall prepare its plan pursuant to Article 2 (commencing with Section 10630).

The supplier shall likewise periodically review the plan as required by Section 10621, and any amendments or changes required as a result of that review shall be adopted pursuant to this article.

10641. An urban water supplier required to prepare a plan may consult with, and obtain comments from, any public agency or state agency or any person who has special expertise with respect to water demand management methods and techniques.

10642. Each urban water supplier shall encourage the active involvement of diverse social, cultural, and economic elements of the population within the service area prior to and during the preparation of the plan. Prior to adopting a plan, the urban water supplier shall make the plan available for public inspection and shall hold a public hearing thereon. Prior to the hearing, notice of the time and place of hearing shall be published within the jurisdiction of the publicly owned water supplier pursuant to Section 6066 of the Government Code. The urban water supplier shall provide notice of the time and place of hearing to any city or county within which the supplier provides water supplies. A privately owned water supplier shall provide an equivalent notice within its service area. After the hearing, the plan shall be adopted as prepared or as modified after the hearing.

10643. An urban water supplier shall implement its plan adopted pursuant to this chapter in accordance with the schedule set forth in its plan.

10644.

(a) An urban water supplier shall submit to the department, the California State Library, and any city or county within which the supplier provides water supplies a copy of its plan no later than 30 days after adoption. Copies of amendments or changes to the plans shall be submitted to the department, the California State Library, and any city or county within which the supplier provides water supplies within 30 days after adoption.

(b) The department shall prepare and submit to the Legislature, on or before December 31, in the years ending in six and one, a report summarizing the status of the plans adopted pursuant to this part. The report prepared by the department shall identify the exemplary elements of the individual plans. The department shall provide a copy of the report to each urban water supplier that has submitted its plan to the department. The department shall also prepare reports and provide data for any legislative hearings designed to consider the effectiveness of plans submitted pursuant to this part.

(c) (1) For the purpose of identifying the exemplary elements of the individual plans, the department shall identify in the report those water demand management measures adopted and implemented by specific urban water suppliers, and identified pursuant to Section 10631, that achieve water savings significantly above the levels established by the department to meet the requirements of Section 10631.5.

(2) The department shall distribute to the panel convened pursuant to Section 10631.7 the results achieved by the implementation of those water demand management measures described in paragraph (1).

(3) The department shall make available to the public the standard the department will use to identify exemplary water demand management measures.

10645. Not later than 30 days after filing a copy of its plan with the department, the urban water supplier and the department shall make the plan available for public review during normal business hours.

Chapter 4. Miscellaneous Provisions

10650. Any actions or proceedings to attack, review, set aside, void, or annul the acts or decisions of an urban water supplier on the grounds of noncompliance with this part shall be commenced as follows:

(a) An action or proceeding alleging failure to adopt a plan shall be commenced within 18 months after that adoption is required by this part.

(b) Any action or proceeding alleging that a plan, or action taken pursuant to the plan, does not comply with this part shall be commenced within 90 days after filing of the plan or amendment thereto pursuant to Section 10644 or the taking of that action.

10651. In any action or proceeding to attack, review, set aside, void, or annul a plan, or an action taken pursuant to the plan by an urban water supplier on the grounds of noncompliance with this part, the inquiry shall extend only to whether there was a prejudicial abuse of discretion. Abuse of discretion is established if the supplier has not proceeded in a manner required by law or if the action by the water supplier is not supported by substantial evidence.

10652. The California Environmental Quality Act (Division 13 (commencing with Section 21000) of the Public Resources Code) does not apply to the preparation and adoption of plans pursuant to this part or to the implementation of actions taken pursuant to Section 10632. Nothing in this part shall be interpreted as exempting from the California Environmental Quality Act any project that would significantly affect water supplies for fish and wildlife, or any project for implementation of the plan, other than projects implementing Section 10632, or any project for expanded or additional water supplies.

10653. The adoption of a plan shall satisfy any requirements of state law, regulation, or order, including those of the State Water Resources Control Board and the Public Utilities Commission, for the preparation of water management plans or conservation plans; provided, that if the State Water Resources Control Board or the Public Utilities Commission requires additional information concerning water conservation to implement its existing authority, nothing in this part shall be deemed to limit the board or the commission in obtaining that information. The requirements of this part shall be satisfied by any urban water demand management plan prepared to meet federal laws or regulations after the effective date of this part, and which substantially meets the requirements of this part, or by any existing urban water management plan which includes the contents of a plan required under this part.

10654. An urban water supplier may recover in its rates the costs incurred in preparing its plan and implementing the reasonable water conservation measures included in the plan. Any best water management practice that is included in the plan that is identified in the "Memorandum of Understanding Regarding Urban Water Conservation in California" is deemed to be reasonable for the purposes of this section.

10655. If any provision of this part or the application thereof to any person or circumstances is held invalid, that invalidity shall not affect other provisions or

applications of this part which can be given effect without the invalid provision or application thereof, and to this end the provisions of this part are severable.

10656. An urban water supplier that does not prepare, adopt, and submit its urban water management plan to the department in accordance with this part, is ineligible to receive funding pursuant to Division 24 (commencing with Section 78500) or Division 26 (commencing with Section 79000), or receive drought assistance from the state until the urban water management plan is submitted pursuant to this article.

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Section L: California Water Code, Division 6, Part 2.55: Water Conservation

The following sections of California Water Code Division 6, Part 2.55, are available online at http://www.leginfo.ca.gov/calaw.html.

Chapter 1. General Declarations and Policy	§10608-10608.8
Chapter 2. Definitions	§10608.12
Chapter 3. Urban Retail Water Suppliers	§10608.16-10608.44

Legislative Counsel's Digest

Senate Bill No. 7
Chapter 4

An act to amend and repeal Section 10631.5 of, to add Part 2.55 (commencing with Section 10608) to Division 6 of, and to repeal and add Part 2.8 (commencing with Section 10800) of Division 6 of, the Water Code, relating to water.

[Approved by Governor November 10, 2009. Filed with Secretary of State November 10, 2009.]

Legislative Counsel's Digest

SB 7, Steinberg. Water conservation.

(1) Existing law requires the Department of Water Resources to convene an independent technical panel to provide information to the department and the Legislature on new demand management measures, technologies, and approaches. "Demand management measures" means those water conservation measures, programs, and incentives that prevent the waste of water and promote the reasonable and efficient use and reuse of available supplies.

This bill would require the state to achieve a 20% reduction in urban per capita water use in California by December 31, 2020. The state would be required to make incremental progress towards this goal by reducing per capita water use by at least 10% on or before December 31, 2015. The bill would require each urban retail water supplier to develop urban water use targets and an interim urban water use target, in accordance with specified requirements. The bill would require agricultural water suppliers to implement efficient water management practices. The bill would require the department, in consultation with other state agencies, to develop a single standardized water use reporting form. The bill, with certain exceptions, would provide that urban retail water suppliers, on and after July 1, 2016, and agricultural water suppliers, on and after July 1, 2013, are not eligible for state water grants or loans unless they comply with the water conservation requirements established by the bill. The bill would repeal, on July 1, 2016, an existing requirement that conditions

eligibility for certain water management grants or loans to an urban water supplier on the implementation of certain water demand management measures.

(2) Existing law, until January 1, 1993, and thereafter only as specified, requires certain agricultural water suppliers to prepare and adopt water management plans.

This bill would revise existing law relating to agricultural water management planning to require agricultural water suppliers to prepare and adopt agricultural water management plans with specified components on or before December 31, 2012, and update those plans on or before December 31, 2015, and on or before December 31 every 5 years thereafter. An agricultural water supplier that becomes an agricultural water supplier after December 31, 2012, would be required to prepare and adopt an agricultural water management plan within one year after becoming an agricultural water supplier. The agricultural water supplier would be required to notify each city or county within which the supplier provides water supplies with regard to the preparation or review of the plan. The bill would require the agricultural water supplier to submit copies of the plan to the department and other specified entities. The bill would provide that an agricultural water supplier is not eligible for state water grants or loans unless the supplier complies with the water management planning requirements established by the bill.

(3) The bill would take effect only if SB 1 and SB 6 of the 2009–10 7th Extraordinary Session of the Legislature are enacted and become effective.

The people of the State of California do enact as follows:

SECTION 1. Part 2.55 (commencing with Section 10608) is added to Division 6 of the Water Code, to read:

Part 2.55. Sustainable Water Use and Demand Reduction

Chapter 1. General Declarations and Policy

10608. The Legislature finds and declares all of the following:

(a) Water is a public resource that the California Constitution protects against waste and unreasonable use.

(b) Growing population, climate change, and the need to protect and grow California's economy while protecting and restoring our fish and wildlife habitats make it essential that the state manage its water resources as efficiently as possible.

(c) Diverse regional water supply portfolios will increase water supply reliability and reduce dependence on the Delta.

(d) Reduced water use through conservation provides significant energy and environmental benefits, and can help protect water quality, improve streamflows, and reduce greenhouse gas emissions.

(e) The success of state and local water conservation programs to increase efficiency of water use is best determined on the basis of measurable outcomes related to water use or efficiency.

(f) Improvements in technology and management practices offer the potential for increasing water efficiency in California over time, providing an essential water management tool to meet the need for water for urban, agricultural, and environmental uses.

(g) The Governor has called for a 20 percent per capita reduction in urban water use statewide by 2020.

(h) The factors used to formulate water use efficiency targets can vary significantly from location to location based on factors including weather, patterns of urban and suburban development, and past efforts to enhance water use efficiency.

(i) Per capita water use is a valid measure of a water provider's efforts to reduce urban water use within its service area. However, per capita water use is less useful for measuring relative water use efficiency between different water providers. Differences in weather, historical patterns of urban and suburban development, and density of housing in a particular location need to be considered when assessing per capita water use as a measure of efficiency.

10608.4. It is the intent of the Legislature, by the enactment of this part, to do all of the following:

(a) Require all water suppliers to increase the efficiency of use of this essential resource.

(b) Establish a framework to meet the state targets for urban water conservation identified in this part and called for by the Governor.

(c) Measure increased efficiency of urban water use on a per capita basis.

(d) Establish a method or methods for urban retail water suppliers to determine targets for achieving increased water use efficiency by the year 2020, in accordance with the Governor's goal of a 20-percent reduction.

(e) Establish consistent water use efficiency planning and implementation standards for urban water suppliers and agricultural water suppliers.

(f) Promote urban water conservation standards that are consistent with the California Urban Water Conservation Council's adopted best management practices and the requirements for demand management in Section 10631.

(g) Establish standards that recognize and provide credit to water suppliers that made substantial capital investments in urban water conservation since the drought of the early 1990s.

(h) Recognize and account for the investment of urban retail water suppliers in providing recycled water for beneficial uses.

(i) Require implementation of specified efficient water management practices for agricultural water suppliers.

(j) Support the economic productivity of California's agricultural, commercial, and industrial sectors.

(k) Advance regional water resources management.

10608.8.

(a) (1) Water use efficiency measures adopted and implemented pursuant to this part or Part 2.8 (commencing with Section 10800) are water conservation measures subject to the protections provided under Section 1011.

(2) Because an urban agency is not required to meet its urban water use target until 2020 pursuant to subdivision (b) of Section 10608.24, an urban retail water supplier's failure to meet those targets shall not establish a violation of law for purposes of any state administrative or judicial proceeding prior to January 1, 2021. Nothing in this paragraph limits the use of data reported to the department or the board in litigation or an administrative proceeding. This paragraph shall become inoperative on January 1, 2021.

(3) To the extent feasible, the department and the board shall provide for the use of water conservation reports required under this part to meet the requirements of Section 1011 for water conservation reporting.

(b) This part does not limit or otherwise affect the application of Chapter 3.5 (commencing with Section 11340), Chapter 4 (commencing with Section 11370), Chapter 4.5 (commencing with Section 11400), and Chapter 5 (commencing with Section 11500) of Part 1 of Division 3 of Title 2 of the Government Code.

(c) This part does not require a reduction in the total water used in the agricultural or urban sectors, because other factors, including, but not limited to, changes in agricultural economics or population growth may have greater effects on water

use. This part does not limit the economic productivity of California's agricultural, commercial, or industrial sectors.

(d) The requirements of this part do not apply to an agricultural water supplier that is a party to the Quantification Settlement Agreement, as defined in subdivision (a) of Section 1 of Chapter 617 of the Statutes of 2002, during the period within which the Quantification Settlement Agreement remains in effect. After the expiration of the Quantification Settlement Agreement, to the extent conservation water projects implemented as part of the Quantification Settlement Agreement remain in effect, the conserved water created as part of those projects shall be credited against the obligations of the agricultural water supplier pursuant to this part.

Chapter 2. Definitions

10608.12. Unless the context otherwise requires, the following definitions govern the construction of this part:

(a) "Agricultural water supplier" means a water supplier, either publicly or privately owned, providing water to 10,000 or more irrigated acres, excluding recycled water. "Agricultural water supplier" includes a supplier or contractor for water, regardless of the basis of right, that distributes or sells water for ultimate resale to customers. "Agricultural water supplier" does not include the department.

(b) "Base daily per capita water use" means any of the following:

(1) The urban retail water supplier's estimate of its average gross water use, reported in gallons per capita per day and calculated over a continuous 10-year period ending no earlier than December 31, 2004, and no later than December 31, 2010.

(2) For an urban retail water supplier that meets at least 10 percent of its 2008 measured retail water demand through recycled water that is delivered within the service area of an urban retail water supplier or its urban wholesale water supplier, the urban retail water supplier may extend the calculation described in paragraph (1) up to an additional five years to a maximum of a continuous 15-year period ending no earlier than December 31, 2004, and no later than December 31, 2010.

(3) For the purposes of Section 10608.22, the urban retail water supplier's estimate of its average gross water use, reported in gallons per capita per day and calculated over a continuous five-year period ending no earlier than December 31, 2007, and no later than December 31, 2010.

(c) "Baseline commercial, industrial, and institutional water use" means an urban retail water supplier's base daily per capita water use for commercial, industrial, and institutional users.

(d) "Commercial water user" means a water user that provides or distributes a product or service.

(e) "Compliance daily per capita water use" means the gross water use during the final year of the reporting period, reported in gallons per capita per day.

(f) "Disadvantaged community" means a community with an annual median household income that is less than 80 percent of the statewide annual median household income.

(g) "Gross water use" means the total volume of water, whether treated or untreated, entering the distribution system of an urban retail water supplier, excluding all of the following:

(1) Recycled water that is delivered within the service area of an urban retail water supplier or its urban wholesale water supplier.

(2) The net volume of water that the urban retail water supplier places into long-term storage.

(3) The volume of water the urban retail water supplier conveys for use by another urban water supplier.

(4) The volume of water delivered for agricultural use, except as otherwise provided in subdivision (f) of Section 10608.24.

(h) "Industrial water user" means a water user that is primarily a manufacturer or processor of materials as defined by the North American Industry Classification System code sectors 31 to 33, inclusive, or an entity that is a water user primarily engaged in research and development.

(i) "Institutional water user" means a water user dedicated to public service. This type of user includes, among other users, higher education institutions, schools, courts, churches, hospitals, government facilities, and nonprofit research institutions.

(j) "Interim urban water use target" means the midpoint between the urban retail water supplier's base daily per capita water use and the urban retail water supplier's urban water use target for 2020.

(k) "Locally cost effective" means that the present value of the local benefits of implementing an agricultural efficiency water management practice is greater than or equal to the present value of the local cost of implementing that measure.

(l) "Process water" means water used for producing a product or product content or water used for research and development, including, but not limited to, continuous manufacturing processes, water used for testing and maintaining equipment used in producing a product or product content, and water used in combined heat and power facilities used in producing a product or product content. Process water does not mean incidental water uses not related to the production of a product or product content, including, but not limited to, water used for restrooms, landscaping, air conditioning, heating, kitchens, and laundry.

(m) "Recycled water" means recycled water, as defined in subdivision (n) of Section 13050, that is used to offset potable demand, including recycled water supplied for direct use and indirect potable reuse, that meets the following requirements, where applicable:

(1) For groundwater recharge, including recharge through spreading basins, water supplies that are all of the following:

(A) Metered.

(B) Developed through planned investment by the urban water supplier or a wastewater treatment agency.

(C) Treated to a minimum tertiary level.

(D) Delivered within the service area of an urban retail water supplier or its urban wholesale water supplier that helps an urban retail water supplier meet its urban water use target.

(2) For reservoir augmentation, water supplies that meet the criteria of paragraph (1) and are conveyed through a distribution system constructed specifically for recycled water.

(n) "Regional water resources management" means sources of supply resulting from watershed-based planning for sustainable local water reliability or any of the following alternative sources of water:

(1) The capture and reuse of stormwater or rainwater.

(2) The use of recycled water.

(3) The desalination of brackish groundwater.

(4) The conjunctive use of surface water and groundwater in a manner that is consistent with the safe yield of the groundwater basin.

(o) "Reporting period" means the years for which an urban retail water supplier reports compliance with the urban water use targets.

(p) "Urban retail water supplier" means a water supplier, either publicly or privately owned, that directly provides potable municipal water to more than 3,000 end users or that supplies more than 3,000 acre-feet of potable water annually at retail for municipal purposes.

(q) "Urban water use target" means the urban retail water supplier's targeted future daily per capita water use.

(r) "Urban wholesale water supplier," means a water supplier, either publicly or privately owned, that provides more than 3,000 acre-feet of water annually at wholesale for potable municipal purposes.

Chapter 3. Urban Retail Water Suppliers

10608.16.

(a) The state shall achieve a 20-percent reduction in urban per capita water use in California on or before December 31, 2020.

(b) The state shall make incremental progress towards the state target specified in subdivision (a) by reducing urban per capita water use by at least 10 percent on or before December 31, 2015.

10608.20.

(a) (1) Each urban retail water supplier shall develop urban water use targets and an interim urban water use target by July 1, 2011. Urban retail water suppliers may elect to determine and report progress toward achieving these targets on an individual or regional basis, as provided in subdivision (a) of Section 10608.28, and may determine the targets on a fiscal year or calendar year basis.

(2) It is the intent of the Legislature that the urban water use targets described in subdivision (a) cumulatively result in a 20-percent reduction from the baseline daily per capita water use by December 31, 2020.

(b) An urban retail water supplier shall adopt one of the following methods for determining its urban water use target pursuant to subdivision (a):

(1) Eighty percent of the urban retail water supplier's baseline per capita daily water use.

(2) The per capita daily water use that is estimated using the sum of the following performance standards:

(A) For indoor residential water use, 55 gallons per capita daily water use as a provisional standard. Upon completion of the department's 2016 report to the Legislature pursuant to Section 10608.42, this standard may be adjusted by the Legislature by statute.

(B) For landscape irrigated through dedicated or residential meters or connections, water efficiency equivalent to the standards of the Model Water Efficient Landscape Ordinance set forth in Chapter 2.7 (commencing with Section 490) of Division 2 of Title 23 of the California Code of Regulations, as in effect the later of the year of the landscape's installation or 1992. An urban retail water supplier using the approach specified in this subparagraph shall use satellite imagery, site visits, or other best available technology to develop an accurate estimate of landscaped areas.

(C) For commercial, industrial, and institutional uses, a 10-percent reduction in water use from the baseline commercial, industrial, and institutional water use by 2020.

(3) Ninety-five percent of the applicable state hydrologic region target, as set forth in the state's draft 20x2020 Water Conservation Plan (dated April 30, 2009). If the service area of an urban water supplier includes more than one hydrologic region, the supplier shall apportion its service area to each region based on population or area.

(4) A method that shall be identified and developed by the department, through a public process, and reported to the Legislature no later than December 31, 2010. The method developed by the department shall identify per capita targets that cumulatively result in a statewide 20-percent reduction in urban daily per capita water use by December 31, 2020. In developing urban daily per capita water use targets, the department shall do all of the following:

(A) Consider climatic differences within the state.

(B) Consider population density differences within the state.

(C) Provide flexibility to communities and regions in meeting the targets.

(D) Consider different levels of per capita water use according to plant water needs in different regions.

(E) Consider different levels of commercial, industrial, and institutional water use in different regions of the state.

(F) Avoid placing an undue hardship on communities that have implemented conservation measures or taken actions to keep per capita water use low.

(c) If the department adopts a regulation pursuant to paragraph (4) of subdivision (b) that results in a requirement that an urban retail water supplier achieve a reduction in daily per capita water use that is greater than 20 percent by December 31, 2020, an urban retail water supplier that adopted the method described in paragraph (4) of subdivision (b) may limit its urban water use target to a reduction of not more than 20 percent by December 31, 2020, by adopting the method described in paragraph (1) of subdivision (b).

(d) The department shall update the method described in paragraph (4) of subdivision (b) and report to the Legislature by December 31, 2014. An urban retail water supplier that adopted the method described in paragraph (4) of subdivision (b) may adopt a new urban daily per capita water use target pursuant to this updated method.

(e) An urban retail water supplier shall include in its urban water management plan required pursuant to Part 2.6 (commencing with Section 10610) due in 2010 the baseline daily per capita water use, urban water use target, interim urban water use target, and compliance daily per capita water use, along with the bases for determining those estimates, including references to supporting data.

(f) When calculating per capita values for the purposes of this chapter, an urban retail water supplier shall determine population using federal, state, and local population reports and projections.

(g) An urban retail water supplier may update its 2020 urban water use target in its 2015 urban water management plan required pursuant to Part 2.6 (commencing with Section 10610).

(h) (1) The department, through a public process and in consultation with the California Urban Water Conservation Council, shall develop technical methodologies and criteria for the consistent implementation of this part, including, but not limited to, both of the following:

(A) Methodologies for calculating base daily per capita water use, baseline commercial, industrial, and institutional water use, compliance daily per capita water use, gross water use, service area population, indoor residential water use, and landscaped area water use.

(B) Criteria for adjustments pursuant to subdivisions (d) and (e) of Section 10608.24.

(2) The department shall post the methodologies and criteria developed pursuant to this subdivision on its Internet Web site, and make written copies

available, by October 1, 2010. An urban retail water supplier shall use the methods developed by the department in compliance with this part.

(i) (1) The department shall adopt regulations for implementation of the provisions relating to process water in accordance with subdivision (l) of Section 10608.12, subdivision (e) of Section 10608.24, and subdivision (d) of Section 10608.26.

(2) The initial adoption of a regulation authorized by this subdivision is deemed to address an emergency, for purposes of Sections 11346.1 and 11349.6 of the Government Code, and the department is hereby exempted for that purpose from the requirements of subdivision (b) of Section 11346.1 of the Government Code. After the initial adoption of an emergency regulation pursuant to this subdivision, the department shall not request approval from the Office of Administrative Law to readopt the regulation as an emergency regulation pursuant to Section 11346.1 of the Government Code.

(j) An urban retail water supplier shall be granted an extension to July 1, 2011, for adoption of an urban water management plan pursuant to Part 2.6 (commencing with Section 10610) due in 2010 to allow use of technical methodologies developed by the department pursuant to paragraph (4) of subdivision (b) and subdivision (h). An urban retail water supplier that adopts an urban water management plan due in 2010 that does not use the methodologies developed by the department pursuant to subdivision (h) shall amend the plan by July 1, 2011, to comply with this part.

10608.22. Notwithstanding the method adopted by an urban retail water supplier pursuant to Section 10608.20, an urban retail water supplier's per capita daily water use reduction shall be no less than 5 percent of base daily per capita water use as defined in paragraph (3) of subdivision (b) of Section 10608.12. This section does not apply to an urban retail water supplier with a base daily per capita water use at or below 100 gallons per capita per day.

10608.24.

(a) Each urban retail water supplier shall meet its interim urban water use target by December 31, 2015.

(b) Each urban retail water supplier shall meet its urban water use target by December 31, 2020.

(c) An urban retail water supplier's compliance daily per capita water use shall be the measure of progress toward achievement of its urban water use target.

(d) (1) When determining compliance daily per capita water use, an urban retail water supplier may consider the following factors:

(A) Differences in evapotranspiration and rainfall in the baseline period compared to the compliance reporting period.

(B) Substantial changes to commercial or industrial water use resulting from increased business output and economic development that have occurred during the reporting period.

(C) Substantial changes to institutional water use resulting from fire suppression services or other extraordinary events, or from new or expanded operations, that have occurred during the reporting period.

(2) If the urban retail water supplier elects to adjust its estimate of compliance daily per capita water use due to one or more of the factors described in paragraph (1), it shall provide the basis for, and data supporting, the adjustment in the report required by Section 10608.40.

(e) When developing the urban water use target pursuant to Section 10608.20, an urban retail water supplier that has a substantial percentage of industrial water use in its service area, may exclude process water from the calculation of gross water use to avoid a disproportionate burden on another customer sector.

(f) (1) An urban retail water supplier that includes agricultural water use in an urban water management plan pursuant to Part 2.6 (commencing with Section 10610) may include the agricultural water use in determining gross water use. An urban retail water supplier that includes agricultural water use in determining gross water use and develops its urban water use target pursuant to paragraph (2) of subdivision (b) of Section 10608.20 shall use a water efficient standard for agricultural irrigation of 100 percent of reference evapotranspiration multiplied by the crop coefficient for irrigated acres.

(2) An urban retail water supplier, that is also an agricultural water supplier, is not subject to the requirements of Chapter 4 (commencing with Section 10608.48), if the agricultural water use is incorporated into its urban water use target pursuant to paragraph (1).

10608.26.

(a) In complying with this part, an urban retail water supplier shall conduct at least one public hearing to accomplish all of the following:

(1) Allow community input regarding the urban retail water supplier's implementation plan for complying with this part.

(2) Consider the economic impacts of the urban retail water supplier's implementation plan for complying with this part.

(3) Adopt a method, pursuant to subdivision (b) of Section 10608.20, for determining its urban water use target.

(b) In complying with this part, an urban retail water supplier may meet its urban water use target through efficiency improvements in any combination among its customer sectors. An urban retail water supplier shall avoid placing a disproportionate burden on any customer sector.

(c) For an urban retail water supplier that supplies water to a United States Department of Defense military installation, the urban retail water supplier's implementation plan for complying with this part shall consider the United States Department of Defense military installation's requirements under federal Executive Order 13423.

(d) (1) Any ordinance or resolution adopted by an urban retail water supplier after the effective date of this section shall not require existing customers as of the effective date of this section, to undertake changes in product formulation, operations, or equipment that would reduce process water use, but may provide technical assistance and financial incentives to those customers to implement efficiency measures for process water. This section shall not limit an ordinance or resolution adopted pursuant to a declaration of drought emergency by an urban retail water supplier.

(2) This part shall not be construed or enforced so as to interfere with the requirements of Chapter 4 (commencing with Section 113980) to Chapter 13 (commencing with Section 114380), inclusive, of Part 7 of Division 104 of the Health and Safety Code, or any requirement or standard for the protection of public health, public safety, or worker safety established by federal, state, or local government or recommended by recognized standard setting organizations or trade associations.

10608.28.

(a) An urban retail water supplier may meet its urban water use target within its retail service area, or through mutual agreement, by any of the following:

(1) Through an urban wholesale water supplier.

(2) Through a regional agency authorized to plan and implement water conservation, including, but not limited to, an agency established under the Bay Area Water Supply and Conservation Agency Act (Division 31 (commencing with Section 81300)).

(3) Through a regional water management group as defined in Section 10537.

(4) By an integrated regional water management funding area.

(5) By hydrologic region.

(6) Through other appropriate geographic scales for which computation methods have been developed by the department.

(b) A regional water management group, with the written consent of its member agencies, may undertake any or all planning, reporting, and implementation functions under this chapter for the member agencies that consent to those activities. Any data or reports shall provide information both for the regional water management group and separately for each consenting urban retail water supplier and urban wholesale water supplier.

10608.32. All costs incurred pursuant to this part by a water utility regulated by the Public Utilities Commission may be recoverable in rates subject to review and approval by the Public Utilities Commission, and may be recorded in a memorandum account and reviewed for reasonableness by the Public Utilities Commission.

10608.36. Urban wholesale water suppliers shall include in the urban water management plans required pursuant to Part 2.6 (commencing with Section 10610) an assessment of their present and proposed future measures, programs, and policies to help achieve the water use reductions required by this part.

10608.40. Urban water retail suppliers shall report to the department on their progress in meeting their urban water use targets as part of their urban water management plans submitted pursuant to Section 10631. The data shall be reported using a standardized form developed pursuant to Section 10608.52.

10608.42. The department shall review the 2015 urban water management plans and report to the Legislature by December 31, 2016, on progress towards achieving a 20-percent reduction in urban water use by December 31, 2020. The report shall include recommendations on changes to water efficiency standards or urban water use targets in order to achieve the 20-percent reduction and to reflect updated efficiency information and technology changes.

10608.43. The department, in conjunction with the California Urban Water Conservation Council, by April 1, 2010, shall convene a representative task force consisting of academic experts, urban retail water suppliers, environmental organizations, commercial water users, industrial water users, and institutional water users to develop alternative best management practices for commercial, industrial, and institutional users and an assessment of the potential statewide water use efficiency improvement in the commercial, industrial, and institutional sectors that would result from implementation of these best management practices. The taskforce, in conjunction with the department, shall submit a report to the Legislature by April 1, 2012, that shall include a review of multiple sectors within commercial, industrial, and institutional users and that shall recommend water use efficiency standards for

commercial, industrial, and institutional users among various sectors of water use. The report shall include, but not be limited to, the following:

(a) Appropriate metrics for evaluating commercial, industrial, and institutional water use.

(b) Evaluation of water demands for manufacturing processes, goods, and cooling.

(c) Evaluation of public infrastructure necessary for delivery of recycled water to the commercial, industrial, and institutional sectors.

(d) Evaluation of institutional and economic barriers to increased recycled water use within the commercial, industrial, and institutional sectors.

(e) Identification of technical feasibility and cost of the best management practices to achieve more efficient water use statewide in the commercial, industrial, and institutional sectors that is consistent with the public interest and reflects past investments in water use efficiency.

10608.44. Each state agency shall reduce water use on facilities it operates to support urban retail water suppliers in meeting the target identified in Section 10608.16.

APPENDIX B

Adoption Resolution and Related Documentation

STATE OF CALIFORNIA)
) ss.
COUNTY OF SAN DIEGO)

I, Susan Cruz, District Secretary of the OTAY WATER DISTRICT do hereby certify that the foregoing is a true and correct copy of Resolution No. 4175 adopted by the Board of Directors of the OTAY WATER DISTRICT at a regular board meeting held the 1st day of June, 2011.

Date: July 18, 2011

District Secretary of the Otay Water District and the Board of Directors Thereof

G:\UserData\DistSec\WINWORD\Certification Ordinance.doc

RESOLUTION NO. 4175

A RESOLUTION OF THE BOARD OF DIRECTORS
OF THE OTAY WATER DISTRICT ADOPTING THE
2010 URBAN WATER MANAGMENET PLAN

WHEREAS, the Otay Water District (District) has completed the 2010 Urban Water Management Plan pursuant to the requirements of the California Water Code section 10610 et seq.; and

WHEREAS, the plan is the formal document to discuss past, current, and projected water demands; current and alternative water conservation measures; water supply deficiencies; and future management practices.

NOW, THEREFORE, BE IT RESOLVED that the Board of Directors of the Otay Water District approves and adopts the plan entitled "2010 Urban Water Management Plan" for the Otay Water District; and

BE IT FURTHER RESOLVED that the General Manager of the District is authorized and directed to implement the water conservation measures included in the plan as the District's part in the local and regional water conservation effort.

PASSED, APPROVED, AND ADOPTED by the Board of Directors of the Otay Water District at a regular meeting this 1st day of June, 2011.

President

ATTEST:

District Secretary

Notice of Otay Water District's
2011 Urban Water Management Plan Preparation

Date: March 21, 2011

This letter is to inform you that the Otay Water District (District) is updating its Urban Water Management Plan (UWMP). California State law requires urban water suppliers to update their UWMPs every five years and notify the County of San Diego and the cities within their service area that a plan is being prepared. The District must adopt an updated UWMP by July 1, 2011, and submit the adopted plan to the California Department of Water Resources by August 1, 2011.

The UWMP is required to contain a detailed evaluation of the supplies necessary to reliably meet demands over at least a 20-year period in both normal and dry years. In accordance with State law, the District will make a draft of the UWMP available on the District web site for public review at least two weeks prior to holding a tentatively scheduled public hearing in **June 2011**.

Please feel free to contact Bob Kennedy in the Engineering Department at (619) 670-2273, or bob.kennedy@otaywater.gov, if you need a hard copy of this plan mailed to you, if you have any questions, or would like additional information.

Sincerely,
OTAY WATER DISTRICT

Robert J. Kennedy, P.E.
Associate Civil Engineer

RJK;jf

STAFF REPORT

TYPE MEETING:	Regular Board	MEETING DATE:	June 1, 2011		
SUBMITTED BY:	Bob Kennedy Associate Civil Engineer	PROJECT / SUBPROJECTS:	P1210-001000	DIV. NO.	ALL
	Ron Ripperger Engineering Manager				
APPROVED BY: (Chief)	Rod Posada Chief, Engineering				
APPROVED BY: (Asst. GM):	Manny Magaña Assistant General Manager, Engineering and Operations				
SUBJECT:	Public Hearing for the Otay Water District's 2010 Urban Water Management Plan and Approve Resolution No. 4175 Approving the District's 2010 Urban Water Management Plan				

GENERAL MANAGER'S RECOMMENDATION:

That the Otay Water District (District) Board of Directors (Board), after holding a public hearing on the District's 2010 Urban Water Management Plan (UWMP), approve Resolution No. 4175 approving the District's 2010 UWMP.

COMMITTEE ACTION: _____

Please see Attachment A.

PURPOSE:

That the Board, after holding a public hearing on the District's 2010 UWMP, approve Resolution No. 4175 (Attachment B) approving the District's 2010 UWMP (Attachment C).

ANALYSIS:

Since 1984, California's Urban Water Management Planning Act (Act) has required each urban water supplier in the State to prepare an UWMP. The requirement applies to each urban water supplier that provides water for municipal purposes either directly or indirectly to more than 3,000 customers or supplies more than 3,000 acre-feet (AF) of water annually. These agencies must update their UWMP at least once every five years

on or before December 31st in years ending in five and zero. The deadline for submittal of the 2010 UWMP for retail water purveyors was extended to July 31, 2011 as a result of recent legislation. Sections 10610 through 10657 of the California Water Code detail the information that must be included in these plans. In accordance with the Act, the District is required to update and adopt its plan for submittal to the California Department of Water Resources (DWR) by July 1, 2011. Appendix A in Attachment C contains the text of the Act.

The District utilized DWR's "Guidebook to Assist Urban Water Suppliers to Prepare a 2010 Urban Water Management Plan" dated March 2011 and Senate Bill 7-7 (SBX 7-7) to prepare the UWMP. SBX 7-7 was passed in November 2009 with the goal of reducing California's urban per capita water use by 20 percent by December 31, 2020 with an incremental goal of reducing per capita water use by 10 percent by December 31, 2015.

An UWMP is required in order for a water supplier to receive DWR administered State grants, loans, and drought assistance. In addition, the UWMP is the reference document cited in Water Supply Assessment and Verification Reports mandated in 2001 by Senate Bill 610 and Senate Bill 221 for new developments.

Each urban water supplier is also required to meet SBX 7-7 goals, which are discussed in the UWMP. The UWMP includes projections of the District's future demands and supplies, based on estimates of future growth in the District's service area. It also discusses the steps the District has taken to promote water conservation and ensure water is being used wisely. The strategies outlined in UWMP are intended to allow the District to continue to provide a safe and reliable water supply to its customers.

As required by the Act, the public hearing was noticed in newspapers of general circulation including the San Diego Union Tribune, the Star News, and the East County Californian. In addition, a draft notice was posted on the District's webpage. The District also noticed and solicited comments from the Water Authority, the City of Chula Vista, the City of San Diego, the County of San Diego, local planning groups and sent copies of the draft UWMP to local libraries.

The District's 2010 UWMP is consistent with the Water Authority's 2010 UWMP. Demand and population estimates, along with service reliability, are consistent with those used by the

Water Authority. The table below outlines the projected population and the water demand for the District through 2035.

	2015	2020	2025	2030	2035
Service Area Population	219,223	242,241	258,037	269,522	284,997
Annual Demand (AF/year)	44,883	53,768	63,811	70,669	77,171
Demands with Conservation (AF/year)	44,883	46,321	49,815	52,774	56,614

One amendment made to the Act since preparation of the District's 2005 UWMP require a plan to include water use projections for lower income and affordable households, to assist with compliance with the existing requirement under Section 65589.7 of the Government Code, that suppliers grant priority for the provision of service to affordable and lower income households.

FISCAL IMPACT:

An approved UWMP is required in order for the District to receive DWR administered grants, loans, and to receive drought assistance.

STRATEGIC GOAL:

This project supports the District's Mission statement, "To provide the best quality of water and wastewater service to the customers of the Otay Water District, in a professional, effective and efficient manner," and the District's Strategic Goal, in planning for infrastructure and supply to meet current and future potable water demands.

LEGAL IMPACT:

In accordance with the Act, the District will meet its legal requirement if its 2010 UWMP is approved by its Board by July 1, 2011 and copies of the UWMP are submitted to DWR by July 30, 2011.

General Manager

P:\WORKING\CIP 00210 WMP & PEIR\UWMP 2010 Update\Staff Report\BD 06-01-11, UWMP, (BK-RR).doc

BK/RR/RP:jf

Attachments: Attachment A - Committee Action
Attachment B - Resolution No. 4175
Attachment C - Otay Water District 2010 UWMP

ATTACHMENT A

SUBJECT/PROJECT: P1210-001000	Public Hearing for the Otay Water District's 2010 Urban Water Management Plan and Approve Resolution No. 4175 Approving the District's 2010 Urban Water Management Plan

COMMITTEE ACTION:

The Engineering, Operations, and Water Resources Committee reviewed this item at a meeting held on May 19, 2011 and the following comments were made:

- Staff requested that after holding a public hearing on the District's 2010 Urban Water Management Plan (UWMP), the Board approve Resolution No. 4175 approving the District's 2010 UWMP.

- A PowerPoint presentation was provided to the Committee, *Otay Water District, 2010 Urban Water Management Plan - Public Hearing and Plan Adoption*. The presentatation included the following:

    - Preparation of 2010 UWMP
    - Benefits of Preparing an UWMP
    - What's New for the 2010 UWMP
    - SANDAG Series 12 Forecasts for 2030
    - Water Use Target Methods (4 Methods)
    - Method 1 Baseline
    - Demand Target 20% Reduction by 2020
    - Baseline Demand Forecast (AF)
    - Water Use Efficiency (WUE) Goal & Additional Conservation Requirement (AF)
    - Population and Demand Through 2035
    - Preparation of 2010 UWMP
    - Water Shortage Contingency Plan
    - District Water Shortage Response Levels

- It was indicated that the California Urban Water Management Planning Act require each urban water purveyors to prepare

an UWMP every five years and that the deadline to submit the District's UWMP to the California Department of Water Resources (DWR) is July 1, 2011. Staff stated that DWR's *Guidebook to Assist Urban Water Suppliers to Prepare a 2010 UWMP* was used to prepare the District's Plan. This would be the third plan for the District.

- Staff stated that the Plan is also required for the District to receive funding or drought assistance from the State, and that it can also be used as a supporting document for water supply assessments and verification reports that are required under SB 610 and SB 221.

- The District's 2010 UWMP must also be in compliance with the existing Government Code Section 65589.7 that require water suppliers to grant a priority for the provision of service to housing units affordable to lower income households.

- It was indicated that Legislature passed Senate Bill 7 as part of the Seventh Extraordinary Session (SBX7-7) on November 10, 2009, with the goal of reducing California's urban per capita water use by 20% by December 2020 and an incremental goal of reducing per capita water use by 10% by December 2015. After July 1, 2016, water purveyors are not elibigle for state water grants or loans unless they comply with SBX7-7.

- Staff indicated that legal notices for this hearing at the June 1, 2011 Board meeting were placed in the San Diego Untion Tribune, San Diego Dialy Transcript, Chula Vista Star News, and the East County Californian. Another public hearing notice will be placed again at the end of May 2011. Staff also indicated that the legal notice and a draft copy of the 2010 UWMP was placed on the District's website on May 11, 2011, and that hard copies of the 2010 UWMP were mailed to 13 libraries.

- Staff solicited comments from 9 local business groups, 11 local public agencies, 5 water agencies, and 7 Community Planning Groups. They were also notified about the hearing on June 1, 2011.

- Presented to the Committee was SANDAG's Adopted Series 12 Forecasts for 2030, which staff indicated that SANDAG reduced the number of single-family dwelling from their earlier series 10 forecast and increased the number of

multi-family dwellings consistent with the economist projections presented in early May 2011.

- Staff discussed four (4) water use target methods and indicated that three of the methods are listed in the Water Code and the fourth method was developed by DWR. A comparison of all four methods were provided:

    - Method 1 is eighty percent (80%) of the water supplier's baseline per capita potable water use, which the District's baseline is 190 gpcd, the 2015 target will be 171 gpcd, and the 2020 target will be 152 gpcd.

    - Method 2 estimates the per capita daily water use by using the sum of performance standards applied to indoor residential use, landscape area water use, commercial, industrial, and institutional uses. It also requires that the target be based on the water supplier's estimate of 2020 landscape areas.

    - Method 3 is defined as ninety-five percent (95%) of the applicable state hydrologic region target as stated in the State's Draft 20x2020 Water Conservation Plan. The District is within the South Coast Hydrolic Unit whose target is 149, which is lower than the target calculated by Method 1.

    - Method 4 defines the District's 2020 target at 151 gpcd, which is lower than the target calculated by Method 1.

- Staff indicated that Method 1 was applied to the District's 2010 UWMP. A slide (Method 1 Baseline) was shown to provide more details on how the baseline demand of 190 gpcd was determined.

- Staff stated that in addition to preparing population projects, SANDAG also estimated the potable demand for the District based on CWA's MAIN program. A slide (Baseline Demand Forecast (AF)) was shown to provide a model of the raw water demand projections. Staff noted that the model does not take into account near term annexations and changed to agricultural demand. The total baseline demand will be used to determine the total baseline demand with conservation for each five year increment starting with 2015.

- A slide (Population and Demand Through 2035) was provided to show how the Total baseline demand with conservation was determined. The District fully expects to meet and surpass its gpcd target for several reasons:

    - District's investment in recycled water
    - Customer's response to the increasing cost of water
    - District's Water Conservation efforts
    - Requirement for new developments to use recycled water for irrigation purposes
    - Expansion of the recycled water system and retrofits at large mixed use sites (Southwestern College)
    - CALGREEN impacts that are expected to lower the per capita consumption for those who purchase new homes within the District

- Staff indicated that the District's 2010 UWMP includes scenario planning to account for gradual, sudden or short term changes. Water shortage contingencies and adopted shortage response levels are noted in the District's 2010 UWMP, Section 6.6. Staff noted that CWA has also adopted a drought management plan to deal with water shortages.

- Staff stated that the District is providing annual BMP reports into the DWR's new online website and that the roll out of DWR's website was delayed due to technical problems which they recently fixed. Staff indicated that these reports will be added to the District's 2010 UWMP's Appendix Section I. Staff will also update the 2010 UWMP as a result of comments received during the Board's public hearing on June 1, 2011. A resolution of adoption is included with the Board item for action after the public has had a chance to comment at the scheduled Board meeting.

- In response to a question by the Committee, staff indicated that the District's 2010 UWMP included a scenario plan that anticipates the loss of incentives from the state and local agencies.

- It was indicated that out of the four methods, staff recommended Method 1 because it had the highest baseline rate. Staff believes that other districts will also utilize Method 1 as a model because it is consistent and straight-forward.

- In response to a comment by the Committee, staff stated that the District is currently at a thirty-three percent (33%) water conservation level which is higher than the required target. Staff continues to monitor the levels as a precaution to ensure the availability of water supply for the future.

- The Committee inquired if MWD's plan to reserve water would affect the District. Staff said no, but there is a concern that the MWD Board will approve a special rate for the sale of groundwater and not reserve its water at full capacity. As one of the major water supply agency, MWD should maintain its water reserves at full capacity to ensure the availability of water supply at all times, especially during drought conditions. As for MWD's plan to sell groundwater at a special rate, staff is concerned that MWD may not receive sufficient funding for its infrastructures and questions how MWD plans to offset that.

Following the discussion, the Committee supported staffs' recommendation and presentation to the full board as a public hearing item.

ATTACHMENT B

RESOLUTION NO. 4175

A RESOLUTION OF THE BOARD OF DIRECTORS
OF THE OTAY WATER DISTRICT ADOPTING THE
2010 URBAN WATER MANAGMENET PLAN

WHEREAS, the Otay Water District (District) has completed the 2010 Urban Water Management Plan pursuant to the requirements of the California Water Code section 10610 et seq.; and

WHEREAS, the plan is the formal document to discuss past, current, and projected water demands; current and alternative water conservation measures; water supply deficiencies; and future management practices.

NOW, THEREFORE, BE IT RESOLVED that the Board of Directors of the Otay Water District approves and adopts the plan entitled "2010 Urban Water Management Plan" for the Otay Water District; and

BE IT FURTHER RESOLVED that the General Manager of the District is authorized and directed to implement the water conservation measures included in the plan as the District's part in the local and regional water conservation effort.

PASSED, APPROVED, AND ADOPTED by the Board of Directors of the Otay Water District at a regular meeting this 1st day of June, 2011.

_____
President

ATTEST:

_____
District Secretary

OTAY WATER DISTRICT 2010 UWMP PUBLIC NOTICE MAILING LIST

Jurisdiction/Agency	Name	Address	Phone/Fax/Email
City of Chula Vista	Gary Halbert	City of Chula Vista Planning and Building Dept. 276 Fourth Avenue Chula Vista, CA 91910-2631	619-691-5002 619-409-5861 fax ghalbert@ci.chula-vista.ca.us
	Ed Batchelder	City of Chula Vista Planning and Building Dept. 276 Fourth Avenue Chula Vista, CA 91910-2631	619-691-5005 619-409-5859 fax ebatchelder@ci.chula-vista.ca.us
City of San Diego	Bill Anderson	City Planning and Community Investment Mail Station 5A 202 C Street San Diego, CA 92101	619-236-6361 619-236-6478 fax AndersonW@sandiego.gov
County of San Diego	Eric Gibson	County Dept. of Planning and Land Use Mail Station 0650 5201-B Ruffin Road San Diego, CA 92123	858-694-2962 858-694-2555 fax eric.gibson@sdcounty.ca.gov
	Devon Muto	County Dept. of Planning and Land Use Mail Station 0650 5201-B Ruffin Road San Diego, CA 92123	858-694-3016 858-694-3373 fax devon.muto@sdcounty.ca.gov
San Diego County Water Authority	Dana Friehauf	San Diego County Water Authority 4677 Overland Avenue San Diego, CA 92123	858-522-6749 858-268-7881 fax dfriehauf@sdcwa.org
San Diego Association of Governments	Charles "Muggs" Stoll Department Director	SANDAG 401 B Street, Suite 800 San Diego, CA 92101 (or Mail Station 980)	619-699-6945 619-699-1905 fax mst@sandag.org
San Diego LAFCO	Ingrid Hansen Chief, Governmental Services	1600 Pacific Highway, Room 452 San Diego, CA 92101	619-531-5400

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Mr Gary Halbert
City of Chula Vista
Plng + Bldg Dept
276 Fourth Ave
Chula Vista CA 91910-2631

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A. Signature
X [signature] ☒ Agent ☐ Addressee

B. Received by (Printed Name): Victor [illegible]
C. Date of Delivery: 3-30-11

D. Is delivery address different from item 1? ☐ Yes
If YES, enter delivery address below: ☐ No

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1. Article Addressed to:

Mr Ed Batchelder
City of Chula Vista
Plng + Bldg Dept.
276 Fourth Ave
Chula Vista, CA 91910-2631

COMPLETE THIS SECTION ON DELIVERY

A. Signature
X [signature] ☒ Agent ☐ Addressee

B. Received by (Printed Name): Victor [illegible]
C. Date of Delivery: 3-30-11

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1. Article Addressed to:

Mr. Devon Muto
County of San Diego
Dept of Plng + Land Use
6201-B Ruffin Rd M/S 0650
San Diego CA 92123

COMPLETE THIS SECTION ON DELIVERY

A. Signature
X Jesus Del Real ☐ Agent ☐ Addressee

B. Received by (Printed Name): Jesus Del Real
C. Date of Delivery: 3-28

D. Is delivery address different from item 1? ☐ Yes
If YES, enter delivery address below: ☐ No

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1. Article Addressed to:

Mr. Bill Anderson
City of San Diego
City Plng + Community Investment
202 C St M/S 5A
San Diego CA 92101

COMPLETE THIS SECTION ON DELIVERY

A. Signature
X [signature] ☐ Agent ☐ Addressee

B. Received by (Printed Name)
C. Date of Delivery

D. Is delivery address different from item 1? ☐ Yes
If YES, enter delivery address below: ☐ No

MAR 25 2011

3. Service Type
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1. Article Addressed to:

Mr Charles Stoll
Dept Director
SANDAG
401 B St Ste 800 M/S980
San Diego CA 92101

COMPLETE THIS SECTION ON DELIVERY

A. Signature
X Cher Butler ☐ Agent ☐ Addressee

B. Received by (Printed Name) Cher Butler
C. Date of Delivery 3/24

D. Is delivery address different from item 1? ☐ Yes
If YES, enter delivery address below: ☐ No

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1. Article Addressed to:

Mr. Eric Gibson
County of San Diego
Dept of Plng + Land Use
5201-B Ruffin Rd
M/S 0650
San Diego CA 92123

COMPLETE THIS SECTION ON DELIVERY

A. Signature
X ☒ Agent ☐ Addressee

B. Received by (Printed Name) Rey
C. Date of Deliver 3/29/11

D. Is delivery address different from item 1? ☐ Yes
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Article Addressed to:

Ms Dana Friehauf
San Diego County Water Auth
4677 Overland Ave
San Diego CA 92123

COMPLETE THIS SECTION ON DELIVERY

A. Signature
X ☐ Agent ☐ Addressee

B. Received by (Printed Name) Mike Vanoli
C. Date of Delivery 3/24/11

D. Is delivery address different from item 1? ☐ Yes
If YES, enter delivery address below: ☐ No

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1. Article Addressed to:

Ms Ingrid Hansen
Chief, Governmental Svcs
San Diego LAFCO
1600 Pacific Hwy Rm 452
San Diego CA 92101

COMPLETE THIS SECTION ON DELIVERY

A. Signature
X Tammy Luckett ☐ Agent ☐ Addresse

B. Received by (Printed Name) TAMMY LUCKETT
C. Date of Deliver 3/24/11

D. Is delivery address different from item 1? ☐ Yes
If YES, enter delivery address below: ☐ No

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Agency	Department	Contact	Street	City, State	Zip	E-mail
Local Groups						
Bonita Business Professional Association		Pat Dolan, Executive Director	P.O. Box 284	Bonita, CA	91908	
Building Industry Association		Matt Adams	6336 Greenwich Drive, Ste. A	San Diego, CA	92122-5922	
Chula Vista Chamber of Commerce		Lisa Cohen, CEO	233 4th Avenue	Chula Vista, CA	91910	
Descanso Sponsor Group		Michael Sterns, Chair	P.O. Box 38	Descanso, CA	91916	
East County Economic Development Council		Deanna Weeks, Executive Officer	1870 Cordell Court, Ste. 202	El Cajon, CA	92020	
Lemon Grove Chamber of Commerce		President	P.O. Box 1076	Lemon Grove, CA	91946-1076	
National City Chamber of Commerce		Jacqueline L. Reynoso, CEO	901 National City Blvd.	National City, CA	91950	
Otay Mesa Property Owners Association		President	3131 Camino del Rio North, Suite 1	San Diego, CA	92108	
Spring Valley Chamber of Commerce		President	3322 Sweetwater Springs Blvd., #2	Spring Valley, CA	91977-3142	
Public Agencies						
California Department of Public Health		Sean Sterchi	1600 Pacific Highway	San Diego, CA	92101	
Caltrans, District 11		Kim Smith	4050 Taylor Street	San Diego, CA	92110	kim_t_smith@dot.ca.gov
City of Chula Vista		Planning Director	276 Fourth Avenue	Chula Vista, CA	91910	
City of Chula Vista		Gary Halbert, Assistant City Manager	276 Fourth Avenue	Chula Vista, CA	91910	ghalbert@ci.chula-vista.ca.us
City of Chula Vista		Ed Batchelder	276 4th Avenue	Chula Vista, CA	91910	ebatchelder@ci.chula-vista.ca.u
City of El Cajon		Planning Director	200 E. Main Street	El Cajon, CA	92020	
City of Lemon Grove		Planning Director	3232 Main Street	Lemon Grove, CA	91945	
City of National City		Planning Director	1243 National City Blvd.	National City, CA	91950	
City of San Diego		City Manager	202 C Street, MS #9A	San Diego, CA	92101	
City of San Diego		Bill Anderson	202 C Street, MS #5A	San Diego, CA	92101	AndersonW@sandiego.gov
County of San Diego	Department of Planning & Land Use	Devon Muto	5201 Ruffin Road, Suite B	San Diego, CA	92123	devon.muto@sdcounty.ca.gov
County of San Diego	Department of Planning & Land Use	Eric Gibson, Planning Director	5201 Ruffin Road, Suite B	San Diego, CA	92123	eric.gibson@sdcounty.ca.gov
Regional Water Quality Control Board	San Diego Region	David Gibson, Executive Officer	9174 Sky Park Court, #100	San Diego, CA	92123-4340	
San Diego Association of Governments		Charles Stoll	401 B Street, Suite 800	San Diego, CA	92101	mst@sandag.org
San Diego LAFCO		Ingrid Hansen	1600 Pacific Highway, Room 452	San Diego, CA	92101	
Water Agencies						
Sweetwater Authority		Jim Smyth	505 Garrett Avenue	Chula Vista, CA	91910	
Helix Water District		Mark Weston, General Manager	7811 University Avenue	La Mesa, CA	91941	
City of San Diego Water Department		Jeff Pasek, Watershed Manager	600 B Street, Suite 600, MS 906	San Diego, CA	92101	
San Diego County Water Authority		Dana Friehauf	4677 Overland Avenue	San Diego, CA	92123	dfriehauf@sdcwa.org
Metropolitan Water District of Southern California			P.O. Box 54153	Los Angeles, CA	90054	
Community Planning Group						
Alpine Community Planning Group		Greg Fox, Chair	P.O. Box 819	Alpine, CA	91903-1600	
Crest-Dehesa-Granite Hills-Harbison Canyon		Waldon G. Riggs, Chair	P.O. Box 21489	El Cajon, CA	92021	
Jamul-Dulzura Community Planning Group		Dan Kjonegaard, Chair	P.O. Box 613	Jamul, CA	91935	
Otay Mesa Planning Committee		Fountain Valley, California 92708	350 Tenth Avenue, Suite 800	San Diego, CA	92101	
Spring Valley Community Planning Group		Scott Montgomery, Chair	P.O. Box 1637	Spring Valley, CA	91979-1637	
Sweetwater Community Planning Group		Sheri Todus & Harriet Taylor, co-chairs	P.O. Box 460	Bonita, CA	91908-0460	
Valle de Oro Community Planning Group		Jack Philips, Chairman	P.O. Box 936	La Mesa, CA	91944-0936	
Libraries						
San Diego Public Library		Gary Klockenga, Govt. Publications Librarian	820 E Street	San Diego, CA	92101	
National City Public Library		Librarian	1401 National City Blvd.	National City, CA	91950	
County Public Library	Crest Branch	Librarian	105 Juanita Lane	El Cajon, CA	92021	
County Public Library	El Cajon Branch	Librarian	201 E. Douglas	El Cajon, CA	92020	
County Public Library	Fletcher Hills Branch	Librarian	576 Garfield Avenue	El Cajon, CA	92020	
County Public Library	La Mesa Branch	Librarian	8074 Allison Avenue	La Mesa, CA	91941	
County Public Library	Lemon Grove Branch	Librarian	8073 Broadway	Lemon Grove, CA	91945	
County Public Library	Lincoln Acres Branch	Librarian	2725 Granger Avenue	National City, CA	91950	
County Public Library	Rancho San Diego Branch	Librarian	11555 Via Rancho San Diego	El Cajon, CA	92019	
Chula Vista Public Library	South Chula Vista Branch	Librarian	389 Orange Avenue	Chula Vista, CA	91911	
Chula Vista Public Library	Eastlake Branch	Librarian	1120 EastLake Parkway	Chula Vista, CA	91915	
Chula Vista Public Library	Civic Center Branch	Librarian	365 F Street	Chula Vista, CA	91910	
Chula Vista Public Library	Bonita-Sunnyside Branch	Librarian	4375 Bonita Road	Bonita, CA	91902	

Agency	Department	Contact	Street	City, State	Zip	E-mail
Local Groups						
Bonita Business Professional Association		Pat Dolan, Executive Director	P.O. Box 284	Bonita, CA	91908	
Building Industry Association		Matt Adams	6336 Greenwich Drive, Ste. A	San Diego, CA	92122-5922	
Chula Vista Chamber of Commerce		Lisa Cohen, CEO	233 4th Avenue	Chula Vista, CA	91910	
Descanso Sponsor Group		Michael Sterns, Chair	P.O. Box 38	Descanso, CA	91916	
East County Economic Development Council		Deanna Weeks, Executive Officer	1870 Cordell Court, Ste. 202	El Cajon, CA	92020	
Lemon Grove Chamber of Commerce		President	P.O. Box 1076	Lemon Grove, CA	91946-1076	
National City Chamber of Commerce		Jacqueline L. Reynoso, CEO	901 National City Blvd.	National City, CA	91950	
Otay Mesa Property Owners Association		President	3131 Camino del Rio North, Suite	San Diego, CA	92108	
Spring Valley Chamber of Commerce		President	3322 Sweetwater Springs Blvd., #2	Spring Valley, CA	91977-3142	
Public Agencies						
California Department of Public Health		Sean Sterchi	1600 Pacific Highway	San Diego, CA	92101	
Caltrans, District 11		Kim Smith	4050 Taylor Street	San Diego, CA	92110	kim_t_smith@dot.ca.gov
City of Chula Vista		Planning Director	276 Fourth Avenue	Chula Vista, CA	91910	
City of Chula Vista		Gary Halbert, Assistant City Manager	276 Fourth Avenue	Chula Vista, CA	91910	ghalbert@ci.chula-vista.ca.us
City of Chula Vista		Ed Batchelder	276 4th Avenue	Chula Vista, CA	91910	ebatchelder@ci.chula-vista.ca.u
City of El Cajon		Planning Director	200 E. Main Street	El Cajon, CA	92020	
City of Lemon Grove		Planning Director	3232 Main Street	Lemon Grove, CA	91945	
City of National City		Planning Director	1243 National City Blvd.	National City, CA	91950	
City of San Diego		City Manager	202 C Street, MS #9A	San Diego, CA	92101	
City of San Diego		Bill Anderson	202 C Street, MS #5A	San Diego, CA	92101	AndersonW@sandiego.gov
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Crest-Dehesa-Granite Hills-Harbison Canyon		Waldon G. Riggs, Chair	P.O. Box 21489	El Cajon, CA	92021	
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Valle de Oro Community Planning Group		Jack Philips, Chairman	P.O. Box 936	La Mesa, CA	91944-0936	
Libraries						**SENT**
San Diego Public Library		Gary Klockenga, Govt. Publications Librarian	820 E Street	San Diego, CA	92101	**Hard Copy**
National City Public Library		Librarian	1401 National City Blvd.	National City, CA	91950	**Hard Copy**
County Public Library	Crest Branch	Librarian	105 Juanita Lane	El Cajon, CA	92021	**Hard Copy**
County Public Library	El Cajon Branch	Librarian	201 E. Douglas	El Cajon, CA	92020	**Hard Copy**
County Public Library	Fletcher Hills Branch	Librarian	576 Garfield Avenue	El Cajon, CA	92020	**Hard Copy**
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Chula Vista Public Library	Bonita-Sunnyside Branch	Librarian	4375 Bonita Road	Bonita, CA	91902	**Hard Copy**

PROOF OF PUBLICATION
(2015.5 C.C.P)

STATE OF CALIFORNIA,

County of San Diego:

I am a citizen of the United States and a resident of the county aforesaid; I am over the age of eighteen years, and not a party to or interested in the above-entitled matter. I am the principle clerk of the printer of THE STAR-NEWS, a newspaper of general circulation, published ONCE WEEKLY in the city of **CHULA VISTA** and the South Bay Judicial District, County of San Diego, which newspaper has been adjudged a newspaper of general circulation by the Superior Court of the County of San Diego, State of California, under the date of January 18, 1973, Case Number 71752; that the notice, of which the annexed is a printed copy (set in type not smaller than non-pareil), has been published in each regular and entire issue of said newspaper and not in any supplement thereof on the following dates, to-wit:

5/20

all in the year 2011.

I certify (or declare) under penalty of perjury that the foregoing is true and correct.

Dated at Chula Vista, California 91910

this 20th day of May 2011.

Signature _____
PRINCIPAL CLERK

This space is for the County Clerk's filing stamp.

Proof of Publication of

CV47902

2010 Urban Water Mgmt Plan Prep

OTAY WATER DISTRICT

2010 URBAN WATER MANAGEMENT PLAN PREPARATION

California State law requires the Otay Water District to update their Urban Water Management Plan every five years and adopt an updated UWMP by July 1, 2011. The UWMP is required to contain a detailed evaluation of the supplies necessary to reliably meet demands over at least a 20-year period in both normal and dry years. In accordance with State law, the District will make a draft of the UWMP available on the District web site for public review at least two weeks prior to holding a public hearing in June 1, 2011.

NOTICE IS HEREBY GIVEN that the Otay Water District's draft 2010 Urban Water Management Plan is available for public review. The purpose of the review is to provide the public with an opportunity to comment on the document. The draft document will be available in the reference section of select local libraries within the District service area. A copy will also be available at the District office located at 2554 Sweetwater Springs Boulevard, Spring Valley, CA 91978-2004 and on the District's website

http://www.otaywater.gov

Public comment may be provided at the public hearing. In addition, comments can be sub-

PROOF OF PUBLICATION
(2015.5 C.C.P)

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this 20th day of May 2011.

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http://www.otaywater.gov

Public comment may be provided at the public hearing. In addition, comments can be submitted in writing to Bob

Proof of Publication
(2015.5 C.C.P.)

STATE OF CALIFORNIA
COUNTY OF SAN DIEGO

I, Christine Seiveno, am a citizen of the United States and a resident of the county aforesaid; I am over the age of eighteen years and I am not a party to or interested in the notice published. I am the legal advertising manager of the publisher of

The East County Californian

a newspaper of general circulation, printed and published weekly in the city of El Cajon, County of San Diego, and which newspaper has been adjudged a newspaper of general circulation by the Superior Court of the County of San Diego, State of California, under the date of January 18, 1980, Case No. 447290, Decree No. 51488, that the notice, of which the annexed is a printed copy, has been published in each regular and entire issue of said newspaper and not in any supplement thereof on the following dates, to-wit:

5/19, 5/26

all in the year 2011

I certify (or declare) under the penalty of perjury that the foregoing is true and correct.

Dated at Chula Vista, California

this 26TH day of May 2011

Signature

San Diego Neighborhood Newspapers
The East County Californian
119 N. Magnolia Ave.
El Cajon, CA 92020
619.441-1440

This space is for the County Clerk's filing stamp.

Proof of Publication of

EC33200. OTAY WATER DIST

URBAN WATER MGMT. PROJ

Otay Water District
2010 Urban Water Management Plan Preparation

California State law requires the Otay Water District to update their Urban Water Management Plan every five years and adopt an updated UWMP by July 1, 2011. The UWMP is required to contain a detailed evaluation of the supplies necessary to reliably meet demands over at least a 20-year period in both normal and dry years. In accordance with State law, the District will make a draft of the UWMP available on the District web site for public review at least two weeks prior to holding a public hearing in June 1, 2011.

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Public comment may be provided at the public hearing. In addition, comments can be submitted in writing to Bob Kennedy, Associate Civil Engineer, Otay Water District, 2554 Sweetwater Springs Boulevard, Spring Valley, CA. 91978-2004, or by e-mail to bob.kennedy@otaywater.gov. All information and updates regarding this process will be posted on the Otay Water District website http://www.otaywater.gov

EC Californian
5/19,26/11 - 33200

CERTIFICATE OF PUBLICATION

Jolene Fielding
Otay Water District/Purchasing
2554 Sweetwater Springs Blvd.
Spring Valley CA 91978-2096

IN THE MATTER OF

2010 UWMP

Otay Water District
2010 Urban Water Management Plan Preparation

California State law requires the Otay Water District to update their Urban Water Management Plan every five years and adopt an updated UWMP by July 1, 2011. The UWMP is required to contain a detailed evaluation of the supplies necessary to reliably meet demands over at least a 20-year period in both normal and dry years. In accordance with State law, the District will make a draft of the UWMP available on the District web site for public review at least two weeks prior to holding a public hearing in June 1, 2011.

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Public comment may be provided at the public hearing. In addition, comments can be submitted in writing to Bob Kennedy, Associate Civil Engineer, Otay Water District, 2554 Sweetwater Springs Boulevard, Spring Valley, CA 91978-2004, or by e-mail to bob.kennedy@otaywater.gov. All information and updates regarding this process will be posted on the Otay Water District website http://www.otaywater.gov

Pub. May 17, 24-00087233

CASE NO.

I, Cathy L. Krueger, am a citizen of the United States and a resident of the county aforesaid; I am over the age of eighteen years, and not party to or interested in the above entitled matter. I am the principal clerk of the San Diego Daily Transcript, a newspaper of general circulation, printed and published daily, except on Saturdays and Sundays, in the City of San Diego, County of San Diego and which newspaper has been adjudged a newspaper of general circulation by the Superior Court of the County of San Diego, State of California, under the date of January 23, 1909, Decree No. 14894; and the

Public Notice

is a true and correct copy of which the annexed is a printed copy and was published in said newspaper on the following date(s), to wit:

May 17, 24

I certify under penalty of perjury that the forgoing is true and correct.

Dated at San Diego, California this May 24, 2011

Cathy L Krueger

Signature

Proof of Publication
(2015.5 C.C.P.)

STATE OF CALIFORNIA
COUNTY OF SAN DIEGO

I, Christine Seiveno, am a citizen of the United States and a resident of the county aforesaid; I am over the age of eighteen years and I am not a party to or interested in the notice published. I am the legal advertising manager of the publisher of

The Alpine Sun

a newspaper of general circulation, printed and published weekly in the city of Alpine, County of San Diego, and which newspaper has been adjudged a newspaper of general circulation by the Superior Court of the County of San Diego, State of California, under the date of November 1959, Case No. 238120, that the notice, of which the annexed is a printed copy, has been published in each regular and entire issue of said newspaper and not in any supplement thereof on the following dates, to-wit:

5/19, 5/26

all in the year 2011

I certify (or declare) under the penalty of perjury that the foregoing is true and correct.

Dated at Chula Vista, California

this 26TH day of May 2011.

Signature

San Diego Neighborhood Newspapers
The Alpine Sun
2144 Alpine Blvd.
Alpine, CA 91901
619.445-3288

This space is for the County Clerk's filing stamp.

Proof of Publication of

AL33201 OTAY WATER DIST.

2010 URBAN WATER MGMTPLAN PREP

Otay Water District
2010 Urban Water Management Plan Preparation

California State law requires the Otay Water District to update their Urban Water Management Plan every five years and adopt an updated UWMP by July 1, 2011. The UWMP is required to contain a detailed evaluation of the supplies necessary to reliably meet demands over at least a 20-year period in both normal and dry years. In accordance with State law, the District will make a draft of the UWMP available on the District web site for public review at least two weeks prior to holding a public hearing in June 1, 2011.

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Public comment may be provided at the public hearing. In addition, comments can be submitted in writing to Bob Kennedy, Associate Civil Engineer, Otay Water District, 2554 Sweetwater Springs Boulevard, Spring Valley, CA. 91978-2004, or by e-mail to bob.kennedy@otaywater.gov. All information and updates regarding this process will be posted on the Otay Water District website http://www.otaywater.gov

Alpine Sun - 33201
5/19,26/2011

SIGN ON SAN DIEGO | THE SAN DIEGO U-T UNION-TRIBUNE | UNION-TRIBUNE enlace

Order Confirmation

Account Number: 1017552

Customer: OTAY WATER DISTRICT
2554 SWEETWATER SPRINGS BLVD.
ATTN: ACCOUNTS PAYABLE
SPRING VALLEY, CA 91978

Telephone: (619) 670-2278
Fax: (619) 670-3109
EMail: FPEDRIN@OTAYWATER.GOV ; AP@OTAYWATER.

Ad Number: 0010513853
PO Number:
Date Ordered: 05/16/2011
Orderer: Bob Kennedy
Order Status: Live
Queue: Ready
Colors: <NONE>
Prod Colors:
Production Method: AdBooker
Ad Size: 0.95 x 6.02
Columns: 1.00 Inches: 6.02

Total Amount: $826.00
Payment Method:
Payment Amount: $0.00
Amount Due: $826.00

Sales Rep: ZACH MANUEL
Telephone: (619) 718-5981
EMail: ZACH.MANUEL@UNIONTRIB.COM

Product	Zone	Placement	Position	Start Date	End Date	Insertions
SignonMobile	Full Run	Legals	Legals	05/17/2011	05/31/2011	3
SignOnSanDiego	Full Run	Legals	Legals	05/17/2011	05/31/2011	3
Union-Tribune	Full Run	Legals	Legals	05/17/2011	05/31/2011	3

Ad Content

NOTICE Otay Water District 2010 Urban Water Management Plan Preparation California State law requires the Otay Water District to update their Urban Water Management Plan every five years and adopt an updated UWMP by July 1, 2011. The UWMP is required to contain a detailed evaluation of the supplies necessary to reliably meet demands over at least a 20-year period in both normal and dry years. In accordance with State law, the District will make a draft of the UWMP available on the District web site for public review at least two weeks prior to holding a public hearing in June 1, 2011. NOTICE IS HEREBY GIVEN that the Otay Water District's draft 2010 Urban Water Management Plan is available for public review. The purpose of the review is to provide the public with an opportunity to comment on the document. The draft document will be available in the reference section of select local libraries within the District service area. A copy will also be available at the District office located at 2554 Sweetwater Springs Boulevard, Spring Valley, CA 91978-2004 and on the District's website http://www.otaywater.gov Public comment may be provided at the public hearing. In addition, comments can be submitted in writing to Bob Kennedy, Associate Civil Engineer, Otay Water District, 2554 Sweetwater Springs Boulevard, Spring Valley, CA. 91978-2004, or by e-mail to bob.kennedy@otaywater.gov. All information and updates regarding this process will be posted on the Otay Water District website http://www.otaywater.gov

NOTICE

Otay Water District
2010 Urban Water
Management Plan
Preparation

Printed: 5/16/2011 11:59 am

Ad Order: 0010513853

Order Confirmation

Preparation

California State law requires the Otay Water District to update their Urban Water Management Plan every five years and adopt an updated UWMP by July 1, 2011. The UWMP is required to contain a detailed evaluation of the supplies necessary to reliably meet demands over at least a 20-year period in both normal and dry years. In accordance with State law, the District will make a draft of the UWMP available on the District web site for public review at least two weeks prior to holding a public hearing in June 1, 2011.

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Printed: 5/16/2011 11:59 am

The San Diego
Union-Tribune. SIGN ON SAN DIEGO enlace Classifieds

P.O. Box 120191, San Diego, CA 92112-0191

AFFIDAVIT OF PUBLICATION

OTAY WATER DISTRICT
2554 SWEETWATER SPRINGS BLVD.
ATTN: ACCOUNTS PAYABLE
SPRING VALLEY, CA 91978

STATE OF CALIFORNIA} ss.
County of San Diego}

The Undersigned, declares under penalty of perjury under the laws of the State of California: That she is a resident of the County of San Diego. That she is and at all times herein mentioned was a citizen of the United States, over the age of twenty-one years, and that she is not a party to, nor interested in the above entitled matter; that she is Chief Clerk for the publisher of

The San Diego Union-Tribune

a newspaper of general circulation , printed and published daily in the City of San Diego, County of San Diego, and which newspaper is published for the dissemination of local news and intelligence of a general character, and which newspaper at all the times herein mentioned had and still has a bona fide subscription list of paying subscribers, and which newspaper has been established, printed and published at regular intervals in the said City of San Diego, County of San Diego, for a period exceeding one year next preceding the date of publication of the notice hereinafter referred to, and which newspaper is not devoted to nor published for the interests, entertainment or instruction of a particular class, profession, trade, calling, race, or denomination, or any number of same; that the notice of which the annexed is a printed copy, has been published in said newspaper in accordance with the instructions of the person(s) requesting publication, and not in any supplement thereof on the following dates, to wit:

May 17, 2011, May 24, 2011, May 31, 2011

Susan Dolan
Chief Clerk for the Publisher

5-31-11
Date

Affidavit of Publication of

Legal Advertisement
Ad # 0010513853
ORDERED BY: BOB KENNEDY

NOTICE

Otay Water District 2010 Urban Water Management Plan Preparation

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APPENDIX C

SBX 7-7 Baseline Demand Calculations

Appendix C

Table 1
Baseline Demand Forecast (AF)

		2015	2020	2025	2030	2035	Notes
A	Baseline M&I Demand	41,811	50,709	60,760	67,625	74,135	CWA-provided, based on SANDAG growth
B	Baseline Total Agricultural Demand	99	86	78	71	63	unverifiable but negligible
C	Near-tern Annexations	2,973	2,973	2,973	2,973	2,973	ok, matches Otay projections
D = A+B+C	**Total Baseline Demand**	**44,883**	**53,768**	**63,811**	**70,669**	**77,171**	

Table 2
Water Use Efficiency Goal & additional Conservation Requirement (AF)

		2015	2020	2025	2030	2035	
E = D	Total Baseline Demand	44,883	53,768	63,811	70,669	77,171	
F	20x2020 Demand Target	42,069	41,321	44,015	45,974	48,614	our new 2020 gpcd baseline
G = F-E	Water Use Efficiency Goal	-2,814	-12,447	-19,796	-24,695	-28,557	
H	Existing Recycled Water	4,070	4,070	4,070	4,070	4,070	ok, matches Otay projections
I	Projected Recycled Water	330	930	1,730	2,760	3,930	ok, matches Otay projections
J = G+H+I	**WUE Goal Surplus**	**1,586**	**-7,447**	**-13,996**	**-17,865**	**-20,557**	
K	**Additional Conservation Required**	**0**	**-7,447**	**-13,996**	**-17,865**	**-20,557**	

Table 3
Water Authority Demand (AF)

		2015	2020	2025	2030	2035	
L = D	Total Baseline Demand	44,883	53,768	63,811	70,669	77,171	
M = K	Additional Conservation Target	0	-7,447	-13,996	-17,865	-20,557	
N = L+M	Total Baseline Demand w/ Conservation	44,883	46,321	49,815	52,804	56,614	(152 gpcd x population + recycled water projections)
	Projected Verifiable Local Supplies						
O	Surface Water	0	0	0	0	0	ok, matches Otay projections
P	Groundwater	500	500	500	500	500	Information provided to CWA 3-9-11
Q = H+I	Recycled Water	4,400	5,000	5,800	6,830	8,000	ok, matches Otay projections
R = N-O-P-Q	**Water Authority Demand**	**39,983**	**40,821**	**43,515**	**45,474**	**48,114**	
from OWD	OWD Potable Projections (12/30/10)	32,000	35,000	39,000	44,000	51,000	

CWA = 151 gpcd; OWD & PBSJ = 152 gpcd

Appendix C

10 Year Base Period (SDCWA Method for Estimated Total Potable Demands)															
Estimated Potable Water Use (AF)-Excluding Recycled Water															
Fiscal Year	1996-2005		1997-2006		1998-2007		1999-2008		2000-2009		2001-2010				
	AFY [a]	gpcd	AFY [a]	gpcd	AFY [a]	gpcd	AFY [a]	gpcd	AFY [a]	gpcd	AFY [a]	gpcd	Population	Note	Annual (gpcd)
1996	23,753.00	176.55											120,102	b	176.55
1997	24,560.00	176.95	24,560.00	176.95									123,901	b	176.95
1998	22,874.00	159.90	22,874.00	159.90	22,874.00	159.90							127,700	b	159.90
1999	25,442.00	172.71	25,442.00	172.71	25,442.00	172.71	25,442.00	172.7					131,499	b	172.71
2000	29,901.00	197.28	29,901.00	197.28	29,901.00	197.28	29,901.00	197.3	29,901.00	197.28			135,301	b	197.28
2001	30,002.00	186.99	30,002.00	186.99	30,002.00	186.99	30,002.00	187.0	30,002.00	186.99	30,002.00	186.99	143,228	b	186.99
2002	35,182.00	201.39	35,182.00	201.39	35,182.00	201.39	35,182.00	201.4	35,182.00	201.39	35,182.00	201.39	155,946	b	201.39
2003	34,536.00	186.27	34,536.00	186.27	34,536.00	186.27	34,536.00	186.3	34,536.00	186.27	34,536.00	186.27	165,514	b	186.27
2004	39,579.00	204.38	39,579.00	204.38	39,579.00	204.38	39,579.00	204.4	39,579.00	204.38	39,579.00	204.38	172,868	b	204.38
2005	37,678.00	185.02	37,678.00	185.02	37,678.00	185.02	37,678.00	185.0	37,678.00	185.02	37,678.00	185.02	181,792	b	185.02
2006	41,258.00		41,258.00	197.28	41,258.00	197.28	41,258.00	197.3	41,258.00	197.28	41,258.00	197.28	186,688	b	197.28
2007	41,909.00				41,909.00	196.63	41,909.00	196.6	41,909.00	196.63	41,909.00	196.63	190,263	b	196.63
2008	38,045.00						38,045.00	175.4	38,045.00	175.44	38,045.00	175.44	193,586	b	175.44
2009	34,971.00								34,971.00	159.33	34,971.00	159.33	195,932	b	159.33
10-Year gpcd		185		187		189		**190**		189		188			
Notes:															
a. From CWA Draft Member Agency Demand Forecast For Otay WD															
b. Population from SANDAG Population and Housing 1994-2010 (rec'd 2/22/2011)															

Method 1:80% of Baseline Demand (gpcd)				
	Method 1	**Baseline gpcd**		**2020 Target**
	80%	190		152
				2015 interim
				171

Year	2015	2020	2025	2030	2035
GPCD Goal	171	152	152	152	152
Population Projection	219,223	242,241	258,037	269,522	284,997
Total 20x2020 Demand Target (AFY)	42,069	41,321	44,015	45,974	48,614

190 greater than 15-year base
use 10-yr base period 1999-2008

Appendix C

Draft Member Agency Demand Forecast for Otay WD

Table 1
Baseline Demand Forecast (AF)

		2015	2020	2025	2030	2035
A	Baseline M&I Demand[1,2]	41,811	50,709	60,760	67,625	74,135
B	Baseline Total Agricultural Demand[3]	99	86	78	71	63
C	Near-term Annexations	2,973	2,973	2,973	2,973	2,973
D=A+B+C	**Total Baseline Demand**	**44,883**	**53,768**	**63,811**	**70,669**	**77,171**

Footnotes

1) Reflects reduced demands due to existing passive conservation savings

2) Includes increment of demand associated with the decay of historic active conservation program savings

3) Consists of agricultural demand under the SAWR program and agricultural water purchased at the full service M&I rate.
A member agency level bifurcation of agricultural demands between these two categories would require additional agency information.

Table 2
Water Use Efficiency Goal and Additional Conservation Requirement (AF)

		2015	2020	2025	2030	2035
E = D	Total Baseline Demand	44,883	53,768	63,811	70,669	77,171
F	20 x 2020 Demand Target[1]	41,821	41,077	43,756	45,703	48,327
G=F-E	Water Use Efficiency (WUE) Goal[2]	-3,062	-12,691	-20,055	-24,966	-28,844
H	Existing Recycled Water	4,070	4,070	4,070	4,070	4,070
I	Projected Additional Verifiable Recycled Water	330	930	1,730	2,730	3,930
J=G+H+I	**WUE Goal Surplus[3]**	**1,338**	**-7,691**	**-14,255**	**-18,166**	**-20,844**
K	**Additional Conservation Required to Meet WUE Goal[4]**	**0**	**-7,691**	**-14,255**	**-18,166**	**-20,844**

Footnotes

1) Based on SBX 7-7 Method 1 calculation, see GPCD Target tab

2) WUE goal set to zero in years that total baseline demand is lower than 20x2020 demand target

3) Positive values indicate WUE goal achieved without additional conservation

4) Additional increment of conservation, beyond existing passive savings, required to meet water use efficiency target

Table 3
Water Authority Demand (AF)

		2015	2020	2025	2030	2035
L = D	Total Baseline Demand	44,883	53,768	63,811	70,669	77,171
M = K	Additional Conservation Target	0	-7,691	-14,255	-18,166	-20,844
N=L+M	Total Baseline Demand w/ Conservation	44,883	46,077	49,556	52,503	56,327
	Projected Verifiable Local Supplies					
O	Surface Water	0	0	0	0	0
P	Groundwater	0	0	0	0	0
Q=H+I	Recycled Water	4,400	5,000	5,800	6,800	8,000
R=N-O-P-Q	**Water Authority Demand**	**40,483**	**41,077**	**43,756**	**45,703**	**48,327**

Appendix C

Attachment 1

Estimated Base Period Total Potable Demands and
20 x 2020 GPCD Target for
Otay WD
(based on SBX 7-7 Method 1)

Year	Estimated Potable Water Use (AF) - Excluding recycled water						Population	Annual GPCD
1995	21,401						113,120	169
1996	23,753	23,753					117,029	181
1997	24,560	24,560	24,560				121,073	181
1998	22,874	22,874	22,874	22,874			125,257	163
1999	25,442	25,442	25,442	25,442	25,442		129,586	175
2000	29,901	29,901	29,901	29,901	29,901	29,901	134,072	199
2001	30,002	30,002	30,002	30,002	30,002	30,002	144,287	186
2002	35,182	35,182	35,182	35,182	35,182	35,182	156,964	200
2003	34,536	34,536	34,536	34,536	34,536	34,536	166,758	185
2004	39,579	39,579	39,579	39,579	39,579	39,579	175,307	202
2005		37,678	37,678	37,678	37,678	37,678	183,303	184
2006			41,258	41,258	41,258	41,258	188,549	195
2007				41,909	41,909	41,909	192,917	194
2008					38,045	38,045	196,379	173
2009						34,971	198,891	157
10-Year GPCD	**184**	**186**	**187**	**188**	**189**	**187**		

Selected 10-Year GPCD Base Period **189**

	2015	2020	2025	2030	2035
GPCD Goal[1]	170	151	151	151	151
Population Projection	219,223	242,241	258,037	269,522	284,997
20x2020 Demand Target (AF)	41,821	41,077	43,756	45,703	48,327

Footnotes
1) 2015 goal based on 10% reduction and 2020 goal based on 20% reduction

APPENDIX D

Agreement with City of San Diego for Potable Water Supply for Otay Water Treatment Plant

DUPLICATE

November 19, 1998

AGREEMENT FOR THE PURCHASE OF TREATED WATER FROM THE OTAY WATER TREATMENT PLANT BETWEEN THE CITY OF SAN DIEGO AND THE OTAY WATER DISTRICT

This Agreement is made and entered into as of JAN 11 1999 by and between the Otay Water District ("OTAY"), a water district organized under the Municipal Water District Law of 1911, and the City of San Diego ("CITY"), a municipal corporation.

RECITALS

Whereas, the economy, employment and quality of life of the San Diego County region is dependent on a reliable and affordable water supply which requires cooperation of local water agencies both directly and through their joint imported water agency, the San Diego County Water Authority ("CWA"); and

Whereas treated water surplus to CITY needs (Surplus), hereby defined as treated water surplus over the Otay Water Treatment Plant's peak daily demand, is available to serve OTAY from the Otay Water Treatment Plant; and

Whereas, by making Surplus treated water available to OTAY, the CITY and the region will benefit by increased use of existing resources and potential savings in future regional facilities; and

Whereas, by entering into an agreement to provide Surplus treated water to OTAY, the CITY will improve the efficiency of its treatment plant operations and generate additional income; and

Whereas, the CWA will benefit by being able to defer deliveries of approximately ten MGD of treated water to OTAY; and

Whereas, the CWA recommends that each of its member agencies provide sufficient water reserves to withstand up to ten days of cutoff from imported treated water supplies; and

DOCUMENT NO. RR-291138
FILED JAN 11 1999
OFFICE OF THE CITY CLERK
SAN DIEGO, CALIFORNIA

Whereas, OTAY relies exclusively on imported treated water and on imported raw water treated by others, for supplying its service area with water; and

Whereas, OTAY has determined that the most viable approach to establishing adequate reserves is to build a maximum of five days covered treated water storage and to secure treated water supply commitments from other agencies for the remainder; and

Whereas, the CITY is willing to sell Surplus treated water to OTAY from the CITY's Otay Water Treatment Plant and additional treated water in the future; and

Whereas, OTAY's future needs (OTAY's Needs) are for 10 to 20 million gallons per day (MGD) of treated water; and

Whereas, the CITY is willing to expand its Otay Water Treatment Plant to meet future OTAY and CITY needs.

NOW THEREFORE, in consideration of the terms and conditions set forth below, and other good and valuable consideration, the receipt and sufficiency of which are hereby acknowledged, the CITY and OTAY agree as follows:

ARTICLE I TERM

1.1 The term of this Agreement shall be for a period of fifty years commencing on January 1, 1999, and terminating on December 31, 2048.

ARTICLE II SALE OF TREATED WATER TO OTAY

2.1 The CITY agrees to sell OTAY Surplus treated water from the Otay Water Treatment Plant pursuant to the following terms:

2.1.1 The CITY and OTAY agree that until such time as OTAY pays the CITY a sum of money equivalent to the then current cost to expand the Otay Water Treatment Plant to meet OTAY's Needs, CITY's obligation to supply treated water under this Agreement is contingent upon there being available 10 MGD of Surplus treated water in the Otay Water Treatment Plant for the term of this Agreement, as determined by the CITY in its sole discretion.

2.1.2 In the event said Surplus is projected by the CITY, in its sole discretion, to be less than 10 MGD due to increased demand on the part of the CITY's water customers, CITY shall so notify OTAY and CITY and OTAY shall confer to see if OTAY's Needs may continue to be met by the CITY, provided however, the decision to expand the CITY's Otay Water Treatment Plant be at the CITY's sole discretion. The CITY shall not unreasonably refuse to expand to meet OTAY's Needs.

2.1.3 OTAY agrees to pay the CITY, as a contribution in aid of construction, a payment equal to the then current costs and expenses of said expansion including any financing or any debt service costs, multiplied by the percentage which OTAY's Needs represents with respect to the total additional treatment capacity contemplated by said expansion. Such costs and expenses include, but are not limited to, planning, surveying, design, construction, easement acquisition, environmental studies and/or environmental impact reports, processing required permits through agencies, implementation of environmental mitigation measures, field inspection, project administration to complete such expansion project, debt service and other financing costs, and any other reasonable costs and expenses incurred by the CITY ("Expansion Costs").

2.1.4 Should the CITY and OTAY agree on an expansion of the facility, the CITY and OTAY shall enter into a separate agreement specifying obligations pertaining to the sharing of costs and expenses for the expansion and construction of the Otay Water Treatment Plant, including but not limited to financing, expansion and construction costs, as well as the duration of OTAY's right to service from said plant in consideration of said sharing of costs and expenses. Such separate agreement must be approved prior to any expenditures for the expansion by the City.

2.1.5 The CITY shall retain ownership of the Otay Water Treatment Plant and any expanded portions thereof, not withstanding anything contained herein.

2.2 Notwithstanding the forgoing, nothing in this Section 2 or in this Agreement shall obligate the CITY to make any payment for the acquisition, construction, maintenance, or operation of the CITY's water treatment facilities from moneys derived from taxes or from any income and revenue of the CITY other than moneys in or water revenues which go into the Water Utility Fund for the CITY's water system and from construction funds derived from the sale of water revenue bonds or other securities for the CITY's water system as are duly authorized.

2.2.1 Nothing in this Agreement shall be construed to obligate the CITY to pay from its annual income and revenues any sum which would create an indebtedness, obligation or liability within the meaning of the provisions of article XVI, section 18, of the California State Constitution.

2.2.2 Nothing in this Section 2 or in this Agreement, however, shall prevent the CITY, in its discretion, from using tax revenues or any other available revenues or funds of the CITY for any purpose for which the CITY is empowered to expend moneys under this Agreement .

2.2.3 Nothing in this section shall relieve the CITY or OTAY from their

obligations under this Agreement.

2.2.4 Nothing in this Section 2 or in this Agreement shall obligate OTAY to make any payment which would create an indebtedness, obligation, or liability within the meaning of article XVI, section 18 of the California State constitution, or which is not authorized by law.

ARTICLE III OTAY's OBLIGATIONS

3.1 The cost of water to be purchased by OTAY in the next succeeding fiscal year from the CITY shall be calculated by the CITY by determining in June of the preceding fiscal year, the projected cost and expenses of all operations, maintenance and overhead, and capital improvements, repairs and replacements under $100,000 to be incurred at the CITY's Otay Water Treatment Plant. This calculation shall be divided by the total number of acre feet (AF) of water treated at the Otay Water Treatment Plant in the preceding fiscal year. This cost per AF shall be added to the raw water rate, as defined in section 3.1.2, to determine the projected actual cost to OTAY for the next succeeding fiscal year.

3.1.1 Notwithstanding the forgoing, if the projected cost of the treated water to be supplied by the CITY exceeds the CWA treated water rates, OTAY shall have the option of purchasing treated water from the City or from CWA.

3.1.2 Raw water costs billed to OTAY by the CITY shall not exceed the prevailing CWA raw water rate that was last paid by the CITY. All imported raw water used to provide OTAY with treated water shall be from OTAY's imported water allocation from CWA.

3.1.3 OTAY shall annually notify the CITY in writing before June 30th, its projected daily average demand to be received from the CITY for the next fiscal year.

3.2 OTAY shall pay the following costs and expenses within forty-five (45) calendar days of receipt of a bill from the CITY: monthly operating costs and expenses shall be as determined in section 3.1 above, multiplied by the number of acre feet of treated water delivered to OTAY during the previous calendar month.

3.2.1 In the event OTAY fails to make its payment(s) to the CITY by the date specified in section 3.2 above, OTAY shall be charged interest on the amount outstanding at a rate of interest then equal to the CITY's pooled investment return.

3.2.2 OTAY shall pay for operations, maintenance, and overhead costs and expenses ("O&M Costs") of the Otay Water Treatment Plant, including the expansion, up to the full amount of water delivered to OTAY from that facility, as

determined in section 3.2 above.

3.3 OTAY shall order treated water from CITY facilities twice a day at 8:00 AM and 2:00 PM.

3.4 OTAY shall be responsible for all costs and expenses associated with constructing facilities to receive treated water from the CITY's Otay Water Treatment Plant, including any CITY approved metering facilities. Once constructed and approved by the CITY, OTAY shall transfer ownership of the metering facilities to the CITY. The CITY shall maintain, repair and replace as necessary the metering facilities and read the meter.

ARTICLE IV CITY's OBLIGATIONS

4.1 In the event the rated capacity of the CITY's Otay Water Treatment Plant is diminished for any reason, including, but not limited to, equipment failure, source water quality changes, regulatory requirements or natural disaster, and OTAY is receiving Surplus treated water pursuant to Article II above, then OTAY shall be entitled to purchase such treated water that is then surplus to the CITY's needs. If OTAY has contributed to the expansion of the Otay Water Treatment Plant pursuant to section 2.1 above, then OTAY shall be entitled to receive an amount of available treated water produced by the Otay Water Treatment Plant which shall be determined by dividing the amount of capacity funded by OTAY by the design capacity of the plant, and then multiplying by the reduced capacity thereof.

4.2 During a declared drought, the amount of treated water that may be purchased by OTAY, whether Surplus or pursuant to a contribution to expansion, shall be reduced by the same percentage as the rationing that is imposed on all CITY customers.

4.3 The CITY shall bill OTAY directly for O&M Costs of water treated and delivered to OTAY. The O&M Costs are subject to adjustment as follows:

4.3.1 After the first fiscal year (beginning July 1 and ending June 30) and thereafter, the CITY shall determine before January 10th, its total O&M Costs, defined as year end O&M Costs, at the Otay Water Treatment Plant for the preceding fiscal year. The CITY shall make available to OTAY its books and records relevant to such determination and review the same with the General Manager of OTAY.

4.3.2 The total O&M Costs for the preceding fiscal year shall be divided by the total number of acre feet of water treated at the CITY's Otay Water Treatment Plant to determine the unit cost of the O&M Costs for said period. Such unit cost shall be multiplied by the water delivered to OTAY during such period.

4.3.3 An adjustment shall be made by January 10 of each year in the projected O&M Costs calculated per section 3.1 to reflect the total O&M Costs of producing and delivering the treated water to OTAY for the preceding fiscal year. The CITY shall bill or credit OTAY for such O&M Costs. Upon receipt of audited financial statements received after January 10 of each year, adjustments shall be made by the CITY in the succeeding monthly billings consistent with the costs and expenses actually incurred by the CITY.

4.4 After the Agreement commencement date and OTAY'S receipt of treated water from the CITY, the CITY shall bill OTAY monthly on or before the 15th of each month for the amounts due for the previous month's costs hereunder.

ARTICLE V MAJOR REPAIR, REPLACEMENT OR RECONSTRUCTION COSTS AND EXPENSES

5.1 A project is considered a major repair, replacement, or reconstruction if its total projected cost exceeds $100,000.

5.2 In the event major repair, replacement, or reconstruction becomes necessary at the CITY's Otay Water Treatment Plant in order to supply OTAY with treated water pursuant to this agreement, the total cost shall be divided by the number of years of expected useful life of such improvement. Such number shall then be divided by the number of acre-feet treated at the CITY's Otay Water Treatment Plant in the past fiscal year to arrive at a cost per acre-foot. This cost per acre foot shall then be added to the cost of each acre foot of treated water delivered to OTAY and billed thereafter for the number of years of expected useful life of the improvement, as agreed to between the CITY and OTAY. This cost shall be adjusted annually based upon the actual water treated at the CITY's Otay Water Treatment Plant each fiscal year. For example, a major repair costs $200,000 and is expected to have a useful life of 20 years; a total of 30,000 acre feet was treated at the Otay Water Treatment Plant during the past fiscal year; and OTAY pays the CITY $500 per acre foot for treated water delivered. The following calculation would apply: $200,000 divided by 20 years equals $10,000 per year, $10,000 per year divided by 30,000 acre feet per year equals $0.33 per acre foot, $500 plus $0.33 equals the new rate of $500.33 per acre foot of treated water that the CITY charges OTAY. If in the following fiscal year 32,000 acre feet are treated, then the adjustment would be $10,000 divided by 32,000 acre feet which equals $0.31 per acre foot. The $0.31 would then be added to the updated cost OTAY pays the CITY per acre foot.

5.3 Major repair, replacement, or reconstruction project costs and expenses shall include, but not be limited to, the following: planning, surveying, design, construction, easement acquisition, environmental studies and/or environmental impact reports, processing required permits through agencies, implementation of

environmental mitigation measures, field inspection, project administration to complete such replacement project, debt service and other financing costs where applicable, and any other reasonable costs and expenses incurred by the CITY ("Replacement Costs").

5.4 The CITY shall maintain the Otay Water Treatment Plant and Lower Otay Reservoir outlet works in good repair and good working order in accordance with sound engineering practices by the CITY. It shall be the duty of the CITY to make any repair, replacement, or reconstruction necessary to keep such facilities in good operating condition.

5.5 Prior to the CITY undertaking any major repair, replacement, or reconstruction of the Otay Water Treatment Plant or the Lower Otay Reservoir outlet works, it shall review with OTAY the costs thereof. The CITY retains the right to proceed in any event.

5.6 In the event of an emergency, any necessary repairs, replacements, or reconstruction shall be implemented as expeditiously as possible, with notification as soon as reasonably possible to OTAY of the emergency and required repairs, replacements, and reconstruction.

5.7 Notwithstanding the provisions of Section 5.2 above, if as a result of natural disaster, operation of federal or state law or other causes beyond the control of the parties hereto, it becomes necessary for the CITY to undertake major repairs, replacements, or reconstruction of the Otay Water Treatment Plant, and OTAY has contributed to the expansion of the plant pursuant to section 2.1.3 of this Agreement, OTAY shall reimburse the CITY for its proportionate share of the cost of such repairs, replacements, or reconstruction not covered by grants, insurance, FEMA, etc. For example, if the Otay Water Treatment Plant can treat a maximum of 60 MGD and OTAY has contributed to the construction of 10 MGD pursuant to terms of this Agreement, then OTAY's share would be one-sixth (16.67 percent).

ARTICLE VI SUCCESSORS IN INTEREST

6.1 In the event that, at the sole discretion of the CITY, the CITY chooses to lease, privatize or sell the Otay Water Treatment Plant to any third party, the CITY agrees that it will require, as a condition of said lease, privatization or sale, a commitment on the part of said third party to honor the terms and conditions of this Agreement.

6.2 Nothing contained herein shall prevent the CITY from entering into a financing agreement which may impose limits on the CITY's power to sell the Otay Water Treatment Plant or any appurtenant facilities, if the CITY believes that such financing is in the CITY's best interests. Neither the entry into such a financing

agreement by the CITY nor its performance thereunder by the CITY shall constitute a breach or default by the CITY hereunder.

ARTICLE VII INDEMNIFICATION

The CITY and OTAY agree to defend, indemnify, protect and hold each other harmless from all claims, demands, losses and liability to the extent that the same are the result of error, omission or negligent act of its officers or employees, or any other persons acting pursuant to its control and performing under this agreement. However, the CITY and OTAY'S duty to indemnify and hold the other party harmless shall not include any claims or liability arising from the sole negligence or willful misconduct of the other party, its agents, officers, or employees.

ARTICLE VIII AMENDMENTS

This Agreement may be modified or amended by the parties hereto at any time. Provided, however, that any modification or amendment must be mutually agreed upon and executed in writing. Verbal modifications or amendments shall be of no effect.

ARTICLE IX WATER TREATMENT STANDARDS

The CITY shall treat all water to be sold to OTAY in accordance with all requirements of federal and state authorities, laws, rules, regulations, and standards. The treated water shall be of a quality substantially the same as delivered by the CITY to its customers.

ARTICLE X ASSIGNMENT

10.1 Neither OTAY nor the CITY shall assign this Agreement nor any interest herein, or permit the transfer thereof by operation of law or otherwise, without first obtaining the consent of the other expressed in writing and signed by the City Manager or OTAY General Manager.

10.2 Such consent shall not be unreasonably withheld by either party.

10.3 Any attempted transfer or assignment shall not create any right whatsoever in the transferee or assignee.

ARTICLE XI TERMINATION

11.1 In the event OTAY shall be adjudicated as bankrupt or become insolvent or subject to a receivership, the CITY may, at its discretion, terminate this Agreement without further notice.

11.2 In the event OTAY shall fail or refuse to perform any term, covenant, or condition of this Agreement and shall fail to cure such default within ninety days after written notice from the CITY, then the CITY may terminate this Agreement by giving OTAY written notice of its election to terminate this Agreement.

ARTICLE XII FORCE MAJEURE

In the event the rights and obligations of the parties to this Agreement shall be subject to unanticipated delays or cancellations caused by strikes, fire, accident, acts of God, orders of any military, civil, or governmental authority, litigation, or other cause beyond the control of the parties, the rights or obligations of the parties affected thereby shall be continued for a period equal to the period resulting from such delay.

ARTICLE XIII CONSTRUCTION OF THIS AGREEMENT

13.1 Any notice, demand, request, consent, approval or communication that either party desires or is required to give to the other party shall be in writing addressed to the other party as follows:

To CITY: c/o City Manager
City Administration Building
202 C Street MS 9A
San Diego, CA 92101

To OTAY: c/o General Manager
Otay Water District
2554 Sweetwater Springs Blvd.
Spring Valley, CA 91978-2096

or such other address as may have been specified by notifying the other party of the change of address. Notice shall be deemed served on the fourth business day following the day of mailing only if mailed with the United States Postal Service, by certified mail, return receipt requested.

13.2 Time is of the essence for each provision of this Agreement.

13.3 Nothing contained in this Agreement shall be construed as a limitation upon the powers of CITY as a chartered city of the State of California or OTAY.

13.4 All provisions hereof, expressed as either covenants or conditions on the part of CITY or OTAY to be performed or observed shall be deemed to be both covenants and conditions.

13.5 This Agreement shall be construed and interpreted in accordance with the laws of the State of California. OTAY covenants and agrees to submit to the personal jurisdiction of any state court located in San Diego County for any dispute, claim, or matter arising out of or related hereto. Either party may refer any dispute to non-binding mediation for resolution based on mutual consent.

13.6 This Agreement, including Attachments and/or Exhibits, contains all of the agreements of the parties and all prior negotiations and agreements are merged herein.

13.7 The Section headings and any captions are inserted herein only as a matter of convenience and for reference and shall have no effect on the interpretation of this Agreement.

13.8 When required by the context of this Agreement, the singular shall include the plural.

13.9 The unenforceabilty, invalidity or illegality of any provision of this Agreement shall not render the other provisions unenforceable, invalid or illegal, provided that the purpose and intent of the Agreement can be reasonably carried out without the unenforceable or invalid provision.

13.10 If either party commences an action against the other party arising out of or in connection with this Agreement, the prevailing party shall be entitled to request the court for an award of reasonable attorneys' fees and costs of suit from the losing party.

13.11 The failure of CITY to enforce a particular term, condition, or provision of this Agreement shall not constitute a waiver of that condition or provision or its enforceability.

13.12 All payments to the CITY under the terms of this Agreement shall be made payable to the City Treasurer, and submitted to the CITY Water Department.

13.13 All payments required under this Agreement shall be deemed sufficiently paid if made by check collected on first presentation.

IN WITNESS WHEREOF, this Agreement is executed by the City of San Diego, acting by and through its City Manager, pursuant to ~~Ordinance No. O-~~ R-291138 RESOLUTION NO. authorizing such execution, and by OTAY.

Dated this _____ day ~~of~~ JAN 11 1999 1998.

THE CITY OF SAN DIEGO

By _____
Larry Gardner
Water Department Director

Dated this 19th day of November, 1998.

OTAY WATER DISTRICT

By _____
General Manager

Approved as to form and legality on this day 15 of JANUARY ~~, 1998.~~ 1999

CASEY GWINN
City Attorney

By _____
Deputy City Attorney

H:\WPDOCS\OWD9I.DOC.JM

R-291138

(R-99-620)

RESOLUTION NUMBER R-291138

ADOPTED ON JAN 11 1999

WHEREAS, the economy and employment and quality of life of the San Diego County region is dependent on a reliable and affordable water supply which requires cooperation of local water agencies both directly and through their joint imported water agency, the San Diego County Water Authority ("CWA"); and

WHEREAS, treated water surplus to CITY needs (Surplus), hereby defined as treated water surplus over the Otay Water Treatment Plant's peak daily demand, is available to serve OTAY from the Otay Water Treatment Plant; and

WHEREAS, by making Surplus treated water available to OTAY, the CITY and the region will benefit by increased use of existing resources and potential savings in future regional facilities; and

WHEREAS, by entering into an agreement to provide Surplus treated water to OTAY, the CITY will improve the efficiency of its treatment plant operations and generate additional income; and

WHEREAS, the CWA will benefit by being able to defer deliveries of approximately ten MGD of treated water to OTAY; and

WHEREAS, the CWA recommends that each of its member agencies provide sufficient water reserves to withstand up to ten days of cutoff from imported treated water supplies; and

WHEREAS, OTAY relies exclusively on imported treated water and on imported raw water treated by others, for supplying its service area with water; and

WHEREAS, OTAY has determined that the most viable approach to establishing adequate reserves is to build a maximum of five days covered treated water storage and to secure treated water supply commitments from other agencies for the remainder; and

WHEREAS, the City is willing to sell Surplus treated water to OTAY from the CITY's Otay Water Treatment Plant and additional treated water in the future; and

WHEREAS, OTAY's future needs (OTAY's Needs) are for 10 to 20 million gallons per day (MGD) of treated water; and

WHEREAS, the CITY is willing to expand its Otay Water Treatment Plant to meet future OTAY and CITY needs; NOW, THEREFORE,

BE IT RESOLVED, by the Council of The City of San Diego, that the City Manager be and is hereby authorized and empowered to enter into an Agreement, a copy of which is on file in the Office of the City Clerk as Document No. RR-291138, with the Otay Water District regarding the purchase of surplus treated water from the City of San Diego.

BE IT FURTHER RESOLVED, that the City is authorized to sell OTAY treated water, surplus to the City's needs, from the CITY's Otay Water Treatment Plant upon execution of the agreement;

BE IT FURTHER RESOLVED, that the City is authorized to sell OTAY additional treated water;

BE IT FURTHER RESOLVED, that OTAY will pay the City's actual operating costs for treatment, which includes operation, maintenance, and overhead expenses, plus the prevailing CWA raw water rate regardless of whether local or imported raw water is treated;

BE IT FURTHER RESOLVED, that the agreement term is for fifty years.

APPROVED: CASEY GWINN, City Attorney

By Lisa Foster
Lisa Foster
Deputy City Attorney

LAF:jp
11/20/98
Or.Dept:Water
Aud.Cert:
R-99-620

Passed and adopted by the Council of San Diego on

JAN 11 1999

by the following vote:

YEAS: Mathis, Wear, Kehoe, Stevens, Warden, Stallings, McCarty, Vargas, Mayor Golding.

NAYS: None.

NOT PRESENT: None.

AUTHENTICATED BY:

SUSAN GOLDING
Mayor of The City of San Diego, California

CHARLES G. ABDELNOUR
City Clerk of The City of San Diego, California

(Seal)

By: MARY A. CEPEDA, Deputy

I HEREBY CERTIFY that the above and foregoing is a full, true and correct copy of RESOLUTION NO. R- 291138, passed and adopted by the Council of The City of San Diego, California on JAN 11 1999.

CHARLES G. ABDELNOUR
City Clerk of The City of San Diego, California

(SEAL)

By: Mary A. Cepeda, Deputy

APPENDIX E

Agreement with City of San Diego for Recycled Water Supply from South Bay Water Reclamation Plant

ORIGINAL

ORIGINAL

AGREEMENT BETWEEN THE OTAY WATER DISTRICT AND THE CITY OF SAN DIEGO FOR PURCHASE OF RECLAIMED WATER FROM THE SOUTH BAY WATER RECLAMATION PLANT

OCT 20 2003

This Agreement is made and entered into this _____ day of 2003 between the Otay Water District ("Otay"), and the City of San Diego ("City") [collectively "Party(ies)"], with reference to the following:

RECITALS

A. WHEREAS, City owns and operates the South Bay Water Reclamation Plant ("SBWRP"), which has a design production capacity of approximately fifteen million gallons per day of tertiary water from collected and treated wastewater; of which 10 million gallons per day is available for sale; and

B. WHEREAS, Otay provides water service, including Reclaimed Water service, to its customers and is willing to finance and construct facilities to transmit tertiary water from the SBWRP to its service area; and

C. WHEREAS, Otay is seeking additional Reclaimed Water to meet projected demands; and

D. WHEREAS, City desires to sell some or all of the Reclaimed Water it produces at its SBWRP and Otay desires to purchase said water; and

E. WHEREAS, Maximizing the use of Reclaimed Water benefits the region by providing local supply to meet local demand thereby lessening the demand of the San Diego region for imported water.

NOW, THEREFORE, in consideration of the mutual covenants and conditions set forth herein and for other good and valuable consideration, the receipt and sufficiency of which are hereby acknowledged, the Parties do hereby agree as follows:

Section 1. <u>Definitions</u>

The following terms shall have the following meanings whenever used in this Agreement, unless the context requires otherwise:

1.1 "Annual Contract Amount" means the quantity of Reclaimed Water, in acre-feet on an annual basis, that City agrees to produce, make available, deliver, and sell to Otay and Otay agrees to accept, and/or purchase from City.

1.2. "Average Day Amount" means the quantity, in millions of gallons, of Reclaimed Water to be used for production planning purposes.

DOCUMENT NO. RR-298502

FILED OCT 20 2003

OFFICE OF THE CITY CLERK
SAN DIEGO, CALIFORNIA

1.3 "Beginning Date" means the date that Otay begins receiving Reclaimed Water from City under this Agreement or the Effective Date hereof, whichever is later. Beginning Date may occur after the Effective Date of this Agreement.

1.4 "Billing Cycle" has the meaning contained in Section 2.1 herein.

1.5 "City" means the City of San Diego, a charter city.

1.6 "Commodity Rate" means the rate for Reclaimed Water of Three Hundred Fifty dollars ($350.00) per acre-foot.

1.7 "Constant Rate of Delivery" has the meaning contained in Section 4.2 herein.

1.8 "Demand schedule" has the meaning contained in Section 4.1 herein.

1.9 "Effective Date" means the date that the last Party executed the Agreement.

1.10 "Fiscal Year" means July 1 through June 30.

1.11 "Maximum Day Demand" means the quantity of Reclaimed Water delivered during any day.

1.12 "MGD" means millions of gallons of Reclaimed Water per day.

1.13 "Monthly Meter Charges" means the amount charged by the City each month for a meter installed by the City.

1.14 "Otay" means the Otay Water District.

1.15 "Point of Delivery" means the location to which City agrees to deliver Reclaimed Water to Otay, more particularly described in Exhibit A, attached hereto and by this reference incorporated herein.

1.16 "Reclaimed Water" has the meaning set forth in Title 22, Division 4 of the California Code of Regulations for "recycled water" and means water which, as a result of treatment of wastewater, is suitable for a direct beneficial use or a controlled use that otherwise would not occur.

1.17 "Reserved Capacity" has the meaning set forth in Section 2.2.

1.18 "SBWRP" means the South Bay Water Reclamation Plant.

1.19 "Term" has the meaning set forth in Section 8 herein.

1.20 "Total Capacity Reservation Charge" has the meaning set forth in Section 2.2 herein.

Section 2. Rates and Charges

2.1 City agrees to produce, make available, deliver and sell to Otay, and Otay agrees to accept, and/or purchase from City, Reclaimed Water for Three Hundred Fifty dollars ($350.00) per acre-foot as of the Effective Date of this Agreement. Otay agrees that for each year thereafter or any portion thereof (referred to herein as a "Billing Cycle"), the Commodity Rate for Reclaimed Water will escalate at the same rate adopted by the City council for other Reclaimed Water customers. The City will provide documentation supporting any increases prior to the Effective Date.

2.2 Otay shall pay City a one time Capacity Reservation Charge of $ 3,600,000.00 ("Total Capacity Reservation Charge"). $1,800,000.00 shall be paid upon execution of this Agreement. The remaining $1,800,000.00 shall be paid upon delivery of Reclaimed Water or January 1, 2007, whichever occurs first, unless an unforeseen delay has occurred pursuant to Section 3.2.3 of this Agreement. No additional capacity reservation charges will be charged to Otay for the Term of this Agreement.

2.2.1 The Total Capacity Reservation Charge paid by Otay shall reserve 6.0 MGD of capacity ("Reserved Capacity") for the quantities of Reclaimed Water specified in Section 3 of this Agreement. The Reserved Capacity shall be limited to a period of twenty years and coincide with the Term of this Agreement. The Total Capacity Reservation Charge shall not apply to any extensions or modifications to the term of this Agreement.

2.2.2 The Total Capacity Reservation Charge paid by Otay shall reserve and limit capacity to the specific Term of this Agreement and relate to the quantities of Reclaimed Water specified in Section 3 of this Agreement.

2.3 In addition to Commodity Charges, Otay shall pay the prevailing Monthly Meter Charges to be based on the rate for the 10" size meter as specified in the City of San Diego Reclaimed Rate Schedule.

Section 3. Quantity

3.1 Upon the execution of this Agreement, City agrees to produce, make available, deliver, and sell to Otay and Otay agrees to purchase from City, the Annual Contract Amount of Reclaimed Water per the schedule set forth in Exhibit B of this Agreement. Such amount shall be calculated between January 1 and December 31 of each year of the Term of this Agreement.

3.2 Otay agrees to purchase from the City no less than the Annual Contract Amount of Reclaimed Water from the time it commences delivery of Reclaimed Water. Otay is obligated

to pay the Annual Contract Amount even if it is not able to take or use the Reclaimed Water to the extent the reclaimed water is not sold to another party, as per Section 11.2.

3.2.1 For the first year that Otay accepts delivery of Reclaimed Water, the Annual Contract Amount will be prorated based on the number of days remaining in that calendar year.

3.2.2 The Annual Contract Amount is subject to adjustments for interruptions in service not caused by Otay, as more fully described in Section 4.4 of this Agreement.

3.2.3 In the event that Otay has failed to take delivery of Reclaimed Water from the City by January 1, 2007, Otay shall remain responsible to take and pay for the delivery of the Reclaimed Water or pay the Annual Contract Amount unless the Parties agree to an extension beyond January 1, 2007, due to an unforeseen delay in construction of any of the following facilities:

1. Otay pipeline connecting to the City pipeline at the north end of Dairy Mart Road Bridge.

2. The Otay 680-1 pump station.

3. The 450-1 reservoir off of Brandywine Road in Chula Vista

4. City construction of facilities up to and including the delivery point.

3.3 On or before January 1 of each year, Otay may request that the schedule set forth in Exhibit B be revised to increase the quantity of Reclaimed Water that Otay purchases from the City. If such adjustment does not adversely impact City's ability to serve other City customers, including the SBWRP, and Otay has complied with all obligations in this Agreement, City may not unreasonably reject such an adjustment in the schedule.

3.4 Unless mutually agreed in writing by City and Otay, the quantity of Reclaimed Water to be purchased by Otay as set forth in Exhibit B shall not be reduced.

3.5 Subsequent to the execution of this Agreement, and subject to the availability of Reclaimed Water, deliveries to Otay in excess of the Maximum Day Demand shall not constitute a breach of this Agreement. Such excess deliveries shall be considered interruptible in nature, and they can be discontinued at any time.

Section 4. Rate of Production

4.1 Otay shall provide City a Demand Schedule that includes a two-week rolling daily demand schedule each weekday. Otay may request one change up to 10% in the Demand Schedule by giving three days advance notice.

4.2 Reclaimed Water produced at the SBWRP shall be pumped to Otay's 450 zones in an amount equal to or greater than 6 MGD, and balanced by City to attempt to meet the Demand Schedule provided by Otay. City shall notify Otay three days in advance if the Demand Schedule amount above 6 MGD, cannot be delivered.

4.3 SBWRP production of Reclaimed Water will meet Otay's peak summer and winter seasonal orders, subject to availability as specified in the Demand Schedule.

4.4 The Parties recognize that factors beyond the control of the City could cause operational difficulties resulting in the temporary production of Reclaimed Water which does not meet the terms of this Agreement or other regulatory agencies for Otay's intended uses. In such case, the City has sole discretion and may temporarily suspend Otay's supply of Reclaimed Water from the City's facilities. City shall use its best efforts to re-establish the production of Reclaimed Water and shall re-establish Otay's supply of such water accordingly. Otay will be responsible in providing a standby water supply that may be necessary in the event of an interruption in the supply of Reclaimed Water and hereby waives any right which it might have to recover from the City damages attributable to such interruption.

Section 5. Billing

5.1 City will read the meter at the end of each month and bill Otay within 15 calendar days thereafter at Otay's address: 2554 Sweetwater Springs Boulevard, Spring Valley, CA 91978. Billing shall not commence until after the Beginning Date.

5.2 Payment shall be received at City's address listed on the invoice on or before the twentieth calendar day after the date of the invoice.

5.3 In the event Otay fails to pay any amount when due, interest thereon shall accrue at the rate of ten percent per annum from the date when due until payment is received. Failure to make a payment when due constitutes a default under this Agreement.

5.4 City shall be responsible for metering the Reclaimed Water delivered to Otay at the Point of Delivery and reading such meter for purposes of billing Otay. The quantity of Reclaimed Water for which payment is due by Otay in any month shall be the total quantity of Reclaimed Water Delivered to Otay in the preceding month as determined by the measuring

equipment described in Section 6 below.

5.4.1 Notwithstanding the foregoing, on or prior to February 15 of each Calendar Year City shall determine the actual quantity of Reclaimed Water taken by Otay in the prior Calendar Year. If the total quantity of Reclaimed Water taken is less than the Annual Contract Amount, then the City shall bill Otay for the difference between the Annual Contract Amount and the quantity of Reclaimed Water taken. Otay shall pay the invoice on or before March 30 of each Calendar Year.

5.5 Within thirty days after the end of each calendar year quarter, City shall furnish Otay with a statement showing the quantities of all Reclaimed Water delivered for the quarter.

Section 6. <u>Measuring Equipment</u>

6.1 At City's sole cost and expense, City shall furnish and install at the Point of Delivery, Exhibit A, a measuring system for recording the quantity of Reclaimed Water delivered to Otay.

6.2 During all reasonable hours, Otay shall have access to the measuring equipment and records pertinent to such measuring equipment and the quantity of Reclaimed Water delivered to Otay.

6.3 City shall be responsible for maintaining the measuring equipment in good order and condition. City shall conduct tests at least once every twelve months to determine the accuracy of such metering equipment. City shall notify Otay at least forty-eight hours in advance of the time and location of such test. If Otay requests an additional test within twelve months, City shall charge, and Otay shall pay, an amount equal to City's cost to perform such test.

6.4 At its sole cost and expense, Otay shall have the right to independently test such measuring equipment at any time during normal business hours upon forty-eight hours prior notice to City. City shall have the right to monitor such tests.

6.5 In the event the test of the measuring equipment shows that the equipment registers either more than 110 percent or less than ninety percent of the actual amount of Reclaimed Water delivered for a given flow rate, the total quantity of Reclaimed Water delivered to Otay will be deemed to be the Average Day Amount as measured by the measuring equipment when in working order. This adjustment shall be for a period extending back to the time when the inaccuracy began, if such time is ascertainable; and if such time is not ascertainable, for a period extending back to the last test of the measuring equipment or 120 days, whichever is less. In the event the metering equipment is deemed to be inaccurate, the metering equipment shall be calibrated to the manufacturer's specifications for the given flow rate or replaced at the City's sole cost and expense with accurate measuring equipment that is tested before it is placed in service.

6.6 In the event of a dispute between City and Otay regarding the accuracy of the testing equipment used by City or Otay to conduct an accuracy test, City and Otay may mutually agree to have an independent accuracy test conducted. Such test shall be conducted by an independent measuring equipment company or other third Party suitable to both City and Otay. The cost of the test shall be paid equally by City and Otay.

Section 7. Responsibility for Quality of Reclaimed Water

7.1 City shall meet all applicable federal, state, and local health and water quality requirements for Reclaimed Water produced at the SBWRP and delivered to Otay at the Point of Delivery. The Reclaimed Water shall not exceed 1000 mg/l TDS.

7.2 Otay shall be responsible for all water handling facilities it owns and operates from and beyond the Point of Delivery. Otay agrees to be responsible for maintaining and operating such facilities at its own cost and expense. Otay shall ensure that connections to the Point of Delivery are properly designed, constructed, operated and maintained.

7.3 Otay shall be responsible for the quality of the Reclaimed Water from the Point of Delivery. Otay shall be in exclusive control and possession of the Reclaimed Water after it passes through the Point of Delivery and shall be solely responsible for any injury or damage to persons or property caused thereby. Otay shall meet all applicable federal, state, and local health and water quality requirements for Reclaimed Water from the Point of Delivery. Otay shall be solely responsible for obtaining and complying with all environmental approvals and permits.

7.4 Otay shall clearly mark all infrastructure as a non-potable water source not suitable for drinking. Otay shall educate and train its employees and users on the use of the Reclaimed Water consistent with Title 22, California Code of Regulations standards.

Section 8. Term

8.1 The Term of this Agreement shall be for twenty years, commencing on January 1, 2007 or when Otay begins to take Reclaimed Water, whichever occurs first.

8.2 Otay can renew this Agreement for an additional 20-year Term or a portion thereof, subject to the payment of additional applicable capacity reservation charges to the City.

Section 9. Grants and Subsidies

9.1 City and Otay will cooperate with each other in the efforts to obtain grants and subsidies for the Reclaimed Water distribution from the South Bay Plant. Otay shall have the right to apply for and receive all appropriate benefits from the Metropolitan Water District and

the San Diego County Water Authority incentives (LRP), Title XVI revenue, subsidies, and local grants, associated with costs of transporting and delivering Reclaimed Water through its transmission system.

Section 10. Pipelines

10.1 For the Term of this Agreement, City shall provide Otay with a portion of the transmission capacity to Otay in a 4,000-foot, 30-inch transmission system through the Dairy Mart Road Bridge, in an amount equal to the quantity identified in Section 3.

10.2 At Otay's sole cost and expense, Otay shall plan, design, construct, operate and maintain the transmission piping system for transport of Reclaimed Water from the 4,000-foot, 30-inch conveyance system to the Otay 450 zone reservoirs. This pipeline shall be referenced in the facility book of the City and such reference shall clearly indicate that the pipeline is the property of Otay. Appurtenances and valve caps on the pipeline shall be marked "Otay Water District." Otay shall be permitted to use lockout caps in valve casings to ensure that City employees do not close Otay valves. Otay's facility books shall show all City mains and appurtenances in the general area of the pipeline to enable staff to better identify the source of any leak.

10.3 The Parties agree to jointly establish procedures for giving notice of any leaks, shutting down the pipeline in the event of a major break, repairing or maintaining the pipeline and using facilities for the purpose of repairing or maintaining the pipeline. Such procedures shall be effective upon the completion of the pipeline construction.

10.4 The Otay transmission main piping system travels through the City service area. Otay agrees to allow the City to utilize 1 MGD transmission capacity in the pipeline to serve Reclaimed Water customers in the City's service area.

Section 11. Right to Market

11.1 City and Otay shall each have the right to market Reclaimed Water to other entities. The Reclaimed Water rate charged by Otay to other entities or individuals shall not exceed 110% of Otay's costs, including capital costs, operation and maintenance, and the cost of the Reclaimed Water purchased from the City. Otay agrees that any proposed sale of Reclaimed Water to another Party must be approved by City. City agrees that City: (1) shall not unreasonably withhold approval; and (2) shall provide Otay with notice of approval or disapproval within forty-five (45) calendar days of receipt of notification from Otay.

9/10/03

10/14/03

11.2 City shall have the right to contract for the sale of Reclaimed Water up to the 6.00 MGD allocated to but unused by Otay as reflected in Exhibit B to this Agreement. This means that as Otay ramps up its demand for but does not require 6.00 MGD; City may sell any surplus Reclaimed Water to other customers.

Section 12. Environmental Approvals

12.1 City and Otay shall provide mutual cooperative support and assistance with any and all environmental approvals, completing processes, and meeting all requirements for projects associated with the SBWRP Reclaimed Water production, transmission, pumping, and storage facilities necessary to the successful discharge of their respective responsibilities under this Agreement.

12.2 City and Otay shall cooperate in obtaining any required or necessary modifications of the Regional Water Quality Control Board surface water or groundwater regulations to allow for the use of SBWRP Reclaimed Water within Otay service areas.

Section 13. Indemnification

13.1 With respect to any liability, including but not limited to claims asserted or costs, losses, attorney fees, or payments for injury to any person or property caused or claimed to be caused by the acts or omissions of Otay, or Otay's agents, officers, and employees, Otay agrees to defend, indemnify, protect, and hold City its agents, officers, and employees harmless from and against any and all liability. Also covered is liability arising from, connected with, caused by, or claimed to be caused by the active or passive negligent acts or omissions of City, its agents, officers, or employees which may be in combination with the active or passive negligent acts or omissions of Otay, its agents, officers, or employees, or any third Party. Otay's duty to defend, indemnify, protect, and hold harmless shall not include any claims or liability arising from the sole negligence or sole willful misconduct of City, its agents, officers, or employees.

13.2 With respect to any liability, including but not limited to claims asserted or costs, losses, attorney fees, or payments for injury to any person or property caused or claimed to be caused by the acts or omissions of City, or City's agents, officers, and employees, City agrees to defend, indemnify, protect, and hold Otay its agents, officers, and employees harmless from and against any and all liability. Also covered is liability arising from, connected with, caused by, or claimed to be caused by the active or passive negligent acts or omissions of Otay, its agents, officers, or employees which may be in combination with the active or passive negligent acts or omissions of City, its agents, officers, or employees, or any third Party. City's duty to defend, indemnify, protect, and hold harmless shall not include any claims or liability arising from the sole negligence or sole willful misconduct of Otay, its agents, officers, or employees.

Section 14. Insurance

14.1 Otay shall provide a Certificate of Insurance indicating that the City is named as an additional insured with coverage for both bodily injury and property damage in the form of a

combined single limit liability policy in the amount of not less than One Million Dollars ($1,000,000). Further, the insurance policies shall be non-surplus, and issued by an entity licensed in the State of California, and have attached a rider whereby it is provided that in the event of expiration or proposed cancellation of such policies for any reason whatsoever, the City shall be notified by registered mail, return receipt requested, in no event less than 30 calendar days before expiration or cancellation is effective. The policy shall be kept in force for the duration of this Agreement. All deductibles on any policy shall be the responsibility of Otay. A certificate of this insurance shall be filed with the City upon execution of this Agreement. Failure to provide insurance as required in this section shall constitute a material breach of this agreement.

Section 15. Miscellaneous

15.1 Amendment: This Agreement may be modified or amended by the Parties at any time. Such modifications or amendments must be mutually agreed upon and executed in writing. Verbal modifications or amendments shall be of no effect.

15.2 Integration: This Agreement, including attachments and/or exhibits, contains all of the Agreements of the Parties and all-prior negotiations and Agreements are merged herein.

15.3 Notice: Any notice, demand, request, consent, approval of communication that Either Party desires or is required to give to the other Party shall be in writing addressed to the other Party as follows:

To City of San Diego:
Water Department Director
600 B Street, Suite 1300
San Diego, CA 92101

To Otay Water District:
General Manager
2554 Sweetwater Springs Blvd.
Spring Valley, CA 91978-2096

15.4 Mandatory Mediation: If a dispute arises out of, or relates to this Agreement, or the breach thereof, which cannot be resolved by the Parties, the Parties agree to mandatory mediation under the Rules of the American Arbitration Association or any other neutral organization agreed upon before having recourse in a court of law. Any agreements resulting from mediation shall be documented in writing by all Parties. All mediation results shall be "non-binding" and inadmissible for any purpose in any legal proceeding, unless all Parties otherwise agree upon, such admission in writing.

15.5 Waiver: No failure of either City or Otay to insist upon the strict performance by the other of any covenant, term or condition of this Agreement, nor any failure to exercise any right or remedy consequent upon a breach of any covenant, term, or condition of this Agreement,

shall constitute a waiver of any such breach or of such covenant, term or condition. No waiver of any breach shall affect or alter this Agreement, and each and every covenant, condition, and term hereof shall continue in full force and effect to any existing or subsequent breach.

15.6 Assignment: Otay shall not assign the obligations under this Agreement without City's prior written approval. Any assignment in violation of this paragraph shall constitute a default and is grounds for immediate termination of this Agreement, at the sole discretion of City. In no event shall any putative assignment create a contractual relationship between City and any putative assignee.

15.7 Successors-in-Interest: This Agreement and all rights and obligations contained herein shall be in effect whether or not any or all Parties to this Agreement have been succeeded by another entity, and all rights and obligations of the Parties shall be vested and binding on their successors-in-interest.

15.8 Laws and Venue: This Agreement is entered into and shall be construed and interpreted in accordance with the laws of the State of California. Venue for actions arising out of the Agreement shall be in the City of San Diego, California.

15.9 Force Majeure: If the performance of any act required of City or Otay is directly prevented or delayed by reason of strikes, lockouts, labor disputes, unusual governmental delays, acts of God, fire, floods, epidemics, freight embargoes, or other causes beyond the reasonable control of the Party required to perform an act, that Party shall be excused from performing that act for the period of time equal to the period of time of the prevention or delay. In the event City or Otay claims the existence of such a delay, the Party claiming the delay shall notify the other Party in writing of that fact within 10 calendar days after the beginning of any such claimed delay.

15.10 Negotiated Agreement: The Parties agree that they have the right to be advised by counsel with respect to the negotiations, terms, and conditions of this Agreement, and the decision whether to seek advice of counsel with respect to this Agreement is the sole responsibility of each of the Parties. This Agreement shall not be construed in favor of or against either Party by reason of the extent to which each Party participated in the drafting of this Agreement.

15.11 Counterparts: This Agreement may be executed in counterparts, which when taken together shall constitute a single signed original as though all Parties had executed the same page.

15.12 Abandonment: If any part of this Agreement is abandoned or indefinitely delayed, due to circumstances beyond the control of both Parties, this Agreement may be terminated by the City and Otay. In this event, each Party shall bear its own costs without liability to the other Party.

15.13 Delegation of Authority: When this Agreement refers to an act or approval to be performed by the City, that act or approval shall be performed by the City Manager, Water Department Director, or designee.

15.14 Authority to Sign: Each Party signing on behalf of a corporation, partnership, joint venture or governmental entity hereby declares that he, she, or it has the authority to sign on behalf of his, her or its respective corporation, partnership, joint venture, entity and agrees to hold the other Party or Parties hereto harmless if he, she or it does not have such authority.

IN WITNESS WHEREOF, the Parties hereto have executed this agreement effective the date first written above.

CITY OF SAN DIEGO

By _____
City Manager

OTAY WATER DISTRICT

By _____
General Manager

Approved as to form and legality on this 31 day of 10, 2003

CASEY GWINN, CITY ATTORNEY

By _____
Deputy City Attorney

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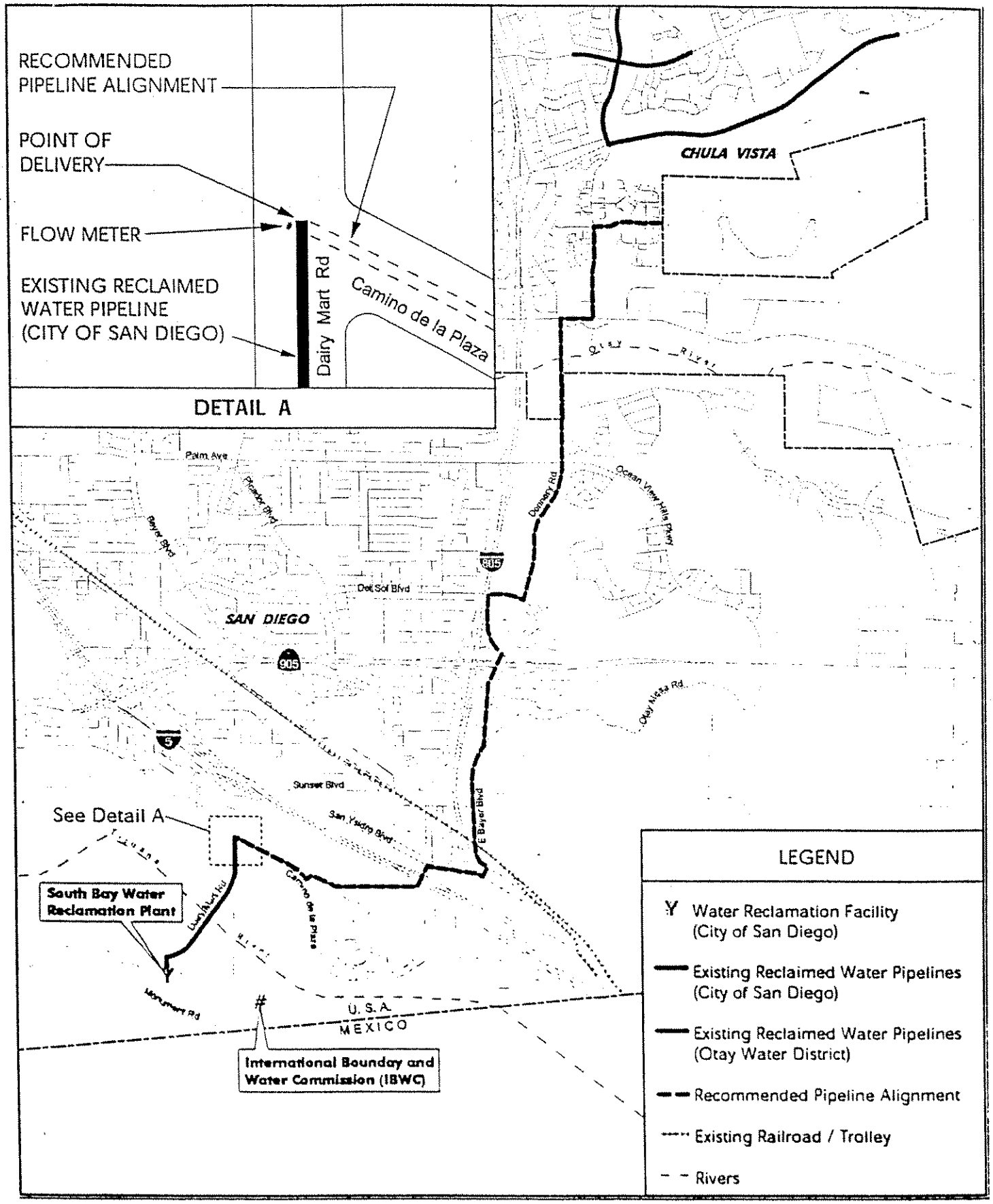
R- 298502



6/24/03

EXHIBIT A

CITY OF SAN DIEGO RECLAIMED WATER
POINT OF DELIVERY TO OTAY

EXHIBIT B

SCHEDULE OF RECLAIMED WATER DELIVERY

AGREEMENT BETWEEN THE OTAY WATER DISTRICT AND THE CITY OF SAN DIEGO
FOR PURCHASE OF RECLAIMED WATER

Calendar Year	Average Annual Demand (mgd)*	Annual Contract Amount (mg)**	Annual Contract Amount Acre Feet
2003	2.100	767	2,352
2004	2.230	816	2,505
2005	2.350	858	2,632
2006	2.480	905	2,778
2007	2.600	949	2,912
2008	2.730	999	3,066
2009	2.850	1,040	3,192
2010	2.980	1,088	3.338
2011	3.610	1,318	4,044
2012	3.740	1,369	4,201
2013	3.860	1,409	4,324
2014	3.990	1,456	4,469
2015	4.110	1,500	4,604
2016	4.240	1,551	4,762
2017	4.370	1,595	4,895
2018	4.490	1,639	5,029
2019	4.620	1,686	5,175
2020	4.730	1,731	5,312
2021	4.820	1,759	5,399
2022	4.900	1,789	5,488
2023	4.980	1,818	5,578
2024	5.060	1,847	5,668
2025	5.140	1,876	5,758
2026	5.220	1,905	5,847

*mgd: Million Gallons per Day
**mg: Million Gallons

(R-2004-346)

RESOLUTION NUMBER R-298502

ADOPTED ON OCT 20 2003

BE IT RESOLVED, by the Council of The City of San Diego, that the City Manager is authorized to execute, for and on behalf of the City, an agreement with the Otay Water District for the purchase of reclaimed water from the South Bay Water Reclamation Plant, under the terms and conditions set forth in the Agreement on file in the office of the City Clerk as Document No. RR-298502, together with any reasonably necessary modifications or amendments thereto which do not increase project scope or cost and which the City Manager shall deem necessary from time to time in order to carry out the purposes and intent of this project and agreement.

APPROVED: CASEY GWINN, City Attorney

By

Deborah L. Berger
Deputy City Attorney

DLB:jc
09/26/03
Aud.Cert:n/a
Or.Dept:Water
R-2004-346
Form=auagr.frm

Passed and adopted by the Council of San Diego on OCT 20 2003 by the following vote:

YEAS: **PETERS, ZUCCHET, ATKINS, LEWIS, MAIENSCHEIN, FRYE, MADAFFER, INZUNZA, MAYOR MURPHY.**

NAYS: **NONE.**

NOT PRESENT: **NONE.**

AUTHENTICATED BY:

DICK MURPHY
Mayor of The City of San Diego, California

CHARLES G. ABDELNOUR
City Clerk of The City of San Diego, California

(SEAL)

By: Mary Cepeda, Deputy

I HEREBY CERTIFY that the above and foregoing is a full, true and correct copy of RESOLUTION NO. R-298502, passed and adopted by the Council of The City of San Diego, California on OCT 20 2003.

CHARLES G. ABDELNOUR
City Clerk of The City of San Diego, California

(SEAL)

By: Mary A. Cepeda Deputy

APPENDIX F

District Code of Ordinance Section 26

SECTION 26 WATER RECYCLING PLAN AND IMPLEMENTING PROCEDURES

26.01 FINDINGS

The state policies regarding use of recycled water are in the best interest of the Otay Water District. The majority of jurisdictions in San Diego County have adopted measures to promote water reclamation. This ordinance is necessary to protect the common water supply of the region which is vital to public health and safety, and to prevent endangerment of public and private property.

San Diego County is highly dependent on limited imported water for domestic, agricultural and industrial uses. The reliability of the supply of imported water is uncertain. By developing and utilizing recycled water, the need for additional imported water can be reduced. In light of these circumstances, certain uses of potable water may be considered unreasonable or to constitute a nuisance where recycled water is available.

26.02 USE OF RECYCLED WATER

A. District Policy: It is the policy of the District that recycled water shall be used within the jurisdiction wherever its use is financially and technically feasible, and consistent with legal requirements, preservation of public health, safety and welfare, and the environment.

A customer's recycled water service must at all time be in compliance with any requirements of service, including but not limited to the requirements established under this Section 26, the District's Rules and Regulations for Recycled Water Use, the California Water Code, commencing with Section 13520, the California Health and Safety Code, Section 116555, the California Code of Regulations, Titles 17 and 22, and Water Agency Standards.

B. Required Use for Greenbelt Purposes: Pursuant to Section 13550 of the California Water Code, no customer of the District shall make, cause, use or permit the use of potable water supplied by the District for greenbelt uses, including, but not limited to, cemeteries, golf courses, parks and highway landscaped areas, when, following notice and a hearing, the District finds that recycled water is available for such greenbelt uses and that the following conditions are met:

1. the recycled water is of adequate quality;

2. the recycled water may be furnished to such areas at a reasonable cost, comparable to or less than the cost of supplying potable domestic water;

3. the State Department of Health Services has determined that such use would not be detrimental to public health; and

4. the use of recycled water will not adversely affect downstream water rights, will not degrade water quality.

The findings may include terms and conditions under which recycled water shall be used. In addition, the District may assist the customer in obtaining any permits or approvals required for the use of recycled water.

26.03 DEFINITIONS

The following terms are defined for purposes of this ordinance:

A. Agricultural Purposes: Agricultural purposes include the growing of field and nursery crops, row crops, trees, and vines and the feeding of fowl and livestock.

B. Artificial Lake: A human-made lake, pond, lagoon, or other body of water that is used wholly or partly for landscape, scenic or noncontact recreational purposes.

C. Commercial Office Building: Any building for office or commercial uses with water requirements which include, but are not limited to, landscape irrigation, toilets, urinals and decorative fountains.

D. Recycled Water Distribution System: A piping system intended for the delivery of recycled water separate from and in addition to the potable water distribution system.

E. Greenbelt Areas: A greenbelt area includes, but is not limited to golf courses, cemeteries, parks and landscaping.

F. Industrial Process Water: Water used by any industrial facility with process water requirements which include, but are not limited to, rins-

ing, washing, cooling and circulation, or construction, including any facility regulated for industrial waste or other objectionable discharge under District Code of Ordinances Sections 52.04, 52.05 and 52.06.

G. Off-Site Facilities: Water facilities from the source of supply to the point of connection with the on-site facilities, normally up to and including the water meter.

H. On-Site Facilities: Water facilities under the control of the owner normally downstream from the water meter.

I. Potable Water: Water which conforms to the federal, state and local standards for human consumption.

J. Recycled Water: Recycled water means water which, as a result of treatment, is suitable for a direct beneficial use or controlled use that would not otherwise occur. (See Water Code Section 13050(n).)

K. Recycled Water Use Permit: A recycled water permit means a permit issued by the District approving and conditioning recycled water service for a particular site.

L. Site Supervisor: A person responsible for the safe and efficient installation, operation and maintenance of a recycled water use site, including but not limited to compliance with all applicable permits, enforcement of the recycled water producer's rules and regulations and the prevention of potential hazards, such as cross-connections. The Site Supervisor must be certified by the San Diego County Water Authority as a Recycled Water Site Supervisor and must have evidence of valid certification at all times while acting as Site Supervisor.

M. Temporary Recycled Water Use Permit: Temporary recycled water use permit means a permit issued by the District, at its discretion, to allow temporary use of recycled water pending issuance of a recycled water use permit or pending renewal of such permit following suspension or termination due to a violation of the provisions of this Section.

N. Waste Discharge: Waste Discharge means water deposited, released or discharged into a sewer

system from any commercial, industrial or residential source which contains levels of any substance or substances which may cause substantial harm to any water treatment or reclamation facility or which may prevent any use of reclaimed water authorized by law.

26.04 WATER RECLAMATION MASTER PLAN

A. General: The General Manager shall prepare and adopt a Water Recycling Master Plan to define, encourage, and develop the use of recycled water within the District's boundaries. The Master Plan shall be updated not less often than every five years.

B. Contents of the Water Recycling Master Plan: The Master Plan shall include, but not be limited to, the following:

1. Plants and Facilities. Evaluation of the location and size of present and future recycling treatment plants, distribution pipelines, pump stations, reservoirs, and other related facilities, including cost estimates and potential financing methods.

2. Recycled Water Service Areas. A designation, based on the criteria set forth in Section 26.02 and the information derived from Section 26.04B.1. and this Section 26.04B.2. of the areas within the District that can or may in the future use recycled water in lieu of potable water. Recycled water uses may include, but are not limited to, the irrigation of greenbelt and agricultural areas, filling of artificial lakes, and appropriate industrial and commercial uses.

3. Designate Tributary Areas. For each water reclamation facility identified in the Master Plan, designate proposed tributary areas. Within such areas, discharges to the sewage system shall be subject to permitting, monitoring and control measures to protect public health, safety and public and private property. Designation of tributary areas shall be adopted by ordinances, and may be included in the Master Plan. Prior to designation of tributary areas, appropriate notice shall be given to property owners and residents of the area.

4. Quality of Water to be Recycled. For each water reclamation treatment facility, evaluate water quality with respect to the effect on anticipated uses of recycled water to be served by each treatment facility. Evaluate sources of waste discharge and sewer inflow that may, directly or cumulatively, substantially contribute to adverse water quality conditions in recycled water.

5. Tributary Protection Measures. Develop recommended control measures and management practices for each designated tributary area to maintain or improve the quality of recycled water. Such control measures may include capital improvements to the sewer collection system and waste discharge restrictions for industrial, commercial and residential discharges.

6. Mandatory Recycled Water Use. For each recycled water service area, evaluate whether greenbelt irrigation, agricultural irrigation, commercial office buildings, filling of artificial lakes, or industrial processes shall be limited to the use of recycled water. As appropriate, mandate construction of recycled water distribution systems or other facilities in new and existing developments for current or future recycled water use as a condition of any development approval or continued water service if future reclamation facilities are proposed in the Master Plan that could adequately serve the development, in accordance with the procedures described in Section 26.05. Identify resources and adopt measures to assist water users in the financing of necessary conversions.

7. Rules and Regulations for Recycled Water Use. Establish general rules and regulations governing the use and distribution of recycled water.

8. Public Awareness Program. Establish a comprehensive water reclamation public awareness program.

9. Coordination Among Agencies. An examination of the potential for initiating a coordinated effort between the District and other regional agencies to share in the production and utilization of recycled water.

26.05 PROCEDURES

A. Existing Potable Water Service.

1. Preliminary Determination. Based upon the Master Plan, upon the designation of each recycled water service area or the commencement of the design of new recycled water facilities, the General Manager shall make preliminary determinations as to which existing potable water customers shall be converted to the use of recycled water. Each water customer shall be notified of the basis for a determination that conversion to recycled water service will be required, as well as the proposed conditions and schedule for conversion.

2. Notice. The notice of the preliminary determination, including the proposed conditions and time schedule for compliance, and a recycled water permit application shall be sent to the water customer by certified mail.

3. Objections; Appeals. The water customer may file a notice of objection with the District within thirty (30) days after any notice of determination to comply is delivered or mailed to the customer, and may request reconsideration of the determination or modification of the proposed conditions or schedule for conversion. The objection must be in writing and specify the reasons for the objection. The preliminary determination shall be final if the customer does not file a timely objection. Staff (Engineering Department) shall review the objection and shall confirm, modify or abandon the preliminary determination. Upon issuance of a final determination by Staff, customer may appeal the determination upon written application to the Board of Directors after the final determination made by the Staff. (Engineering Department).

B. Development and Water Service Approvals.

1. Conditions. Upon application by a developer, owner or water customer (herein referred to as "applicant") for a tentative map, subdivision map, land use permit or other development project as defined by Government Code Section 65928 or for new or altered water

service, the District Staff shall review the Master Plan and make a preliminary determination whether the current or proposed use of the subject property is required to be served with recycled water or to include facilities designed to accommodate the use of recycled water in the future. Based upon such determination, use of recycled water and provision of recycled water distribution systems or other facilities for the use of recycled water, and application for a permit for such use may be required a a condition of approval of any such application, in addition to any other conditions of approval for service.

2. Alterations and Remodeling. On a case-by-case basis, upon application for a permit for the alteration or remodeling of multifamily, commercial or industrial structures (including, for example, hotels), the District Staff shall review the Master Plan and make a preliminary determination whether the subject property shall be required to be served with recycled water or to include facilities designed to accommodate the use of recycled water in the future. Based upon such determination, use of recycled water and provision of recycled water distribution systems or other facilities for the use of recycled water, and application for a permit for such use, may be required as a condition of approval of the application.

3. Notice of Determination. A notice of the basis for the preliminary determination, proposed conditions of approval and schedule for compliance shall be provided to the applicant prior to approval of the development application or application for water service.

4. Requested Service. On a case-by-case basis, upon application for a permit to use recycled water on a property not covered by Sections 26.05.A.1, 26.05.B.1, or 26.05.B.2 above, the General Manager shall review the Master Plan and make a determination whether the subject property shall be served with recycled water. Based upon such determination, the application for the permit shall be accepted and processed subject to Section 26.05.C.

C. Recycled Water Permit Process. Upon a final determination by the General Manager that a prop-

erty shall be served with recycled water, or adoption of a condition of development approval or water service requiring use or accommodation of the use of recycled water, the water customer owner or applicant shall obtain a recycled water permit.

1. Permit Conditions. The permit shall specify the design and operational requirements for the applicant's water distribution facilities and schedule for compliance, based on the rules and regulations adopted pursuant to Section 26.04.B and shall require compliance with both the California Department of Health Services Wastewater Recycling Criteria (see California Code of Administrative Regulations, Title 22), and requirements of the Regional Water Quality Control Board.

2. Plan Approval. Plans for the recycled and non-recycled water distribution systems for the parcel shall be reviewed by the District Engineer and a field inspection conducted before the plans are approved.

3. Meter Permit Issuance. Upon completion of construction and approval by the District and the County Department of Environmental Health the meter permit shall be issued. Recycled water shall not be supplied to a property until inspection by the District determines that the applicant is in compliance with the permit conditions.

4. Recycled Water Use Permit Issuance. If the site has a certified Recycled Water Site Supervisor, a Recycled Water Use Permit will be issued by the District. If the site does not have a certified Site Supervisor identified, a Temporary Recycled Water Use Permit will be issued, for up to 120 days, to allow the site to receive recycled water while a proposed Site Supervisor is being certified.

D. Temporary Use of Potable Water. At the discretion of the General Manager, potable water may be made available on a temporary basis, until recycled water is available. Before the applicant receives temporary potable water, a water reclamation permit, as described in Section 26.05.C, must be obtained for new on-site distribution facilities. Prior to commencement of recycled water service, an inspection of the on-site facilities will be

conducted to verify that the facilities have been maintained and are in compliance with the recycled water permit and current requirements for service. Upon verification of compliance, the applicant shall be notified of the corrective actions necessary and shall have at least thirty (30) days to take such actions prior to initiation of enforcement proceedings.

E. Recycled Water Rate. The rate charged for recycled water shall be established by Ordinance of the Board of Directors.

26.06 REGULATION OF WASTE DISCHARGE TO SEWERAGE SYSTEMS

A. Intent. The District recognizes that to maintain adequate wastewater quality for water reclamation treatment processes, and to protect public and private property, restrictions may be required on certain industrial, commercial and residential waste discharges to a sewerage system that is located within a designated tributary area of an existing or planned reclamation facility.

B. Adopted Tributary Protection Measures. Waste discharges to the sewerage system from any industrial, commercial or residential source may be restricted or prohibited upon a finding, following a noticed public hearing, that the type or class of discharge involved is capable of causing or may cause substantial damage or harm to any sewage treatment or reclamation facility or to any significant user or users or potential user or users of recycled water within an area which has been planned for recycled water service. Prohibitions for certain discharges and guidelines for acceptability of wastes are set forth in District Code of Ordinances Sections 52.04, PROHIBITIONS AGAINST DISCHARGE OF OBJECTIONABLE WASTES, which prohibits discharge of certain items into the District sewer system, including, but not limited to, brine discharge from on-site self-regenerating water softener units; 52.05, GUIDELINES TO DETERMINE ACCEPTABILITY OF WASTES; and 52.06, DISCHARGE OF INDUSTRIAL WASTE.

26.07 SANCTIONS. In addition to the remedies established under Division IV of this Code, the following sanctions and remedies apply to violations of the provisions of this Section.

A. Public Nuisance. Discharge of wastes or the use of recycled water in any manner in violation of this ordinance or of any permit issued hereunder

is hereby declared a public nuisance and shall be corrected or abated as directed by the General Manager. Any person creating such a public nuisance is guilty of a misdemeanor.

B. Injunction. Whenever a discharge of wastes or use of recycled water is in violation of this ordinance or otherwise causes or threatens to cause a public nuisance, the District may seek injunctive relief as may be appropriate to enjoin such discharge or use.

C. Permit Suspension or Revocation. In addition to any other provision of this Code or state statute or rule authorizing termination of water service, the General Manager may suspend or revoke a permit issued hereunder if a violation of any provision of this ordinance or the Rules and Regulations for Recycled Water Use is found to exist or if a discharge of wastes or use of recycled water causes or threatens to cause a nuisance. If a permit is revoked, the General Manager may, at its discretion, issue the recycled water user a temporary recycled water permit for up to 120 days to allow service to continue while corrective measures are completed.

D. Penalty. Any owner and/or operator who violates this ordinance shall, for each day of violation, or portion thereof, be subject to an administrative fine as described in Section 72.05.

26.08 VALIDITY

If any provision of this Section 26 or the application thereof to any person or circumstance is held invalid, the remainder of Section 26 and the application of such provisions to other persons or circumstances shall not be affected thereby.

APPENDIX G

San Diego County Water Authority Documentation of Supply Reliability

Section 5
Member Agency Supplies

5.1 Introduction

Local resources developed and managed by the Water Authority's member agencies are critical to securing a diverse and reliable supply for the region. Local projects, such as recycled water and groundwater recovery, reduce demands for imported water and often provide agencies with a drought-proof supply. This section provides general information on the local resources being developed and managed by the member agencies. These supplies include surface water, groundwater, recycled water, and desalinated seawater.

The Water Authority, working closely with its member agencies, took the following steps to update the yields anticipated from the member agencies' local supplies:

1. Provided the member agencies with the projected supply numbers included in the Water Authority's Updated 2005 Plan and requested they update the figures for their specific project(s).
2. Prepared revised projections based on input from agencies.
3. Separated the recycled water, groundwater, and seawater desalination projects into three categories: "verifiable," "additional planned," and "conceptual" projects based on the stages of development, as defined in the introduction of Section 4, "San Diego County Water Authority Supplies."
4. Presented revised supply numbers to member agencies at several meetings and requested input.
5. Distributed the administrative draft of the 2010 Plan to member agencies for their review, providing them another opportunity to review and revise the updated local supply figures prior to Water Authority Board approval.

Before 1947, the San Diego region relied on local surface water runoff in normal and wet weather years and on groundwater pumped from local aquifers during dry years when stream flows were reduced. As the economy and population grew, local resources became insufficient to meet the region's water supply needs. From the 1950s onward, the region became increasingly reliant on imported water supplies. Since 1980, a range of 5 to 36 percent of the water used within the Water Authority's service area has come from local sources, primarily from surface water reservoirs with yields that vary directly with annual rainfall. A small but growing share of local supply comes from recycled water and groundwater recovery projects, with additional local supply planned from seawater desalination. Yield from these projects are considered drought-proof since they are primarily independent of precipitation. In fiscal year 2010, total local water sources provided 11 percent of the water used in the Water Authority's service area.

5.2 Surface Water

5.2.1 Description

The regional surface water yield is supported by 25 surface reservoirs with a combined capacity of 593,490 AF. The reservoirs are located in seven of the San Diego County's nine coastal watersheds. Table 5-1 lists the 25 reservoirs in the San Diego region. The runoff in these watersheds starts at the crest of the Peninsular Range and drains into the Pacific Ocean and is mostly developed. The oldest functional reservoir in the county, Cuyamaca Reservoir, was completed in 1887.

Olivenhain Reservoir completed in 2003 is the region's newest. It is part of the Water Authority's ESP and has a storage capacity of 24,364 AF. The ESP storage capacity will add 90,100 AF and is designed to protect the region from disruptions in the water delivery system. In addition, the 2002 Regional Water Facilities Master Plan (Master Plan) identified an opportunity to augment the ESP with a carryover storage component at San Vicente. The Carryover Storage Project (CSP) is scheduled for completion in late 2012, with filling scheduled to occur within three to five years, and will provide 100,000 AF of water storage resources to buffer dry-year supply shortages. Refer to Section 11.2.3, "Water Authority Dry-Year Supplies," for additional information on carryover storage.

Table 5-1. Major San Diego County Reservoirs

Member Agency	Reservoir	Capacity (AF)
Carlsbad MWD	Maerkle	600
Escondido, city of	Dixon	2,606
Escondido, city of	Wohlford	6,506
Fallbrook PUD	Red Mountain	1,335
Helix WD	Cuyamaca	8,195
Helix WD	Jennings	9,790
Poway, city of	Poway	3,330
Rainbow MWD	Beck	625
Rainbow MWD	Morro Hill	465
Ramona MWD	Ramona	12,000
San Diego, city of	Barrett	37,947
San Diego, city of	El Capitan[1]	112,807
San Diego, city of	Hodges[2]	33,550
San Diego, city of	Lower Otay	49,510
San Diego, city of	Miramar	7,185
San Diego, city of	Morena	50,207

Member Agency	Reservoir	Capacity (AF)
San Diego, city of	Murray	4,818
San Diego, city of	San Vicente	90,230
San Diego, city of	Sutherland	29,685
San Dieguito WD/Santa Fe ID	San Dieguito	883
SDCWA/Olivenhain MWD	Olivenhain	24,364
Sweetwater Authority	Loveland	25,387
Sweetwater Authority	Sweetwater	28,079
Valley Center MWD	Turner[3]	1,612
Vista ID	Henshaw	51,774
Total Capacity		593,490

= Connected to Water Authority aqueduct system.

[1] Imported water can be delivered via San Vicente.

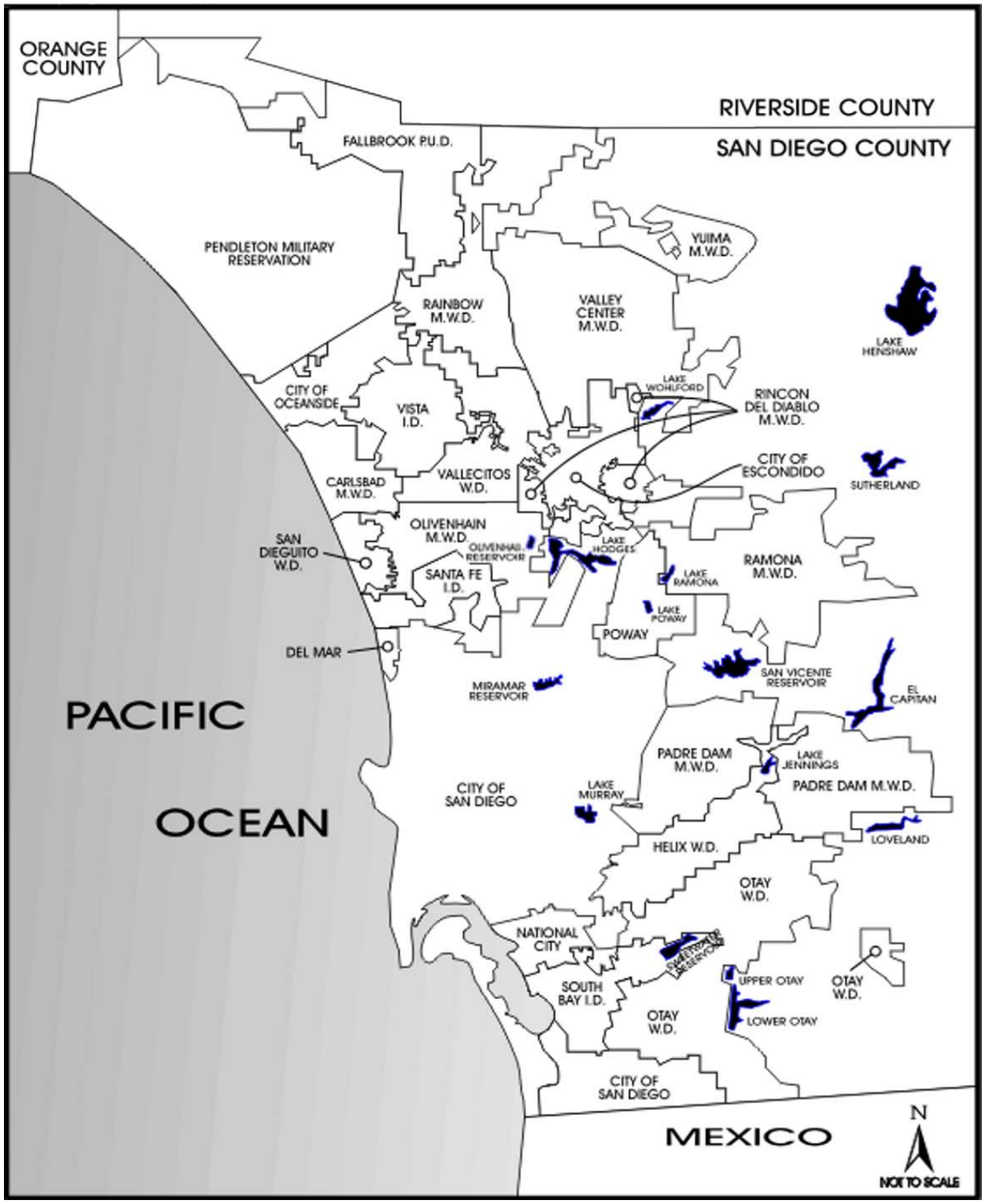
[2] System connection is projected to be in service beginning 2011 as part of the ESP.

[3] Not currently in service as a supply reservoir.

Definitions:

ID = Irrigation District; MWD = Metropolitan Water District; PUD = Public Utility District; WD = Water District

Figure 5-1
Major San Diego County Reservoirs



5.2.2 Issues

5.2.2.1 Management

The Water Authority's member agencies manage most of the region's reservoirs. The Water Authority manages the imported conveyance system to achieve the optimal use of both local and imported water resources, which includes the local reservoirs. In order to reduce the need for imported water purchases, the reservoirs are operated to maximize the use of this local supply. Local surface water supplies can also offset dry-year shortfalls in imported water. Maximizing local yield reduces losses due to evaporation and spills, but it also results in increased demands for imported water during dry years when imported water is more likely to be in short supply. Most member agencies maintain some portion of their storage capacity for emergency storage. The 2002 Master Plan identified carryover storage as necessary to supplement supplies during dry weather events and to maximize the efficient use of existing and planned infrastructure. Currently the Water Authority is operating carryover storage accounts in member agency reservoirs to attenuate the effects of any supply shortfall.

5.2.2.2 Water Quality

See Section 7, "Water Quality," for information.

5.2.3 Encouraging Optimization of Local Surface Water Reservoirs

To optimize the use of local storage, the Water Authority works with its member agencies through storage agreements and through the aqueduct operating plan. The storage agreements allow for carryover storage in member agency reservoirs and provide increased local storage, which can be used during peaks on the aqueduct system. The aqueduct operating plans coordinate imported water deliveries and optimize reservoir fill opportunities. Local yield is maximized by the member agencies that operate the reservoirs. Through the Water Authority's 2012 Regional Water Facilities Optimization and Master Plan Update (Master Plan Update) the Water Authority, in coordination with its member agencies, will model and evaluate whether other opportunities for storage optimization exist.

5.2.4 Projected Surface Water Supplies

Surface water supplies represent the largest single local resource in the Water Authority's service area. However, annual surface water yields can vary substantially due to fluctuating hydrologic cycles. Since 1980, annual surface water yields have ranged from a low of 18,000 AF to a high of 146,000 AF. Planned ESP projects are expected to increase local yield due to the more efficient use of local reservoirs; the volume has not been determined. Water Authority member agency determined average surface water yield to be 59,327 AF per year.

A list of the individual reservoirs, expected yield, and basis for the supply figure can be found in Appendix F, Table F-1. Table 5-2 shows the projected average surface water supply within the Water Authority's service area, and the yields are utilized in the reliability analysis included in Section 9, "Water Supply Reliability."

Specific information on the projected yields from local reservoirs is expected to be included in the member agencies' 2010 plans.

Table 5-2. Projected Surface Water Supply (Normal Year – AF/YR)

2010	2015	2020	2025	2030	2035
27,336 [1]	59,327	59,327	59,327	59,327	59,327

[1] Based on fiscal year 2010 totals.

5.3 Groundwater

Although opportunities are limited, groundwater is currently being used to meet a portion of the municipal water demands throughout the Water Authority's service area from MCB Camp Pendleton in the north to National City in the south. This section provides a general description of: municipal groundwater development within the Water Authority's service area, the issues associated with development of this supply, and projected agency yields. Specific information required under the Act on groundwater basins and projects is expected to be included in the member agencies' 2010 plans.

5.3.1 Description

Within the past five years, water supply agencies within the Water Authority's service area have produced an annual average of approximately 18,300 AF of potable water supplies from groundwater. This total represents production from both brackish groundwater desalination facilities and municipal wells producing groundwater not requiring desalination. It does not include production from privately owned water wells used for irrigation and domestic purposes, or several thousand acre-feet of groundwater produced annually from the Warner Basin by Vista Irrigation District, but discharged to Lake Henshaw, a surface water reservoir, then released downstream of the dam.

In addition to providing a local supply to water agencies, groundwater is also a source of supply for numerous private well owners who draw on groundwater to help meet their domestic and agriculture water needs. In the Ramona area alone, over 1,000 privately owned wells provide a supplementary source of water for Ramona MWD customers. Similar domestic uses occur throughout the Water Authority's service area. These domestic supplies help to offset demand for imported water provided by the Water Authority and its member agencies. Although the amount of groundwater pumped by private wells is significant, it cannot be accurately quantified nor estimated within the Water Authority's entire service area.

Groundwater production in the Water Authority's service area is limited by a number of factors including: the limited geographic extent of the more productive sand and gravel (alluvial) aquifers; the relatively shallow nature of most of the alluvial aquifers; lack of rainfall and groundwater recharge; and degraded water quality resulting from human activities, such as septic tank use.

Shallow and narrow river valleys filled with alluvial sand and gravel deposits are characteristic of the more productive groundwater basins in the San Diego region. Outside of these more productive aquifers, groundwater is developed from fractured crystalline bedrock and semi-consolidated sedimentary deposits that occur throughout the region. However, yield and storage in these aquifers are limited, and the aquifers are best suited for meeting domestic water needs that do not require

higher flow rates. Figure 5-2 shows the location of the principal alluvial groundwater basins within the Water Authority's service area.

Figure 5-2
Alluvial Groundwater Basins

Although groundwater supplies are less plentiful in the San Diego region than in some other areas of California, such as the Los Angeles Basin in southern California and the Central Valley in northern California, the Water Authority believes that sufficient undeveloped brackish groundwater supplies exist that could help meet a greater portion of the region's future water demand. Several agencies within the Water Authority's service area have identified potential projects that may provide several thousand to tens of thousands acre-feet of additional groundwater production in the coming years. A general summary and description of these projects is presented below.

5.3.1.1 Groundwater Extraction and Disinfection Projects

Groundwater that can be extracted and used as a potable water supply, with little more than disinfection, generally occurs outside the influence of human activities and within the upper reaches of the east–west trending watersheds. Wells producing higher quality water are operated by MCB Camp Pendleton (Santa Margarita River watershed) and the Sweetwater Water Authority (San Diego Formation aquifer). The Vista Irrigation District also operates numerous high quality extraction wells in the Warner Basin, located in the upper San Luis Rey River watershed. The water from these wells is discharged to Lake Henshaw and eventually to the San Luis Rey River where it is then diverted further downstream for use in the city of Escondido and elsewhere. The unit cost of water produced from simple groundwater extraction and disinfection projects is low and generally well below the cost of imported water. Because most of the higher quality groundwater within the Water Authority's service area is already being fully utilized, the focus for future local groundwater development is brackish groundwater recovery and treatment.

5.3.1.2 Brackish Groundwater Recovery Projects

Groundwater that is high in salts and total dissolved solids (TDS) and other contaminates, and requires advanced treatment prior to potable use, is typically found in shallow basins in the downstream portions of watersheds. Brackish groundwater recovery projects use membrane technology, principally reverse osmosis, to treat extracted groundwater to potable water standards. The city of Oceanside's 6.37-MGD capacity Mission Basin Desalter and the Sweetwater Authority's existing 4.0-MGD Richard A. Reynolds Groundwater Desalination Facility are the only currently operating brackish groundwater recovery and treatment facilities within the Water Authority's service area. Unit costs for brackish groundwater recovery projects are considerably higher than those for simple groundwater extraction and disinfection projects due to the additional treatment requirements and the cost of concentrate (brine) disposal. However, where economical options exist for disposal of brine, this type of groundwater project has proven to be an economically sound water-supply option.

5.3.1.3 Groundwater Recharge and Recovery Projects

Artificial recharge and recovery projects, also referred to as conjunctive-use projects, can increase groundwater basin yields by supplementing the natural recharge process. Conjunctive-use projects divert excess surface water supplies to percolation basins or injection wells to supplement natural rainfall runoff recharge. Captured rainfall runoff, reclaimed water, imported water, or a combination thereof, can be used to recharge groundwater basins when water levels have been lowered sufficiently by pumping. Groundwater basins can be operated similar to surface water reservoirs to supply stored water to the region if imported deliveries are limited due to high demand, or supply and facility constraints, or a combination thereof. The Fallbrook PUD and MCB Camp Pendleton, and Padre Dam MWD and Helix WD are currently exploring the feasibility of such projects.

5.3.2 Issues

Local water agencies oftentimes need to consider a multitude of issues during the planning, permitting, design, construction, and operation of a groundwater project. The issues can include dealing with hydrogeologic uncertainties, high upfront study and subsurface investigation costs, higher unit costs association with brackish groundwater recovery and treatment, project funding considerations, water rights, regulatory and environmental concerns, and possible contamination of groundwater that might occur after the project is constructed and facilities are brought online. These issues can discourage decision makers and potentially limit the amount of groundwater development in San Diego County.

The Water Authority financial assistance program, Local Investigation and Studies Assistance Program (LISA), provides funding opportunities for facility planning, feasibility investigations, preliminary engineering studies, environmental impact reports (EIRs), and research projects related to groundwater development, which will help agencies overcome some of the risks and constraints to project development.

5.3.2.1 Hydrogeologic and Environmental Impact Uncertainty

In groundwater basins that have not been recently utilized as a source of a municipal water supply by an agency and where there is a general lack of information regarding the physical nature of the aquifer materials, existing wells and groundwater production, water quality, potential impact of pumping to riparian habitat, etc. significant resources must be expended prior to determining the feasibility of a project. Subsurface exploration and field investigations are both costly and time consuming. In addition, data management and utilization generally requires the development of costly large-scale numerical models. These issues, in conjunction with financial considerations, can oftentimes dictate that groundwater projects be developed and production increased incrementally in a planned and managed fashion.

5.3.2.2 Economic and Financial Considerations

Because of the saline nature of the water and the presence of other contaminates in many of the groundwater basins in San Diego County, the cost of groundwater development will oftentimes require demineralization and brine disposal facilities, which can be costly to construct and operate.

5.3.2.3 Institutional, Legal, and Regulatory Issues

Institutional and legal issues can also impact project development. Because groundwater basins oftentimes involve multiple water agencies and/or numerous private wells and water-right holders, water rights and management authority can be issues that need to be addressed before a project progresses beyond the planning stage. However, agencies are often reluctant to initiate groundwater development projects and go beyond the feasibility study stage unless jurisdiction and water rights issues are resolved beforehand.

Uncertainty over future regulatory requirements for drinking water supplies can pose an additional barrier to project development. When developing facilities and compliance plans for groundwater development and/or groundwater recharge projects, agencies must take into account proposed or potential regulatory changes related to water quality issues. Some of the regulations for which

changes are expected over the next decade include state and federal drinking water standards and California Department of Health Services groundwater recharge regulations.

5.3.2.4 Environmental Regulatory Constraints

Issues related to the environmental impacts that could potentially result from the fluctuation of groundwater levels when large quantities of groundwater are extracted are common to many of the groundwater projects proposed within the principal alluvial aquifers in the Water Authority's service area. These issues include potential impacts on endangered species habitat and groundwater-dependent vegetation. Impacts may occur if a project results in seasonal or long-term increases in the depth of the groundwater. Although potential environmental impacts can generally be mitigated, mitigation costs can reduce the cost-effectiveness of a project.

5.3.2.5 Water Quality

See Section 7.4, "Groundwater," for additional information on water quality for groundwater supplies.

5.3.2.6 Funding

In November 2006, the Water Authority's Local Water Supply Development Program was modified to provide up to $200 per acre-foot for potable water produced from brackish or otherwise contaminated groundwater. Currently no agencies have quality for LWSD funding for groundwater projects. However, two local agencies, Sweetwater Authority and the city of Oceanside have received financial incentives from Metropolitan Water District's Groundwater Recovery Program (GRP) totaling $944,779 in fiscal year 2009 and $312,767 in fiscal year 2010.

5.3.3 Projected Groundwater Supply Yield

The Water Authority has worked closely with its member agencies to develop groundwater yield projections. The most reliable projections have been developed by considering only existing (verifiable) groundwater projects, which include planned expansions to existing projects.

Table 5-3 shows the projected annual yield from verifiable groundwater projects in five-year increments, based on projections and implementation schedules or existing projects and planned expansions provided by the member agencies. These are included in the reliability analysis found in Section 9, "Water Supply Reliability." Table F-2, Appendix F contains a list of the projects and the projected supplies.

Table 5-3. Projected Groundwater Supply (Normal Year – AF/YR)

2010	2015	2020	2025	2030	2035
21,377	22,170	26,970	26,970	26,970	26,970

An overall projected increase in groundwater production from 2015 and beyond is due primarily from the expansion of the brackish groundwater recovery and treatment project currently operated by the Sweetwater Authority. However, it should be noted that MCB Camp Pendleton's groundwater

production will decrease beginning in year 2015 due to a response to Executive Order 13423, calling for water conservation of 2 percent per year reduction on the base.

The Sweetwater Authority has completed feasibility studies and design of the expansion of its Richard A. Reynolds Facility, and is currently seeking funding for construction. The agency is also participating in studies with the United States Geological Survey (USGS) to evaluate and further develop production from the San Diego Formation aquifer. Sweetwater has completed the environmental process for the expansion project; however, the city of San Diego has filed a CEQA challenge on the EIR and the outcome of that lawsuit is still pending.

The city of Oceanside has recently completed an expansion of the capacity of its Mission Basin Desalter (6.37 MGD / 4.0 MGD expansion). However, production will remain below the capacity of the facility until new conveyance and pumping facilities, required to distribute the additional supply to additional service areas, are completed. The expected completion date for the new conveyance and pumping facilities is January 2013. The expanded project is anticipated to result in the development of the estimated remaining "safe yield" of the basin. However, the ultimate production capacity, or "safe yield" of the Mission Basin will need to be verified by continued monitoring of water levels after production capacity of the current facility is realized.

5.3.3.1 Additional Planned Projects – Groundwater

Maximizing groundwater development is critical to diversifying the region's water supply portfolio. Beyond the projections of the more reliable and verifiable projects included in Table 5-3, member agencies have also identified two additional planned projects, with an estimated total of 10,200 AF/YR of additional yield in 2035. The Helix Water District/Padre Dam MWD's El Monte Valley Recharge Project is projected to yield 5,000 AF/YR by the year 2020, and Fallbrook PUD/MCB Camp Pendleton's Santa Margarita Conjunctive-Use Project is projected to yield 5,200 AF/YR by 2020. These additional yields are considered additional planned supplies and are utilized in Section 10, "Scenario Planning – Managing an Uncertain Future," as potential strategies to manage future uncertainty planning scenarios. These two additional planned projects, as well as the conceptual projects provided by the member agencies, are also included in Table F-2, Appendix F.

5.4 Water Recycling

One of the elements identified in the Water Authority's resource mix is the optimization of recycled water use. Every gallon of recycled water used within the region reduces the need to import or develop other water supplies. This section provides a general description of recycled water development within the Water Authority's service area, the issues associated with developing this supply, and projected regional yield. Documentation on specific existing and future recycling projects is expected to be in the 2010 plans for those agencies that include water recycling as a supply. The Water Authority coordinated the preparation of this section with its member agencies and those wastewater agencies that operate water recycling facilities within the Water Authority's service area.

5.4.1 Description

Water may be recycled for non-potable or indirect potable purposes. Non-potable recycling is the treatment and disinfection of municipal wastewater to provide a water supply suitable for non-

drinking uses. Agencies in San Diego County use recycled water to fill lakes, ponds, and ornamental fountains; to irrigate parks, campgrounds, golf courses, freeway medians, community greenbelts, school athletic fields, food crops, and nursery stock; and to control dust at construction sites. Recycled water can also be used in certain industrial processes, in cooling towers and for flushing toilets and urinals in non-residential buildings. Recycled water is also being considered for street sweeping purposes.

Indirect potable reuse includes the use of multi-barrier treatment, which may include treatment technologies such as reverse osmosis and advanced oxidation, and a natural barrier, such as a groundwater basin or surface water reservoir, to render wastewater suitable for potable purposes. Several Water Authority member agencies are completing studies pertaining to potable reuse in San Diego County through groundwater recharge or reservoir augmentation.

5.4.2 Issues

Local agencies must consider a number of issues when developing recycled water projects, including economic and financial considerations; regulatory, institutional, and public acceptance issues; and water quality concerns related to unknown or perceived health and environmental risks. These issues, if unresolved, can limit the amount of recycled water use in San Diego County. The following sections discuss some of the specific challenges associated with recycled water development.

5.4.2.1 Economic and Financial Considerations

The capital-intensive cost of constructing recycled water projects and managing a dual distribution system has traditionally been a barrier to project implementation. The up-front capital costs for construction of treatment facilities and recycled water distribution systems can be high, while full market implementation is usually phased in over a number of years, resulting in very high initial unit costs that affect cash flow in the early project years.

Costs associated with converting existing water customers to non-potable recycled water use have also proved challenging. This situation is compounded by the seasonal nature of recycled water demands, a lack of seasonal storage and the lack of large industrial water users in San Diego County that can use recycled water. Projects that serve a large portion of irrigation demands, like the majority of the projects in the Water Authority's service area, often use only half of their annual production capacity due to these seasonal demand patterns. The unit costs associated with these projects tend to be higher than those of projects that serve year-round demands, since the project facilities must be sized to accommodate seasonal peaking. Projects that serve mostly irrigation demands also tend to have less stable revenue bases because irrigation demands are heavily influenced by hydrologic conditions.

Recycled water for indirect potable reuse can be stored in local reservoirs and groundwater basins. This can ensure a continuous demand and production of recycled water throughout the year making the projects more cost effective. Although indirect potable projects require a higher level of treatment that non-potable projects, these costs are offset because they do not require a dual distribution system or customer retrofits. To be economically feasible, a project's benefits must offset or exceed its associated costs. Project benefits can take the form of: (1) revenues from the sale of recycled water; (2) increased supply reliability; (3) increased control over the cost of future water supplies; and (4) avoided water and wastewater treatment, storage, and conveyance costs. Agencies developing recycled water projects must be able to quantify these benefits in order to determine the

economic feasibility of a project. In addition, financial incentives and grant funding from the Water Authority, Metropolitan, and federal and state agencies are critical to offsetting project costs and project implementation.

5.4.2.2 Regulatory

Two state agencies have primary responsibility for regulating the application and use of recycled water: the California Department of Public Health (DPH) and the California Regional Water Quality Control Board (Regional Board). Planning and implementing water recycling projects entails numerous interactions with these regulatory agencies prior to project approval.

The DPH establishes the statewide criteria for recycled water uses in Title 22 of the California Administrative Code. Under Title 22, the standards are established for each general type of use based on the potential for human contact with recycled water. The highest degree of standards for recycled water is for unrestricted body contact.

The Regional Board is charged with issuing permits and enforcing requirements for the application and use of recycled water for each recycled operation which ensures compliance with basin plan objectives and incorporates recommendations from the DPH. As part of the permit application process, applicants must demonstrate that the proposed recycled water operation will meet the ground and surface water quality objectives in the basin management plan, and will comply with Title 22 requirements. With the consent of the recycled water supplier, the Regional Board and DPH may delegate review of individual non-potable use sites to the County of San Diego Department of Environmental Health.

Coordination between the regulatory agencies responsible for monitoring development of recycled water is important, along with the development of a reasonable and consistent application of regulations. Regulatory agencies need to work more closely and cooperatively with project proponents in their efforts to satisfy the regulations and still be able to develop a much needed, cost-effective water-recycling project.

A recent regulatory development that may help expand recycled water use was the January 2011 amendments to the building standards contained in the California Code of Regulations (CCR), Title 24, Part 5, pertaining to dual plumbing design standards for use of recycled water systems inside buildings. The recent amendments established statewide standards for installing both potable and recycled water plumbing systems in commercial, retail, and office buildings; and in theaters, auditoriums, condominiums, schools, hotels, apartments, barracks, dormitories, jails, prisons, and reformatories.

Potable reuse projects require a high level of regulatory scrutiny and are currently approved on a case by case basis. Typically an expert panel is convened to look the project specifics and provide recommendations to the project proponent and DPH. While all projects will build on the knowledge and efforts obtain through past indirect potable reuse projects, local reservoir augmentation projects will be the first to be approved in the State. In 2010, the California Legislature passed AB 918 which will requires the DPH to adopt regulations for groundwater recharge and reservoir augmentation and investigate the possibility of direct potable reuse. This will pave the way for future potable reuse projects throughout the State.

5.4.2.3 Institutional

The primary institutional issue related to the development of water recycling in San Diego County is interagency coordination, such as when the wastewater agency that produces the recycled water is not the water purveyor within the reuse area. At those times, effective communication and cooperation between both agencies regarding the distribution of recycled water and providing service to the water customer is vital and should begin early in the planning process.

These institutional arrangements require contracts and/or agreements between the parties and/or agencies involved, the terms of which must be established on a case-by-case basis. The agreements usually define the reporting and compliance responsibilities, the amount of recycled water deliveries, water pricing, and a financing plan that identifies which agency will receive the financial incentives.

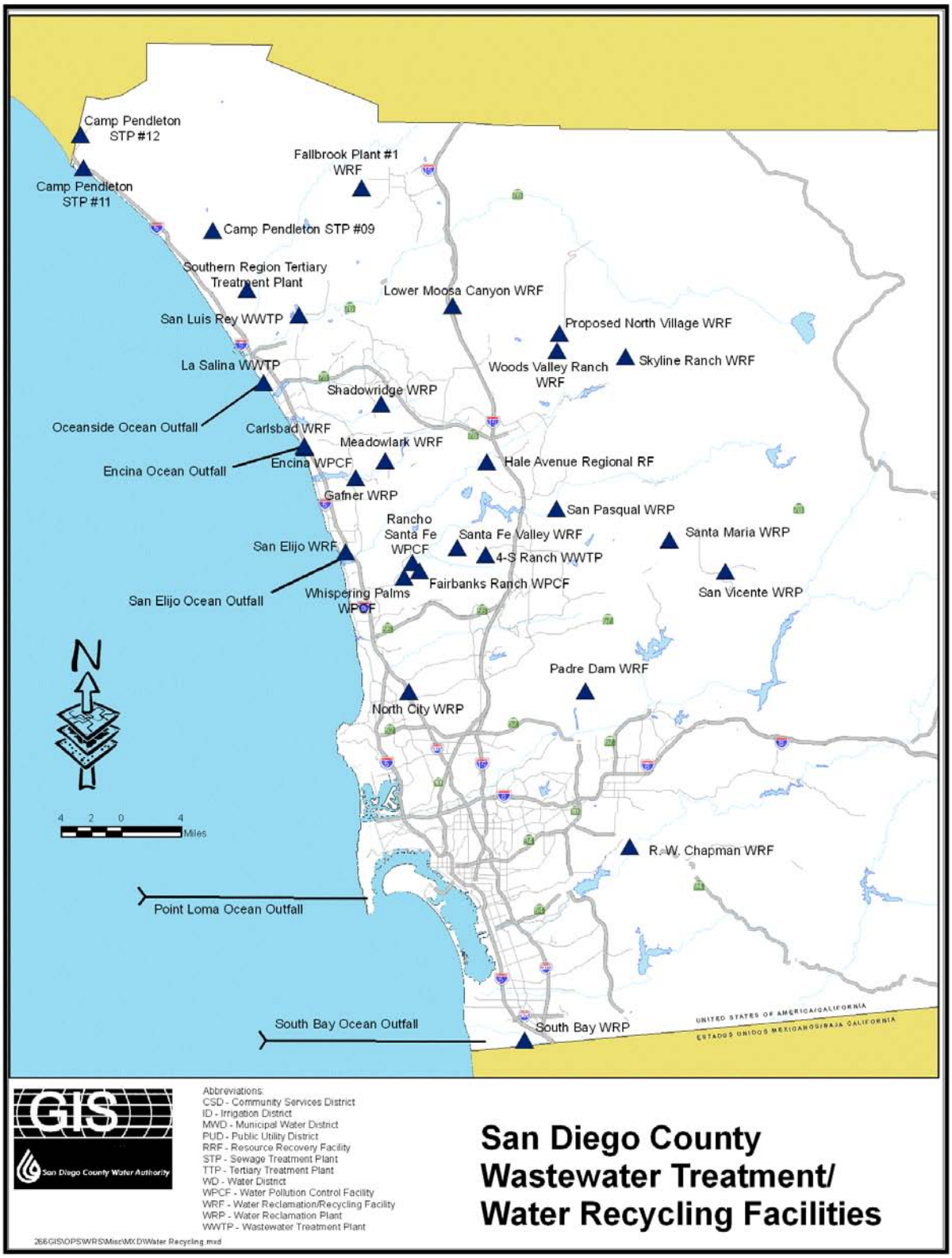
5.4.2.4 Public Acceptance

Without public acceptance, siting, financing, constructing, and operating a water-recycling project becomes increasingly difficult. For many in the public, there is a general sense of water quality and safety concerns due to a lack of understanding the water reclamation treatment process. The most successful means to obtaining public acceptance is through education and involvement. Agencies in the San Diego region have formed citizen's advisory groups and held public workshops in an effort to increase public involvement in projects, which is described in greater detail in Section 5.4.4 below. While the public has fully accepted the safety of recycled water for non-potable uses, potable reuse has had to overcome greater public acceptance hurdles. Recent impacts from drought, increased statewide experience demonstrating the safety of potable reuse projects and local support from the environmental and business communities are increasing the local public acceotance for potable reuse.

5.4.3 Wastewater Generation, Collection, Treatment, and Disposal

Approximately 300 MGD of wastewater is currently being generated, collected, treated, and disposed of within the Water Authority's service area and provides significant potential for recycled water use. Most of the large wastewater treatment plants are located along the coast for easy and convenient access to an ocean outfall. These plants serve most of the San Diego region's highly urbanized areas. Figure 5-3 identifies the location of the wastewater treatment plants and the associated outfall systems. The coastal location of the plants is not always conducive to development of recycled water. Most of the market for recycled water is located at higher elevations, making distribution systems costly. However recycled water costs could be offset by possible savings on wastewater treatment costs where those savings are available. Table F-3, Appendix F shows a detailed list of the wastewater treatment plants within the county, their capacities at various levels of treatment, and the type of disposal. In addition, approximately 10 to 15 MGD of wastewater within the Water Authority's service area is generated and disposed of through private systems, such as septic tanks.

Figure 5-3
Wastewater Treatment and Water Recycling Facilities



5.4.4 Encouraging Recycled Water Development

The Act requires agencies to describe in their plan the actions, including financial incentives, that agencies may take to encourage the use of recycled water. Table 5-4 summarizes the programs used by the Water Authority's member agencies. The water recycling agencies develop some of the programs, while others are developed or funded by the water providers, such as the Water Authority, Metropolitan, and state and federal agencies.

Table 5-4. Programs to Encourage Recycled Water Use

Incentive Programs Local Water Supply Development (Water Authority) Local Resources Program (Metropolitan) Local Investigations and Studies Assistance Program (Water Authority) Public Sector Water Efficiency Partnership Demonstration Program – Immediate Hookup for Potential Recycled Water Use Customers (Metropolitan)
Grants Title XVI Funding Program (US Bureau of Reclamation) Proposition 13 Planning Grants and Loans (State of California) Proposition 50 Grant (State of California)
Low Interest Loans Clean Water State Revolving Fund Program (State of California)
Long-Term Contracts to Ensure Price and Reliability
Funding Assistance to State Water Resources Control Board to fund staff position(s) to expedite water recycling projects (Water Authority**)**
Recycled Water Rate Discounts (most San Diego area water/wastewater agencies)
Public Education/Information Materials Market Development and Technical Assistance Program (Water Authority and most San Diego area water/wastewater agencies)
Regional Planning and Regulatory Assistance Regional coordination with member agencies and regulatory agencies such as DPH and the San Diego Regional Board on recycled water issues Review and comment on statewide regulatory developments and legislation to support local projects Preparation of guidelines in conjunction with member agencies, such as Decorative Water Feature Design Guide, Dual Plumbing Standard Guidelines, etc.
Administration of Recycled Water Site Supervisor Training Workshops (Water Authority in conjunction with member agencies)

5.4.4.1 Funding Programs

Another important component of a successful recycling project is securing diversified funding and establishing funding partnerships. The Water Authority has focused on providing and facilitating the acquisition of outside funding for water recycling projects.

Financial assistance programs available to San Diego County agencies include: the Water Authority's Local Water Supply Development Program, Metropolitan's Local Resources Program (LRP), the U.S. Bureau of Reclamation (USBR) Title XVI Grant Program, the State Water Resources Control Board (SWRCB) low-interest loan programs and the Integrated Regional Water Management Plan Grant Program. Together, these programs can offer funding assistance for all project phases, from initial planning and design to construction and operation. Financial assistance programs administered by the Water Authority, Metropolitan, and the USBR provided $9,508,617 to San Diego County agencies during fiscal year 2010.

Local Water Supply Development Program

The Water Authority administers the Local Water Supply Development (LWSD) Program (formerly referred to as the Recycled Water Development Fund (RWDF) Program initially adopted by the Board in April 1991), which is designed to ensure the financial feasibility of local water recycling projects during their initial years of operation. In November 2006, the LWSD Program was modified to provide up to $200 per acre-foot of recycled water and potable water produced from brackish or otherwise contaminated groundwater. In February 2008, the LWSD Program was again amended to expand eligibility to include seawater desalination projects and adopt updated program guidelines and funding principles.

To date, the Water Authority has entered into LWSD agreements with 11 water and wastewater agencies for a combined project yield of over 30,000 AF/YR. Over $22 million in Water Authority incentive funding has been awarded to program participants. In fiscal year 2010, the Water Authority provided local agencies with $3,575,093 in LWSD incentives.

Local Resources Program

Metropolitan also has a program that currently subsidizes the cost of water supply production from local projects during the initial years of operation. The Local Resources Program (LRP) provides subsidies of up to $250 AF/YR for recycled water and groundwater recovery projects. Currently, 14 water and wastewater agencies in San Diego County have agreements for Metropolitan LRP and Local Projects Program (LPP) funding. Metropolitan provided $4,169,089 in fiscal year 2009 and $3,620,756 in fiscal year 2010 from these funding sources.

In June 2010, the Water Authority filed suit against Metropolitan challenging its practice of allocating supply related expenses to the transportation rate it charges the Water Authority to wheel the Water Authority's independently obtained supplies. Following the filing of the lawsuit, Metropolitan sent a Notice of Intent to Cancel six Local Resources Program subsidy agreements that are subject to Metropolitan's 'Rate Structure Integrity' provision.

The Reclamation Wastewater and Groundwater Study and Facilities Act – Title XVI

The Title XVI Grant Program is a significant source of funding for San Diego area water recycling projects. Title XVI of Public Law (PL) 102-575, the Reclamation Wastewater and Groundwater Study

and Facilities Act, authorizes the federal government to fund up to 25 percent of the capital cost of authorized recycling projects, including the San Diego Area Water Reclamation Program, an inter-connected system of recycling projects serving the Metropolitan Sewage System service area. PL 104-266, the Reclamation Recycling and Water Conservation Act of 1996, authorized two additional projects in northern San Diego County: the North San Diego County Area Water Recycling Project and the Mission Basin Brackish Groundwater Desalting Demonstration Project. The North San Diego County project is no longer eligible to receive federal funding in that it has reached its maximum federal funding limit of $20 million per project. The Mission Basin project is nearing completion, having received a total of $2,500,000 so far. To date, San Diego agencies have been authorized to receive more than $192 million under the Title XVI grant program, including more than $4,472,000 obligated during federal fiscal year 2009. A total of $117,992,000 has been received from this funding source to date. Future authorizations and annual funding from this program are important, but could become more challenging due to current Federal budget challenges.

Clean Water State Revolving Fund/Water Recycling Grants

The SWRCB, through the Division of Financial Assistance, offers low interest financing agreements for water quality projects and water reclamation facilities. Annually, the program disburses between $200 and $300 million to eligible projects. The Clean Water State Revolving Fund (CWSRF) offers agencies a below-market interest rate that can result in substantial savings on debt service. Approximately $83 million was appropriated to the SWRCB in fiscal year 2009 for funding water recycling projects. An example of funding awarded to one of the Water Authority's member agencies was a $496,161 grant commitment to the city of San Diego for their South Bay Water Reclamation Plant. Additional funding can also be obtained through Water Recycling Grants to provide up to 25% of eligible construction costs with a maximum $5 million cap per agency. Planning grants of up to $75,000 maximum are also provided for eligible facilities planning/feasibility study costs.

Further, the Water Authority completed a Membrane Bioreactor (MBR) Study which evaluated 11 potential sites for MBR placement and coordinated the final Regional Recycled Water Study – Phase II Project Report to the SWRCB which included $701,262 in grant funding for 11 local member agency projects. In addition, matching funds were obtained from USBR for the Regional Recycled Water Study, and for an Otay Water District Groundwater Feasibility Study in the amount of $126,518.

Integrated Regional Water Management Plan Grant Funding, Propositions 50 and 84

In June 2008, the California DWR awarded a grant package for $25 million that will provide funding for 19 local projects designed to improve the San Diego region's water supply reliability, water quality, and natural resources. The San Diego-area projects are part of the 2007 San Diego Integrated Regional Water Management (IRWM) Plan, which aims to coordinate local water planning activities. The San Diego package was among a number of similar efforts state-wide that have been funded by the state under Proposition 50, a water bond measure approved by voters in 2002. An additional 70 million dollars has been dedicated to the San Diego IRWMP Region through Proposition 84. A portion of the funding will support recycled water projects, including for example, a recycled retrofit program, construction of treatment facilities at the San Elijo JPA and a north county recycled water study. Refer to Section 8, "Integrated Regional Water Management Planning," for more information.

5.4.4.2 Policies, Ordinances, and Guidance Documents

The Water Authority has adopted a number of policies, guidance documents, and a model ordinance to assist local agencies with water recycling project implementation. Many local agencies have adopted the Water Authority–sponsored ordinance, which includes provisions that typically require new development projects to install recycled water systems. The ordinance also states that where allowed by law and available in sufficient quantities, at a reasonable cost and quality, recycled water shall be the sole water supply delivered for non-potable uses.

In 2009, a guidance document was also developed by the Water Authority to provide general, regulatory guidelines for agencies and customers seeking to use recycled water in water features and fountains. The guidelines were approved by the local regulatory agencies.

5.4.4.3 Training

The Water Authority, in partnership with other water agencies, offers a half-day course designed to provide irrigation supervisors with a basic understanding of recycled water. Completion of the Recycled Water Site Supervisor Training fulfills the training requirement as mandated by regulatory authorities. The four-hour workshop provides information to designated Site Supervisors on: recycled water treatment and rules and regulations, backflow prevention and cross-connection shut-down testing and inspections, landscape irrigation fundamentals, and Site Supervisor responsibilities. At this time, more than 2,300 participants have been certified. Instructors include a certified cross-connection control specialist, a landscape/irrigation specialist, and a recycled water specialist.

5.4.4.4 Optimizing the Use of Recycled Water – Regional Perspective

In the Water Authority's service area, the Market Development and Technical Assistance Program was developed and implemented to promote the increased use of recycled water. Through this program, technical assistance and specific process recommendations through customer site inspections and site review reports were provided to local CII customers interested in connecting to local recycled water systems. The resources available to these CII customers included the use of technical experts in the fields of cooling tower operation, landscape irrigation, agronomy, cross control connection, and other related fields. For example, one biotech firm that requested a Customer Site Inspection could potentially realize a 46 AF/YR reduction in imported water demand by converting their cooling towers at a single facility.

Technical reference materials associated with the promotion of recycled water to CII and agricultural customers included the development of Information Data Sheets for the use of recycled water in cooling towers, detailed case studies, a Recycled Water Landscape Guide, and a Recycled Water Quality Template.

Through the Market Development and Technical Assistance Program, three specialty Industry Workshops were also scheduled and conducted. One was geared towards CII/bio-tech customers (focusing on cooling tower use), another was tailored for the Golf Course Superintendents Association, and another targeted landscape architects and contractors. Although local agencies take responsibility to expand and develop their respective recycled water projects the Water Authority provides regional leadership and assistance that will facilitate and expedite project completion and implementation. In support of the SWRCB call for salinity planning, the Water Authority, in cooperation with the Southern California Salinity Coalition (SCSC), hosted and coordinated a series

of stakeholder workshops and workgroup meetings to work in partnership with San Diego Regional Board staff to develop guidelines for the development of Salinity/Nutrient Management Plans. The final guidelines were approved supported by the San Diego Regional Board through a resolution adopted in November 2010. IRWMP Grant funding is being used to support the development of the plans.

To help advance Indirect Potable Reuse in the San Diego region, Water Authority staff participated in numerous stakeholder outreach and technical committees, including initially serving as a representative on both of the City of San Diego's American Assembly Workshops which resulted in the "unanimous agreement that current technology and scientific studies support the safe implementation of non-potable and indirect potable use projects." More recently, technical assistance has been provided to the city of San Diego for their efforts to approve and fund a demonstration-scale Advanced Water Purification (AWP) Facility at the North City Water Reclamation Plant for the Indirect Potable Reuse/Reservoir Augmentation Demonstration Project and to the Helix Water District and Padre Dam MWD joint El Monte Valley Groundwater Recharge and River Restoration Project. The Water Authority will continue to advocate at a State and local level for reasonable regulations that will support the safe use of recycled water for indirect potable reuse projects.

5.4.5 Projected Recycled Water Use

The Water Authority worked closely with its member agencies to determine the projected yield from existing and planned recycled water projects. Table 5-5 shows the estimated annual yield from the projects in five-year increments based on the implementation schedules provided by the member agencies and the likelihood of development. These projected supply yields will be included in the reliability analysis found in Section 9, "Water Supply Reliability." Table F-4, Appendix F contains a detailed list of the projects and projected supplies.

Table 5-5. Projected Recycled Water Use (Normal Year – AF/YR)

2010	2015	2020	2025	2030	2035
28,065	39,920	44,394	49,425	53,256	57,032

The increase in recycled water use shown in Table 5-5 is primarily from the expansion of existing facilities. The Olivenhain MWD will be expanding its use of recycled water from its connection with the city of San Diego's North City Water Reclamation Plant to 800 AF/YR of recycled water for customers within Olivenhain's Southeast Quadrant, which encompasses 4S Ranch, Santa Fe Valley, and the Rancho Santa Fe/Fairbanks Ranch area. Olivenhain MWD's connection from the Vallecitos Water District's Meadowlark Water Recycling Facility will ultimately provide approximately 1,000 AF/YR of recycled water to Olivenhain MWD customers.

A marked increase in the use of recycled water also stems from MCB Camp Pendleton's expanded production and use of recycled water. Through the South and North Wastewater Treatment Plants and other production plants, over 4,000 AF/YR of recycled water will be beneficially used throughout the military base by 2015.

5.4.5.1 Additional Planned Projects – Recycled Water

Maximizing recycled water development is critical to diversifying the region's water supply portfolio. Beyond the verifiable project yields included in Table 5-5 above, member agencies have also identified additional planned projects. Carlsbad MWD, Fallbrook PUD, Olivenhain MWD, Padre Dam MWD, City of Poway, Santa Fe ID, and Valley Center MWD all have identified additional planned projects which are projected to yield an additional 11,283 AF/YR by 2030. These yields are considered additional planned supplies and are utilized in **Section 10**, "Scenario Planning – Managing an Uncertain Future." These additional planned projects, as well as the conceptual projects provided by the member agencies, are also included in Table F-4, Appendix F.

The city of San Diego's Water Purification Project is projected to yield 10,000 AF/YR of recycled water for indirect potable reuse through reservoir augmentation in San Vicente Reservoir by 2020. The city of San Diego is in the process of completing a pilot study for the Water Purification Project which will provide a basis for regulatory approvals for the projects in addition to providing detailed cost information on the project. This pilot is expected to be completed by December 2012. Helix Water District and Padre Dam MWD are completing planning of the El Monte Valley Recharge Project (indirect potable reuse through groundwater recharge) which is expected to provide 5,000 AF/YR of supply. The project is currently undergoing environmental review and design is expected to be completed by late 2012. The City of Escondido is both planning to expand its non potable water recycling program to include additional landscaping and potentially agricultural irrigation as well as incorporate a future indirect potable reuse element. Escondido is pursuing this dual path for water supply reliability and to avoid the cost of a future ocean outfall expansion associated with its discharge of secondary treated wastewater. At this point the Escondido City council has approved exploring this alternative and has incorporated this approach into their long range financial planning. As part of its plans to further expand its recycled water program, the Rincon Municipal Water District is beginning to study options for potable reuse through groundwater recharge in less urbanized portions of their service area.

5.5 Member Agency Seawater Desalination

5.5.1 Rosarito Beach Desalination Project, Otay Water District

A private developer, NSC Agua, is in the process of obtaining a contract to build a 50-MGD desalination plant next to the existing power plant in Rosarito Beach, Mexico. NSC Agua would permit, design, construct and operate the Rosarito Beach Desalination Facility. Otay Water District (Otay) would purchase excess product water up to 25 MGD. In order to convey the purchased product water from the Rosarito plant into its service area, Otay is currently evaluating conveyance and treatment options. Otay's conveyance and treatment project, within the U.S., would have to undergo an environmental review and permitting process once a final project description has been determined. Otay is projecting this private development project could be operational as early as 2015. The Otay project is considered an additional planned project and is utilized in Section 10 as a potential strategy to manage future uncertainty planning scenarios.

Section 9
Water Supply Reliability

Under the Act, every UWMP must include an assessment of the reliability of water supply reliability. The water supply and demand assessment must compare the total projected water use with the expected water supply over the next 20 years in 5-year increments. This reliability assessment is required for normal, single dry-year and multiple dry water years. The assessment contained in the 2010 Plan projects reliability through the next 25 years. In addition to the expected, verifiable mix of resources utilized in the reliability assessment, additional planned resources, which have not yet achieved the same level of certainty, have also been identified by the Water Authority and its member agencies. This section presents a summary of the water demands and supplies within the Water Authority's service area along with the reliability assessment and discussion on additional planned supplies.

9.1 Development of Projected Water Resources Mix

In summary, development of the projected mix of resources to meet future demands is based on the following factors:

I. Local agency information on projected water recycling, groundwater, and surface water (discussed in Section 5);

II. Retail compliance with SBX7-7 conservation targets (Section 2)

III. Board approvals taken in regard to continued supply availability:

   a. Adoption of Water Authority's 2008 Strategic Plan with Key Result Area 1 – Water Supply Diversification

   b. Agreement between IID and the Water Authority for Transfer of Conserved Water, and other related agreements (Section 4.1);

   c. Allow the agreement related to the ACC and CC Lining Projects, and other related agreements (Section 4.2);

   d. A water supply contract consistent with the Term Sheet between Poseidon Resources and the Water Authority regarding development of a regional seawater desalination plant located in Carlsbad, CA (Section 4.3);

   e. Inclusion of the San Vicente Dam Raise and Carryover Storage Project in Water Authority's CIP (Section 11.2.3); and

   f. Agreements and actions related to out-of-region groundwater banking program.

9.2 Normal Water Year Assessment

Table 9-1 shows the normal year assessment, summarizing the total water demands for the Water Authority through the year 2035 along with the supplies necessary to meet demands under normal

conditions. Section 2 contains a discussion of the normal year water demands in the Water Authority's service area. If Metropolitan, the Water Authority and member agency supplies are developed as planned, along with achievement of the SBX7-7 retail conservation target, no shortages are anticipated within the Water Authority's service area in a normal year through 2035. As part of preparation of their 2010 Plan, Metropolitan staff identified the Water Authority's demands on Metropolitan, which are shown to be adequate to cover the supplemental need identified in Table 9.1. The member agency level data was not included in their 2010 Plan, but provided by Metropolitan to their member agencies separately and the Water Authority's data is included in Appendix I.

Table 9-1. Normal Water Year Supply and Demand Assessment (AF/YR)[1]

	2015	2020	2025	2030	2035
Water Authority Supplies					
IID Water Transfer	100,000	190,000	200,000	200,000	200,000
ACC and CC Lining Projects	80,200	80,200	80,200	80,200	80,200
Proposed Regional Seawater Desalination	0	56,000	56,000	56,000	56,000
Sub-Total	180,200	326,200	336,200	336,200	336,200
Member Agency Supplies					
Surface Water	59,327	59,327	59,327	59,327	59,327
Water Recycling	39,920	44,394	49,425	53,256	57,032
Groundwater	12,050	11,450	11,450	11,450	11,450
Groundwater Recovery	10,120	15,520	15,520	15,520	15,520
Sub-Total	121,417	130,691	135,722	139,553	143,329
Metropolitan Water District Supplies	339,820	219,484	250,393	283,201	310,020
Total Projected Supplies	**641,437**	**676,375**	**722,315**	**758,954**	**792,549**
Total Estimated Demands w/ SBX7-7 Conservation	641,437	676,375	722,315	758,954	792,549

[1] Normal water year demands based on 1960 – 2008 hydrologies.

9.3 Dry Water Year Assessment

In addition to a normal water year assessment, the Act requires an assessment to compare supply and demands under single dry and multiple dry water years over the next 20 years, in five-year increments. Section 2 describes the derivation of the dry water year demands. Table 9-2 shows the single dry-year assessment. The projected groundwater and surface water yields shown in the table are based on historic 1990 supplies during the 1987-1992 drought years. The supplies available from projected recycling and groundwater recovery projects are assumed to experience little, if any, reduction in a dry-year. The Water Authority's existing and planned supplies from the IID transfer, canal lining projects, and seawater desalination are also considered "drought-proof" supplies as discussed in Section 4. For this single dry-year assessment, it was assumed that Metropolitan would have adequate supplies in storage and would not be allocating supplies. With the previous years leading up to the single dry-year being wet or average hydrologic conditions, Metropolitan should

have adequate supplies in storage to cover potential shortfalls in core supplies and would not need to allocate.

Table 9-2. Single Dry Water Year Supply and Demand Assessment Five Year Increments (AF/YR)

	2015	2020	2025	2030	2035
Water Authority Supplies					
IID Water Transfer	100,000	190,000	200,000	200,000	200,000
ACC and CC Lining Projects	80,200	80,200	80,200	80,200	80,200
Proposed Regional Seawater Desalination	0	56,000	56,000	56,000	56,000
Sub-Total	**180,200**	**326,200**	**336,200**	**336,200**	**336,200**
Member Agency Supplies					
Surface Water	17,932	17,932	17,932	17,932	17,932
Water Recycling	39,920	44,394	49,425	53,256	57,032
Groundwater	9,977	9,977	9,977	9,977	9,977
Groundwater Recovery	10,120	15,520	15,520	15,520	15,520
Sub-Total	**77,949**	**87,823**	**92,854**	**96,685**	**100,461**
Metropolitan Supplies	**423,701**	**306,325**	**340,635**	**377,030**	**409,872**
Total Projected Supplies	**681,850**	**720,348**	**769,689**	**809,915**	**846,533**
Total Forecasted Demands w/ SBX7-7 Conservation	681,850	720,348	769,689	809,915	846,533

If Metropolitan, the Water Authority and member agency supplies are developed as planned, along with achievement of the SBX7-7 retail conservation target, no shortages are anticipated within the Water Authority's service area in a single dry-year through 2035.

In accordance with the Act, Tables 9-3, 9-4, 9-5, and 9-6 show the multiple dry water year assessments in five-year increments. The member agencies' surface and groundwater yields shown in these tables are reflective of supplies available during the 1987-92 drought, in years 1990, 1991 and 1992. The Water Authority supplies consist of yield from the IID transfer, canal lining projects, and Carlsbad Seawater Desalination project.

For the multi dry-year reliability analysis, the conservative planning assumption is that Metropolitan will be allocating supplies to its member agencies. By assuming allocations in this reliability assessment, it allows the Water Authority to analysis how storage supplies could be utilized and the likelihood of shortages. Currently Metropolitan allocates supplies through its Water Supply Allocation Plan. Because it is uncertain in the future how Metropolitan will allocate supplies to its member agencies, the analysis in the Tables assumes they are allocated based on preferential right to Metropolitan supplies. As discussed in Section 6.1.1, Section 135, Preferential Right to Purchase Water, is included in Metropolitan's Act and allows a Metropolitan member agency to acquire for use within the agency supplies based on preferential rights at any time.

Table 9-3. Multiple Dry Water Year Supply and Demand Assessment Five-Year Increments (AF/YR) – 2016–2018

	2016	2017	2018
Member Agency Supplies	78,844	93,230	112,242
Water Authority Supplies	236,200	236,200	266,200
Metropolitan Allocation (Preferential Right)	322,661	323,350	324,100
Total Estimated Core Supplies w/o Storage Takes	637,705	652,780	702,542
Total Forecasted Demands w/ SBX7-7 Conservation	684,965	707,726	742,211
Potential Supply (Shortage) or Surplus *(Difference between Supplies and Demands)*	(47,260)	(54,946)	(39,669)
Utilization Carryover Supplies	47,260	40,000	30,000
Total Projected Core Supplies w/ Utilization of Carryover Storage Supplies	684,965	692,780	732,542
Remaining Potential Surplus Supply, or (Shortage) that will be handled through Management Actions	0	(14,946)	(9,669)

Table 9-4. Multiple Dry Water Year Supply and Demand Assessment Five-Year Increments (AF/YR) – 2021–2023

	2021	2022	2023
Member Agency Supplies	88,829	102,247	120,291
Water Authority Supplies	336,200	336,200	336,200
Metropolitan Allocation (Preferential Right)	326,697	327,671	328,695
Total Estimated Core Supplies w/o Storage Takes	751,726	766,118	785,186
Total Forecasted Demands w/ SBX7-7 Conservation	726,025	754,233	793,297
Potential Supply (Shortage) or Surplus *(Difference between Supplies and Demands)*	25,701	11,885	(8,111)
Utilization Carryover Supplies	0	0	8,111
Total Projected Core Supplies w/ Utilization of Carryover Storage Supplies	751,726	766,118	793,297
Remaining Potential Surplus Supply, or (Shortage) that will be handled through Management Actions	25,701	11,885	0

Table 9-5. Multiple Dry Water Year Supply and Demand Assessment Five-Year Increments (AF/YR) – 2026–2028

	2026	2027	2028
Member Agency Supplies	93,620	106,798	124,602
Water Authority Supplies	336,200	336,200	336,200
Metropolitan Allocation (Preferential Right)	332,058	333,272	334,532
Total Estimated Core Supplies w/o Storage Takes	761,878	776,270	795,334
Total Forecasted Demands w/ SBX7-7 Conservation	777,049	806,049	848,762
Potential Supply (Shortage) or Surplus *(Difference between Supplies and Demands)*	(15,171)	(29,779)	(53,428)
Utilization Carryover Supplies	15,171	29,779	40,000
Total Projected Core Supplies w/ Utilization of Carryover Storage Supplies	777,049	806,049	835,334
Remaining Potential Surplus Supply, or (Shortage) that will be handled through Management Actions	0	0	(13,428)

Table 9-6. Multiple Dry Water Year Supply and Demand Assessment Five-Year Increments (AF/YR) – 2031–2033

	2031	2032	2033
Member Agency Supplies	97,440	110,607	128,400
Water Authority Supplies	336,200	336,200	336,200
Metropolitan Allocation (Preferential Right)	338,575	340,009	341,486
Total Estimated Core Supplies w/o Storage Takes	772,215	786,816	806,086
Total Forecasted Demands w/ SBX7-7 Conservation	816,466	848,206	888,263
Potential Supply (Shortage) or Surplus *(Difference between Supplies and Demands)*	(44,251)	(61,390)	(82,177)
Utilization Carryover Supplies	44,251	40,000	30,000
Total Projected Core Supplies w/ Utilization of Carryover Storage Supplies	816,466	826,816	836,086
Remaining Potential Surplus Supply, or (Shortage) that will be Offset through Management Actions	0	(21,390)	(52,177)

The Water Authority's annual preferential right percentage of Metropolitan supplies is estimated through 2035 and total Metropolitan dry-year supplies available for allocation are estimated to be 1,800,000 AF. This total supply assumes reduced deliveries from the State Water Project and Colorado River Aqueduct along with limited storage supplies. For reference, during the fiscal year 2010 allocation period, Metropolitan allocated approximately 1,890,000 AF of supplies to its member agencies.

Under the specific parameters assumed in the multi dry-year analysis, some level of shortage could potentially be experienced, as shown in Tables 9-3, 9-4, 9-5 and 9-6. Shortages occur in the early years primarily because the IID transfer supplies have not yet fully ramped up to 200,000AF/YR

maximum deliveries. The shortages occurring in the later years are due primarily to increasing water demands due to growth within the region.

As discussed in Section 11.2.3, the Water Authority has invested in carryover storage supply capacity, which can be utilized in dry-years to improve reliability. The carryover storage investment includes both surface water storage in San Vicente Reservoir and out-of-region groundwater storage in California's central valley, for a total of approximately 170,000 AF of storage capacity available by 2012, when the San Vicente Dam raise is scheduled for completion. Once completed, it will take three to five years to fill the reservoir.

As described in Section 11.2.3, there are a number of factors to consider when determining the utilization of carryover supplies to reduce or eliminate shortages. The storage take amount should be handled on a case-by-case basis, considering such items as, current demand trends, core supply availability, hydrologic conditions, and storage supply available for withdrawal. These factors will vary depending upon the situation. For the analysis in the 2010 Plan, it was assumed the carryover storage supplies would be full going into the dry-year period. In determining the amount to utilize, the analysis takes into account the take capacity of the groundwater banking program (approximately 12,000AF/YR) and uses general guidelines that approximately one third of the carryover supplies available in storage will be utilized in one year. Utilizing only a portion of available storage supplies avoids depletion of storage reserves, thereby making water available for potential ongoing or future shortages. The supplies taken from carryover storage will be considered a Water Authority regional supply to be combined with Water Authority's core supplies and any potential dry-year transfers.

In years where shortages may still occur, after utilization of carryover storage, additional regional shortage management measures, consistent with the Water Authority's Water Shortage and Drought Response Plan (described in Section 11.2.2), will be taken to fill the supply shortfall. These measures could include securing dry-year transfers, which the Water Authority successfully acquired and utilized during the recent shortage period. (Description of the Water Authority's dry-year transfer program is included in Section 11.2.3.). In addition to dry-year supplies, extraordinary conservation, achieved through voluntary or mandatory water-use restrictions, could also assist in managing shortages. A description of the savings achieved during the 2007-2011 shortage period is described in Section 11.2.1. As discussed in the following section, the amount of savings achieved through extraordinary conservation measures could be limited due to demand hardening, especially following compliance with SBX7-7 conservation savings.

9.3.1 Demand Hardening

It should be emphasized that the amount of extraordinary conservation savings expected to be achieved through mandatory measures, such as water-use restrictions, could be less than that experienced in the current and previous shortage periods. This is due to the concept known as demand hardening. Demand hardening diminishes the ability or willingness of a customer to reduce demands during shortages as a result of having implemented long-term conservation measures. Responsiveness to drought pricing and general price increases will diminish because remaining essential uses are less responsive to price. The required reduction levels through SBX7-7 compliance will reduce customer discretionary demands and create less flexibility in the managing of demand during shortages. This will increase the importance of acquiring supplemental dry-year supplies to eliminate or reduce potential supply shortages. Long-term permanent conservation

savings is critical to ensuring water is used most efficiently and for achieving the SBX7-7 conservation compliance targets. Due to potential demand hardening, resulting from SBX7-7, shortage management measures such as water-use restrictions and drought pricing may not be as effective in the future in achieving necessary savings to help reduce the supply gap.

9.4 Reliability of Supply

The above sections identify the diverse mix of resources planned to meet future demands in both a normal and dry-year. Implementation of this regional resource mix will require development of projects and programs by the Water Authority, its member agencies, and Metropolitan. The Water Authority coordinated with its member agencies and Metropolitan during preparation of the 2010 Plan on the future demands and supplies projected for the region. The steps being taken by the member agencies and Metropolitan to develop supplies are addressed in their respective urban water management plans. Section 4 contains the steps taken and remaining actions necessary to develop and maintain the Water Authority supplies.

Key to long-term reliability will be the monitoring of supplies and demands in order to make necessary modifications to the core and dry-year resources identified in the normal and dry-year resource mixes. The Water Authority Board will monitor reliability of existing supplies and development of identified future supplies through the Annual Supply Report and five year updates to the UWMP.

The Act requires that, for any water source that may not be available at a consistent level of use, given specific legal, environmental, water quality, or climatic factors, that the agency describe, to the extent practicable, plans to replace that source with alternative sources or water demand management measures. As stated throughout the 2010 Plan, the Water Authority and its member agencies are planning to develop a diverse supply of resources. The unavailability of any one supply source will be buffered because of the diversity of the supplies: the region is not reliant on a single source. To replace or supplement an existing supply, the Water Authority could take steps to increase development of transfers or seawater desalination. Member agencies could also further maximize development of recycled water, groundwater, and seawater desalination. In order to adequately plan for potential supply uncertainties and identify alternative sources, the 2010 Plan contains a scenario planning process described in Section 10.

9.5 Additional Planned Supply Projects

The mix of current and future supplies is developed jointly between the Water Authority and its member agencies. The mix of supplies is being represented in two ways. Verifiable supplies are those supplies identified by the Water Authority or member agencies as having achieved a level of certainty in their planning and implementation where California Environmental Quality Act has been satisfied, permits are in hand or contracts have been executed. Verifiable supplies are included in water supply assessments and verifications prepared by retail water agencies and used by the cities and county in their land use decisions regarding available water supplies for growth under SB 221 and SB 610. Those projects with adequate documentation regarding implementation and supply utilization, or existing projects already planned for expansion, were considered for inclusion in the assessments discussed in Sections 9.2 and 9.3. Additional planned supplies are those that have not

yet achieved the same level of certainty as the verifiable supplies, but have progressed to a point where the Water Authority or a member agency has taken significant financial actions to pursue the project.

These additional planned supplies are important to the region for a number of reasons. The Water Authority and member agencies must continue to strive to develop cost-effective local resources that can further diversify the region's supplies and reduce demands for imported water from Metropolitan. They provide objectives for the region to work towards by resolving any funding, regulatory, and other constraints associated with implementation. The additional planned projects are considered potential supply management strategies in the scenario planning process described in Section 10. Figures 9-1, 9-2, and 9-3 show the existing, verifiable, and planned water supplies for recycled water, groundwater, and seawater desalination.

Figure 9-1
Recycled Water Supply – Existing, Verifiable, and Planned (AF)

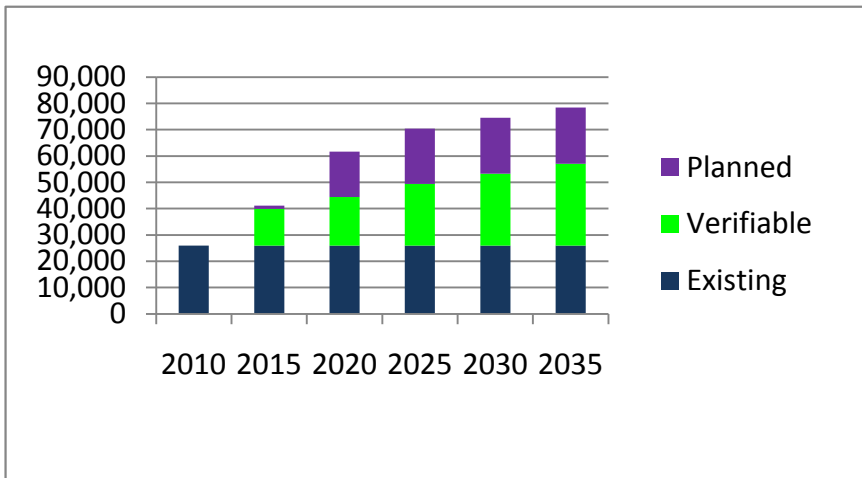


Figure 9-2
Brackish Groundwater Recovery – Existing, Verifiable, and Planned (AF)

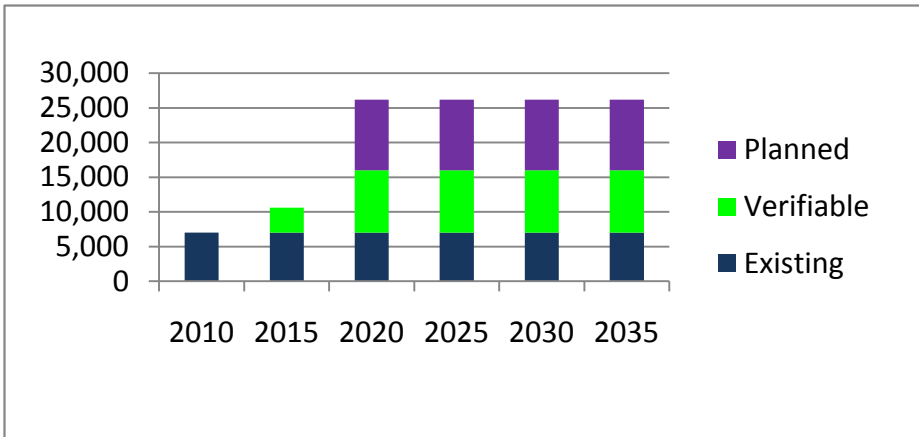
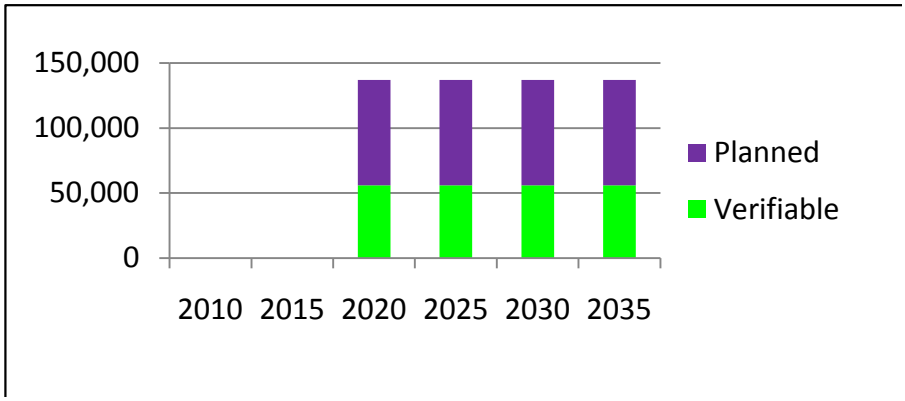


Figure 9-3
Seawater Desalination – Existing, Verifiable, and Planned (AF)



The specific local recycled water and brackish groundwater projects included in the figures are listed in Tables F-2 and F-4, respectively, in **Appendix F**. The total seawater desalination additional planned supplies are a combination of Otay Water District's proposed Bi-National Seawater Desalination project (25,000AF/YR) and the Water Authority's proposed Camp Pendleton Seawater Desalination facility (56,000AF/YR). Refer to Sections 4 and 5 for additional information on the derivation of the verifiable and additional planned supply figures.

APPENDIX H

District Draft Code of Ordinance Section 39

SECTION 39. WATER SHORTAGE RESPONSE PROGRAM

39.01 DECLARATION OF NECESSITY AND INTENT

(a) This Section establishes water management requirements necessary to conserve water, enable effective water supply planning, assure reasonable and beneficial use of water, prevent waste of water, prevent unreasonable use of water, prevent unreasonable method of use of water within the District in order to assure adequate supplies of water to meet the needs of the public, and further the public health, safety, and welfare, recognizing that water is a scarce natural resource that requires careful management not only in times of a water shortage, but at all times.

(b) This Section establishes regulations to be implemented during times of declared water shortages, or declared water shortage emergencies. It establishes four levels of actions to be implemented in times of shortage, with increasing restrictions on water use in response to worsening water shortage conditions and decreasing available supplies.

(c) The Level 1 water shortage response condition practices are voluntary and will be reinforced through local and regional public education and awareness measures that may be funded in part by the District. Beginning at the level 2 Water Shortage Response Condition, the District may implement water shortage pricing. When a water shortage response Level 2 condition is declared, all conservation practices and water-use restrictions may become mandatory and increasingly restrictive in order to attain escalating conservation goals.

(d) During a Water Shortage Response Level 3 condition or higher, the water conservation practices and water use restrictions established by this ordinance are mandatory and violations are subject to criminal, civil, and administrative penalties and remedies specified in Section 72 of this ordinance.

39.02 DEFINITIONS APPLICABLE TO THE PROGRAM

(a) The following words and phrases whenever used in this Section shall have the meaning defined in this subsection:

1. "Grower" refers to those engaged in the growing or raising, in conformity with recognized practices of husbandry, for the purpose of commerce, trade, or industry, or for use by public educational or correctional institutions, of agricultural, horticultural or floricultural products, and produced: (1) for human consumption or for the market, or (2) for the feeding of fowl or livestock produced for human consumption or for the market, or (3) for the feeding of fowl or livestock for the purpose of obtaining their products for human consumption or for the market. "Grower" does not refer to customers who purchase water subject to the Metropolitan Interim Agricultural Water Program or the Water Authority Special Agricultural Rate programs.

2. "Water Authority" means the San Diego County Water Authority.

3. "DMP" means the Water Authority's Drought Management Plan in existence on the effective date of this Section and as readopted or amended from time to time, or an equivalent plan of the Water Authority to manage or allocate supplies during shortages.

4. "Metropolitan" means the Metropolitan Water District of Southern California.

5. "Person" means any natural person, corporation, public or private entity, public or private association, public or private agency, government agency or institution, school district, college, university, or any other user of water provided by the District.

39.03 APPLICATION

(a) The provisions of this Section apply to any person in the use of any water provided by the District.

(b) This Section is intended solely to further the conservation of water. It is not intended to implement any provision of federal, State, or local statutes, ordinances, or regulations relating to protection of water quality or control of drainage or runoff. Refer to the local jurisdiction or Regional Water Quality Control Board for information on any storm water ordinances and storm water management plans.

(c) Nothing in this Section is intended to affect or limit the ability of the District to declare and respond to an emergency, including an emergency that affects the ability of the District to supply water.

(d) The provisions of this Section do not apply to use of water from private wells or to recycled water.

(e) Nothing in this Section shall apply to use of water that is subject to a special supply program, such as the Metropolitan Interim Agricultural Water Program or the Water Authority Special Agricultural Rate programs. Violations of the conditions of special supply programs are subject to the penalties established under the applicable program. A person using water subject to a special supply program and other water provided by the District is subject to this Section in the use of the other water.

(f) In addition, customers are encouraged not to wash down paved surfaces, including but not limited to sidewalks, driveways, parking lots, tennis courts, or patios, except when it is necessary to alleviate safety or sanitation hazards.

At all times, the following practices shall be in effect:

1. Prevent water waste resulting from inefficient irrigation, such as runoff or overspray. Similarly, stop water flows

onto non-targeted areas, such as adjacent property, non-irrigated areas, hardscapes, roadways, or structures.

2. Serve and refill water in restaurants and other food service establishments only upon request.

3. Offer guests in hotels, motels, and other commercial lodging establishments the option of not laundering towels and linens daily.

4. Repair all water leaks within forty-eight hours (48) of notification by the District unless other arrangements are made with the General Manager.

39.04 WATER SHORTAGE RESPONSE LEVEL 1 - SUPPLY WATCH CONDITION

(a) A Water Shortage Response Level 1 condition is also referred to as a "Supply Watch" condition. A Level 1 condition applies when the Water Authority notifies its member agencies that due to water shortage or other supply reductions, there is a reasonable probability there will be supply shortages and that a consumer demand reduction of up to 10 percent is required in order to ensure that sufficient supplies will be available to meet anticipated demands. The General Manager shall declare the existence of a Level 1 and take action to implement the Level 1 conservation practices identified in this Section.

(b) During a Level 1 condition, the District will increase its public education and outreach efforts to emphasize increased public awareness of the need to implement the following water conservation practices. The same water conservation practices may become mandatory if the District declares a Level 2 condition:

1. Irrigate residential and commercial landscape before 10 a.m. and after 6 p.m. only. Customers are to water no more than three days a week using the suggested watering schedule as found on the District's web page. New plantings and newly seeded areas are exempt for 30 days.

2. Use a hand-held hose equipped with a positive shut-off nozzle or bucket to water landscaped areas, including trees and shrubs located on residential and commercial properties that are not irrigated by a landscape irrigation system.

3. Irrigate nursery and commercial grower's products before 10 a.m. and after 6 p.m. only. Watering is permitted at any time with a hand-held hose equipped with a positive shut-off nozzle, a bucket, or when a drip/micro-irrigation system/equipment is used. Irrigation of nursery propagation beds is permitted at any time. Watering of livestock is permitted at any time.

4. Use re-circulated water to operate ornamental fountains.

5. Wash vehicles, including but not limited to motorcycles, farm equipment, trailers, boats and boat engines and motorhomes using a bucket and a hand-held hose with positive shut-off nozzle, mobile high pressure/low volume wash system, or at a commercial site that re-circulates (reclaims) water on-site. Vehicle washing is limited to once per week.

6. Use recycled or non-potable water for construction purposes when available.

39.05 WATER SHORTAGE RESPONSE LEVEL 2 - SUPPLY ALERT CONDITION

(a) A Water Shortage Response Level 2 condition is also referred to as a "Supply Alert" condition. A Level 2 condition applies when the Water Authority notifies its member agencies that due to cutbacks caused by water shortage or other reduction in supplies, a consumer demand reduction of 11 to 20 percent is required in order to have sufficient supplies available to meet anticipated demands. The District Board of Directors may declare the existence of a Level 2 condition and implement the Level 2

conservation practices identified in this section of the ordinance. The District may decide to implement some or all of the Level 1 practices.

(b) All persons using District water shall make every effort to comply with Level 1 water conservation practices during a Level 2, and also to comply with the following additional conservation measures:

1. Limit residential and commercial landscape irrigation to no more than three (3) days per week. This section shall not apply to homeowner's vegetable gardens, fruit trees, commercial growers, or nurseries.

2. Limit lawn watering and landscape irrigation using sprinklers to no more than fifteen (15) minutes per watering station per day. During the months of November through April, landscape irrigation shall not exceed seven (7) minutes per water watering station per assigned day. Watering times may need to be shortened to avoid run-off. This provision does not apply to landscape irrigation systems using water efficient devices, including but not limited to: weather based controllers, drip/micro-irrigation systems, rotating sprinkler nozzles and stream rotor sprinklers.

3. Water landscaped areas, including trees and shrubs located on residential and commercial properties, and not irrigated by a landscape irrigation system on the same schedule set forth above by using a bucket, hand-held hose with positive shut-off nozzle, or low-volume non-spray irrigation.

4. Irrigation is not allowed during a rainstorm and for forty-eight hours after one-quarter inch or more of rainfall is measured at Lindbergh Field.No washing down of paved surfaces, including but not limited to sidewalks, driveways, parking lots, tennis courts, or patios, except when it is necessary to alleviate safety or sanitation hazards.

39.06 WATER SHORTAGE RESPONSE LEVEL 3 - SUPPLY CRITICAL CONDITION

(a) A Water Shortage Response Level 3 condition is also referred to as a "Supply Critical" condition. A Level 3 condition applies when the Water Authority notifies its member agencies that due to increasing cutbacks caused by water shortage or other reduction of supplies, a consumer demand reduction of between 21 and 40 percent is required in order to have sufficient supplies available to meet anticipated demands. The District Board of Directors may declare the existence of a Level 3 condition and implement the Level 3 conservation practices identified in this Section.

(b) All persons using District water shall comply with Level 1 and Level 2 water conservation practices during a Level 3 condition and shall also comply with the following additional mandatory conservation measures:

1. Limit residential and commercial landscape irrigation to no more than two (2) assigned days per week on a schedule established by the General Manager and posted by the District. During the months of November through April, landscape irrigation is limited to no more than once per week on a schedule established by the General Manager and posted by the District. This section shall not apply to commercial growers or nurseries.

2. Water landscaped areas, including trees and shrubs located on residential and commercial properties, and not irrigated by a landscape irrigation system on the same schedule set forth above by using a bucket, hand-held hose with a positive shut-off nozzle, or low-volume non-spray irrigation.

3. Stop filling or re-filling ornamental lakes or ponds, except to the extent needed to sustain aquatic life, provided that such animals are of significant value and have been actively managed within the water feature prior to declaration of a water shortage response level under this Section.

4. Stop operating non-residential ornamental fountains or similar decorative water features unless recycled water is used.

5. Stop washing vehicles except at commercial carwashes that re-circulate water, or by high

pressure/low volume wash systems. If a commercial car wash cannot accommodate the vehicle because of the vehicle size or type, such as RVs, horse trailers, boats and commercial vehicles, customers will be allowed to wash vehicles using a bucket and a hand-held hose with positive shut-off nozzle, mobile high pressure/low volume wash system.

(c) Upon the declaration of a Level 3 condition, no new potable water service shall be provided, no new temporary meters or permanent meters shall be provided, and no statements of immediate ability to serve or provide potable water service (such as, will serve letters, certificates, or letters of availability) shall be issued, except under the following circumstances:

1. A valid, unexpired building permit has been issued for the project; or

2. The project is necessary to protect the public's health, safety, and welfare; or

3. The applicant provides substantial evidence of an enforceable commitment that water demands for the project will be offset prior to the provision of a new water meter(s) to the satisfaction of the District.

This provision shall not be construed to preclude the resetting or turn-on of meters to provide continuation of water service or to restore service that has been interrupted.

(d) Upon the declaration of a Level 3 condition, the District will suspend consideration of annexations to its service area.

(e) The District may establish a water allocation for property served by the District using a method that takes into consideration the implementation of conservation methods or the installation of water saving devices. If the District establishes a water allocation, it shall provide notice of the allocation by including it in the regular billing statement for the fee or charge or by any other mailing to the address to which the District customarily mails the billing statement for fees or charges

for on-going water service. Following the effective date of the water allocation as established by the District, any person that uses water in excess of the allocation shall be subject to a penalty for each billing unit of water in excess of the allocation. The penalty for excess water usage shall be cumulative to any other remedy or penalty that may be imposed for violation of this Section.

39.07 WATER SHORTAGE RESPONSE LEVEL 4 - SUPPLY EMERGENCY CONDITION

(a) A Water Shortage Response Level 4 condition is also referred to as a "Supply Emergency" condition. A Level 4 condition applies when the Water Authority Board of Directors declares a water shortage emergency pursuant to California Water Code section 350 and notifies its member agencies that Level 4 requires a demand reduction of more than 40 percent in order for the District to have maximum supplies available to meet anticipated demands. The District shall declare a Level 4 in the manner and on the grounds provided in California Water Code section 350.

(b) All persons using District water shall comply with conservation measures required during Level 1, Level 2, and Level 3 conditions and shall also comply with the following additional mandatory conservation measures:

1. Stop all landscape irrigation, except crops and landscape products of commercial growers and nurseries. *This restriction shall not apply to the following categories of use unless the District has determined that recycled water is available and may be lawfully applied to the use.*

A. Maintenance of trees and shrubs that are watered on the same schedule as noted in the Level 3 Condition, by using a bucket, hand-held hose with a positive shut-off nozzle, or low-volume non-spray irrigation;

B. Maintenance of existing landscaping necessary for fire protection as specified by the Fire Marshal of the local fire protection agency having jurisdiction over the property to be irrigated;

C. Maintenance of existing landscaping for erosion control;

D. Maintenance of plant materials identified to be rare or essential to the well being of rare animals;

E. Maintenance of landscaping within active public parks and playing fields, day care centers, school grounds, cemeteries, and golf course greens, provided that such irrigation does not exceed two (2) days per week according to the schedule established under the District's Level 3 Condition;

F. Watering of livestock; and

G. Public works projects and actively irrigated environmental mitigation projects.

2. Repair all water leaks within twenty-four (24) hours of notification by the District unless other arrangements are made with the District.

(c) The District may establish a water allocation for property served by the District. If the District establishes water allocation it shall provide notice of the allocation by including it in the regular billing statement for the fee or charge or by any other mailing to the address to which the District customarily mails the billing statement for fees or charges for on-going water service. Following the effective date of the water allocation as established by the District, any person that uses water in excess of the allocation shall be subject to a penalty for each billing unit of water in excess of the allocation. The penalty for excess water usage shall be cumulative to any other remedy or penalty that may be imposed for violation of any provision of this Section.

39.08 CORRELATION BETWEEN DROUGHT MANAGEMENT PLAN (DMP) AND WATER SHORTAGE RESPONSE LEVELS

(a) The correlation between the Water Authority's DMP stages and the District's water shortage response levels identified in this Section of the Code of Ordinance is

described herein. Under DMP Stage 1, the District would implement Water Shortage Response Level 1 actions. Under DMP Stage 2, the District would implement Water Shortage Response Level 1 or Level 2 actions. Under DMP Stage 3, the District would implement Water Shortage Response Level 2, Level 3, or Level 4 actions.

(b) The water shortage response levels identified in this Section correspond with the Water Authority DMP as identified in the following table:

Water Shortage Response Levels	**Use Restrictions**	**Conservation Target**	**DMP Stage**
1 - Supply Watch	Voluntary	Up to 10%	Stage 1 or 2
2 - Supply Alert	Mandatory	11 to 20%	Stage 2 or 3
3 - Supply Critical	Mandatory	21 to 40%	Stage 3
4 - Supply Emergency	Mandatory	Above 40%	Stage 3

39.09 PROCEDURES FOR DETERMINATION AND NOTIFICATION OF WATER SHORTAGE RESPONSE LEVEL

(a) The existence of a Water Shortage Response Level 1 condition may be declared by the General Manager upon a written determination of the existence of the facts and circumstances supporting the determination. A copy of the written determination shall be filed with the Clerk or Secretary of the District and provided to the District Board of Directors. The General Manager may publish a notice of the determination of existence of Water Shortage Response Level 1 condition in one or more newspapers, including a newspaper of general circulation within the District. The District will also post notice of the condition on their website.

(b) The existence of Water Shortage Response Level 2 or Level 3 conditions may be declared by resolution of the District Board of Directors adopted at a regular or special public meeting held in accordance with State law. The mandatory conservation measures applicable to Water Shortage Response Level 2 or Level 3 conditions shall take effect on the tenth (10) day after the date the response level is declared. Within five (5) days following the declaration of the response level, the District shall

publish a copy of the resolution in a newspaper used for publication of official notices.

(c) The existence of a Water Shortage Response Level 4 condition may be declared in accordance with the procedures specified in California Water Code sections 350 to 352 as note below:

> ***350.*** *The governing body of a distributor of a public* ***water*** *supply, whether publicly or privately owned and including a mutual* ***water*** *company, may declare a* ***water*** *shortage emergency condition to prevail within the area served by such distributor whenever it finds and determines that the ordinary demands and requirements of* ***water*** *consumers cannot be satisfied without depleting the* ***water*** *supply of the distributor to the extent that there would be insufficient* ***water*** *for human consumption, sanitation, and fire protection.*
>
> ***351.*** *except in event of a breakage or failure of a dam, pump, Pipe line or conduit causing an immediate emergency, the declaration shall be made only after a public hearing at which consumers of such* ***water*** *supply shall have an opportunity to be heard to protest against the declaration and to present their respective needs to said governing board.*
>
> ***352.*** *Notice of the time and place of hearing shall be published pursuant to Section 6061 of the Government* ***Code*** *at least seven days prior to the date of hearing in a newspaper printed, published, and circulated within the area in which the* ***water*** *supply is distributed, or if there is no such newspaper, in any newspaper printed, published, and circulated in the county in which the area is located.*

The mandatory conservation measures applicable to Water Shortage Response Level 4 conditions shall take effect on the tenth (10) day after the date the response level is declared. Within five (5) days following the declaration of the response level, the District shall publish a copy of the resolution in a newspaper used for publication of official notices. If the District establishes a water allocation, it shall provide notice of the allocation by including it in the regular billing statement for the fee or charge or by any other mailing to the address to which the District customarily mails the billing statement for fees or charges for on-going water service. Water allocation shall be effective on the fifth (5) day following the date of mailing or at such later date as specified in the notice.

(d) The District Board of Directors may declare an end to a Water Shortage Response Level by the adoption of a

resolution at any regular or special meeting held in accordance with State law.

APPENDIX I

BMP Reports 2005 – 2010

The fields in red are required.

Agency name:

Reporting unit name (District name)

Reporting unit number:

Primary contact:

First name:

Last name:

Email:

You must enter the reporting unit number that we have on record for your agency. Click here to open a table to obtain this number.

Link to FAQs

2009 BMP 1.2 Water Loss Control

View MOU

AWWA Water Audit

Agency to complete a Water Audit & Balance Using The AWWA Software Yes No

Email to natalie@cuwcc.org - Worksheets (AWWA Water Audit). Enter the name of the file below:

Water Audit Validity Score from AWWA spreadsheet

Agency Completed Training In The AWWA Water Audit Method Yes No

Agency Completed Training In The Component Analysis Process Yes No

Completed/Updated the Component Analysis (at least every 4 years)? Yes No

Component Analysis Completed/Updated Date

Water Loss Performance

Agency Repaired All Reported Leaks & Breaks To The Extent Cost Effective Yes No

Recording Keeping Requirements:

Date/Time Leak Reported	Leak Location
Type of Leaking Pipe Segment or Fitting	Leak Running Time From Report to Repair
Leak Volume Estimate	Cost of Repair

Agency Located and Repaired Unreported Leaks to the Extent Cost Effective Yes No

Type of Program Activities Used to Detect Unreported Leaks

Annual Summary Information

Complete the following table with annual summary information (required for reporting years 2-5 only)

Total Leaks Repaired	Economic Value Of Real Loss	Economic Value Of Apparent Loss	Miles Of System Surveyed For Leaks	Pressure Reduction Undertaken for loss reduction	Cost Of Interventions	Water Saved (AF/Year)

Comments:

The fields in red are required.

Agency name:

Reporting unit name (District name)

Reporting unit number:

Primary contact:

First name:

Last name:

Email:

You must enter the reporting unit number that we have on record for your agency. Click here to open a table to obtain this number.

Link to FAQs

View MOU

2009 BMP 1.2 Water Loss Control

Did your agency complete a pre-screening system audit in 2009? Yes No

If yes, answer the following:

Determine metered sales in AF: 33,848.24

Definition: other accountable uses not included in metered sales, such as unbilled water use, fire suppression, etc.

Determine system verifiable uses AF: 300.03

Determine total supply into the system in AF: 34,971.30

Does your agency keep necessary data on file to verify the answers above? Yes No

Did your agency complete a full-scale system water audit during 2009? Yes No

Does your agency maintain in-house records of audit results or the completed AWWA worksheet for the completed audit which could be forwarded to CUWCC? Yes No

Did your agency operate a system leak detection program? Yes No

Comments:

The fields in red are required.

Agency name:

Reporting unit name
(District name)

Reporting unit number:

Primary contact:

First name:

Last name:

Email:

You must enter the reporting unit number that we have on record for your agency. Click here to open a table to obtain this number.

BMP 1.3 Metering with Commodity

Link to FAQs

See the complete MOU: View MOU

See the coverage requirements for this BMP:

Implementation

Does your agency have any unmetered service connections?	Yes	No
If YES, has your agency completed a meter retrofit plan?	Yes	No
Enter the number of previously unmetered accounts fitted with meters during reporting year:		
Are all new service connections being metered?	Yes	No
Are all new service connections being billed volumetrically?	Yes	No
Has your agency completed and submitted electronically to the Council a written plan, policy or program to test, repair and replace meters?	Yes	No

Please Fill Out The Following Matrix

Account Type	# Metered Accounts	# Metered Accounts Read	# Metered Accounts Billed by Volume	Billing Frequency Per Year	# of estimated bills/yr

Number of CII Accounts with Mixed-use Meters

Number of CII Accounts with Mixed-use Meters Retrofitted with Dedicated Irrigation Meters during Reporting Period

Feasibility Study

Has your agency conducted a feasibility study to assess the merits of a program to provide incentives to switch mixed-use accounts to dedicated landscape meters? Yes No

If YES, please fill in the following information:

A. When was the Feasiblity Study conducted

B. Email or provide a link to the feasibility study (or description of):

File name(s): Email files to natalie@cuwcc.org

Web address(s) URL: comma-separated list

General Comments about BMP 1.3:

AWWA Water Loss Control Committee (WLCC) Free Water Audit Software v4.1

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WAS v4.1

PURPOSE: This spreadsheet-based water audit tool is designed to help quantify and track water losses associated with water distribution systems and identify areas for improved efficiency and cost recovery. It provides a "top-down" summary water audit format, and is not meant to take the place of a full-scale, comprehensive water audit format.

USE: The spreadsheet contains several separate worksheets. Sheets can be accessed using the tabs towards the bottom of the screen, or by clicking the buttons on the left below. Descriptions of each sheet are also given below.

THE FOLLOWING KEY APPLIES THROUGHOUT:

- Value can be entered by user
- Value calculated based on input data
- These cells contain recommended default values

Please begin by providing the following information, then proceed through each sheet in the workbook:

NAME OF CITY OR UTILITY: Otay Water District COUNTRY: U.S.

REPORTING YEAR: 2010 START DATE(MM/YYYY): 06/2009 END DATE(MM/YYYY): 07/2010

NAME OF CONTACT PERSON: William Granger E-MAIL: wgranger@otaywater.gov TELEPHONE: 619.670.2290 Ext.

PLEASE SELECT PREFERRED REPORTING UNITS FOR WATER VOLUME: Acre-feet

Click to advance to sheet… Click here: ? for help about units and conversions

Instructions	The current sheet
Reporting Worksheet	Enter the required data on this worksheet to calculate the water balance
Water Balance	The values entered in the Reporting Worksheet are used to populate the water balance
Grading Matrix	Depending on the confidence of audit inputs, a grading is assigned to the audit score
Service Connections	Diagrams depicting possible customer service connection configurations
Definitions	Use this sheet to understand terms used in the audit process
Loss Control Planning	Use this sheet to interpret the results of the audit validity score and performance indicators

Comments:

Add comments here to track additional supporting information, sources or names of participants

If you have questions or comments regarding the software please contact us at: wlc@awwa.org

AWWA WLCC Free Water Audit Software: Reporting Worksheet

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WAS v4.1

Back to Instructions

? Click to access definition

Water Audit Report for: Otay Water District
Reporting Year: 2010 | 6/2009 - 7/2010

Please enter data in the white cells below. Where available, metered values should be used; if metered values are unavailable please estimate a value. Indicate your confidence in the accuracy of the input data by grading each component (1-10) using the drop-down list to the left of the input cell. Hover the mouse over the cell to obtain a description of the grades

All volumes to be entered as: ACRE-FEET PER YEAR

WATER SUPPLIED

<< Enter grading in column 'E'

Volume from own sources:	?	n/a		acre-ft/yr
Master meter error adjustment (enter positive value):	?	n/a		acre-ft/yr
Water imported:	?	8	31,175.400	acre-ft/yr
Water exported:	?	n/a		acre-ft/yr
WATER SUPPLIED:			31,175.400	acre-ft/yr

AUTHORIZED CONSUMPTION

Click here: ? for help using option buttons below

					Pcnt:	Value:
Billed metered:	?	7	29,272.870	acre-ft/yr		
Billed unmetered:	?	n/a		acre-ft/yr		
Unbilled metered:	?	7	50.310	acre-ft/yr		
Unbilled unmetered:	?	6	70.020	acre-ft/yr		70.020
AUTHORIZED CONSUMPTION:	?		29,393.200	acre-ft/yr		

Use buttons to select percentage of water supplied **OR** value

WATER LOSSES (Water Supplied - Authorized Consumption)

1,782.200 acre-ft/yr

Apparent Losses

					Pcnt:	Value:
Unauthorized consumption:	?		77.939	acre-ft/yr	0.25%	
Default option selected for unauthorized consumption - a grading of 5 is applied but not displayed						
Customer metering inaccuracies:	?	7	0.000	acre-ft/yr	0.00%	
Systematic data handling errors:	?	7	1.000	acre-ft/yr		
Apparent Losses:	?		78.939			

Choose this option to enter a percentage of billed metered consumption. This is NOT a default value

Real Losses (Current Annual Real Losses or CARL)

Real Losses = Water Losses - Apparent Losses:	?		1,703.262	acre-ft/yr
WATER LOSSES:			1,782.200	acre-ft/yr

NON-REVENUE WATER

NON-REVENUE WATER:	?		1,902.530	acre-ft/yr

= Total Water Loss + Unbilled Metered + Unbilled Unmetered

SYSTEM DATA

Length of mains:	?	7	718.0	miles	
Number of active AND inactive service connections:	?	7	47,108		
Connection density:			66	conn./mile main	
Average length of customer service line:	?	7	22.0	ft	(pipe length between curbstop and customer meter or property boundary)
Average operating pressure:	?	8	150.0	psi	

COST DATA

Total annual cost of operating water system:	?	8	$33,175,839	$/Year
Customer retail unit cost (applied to Apparent Losses):	?	8	$3.89	$/100 cubic feet (ccf)
Variable production cost (applied to Real Losses):	?	8	$869.60	$/acre-ft/yr

PERFORMANCE INDICATORS

Financial Indicators

Non-revenue water as percent by volume of Water Supplied:	6.1%
Non-revenue water as percent by cost of operating system:	5.2%
Annual cost of Apparent Losses:	$133,760
Annual cost of Real Losses:	$1,481,156

Operational Efficiency Indicators

Apparent Losses per service connection per day:	1.50	gallons/connection/day
Real Losses per service connection per day*:	32.28	gallons/connection/day
Real Losses per length of main per day*:	N/A	
Real Losses per service connection per day per psi pressure:	0.22	gallons/connection/day/psi
? Unavoidable Annual Real Losses (UARL):	680.14	million gallons/year
From Above, Real Losses = Current Annual Real Losses (CARL):	1,703.26	million gallons/year
? Infrastructure Leakage Index (ILI) [CARL/UARL]:	0.82	

* only the most applicable of these two indicators will be calculated

WATER AUDIT DATA VALIDITY SCORE:

***** YOUR SCORE IS: 74 out of 100 *****

A weighted scale for the components of consumption and water loss is included in the calculation of the Water Audit Data Validity Score

PRIORITY AREAS FOR ATTENTION:

Based on the information provided, audit accuracy can be improved by addressing the following components:

1: Water imported
2: Billed metered
3: Unauthorized consumption

For more information, click here to see the Grading Matrix worksheet

AWWA WLCC Free Water Audit Software: Water Balance

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Water Audit Report For:	Report Yr:
Otay Water District	2010

Own Sources (Adjusted for known errors) 0.000	Water Exported 0.000	Billed Water Exported			
	Water Supplied 31,175.400	Authorized Consumption 29,393.200	Billed Authorized Consumption 29,272.870	Billed Metered Consumption (inc. water exported) 29,272.870	Revenue Water 29,272.870
				Billed Unmetered Consumption 0.000	
			Unbilled Authorized Consumption 120.330	Unbilled Metered Consumption 50.310	Non-Revenue Water (NRW) 1,902.530
				Unbilled Unmetered Consumption 70.020	
		Water Losses 1,782.200	Apparent Losses 78.939	Unauthorized Consumption 77.939	
				Customer Metering Inaccuracies 0.000	
				Systematic Data Handling Errors 1.000	
Water Imported 31,175.400			Real Losses 1,703.262	Leakage on Transmission and/or Distribution Mains Not broken down	
				Leakage and Overflows at Utility's Storage Tanks Not broken down	
				Leakage on Service Connections Not broken down	

AWWA WLCC Free Water Audit Software: Grading Matrix

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WASv 4.1

Back to Instructions

In the Reporting Worksheet, grades were assigned to each component of the audit to describe the confidence and accuracy of the input data. The grading assigned to each audit component and the corresponding recommended improvements and actions are highlighted in yellow. Audit accuracy is likely to be improved by prioritizing those items shown in red

Grading

	n/a	1	2	3	4	5	6	7	8	9	10
Volume from own sources:	Select this grading only if the water utility purchases/imports all of its water resources (i.e. has no sources of its own)	Less than 25% of water production sources are metered, remaining sources are estimated. No regular meter accuracy testing.	25% - 50% of treated water production sources are metered; other sources estimated. No regular meter accuracy testing.	Conditions between 2 and 4	50% - 75% of treated water production sources are metered, other sources estimated. Occasional meter accuracy testing	Conditions between 4 and 6	At least 75% of treated water production sources are metered, or at least 90% of the source flow is derived from metered sources. Meter accuracy testing and/or electronic calibration conducted annually. Less than 25% of tested meters are found outside of +/- 6% accuracy.	Conditions between 6 and 8	100% of treated water production sources are metered, meter accuracy testing and electronic calibration conducted annually, less than 10% of meters are found outside of +/- 6% accuracy	Conditions between 8 and 10	100% of treated water production sources are metered, meter accuracy testing and electronic calibration conducted semi-annually, with less than 10% found outside of +/- 3% accuracy.
Improvements to attain higher data grading for "Volume from own Sources" component:		to qualify for 2: Organize efforts to begin to collect data for determining volume from own sources	to qualify for 4: Locate all water production sources on maps and in field, launch meter accuracy testing for existing meters, begin to install meters on unmetered water production sources and replace any obsolete/defective meters		to qualify for 6: Formalize annual meter accuracy testing for all source meters. Complete installation of meters on unmetered water production sources and complete replacement of all obsolete/defective meters.		to qualify for 8: Conduct annual meter accuracy testing on all meters. Complete project to install new, or replace defective existing, meters so that entire production meter population is metered. Repair or replace meters outside of +/- 6% accuracy.		to qualify for 10: Maintain annual meter accuracy testing for all meters. Repair or replace meters outside of +/- 6% accuracy. Investigate new meter technology; pilot one or more replacements with innovative meters in attempt to improve meter accuracy.		to maintain 10: Standardize meter accuracy test frequency to semi-annual, or more frequent, for all meters. Repair or replace meters outside of +/- 3% accuracy. Continually investigate/pilot improving metering technology.
Master meter error adjustment:	Select n/a only if the water utility fails to have meters on its sources of supply, either its own source, and/or imported (purchased) water sources	Inventory information on meters and paper records of measured volumes in crude condition; data error cannot be determined	No automatic datalogging of production volumes; daily readings are scribed on paper records. Tank/storage elevation changes are not employed in calculating "Volume from own sources" component. Data is adjusted only when grossly evident data error occurs.	Conditions between 2 and 4	Production meter data is logged automatically in electronic format and reviewed at least on a monthly basis. "Volume from own sources" tabulations include estimate of daily changes in tanks/storage facilities. Meter data is adjusted when gross data errors occur, or occasional meter testing deems this necessary.	Conditions between 4 and 6	Hourly production meter data logged automatically & reviewed on at least a weekly basis. Data adjusted to correct gross error from equipment malfunction and error confirmed by meter accuracy testing. Tank/storage facility elevation changes are automatically used in calculating a balanced "Volume from own sources" component.	Conditions between 6 and 8	Continuous production meter data logged automatically & reviewed daily. Data adjusted to correct gross error from equipment malfunction & results of meter accuracy testing. Tank/storage facility elevation changes are automatically used in "Volume from own sources" tabulations.	Conditions between 8 and 10	Computerized system (SCADA or similar) automatically balances flows from all sources and storages; results reviewed daily. Mass balance technique compares production meter data to raw (untreated) water and treatment volumes to detect anomalies. Regular calibrations between SCADA and sources meters ensures minimal data transfer error.
Improvements to attain higher data grading for "Master meter error adjustment" component:		to qualify for 2: Develop plan to restructure recordkeeping system to capture all flow data; set procedure to review data daily to detect input errors	to qualify for 4: Install automatic datalogging equipment on production meters. Identify tanks/storage facilities and include estimated daily volume of water added to, or subtracted from, "Water Supplied" volume based upon changes in storage		to qualify for 6: Review hourly production meter data for gross error on, at least, a weekly basis. Begin to install instrumentation on tanks/storage facilities to record elevation changes. Use daily net storage change to balance flows in calculating "Water Supplied" volume.		to qualify for 8: Complete installation of elevation instrumentation on all tanks/storage facilities. Continue to use daily net storage change in calculating balanced "Volume from own sources" component. Adjust production meter data for gross error and inaccuracy confirmed by testing.		to qualify for 10: Link all production and tank/storage facility elevation change data to a Supervisory Control & Data Acquisition (SCADA) System, or similar computerized monitoring/control system, and establish automatic flow balancing algorithm and regularly calibrate between SCADA and source meters.		to maintain 10: Monitor meter innovations for development of more accurate and less expensive flowmeters. Continue to replace or repair meters as they perform outside of desired accuracy limits.
Water Imported:	Select n/a if the water utility's supply is exclusively from its own water resources (no bulk purchased/ imported water)	Less than 25% of imported water sources are metered, remaining sources are estimated. No regular meter accuracy testing.	25% - 50% of imported water sources are metered; other sources estimated. No regular meter accuracy testing.	Conditions between 2 and 4	50% - 75% of imported water sources are metered, other sources estimated. Occasional meter accuracy testing	Conditions between 4 and 6	At least 75% of imported water sources are metered, meter accuracy testing and/or electronic calibration conducted annually. Less than 25% of tested meters are found outside of +/- 6% accuracy.	Conditions between 6 and 8	100% of imported water sources are metered, meter accuracy testing and/or electronic calibration conducted annually, less than 10% of meters are found outside of +/- 6% accuracy	Conditions between 8 and 10	100% of imported water sources are metered, meter accuracy testing and/or electronic calibration conducted semi-annually, with less than 10% found outside of +/- 3% accuracy.
Improvements to attain higher data grading for "Water Imported Volume" component:		to qualify for 2: Review bulk water purchase agreements with partner suppliers; confirm requirements for use and maintenance of accurate metering. Identify needs for new or replacement meters with goal to meter all imported water sources.	To qualify for 4: Locate all imported water sources on maps and in field, launch meter accuracy testing for existing meters, begin to install meters on unmetered imported water interconnections and replace obsolete/defective meters		to qualify for 6: Formalize annual meter accuracy testing for all imported water meters. Continue installation of meters on unmetered exported water interconnections and replacement of obsolete/defective meters.		to qualify for 8: Complete project to install new, or replace defective, meters on all imported water interconnections. Maintain annual meter accuracy testing for all imported water meters. Repair or replace meters outside of +/- 6% accuracy.		to qualify for 10: Maintain annual meter accuracy testing for all meters. Repair or replace meters outside of +/- 6% accuracy. Investigate new meter technology; pilot one or more replacements with innovative meters in attempt to improve meter accuracy.		to maintain 10: Standardize meter accuracy test frequency to semi-annual, or more frequent, for all meters. Repair or replace meters outside of +/- 3% accuracy. Continually investigate/pilot improving metering technology.

Grading											
	n/a	1	2	3	4	5	6	7	8	9	10
Water Exported:	Select n/a if the water utility sells no bulk water to neighboring water utilities (no exported water sales)	Less than 25% of exported water sources are metered, remaining sources are estimated. No regular meter accuracy testing.	25% - 50% of exported water sources are metered; other sources estimated. No regular meter accuracy testing.	Conditions between 2 and 4	50% - 75% of exported water sources are metered, other sources estimated. Occasional meter accuracy testing	Conditions between 4 and 6	At least 75% of exported water sources are metered, meter accuracy testing and/or electronic calibration conducted annually. Less than 25% of tested meters are found outside of +/- 6% accuracy.	Conditions between 6 and 8	100% of exported water sources are metered, meter accuracy testing and/or electronic calibration conducted annually, less than 10% of meters are found outside of +/- 6% accuracy	Conditions between 8 and 10	100% of exported water sources are metered, meter accuracy testing and/or electronic calibration conducted semi-annually, with less than 10% found outside of +/- 3% accuracy.
Improvements to attain higher data grading for "Water Exported Volume" component:		to qualify for 2: Review bulk water sales agreements with partner suppliers; confirm requirements for use & upkeep of accurate metering. Identify needs to install new, or replace defective meters as needed.	To qualify for 4: Locate all exported water sources on maps and in field, launch meter accuracy testing for existing meters, begin to install meters on unmetered exported water interconnections and replace obsolete/defective meters		to qualify for 6: Formalize annual meter accuracy testing for all exported water meters. Continue installation of meters on unmetered exported water interconnections and replacement of obsolete/defective meters.		to qualify for 8: Complete project to install new, or replace defective, meters on all exported water interconnections. Maintain annual meter accuracy testing for all imported water meters. Repair or replace meters outside of +/- 6% accuracy.		to qualify for 10: Maintain annual meter accuracy testing for all meters. Repair or replace meters outside of +/- 6% accuracy. Investigate new meter technology; pilot one or more replacements with innovative meters in attempt to improve meter accuracy.		to maintain 10: Standardize meter accuracy test frequency to semi-annual, or more frequent, for all meters. Repair or replace meters outside of +/- 3% accuracy. Continually investigate/pilot improving metering technology.
AUTHORIZED CONSUMPTION											
Billed metered:	n/a (not applicable). Select n/a only if the entire customer population is not metered and is billed for water service on a flat or fixed rate basis. In such a case the volume entered must be zero.	Less than 50% of customers with volume-based billings from meter readings; flat or fixed rate billed for the majority of the customer population	At least 50% of customers with volume-based billing from meter reads; flat rate billed for others. Manual meter reading, under 50% read success rate, remainder estimated. Limited meter records, no regular meter testing or replacement. Billing data maintained on paper records, with no auditing.	Conditions between 2 and 4	At least 75% of customers with volume-based billing from meter reads; flat or fixed rate billed for remainder. Manual meter reading used, at least 50% meter read success rate, failed reads are estimated. Purchase records verify age of customer meters; only very limited meter accuracy testing is conducted. Customer meters replaced only upon complete failure. Computerized billing records, but only periodic internal auditing conducted.	Conditions between 4 and 6	At least 90% of customers with volume-based billing from meter reads; remaining accounts are estimated. Manual customer meter reading gives at least 80% customer meter reading success rate, failed reads are estimated. Good customer meter records, limited meter accuracy testing, regular replacement of oldest meters. Computerized billing records with routine auditing of global statistics.	Conditions between 6 and 8	At least 97% of customers with volume-based billing from meter reads. At least 90% customer meter read success rate; or minimum 80% read success rate with planning and budgeting for trials of Automatic Metering Reading (AMR) in one or more pilot areas. Good customer meter records. Regular meter accuracy testing guides replacement of statistically significant number of meters each year. Routine auditing of computerized billing records for global and detailed statistics; verified periodically by third party.	Conditions between 8 and 10	At least 99% of customers with volume-based billing from meter reads. At least 95% customer meter reading success rate; or minimum 80% meter reading success rate, with Automatic Meter Reading (AMR) trials underway. Statistically significant customer meter testing and replacement program in place. Computerized billing with routine, detailed auditing, including field investigation of representative sample of accounts. Annual audit verification by third party.
Improvements to attain higher data grading for "Billed Metered Consumption" component:	If n/a is selected because the customer meter population is unmetered, consider establishing a new policy to meter the customer population and employ water rates based upon metered volumes.	to qualify for 2: Conduct investigations or trials of customer meters to select appropriate meter models. Budget funding for meter installations. Investigate volume based water rate structures.	to qualify for 4: Purchase and install meters on unmetered accounts. Implement policies to improve meter reading success. Catalog meter information during meter read visits to identify age/model of existing meters. Test a minimal number of meters for accuracy. Install computerized billing system.		to qualify for 6: Purchase and install meters on unmetered accounts. Eliminate flat fee billing and establish appropriate water rate structure based upon measured consumption. Continue to achieve verifiable success in removing manual meter reading barriers. Expand meter accuracy testing. Launch regular meter replacement program. Conduct routine audit of global statistics.		to qualify for 8: Purchase and install meters on unmetered accounts. Assess cost-effectiveness of Automatic Meter Reading (AMR) system for portion or entire system; or achieve ongoing improvements in manual meter reading success rate. Refine meter accuracy testing program. Set meter replacement goals based upon accuracy test results. Refine routine auditing procedures based upon third party guidance.		to qualify for 10: Purchase and install meters on unmetered accounts. Launch Automatic Meter Reading (AMR) system trials if manual meter reading success rate of at least 95% is not achieved within a five-year program. Continue meter accuracy testing program. Conduct planning and budgeting for large scale meter replacement based upon meter life cycle analysis using cumulative flow target. Continue routine auditing and require annual third party review.		to maintain 10: Regular internal and third party auditing, and meter accuracy testing ensures that accurate customer meter readings are obtained and entered as the basis for volume based billing. Stay abreast of improvements in Advanced Metering Infrastructure (AMI) and information management. Plan and budget for justified upgrades in metering, meter reading and billing data management.
Billed unmetered:	Select n/a if it is the policy of the water utility to meter all customer connections and it has been confirmed by detailed auditing that all customers do indeed have a water meter; i.e. no unmetered accounts exist	Water utility policy does not require customer metering; flat or fixed fee billed. No data collected on customer consumption. Only estimates available are derived from data estimation methods using average fixture count multiplied by number of connections, or similar approach.	Water utility policy does not require customer metering; flat or fixed fee billed. Some metered accounts exist in parts of the system (pilot areas or District Metered Areas) with consumption recorded on portable dataloggers. Data from these sample meters are used to infer consumption for the total customer population. Site specific estimation methods are used for unusual buildings/water uses.	Conditions between 2 and 4	Water utility policy does require metering and volume based billing but lacks written procedures and employs casual oversight, resulting in up to 20% of billed accounts believed to be unmetered. A rough estimate of the annual consumption for all unmetered accounts is included in the annual water audit, with no inspection of individual unmetered accounts.	Conditions between 4 and 6	Water utility policy does require metering and volume based billing but exemption exist for a portion of accounts such as municipal buildings. As many as 15% of billed accounts are unmetered due to this exemption or meter installation difficulties. Only a group estimate of annual consumption for all unmetered accounts is included in the annual water audit, with no inspection of individual unmetered accounts.	Conditions between 6 and 8	Water utility policy requires metering and volume based billing for all customer accounts. However, less than 5% of billed accounts remain unmetered because because installation is hindered by unusual circumstances. The goal is to minimize the number of unmetered accounts. Reliable estimates of consumption are obtained for unmetered accounts via site specific estimation methods.	Conditions between 8 and 10	Water utility policy requires metering and volume based billing for all customer accounts. Less than 2% of billed accounts are unmetered and exist because meter installation is hindered by unusual circumstances. The goal exists to minimize the number of unmetered accounts to the extent that is economical. Reliable estimates of consumption are obtained at these accounts via site specific estimation methods.

Grading											
	n/a	1	2	3	4	5	6	7	8	9	10
Improvements to attain higher data grading for "Billed Unmetered Consumption" component:		to qualify for 2: Investigate a new water utility policy to require metering of the customer population, and a reduction of unmetered accounts. Conduct pilot metering project by installing water meters in small sample of customer accounts and datalogging the water consumption.	to qualify for 4: Implement a new water utility policy requiring customer metering. Expand pilot metering study to include several different meter types, which will provide data for economic assessment of full scale metering options. Assess sites with access difficulties to devise means to obtain water consumption volumes.		to qualify for 6: Budget for staff resources to review billing records to identify unmetered properties. Specify metering needs and funding requirements to install sufficient meters to significant reduce the number of unmetered accounts		to qualify for 8: Install customer meters on a full scale basis. Refine metering policy and procedures to ensure that all accounts, including municipal properties, are designated for meters. Implement procedures to obtain reliable consumption estimate for unmetered accounts awaiting meter installation.		to qualify for 10: Continue customer meter installation throughout the service area, with a goal to minimize unmetered accounts. Sustain the effort to investigate accounts with access difficulties to devise means to install water meters or otherwise measure water consumption.		to maintain 10: Continue to refine estimation methods for unmetered consumption and explore means to establish metering, for as many billed unmetered accounts as is economically feasible.
Unbilled metered:	select n/a if all billing-exempt consumption is unmetered.	Billing practices exempt certain accounts, such as municipal buildings, but written policies do not exist; and a reliable count of unbilled metered accounts is unavailable. Meter upkeep and meter reading on these accounts is rare and not considered a priority. Due to poor recordkeeping and lack of auditing, water consumption for all such accounts is purely guesstimated.	Billing practices exempt certain accounts, such as municipal buildings, but only scattered, dated written directives exist to justify this practice. A reliable count of unbilled metered accounts is unavailable. Sporadic meter replacement and meter reading occurs on an as-needed basis. The total annual water consumption for all unbilled, metered accounts is estimated based upon approximating the number of accounts and assigning consumption from actively billed accounts of same meter size.	Conditions between 2 and 4	Dated written procedures permit billing exemption for specific accounts, such as municipal properties, but are unclear regarding certain other types of accounts. Meter reading is given low priority and is sporadic. Consumption is quantified from meter readings where available. The total number of unbilled, unmetered accounts must be estimated along with consumption volumes.	Conditions between 4 and 6	Written policies regarding billing exemptions exist but adherence in practice is questionable. Metering and meter reading for municipal buildings is reliable but sporadic for other unbilled metered accounts. Periodic auditing of such accounts is conducted. Water consumption is quantified directly from meter readings where available, but the majority of the consumption is estimated.	Conditions between 6 and 8	Written policy identifies the types of accounts granted a billing exemption. Customer meter management and meter reading are considered secondary priorities, but meter reading is conducted at least annually to obtain consumption volumes for the annual water audit. High level auditing of billing records ensures that a reliable census of such accounts exists.	Conditions between 8 and 10	Clearly written policy identifies the types of accounts given a billing exemption, with emphasis on keeping such accounts to a minimum. Customer meter management and meter reading for these accounts is given proper priority and is reliably conducted. Regular auditing confirms this. Total water consumption for these accounts is taken from reliable readings from accurate meters.
Improvements to attain higher data grading for "Unbilled metered Consumption" component:		to qualify for 2: Reassess the water utility's policy allowing certain accounts to be granted a billing exemption. Draft an outline of a new written policy for billing exemptions, with clear justification as to why any accounts should be exempt from billing, and with the intention to keep the number of such accounts to a minimum.	to qualify for 4: Review historic written directives and policy documents allowing certain accounts to be billing-exempt. Draft an outline of a written policy for billing exemptions, identify criteria that grants an exemption, with a goal of keeping this number of accounts to a minimum.		to qualify for 6: Draft a new written policy regarding billing exemptions based upon consensus criteria allowing this occurrence. Assign resources to audit meter records and billing records to obtain census of unbilled metered accounts.		to qualify for 8: Communicate billing exemption policy throughout the organization and implement procedures that ensure proper account management. Conduct inspections of accounts confirmed in unbilled metered status and verify that accurate meters exist and are scheduled for routine meter readings.		to qualify for 10: Ensure that meter management (meter accuracy testing, meter replacement) and meter reading activities are accorded the same priority as billed accounts. Establish ongoing annual auditing process to ensure that water consumption is reliably collected and provided to the annual water audit process.		to maintain 10: Reassess philosophy in allowing any water uses to go "unbilled". It is possible to meter and bill all accounts, even if the fee charged for water consumption is discounted or waived. Metering and billing all accounts ensures that water consumption is tracked and water waste from plumbing leaks is detected and minimized.
Unbilled unmetered:		Extent of unbilled, unmetered consumption is unknown due to unclear policies and poor recordkeeping. Total consumption is quantified based upon a purely subjective estimate.	Clear extent of unbilled, unmetered consumption is unknown, but a number of events are randomly documented each year, confirming existence of such consumption, but without sufficient documentation to quantify an accurate estimate of the annual volume consumed.	Conditions between 2 and 4	Extent of unbilled, unmetered consumption is partially known, and procedures exist to document certain events such as miscellaneous fire hydrant uses. Formulae is used to quantify the consumption from such events (time running x typical flowrate x number of events).	Default value of 1.25% of system input volume is employed	Coherent policies exist for some forms of unbilled, unmetered consumption but others await closer evaluation. Reasonable recordkeeping for the managed uses exists and allows for annual volumes to be quantified by inference, but unsupervised uses are guesstimated.	Conditions between 6 and 8	Clear policies and good recordkeeping exist for some uses (ex: unmetered fire connections registering consumption), but other uses (ex: miscellaneous uses of fire hydrants) have limited oversight. Total consumption is a mix of well quantified use such as from formulae (time x typical flow) or temporary meters, and relatively subjective estimates of less regulated use.	Conditions between 8 and 10	Clear policies exist to identify permitted use of water in unbilled, unmetered fashion, with the intention of minimizing this type of consumption. Good records document each occurrence and consumption is quantified via formulae (time x typical flow) or use of temporary meters.

Grading											
	n/a	1	2	3	4	5	6	7	8	9	10
Improvements to attain higher data grading for "Unbilled Unmetered Consumption" component:		to qualify for 5: Utilize accepted default value of 1.25% of system input volume as an expedient means to gain a reasonable quantification of this use. to qualify for 2: Establish a policy regarding what water uses should be allowed as unbilled and unmetered. Consider tracking a small sample of one such use (ex: fire hydrant flushings).	to qualify for 5: Utilize accepted default value of 1.25% of system input volume as an expedient means to gain a reasonable quantification of this use. to qualify for 4: Evaluate the documentation of events that have been observed. Meet with user groups (ex: for fire hydrants - fire departments, contractors to ascertain their need for water from fire hydrants).		to qualify for 5: Utilize accepted default value of 1.25% of system input volume as expedient means to gain a reasonable quantification of all such use. This is particularly appropriate for water utilities who are in the early stages of the water auditing process.	to qualify for 6 or greater: Finalize policy and do field checks. Proceed if top-down audit exists and/or a great volume of such use is suspected.	to qualify for 8: Assess water utility policy and procedures to ensure that fire hydrant permits are issued for use by persons outside of the utility. Create written procedures for use and documentation of fire hydrants by water utility personnel.		to qualify for 10: Refine written procedures to ensure that all uses of unbilled, unmetered water are overseen by a structured permitting process managed by water utility personnel. Reassess policy to determine if some of these uses have value in being converted to billed and/or metered status.		to maintain 10: Continue to refine policy and procedures with intention of reducing the number of allowable uses of water in unbilled and unmetered fashion. Any uses that can feasibly become billed and metered should be converted eventually.
APPARENT LOSSES											
Unauthorized consumption:		Extent of unauthorized consumption is unknown due to unclear policies and poor recordkeeping. Total unauthorized consumption is guesstimated.	Unauthorized consumption is a known occurrence, but its extent is a mystery. There are no requirements to document observed events, but periodic field reports capture some of these occurrences. Total unauthorized consumption is approximated from this limited data.	conditions between 2 and 4	Procedures exist to document some unauthorized consumption such as observed unauthorized fire hydrant openings. Use formulae to quantify this consumption (time running x typical flowrate x number of events).	Default value of 0.25% of system input volume is employed	Coherent policies exist for some forms of unauthorized consumption but others await closer evaluation. Reasonable surveillance and recordkeeping exist for occurrences that fall under the policy. Volumes quantified by inference from these records. Unsupervised uses are guesstimated.	Conditions between 6 and 8	Clear policies and good recordkeeping exist for certain events (ex: tampering with water meters); other occurrences have limited oversight. Total consumption is a combination of volumes from formulae (time x typical flow) and subjective estimates of unconfirmed consumption.	Conditions between 8 and 10	Clear policies exist to identify all known unauthorized uses of water. Staff and procedures exist to provide enforcement of policies and detect violations. Each occurrence is quantified via formulae (time x typical flow) or similar methods.
Improvements to attain higher data grading for "Unauthorized Consumption" component:		to qualify for 5: Use accepted default of 0.25% of system input volume. to qualify for 2: Review utility policy regarding what water uses are considered unauthorized, and consider tracking a small sample of one such occurrence (ex: unauthorized fire hydrant openings)	to qualify for 5: Use accepted default of 0.25% of system input volume to qualify for 4: Review utility policy regarding what water uses are considered unauthorized, and consider tracking a small sample of one such occurrence (ex: unauthorized fire hydrant openings)		to qualify for 5: Utilize accepted default value of 0.25% of system input volume as expedient means to gain a reasonable quantification of all such use. This is particularly appropriate for water utilities who are in the early stages of the water auditing process.	to qualify for 6 or greater: Finalize policy and do field checks. Proceed if top-down audit exists and/or a great volume of such use is suspected.	to quality for 8: Assess water utility policies to ensure that all known occurrences of unauthorized consumption are outlawed, and that appropriate penalties are prescribed. Create written procedures for use and documentation of various occurrences of unauthorized consumption as they are uncovered.		to qualify for 10: Refine written procedures and assign staff to seek out likely occurrences of unauthorized consumption. Explore new locking devices, monitors and other technologies designed to detect and thwart unauthorized consumption.		to maintain 10: Continue to refine policy and procedures to eliminate any loopholes that allow or tacitly encourage unauthorized consumption. Continue to be vigilant in documentation and enforcement efforts.
Customer metering inaccuracies:	select n/a only if the entire customer population is unmetered. In such a case the volume entered must be zero.	Customer meters exist, but with unorganized paper records on meters; no meter accuracy testing or meter replacement program. Workflow is driven chaotically by customer complaints with no proactive management. Loss volume due to aggregate meter inaccuracy is guesstimated.	Poor recordkeeping and meter oversight is recognized by water utility management who has allotted staff and funding resources to organize improved recordkeeping and start meter accuracy testing. Existing paper records gathered and organized to provide cursory disposition of meter population.	Conditions between 2 and 4	Reliable recordkeeping exists; meter information is improving as meters are replaced. Meter accuracy testing is conducted annually for a small number of meters. Limited number of oldest meters replaced each year. Inaccuracy volume is largely an estimate, but refined based upon limited testing data.	Conditions between 4 and 6	A reliable electronic recordkeeping system for meters exists. Population includes a mix of new high performing meters and dated meters with suspect accuracy. Routine, but limited, meter accuracy testing and meter replacement occur. Inaccuracy volume is quantified using a mix of reliable and less certain data.	Conditions between 6 and 8	Ongoing meter replacement and accuracy testing result in highly accurate customer meter population. Testing is conducted on samples of meters at varying lifespans to determine optimum replacement time for various types of meters.	Conditions between 8 and 10	Good records of number, type and size of customer meters; ongoing meter replacement occurs. Regular meter accuracy testing gives reliable measure of composite inaccuracy volume for the system. New metering technology is embraced to keep overall accuracy improving.
Improvements to attain higher data grading for "Customer meter inaccuracy volume" component:	If n/a is selected because the customer meter population is unmetered, consider establishing a new policy to meter the customer population and employ water rates based upon metered volumes.	to qualify for 2: Gather available meter purchase records. Conduct testing on a small number of meters believed to be the most inaccurate. Review staffing needs of metering group and budget for necessary resources to better organize meter management.	to qualify for 4: Implement a reliable record keeping system for customer meter histories, preferably using electronic methods typically linked to, or part of, the Customer Billing System or Customer Information System. Expand meter accuracy testing to a larger group of meters.		to qualify for 6: Standardize procedures for meter recordkeeping with the electronic information system. Accelerate meter accuracy testing and meter replacements guided by testing results.		to qualify for 8: Expand annual meter accuracy testing to evaluate a statistically significant number of meter makes/models. Expand meter replacement program to replace statistically significant number of poor performing meters each year.		to qualify for 10: Continue efforts to manage meter population with reliable recordkeeping, meter testing and replacement. Evaluate new meter types and install one or more types in 5-10 customer accounts each year in order to pilot improving metering technology.		to maintain 10: Increase the number of meters tested and replaced as justified by meter accuracy test data. Continually monitor development of new technology in Advanced Metering Infrastructure (AMI) to grasp opportunities for greater accuracy in metering and customer consumption data.

Grading											
	n/a	1	2	3	4	5	6	7	8	9	10
Systematic Data Handling Error:	Note: all water utilities incur some amount of this error. Even in water utilities with unmetered customer populations and fixed rate billing, errors occur in annual billing tabulations. Enter a positive value for the volume and select a grading.	Vague policy for permitting (creating new customer accounts) and billing. Billing data maintained on paper records which are in disarray. No audits conducted to confirm billing data handling efficiency. Unknown number of customers escape routine billing due to lack of billing process oversight.	Policy for permitting and billing exists but needs refinement. Billing data maintained on paper records or insufficiently capable electronic database. Only periodic unstructured auditing work conducted to confirm billing data handling efficiency. Volume of unbilled water due to billing lapses is a guess.	Conditions between 2 and 4	Policy and procedures for permitting and billing exist but needs refinement. Computerized billing system exists, but is dated or lacks needed functionality. Periodic, limited internal audits conducted and confirm with approximate accuracy the consumption volumes lost to billing lapses.	Conditions between 4 and 6	Policy for permitting and billing is adequate and reviewed periodically. Computerized billing system in use with basic reporting available. Any effect of billing adjustments on measured consumption volumes is well understood. Internal checks of billing data error conducted annually. Reasonably accurate quantification of consumption volume lost to billing lapses is obtained.	Conditions between 6 and 8	Permitting and billing policy reviewed at least biannually. Computerized billing system includes an array of reports to confirm billing data and system functionality. Annual internal checks conducted with periodic third party audit. Accountability checks flag billing lapses. Consumption lost to billing lapses is well quantified and reducing year-by-year.	Conditions between 8 and 10	Sound policy exists for permitting of all customer billing accounts. Robust computerized billing system gives high functionality and reporting capabilities. Assessment of policy and data handling errors conducted internally and audited by third party annually, ensuring consumption lost to billing lapses is minimized and detected as it occurs.
Improvements to attain higher data grading for "Systematic Data Handling Error volume" component:		to qualify for 2: Draft written policy for permitting and billing. Investigate and budget for computerized customer billing system. Conduct initial audit of billing records by flow-charting the basic business processes of the customer account/billing function.	to qualify for 4: Finalize written policy for permitting and billing. Implement a computerized customer billing system. Conduct initial audit of billing records as part of this process.		to qualify for 6: Refine permitting and billing procedures and ensure consistency with the utility policy regarding billing, and minimize opportunity for missed billings. Upgrade or replace customer billing system for needed functionality - ensure that billing adjustments don't corrupt the value of consumption volumes. Procedurize internal annual audit process.		to qualify for 8: Formalize regular review of permitting and billing practices. Enhance reporting capability of computerized billing system. Formalize regular auditing process to reveal scope of data handling error.		to qualify for 10: Close policy/procedure loopholes that allow some customer accounts to go unbilled, or data handling errors to exist. Ensure that internal and third party audits are conducted annually.		to maintain 10: Stay abreast of customer information management developments and innovations. Monitor developments of Advanced Metering Infrastructure (AMI) and integrate technology to ensure that customer endpoint information is well-monitored and errors/lapses are at an economic minimum.
SYSTEM DATA											
Length of mains:		Poorly assembled and maintained paper as-built records of existing water main installations makes accurate determination of system pipe length impossible. Length of mains is guesstimated.	Paper records in poor condition (no annual tracking of installations & abandonments). Poor procedures to ensure that new water mains installed by developers are accurately documented.	Conditions between 2 and 4	Sound policy and procedures for permitting and documenting new water main installations, but gaps in management result in a uncertain degree of error in tabulation of mains length.	Conditions between 4 and 6	Sound policy and procedures exist for permitting and commissioning new water mains. Highly accurate paper records with regular field validation; or electronic records and asset management system in good condition. Includes system backup.	Conditions between 6 and 8	Sound policy and procedures exist for permitting and commissioning new water mains. Electronic recordkeeping and asset management system are used to store and manage data.	Conditions between 8 and 10	Sound policy exists for managing water mains extensions and replacements. Geographic Information System (GIS) data and asset management database agree and random field validation proves truth of databases.
Improvements to attain higher data grading for "Length of Water Mains" component:		to qualify for 2: Assign personnel to inventory current as-built records and compare with customer billing system records and highway plans. Assemble policy documents regarding permitting and documentation of water main installations by the utility and building developers; identify gaps in procedure that result in poor documentation.	to qualify for 4: Complete inventory of paper records of water main installations & abandonments for a number of years prior to audit year. Review policy and procedures for commissioning and documenting new water main installation and abandonments.		to qualify for 6: Finalize updates/improvements to policy and procedures for permitting/commissioning new main installations. Confirm inventory of records for five years prior to audit year; correct any errors or omissions.		to qualify for 8: Launch random field checks of limited number of locations. Convert to electronic databases with backup as justified.		to qualify for 10: Link Geographic Information System (GIS) and asset management databases, conduct field verification of data.		to maintain 10: Continue with standardization and random field validation to improve knowledge of system.
Number of active AND inactive service connections:		Vague permitting (of new service connections) policy and poor paper recordkeeping of customer connections/billings result in suspect determination of the number of service connections, which may be 10-15% in error from actual count.	General permitting policy exists but paper records, procedural gaps, and weak oversight result in questionable total for number of connections, which may vary 5-10% of actual count.	Conditions between 2 and 4	Permitting policy and procedures exist, but with some gaps in performance and oversight. Computerized information management system is being brought online to replace dated paper recordkeeping system. Reasonably accurate tracking of service connection installations & abandonments; but count can be up to 5% in error from actual total.	Conditions between 4 and 6	Permitting policy and procedures are adequate and reviewed periodically. Computerized information management system is in use with annual installations & abandonments totaled. Very limited field verifications and audits. Error in count of number of service connections is believed to be no more that 3%.	Conditions between 6 and 8	Permitting policy and procedures reviewed at least biannually. Well-managed computerized information management system and routine, periodic field checks and internal system audits allows counts of connections that is no more than 2% in error.	Conditions between 8 and 10	Sound permitting policy and well managed and audited procedures ensure reliable management of service connection population. Computerized information management system and Geographic Information System (GIS) information agree; field validation proves truth of databases. Count of connections believed to be in error by less than 1%.

Grading											
	n/a	1	2	3	4	5	6	7	8	9	10
Improvements to attain higher data grading for "Number of Active and Inactive customer service connections" component:		to qualify for 2: Draft new policy and procedures for permitting and billing. Research and collect paper records of installations & abandonments for several years prior to audit year.	to qualify for 4: Refine policy and procedures for permitting and billing. Research computerized recordkeeping system (Customer Information System or Customer Billing System) to improve documentation format for service connections.		to qualify for 6: Refine procedures to ensure consistency with permitting policy to establish new service connections or decommission existing connections. Improve process to include all totals for at least five years prior to audit year.		to qualify for 8: Formalize regular review of permitting policy and procedures. Launch random field checks of limited number of locations. Develop reports and auditing mechanisms for computerized information management system.		to qualify for 10: Close any procedural loopholes that allow installations to go undocumented. Link computerized information management system with Geographic Information System (GIS) and formalize field inspection and information system auditing processes. Documentation of new or decommissioned service connections encounters several levels of checks and balances.		to maintain 10: Continue with standardization and random field validation to improve knowledge of system.
Average length of customer service line:	Note: if customer water meters are located outside of the customer building next to the curbstop or boundary separating utility/customer responsibility, follow the grading description for 10(a). Also see the Service Connection Diagram worksheet.	Gradings 1-9 apply if customer properties are **unmetered**, if customer meters exist and are located **inside the customer building premises, or if the water utility owns and is responsible for the entire service connection piping from the water main to the customer building**. In any of these cases the average distance between the curbstop or boundary separating utility/customer responsibility for service connection piping, and the typical first point of use (ex: faucet) or the customer meter must be quantified. Gradings of 1-9 are used to grade the validity of the means to quantify this value. (See the "Service Connection Diagram" worksheet)									Either of two conditions can be met to obtain a grading of 10: a) The customer water meter is located outside of the customer building adjacent to the curbstop or boundary separating utility/customer responsibility for the service connection piping. In this case enter a value of zero in the Reporting Worksheet with a grading of 10. b). Customer water meters are located inside customer buildings, or the properties are unmetered. In either case the distance is highly reliable since data is drawn from a Geographic Information System (GIS) and confirmed by routine field checks.
		Vague policy exists to define the delineation of water utility ownership and customer ownership of the service connection piping. Curbstops are perceived as the breakpoint but these have not been well-maintained or documented. Most are buried or obscured. Their location varies widely from site-to-site, and estimating this distance is arbitrary due to the unknown location of many curbstops.	Policy requires that the curbstop serves as the delineation point between water utility ownership and customer ownership of the service connection piping. The piping from the water main to the curbstop is the property of the water utility; and the piping from the curbstop to the customer building is owned by the customer. Curbstop locations are not well documented and the average distance is based upon a limited number of locations measured in the field.	Conditions between 2 and 4	Good policy requires that the curbstop serves as the delineation point between water utility ownership and customer ownership of the service connection piping. Curbstops are generally installed as needed and are reasonably documented. Their location varies widely from site-to-site, and an estimate of this distance is hindered by the availability of paper records.	Conditions between 4 and 6	Clear policy exists to define utility/customer responsibility for service connection piping. Accurate, well-maintained paper or basic electronic recordkeeping system exists. Periodic field checks confirm piping lengths for a sample of customer properties.	Conditions between 6 and 8	Clearly worded policy standardizes the location of curbstops and meters, which are inspected upon installation. Accurate and well maintained electronic records exist with periodic field checks to confirm locations of service lines, curbstops and customer meter pits. An accurate number of customer properties from the customer billing system allows for reliable averaging of this length.	Conditions between 8 and 10	
Improvements to attain higher data grading for "Average Length of Customer Service Line" component:		to qualify for 2: Research and collect paper records of service line installations. Inspect several sites in the field using pipe locators to locate curbstops. Obtain the length of this small sample of connections in this manner.	to qualify for 4: Formalize and communicate policy delineating utility/customer responsibilities for service connection piping. Assess accuracy of paper records by field inspection of a small sample of service connections using pipe locators as needed. Research the potential migration to a computerized information management system to store service connection data.		to qualify for 6: Establish coherent procedures to ensure that policy for curbstop, meter installation and documentation is followed. Gain consensus within the water utility for the establishment of a computerized information management system.		to qualify for 8: Implement an electronic means of recordkeeping, typically via a customer information system or customer billing system. Standardize the process to conduct field checks of limited number of locations.		to qualify for 10: Link customer information management system and Geographic Information System (GIS), standardize process for field verification of data.		to maintain 10: Continue with standardization and random field validation to improve knowledge of system.
Average operating pressure:		Available records are poorly assembled and maintained paper records of supply pump characteristics and water distribution system operating conditions. Average pressure is guesstimated based upon this information and ground elevations from crude topographical maps. Widely varying distribution system pressures due to undulating terrain, high system head loss and weak/erratic pressure controls further compromise the validity of the average pressure calculation.	Limited telemetry monitoring of scattered sites provides some static pressure data, which is recorded in handwritten logbooks. Pressure data is gathered at individual sites only when low pressure complaints arise. Average pressure is determined by averaging relatively crude data, and is affected by significant variation in ground elevations, system head loss and gaps in pressure controls in the distribution system.	Conditions between 2 and 4	Effective pressure controls separate different pressure zones; moderate pressure variation across the system, occasional open boundary valves are discovered that breech pressure zones. Basic telemetry monitoring of the distribution system logs pressure data electronically. Pressure data gathered by gauges or dataloggers at fire hydrants or buildings when low pressure complaints arise, and during fire flow tests and system flushing. Reliable topographical data exists. Average pressure is calculated using this mix of data.	Conditions between 4 and 6	Reliable pressure controls separate distinct pressure zones; only very occasional open boundary valves are encountered that breech pressure zones. Well-covered telemetry monitoring of the distribution system logs extensive pressure data electronically. Pressure gathered by gauges/dataloggers at fire hydrants and buildings when low pressure complaints arise, and during fire flow tests and system flushing. Average pressure is determined by using this mix of reliable data.	Conditions between 6 and 8	Well-managed, discrete pressure zones exist with generally predictable pressure fluctuations. A current full-scale SCADA System exists to monitor the water distribution system and collect data, including real time pressure readings at representative sites across the system. The average system pressure is determined from reliable SCADA System data.	Conditions between 8 and 10	Well-managed pressure districts/zones, SCADA System and hydraulic model exist to give very precise pressure data across the water distribution system. Average system pressure is reliably calculated from extensive, reliable, and cross-checked data.

Grading											
	n/a	1	2	3	4	5	6	7	8	9	10
Improvements to attain higher data grading for "Average Operating Pressure" component:		to qualify for 2: Employ pressure gauging and/or datalogging equipment to obtain pressure measurements from fire hydrants. Locate accurate topographical maps of service area in order to confirm ground elevations. Research pump data sheets to find pump pressure/flow characteristics	to qualify for 4: Formalize a procedure to use pressure gauging/datalogging equipment to gather pressure data during various system events such as low pressure complaints, or operational testing. Gather pump pressure and flow data at different flow regimes. Identify faulty pressure controls (pressure reducing valves, altitude valves, partially open boundary valves) and plan to properly configure pressure zones. Make all pressure data from these efforts available to generate system-wide average pressure.		to qualify for 6: Expand the use of pressure gauging/datalogging equipment to gather scattered pressure data at a representative set of sites, based upon pressure zones or areas. Utilize pump pressure and flow data to determine supply head entering each pressure zone or district. Correct any faulty pressure controls (pressure reducing valves, altitude valves, partially open boundary valves) to ensure properly configured pressure zones. Use expanded pressure dataset from these activities to generate system-wide average pressure.		to qualify for 8: Install a Supervisory Control and Data Acquisition (SCADA) System to monitor system parameters and control operations. Set regular calibration schedule for instrumentation to insure data accuracy. Obtain accurate topographical data and utilize pressure data gathered from field surveys to provide extensive, reliable data for pressure averaging.		to qualify for 10: Obtain average pressure data from hydraulic model of the distribution system that has been calibrated via field measurements in the water distribution system and confirmed in comparisons with SCADA System data.		to maintain 10: Continue to refine the hydraulic model of the distribution system and consider linking it with SCADA System for real-time pressure data calibration, and averaging.

Grading											
	n/a	1	2	3	4	5	6	7	8	9	10
COST DATA											
Total annual cost of operating water system:		Incomplete paper records and lack of documentation on many operating functions making calculation of water system operating costs a pure guesstimate	Reasonably maintained, but incomplete, paper or electronic accounting provides data to estimate the major portion of water system operating costs.	Conditions between 2 and 4	Electronic, industry-standard cost accounting system in place. Gaps in data known to exist, periodic internal reviews conducted but not a structured audit.	Conditions between 4 and 6	Reliable electronic, industry-standard cost accounting system in place, with all pertinent water system operating costs tracked. Data audited periodically by utility personnel, not a Certified Public Accountant (CPA).	Conditions between 6 and 8	Reliable electronic, industry-standard cost accounting system in place, with all pertinent water system operating costs tracked. Data audited at least annually by utility personnel, and periodically by third-party CPA.	Conditions between 8 and 10	Reliable electronic, industry-standard cost accounting system in place, with all pertinent water system operating costs tracked. Data audited annually by utility personnel and by third-party CPA.
Improvements to attain higher data grading for "Total Annual Cost of Operating the Water System" component:		to qualify for 2: Gather available records, institute new procedures to regularly collect and audit basic cost data of most important operations functions.	to qualify for 4: Implement an electronic cost accounting system, structured according to accounting standards for water utilities		to qualify for 6: Establish process for periodic internal audit of water system operating costs; identify cost data gaps and institute procedures for tracking these outstanding costs.		to qualify for 8: Standardize the process to conduct routine financial audit on an annual basis.		to qualify for 10: Standardize the process to conduct a third-party financial audit by a CPA on an annual basis.		to maintain 10: Maintain program, stay abreast of expenses subject to erratic cost changes and budget/track costs proactively
Customer retail unit cost (applied to Apparent Losses):		Antiquated, cumbersome water rate structure is use, with periodic historic amendments that were poorly documented and implemented; resulting in classes of customers being billed inconsistent charges. The actual composite billing rate likely differs significantly from the published water rate structure, but a lack of auditing leaves the degree of error indeterminate.	Dated, cumbersome water rate structure, not always employed consistently in actual billing operations. The actual composite billing rate is known to differ from the published water rate structure, and a reasonably accurate estimate of the degree of error is determined, allowing a composite billing rate to be quantified.	Conditions between 2 and 4	Straight-forward water rate structure in use, but not updated in several years. Billing operations reliably employ the rate structure. The composite billing rate is derived from a single customer class such as residential customer accounts, neglecting the effect of different rates from varying customer classes.	Customer population unmetered. Fixed fee charged; single composite number derived from multiple customer classes.	Clearly written, up-to-date water rate structure is in force and is applied reliably in billing operations. Composite customer rate is determined using a weighted average residential rate using volumes of water in each rate block.	Conditions between 6 and 8	Effective water rate structure is in force and is applied reliably in billing operations. Composite customer rate is determined using a weighted average composite consumption rate, including residential, commercial, industrial and any other customer classes within the water rate structure.	Conditions between 8 and 10	Third party reviewed weighted average composite consumption rate (includes residential, commercial, industrial, etc.)
Improvements to attain higher data grading for "Customer Retail Unit Cost" component:		to qualify for 2: Formalize the process to implement water rates, including a secure documentation procedure. Create a current, formal water rate document and gain approval from all stakeholders.	to qualify for 4: Review the water rate structure and update/formalize as needed. Assess billing operations to ensure that actual billing operations incorporate the established water rate structure.		to qualify for 6: Evaluate volume of water used in each usage block by residential users. Multiply volumes by full rate structure.	Meter customers and charge rates based upon water volumes	to qualify for 8: Evaluate volume of water used in each usage block by all classifications of users. Multiply volumes by full rate structure.		to qualify for 10: Conduct a periodic third-party audit of water used in each usage block by all classifications of users. Multiply volumes by full rate structure.		to maintain 10: Keep water rate structure current in addressing the water utility's revenue needs. Update the calculation of the customer unit rate as new rate components, customer classes, or other components are modified.
Variable production cost (applied to Real Losses):	Note: if the water utility purchases/imports its entire water supply, then enter the unit purchase cost of the bulk water supply in the Reporting Worksheet with a grading of 10	Incomplete paper records and lack of documentation on primary operating functions (electric power and treatment costs most importantly) makes calculation of variable production costs a pure guesstimate	Reasonably maintained, but incomplete, paper or electronic accounting provides data to roughly estimate the basic operations costs (pumping power costs and treatment costs) and calculate a unit variable production cost.	Conditions between 2 and 4	Electronic, industry-standard cost accounting system in place. Electric power and treatment costs are reliably tracked and allow accurate calculation of unit variable production costs based on these two inputs only. All costs are audited internally on a periodic basis.	Conditions between 4 and 6	Reliable electronic, industry-standard cost accounting system in place, with all pertinent water system operating costs tracked. Pertinent additional costs beyond power and treatment (ex: liability, residuals management, etc.) are included in the unit variable production cost. Data audited at least annually by utility personnel.	Conditions between 6 and 8	Reliable electronic, industry-standard cost accounting system in place, with all pertinent variable production costs tracked. Data audited at least annually by utility personnel, and periodically by third-party.	Conditions between 8 and 10	Either of two conditions can be met to obtain a grading of 10: 1) Third party CPA audit of all primary and secondary cost components on an annual basis. or: 2) Water supply is entirely purchased as bulk imported water, and unit purchase cost serves as the variable production cost.
Improvements to attain higher data grading for "Variable Production Cost" component:		to qualify for 2: Gather available records, institute new procedures to regularly collect and audit basic cost data and most important operations functions.	to qualify for 4: Implement an electronic cost accounting system, structured according to accounting standards for water utilities		to qualify for 6: Formalize process for regular internal audits of production costs. Assess whether additional costs (liability, residuals management, etc.) should be included to calculate a more accurate variable production cost.		to qualify for 8: Formalize the accounting process to include primary cost components (power, treatment) as well as secondary components (liability, residuals management, etc.) Conduct periodic third-party audits.		to qualify for 10: Standardize the process to conduct a third-party financial audit by a CPA on an annual basis.		to maintain 10: Maintain program, stay abreast of expenses subject to erratic cost changes and budget/track costs proactively

AWWA WLCC Free Water Audit Software: Customer Service Line Diagrams

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Average Length of Customer Service Line

The three figures shown on this worksheet display the assignment of the Average Length of Customer Service Line, Lp, for the three most common piping configurations.

Figure 1 shows the configuration of the water meter outside of the customer building next to the curbstop valve. In this configuration Lp = 0 since the distance between the curbstop and the customer metering point is essentially zero.

Figure 2 shows the configuration of the customer water meter located inside the customer building, where Lp is the distance from the curbstop to the water meter.

Figure 3 shows the configuration of an unmetered customer building , where Lp is the distance from the curbstop to the first point of customer water consumption, or, more simply, the building line.

In any water system the Lp will vary notably in a community of different structures, therefore the average Lp value is used and this should be approximated or calculated if a sample of service line measurements has been gathered.

Click for more information

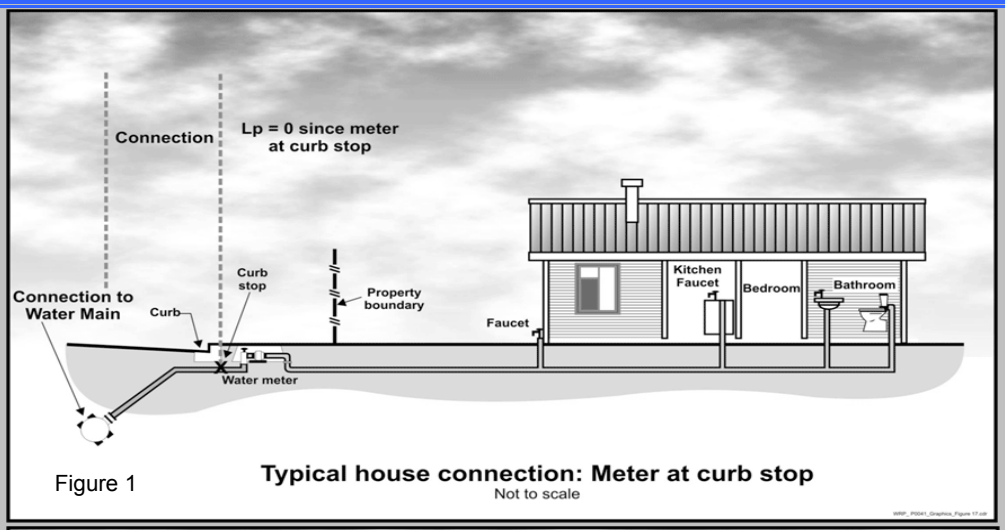

Figure 1 **Typical house connection: Meter at curb stop**
Not to scale

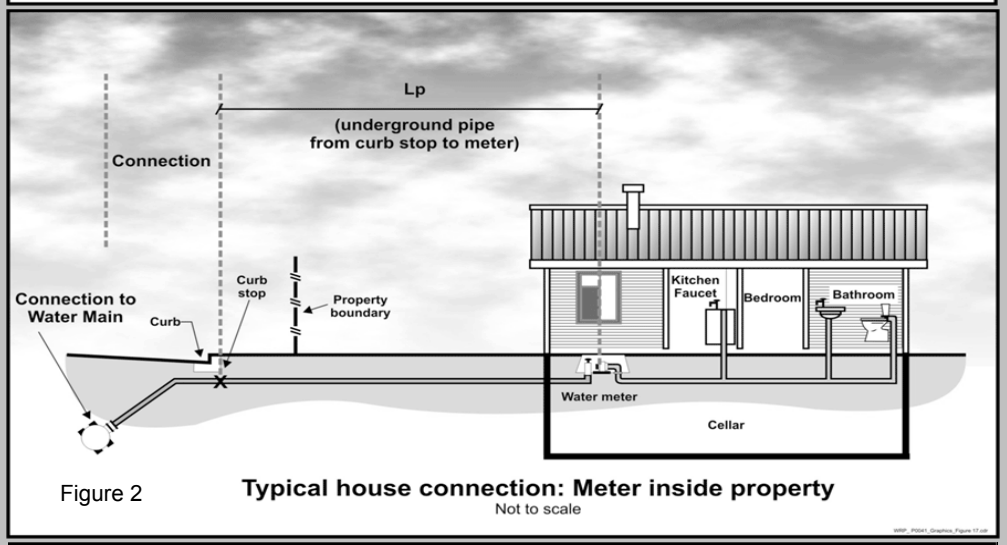

Figure 2 **Typical house connection: Meter inside property**
Not to scale

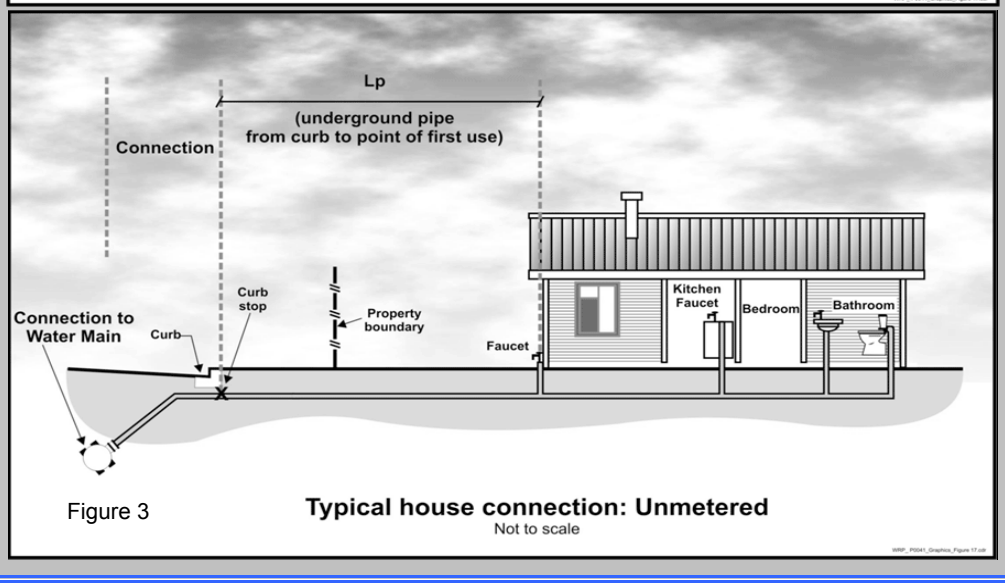

Figure 3 **Typical house connection: Unmetered**
Not to scale

AWWA WLCC Free Water Audit Software: Definitions

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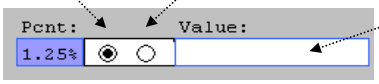
Item Name		Description
Apparent Losses	Find	= unauthorized consumption + meter under-registration + data handling errors Includes all types of inaccuracies associated with customer metering as well as data handling errors (meter reading and billing), plus unauthorized consumption (theft or illegal use). NOTE: Over-registration of customer meters, leads to under-estimation of Real Losses. Under-registration of customer meters, leads to over-estimation of Real Losses.
AUTHORIZED CONSUMPTION	Find	= billed metered + billed unmetered + unbilled metered + unbilled unmetered The volume of metered and/or unmetered water taken by registered customers, the water supplier and others who are implicitly or explicitly authorized to do so by the water supplier, for residential, commercial and industrial purposes. This does NOT include water sold to neighboring utilities (water exported). Authorized consumption may include items such as fire fighting and training, flushing of mains and sewers, street cleaning, watering of municipal gardens, public fountains, frost protection, building water, etc. These may be billed or unbilled, metered or unmetered.
Average length of customer service line	Find	**This is entered for unmetered services and in cold or other areas where meters are installed inside homes and buildings. It is the length of customer service line either between the utility's service connection (often at the curbstop) and the meter, or to the building line (first point of customer consumption) if customers are unmetered. Note that the length of service connection between the main and customer service line is owned by the utility and its length and potential leakage is accounted for in the UARL formula by the number of service connections.** **What role does the "Average Length of Customer Service Line" parameter serve in the Water Audit?** **In many water distribution systems the water utility has maintenance responsibility for a portion of the customer service piping from its connection point at the water main to the curbstop valve located midway to the customer building. The customer is responsible to maintain the customer service piping from the curbstop to the building premises. When leaks arise on customer service piping, water utilities respond faster to repair leaks than customers when the leak is on piping under their responsibility. Leak durations are longer on the customer-maintained piping than the utility-maintained piping. The total length of pipe maintained by customers is one of the components of the Unavoidable Annual Real Loss (UARL) equation and is determined by multiplying the average length of customer maintained pipe, Lp by the number of customer service connections. Therefore this parameter is important to the calculation of the UARL and the Infrastructure leakage Index (ILI).** Click to see Service Connection Diagram
Average operating pressure	Find	The average pressure may be approximated when compiling the preliminary water audit. Once routine water auditing has been established, a more accurate assessment of average pressure should be pursued. If the water utility infrastructure is recorded in a Geographical Information System (GIS) the average pressure at many locations in the distribution system can be readily obtained. If a GIS does not exist, a weighted average of pressure data can be calculated from water pressure measured at various fire hydrants scattered across the water distribution system.
Billed Authorized Consumption		All consumption that is billed and authorized by the utility. This may include both metered and unmetered consumption. See "Authorized Consumption" for more information.
Billed metered consumption	Find	All metered consumption which is billed. This includes all groups of customers such as domestic, commercial, industrial or institutional. It does NOT include water sold to neighboring utilities (water exported) which is metered and billed. The metered consumption data can be taken directly from billing records for the water audit period. The accuracy of yearly metered consumption data can be refined by including an adjustment to account for customer meter reading lagtime, however additional analysis is necessary to determine the adjustment value, which may or may not be significant.
Billed unmetered consumption	Find	All billed consumption which is calculated based on estimates or norms but is not metered. This might be a very small component in fully metered systems (for example billing based on estimates for the period a customer meter is out of order) but can be the key consumption component in systems without universal metering. It does NOT include water sold to neighboring utilities (water exported) which is unmetered but billed.
Connection density		=number of connections / length of mains

Item Name		Description
Customer metering inaccuracies	Find	Apparent water losses caused by the collective under-registration of customer water meters. Many customer water meters will wear as large cumulative volumes of water are passed through them over time. This causes the meters to under-register. The auditor has two options for entering data for this component of the audit. The auditor can enter a percentage under-registration (typically an estimated value), this will apply the selected percentage to the two categories of metered consumption to determine the volume of water not recorded due to customer meter inaccuracy. Alternatively, if the auditor has substantial data from meter testing to arrive at their own volumes of such losses, this volume may be entered directly. Note that a value of zero will be accepted but an alert will appear asking if the customer population is unmetered. Since all metered systems have some degree of inaccuracy, then a positive value should be entered. A value of zero in this component is valid only if the water utility does not meter its customer population.
Customer retail unit cost	Find	The Customer Retail Unit Cost represents the charge that customers pay for water service. This unit cost is applied to the components of apparent loss, since these losses represent water reaching customers but not (fully) paid for. It is important to compile these costs per the same unit cost basis as the volume measure included in the water audit. For example, if all water volumes are measured in million gallons, then the unit cost should be dollars per million gallon ($/mil gal). The software allows the user to select the units that are charged to customers (either $/1,000 gallons, $/hundred cubic feet or $/1,000 litres) and automatically converts these units to the units that appear in the "WATER SUPPLIED" box. Since most water utilities have a rate structure that includes a variety of different costs based upon class of customer, a weighted average of individual costs and number of customer accounts in each class can be calculated to determine a single composite cost that should be entered into this cell. Finally, the weighted average cost should also include additional charges for sewer, stormwater or biosolids processing, if these charges are based upon the volume of potable water consumed.
Infrastructure Leakage Index (ILI)	Find	The ratio of the Current Annual Real Losses (Real Losses) to the Unavoidable Annual Real Losses (UARL). The ILI is a highly effective performance indicator for comparing (benchmarking) the performance of utilities in operational management of real losses.
Length of mains	Find	Length of all pipelines (except service connections) in the system starting from the point of system input metering (for example at the outlet of the treatment plant). It is also recommended to include in this measure the total length of fire hydrant lead pipe. Hydrant lead pipe is the pipe branching from the water main to the fire hydrant. Fire hydrant leads are typically of a sufficiently large size that is more representative of a pipeline than a service connection. The average length of hydrant leads across the entire system can be assumed if not known, and multiplied by the number of fire hydrants in the system, which can also be assumed if not known. This value can then be added to the total pipeline length. Total length of mains can therefore be calculated as: Length of Mains, miles = (total pipeline length, miles) + [{(average fire hydrant lead length, ft) x (number of fire hydrants)} / 5,280 ft/mile] or Length of Mains, kilometres = (total pipeline length, kilometres) + [{(average fire hydrant lead length, metres) x (number of fire hydrants)} / 1,000 metres/kilometre]
Master meter error adjustment	Find	An estimate or measure of the degree of any inaccuracy that exists in the master meters measuring the Volume from own sources. Please also indicate if this adjustment is because the master meters under-registered (did not capture all the flow) or over-registered (overstated the actual flow). All systems encounter some degree of error in their Master Meter data. Please enter a positive value.
NON-REVENUE WATER	Find	= Apparent Losses + Real Losses + Unbilled Metered + Unbilled Unmetered Water which does not provide any revenue to the utility
Number of active AND inactive service connections	Find	Number of service connections, main to curb stop. Please note that this includes the actual number of distinct piping connections including fire connections whether active or inactive. This may differ substantially from the number of Customers (or number of accounts)
Real Losses	Find	Physical water losses from the pressurized system and the utility's storage tanks, up to the point of customer consumption. In metered systems this is the customer meter, in unmetered situations this is the first point of consumption (stop tap/tap) within the property. The annual volume lost through all types of leaks, breaks and overflows depends on frequencies, flow rates, and average duration of individual leaks, breaks and overflows.
Revenue Water		Water which is charged to customers to provide revenue to the utility.
Systematic data handling errors	Find	Apparent water losses caused by systematic data handling errors in the meter reading and billing system.
Total annual cost of operating the water system	Find	These costs include those for operations, maintenance and any annually incurred costs for long-term upkeep of the system, such as repayment of capital bonds for infrastructure expansion or improvement. Typical costs include employee salaries and benefits, materials, equipment, insurance, fees, administrative costs and all other costs that exist to sustain the drinking water supply. These costs should not include any costs to operate wastewater, biosolids or other systems outside of drinking water.

Item Name		Description
Unauthorized consumption	Find	Includes water illegally withdrawn from hydrants, illegal connections, bypasses to consumption meter or meter reading equipment tampering. While this component has a direct impact on revenue, in most water utilities the volume is low and it is recommended that the auditor apply a default value of 0.25% of the volume from own sources. If the auditor has well validated data that indicates the volume from unauthorized consumption is substantially higher or lower than that generated by the default value then this value can be entered. However, for most water utilities it is recommended to apply the default value. Note that a value of zero will not be accepted since all water utilities have some volume of unauthorized consumption occurring in their system.
Unavoidable Annual Real Losses (UARL)	Find	UARL (gallons/day)=(5.41Lm + 0.15Nc + 7.5Lc) xP, or UARL (litres/day)=(18.0Lm + 0.8Nc + 25.0Lc) xP where: Lm = length of mains (miles or kilometres) Nc = number of service connections Lc = total length of customer service lines (miles or km) = Nc multiplied by the average distance of customer service line, Lp (miles or km) P = Pressure (psi or metres) Click to see Service Connection Diagram The UARL is a theoretical reference value representing the technical low limit of leakage that could be achieved if all of today's best technology could be successfully applied. It is a key variable in the calculation of the Infrastructure Leakage Index (ILI). It is not necessary that water utilities set this level as the target level of leakage, unless water is unusually expensive, scarce or both. NOTE: The UARL calculation has not yet been fully proven as effective for very small, or low pressure water distribution systems. If, in gallons per day: (Lm x 32) + Nc < 3000 or P <35psi in litres per day: (Lm x 20) + Nc < 3000 or P < 25m then the calculated UARL value may not be valid. The software does not display a value of UARL or ILI if either of these conditions is true.
Unbilled Authorized Consumption		All consumption that is unbilled, but still authorized by the utility. See "Authorized Consumption" for more information.
Unbilled metered consumption	Find	Metered Consumption which is for any reason unbilled. This might for example include metered consumption of the utility itself or water provided to institutions free of charge. It does NOT include water sold to neighboring utilities (water exported) which is metered but unbilled.
Unbilled unmetered consumption	Find	Any kind of Authorized Consumption which is neither billed nor metered. This component typically includes items such as fire fighting, flushing of mains and sewers, street cleaning, frost protection, etc. In most water utilities it is a small component which is very often substantially overestimated. It does NOT include water sold to neighboring utilities (water exported) which is unmetered and unbilled – an unlikely case. This component has many sub-components of water use which are often tedious to identify and quantify. Because of this, and the fact that it is usually a small portion of the water supplied, it is recommended that the auditor apply the default value of 1.25% of the volume from own sources. Select the default percentage to enter this value. If the water utility already has well validated data that gives a value substantially higher or lower than the default volume, then the auditor should enter their own volume. However the default approach is recommended for most water utilities. Note that a value of zero is not permitted, since all water utilities have some volume of water in this component occurring in their system.
Units and Conversions	Find	The user may develop an audit based on one of three unit selections: 1) Million Gallons (US) 2) Megalitres (Thousand Cubic Metres) 3) Acre-feet Once this selection has been made in the instructions sheet, all calculations are made on the basis of the chosen units. Should the user wish to make additional conversions, a unit converter is provided below (use drop down menus to select units from the yellow unit boxes): Enter Units: Convert From… **Converts to…..** 1 **Million Gallons (US)** = 1 **Million Gallons (US)** (conversion factor = 1)

Item Name		Description
Use of Option Buttons	Find	To use the percent value choose this button To enter a value choose this button and enter the value in the cell to the right  **NOTE:** For unbilled unmetered consumption and unauthorized consumption, a recommended default value can be applied by selecting the Percent option. The default values are based on fixed percentages of water supplied and are recommended for use in this audit unless the auditor has well validated data for their system. Default values are shown by purple cells, as shown in the example above. If a default value is selected, the user does not need to grade the item; a grading value of 3 is automatically applied (however, this grade will not be displayed).
Variable production cost (applied to Real Losses)	Find	The cost to produce and supply the next unit of water. (E.g., $/million gallons) This cost is determined by calculating the summed unit costs for ground and surface water treatment and all power used for pumping from the source to the customer. It should also include the unit cost of bulk water purchased as an import if applicable.
Volume from own sources	Find	The volume of treated water input to system from own production facilities
Water exported	Find	Bulk water sold and conveyed out of the water distribution system. Typically this is water sold to a neighboring water utility. Be sure to account for any export meter inaccuracy in reporting this volume
Water imported	Find	Bulk water purchased to become part of the water supplied. Typically this is water purchased from a neighboring water utility or regional water authority. Be sure to account for any import meter inaccuracy in reporting this volume
WATER LOSSES	Find	= apparent losses + real losses The difference between System Input and Authorized Consumption. Water losses can be considered as a total volume for the whole system, or for partial systems such as transmission or distribution systems, or individual zones. Water Losses consist of Real Losses and Apparent Losses.

AWWA WLCC Free Water Audit Software: Determining Water Loss Standing

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Water Loss Control Planning Guide

Functional Focus Area	Water Audit Data Validity Level / Score				
	Level I (0-25)	**Level II** (26-50)	**Level III** (51-70)	**Level IV** (71-90)	**Level V** (91-100)
Audit Data Collection	Launch auditing and loss control team; address production metering deficiencies	Analyze business process for customer metering and billing functions and water supply operations. Identify data gaps.	Establish/revise policies and procedures for data collection	Refine data collection practices and establish as routine business process	Annual water audit is a reliable gauge of year-to-year water efficiency standing
Short-term loss control	Research information on leak detection programs. Begin flowcharting analysis of customer billing system	Conduct loss assessment investigations on a sample portion of the system: customer meter testing, leak survey, unauthorized consumption, etc.	Establish ongoing mechanisms for customer meter accuracy testing, active leakage control and infrastructure monitoring	Refine, enhance or expand ongoing programs based upon economic justification	Stay abreast of improvements in metering, meter reading, billing, leakage management and infrastructure rehabilitation
Long-term loss control		Begin to assess long-term needs requiring large expenditure: customer meter replacement, water main replacement program, new customer billing system or Automatic Meter Reading (AMR) system.	Begin to assemble economic business case for long-term needs based upon improved data becoming available through the water audit process.	Conduct detailed planning, budgeting and launch of comprehensive improvements for metering, billing or infrastructure management	Continue incremental improvements in short-term and long-term loss control interventions
Target-setting			Establish long-term apparent and real loss reduction goals (+10 year horizon)	Establish mid-range (5 year horizon) apparent and real loss reduction goals	Evaluate and refine loss control goals on a yearly basis
Benchmarking			Preliminary Comparisons - can begin to rely upon the Infrastructure Leakage Index (ILI) for performance comparisons for real losses (see below table)	Performance Benchmarking - ILI is meaningful in comparing real loss standing	Identify Best Practices/ Best in class - the ILI is very reliable as a real loss performance indicator for best in class service

For validity scores of 50 or below, the shaded blocks should not be focus areas until better data validity is achieved.

Once data has been entered into the Reporting Worksheet, the performance indicators are automatically calculated. How does a water utility operator know how well his or her system is performing? The AWWA Water Loss Control Committee provided the following table to assist water utilities is gauging an approximate Infrastructure Leakage Index (ILI) that is appropriate for their water system and local conditions. The lower the amount of leakage and real losses that exist in the system, then the lower the ILI value will be.
Note: this table offers an approximate guideline for leakage reduction target-setting. The best means of setting such targets include performing an economic assessment of various loss control methods. However, this table is useful if such an assessment is not possible.

General Guidelines for Setting a Target ILI
(without doing a full economic analysis of leakage control options)

Target ILI Range	Financial Considerations	Operational Considerations	Water Resources Considerations
1.0 - 3.0	Water resources are costly to develop or purchase; ability to increase revenues via water rates is greatly limited because of regulation or low ratepayer affordability.	Operating with system leakage above this level would require expansion of existing infrastructure and/or additional water resources to meet the demand.	Available resources are greatly limited and are very difficult and/or environmentally unsound to develop.
>3.0 -5.0	Water resources can be developed or purchased at reasonable expense; periodic water rate increases can be feasibly imposed and are tolerated by the customer population.	Existing water supply infrastructure capability is sufficient to meet long-term demand as long as reasonable leakage management controls are in place.	Water resources are believed to be sufficient to meet long-term needs, but demand management interventions (leakage management, water conservation) are included in the long-term planning.
>5.0 - 8.0	Cost to purchase or obtain/treat water is low, as are rates charged to customers.	Superior reliability, capacity and integrity of the water supply infrastructure make it relatively immune to supply shortages.	Water resources are plentiful, reliable, and easily extracted.
Greater than 8.0	Although operational and financial considerations may allow a long-term ILI greater than 8.0, such a level of leakage is not an effective utilization of water as a resource. Setting a target level greater than 8.0 - other than as an incremental goal to a smaller long-term target - is discouraged.		
Less than 1.0	If the calculated Infrastructure Leakage Index (ILI) value for your system is 1.0 or less, two possibilities exist. a) you are maintaining your leakage at low levels in a class with the top worldwide performers in leakage control. b) A portion of your data may be flawed, causing your losses to be greatly understated. This is likely if you calculate a low ILI value but do not employ extensive leakage control practices in your operations. In such cases it is beneficial to validate the data by performing field measurements to confirm the accuracy of production and customer meters, or to identify any other potential sources of error in the data.		

AWWA WLCC Free Water Audit Software: Reporting Worksheet

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Back to Instructions

? Click to access definition

Water Audit Report for: Philadelphia Water Department
Reporting Year: 2008 | 7/2007 - 6/2008

Please enter data in the white cells below. Where available, metered values should be used; if metered values are unavailable please estimate a value. Indicate your confidence in the accuracy of the input data by grading each component (1-10) using the drop-down list to the left of the input cell. Hover the mouse over the cell to obtain a description of the grades

All volumes to be entered as: MILLION GALLONS (US) PER YEAR

WATER SUPPLIED

<< Enter grading in column 'E'

Volume from own sources:	7	94,536.900	Million gallons (US)/yr (MG/Yr)
Master meter error adjustment (enter positive value):	10	2,779.300	over-registered MG/Yr
Water imported:	n/a		MG/Yr
Water exported:	10	7,100.400	MG/Yr
WATER SUPPLIED:		84,657.200	MG/Yr

AUTHORIZED CONSUMPTION

Click here: ? for help using option buttons below

				Pcnt:	Value:
Billed metered:	7	57,242.400	MG/Yr		
Billed unmetered:	n/a		MG/Yr		
Unbilled metered:	n/a		MG/Yr		
Unbilled unmetered:	8	764.200	MG/Yr		764.200
AUTHORIZED CONSUMPTION:		58,006.600	MG/Yr		

Use buttons to select percentage of water supplied **OR** value

WATER LOSSES (Water Supplied - Authorized Consumption)

26,650.600 MG/Yr

Apparent Losses

				Pcnt:	Value:
Unauthorized consumption:	8	2,086.300	MG/Yr		2,086.300
Customer metering inaccuracies:	8	190.300	MG/Yr		190.300
Systematic data handling errors:	5	4,676.400	MG/Yr		
Apparent Losses:		6,953.000			

Choose this option to enter a percentage of billed metered consumption. This is NOT a default value

Real Losses (Current Annual Real Losses or CARL)

Real Losses = Water Losses - Apparent Losses:		19,697.600	MG/Yr
WATER LOSSES:		26,650.600	MG/Yr

NON-REVENUE WATER

NON-REVENUE WATER:		27,414.800	MG/Yr

= Total Water Loss + Unbilled Metered + Unbilled Unmetered

SYSTEM DATA

Length of mains:	9	3,137.0	miles
Number of active AND inactive service connections:	7	547,932	
Connection density:		175	conn./mile main
Average length of customer service line:	7	12.0	ft (pipe length between curbstop and customer meter or property boundary)
Average operating pressure:	10	55.0	psi

COST DATA

Total annual cost of operating water system:	10	$219,182,339	$/Year
Customer retail unit cost (applied to Apparent Losses):	9	$4.97	$/1000 gallons (US)
Variable production cost (applied to Real Losses):	9	$215.50	$/Million gallons

PERFORMANCE INDICATORS

Financial Indicators

Non-revenue water as percent by volume of Water Supplied:	32.4%
Non-revenue water as percent by cost of operating system:	17.8%
Annual cost of Apparent Losses:	$34,556,410
Annual cost of Real Losses:	$4,244,833

Operational Efficiency Indicators

Apparent Losses per service connection per day:	34.77	gallons/connection/day
Real Losses per service connection per day*:	98.49	gallons/connection/day
Real Losses per length of main per day*:	N/A	
Real Losses per service connection per day per psi pressure:	1.79	gallons/connection/day/psi
Unavoidable Annual Real Losses (UARL):	2,178.15	million gallons/year
From Above, Real Losses = Current Annual Real Losses (CARL):	19,697.60	million gallons/year
Infrastructure Leakage Index (ILI) [CARL/UARL]:	9.04	

* only the most applicable of these two indicators will be calculated

WATER AUDIT DATA VALIDITY SCORE:

***** YOUR SCORE IS: 82 out of 100 *****

A weighted scale for the components of consumption and water loss is included in the calculation of the Water Audit Data Validity Score

PRIORITY AREAS FOR ATTENTION:

Based on the information provided, audit accuracy can be improved by addressing the following components:

1: Volume from own sources
2: Billed metered
3: Systematic data handling errors

For more information, click here to see the Grading Matrix worksheet

AWWA WLCC Free Water Audit Software: Reporting Worksheet

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Back to Instructions

? Click to access definition

Water Audit Report for: Regional Municipality of Peel
Reporting Year: 2008 | 1/2008 - 12/2008

Please enter data in the white cells below. Where available, metered values should be used; if metered values are unavailable please estimate a value. Indicate your confidence in the accuracy of the input data by grading each component (1-10) using the drop-down list to the left of the input cell. Hover the mouse over the cell to obtain a description of the grades

All volumes to be entered as: MEGALITRES (THOUSAND CUBIC METRES) PER YEAR

WATER SUPPLIED

<< Enter grading in column 'E'

Volume from own sources:	?	7	213,977.000	Megalitres/yr (or ML/Yr)
Master meter error adjustment (enter positive value):	?	4	0.000	ML/Yr
Water imported:	?	n/a	0.000	ML/Yr
Water exported:	?	7	26,457.500	ML/Yr
WATER SUPPLIED:			187,519.500	ML/Yr

AUTHORIZED CONSUMPTION

Click here: ? for help using option buttons below

					Pcnt:	Value:
Billed metered:	?	7	163,665.000	ML/Yr		
Billed unmetered:	?	2	433.900	ML/Yr		
Unbilled metered:	?	8	1,768.400	ML/Yr		
Unbilled unmetered:	?	5	230.100	ML/Yr		230.100
AUTHORIZED CONSUMPTION:	?		166,097.400	ML/Yr		

Use buttons to select percentage of water supplied **OR** value

WATER LOSSES (Water Supplied - Authorized Consumption)

21,422.100 ML/Yr

Apparent Losses

					Pcnt:	Value:
Unauthorized consumption:	?	5	886.800	ML/Yr		886.800
Customer metering inaccuracies:	?	7	2,851.000	ML/Yr		2,851.000
Systematic data handling errors:	?		0.000	ML/Yr		
Apparent Losses:	?		3,737.800			

Systematic data handling errors are likely, please enter a non-zero value; otherwise grade = 5

Choose this option to enter a percentage of billed metered consumption. This is NOT a default value ?

Real Losses (Current Annual Real Losses or CARL)

Real Losses = Water Losses - Apparent Losses:	?		17,684.300	ML/Yr
WATER LOSSES:			21,422.100	ML/Yr

NON-REVENUE WATER

NON-REVENUE WATER:	?		23,420.600	ML/Yr

= Total Water Loss + Unbilled Metered + Unbilled Unmetered

SYSTEM DATA

Length of mains:	?	8	4,161.0	kilometers	
Number of active AND inactive service connections:	?	9	287,905		
Connection density:			69	conn./km main	
Average length of customer service line:	?	5	16.0	metres	(pipe length between curbstop and customer meter or property boundary)
Average operating pressure:	?	6	58.4	metres (head)	

COST DATA

Total annual cost of operating water system:	?	3	$100,000,000	$/Year
Customer retail unit cost (applied to Apparent Losses):	?	10	$0.64	$/1000 litres
Variable production cost (applied to Real Losses):	?	10	$642.00	$/Megalitre

Retail costs are less than (or equal to) production costs; please review and correct if necessary

PERFORMANCE INDICATORS

Financial Indicators

Non-revenue water as percent by volume of Water Supplied:	12.5%
Non-revenue water as percent by cost of operating system:	15.0%
Annual cost of Apparent Losses:	$2,399,668
Annual cost of Real Losses:	$11,353,321

Operational Efficiency Indicators

Apparent Losses per service connection per day:	35.57	litres/connection/day
Real Losses per service connection per day*:	168.29	litres/connection/day
Real Losses per length of main per day*:	N/A	
Real Losses per service connection per day per meter (head) pressure:	2.88	litres/connection/day/m
? Unavoidable Annual Real Losses (UARL):	8,960.91	cubic meters/year
From Above, Real Losses = Current Annual Real Losses (CARL):	17,684.30	cubic meters/year
? Infrastructure Leakage Index (ILI) [CARL/UARL]:	1.97	

* only the most applicable of these two indicators will be calculated

WATER AUDIT DATA VALIDITY SCORE:

***** YOUR SCORE IS: 66 out of 100 *****

A weighted scale for the components of consumption and water loss is included in the calculation of the Water Audit Data Validity Score

PRIORITY AREAS FOR ATTENTION:

Based on the information provided, audit accuracy can be improved by addressing the following components:

1: Volume from own sources
2: Billed unmetered
3: Total annual cost of operating water system

For more information, click here to see the Grading Matrix worksheet

AWWA WLCC Free Water Audit Software: Acknowledgements

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WAS v4.1

Back to Instructions

AWWA Water Audit Software Version 4.1 Developed by the Water Loss Control Committee of the American Water Works Association January 2010

This software is intended to serve as a basic tool to compile a preliminary, or "top-down", water audit. It is recommended that users also refer to the 3rd Edition AWWA M36 Publication, Water Audits and Loss Control Programs, for detailed guidance on compiling a comprehensive, or "bottom-up", water audit using the same water audit methodology.

DEVELOPED BY: ANDREW CHASTAIN-HOWLEY, Miya Water
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GEORGE KUNKEL, P.E. Philadelphia Water Department
ALAIN LALONDE, Veritec Consulting
DAVID SAYERS, Delaware River Basin Commission

REFERENCES:

- *Alegre, H., Hirner, W., Baptista, J. and Parena, R. Performance Indicators for Water Supply Services. IWA Publishing 'Manual of Best Practice' Series, 2000. ISBN 1 900222 272*
- *Kunkel, G. et al, 2003. Water Loss Control Committee Report: Applying Worldwide Best Management Practices in Water Loss Control. Journal AWWA, 95:8:65*
- *AWWA Water Audits and Loss Control Programs, M36 Publication, 3rd Edition, 2009*
- *Service Connection Diagrams courtesy of Ronnie McKenzie, WRP Pty Ltd.*

The fields in red are required.

Agency name:

Division name
(Reporting unit)

Reporting unit number:

Primary contact:

First name:

Last name:

Email:

Water Uses

2009

Potable Water Billed

Make sure to enter numbers in AF/Year.

Customer Type	Meter Accounts	Metered Water Delivered	Un-metered Accounts	Un-metered Water Delivered	Description

Potable Water Un-Billed

Customer Type	Meter Accounts	Metered Water Delivered	Un-metered Accounts	Un-metered Water Delivered	Description

The fields in red are required.

Agency name:

Reporting unit name (District name)

Reporting unit number:

Primary contact:

First name:

Last name:

Email:

Click here to open a table that displays your agency name reporting unit name and reporting unit number. Please ensure that you enter the correct information.

Link to FAQs

2009

BMP 2.1 Public Outreach - Retail Reporting

View MOU

Is a Wholesale Agency Performing Public Outreach?

Are there one or more wholesale agencies performing public outreach which can be counted to help your agency comply with the BMP? Yes No

Enter the name(s) of the wholesale agency (comma delimited)

Is your agency performing public outreach?

Report a minimum of 4 water conservation related contacts your agency had with the public during the year.

Public Information Programs List

Did at least one contact take place during each quarter of the reporting year?

Number of Public Contacts		Public Information Programs	

Contact with the Media

Are there one or more wholesale agencies performing media outreach which can be counted to help your agency comply with the BMP? Yes No

Enter the name(s) of the wholesale agency (comma delimited)

OR Retail Agency (Contacts with the Media)

Media Contacts List

Did at least one contact take place during each quarter of the reporting year?

Number of Media Contacts	Did at least one contact take place during each quarter of the reporting year?	Media Contact Types	

Is a Wholesale Agency Performing Website Updates?

Did one or more CUWCC wholesale agencies agree to assume your agency's responsibility for meeting the requirements of and for CUWCC reporting of this BMP? Yes No

Enter the name(s) of the wholesale agency (comma delimited)

Is Your Agency Performing Website Updates?

Enter your agency's URL (website address):

Describe a minimum of four water conservation related updates to your agency's website that took place during the year:

Did at least one Website Update take place during each quarter of the reporting year? Yes No

Public Outreach Annual Budget

Enter budget for public outreach programs. You may enter total budget in a single line or brake the budget into discrete categories by entering many rows. Please indicate if personnel costs are included in the entry.

Category	Amount		Personnel Costs Included? If yes, check the box.	Comments	

Comments:

The fields in red are required.

Agency name:

Reporting unit name (District name)

Reporting unit number:

Primary contact:

First name:

Last name:

Email:

Click here to open a table that displays your agency name reporting unit name and reporting unit number. Please ensure that you enter the correct information.

Link to FAQs

2009

BMP 2.2 School Education Programs, Retail Agencies

View MOU

School Programs

Is a wholesale agency implementing school programs which can be counted to help your agency comply with this BMP? Yes No

Enter Wholesaler Names, separated by commas:

Materials meet state education framework requirements?

Description of Materials

Materials distributed to K-6 Students?

Description of materials distributed to K-6 Students

Number of students reached

Materials distributed to 7-12 Students?

Description of materials distributed to 7-12 Students

Number of Distribution

Annual budget for school education program

Description of all other water supplier education programs

School Program Activities

Classroom presentations:

Number of presentations

Number of attendees

Large group assemblies:

Number of presentations

Number of attendees

Children's water festivals or other events:

Number of presentations

Number of attendees

Cooperative efforts with existing science/water education programs (various workshops, science fair awards or judging) and follow-up:

Number of presentations

Number of attendees

Other methods of disseminating information (i.e. themed age-appropriate classroom loaner kits):

Description

Number distributed

Staffing children's booths at events & festivals:

Number of booths

Number of attendees

Water conservation contests such as poster and photo:

Description

Number distributed

Offer monetary awards/funding or scholarships to students:

Number Offered

Total Funding

Teacher training workshops:

Number of presentations

Number of attendees

Fund and/or staff student field trips to treatment facilities, recycling facilities, water conservation gardens, etc.:

Number of tours or field trips

Number of participants

College internships in water conservation offered:

Number of internships

Total funding

Career fairs/workshops:

Number of presentations

Number of attendees

Additional program(s) supported by agency but not mentioned above:

Description

Number of events (if applicable)

Number of participants

Total reporting period budget expenditures for school education programs (include all agency costs):

Comments

The fields in red are required.

Agency name:

Reporting unit name (District name)

Reporting unit number:

Primary contact:

First name:

Last name:

Email:

You must enter the reporting unit number that we have on record for your agency. Click here to open a table to obtain this number.

Link to FAQs

2009

BMP 1.1 Operations Practices

Comments:

See the complete MOU: View MOU

See the coverage requirements for this BMP:

Conservation Coordinator

Conservation Coordinator Yes No

Contact Information

First Name

Last Name

Title

Phone

Email

Note that the contact information may be the same as the primary contact information at the top of the page. If this is your case, excuse the inconvenience but please enter the information again.

Water Waste Prevention

Water Agency shall do one or more of the following:

a. Enact and enforce an ordinance or establish terms of service that prohibit water waste
b. Enact and enforce an ordinance or establish terms of service for water efficient design in new development
c. Support legislation or regulations that prohibit water waste
d. Enact an ordinance or establish terms of service to facilitate implementation of water shortage response measures
e. Support local ordinances that prohibit water waste
f. Support local ordinances that establish permits requirements for water efficient design in new

To document this BMP, provide the following:

a. A description of, or electronic link to, any ordinances or terms of service
b. A description of, or electronic link to, any ordinances or requirements adopted by local jurisdictions or regulatory agencies with the water agency's service area.
c. A description of any water agency efforts to cooperate with other entities in the adoption or enforcement of local requirement
d. description of agency support positions with respect to adoption of legislation or regulations

You can show your documentation by providing files, links (web addresses), and/or entering a description.

File name(s): Email files to natalie@cuwcc.org

Web address(s) URL: comma-separated list

Enter a description:

The fields in red are required.

Agency name:

Reporting unit name (District name)

Reporting unit number:

Primary contact:

First name:

Last name:

Email:

You must enter the reporting unit number that we have on record for your agency. Click here to open a table to obtain this number.

Link to FAQs

2010 BMP 1.2 Water Loss Control

View MOU

AWWA Water Audit

Agency to complete a Water Audit & Balance Using The AWWA Software Yes No

Email to natalie@cuwcc.org - Worksheets (AWWA Water Audit). Enter the name of the file below:

Water Audit Validity Score from AWWA spreadsheet 74

Agency Completed Training In The AWWA Water Audit Method Yes No

Agency Completed Training In The Component Analysis Process Yes No

Completed/Updated the Component Analysis (at least every 4 years)? Yes No

Component Analysis Completed/Updated Date

Water Loss Performance

Agency Repaired All Reported Leaks & Breaks To The Extent Cost Effective Yes No

Recording Keeping Requirements:

Date/Time Leak Reported	Leak Location
Type of Leaking Pipe Segment or Fitting	Leak Running Time From Report to Repair
Leak Volume Estimate	Cost of Repair

Agency Located and Repaired Unreported Leaks to the Extent Cost Effective Yes No

Type of Program Activities Used to Detect Unreported Leaks

Annual Summary Information

Complete the following table with annual summary information (required for reporting years 2-5 only)

Total Leaks Repaired	Economic Value Of Real Loss	Economic Value Of Apparent Loss	Miles Of System Surveyed For Leaks	Pressure Reduction Undertaken for loss reduction	Cost Of Interventions	Water Saved (AF/Year)
160	$290,637.00	$66,088.00	6.3		$0.00	0.00

Comments:

Economic Value of Real Loss data field box when printed is a blacked out box.
Economic Value of Real Loss = $290,637.00

The fields in red are required.

Agency name:

Reporting unit name (District name)

Reporting unit number:

Primary contact:

First name:

Last name:

Email:

You must enter the reporting unit number that we have on record for your agency. Click here to open a table to obtain this number.

BMP 1.3 Metering with Commodity 2010

Link to FAQs

See the complete MOU: View MOU

See the coverage requirements for this BMP:

Implementation

Does your agency have any unmetered service connections?	Yes	No
If YES, has your agency completed a meter retrofit plan?	Yes	No
Enter the number of previously unmetered accounts fitted with meters during reporting year:		
Are all new service connections being metered?	Yes	No
Are all new service connections being billed volumetrically?	Yes	No
Has your agency completed and submitted electronically to the Council a written plan, policy or program to test, repair and replace meters?	Yes	No

Please Fill Out The Following Matrix

Account Type	# Metered Accounts	# Metered Accounts Read	# Metered Accounts Billed by Volume	Billing Frequency Per Year	# of estimated bills/yr

Number of CII Accounts with Mixed-use Meters

Number of CII Accounts with Mixed-use Meters Retrofitted with Dedicated Irrigation Meters during Reporting Period

Feasibility Study

Has your agency conducted a feasibility study to assess the merits of a program to provide incentives to switch mixed-use accounts to dedicated landscape meters? Yes No

If YES, please fill in the following information:

A. When was the Feasiblity Study conducted

B. Describe, upload or provide an electronic link to the Feasibility Study Upload File

File name(s): Email files to natalie@cuwcc.org

Web address(s) URL: comma-separated list

Comments:

The fields in red are required.

Agency name:

Division name
(Reporting unit)

Reporting unit number:

Primary contact:

First name:

Last name:

Email:

Water Uses

2010

Non-Potable Billed

Customer Type	Meter Accounts	Metered Water Delivered	Un-metered Accounts	Un-metered Water Delivered	Description
Dedicated Irrigation	684.00	4,073.84	0.00	0.00	Recycled water for irrigation
Other					
Other					
Other					
Other					
Other					
Other					
Other					
Other					
Other					
Other					
Other					
Other					

Non-Potable Un-Billed

Customer Type	Meter Accounts	Metered Water Delivered	Un-metered Accounts	Un-metered Water Delivered	Description
Other					
Other					
Other					
Other					
Other					
Other					
Other					
Other					
Other					
Other					
Other					
Other					
Other					

The fields in red are required.

Agency name:

Division name
(Reporting unit)

Reporting unit number:

Primary contact:

First name:

Last name:

Email:

2010

Service Area Population:

Non- Potable Water

If you select Other for type, enter

Own Supply Source Name	AF/YEAR	Water Supply Type	Water Supply Description
Ralph Chapman Recycled	1,032.50	Recycled Non Potable	Ralph Chapman Recycled
		Select a water type.	
		Select a water type.	
		Select a water type.	
		Select a water type.	
		Select a water type.	
		Select a water type.	
		Select a water type.	
		Select a water type.	
		Select a water type.	
		Select a water type.	

Imported Supply Source Name	AF/YEAR	Water Supply Type	Water Supply Description
South Bay Water Reclamation	2,869.70	Recycled Non Potable	Purchased from City of SD
		Select a water type.	
		Select a water type.	
		Select a water type.	
		Select a water type.	
		Select a water type.	
		Select a water type.	
		Select a water type.	
		Select a water type.	
		Select a water type.	
		Select a water type.	

Exported Water Name	AF/YEAR	Where Exported? such as groundwater recharge, retail,

The fields in red are required.

Agency name:

Reporting unit name (District name)

Reporting unit number:

Primary contact:

First name:

Last name:

Email:

Click here to open a table that displays your agency name reporting unit name and reporting unit number. Please ensure that you enter the correct information.

Link to FAQs

2010

BMP 2.1 Public Outreach - Retail Reporting

View MOU

Is a Wholesale Agency Performing Public Outreach?

Are there one or more wholesale agencies performing public outreach which can be counted to help your agency comply with the BMP? Yes ○ No

Enter the name(s) of the wholesale agency (comma delimited)

San Diego County Water Authority and the Metropolitan Water District of Southern California

Is your agency performing public outreach?

Report a minimum of 4 water conservation related contacts your agency had with the public during the year.

Public Information Programs List

Did at least one contact take place during each quarter of the reporting year? ☑

Number of Public Contacts		Public Information Programs	
50,000	Newsletter articles on conservation		
50,000	Newsletter articles on conservation		
50,000	Newsletter articles on conservation		
50,000	Newsletter articles on conservation		
50,000	Newsletter articles on conservation		

Contact with the Media

Are there one or more wholesale agencies performing media outreach which can be counted to help your agency comply with the BMP? Yes ● No

Enter the name(s) of the wholesale agency (comma delimited)

San Diego County Water Authority and the Metropolitan Water District of Southern California

OR Retail Agency (Contacts with the Media)

Did at least one contact take place during each quarter of the reporting year? ☐

Media Contacts List

Number of Media Contacts	Did at least one contact take place during each quarter of the reporting year?	Media Contact Types	
	News releases		
	Select a type of media contact		
	Select a type of media contact		
	Select a type of media contact		
	Select a type of media contact		
	Select a type of media contact		

Is a Wholesale Agency Performing Website Updates?

Did one or more CUWCC wholesale agencies agree to assume your agency's responsibility for meeting the requirements of and for CUWCC reporting of this BMP? Yes ○ No

Enter the name(s) of the wholesale agency (comma delimited)

Is Your Agency Performing Website Updates?

Enter your agency's URL (website address): http://www.otaywater.gov/owd

Describe a minimum of four water conservation related updates to your agency's website that took place during the year:

We made eight updates to our website this FY related to water conservation. For example, we added the WaterSense link to our water conservation home page . We also updated the available rebate amounts listed on our conservation homepage as the rebate amounts changed, were no longer funded, such as rebates for artificial turfgrass after June of 2009, or were not available.

Did at least one Website Update take place during each quarter of the reporting year? Yes ○ No

Public Outreach Annual Budget

Enter budget for public outreach programs. You may enter total budget in a single line or brake the budget into discrete categories by entering many rows. Please indicate if personnel costs are included in the entry.

Category	Amount		Personnel Costs Included? If yes, check the box.	Comments	
Public Outreach	$8,449			Pens, water drops, pencils, Sunsets, National (	
Printing	$1,210			Printing 10,000 Every Drop Counts magnets	
Printing	$2,393			Printing water conservation themed bookmarks	
Bill inserts	$6,600			3 bill inserts	
Graphic Design	$1,000			Outreach material development	

Comments:

Summer 2009 customer Pipeline was not mailed until August, but the District changed its winter sewer average message to one that promotes available rebates a

The fields in red are required.

Agency name:

Division name
(Reporting unit)

Reporting unit number:

Primary contact:

First name:

Last name:

Email:

WATER SOURCES

2010

Service Area Population: 198616 | SANDAG- using District's shape file of potable service area

Potable Water

Own Supply Source Name	AF/YEAR	Water Supply Type	Water Supply Description
		Other	
		Other	
		Other	
		Other	
		Other	
		Other	
		Other	
		Other	
		Other	
		Other	
		Other	

Imported Supply Source Name	AF/YEAR	Water Supply Type	Water Supply Description
San Diego County Water Authority	31,175.40	Surface	CWA Imported
		Other	
		Other	
		Other	
		Other	
		Other	
		Other	
		Other	
		Other	
		Other	
		Other	

Exported Water Name	AF/YEAR	Where Exported?

The fields in red are required.

Agency name:

Division name
(Reporting unit)

Reporting unit number:

Primary contact:

First name:

Last name:

Email:

Water Uses

2010

Potable Water Billed

Make sure to enter numbers in AF/Year.

Customer Type	Meter Accounts	Metered Water Delivered	Un-metered Accounts	Un-metered Water Delivered	Description
Single-Family	40,794.00	19,799.19	0.00	0.00	
Multi-Family	3,446.00	3,788.19	0.00	0.00	Includes 2,623 SF attached accounts
Commercial	1,201.00	2,177.00	0.00	0.00	
Institutional	242.00	2,272.57	0.00	0.00	
Dedicated Irrigation	1,208.00	4,923.98	0.00	0.00	recycled irr accts are not included
Agricultural	21.00	89.39	0.00	0.00	
Fire Lines	648.00	9.21	0.00	0.00	
Other	127.00	1,200.94	0.00	0.00	temporary meters
Other					
Other					
Other					
Other					
Other					

Potable Water Un-Billed

Customer Type	Meter Accounts	Metered Water Delivered	Un-metered Accounts	Un-metered Water Delivered	Description
Institutional	51.00	17.81	0.00	0.00	District metered usage
Other					
Other					
Other					
Other					
Other					
Other					
Other					
Other					
Other					
Other					
Other					
Other					

The fields in red are required.

Agency name:

Reporting unit name (District name)

Reporting unit number:

Primary contact:

First name:

Last name:

Email:

You must enter the reporting unit number that we have on record for your agency. Click here to open a table to obtain this number.

BMP 1.3 Metering with Commodity

Link to FAQs

See the complete MOU: View MOU

See the coverage requirements for this BMP:

Implementation

Does your agency have any unmetered service connections? Yes No

If YES, has your agency completed a meter retrofit plan? Yes No

Enter the number of previously unmetered accounts fitted with meters during reporting year:

Are all new service connections being metered? Yes No

Are all new service connections being billed volumetrically? Yes No

Has your agency completed and submitted electronically to the Council a written plan, policy or program to test, repair and replace meters? Yes No

Please Fill Out The Following Matrix

Account Type	# Metered Accounts	# Metered Accounts Read	# Metered Accounts Billed by Volume	Billing Frequency Per Year	# of estimated bills/yr
Single-Family	40,794	40,794	40,794	Monthly	0
Multi-Family	3,446	3,446	3,446	Monthly	0
Commericial	1,201	1,201	1,201	Monthly	0
Instiitional	242	242	242	Monthly	0
Dedicated Irrigatic	1,208	1,208	1,208	Monthly	0
Agricultural	21	21	21	Monthly	0
Fire Lines	648	648	0	Monthly	0
Other	127	127	127	Monthly	0
Other				Other	
Other				Other	

Number of CII Accounts with Mixed-use Meters 422

Number of CII Accounts with Mixed-use Meters Retrofitted with Dedicated Irrigation Meters during Reporting Period 0

Feasibility Study

Has your agency conducted a feasibility study to assess the merits of a program to provide incentives to switch mixed-use accounts to dedicated landscape meters? Yes No

If YES, please fill in the following information:

A. When was the Feasiblity Study conducted

B. Email or provide a link to the feasibility study (or description of):

File name(s): Email files to natalie@cuwcc.org Enter the file name here e.g. WaterWastePreventionOrdinance

Web address(s) URL: comma-separated list Enter the URL to your documentation.

General Comments about BMP 1.3:

The fields in red are required.

Agency name:

Reporting unit name
(District name)

Reporting unit number:

Primary contact:

First name:

Last name:

Email:

You must enter the reporting unit number that we have on record for your agency. Click here to open a table to obtain this number.

Link to FAQs

View MOU

BMP 1.4 Retail Conservation Pricing

2009

If you are reporting more rate structures than this form allows, add the structures to a spreadsheet and send the file to natalie@cuwcc.org.

Implementation (Water Rate Structure)

Enter the Water Rate Structures that are assigned to the majority of your customers, by customer class

Rate Structure	Customer Class	Total Revenue Commodity Charges	Total Revenue Customer Meter/Service (Fixed Charges)

Implementation Option (Conservation Pricing Option)

Use Annual Revenue As Reported
Use Canadian Water & Wastewater Association Rate Design Model

If CWWA is select, enter the file name and email the spreadsheet to natalie@cuwcc.org

Retail Waste Water (Sewer) Rate Structure by Customer Class

Agency Provide Sewer Service Yes No

Select the Retail Waste Water(Sewer) Rate Structure assigned to the majority of your customers within a specific customer class.

Rate Structure	Customer Class	Total Revenue Commodity Charges	Total Revenue Customer Meter/Service (Fixed Charges)

Comments:

The fields in red are required.

Agency name:

Reporting unit name (District name)

Reporting unit number:

Primary contact:

First name:

Last name:

Email:

You must enter the reporting unit number that we have on record for your agency. Click here to open a table to obtain this number.

CUWCC

2010

Link to FAQs

View MOU

BMP 1.4 Retail Conservation Pricing

If you are reporting more rate structures than this form allows, add the structures to a spreadsheet and send the file to natalie@cuwcc.org.

Implementation (Water Rate Structure)

Enter the Water Rate Structures that are assigned to the majority of your customers, by customer class

Rate Structure	Customer Class	Total Revenue Commodity Charges	Total Revenue Customer Meter/Service (Fixed Charges)
Increasing Block		19,373,444.00	9,070,942.00
Increasing Block		3,145,249.00	1,652,997.00
Increasing Block		43,732.00	21,318.00
Increasing Block		4,558,916.00	989,113.00
Increasing Block		2,106,316.00	274,380.00
Increasing Block		1,793,766.00	882,466.00
Increasing Block		1,220,432.00	378,184.00

Implementation Option (Conservation Pricing Option)

Use Annual Revenue As Reported

Use Canadian Water & Wastewater Association Rate Design Model

If CWWA is select, enter the file name and email the spreadsheet to natalie@cuwcc.org

Retail Waste Water (Sewer) Rate Structure by Customer Class

Agency Provide Sewer Service Yes No

Select the Retail Waste Water(Sewer) Rate Structure assigned to the majority of your customers within a specific customer class.

Rate Structure	Customer Class	Total Revenue Commodity Charges	Total Revenue Customer Meter/Service (Fixed Charges)
Increasing Block		1,007,300.41	539,727.30
Increasing Block		124,008.00	162,792.00
Increasing Block		320,800.00	
Select a Rate Struc			
Select a Rate Struc			
Select a Rate Struc			
Select a Rate Struc			

Comments:

The fields in red are required.

Agency name:

Reporting unit name (District name)

Reporting unit number:

Primary contact:

First name:

Last name:

Email:

You must enter the reporting unit number that we have on record for your agency. Click here to open a table to obtain this number.

Link to FAQs

2010

BMP 1.1 Operations Practices

Comments:

See the complete MOU: View MOU

See the coverage requirements for this BMP:

Conservation Coordinator

Conservation Coordinator Yes No

Contact Information

First Name	William
Last Name	Granger
Title	Water Conservation Manager
Phone	619-670-2290
Email	wgranger@otaywater.gov

Note that the contact information may be the same as the primary contact information at the top of the page. If this is your case, excuse the inconvenience but please enter the information again.

Water Waste Prevention

Water Agency shall do one or more of the following:

a. Enact and enforce an ordinance or establish terms of service that prohibit water waste
b. Enact and enforce an ordinance or establish terms of service for water efficient design in new development
c. Support legislation or regulations that prohibit water waste
d. Enact an ordinance or establish terms of service to facilitate implementation of water shortage response measures
e. Support local ordinances that prohibit water waste
f. Support local ordinances that establish permits requirements for water efficient design in new

To document this BMP, provide the following:

a. A description of, or electronic link to, any ordinances or terms of service
b. A description of, or electronic link to, any ordinances or requirements adopted by local jurisdictions or regulatory agencies with the water agency's service area.
c. A description of any water agency efforts to cooperate with other entities in the adoption or enforcement of local requirement
d. description of agency support positions with respect to adoption of legislation or regulations

You can show your documentation by providing files, links (web addresses), and/or entering a description.

File name(s): Email files to natalie@cuwcc.org

Web address(s) URL: comma-separated list

http://www.otaywater.gov/owd/pages/board/codeOrdinance.aspx

Enter a description:

Our Water waste prohibitions are found within Section 39 of our Code of Ordinances.Fines for violations of Section 39 are found in Section 72.

The fields in red are required.

Agency name: Otay Water District

Reporting unit name (District name): Otay Water District

Reporting unit number: 179

Primary contact:

First name: William

Last name: Granger

Email: wgranger@otaywater.gov

Click here to open a table that displays your agency n reporting unit name an reporting unit number. Please ensure that you enter the correct information.

Submit Form

Link to FAQs

2010

BMP 2.2 School Education Programs, Retail Agencies

View MOU

School Programs

Is a wholesale agency implementing school programs which can be counted to help your agency comply with this BMP? Yes ○ No

Enter Wholesaler Names, separated by commas: San Diego County Water Authority, Metropolitan Water District

☐ Materials meet state education framework requirements?

Description of Materials: The SD County Water Authority offers workshops, curriculum, assemblies, classroom presentations, mini-grants, and other special programs and materials for grades K-12.

The materials are typically distributed to the teachers, not the students.

☐ Materials distributed to K-6 Students?

Description of materials distributed to K-6 Students: See the San Diego County Water Authority's report. They no longer report activity by retailer.

Number of students reached:

☐ Materials distributed to 7-12 Students?

Description of materials distributed to 7-12 Students: See the San Diego County Water Authority's report. Information is found on their website: www.sdcwa.org/teachers

Number of Distribution:

Annual budget for school education program:

Description of all other water supplier education programs: The District funds school tours to the Water Conservation Garden and regularly funds 30 tours a year. Also, since FY 2009, the District has contracted with Garden staff to conduct these tours, plus we co-fund Splash Labs, which are on-site field trips. We also maintain our lending library and have both a poster and photo contest as well as resources on our website.

School Program Activities

Classroom presentations:

Number of presentations: 0 Number of attendees: 0

Large group assemblies:

Number of presentations: 0 Number of attendees: 0

Children's water festivals or other events:

Number of presentations: 6 Number of attendees: 1800

Cooperative efforts with existing science/water education programs (various workshops, science fair awards or judging) and follow-up:

Number of presentations: 0 Number of attendees: 0

Other methods of disseminating information (i.e. themed age-appropriate classroom loaner kits):

Description: Water Cycle kits as well as water pollution kits are made available to schools within our service area

Number distributed: 2

Staffing children's booths at events & festivals:

Number of booths: 6 | Number of attendees: 4250

Water conservation contests such as poster and photo:

Description: The District has participated in a photo contest in partnership with Helix Water District and Sweetwater Authority since 2008. We have also run a poster contest since the mid 1990s when we hired staff to run our school education program.

Number distributed: 500

Offer monetary awards/funding or scholarships to students:

Number Offered: 12 | Total Funding: $1500

Teacher training workshops:

Number of presentations: 1 | Number of attendees: 15

Fund and/or staff student field trips to treatment facilities, recycling facilities, water conservation gardens, etc.:

Number of tours or field trips: 28 | Number of participants: 1431

College internships in water conservation offered:

Number of internships: 0 | Total funding: 0

Career fairs/workshops:

Number of presentations: 0 | Number of attendees: 0

Additional program(s) supported by agency but not mentioned above:

Description:

Number of events (if applicable): | Number of participants:

Total reporting period budget expenditures for school education programs (include all agency costs): $24815.80

Comments

California Urban Water Conservation Council

TARGETS / COMPLIANCE
(CUWCC MOU)

Baseline / Initial GPCD
(Use option buttons to select)

GPCD in 2006 ○	197.3
Baseline GPCD (1997 to 2006) ◉	186.4
GPCD in 2010	140.1
GPCD Target for 2018	152.9

Potable Water GPCD for each Year in the Baseline Period

Year	GPCD
2006	197.3
2005	185.0
2004	201.0
2003	186.3
2002	203.7
2001	187.0
2000	197.3
1999	172.7
1998	159.9
1997	174.0

Biennial GPCD Compliance Table

Year	Report	Target		Highest Acceptable Bound	
		% Base	GPCD	% Base	GPCD
2010	1	96.4%	179.7	100%	186.4
2012	2	92.8%	173.0	96.4%	179.7
2014	3	89.2%	166.3	92.8%	173.0
2016	4	85.6%	159.6	89.2%	166.3
2018	5	82.0%	152.9	82.0%	152.9

Monthly GPCD Data for Weather Normalization

Fiscal Year Ending	JUL	AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN
2010	188.7	194.8	181.7	163.2	145.3	98.4	102.8	75.7	102.8	107.6	154.0	166.5
Baseline avg*	253.5	256.4	226.4	201.1	152.9	137.8	132.7	115.5	134.8	168.5	220.2	237.2

* The average for each month is based on the baseline period 1997 to 2006

CUWCC BMP RETAIL COVERAGE REPORT 2009-2010

Foundation Best Management Practices for Urban Water Efficiency

Agency: Otay Water District **District Name:** Otay Water District **CUWCC Unit #:** 179
Retail

Primary Contact William Granger **Telephone** 619-670-2290 **Email:** wgranger@otaywater.gov

Compliance Option Chosen By Reporting Agency:
(Traditional, Flex Track or GPCD)
GPCD if used:

GPCD in 2010	**140**
GPCD Target for 2018	153

Year	Report	Target		Highest Acceptable Bound	
		% Base	GPCD	% Base	GPCD
2010	1	96.4%	180	100%	186
2012	2	92.8%	173	96%	180
2014	3	89.2%	166	93%	173
2016	4	85.6%	160	89%	166
2018	5	82.0%	153	82%	153

Reporting Period: Fiscal

Not on Track if 2010 GPCD is > than target

GPCD in 2010	140
Highest Acceptable GPCD for 2010	186

On Track

Agency: Otay Water District **District Name:** Otay Water District **CUWCC Unit #:** 179
Retail

CUWCC BMP RETAIL COVERAGE REPORT 2009-2010

Foundation Best Management Practices for Urban Water Efficiency

BMP 1.1 Operational Practices

		2009	2010
1.Conservation Coordinator	Name	William Granger	William Granger
	Title	Water Conservation Manager	Water Conservation Manager
	Email		wgranger@otaywat
		On Track	On Track
2. Water waste prevention documentation			
	Descriptive File	0	0
	URL	Our Water waste prohibitions are found within Section 39 of our Code of Ordinances.Fines for violations of Section 39 are found in Section 72.	http://www.otaywater.gov/owd/pages/board/codeOrdinance.aspx
	Description	Our Water waste prohibitions are found within Section 39 of our Code of Ordinances.Fines for violations of Section 39 are found in Section 72.	Our Water waste prohibitions are found within Section 39 of our Code of Ordinances.Fines for violations of Section 39 are found in Section 72.
		On Track	On Track

Agency: Otay Water District **District Name:** Otay Water District **CUWCC Unit #:** 179
Retail

CUWCC BMP RETAIL COVERAGE REPORT 2009-2010

Foundation Best Management Practices for Urban Water Efficiency

BMP 1.2 Water Loss Control

	2009		
Complete a prescreening Audit	yes	On Track	On Track if Yes
Metered Sales	33,848		
Verifiable Other Uses	300		
Total Supply	34,971		
(Metered Sales + System uses)/ Total Supply >0.89	0.98	On Track	On Track if =>.89, Not on Track if No
If ratio is less than 0.9, complete a full scale Audit in 2009?	Yes	On Track	On Track if Yes
Verify Data with Records on File?	yes	On Track	On Track if Yes
Operate a system Leak Detection Program?	Yes	On Track	On Track if Yes

	2010		
Compile Standard Water Audit using AWWA Software?	Yes	On Track	On Track if Yes, Not on Track if No
AWWA file provided to CUWCC?	yes	On Track	On Track if Yes, Not on Track if No
AWWA Water Audit Validity Score?	74		Info only until 2012
Completed Training in AWWA Audit Method?	yes		Info only until 2012
Completed Training in Component Analysis Process?	Yes		
Complete Component Analysis?	No		Info only until 2012
Repaired all leaks and breaks to the extent cost effective?	Yes	On Track	On Track if Yes, Not on Track if No
Locate and repair unreported leaks to the extent cost effective.	yes	On Track	On Track if Yes, Not on Track if No
Maintain a record-keeping system for the repair of reported leaks, including time of report, leak location, type of leaking pipe segment or fitting, and leak running time from report to repair.			Info only until 2012

Provided 7 types of Water Loss Control Info

Info only until 2012

Leaks Repaired	Value Real Losses	Value Apparent Losses	Miles Surveyed	Press Reduction	Cost of Interventions	Water Saved
114	$ 1,480,928	$ 68,698	10.3	Off	$ 26,000	11.3

Agency: Otay Water District **District Name:** Otay Water District **CUWCC Unit #:** 179
Retail

CUWCC BMP RETAIL COVERAGE REPORT 2009-2010

Foundation Best Management Practices for Urban Water Efficiency

1.3 METERING WITH COMMODITY RATES FOR ALL NEW CONNECTIONS AND RETROFIT OF EXISTING CONNECTIONS

If signed MOU prior to 31 Dec 1997, On Track if all connections metered; If signed after 31 Dec 1997, complete meter installations by 1 July 2012 or within 6 yrs of signing and 20% biannual reduction of unmetered connections.

	2009		2010		
Exemption or 'At least as Effective As' accepted by CUWCC					
Numbered Unmetered Accounts 2008	0	On Track	0	On Track	On Track if no unmetered accounts
Metered Accounts billed by volume of use	Yes	On Track	Yes	On Track	Volumetric billing required for all connections on same schedule as metering
Number of CII accounts with Mixed Use meters	422		422		Info only
Conducted a feasibility study to assess merits of a program to provide incentives to switch mixed-use accounts to dedicated landscape meters?	No		No		Info Only
Feasibility Study provided to CUWCC?	Yes	On Track	No	On Track	On Track if Yes, Not on Track if No
Completed a written plan, policy or program to test, repair and replace meters	Yes	On Track	Yes	On Track	On Track if Yes, Not on Track if No

CUWCC BMP RETAIL COVERAGE REPORT 2009-2010

Foundation Best Management Practices for Urban Water Efficiency

Agency: Otay Water District **District Name:** Otay Water District **CUWCC Unit #:** 179
Retail

Primary Contact William Granger **Email:** wgranger@otaywater.gov

1.4 Retail Conservation Pricing

Metered Water Rate Structure

On Track if: Increasing Block, Uniform, Allocation, Standby Service; Not on Track if otherwise

Customer Class	2009 Rate Type	Conserving Rate?	Customer Class	2010 Rate Type	Conserving Rate?
Single-Family	Increasing Block	Yes	Single-Family	Increasing Block	Yes
Multi-Family	Increasing Block	Yes	Agricultural	Increasing Block	Yes
Agricultural	Increasing Block	Yes	Dedicated Irrigation	Increasing Block	Yes
Dedicated Irrigation	Increasing Block	Yes	Institutional	Increasing Block	Yes
Institutional	Increasing Block	Yes	Commercial	Increasing Block	Yes
	On Track			On Track	

Year Volumetric Rates began for Agencies with some Unmetered Accounts

Info only

Agencies with Partially Metered Service Areas: If signed MOU prior to 31 Dec. 1997, implementation starts no later than 1July 2010. If signed MOU after 31 Dec. 1997, implementation starts no later than 1July 2013, or within seven years of signing the MOU,

Agency: Otay Water District
Retail

District Name: Otay Water District

CUWCC Unit #: 179

CUWCC BMP RETAIL COVERAGE REPORT 2009-2010

Foundation Best Management Practices for Urban Water Efficiency

Adequacy of Volumetric Rates) for Agencies with No Unmetered Accounts

Customer Class	2009 Rate Type	2009 Volumetric Revenues $1000s	2010 Rate Type	2010 Volumetric Revenues $1000s
Single-Family	Increasing Block	$ 19,373	Single-Family	$ 19,537
Multi-Family		$ 3,145		$ 74
Agricultural		$ 44		$ 5,044
Dedicated Irrigation		$ 4,559		$ 1,849
Institutional		$ 2,106		$ 2,227
Commercial		$ 1,794		$ 3,618
Other		$ 1,220		$ 683
Total Revenue Commodity Charges (V):		$ 32,242		$ 33,031
Total Revenue Fixed Charges (M):		$ 12,995		$ 15,703
Calculate: V / (V + M):		71%		68%
		On Track		On Track

Canadian Water & Wastewater Rate Design Model Used and Provided to CUWCC: 2009 **No**; 2010 **No**

If Canadian Model is used, was 1 year or 3 year period applied?

Agency Choices for rates:

A) Agencies signing MOU prior to 13 June2007, implementation starts 1 July2007: On Track if (V / (V + M) ≥ 70% x .8 = **56% for 2009** and 70%x0.90 = **63% for 2010**; Not on track if (V / (V + M)) < 70%;

B) Use Canadian model.

Agencies signing MOU after 13June2007, implementation starts July 1 of year following signing.

Agency: Otay Water District
Retail

District Name: Otay Water District

CUWCC Unit #: 179

CUWCC BMP RETAIL COVERAGE REPORT 2009-2010

Foundation Best Management Practices for Urban Water Efficiency

Wastewater Rates

	2009		2010
Does Agency Provide Sewer Service?	yes	If 'No', then wastewater rate info not required.	Yes

Customer Class	2009 Rate Type	Conserving Rate?	Customer Class	2010 Rate Type	Conserving Rate?
Single-Family	Increasing Block	Yes	Single-Family	Increasing Block	Yes
Multi-Family	Increasing Block	Yes			
Commercial	Increasing Block	Yes			
Other	Select a Rate Structure	Yes			
Other	Select a Rate Structure	yes			
		On Track			On Track

On Track if: 'Increasing Block', 'Uniform', 'based on long term marginal cost' or 'next unit of capacity'

CUWCC BMP RETAIL COVERAGE REPORT 2009-2010

Foundation Best Management Practices for Urban Water Efficiency

Agency: Otay Water District **District Name:** Otay Water District **CUWCC Unit #:** 179

Coverage Report Date: May 19, 2011

Primary Contact William Granger **Telephone** #N/A **Email:** wgranger@otaywater.gov

BMP 2. EDUCATION PROGRAMS

BMP 2.1 Public Outreach Actions Implemented and Reported to CUWCC

	2009	2010
1) Contacts with the public (minimum = 4 times per year)	50,000	50,000
2) Water supplier contacts with media (minimum = 4 times per year, i.e., at least quarterly).	4	4
3) An actively maintained website that is updated regularly (minimum = 4 times per year, i.e., at least quarterly).	Yes	yes
4) Description of materials used to meet minimum requirement.	Newsletter articles on conservation Newsletter articles on conservation Newsletter articles on conservation Newsletter articles on conservation News releases Select a type of media contact Select a type of media contact Select a type of media contact	Newsletter articles on conservation Newsletter articles on conservation Newsletter articles on conservation Newsletter articles on conservation Select a type of media contact Select a type of media contact Select a type of media contact Select a type of media contact
5) Annual budget for public outreach program.	$ 8,449	$ 8,000
6) Description of all other outreach programs	0	outreach event give aways, Sunsets, landscape contest prize, etc.
	OnTrackfor 5 Actions	OnTrack for 5 Actions

All 6 action types implemented and reported to CUWCC to be 'On Track')

Agency: Otay Water District **District Name:** Otay Water District **CUWCC Unit #:** 179

Coverage Report Date: May 19, 2011

CUWCC BMP RETAIL COVERAGE REPORT 2009-2010

Foundation Best Management Practices for Urban Water Efficiency

2.2 School Education Programs Implemented and Reported to CUWCC

	2009	2010	
Does a wholesale agency implement School Education Programs for this unility's benefit?	Yes	Yes	
Name of Wholesale Supplier?	San Diego County Water Authority, Metropolitan Water District	San Diego County Water Authority, Metropolitan Water District of	
1) Curriculum materials developed and/or provided by agency	The SD County Water Authority offers workshops, curriculum, assemblies, classroom presentations, mini-grants, and other special programs and materials for grades K-12. The materials are typically distributed to the teachers, not the students.	Project WET	Yes/ No
2) Materials meet state education framework requirements and are grade-level appropriate?	Yes	Yes	All 5 actions types implemented and reported to CUWCC to be 'On Track'
3) Materials Distributed to K-6?	yes	Yes	
Describe K-6 Materials	See the San Diego County Water Authority's report. They no longer report activity by retailer.	See above as well as the Water Authority's report	Describe materials to meet minimum requirements
Materials distributed to 7-12 students?	No	No	Info Only
4) Annual budget for school education program.	$ 4,300	$ -	
5) Description of all other water supplier education programs			0
	See Wholesale Report 0 **On Track**	**See Wholesale Report** 1 **On Track**	

Accounts and Water Use

Reporting Unit:	BMP Form Status:	Year:
Otay Water District	**100% Complete**	**2008**

Reporting Year: **Fiscal** Month Ending: **June**

A. Service Area Population Information:

1. Total service area population	191,500

B. Number of Accounts and Water Deliveries (AF)

Type	Metered		Unmetered	
	Number of Accounts	Water Deliveries (AF)	Number of Accounts	Water Deliveries (AF)
1. Single-family	40,698	21,002.12	0	0
2. Multi-family	3,432	3,835.14	0	0
3. Commercial	1,185	2,144.07	0	0
4. Industrial	0	0	0	0
5. Institutional	231	2,124.12	0	0
6. Dedicated Irrigation	1,187	5,149.25	0	0
7. Recycled	626	4,593.58	0	0
8. Other	860	1,723.51	0	0
9. Unaccounted	—	2,407.31	—	0
TOTAL	**48,219**	**42,979.1**	**0**	**0**
	TOTAL METERED		**TOTAL UNMETERED**	

Accounts and Water Use

Reporting Unit:	BMP Form Status:	Year:
Otay Water District	**100% Complete**	**2007**

Reporting Year: **Fiscal** Month Ending: **June**

A. Service Area Population Information:

1. Total service area population	192,000

B. Number of Accounts and Water Deliveries (AF)

Type	Metered		Unmetered	
	Number of Accounts	Water Deliveries (AF)	Number of Accounts	Water Deliveries (AF)
1. Single-family	40,637	21,789.46	0	0
2. Multi-family	3,433	3,751.04	0	0
3. Commercial	1,147	2,069.82	0	0
4. Industrial	0	0	0	0
5. Institutional	233	2,259.85	0	0
6. Dedicated Irrigation	1,752	9,633.36	0	0
7. Recycled	0	0	0	0
8. Other	846	2,035.6	0	0
9. Unaccounted	—	1,851.67	—	0
TOTAL	**48,048**	**43,390.8**	**0**	**0**
	TOTAL METERED		**TOTAL UNMETERED**	

Accounts and Water Use

Reporting Unit:	BMP Form Status:	Year:
Otay Water District	**100% Complete**	**2006**

Reporting Year: **Fiscal** Month Ending: **June**

A. Service Area Population Information:

1. Total service area population	190,000

B. Number of Accounts and Water Deliveries (AF)

Type	Metered		Unmetered	
	Number of Accounts	Water Deliveries (AF)	Number of Accounts	Water Deliveries (AF)
1. Single-family	42,742	20,841.88	0	0
2. Multi-family	765	2,844.65	0	0
3. Commercial	1,141	2,069.73	0	0
4. Industrial	0	0	0	0
5. Institutional	231	2,017.75	0	0
6. Dedicated Irrigation	1,692	9,018.47	0	0
7. Recycled	0	0	0	0
8. Other	838	1,335.33	0	0
9. Unaccounted	—	4,201.69	—	0
TOTAL	**47,409**	**42,329.5**	**0**	**0**
	TOTAL METERED		**TOTAL UNMETERED**	

Accounts and Water Use

Reporting Unit:	BMP Form Status:	Year:
Otay Water District	**100% Complete**	**2005**

Reporting Year: **Fiscal** Month Ending: **June**

A. Service Area Population Information:

1. Total service area population	186,000

B. Number of Accounts and Water Deliveries (AF)

Type	Metered		Unmetered	
	Number of Accounts	Water Deliveries (AF)	Number of Accounts	Water Deliveries (AF)
1. Single-family	42,033	19,808.02	0	0
2. Multi-family	758	2,727.01	0	0
3. Commercial	1,092	2,055	0	0
4. Industrial	0	0	0	0
5. Institutional	225	2,131.25	0	0
6. Dedicated Irrigation	1,613	8,262.8	0	0
7. Recycled	0	0	0	0
8. Other	804	3,165.55	0	0
9. Unaccounted	—	678.77	—	0
TOTAL	**46,525**	**38,828.4**	**0**	**0**
	TOTAL METERED		**TOTAL UNMETERED**	

Accounts and Water Use

Reporting Unit:	BMP Form Status:	Year:
Otay Water District	**100% Complete**	**2004**

Reporting Year: **Fiscal** Month Ending: **June**

A. Service Area Population Information:

1. Total service area population 170,000

B. Number of Accounts and Water Deliveries (AF)

Type	Metered		Unmetered	
	Number of Accounts	Water Deliveries (AF)	Number of Accounts	Water Deliveries (AF)
1. Single-family	40,759	20,113.29	0	0
2. Multi-family	745	2,931.27	0	0
3. Commercial	990	1,569.9	0	0
4. Industrial	0	0	0	0
5. Institutional	1,422	2,143.06	0	0
6. Dedicated Irrigation	1,450	8,624.82	0	0
7. Recycled	0	0	0	0
8. Other	787	2,298.03	0	0
9. Unaccounted	—	2,542.7	—	0
TOTAL	**46,153**	**40,223.07**	**0**	**0**
	TOTAL METERED		**TOTAL UNMETERED**	

Accounts and Water Use

Reporting Unit:	BMP Form Status:	Year:
Otay Water District	**100% Complete**	**2003**

Reporting Year: **Fiscal** Month Ending: **June**

A. Service Area Population Information:

1. Total service area population	161,000

B. Number of Accounts and Water Deliveries (AF)

Type	Metered		Unmetered	
	Number of Accounts	Water Deliveries (AF)	Number of Accounts	Water Deliveries (AF)
1. Single-family	38,731	18,286.18	0	0
2. Multi-family	728	2,337.11	0	0
3. Commercial	931	1,509.15	0	0
4. Industrial	0	0	0	0
5. Institutional	255	2,091.24	0	0
6. Dedicated Irrigation	1,293	7,432.51	0	0
7. Recycled	0	0	0	0
8. Other	812	2,272.0054	0	0
9. Unaccounted	—	1,725	—	0
TOTAL	**42,750**	**?**	**0**	**0**
	TOTAL METERED		**TOTAL UNMETERED**	

Accounts and Water Use

Reporting Unit:	BMP Form Status:	Year:
Otay Water District	**97% Complete**	**2002**

Reporting Year: Month Ending:

A. Service Area Population Information:

1. Total service area population	153,000

B. Number of Accounts and Water Deliveries (AF)

Type	Metered		Unmetered	
	Number of Accounts	Water Deliveries (AF)	Number of Accounts	Water Deliveries (AF)
1. Single-family	36,838	17,848.5	0	0
2. Multi-family	721	2,200.6	0	0
3. Commercial	912	1,632.85	0	0
4. Industrial	0	0	0	0
5. Institutional	218	2,076.4	0	0
6. Dedicated Irrigation	1,202	7,800.11	0	0
7. Recycled	0	0	0	0
8. Other	734	2,740.15	0	0
9. Unaccounted	—	2,362.64	—	0
TOTAL	**40,625**	**36,661.25**	**0**	**0**
	TOTAL METERED		**TOTAL UNMETERED**	

Accounts and Water Use

Reporting Unit:	BMP Form Status:	Year:
Otay Water District	**97% Complete**	**2001**

Reporting Year: Month Ending:

A. Service Area Population Information:

1. Total service area population 144,000

B. Number of Accounts and Water Deliveries (AF)

Type	Metered		Unmetered	
	Number of Accounts	Water Deliveries (AF)	Number of Accounts	Water Deliveries (AF)
1. Single-family	34,706	15,337.1	0	0
2. Multi-family	707	2,061.13	0	0
3. Commercial	879	1,575.38	0	0
4. Industrial	0	0	0	0
5. Institutional	232	1,972.02	0	0
6. Dedicated Irrigation	1,129	6,511.47	0	0
7. Recycled	0	0	0	0
8. Other	659	2,285.6	0	0
9. Unaccounted	—	1,220.85	—	0
TOTAL	**38,312**	**30,963.55**	**0**	**0**
	TOTAL METERED		**TOTAL UNMETERED**	

Accounts and Water Use

Reporting Unit:	BMP Form Status:	Year:
Otay Water District	**86% Complete**	**2000**

Reporting Year: Month Ending:

A. Service Area Population Information:

1. Total service area population	135,000

B. Number of Accounts and Water Deliveries (AF)

Type	Metered		Unmetered	
	Number of Accounts	Water Deliveries (AF)	Number of Accounts	Water Deliveries (AF)
1. Single-family	32,448	15,331	0	0
2. Multi-family	695	1,986	0	0
3. Commercial	890	1,983	0	0
4. Industrial	0	0	0	0
5. Institutional	190	2,088	0	0
6. Dedicated Irrigation	1,100	6,418	0	0
7. Recycled				
8. Other	547	1,072	0	0
9. Unaccounted	—	0	—	0
TOTAL	**35,870**	**28,878**	**0**	**0**
	TOTAL METERED		**TOTAL UNMETERED**	

Accounts and Water Use

Reporting Unit:	BMP Form Status:	Year:
Otay Water District	**86% Complete**	**1999**

Reporting Year: Month Ending:

A. Service Area Population Information:

1. Total service area population 118,000

B. Number of Accounts and Water Deliveries (AF)

Type	Metered		Unmetered	
	Number of Accounts	Water Deliveries (AF)	Number of Accounts	Water Deliveries (AF)
1. Single-family	30,298	13,263	0	0
2. Multi-family	681	1,891	0	0
3. Commercial	843	1,677	0	0
4. Industrial	0	0	0	0
5. Institutional	177	1,912	0	0
6. Dedicated Irrigation	1,052	4,944	0	0
7. Recycled				
8. Other	457	956	0	0
9. Unaccounted	—	0	—	0
TOTAL	**33,508**	**24,643**	**0**	**0**
	TOTAL METERED		**TOTAL UNMETERED**	

Input Form

Reporting Unit Base Year Data

ONE-TIME Entry Form

Reporting Unit ID: 179

Reporting Unit Name: Otay Water District

Related RU name Otay Water

Rep Unit Category: Retail Only

Date MOU Signed: 9/4/1991

INSTRUCTIONS: The data provided on this form is used for determing coverage requirements for certain BMPs as indicated below. Please start by entering your BASE YEAR and provide data for all the fields indicated on this form. If some of the data requested is not available, make reasonable estimates. You can update and edit values, if more precise information becomes available in the future.

Base Year Used: 1997

BMP 1

2. Number of single-family customers in 1997	27,776
3. Number of multi-family units in the base year	7,204

BMPs 2 and 14

4. Number of single-family customers prior to 1992	23,625
5. Number of multi-family units prior to 1992	6,236

BMP 4

6. Number of unmetered accounts in base year	0

BMPs 5 and 9

7. Number of commercial accounts in the base year	1,153
8. Number of industrial accounts in the base year	0
9. Number of institutional accounts in the base year	178
10. Number of mixed use meters in the base year	422
11. Total water use of commercial, industrial and institutional accounts in 1989 (AF)	3,920

BMP 14

12. Average number of toilets per single-family household	1.7
13. Average number of toilets per multi-family household	1.3
14. Five-year average resale rate of single-family households	4
15. Five-year average resale rate of multi-family households	4
16. Average persons per single-family household	3.4
17. Average persons per multi-family household	2.68

Approval Submitted to CUWCC

Approval_Date 10/31/2000

whichform baseyear

Modified: 1/11/99

Input Form

Reporting Unit Base Year Data

userRecID	33035
reporting_period_year	
year	
missing_fields	
percent_complete	100.0
CUWCC_feedback	
baseyearapproval	**Submitted to CUWCC**

BMP 1 Coverage Requirement Status

Reporting Unit ID 179

Rep Unit Name: Otay Water District

Date MOU Signed: 9/4/1991

Reporting Period: 05-06

Rep Unit Category: Retail Only

RU indicated "At least as effective as" implementation during report period: No

RU filed an exemption for this BMP during report period: No exemption request filed

If exemption filed, type:

Exhibit 1 Coverage Requirement

An agency must meet three conditions to satisfy strict compliance for BMP 1.

Condition 1: Adopt survey targeting and marketing strategy on time
Condition 2: Offer surveys to 20% of SF accounts and 20% of MF units during report period
Condition 3: Be on track to survey 15% of SF accounts and 15% of MF units within 10 years of implementation start date.

Test For Condition 1

Latest Year RU to Implement Targeting/Marketing Program: 1999

	Single Family	Multi Family
Year RU Reported Implementing Targeting/Marketing Program:	1995	1995
RU Met Targeting/Marketing Coverage Requirement:	Yes	Yes

Test For Condition 2

Latest Year Survey Program to Start: 1998

Select a Reporting Period: 05-06

	Single Family	Multi Family
Res Survey Offers (%)	0.04%	0.00%
Survey Offers 20%	No	No

Test For Condition 3

	Completed Residential Surveys	
	Single Family	Multi Family
Total Completed Surveys through 2006	446	0
Credit for Surveys Completed Prior to Implementation of Reporting Database	626	28
Total + Credit	1,072	28
Res. Accounts in Base Year	27,776	7,204
RU Survey Coverage as % of Base Year Res Accounts	3.86%	0.39%
Coverage Requirement by Year 8 of Implementation per Exhibit 1	9.60%	9.60%
RU on Schedule to Meet 10 Year Coverage Requirement	No	No

BMP 1 Coverage Status Summary

Water supplier is not currently on track to meet the coverage requirements for this BMP.

BMP 1 Coverage Requirement Status

Reporting Unit ID 179

Rep Unit Name: Otay Water District

Date MOU Signed: 9/4/1991

Reporting Period: 07-08

Rep Unit Category: Retail Only

RU indicated "At least as effective as" implementation during report period: Yes

RU filed an exemption for this BMP during report period: No exemption request filed

If exemption filed, type:

Exhibit 1 Coverage Requirement

An agency must meet three conditions to satisfy strict compliance for BMP 1.

Condition 1: Adopt survey targeting and marketing strategy on time
Condition 2: Offer surveys to 20% of SF accounts and 20% of MF units during report period
Condition 3: Be on track to survey 15% of SF accounts and 15% of MF units within 10 years of implementation start date.

Test For Condition 1

Latest Year RU to Implement Targeting/Marketing Program: 1999

	Single Family	Multi Family
Year RU Reported Implementing Targeting/Marketing Program:	1995	1995
RU Met Targeting/Marketing Coverage Requirement:	Yes	Yes

Test For Condition 2

			Single Family	Multi Family
Latest Year Survey Program to Start:	1998	**Res Survey Offers (%)**	9.54%	4.18%
Select a Reporting Period:	07-08	**Survey Offers 20%**	No	No

Test For Condition 3

	Completed Residential Surveys	
	Single Family	Multi Family
Total Completed Surveys through 2008	584	1
Credit for Surveys Completed Prior to Implementation of Reporting Database	626	28
Total + Credit	1,210	29
Res. Accounts in Base Year	27,776	7,204
RU Survey Coverage as % of Base Year Res Accounts	4.36%	0.40%
Coverage Requirement by Year 10 of Implementation per Exhibit 1	13.50%	13.50%
RU on Schedule to Meet 10 Year Coverage Requirement	No	No

BMP 1 Coverage Status Summary

Water supplier has selected an "At Least As Effective As" option for this BMP.

BMP 2 Coverage Requirement Status

Reporting Unit ID 179

Rep Unit Name: Otay Water District

Date MOU Signed: 9/4/1991

Reporting Period: 05-06

Rep Unit Category: Retail Only

RU indicated "At least as effective as" implementation during report period: No

RU filed an exemption for this BMP during report period: No exemption request filed

If exemption filed, type:

Exhibit 1 Coverage Requirement

An agency must meet **one** of three conditions to satisfy strict compliance for BMP 2.

Condition 1: The agency has demonstrated that 75% of SF accounts and 75% of MF units constructed prior to 1992 are fitted with low-flow showerheads.

Condition 2: An enforceable ordinance requiring the replacement of high-flow showerheads and other water use fixtures with their low-flow counterparts is in place for the agency's service area.

Condition 3: The agency has distributed or directly installed low-flow showerheads and other low-flow plumbing devices to not less than 10% of single-family accounts and 10% of multi-family units constructed prior to 1992 during the reporting period.

Test For Condition 1

		Single Family		Multi Family	
Report Year	Report Period	Reported Saturation	Saturation 75%?	Reported Saturation	Saturation 75%?
1999	99-00	75	Yes	75	Yes
2000	99-00	75	Yes	75	Yes
2001	01-02	75	Yes	75	Yes
2002	01-02	75	Yes	75	Yes
2003	03-04	75	Yes	75	Yes
2004	03-04	75	Yes	75	Yes
2005	05-06	75	Yes	75	Yes
2006	05-06	75	Yes	75	Yes
2007	07-08	75	Yes	75	Yes
2008	07-08	75	Yes	75	Yes

BMP 2 Coverage Requirement Status

Test For Condition 2

Report Year	Report Period	RU has ordinance requiring showerhead retrofit?
1999	99-00	No
2000	99-00	No
2001	01-02	No
2002	01-02	No
2003	03-04	No
2004	03-04	No
2005	05-06	No
2006	05-06	No
2007	07-08	No
2008	07-08	No

Test For Condition 3

1992 SF Accounts	Num. Showerheads Distributed to SF Accounts	Single Family Coverage Ratio	SF Coverage Ratio 10%
23,625	411	1.7%	No

1992 MF Accounts	Num. Showerheads Distributed to MF Accounts	Multi Family Coverage Ratio	MF Coverage Ratio 10%
6,236	0	0.0%	No

BMP 2 Coverage Status Summary

Water supplier has met the coverage requirements for this BMP.

BMP 2 Coverage Requirement Status

Reporting Unit ID 179

Rep Unit Name: Otay Water District

Date MOU Signed: 9/4/1991

Reporting Period: 07-08

Rep Unit Category: Retail Only

RU indicated "At least as effective as" implementation during report period: Yes

RU filed an exemption for this BMP during report period: No exemption request filed

If exemption filed, type:

Exhibit 1 Coverage Requirement

An agency must meet **one** of three conditions to satisfy strict compliance for BMP 2.

Condition 1: The agency has demonstrated that 75% of SF accounts and 75% of MF units constructed prior to 1992 are fitted with low-flow showerheads.

Condition 2: An enforceable ordinance requiring the replacement of high-flow showerheads and other water use fixtures with their low-flow counterparts is in place for the agency's service area.

Condition 3: The agency has distributed or directly installed low-flow showerheads and other low-flow plumbing devices to not less than 10% of single-family accounts and 10% of multi-family units constructed prior to 1992 during the reporting period.

Test For Condition 1

		Single Family		Multi Family	
Report Year	Report Period	Reported Saturation	Saturation 75%?	Reported Saturation	Saturation 75%?
1999	99-00	75	Yes	75	Yes
2000	99-00	75	Yes	75	Yes
2001	01-02	75	Yes	75	Yes
2002	01-02	75	Yes	75	Yes
2003	03-04	75	Yes	75	Yes
2004	03-04	75	Yes	75	Yes
2005	05-06	75	Yes	75	Yes
2006	05-06	75	Yes	75	Yes
2007	07-08	75	Yes	75	Yes
2008	07-08	75	Yes	75	Yes

BMP 2 Coverage Requirement Status

Test For Condition 2

Report Year	Report Period	RU has ordinance requiring showerhead retrofit?
1999	99-00	No
2000	99-00	No
2001	01-02	No
2002	01-02	No
2003	03-04	No
2004	03-04	No
2005	05-06	No
2006	05-06	No
2007	07-08	No
2008	07-08	No

Test For Condition 3

1992 SF Accounts	Num. Showerheads Distributed to SF Accounts	Single Family Coverage Ratio	SF Coverage Ratio 10%
23,625	519	2.2%	No

1992 MF Accounts	Num. Showerheads Distributed to MF Accounts	Multi Family Coverage Ratio	MF Coverage Ratio 10%
6,236	0	0.0%	No

BMP 2 Coverage Status Summary

Water supplier has met the coverage requirements for this BMP.

BMP 3 Coverage Requirement Status

Reporting Unit ID 179

Rep Unit Name: Otay Water District

Date MOU Signed: 9/4/1991

Reporting Period: 05-06

Rep Unit Category: Retail Only

RU indicated "At least as effective as" implementation during report period: No

RU filed an exemption for this BMP during report period: No exemption request filed

If exemption filed, type:

Exhibit 1 Coverage Requirement

An agency must meet one of two conditions to be in compliance with BMP 3:

Condition 1: Perform a prescreening audit. If the result is equal to or greater than 0.9 nothing more needs be done.

Condition 2: Perform a prescreening audit. If the result is less than 0.9, perform a full audit in accordance with AWWA's Manual of Water Supply Practices, Water Audits, and Leak Detection.

RU operates a water distribution system: Yes

Tests For Conditions 1 and 2

Report Year	Report Period	Pre Screen Completed	Pre Screen Result	Full Audit Indicated	Full Audit Completed
1999	99-00	Yes	93.7%	No	No
2000	99-00	Yes	92.8%	No	No
2001	01-02	Yes	99.1%	No	No
2002	01-02	Yes	96.4%	No	No
2003	03-04	Yes	98.2%	No	No
2004	03-04	Yes	93.7%	No	No
2005	05-06	Yes	98.3%	No	No
2006	05-06	Yes	96.1%	No	No
2007	07-08	Yes	95.7%	No	No
2008	07-08	Yes	94.4%	No	No

BMP 3 Coverage Status Summary

Water supplier has met the coverage requirements for this BMP.

BMP 3 Coverage Requirement Status

Reporting Unit ID 179

Rep Unit Name: Otay Water District

Date MOU Signed: 9/4/1991

Reporting Period: 07-08

Rep Unit Category: Retail Only

RU indicated "At least as effective as" implementation during report period: No

RU filed an exemption for this BMP during report period: No exemption request filed

If exemption filed, type:

Exhibit 1 Coverage Requirement

An agency must meet one of two conditions to be in compliance with BMP 3:

Condition 1: Perform a prescreening audit. If the result is equal to or greater than 0.9 nothing more needs be done.

Condition 2: Perform a prescreening audit. If the result is less than 0.9, perform a full audit in accordance with AWWA's Manual of Water Supply Practices, Water Audits, and Leak Detection.

RU operates a water distribution system: Yes

Tests For Conditions 1 and 2

Report Year	Report Period	Pre Screen Completed	Pre Screen Result	Full Audit Indicated	Full Audit Completed
1999	99-00	Yes	93.7%	No	No
2000	99-00	Yes	92.8%	No	No
2001	01-02	Yes	99.1%	No	No
2002	01-02	Yes	96.4%	No	No
2003	03-04	Yes	98.2%	No	No
2004	03-04	Yes	93.7%	No	No
2005	05-06	Yes	98.3%	No	No
2006	05-06	Yes	96.1%	No	No
2007	07-08	Yes	95.7%	No	No
2008	07-08	Yes	94.4%	No	No

BMP 3 Coverage Status Summary

Water supplier has met the coverage requirements for this BMP.

BMP 4 Coverage Requirement Status

Reporting Unit ID 179

Rep Unit Name: Otay Water District

Date MOU Signed: 9/4/1991

Reporting Period: 05-06

Rep Unit Category: Retail Only

RU indicated "At least as effective as" implementation during report period: No

RU filed an exemption for this BMP during report period: No exemption request filed

If exemption filed, type:

Exhibit 1 Coverage Requirement

For agencies signing the MOU prior to December 31, 1997:

100% of existing unmetered accounts to be metered and billed by volume of use by July 1, 2009.

For agencies signing the MOU after December 31, 1997:

100% of existing unmetered accounts to be metered and billed by volume of use by July 1, 2012 OR within six years of signing the MOU (whichever date is later). All retrofits must be completed no later than one year prior to the requirements of state law (January 1, 2025).

Tests For Compliance

Total Meter Retrofits Reported through 2006	0
No. of Unmetered Accounts in Base Year	0
Meter Retrofit Coverage as % of Base Year Unmetered Accounts	No Unmetered Accounts
Coverage Requirement by Year 8 of Implementation	64.0%
RU on Schedule to Meet 10 Year Coverage Requirement	Yes

BMP 4 Coverage Status Summary

Water supplier has met the coverage requirements for this BMP.

BMP 4 Coverage Requirement Status

Reporting Unit ID 179

Rep Unit Name: Otay Water District

Date MOU Signed: 9/4/1991

Reporting Period: 07-08

Rep Unit Category: Retail Only

RU indicated "At least as effective as" implementation during report period: Yes

RU filed an exemption for this BMP during report period: No exemption request filed

If exemption filed, type:

Exhibit 1 Coverage Requirement

For agencies signing the MOU prior to December 31, 1997:

100% of existing unmetered accounts to be metered and billed by volume of use by July 1, 2009.

For agencies signing the MOU after December 31, 1997:

100% of existing unmetered accounts to be metered and billed by volume of use by July 1, 2012 OR within six years of signing the MOU (whichever date is later). All retrofits must be completed no later than one year prior to the requirements of state law (January 1, 2025).

Tests For Compliance

Total Meter Retrofits Reported through 2008	0
No. of Unmetered Accounts in Base Year	0
Meter Retrofit Coverage as % of Base Year Unmetered Accounts	No Unmetered Accounts
Coverage Requirement by Year 10 of Implementation	90.0%
RU on Schedule to Meet 10 Year Coverage Requirement	Yes

BMP 4 Coverage Status Summary

Water supplier has selected an "At Least As Effective As" option for this BMP.

BMP 5 Coverage Requirement Status

Reporting Unit ID 179

Rep Unit Name: Otay Water District

Date MOU Signed: 9/4/1991

Reporting Period: 05-06

Rep Unit Category: Retail Only

RU filed an exemption for this BMP during report period: No exemption request filed

If exemption filed, type:

RU indicated "At least as effective as" implementation during report period: Yes

Exhibit 1 Coverage Requirement

An agency must meet three conditions to comply with BMP 5.

Condition 1: Develop water budgets for 90% of its dedicated landscape meter accounts within four years of the date implementation is to start.

Condition 2: (a) Offer landscape surveys to at least 20% of its CII accounts with mixed use meters each report cycle and be on track to survey at least 15% of its CII accounts with mixed use meters within 10 years of the date implementation is to start OR (b) Implement a dedicated landscape meter retrofit program for CII accounts with mixed use meters or assign landscape budgets to mixed use meters.

Condition 3: Implement and maintain customer incentive program(s) for irrigation equipment retrofits.

Test For Condition 1

Report Year	Report Period	BMP 5 Implementation Year	No. of Irrigation Meter Accounts	No. of Irrigation Accounts with Budgets	Budget Coverage Ratio	90% Coverage Met by Year 4
1999	99-00	0	1034	1034	1.00	NA
2000	99-00	1	1076	1076	1.00	NA
2001	01-02	2	1129	1129	1.00	NA
2002	01-02	3	1202	1202	1.00	NA
2003	03-04	4	1293	1293	1.00	Yes
2004	03-04	5	1460	1460	1.00	Yes
2005	05-06	6	1613	1351	0.84	No
2006	05-06	7	1692	1565	0.92	Yes
2007	07-08	8	1752	1752	1.00	Yes
2008	07-08	9	1813	1813	1.00	Yes

Test For Condition 2a (survey offers)

Select Reporting Period: 05-06

Large Landscape Survey Offers as % of Mixed Use Meter CII Accounts: 101.4%

Survey Offers Equal or Exceed 20% Coverage Requirement: Yes

BMP 5 Coverage Requirement Status

Test For Condition 2a (surveys completed)

Total Completed Landscape Surveys Reported through 2006	83
Credit for Surveys Completed Prior to Implementation of Reporting Database	
Total + Credit	83
CII Accounts with Mixed Use Meters in Base Year	422
RU Survey Coverage as % of Base Year CII Accounts	19.7%
Coverage Requirement by Year 7 of Implementation per Exhibit 1	7.9%
RU on Schedule to Meet 10 Year Coverage Requirement	Yes

Test For Condition 2b (mixed use budget or meter retrofit program)

Report Year	Report Period	BMP 5 Implementation Year	Agency has mix-use budget program	No. of mixed-use budgets
1999	99-00	0	no	0
2000	99-00	1	no	0
2001	01-02	2	no	0
2002	01-02	3	no	0
2003	03-04	4	no	0
2004	03-04	5	no	0
2005	05-06	6	no	0
2006	05-06	7	no	0
2007	07-08	8	no	0
2008	07-08	9	no	0

Report Year	Report Period	BMP 4 Implementation Year	No. of mixed use CII accounts	No. of mixed use CII accounts fitted with irrig. meters
1999	99-00	1	0	0
2000	99-00	2	0	0
2001	01-02	3	1111	0
2002	01-02	4	1130	0
2003	03-04	5	595	0
2004	03-04	6	553	0
2005	05-06	7	423	0
2006	05-06	8	423	0
2007	07-08	9	422	0
2008	07-08	10	422	0

BMP 5 Coverage Requirement Status

Test For Condition 3

Report Year	Report Period	BMP 5 Implementation Year	RU offers financial incentives?	Loans		Grants		Rebates	
				No.	Total Amount	No.	Total Amount	No.	Total Amount
1999	99-00	0	no						
2000	99-00	1	no						
2001	01-02	2	yes	0	0	0	0	0	0
2002	01-02	3	yes	0	0	0	0	0	0
2003	03-04	4	yes	0	0	0	0	0	0
2004	03-04	5	yes	0	0	0	0	0	0
2005	05-06	6	yes	0	0	0	0	0	0
2006	05-06	7	yes	0	0	0	0	2	6699
2007	07-08	8	yes	0	0	9	5653.5	19	6536.5
2008	07-08	9	yes	0	0	5	10876.5	62	115933

BMP 5 Coverage Status Summary

Water supplier has selected an "At Least As Effective As" option for this BMP.

BMP 5 Coverage Requirement Status

Reporting Unit ID 179

Rep Unit Name: Otay Water District

Date MOU Signed: 9/4/1991

Reporting Period: 07-08

Rep Unit Category: Retail Only

RU filed an exemption for this BMP during report period: No exemption request filed

If exemption filed, type:

RU indicated "At least as effective as" implementation during report period: Yes

Exhibit 1 Coverage Requirement

An agency must meet three conditions to comply with BMP 5.

Condition 1: Develop water budgets for 90% of its dedicated landscape meter accounts within four years of the date implementation is to start.

Condition 2: (a) Offer landscape surveys to at least 20% of its CII accounts with mixed use meters each report cycle and be on track to survey at least 15% of its CII accounts with mixed use meters within 10 years of the date implementation is to start OR (b) Implement a dedicated landscape meter retrofit program for CII accounts with mixed use meters or assign landscape budgets to mixed use meters.

Condition 3: Implement and maintain customer incentive program(s) for irrigation equipment retrofits.

Test For Condition 1

Report Year	Report Period	BMP 5 Implementation Year	No. of Irrigation Meter Accounts	No. of Irrigation Accounts with Budgets	Budget Coverage Ratio	90% Coverage Met by Year 4
1999	99-00	0	1034	1034	1.00	NA
2000	99-00	1	1076	1076	1.00	NA
2001	01-02	2	1129	1129	1.00	NA
2002	01-02	3	1202	1202	1.00	NA
2003	03-04	4	1293	1293	1.00	Yes
2004	03-04	5	1460	1460	1.00	Yes
2005	05-06	6	1613	1351	0.84	No
2006	05-06	7	1692	1565	0.92	Yes
2007	07-08	8	1752	1752	1.00	Yes
2008	07-08	9	1813	1813	1.00	Yes

Test For Condition 2a (survey offers)

Select Reporting Period: 07-08

Large Landscape Survey Offers as % of Mixed Use Meter CII Accounts: 116.5%

Survey Offers Equal or Exceed 20% Coverage Requirement: Yes

BMP 5 Coverage Requirement Status

Test For Condition 2a (surveys completed)

Total Completed Landscape Surveys Reported through 2008	97
Credit for Surveys Completed Prior to Implementation of Reporting Database	
Total + Credit	97
CII Accounts with Mixed Use Meters in Base Year	422
RU Survey Coverage as % of Base Year CII Accounts	23.0%
Coverage Requirement by Year 9 of Implementation per Exhibit 1	11.5%
RU on Schedule to Meet 10 Year Coverage Requirement	Yes

Test For Condition 2b (mixed use budget or meter retrofit program)

Report Year	Report Period	BMP 5 Implementation Year	Agency has mix-use budget program	No. of mixed-use budgets
1999	99-00	0	no	0
2000	99-00	1	no	0
2001	01-02	2	no	0
2002	01-02	3	no	0
2003	03-04	4	no	0
2004	03-04	5	no	0
2005	05-06	6	no	0
2006	05-06	7	no	0
2007	07-08	8	no	0
2008	07-08	9	no	0

Report Year	Report Period	BMP 4 Implementation Year	No. of mixed use CII accounts	No. of mixed use CII accounts fitted with irrig. meters
1999	99-00	1	0	0
2000	99-00	2	0	0
2001	01-02	3	1111	0
2002	01-02	4	1130	0
2003	03-04	5	595	0
2004	03-04	6	553	0
2005	05-06	7	423	0
2006	05-06	8	423	0
2007	07-08	9	422	0
2008	07-08	10	422	0

BMP 5 Coverage Requirement Status

Test For Condition 3

Report Year	Report Period	BMP 5 Implementation Year	RU offers financial incentives?	Loans		Grants		Rebates	
				No.	Total Amount	No.	Total Amount	No.	Total Amount
1999	99-00	0	no						
2000	99-00	1	no						
2001	01-02	2	yes	0	0	0	0	0	0
2002	01-02	3	yes	0	0	0	0	0	0
2003	03-04	4	yes	0	0	0	0	0	0
2004	03-04	5	yes	0	0	0	0	0	0
2005	05-06	6	yes	0	0	0	0	0	0
2006	05-06	7	yes	0	0	0	0	2	6699
2007	07-08	8	yes	0	0	9	5653.5	19	6536.5
2008	07-08	9	yes	0	0	5	10876.5	62	115933

BMP 5 Coverage Status Summary

Water supplier has selected an "At Least As Effective As" option for this BMP.

BMP 6 Coverage Requirement Status

Reporting Unit ID 179

Rep Unit Name: Otay Water District

Date MOU Signed: 9/4/1991

Reporting Period: 05-06

Rep Unit Category: Retail Only

RU indicated "At least as effective as" implementation during report period: No

RU filed an exemption for this BMP during report period: No exemption request filed

If exemption filed, type:

Pre-2004 Exhibit 1 Coverage Requirement

An agency must meet one condition to comply with BMP 6.

Condition 1: Offer a cost-effective financial incentive for high-efficiency washers if one or more energy service providers in service area offer financial incentives for high-efficiency washers.

Revised Exhibit 1 Coverage Requirement

An agency must meet two conditions to comply with BMP 6.

Condition 1: Offer cost-effective financial incentives for high-efficiency washers with Water Factors of 9.5 or less.

Condition 2: Meet Coverage Goal (CG=Total Dwelling Units x 0.0768) by July 1, 2008. Agencies signing the MOU after July 1, 2003, shall have a prorated Coverage Goal, based on implementation period of less than 4.0 years.

Test For Condition 1

Agency offered cost-effective financial incentives for high-efficiency washers with Water Factors of 9.5 or less:	yes

Test For Condition 2

Coverage Goal:	4,093
Total Coverage Points Awarded (incl. past credit):	12,620
% of Coverage Goal:	308.4%

BMP 6 Coverage Status Summary

Water supplier has met the coverage requirements for this BMP.

BMP 6 Coverage Requirement Status

Reporting Unit ID 179

Rep Unit Name: Otay Water District

Date MOU Signed: 9/4/1991

Reporting Period: 07-08

Rep Unit Category: Retail Only

RU indicated "At least as effective as" implementation during report period: No

RU filed an exemption for this BMP during report period: No exemption request filed

If exemption filed, type:

Pre-2004 Exhibit 1 Coverage Requirement

An agency must meet one condition to comply with BMP 6.

Condition 1: Offer a cost-effective financial incentive for high-efficiency washers if one or more energy service providers in service area offer financial incentives for high-efficiency washers.

Revised Exhibit 1 Coverage Requirement

An agency must meet two conditions to comply with BMP 6.

Condition 1: Offer cost-effective financial incentives for high-efficiency washers with Water Factors of 9.5 or less.

Condition 2: Meet Coverage Goal (CG=Total Dwelling Units x 0.0768) by July 1, 2008. Agencies signing the MOU after July 1, 2003, shall have a prorated Coverage Goal, based on implementation period of less than 4.0 years.

Test For Condition 1

Agency offered cost-effective financial incentives for high-efficiency washers with Water Factors of 9.5 or less:	yes

Test For Condition 2

Coverage Goal:	4,093
Total Coverage Points Awarded (incl. past credit):	12,620
% of Coverage Goal:	308.4%

BMP 6 Coverage Status Summary

Water supplier has met the coverage requirements for this BMP.

BMP 7 Coverage Requirement Status

Reporting Unit ID 179

Rep Unit Name: Otay Water District

Date MOU Signed: 9/4/1991

Reporting Period: 05-06

Rep Unit Category: Retail Only

RU indicated "At least as effective as" implementation during report period: No

RU filed an exemption for this BMP during report period: No exemption request filed

If exemption filed, type:

Exhibit 1 Coverage Requirement

An agency must meet one condition to comply with BMP 7.

Condition 1: Implement and maintain a public information program consistent with BMP 7's definition.

Test For Condition 1:05-06

Report Year	Report Period	BMP 7 Implementation Year	RU Has Public Information Program
1999	99-00	1	Yes
2000	99-00	2	Yes
2001	01-02	3	Yes
2002	01-02	4	Yes
2003	03-04	5	Yes
2004	03-04	6	Yes
2005	05-06	7	Yes
2006	05-06	8	Yes
2007	07-08	9	Yes
2008	07-08	10	Yes

BMP 7 Coverage Status Summary

Water supplier has met the coverage requirements for this BMP.

BMP 7 Coverage Requirement Status

Reporting Unit ID 179

Rep Unit Name: Otay Water District

Date MOU Signed: 9/4/1991

Reporting Period: 07-08

Rep Unit Category: Retail Only

RU indicated "At least as effective as" implementation during report period: No

RU filed an exemption for this BMP during report period: No exemption request filed

If exemption filed, type:

Exhibit 1 Coverage Requirement

An agency must meet one condition to comply with BMP 7.

Condition 1: Implement and maintain a public information program consistent with BMP 7's definition.

Test For Condition 1:07-08

Report Year	Report Period	BMP 7 Implementation Year	RU Has Public Information Program
1999	99-00	1	Yes
2000	99-00	2	Yes
2001	01-02	3	Yes
2002	01-02	4	Yes
2003	03-04	5	Yes
2004	03-04	6	Yes
2005	05-06	7	Yes
2006	05-06	8	Yes
2007	07-08	9	Yes
2008	07-08	10	Yes

BMP 7 Coverage Status Summary

Water supplier has met the coverage requirements for this BMP.

BMP 8 Coverage Requirement Status

Reporting Unit ID 179

Rep Unit Name: Otay Water District

Date MOU Signed: 9/4/1991

Reporting Period: 05-06

Rep Unit Category: Retail Only

RU indicated "At least as effective as" implementation during report period: No

RU filed an exemption for this BMP during report period: No exemption request filed

If exemption filed, type:

Exhibit 1 Coverage Requirement

An agency must meet one condition to comply with BMP 8.

Condition 1: Implement and maintain a school education program consistent with BMP 8's definition.

Test For Condition 1

Report Year	Report Period	BMP 8 Implementation Year	RU Has School Education Program
1999	99-00	1	Yes
2000	99-00	2	Yes
2001	01-02	3	Yes
2002	01-02	4	Yes
2003	03-04	5	Yes
2004	03-04	6	Yes
2005	05-06	7	Yes
2006	05-06	8	Yes
2007	07-08	9	Yes
2008	07-08	10	Yes

BMP 8 Coverage Status Summary

Water supplier has met the coverage requirements for this BMP.

BMP 8 Coverage Requirement Status

Reporting Unit ID 179

Rep Unit Name: Otay Water District

Date MOU Signed: 9/4/1991

Reporting Period: 07-08

Rep Unit Category: Retail Only

RU indicated "At least as effective as" implementation during report period: No

RU filed an exemption for this BMP during report period: No exemption request filed

If exemption filed, type:

Exhibit 1 Coverage Requirement

An agency must meet one condition to comply with BMP 8.

Condition 1: Implement and maintain a school education program consistent with BMP 8's definition.

Test For Condition 1

Report Year	Report Period	BMP 8 Implementation Year	RU Has School Education Program
1999	99-00	1	Yes
2000	99-00	2	Yes
2001	01-02	3	Yes
2002	01-02	4	Yes
2003	03-04	5	Yes
2004	03-04	6	Yes
2005	05-06	7	Yes
2006	05-06	8	Yes
2007	07-08	9	Yes
2008	07-08	10	Yes

BMP 8 Coverage Status Summary

Water supplier has met the coverage requirements for this BMP.

BMP 9 Coverage Requirement Status

Reporting Unit ID 179

Rep Unit Name: Otay Water District

Date MOU Signed: 9/4/1991

Reporting Period: 05-06

Rep Unit Category: Retail Only

RU indicated "At least as effective as" implementation during report period: No

RU filed an exemption for this BMP during report period: No exemption request filed

If exemption filed, type:

Exhibit 1 Coverage Requirement

An agency must meet two conditions to comply with BMP 9.

Condition 1: Agency has identified and ranked by use commercial, industrial, and institutional accounts.

Condition 2(a): Agency is on track to survey 10% of commercial accounts, 10% of industrial accounts, and 10% of institutional accounts within 10 years of date implementation to commence.

OR

Condition 2(b): Agency is on track to reduce CII water use by an amount equal to 10% of baseline use within 10 years of date implementation to commence.

OR

Condition 2(c): Agency is on track to meet the combined target as described in Exhibit 1 BMP 9 documentation.

Test For Condition 1

Ranked Commercial Customers	**yes**
Ranked Industrial Customers	**yes**
Ranked Institutional Customers	**yes**
Rank Coverage Met	**Yes**

Test For Condition 2a

	Commercial	Industrial	Institutional
Total Completed Surveys Reported through 2006	0	0	2
Credit for Surveys Completed Prior to Implementation of Reporting Database	0	0	0
Total + Credit	0	0	2
CII Accounts in Base Year	1,153	0	178
RU Survey Coverage as % of Base Year CII Accounts	0.0%	?	1.1%
Coverage Requirement by Year 7 of Implementation per Exhibit 1	5.3%	5.3%	5.3%
RU on Schedule to Meet 10 Year Coverage Requirement	No	No	No

BMP 9 Coverage Requirement Status

Test For Condition 2b

Coverage Year	Performance Target Savings (AF/Yr)	Performance Target Savings Coverage	Performance Target Savings Coverage Requirement	Coverage Requirement Met
1999	2	0%	0.5%	No
2000	5	0%	1%	No
2001	37	1%	1.7%	No
2002	69	2%	2.4%	No
2003	89	2%	3.3%	No
2004	117	3%	4.2%	No
2005	124	3%	5.3%	No
2006	135	3%	6.4%	No
2007	148	4%	7.7%	No
2008	167	4%	9%	No

Test For Condition 2c

Total BMP 9 Surveys + Credit	2
BMP 9 Survey Coverage	0.2%
BMP 9 Performance Target Coverage	4.3%
BMP 9 Survey + Performance Target Coverage	4.4%
Combined Coverage Equals or Exceeds BMP 9 Survey Coverage Requirement?	No

BMP 9 Coverage Status Summary

Water supplier is not currently on track to meet the coverage requirements for this BMP.

BMP 9 Coverage Requirement Status

Reporting Unit ID 179

Rep Unit Name: Otay Water District

Date MOU Signed: 9/4/1991

Reporting Period: 07-08

Rep Unit Category: Retail Only

RU indicated "At least as effective as" implementation during report period: No

RU filed an exemption for this BMP during report period: No exemption request filed

If exemption filed, type:

Exhibit 1 Coverage Requirement

An agency must meet two conditions to comply with BMP 9.

Condition 1: Agency has identified and ranked by use commercial, industrial, and institutional accounts.

Condition 2(a): Agency is on track to survey 10% of commercial accounts, 10% of industrial accounts, and 10% of institutional accounts within 10 years of date implementation to commence.

OR

Condition 2(b): Agency is on track to reduce CII water use by an amount equal to 10% of baseline use within 10 years of date implementation to commence.

OR

Condition 2(c): Agency is on track to meet the combined target as described in Exhibit 1 BMP 9 documentation.

Test For Condition 1

Ranked Commercial Customers	**yes**
Ranked Industrial Customers	**yes**
Ranked Institutional Customers	**yes**
Rank Coverage Met	**Yes**

Test For Condition 2a

	Commercial	Industrial	Institutional
Total Completed Surveys Reported through 2008	1	0	2
Credit for Surveys Completed Prior to Implementation of Reporting Database	0	0	0
Total + Credit	1	0	2
CII Accounts in Base Year	1,153	0	178
RU Survey Coverage as % of Base Year CII Accounts	0.1%	?	1.1%
Coverage Requirement by Year 9 of Implementation per Exhibit 1	7.7%	7.7%	7.7%
RU on Schedule to Meet 10 Year Coverage Requirement	No	No	No

BMP 9 Coverage Requirement Status

Test For Condition 2b

Coverage Year	Performance Target Savings (AF/Yr)	Performance Target Savings Coverage	Performance Target Savings Coverage Requirement	Coverage Requirement Met
1999	2	0%	0.5%	No
2000	5	0%	1%	No
2001	37	1%	1.7%	No
2002	69	2%	2.4%	No
2003	89	2%	3.3%	No
2004	117	3%	4.2%	No
2005	124	3%	5.3%	No
2006	135	3%	6.4%	No
2007	148	4%	7.7%	No
2008	167	4%	9%	No

Test For Condition 2c

Total BMP 9 Surveys + Credit	3
BMP 9 Survey Coverage	0.2%
BMP 9 Performance Target Coverage	4.3%
BMP 9 Survey + Performance Target Coverage	4.5%
Combined Coverage Equals or Exceeds BMP 9 Survey Coverage Requirement?	No

BMP 9 Coverage Status Summary

Water supplier is not currently on track to meet the coverage requirements for this BMP.

BMP 11 Coverage Requirement Status

Reporting Unit ID 179

Rep Unit Name: Otay Water District

Date MOU Signed: 9/4/1991

Reporting Period: 05-06

Rep Unit Category: Retail Only

RU indicated "At least as effective as" implementation during report period: No

RU filed an exemption for this BMP during report period: No exemption request filed

If exemption filed, type:

Exhibit 1 Coverage Requirement

Agency shall maintain rate structure consistent with BMP 11's definition of conservation pricing.

Test For Compliance

Fully metered?	**Yes**
Water Coverage Met?	**No**
Provide Sewer Service?	
Sewer Coverage Met?	**No**

BMP 11 Coverage Status Summary

Water supplier is not currently on track to meet the coverage requirements for this BMP.

BMP 11 Sewer Coverage Status Summary

Agency does not provide sewer service

BMP 11 Coverage Requirement Status

Reporting Unit ID 179

Rep Unit Name: Otay Water District

Date MOU Signed: 9/4/1991

Reporting Period: 07-08

Rep Unit Category: Retail Only

RU indicated "At least as effective as" implementation during report period: No

RU filed an exemption for this BMP during report period: No exemption request filed

If exemption filed, type:

Exhibit 1 Coverage Requirement

Agency shall maintain rate structure consistent with BMP 11's definition of conservation pricing.

Test For Compliance

Fully metered?	**Yes**
Water Coverage Met?	**Yes**
Provide Sewer Service?	**yes**
Sewer Coverage Met?	**Yes**

BMP 11 Coverage Status Summary

Water supplier has met the coverage requirements for this BMP.

BMP 11 Sewer Coverage Status Summary

Water supplier has met the coverage requirements for this BMP.

BMP 12 Coverage Requirement Status

Reporting Unit ID 179

Rep Unit Name: Otay Water District

Date MOU Signed: 9/4/1991

Reporting Period: 05-06

Rep Unit Category: Retail Only

RU indicated "At least as effective as" implementation during report period: No

RU filed an exemption for this BMP during report period: No exemption request filed

If exemption filed, type:

Exhibit 1 Coverage Requirement

Agency shall staff and maintain the position of conservation coordinator and provide support staff as necessary.

Test For Compliance

Report Year	Report Period	Conservation Coordinator Position Staffed?	Total Staff on Team (incl. CC)
1999	99-00	yes	4
2000	99-00	yes	5
2001	01-02	yes	2
2002	01-02	yes	2
2003	03-04	yes	2
2004	03-04	yes	2
2005	05-06	yes	2
2006	05-06	yes	2
2007	07-08	yes	2
2008	07-08	yes	2.25

BMP 12 Coverage Status Summary

Water supplier has met the coverage requirements for this BMP.

BMP 12 Coverage Requirement Status

Reporting Unit ID 179

Rep Unit Name: Otay Water District

Date MOU Signed: 9/4/1991

Reporting Period: 07-08

Rep Unit Category: Retail Only

RU indicated "At least as effective as" implementation during report period: No

RU filed an exemption for this BMP during report period: No exemption request filed

If exemption filed, type:

Exhibit 1 Coverage Requirement

Agency shall staff and maintain the position of conservation coordinator and provide support staff as necessary.

Test For Compliance

Report Year	Report Period	Conservation Coordinator Position Staffed?	Total Staff on Team (incl. CC)
1999	99-00	yes	4
2000	99-00	yes	5
2001	01-02	yes	2
2002	01-02	yes	2
2003	03-04	yes	2
2004	03-04	yes	2
2005	05-06	yes	2
2006	05-06	yes	2
2007	07-08	yes	2
2008	07-08	yes	2.25

BMP 12 Coverage Status Summary

Water supplier has met the coverage requirements for this BMP.

BMP 13 Coverage Requirement Status

Reporting Unit ID 179

Rep Unit Name: Otay Water District

Date MOU Signed: 9/4/1991

Reporting Period: 05-06

Rep Unit Category: Retail Only

RU indicated "At least as effective as" implementation during report period: No

RU filed an exemption for this BMP during report period: No exemption request filed

If exemption filed, type:

Exhibit 1 Coverage Requirement

Implementation methods shall be enacting and enforcing measures prohibiting gutter flooding, single pass cooling systems in new connections, non-recirculating systems in all new conveyer car wash and commercial laundry systems, and non-recycling decorative water fountains.

Test For Compliance

Agency or service area prohibits:

Report Year	Gutter Flooding	Single-Pass Cooling Systems	Single-Pass Car Wash	Single-Pass Laundry	Single-Pass Fountains	Other	RU has ordinance that meets coverage requirement
1999	yes	yes	yes	no	yes	yes	No
2000	yes	yes	yes	no	yes	yes	No
2001	yes	yes	yes	no	yes	yes	No
2002	yes	yes	yes	no	yes	yes	No
2003	yes	yes	yes	no	yes	yes	No
2004	yes	yes	yes	no	yes	yes	No
2005	yes	yes	yes	yes	yes	yes	Yes
2006	yes	yes	yes	yes	yes	yes	Yes
2007	yes	yes	yes	yes	yes	yes	Yes
2008	yes	yes	yes	yes	yes	yes	Yes

BMP 13 Coverage Status Summary

Water supplier has met the coverage requirements for this BMP.

BMP 13 Coverage Requirement Status

Reporting Unit ID 179

Rep Unit Name: Otay Water District

Date MOU Signed: 9/4/1991

Reporting Period: 07-08

Rep Unit Category: Retail Only

RU indicated "At least as effective as" implementation during report period: No

RU filed an exemption for this BMP during report period: No exemption request filed

If exemption filed, type:

Exhibit 1 Coverage Requirement

Implementation methods shall be enacting and enforcing measures prohibiting gutter flooding, single pass cooling systems in new connections, non-recirculating systems in all new conveyer car wash and commercial laundry systems, and non-recycling decorative water fountains.

Test For Compliance

Agency or service area prohibits:

Report Year	Gutter Flooding	Single-Pass Cooling Systems	Single-Pass Car Wash	Single-Pass Laundry	Single-Pass Fountains	Other	RU has ordinance that meets coverage requirement
1999	yes	yes	yes	no	yes	yes	No
2000	yes	yes	yes	no	yes	yes	No
2001	yes	yes	yes	no	yes	yes	No
2002	yes	yes	yes	no	yes	yes	No
2003	yes	yes	yes	no	yes	yes	No
2004	yes	yes	yes	no	yes	yes	No
2005	yes	yes	yes	yes	yes	yes	Yes
2006	yes	yes	yes	yes	yes	yes	Yes
2007	yes	yes	yes	yes	yes	yes	Yes
2008	yes	yes	yes	yes	yes	yes	Yes

BMP 13 Coverage Status Summary

Water supplier has met the coverage requirements for this BMP.

BMP 14 Coverage Requirement Status

Reporting Unit ID: 179

Base Year: 1997

Rep Unit Name:
Otay Water District

Rep Unit Category:
Retail Only

Exhibit 1 Coverage Requirement

An agency must meet one of the following conditions to be in compliance with BMP 14.

Condition 1: Retrofit-on-resale (ROR) in effect in service area
Condition 2: Water savings from toilet replacement programs equal to 90% of Exhibit 6 coverage requirement.

An agency with an exemption for BMP 14 is not required to meet one of the above conditions.
The report treats an agency with missing base year data required to compute the Exhibit 6 coverage requirement as out of compliance with BMP 14.

Coverage Year	BMP 14 Data Submitted to CUWCC	Exemption Filed with CUWCC	ALAEA	ROR Ordinance in Effect	Exhibit 6 Coverage Req'mt (AF)	Toilet Replacement Program Water Savings (AF)
1999	☒	☐	☐	☐	43	53
2000	☒	☐	☐	☐	124	154
2001	☒	☐	☐	☐	239	283
2002	☒	☐	☐	☐	382	437
2003	☒	☐	☐	☐	551	637
2004	☒	☐	☐	☐	742	868
2005	☒	☐	☐	☐	952	1,112
2006	☒	☐	☐	☐	1,178	1,364
2007	☒	☐	☐	☐	1,417	1,645
2008	☒	☐	☐	☐	1,668	1,926

BMP 14 Coverage Status Summary: 2011

Water supplier has met the coverage requirements for this BMP.

BMP 01: Water Survey Programs for Single-Family and Multi-Family Residential Customers

Reporting Unit:	BMP Form Status:	Year:
Otay Water District	**100% Complete**	**2005**

A. Implementation

	1. Based on your signed MOU date, 05/05/1991, your Agency STRATEGY DUE DATE is no later than:	9/3/1993
	2. Has your agency developed and implemented a targeting/ marketing strategy for SINGLE-FAMILY residential water use surveys?	● Yes ○ No
	a. If YES, when was it implemented? (Enter 4-digit year mm/dd/yyyy)	7/1/1995
	3. Has your agency developed and implemented a targeting/ marketing strategy for MULTI-FAMILY residential water use surveys?	● Yes ○ No
	a. If YES, when was it implemented? (Enter 4-digit year mm/dd/yyyy)	7/1/1995

B. Water Survey Data

Survey Counts		Single Family Accounts	Multi-Family Units
	1. Number of surveys offered:	9	0
	2. Number of surveys completed:	9	0
Indoor Survey:		**SF Accounts**	**MF Units**
	3. Check for leaks, including toilets, faucets and meter checks	● Yes ○ No	● Yes ○ No
	4. Check showerhead flow rates, aerator flow rates, and offer to replace or recommend replacement, if necessary	● Yes ○ No	● Yes ○ No
	5. Check toilet flow rates and offer to install or recommend installation of displacement device or direct customer to ULFT replacement program, as neccesary; replace leaking toilet flapper, as necessary	● Yes ○ No	● Yes ○ No

Outdoor Survey:	SF Accounts	MF Units
6. Check irrigation system and timers	● Yes ○ No	● Yes ○ No
7. Review or develop customer irrigation schedule	● Yes ○ No	● Yes ○ No
8. Measure landscaped area (Recommended but not required for surveys)	● Yes ○ No	● Yes ○ No
9. Measure total irrigable area (Recommended but not required for surveys)	● Yes ○ No	● Yes ○ No
10. Which measurement method is typically used (Recommended but not required for surveys)	○ Image-Based ○ Measuring Tape ○ Odometer Wheel ● Pacing ○ Other ○ None	
11. Were customers provided with information packets that included evaluation results and water savings recommendations?	● Yes ○ No	● Yes ○ No
12. Have the number of surveys offered and completed, survey results, and survey costs been tracked?	● Yes ○ No	● Yes ○ No
a. If yes, in what form are surveys tracked?	● Database ○ Spreadsheet ○ Manual Activity ○ None	

b. Describe how your agency tracks this information.

Honeywell tracks the surveys they completed in their database, beginning July 1 2004. They conducted 4/9 surveys listed above. The district maintains a spreadsheet that tracks the total number of surveys offered, completed for each fiscal year.

C. Water Survey Program Expenditures

	This Year	Next Year
1. Budgeted Expenditures		
2. Actual Expenditures		

D. "At Least As Effective As"

	1. Is your AGENCY implementing an "at least as effective as" variant of this BMP?	○ Yes ● No
	a. If YES, please explain in detail how your implementation of this BMP differs from Exhibit 1 and why you consider it to be "at least as effective as."	

E. Comments

Surveys were offered on a case-by case basis. Beginning this fiscal year, this program was not funded at any levels we could market (they offered to co-fund approximately 20 surveys) . Instead, program emphasis shifted to the promotion of an incentive for residential smart irrigation controllers and surveys were offered during this time. Honeywell bid to conduct residential surveys and their cost was

BMP 01: Water Survey Programs for Single-Family and Multi-Family Residential Customers

Reporting Unit:	BMP Form Status:	Year:
Otay Water District	**100% Complete**	**2006**

A. Implementation

	1. Based on your signed MOU date, 05/05/1991, your Agency STRATEGY DUE DATE is no later than:	9/3/1993
	2. Has your agency developed and implemented a targeting/ marketing strategy for SINGLE-FAMILY residential water use surveys?	● Yes ○ No
	a. If YES, when was it implemented? (Enter 4-digit year mm/dd/yyyy)	7/1/1995
	3. Has your agency developed and implemented a targeting/ marketing strategy for MULTI-FAMILY residential water use surveys?	● Yes ○ No
	a. If YES, when was it implemented? (Enter 4-digit year mm/dd/yyyy)	7/1/1995

B. Water Survey Data

Survey Counts		Single Family Accounts	Multi-Family Units
	1. Number of surveys offered:	3	0
	2. Number of surveys completed:	3	0
Indoor Survey:		**SF Accounts**	**MF Units**
	3. Check for leaks, including toilets, faucets and meter checks	● Yes ○ No	● Yes ○ No
	4. Check showerhead flow rates, aerator flow rates, and offer to replace or recommend replacement, if necessary	● Yes ○ No	● Yes ○ No
	5. Check toilet flow rates and offer to install or recommend installation of displacement device or direct customer to ULFT replacement program, as neccesary; replace leaking toilet flapper, as necessary	● Yes ○ No	● Yes ○ No

Outdoor Survey:	SF Accounts	MF Units
6. Check irrigation system and timers	● Yes ○ No	● Yes ○ No
7. Review or develop customer irrigation schedule	● Yes ○ No	● Yes ○ No
8. Measure landscaped area (Recommended but not required for surveys)	● Yes ○ No	● Yes ○ No
9. Measure total irrigable area (Recommended but not required for surveys)	● Yes ○ No	● Yes ○ No
10. Which measurement method is typically used (Recommended but not required for surveys)	○ Image-Based ○ Measuring Tape ○ Odometer Wheel ● Pacing ○ Other ○ None	
11. Were customers provided with information packets that included evaluation results and water savings recommendations?	● Yes ○ No	● Yes ○ No
12. Have the number of surveys offered and completed, survey results, and survey costs been tracked?	● Yes ○ No	● Yes ○ No
a. If yes, in what form are surveys tracked?	● Database ○ Spreadsheet ○ Manual Activity ○ None	

b. Describe how your agency tracks this information.

Honeywell tracks the surveys they completed in their database, beginning July 1 2004. They conducted 1/3 surveys listed above. The district maintains a spreadsheet that tracks the total number of surveys offered, completed for each fiscal year.

C. Water Survey Program Expenditures

	This Year	Next Year
1. Budgeted Expenditures		
2. Actual Expenditures		

D. "At Least As Effective As"

	1. Is your AGENCY implementing an "at least as effective as" variant of this BMP?	○ Yes ● No
	a. If YES, please explain in detail how your implementation of this BMP differs from Exhibit 1 and why you consider it to be "at least as effective as."	

E. Comments

Surveys were offered on a case-by case basis and while evaluating sites for our pilot Cash for Plants program. Beginning last fiscal year, this program was not funded at any levels we could market (they offered to co-fund approximately 20 surveys, and near the end of the fiscal year there was an offer to co-fund surveys retoactively by MET but it was too late to promote them. Instead, program

BMP 01: Water Survey Programs for Single-Family and Multi-Family Residential Customers

Reporting Unit:	BMP Form Status:	Year:
Otay Water District	**100% Complete**	**2007**

A. Implementation

1. Based on your signed MOU date, 05/05/1991, your Agency STRATEGY DUE DATE is no later than:	9/3/1993
2. Has your agency developed and implemented a targeting/ marketing strategy for SINGLE-FAMILY residential water use surveys?	● Yes ○ No
a. If YES, when was it implemented? (Enter 4-digit year mm/dd/yyyy)	7/1/1995
3. Has your agency developed and implemented a targeting/ marketing strategy for MULTI-FAMILY residential water use surveys?	● Yes ○ No
a. If YES, when was it implemented? (Enter 4-digit year mm/dd/yyyy)	7/1/1995

B. Water Survey Data

Survey Counts	Single Family Accounts	Multi-Family Units
1. Number of surveys offered:	750	1
2. Number of surveys completed:	49	1
Indoor Survey:	**SF Accounts**	**MF Units**
3. Check for leaks, including toilets, faucets and meter checks	● Yes ○ No	● Yes ○ No
4. Check showerhead flow rates, aerator flow rates, and offer to replace or recommend replacement, if necessary	● Yes ○ No	● Yes ○ No
5. Check toilet flow rates and offer to install or recommend installation of displacement device or direct customer to ULFT replacement program, as neccesary; replace leaking toilet flapper, as necessary	● Yes ○ No	● Yes ○ No

Outdoor Survey:	SF Accounts	MF Units
6. Check irrigation system and timers	● Yes ○ No	● Yes ○ No
7. Review or develop customer irrigation schedule	● Yes ○ No	● Yes ○ No
8. Measure landscaped area (Recommended but not required for surveys)	● Yes ○ No	● Yes ○ No
9. Measure total irrigable area (Recommended but not required for surveys)	● Yes ○ No	● Yes ○ No
10. Which measurement method is typically used (Recommended but not required for surveys)	○ Image-Based ○ Measuring Tape ○ Odometer Wheel ● Pacing ○ Other ○ None	
11. Were customers provided with information packets that included evaluation results and water savings recommendations?	● Yes ○ No	● Yes ○ No
12. Have the number of surveys offered and completed, survey results, and survey costs been tracked?	● Yes ○ No	● Yes ○ No
a. If yes, in what form are surveys tracked?	● Database ○ Spreadsheet ○ Manual Activity ○ None	

b. Describe how your agency tracks this information.

Honeywell tracks the surveys they completed in their database, beginning July 1 2004. They conducted the surveys listed above. The district maintains a spreadsheet that tracks the total number of surveys offered, completed for each fiscal year.

C. Water Survey Program Expenditures

	This Year	Next Year
1. Budgeted Expenditures		
2. Actual Expenditures		

D. "At Least As Effective As"

	1. Is your AGENCY implementing an "at least as effective as" variant of this BMP?	● Yes ○ No

a. If YES, please explain in detail how your implementation of this BMP differs from Exhibit 1 and why you consider it to be "at least as effective as."

CASH for plants and WBIC distribution programs.

WBIC distribution: 128 WBICs distributed at 4 seperate distribution events this fiscal year. Approximately 75% of the households who received a free WBIC also received an inspection to determine whether the smart controller was installed

E. Comments

CWA's consultant was not set up to conduct MF surveys, so we focused our efforts on offering residential surveys for single family customers. However, we did conduct one multi-family audit this fiscal year, involving a 50 unit complex. We went into 5 of the 50 units during the survey.

BMP 01: Water Survey Programs for Single-Family and Multi-Family Residential Customers

Reporting Unit:	BMP Form Status:	Year:
Otay Water District	**100% Complete**	**2008**

A. Implementation

	1. Based on your signed MOU date, 05/05/1991, your Agency STRATEGY DUE DATE is no later than:	9/3/1993
	2. Has your agency developed and implemented a targeting/ marketing strategy for SINGLE-FAMILY residential water use surveys?	● Yes ○ No
	a. If YES, when was it implemented? (Enter 4-digit year mm/dd/yyyy)	7/1/1995
	3. Has your agency developed and implemented a targeting/ marketing strategy for MULTI-FAMILY residential water use surveys?	● Yes ○ No
	a. If YES, when was it implemented? (Enter 4-digit year mm/dd/yyyy)	7/1/1995

B. Water Survey Data

Survey Counts		Single Family Accounts	Multi-Family Units
	1. Number of surveys offered:	1900	300
	2. Number of surveys completed:	89	0
Indoor Survey:		**SF Accounts**	**MF Units**
	3. Check for leaks, including toilets, faucets and meter checks	● Yes ○ No	● Yes ○ No
	4. Check showerhead flow rates, aerator flow rates, and offer to replace or recommend replacement, if necessary	● Yes ○ No	● Yes ○ No
	5. Check toilet flow rates and offer to install or recommend installation of displacement device or direct customer to ULFT replacement program, as neccesary; replace leaking toilet flapper, as necessary	● Yes ○ No	● Yes ○ No

Outdoor Survey:	SF Accounts	MF Units
6. Check irrigation system and timers	● Yes ○ No	● Yes ○ No
7. Review or develop customer irrigation schedule	● Yes ○ No	● Yes ○ No
8. Measure landscaped area (Recommended but not required for surveys)	● Yes ○ No	● Yes ○ No
9. Measure total irrigable area (Recommended but not required for surveys)	● Yes ○ No	● Yes ○ No
10. Which measurement method is typically used (Recommended but not required for surveys)	○ Image-Based ○ Measuring Tape ● Odometer Wheel ○ Pacing ○ Other ○ None	
11. Were customers provided with information packets that included evaluation results and water savings recommendations?	● Yes ○ No	● Yes ○ No
12. Have the number of surveys offered and completed, survey results, and survey costs been tracked?	● Yes ○ No	● Yes ○ No
a. If yes, in what form are surveys tracked?	○ Database ● Spreadsheet ○ Manual Activity ○ None	

b. Describe how your agency tracks this information.

Beginning in the 2nd quarter of this FY, Otay began conducting these surveys and maintaining a spreadsheet with the data collected during the surveys.

C. Water Survey Program Expenditures

	This Year	Next Year
1. Budgeted Expenditures		
2. Actual Expenditures		

D. "At Least As Effective As"

	1. Is your AGENCY implementing an "at least as effective as" variant of this BMP?	● Yes ○ No

a. If YES, please explain in detail how your implementation of this BMP differs from Exhibit 1 and why you consider it to be "at least as effective as."

Cash for Plants, Residential Artificial Turfgrass and WBIC rebate.

WBIC rebate: (32 rebates- sent out mailers (oversized 6" x 9" postcards to 12,000 customers (top 15%). Staff inspected 100% of the sites who received a smart controller rebate

E. Comments

Surveys were conducted either by staff or by a staff trained intern.We did a mailing in November and December of 2007 to our multi-family customers and advertising free showerheads and surveys and end of the toilet voucher program.

BMP 11: Conservation Pricing

Reporting Unit:	BMP Form Status:	Year:
Otay Water District	**100% Complete**	**2005**

A. Implementation

Water Service Rate Structure Data by Customer Class

	Number of schedules:		Use of classification:	Enter Rate Schedules:
	How many rate schedules does agency offer/use for...		This agency...	Click to view rates data:
	1. Single-family residential accounts?	1	Uses class	SF Res
	2. Multi-family residential accounts?	1	Uses class	MF Res
	3. Commercial accounts?	1	Uses class	Commercial
	4. Industrial accounts?	0	Does not serve	Industrial
	5. Institutional/ government accounts?	0	Does not serve	Inst/Gov
	6. Dedicated irrigation (potable water) accounts?	1	Uses class	Irrigation
	7. Other accounts?	1	Uses class	Other
	8. Recycled-reclaimed water accounts?	1	Uses class	Recycled
	9. Raw water (urban use) accounts?	0	Does not offer	Raw
	10. Wholesale (urban use) accounts?	0	Does not offer	Wholesale

Sewer Service

	11. Does your agency provide sewer service to your water customers?	● Yes ○ No
	12. Does sewer service use conservation rate structures?	○ Yes ● No

	13. Has your agency made the required efforts (as prescribed in BMP 11) to have sewer services billed on conservation rates?	● Yes ○ No
	14. What water agency activities have been undertaken during the reporting period to achieve waste water agency volumetric billing in your water agency service area?	☒ Studies ☒ Meetings ☐ Workshops ☐ Identification of Impediments ☐ Letters ☐ Ordinances ☐ Financial Incentives ☒ Other ☐ None

B. "At Least As Effective As"

	1. Is your AGENCY implementing an "at least as effective as" variant of this BMP?	○ Yes ● No

a. If YES, please explain in detail how your implementation of this BMP differs from Exhibit 1 and why you consider it to be "at least as effective as."

D. Comments

We do charge our commercial sewer customers based on strength and volume. The variance in residential customers is not as significant. The District is planning on moving to a winter-based usage charge for the residential customers by Fiscal Year 2008.

BMP 11: Conservation Pricing

Reporting Unit:	BMP Form Status:	Year:
Otay Water District	**100% Complete**	**2006**

A. Implementation

Water Service Rate Structure Data by Customer Class

	Number of schedules:		Use of classification:	Enter Rate Schedules:
	How many rate schedules does agency offer/use for...		This agency...	Click to view rates data:
	1. Single-family residential accounts?	1	Uses class	SF Res
	2. Multi-family residential accounts?	1	Uses class	MF Res
	3. Commercial accounts?	1	Uses class	Commercial
	4. Industrial accounts?	1	Uses class	Industrial
	5. Institutional/ government accounts?	0	Does not serve	Inst/Gov
	6. Dedicated irrigation (potable water) accounts?	1	Uses class	Irrigation
	7. Other accounts?	1	Uses class	Other
	8. Recycled-reclaimed water accounts?	1	Uses class	Recycled
	9. Raw water (urban use) accounts?	0	Does not offer	Raw
	10. Wholesale (urban use) accounts?	0	Does not offer	Wholesale

Sewer Service

	11. Does your agency provide sewer service to your water customers?	● Yes ○ No
	12. Does sewer service use conservation rate structures?	○ Yes ● No

	13. Has your agency made the required efforts (as prescribed in BMP 11) to have sewer services billed on conservation rates?	● Yes ○ No
	14. What water agency activities have been undertaken during the reporting period to achieve waste water agency volumetric billing in your water agency service area?	☒ Studies ☒ Meetings ☐ Workshops ☐ Identification of Impediments ☐ Letters ☐ Ordinances ☐ Financial Incentives ☒ Other ☐ None

B. "At Least As Effective As"

	1. Is your AGENCY implementing an "at least as effective as" variant of this BMP?	○ Yes ● No

a. If YES, please explain in detail how your implementation of this BMP differs from Exhibit 1 and why you consider it to be "at least as effective as."

D. Comments

We do charge our commerical sewer customers based on strength and volume. The variance is residential customers is not as significant. The District is planning on moving to a winter-based usage charge for the residential customers by FY 2008.

BMP 11: Conservation Pricing

Reporting Unit:	BMP Form Status:	Year:
Otay Water District	**100% Complete**	**2007**

A. Implementation

Water Service Rate Structure Data by Customer Class

Select the ***Rate Structure*** assigned to the majority of your customers within a specific customer class.

Volumetric Revenue is defined as the revenue derived from the charges based on amount of water use. Water agencies typically refer to these as "commodity charges." Do NOT include: flat fees, monthly service charges, meter charges, minimum usage charges, and other revenue that is not dependant on the amount of water the customer consumes. An example of a "minimum usage" charge might be: customers are charged at least 6 units per month even if they use only 2 units.

1. Single Family Residential	
a. Rate Structure	Increasing Block
b. Total Revenue from Volumetric Rates	19,749,260
c. Total Revenue from Customer Meter/Service (fixed) charges	7,380,047
2. Multi-Family Residential	
a. Rate Structure	Increasing Block
b. Total Revenue from Volumetric Rates	2,589,960
c. Total Revenue from Customer Meter/Service (fixed) charges	446,913
3. Commercial	
a. Rate Structure	Uniform
b. Total Revenue from Volumetric Rates	2,131,964
c. Total Revenue from Customer Meter/Service (fixed) charges	1,514,464
4. Industrial	
a. Rate Structure	Service Not

b. Total Revenue from Volumetric Rates	0
c. Total Revenue from Customer Meter/Service (fixed) charges	0
5. Institutional / Government	
a. Rate Structure	Uniform
b. Total Revenue from Volumetric Rates	2,088,830
c. Total Revenue from Customer Meter/Service (fixed) charges	223,932
6. Dedicated Irrigation (potable)	
a. Rate Structure	Uniform
b. Total Revenue from Volumetric Rates	4,709,077
c. Total Revenue from Customer Meter/Service (fixed) charges	819,826
7. Recycled-Reclaimed	
a. Rate Structure	Uniform
b. Total Revenue from Volumetric Rates	3,294,170
c. Total Revenue from Customer Meter/Service (fixed) charges	335,063
8. Raw	
a. Rate Structure	Service Not
b. Total Revenue from Volumetric Rates	0
c. Total Revenue from Customer Meter/Service (fixed) charges	0
9. Other	
a. Rate Structure	Uniform
b. Total Revenue from Volumetric Rates	1,215,312
c. Total Revenue from Customer Meter/Service (fixed) charges	432,426

B. Implementation Options

	Select Either Option 1 or Option 2:	
	1. Option 1: Use Annual Revenue As Reported V/(V+M) >= 70% V = Total annual revenue from volumetric rates M = Total annual revenue from customer meter/service (fixed) charges	● Option 1 ○ Option 2
	2. Option 2: Use Canadian Water & Wastewater Association Rate Design Model V/(V+M) >= V'/(V'+M') V = Total annual revenue from volumetric rates M = Total annual revenue from customer meter/service (fixed) charges V' = The uniform volume rate based on the signatory's long-run incremental cost of service M' = The associated meter charge	
	a. If you selected Option 2, has your agency submitted to the Council a completed Canadian Water & Wastewater Association rate design model?	○ Yes ● No
	b. Value for V' (uniform volume rate based on agency's long-run incremental cost of service) as determined by the Canadian Water & Wastewater Association rate design model:	
	c. Value for M' (meter charge associated with V' uniform volume rate) as determined by the Canadian Water & Wastewater Association rate design model:	

C. Retail Wastewater (Sewer) Rate Structure Data by Customer Class

	1. Does your agency provide sewer service? (If YES, answer questions 2 - 7 below, else continue to section D.)	● Yes ○ No
	2. Single Family Residential	
	a. Sewer Rate Structure	Uniform
	b. Annual Revenue Requirement	1714190
	c. Total Revenue from Customer Commodity Charges	1714190
	3. Multi-Family Residential	
	a. Sewer Rate Structure	Uniform

	b. Annual Revenue Requirement	518976
	c. Total Revenue from Customer Commodity Charges	518976
	4. Commercial	
	a. Sewer Rate Structure	Uniform
	b. Annual Revenue Requirement	158535
	c. Total Revenue from Customer Commodity Charges	158535
	5. Industrial	
	a. Sewer Rate Structure	Service Not
	b. Annual Revenue Requirement	0.00
	c. Total Revenue from Customer Commodity Charges	0.00
	6. Institutional / Government	
	a. Sewer Rate Structure	Uniform
	b. Annual Revenue Requirement	139811
	c. Total Revenue from Customer Commodity Charges	139811
	7. Recycled-reclaimed water	
	a. Sewer Rate Structure	Service Not
	b. Annual Revenue Requirement	0.00
	c. Total Revenue from Customer Commodity Charges	0.00

D. At Least As Effective As

	1. Is your agency implementing an "at least as effective as" variant of this BMP?	○ Yes ● No
	a. If YES, please explain in detail how your implementation of this BMP differs from Exhibit 1 and why you consider it to be "at least as effective as."	

BMP 11: Conservation Pricing

Reporting Unit:	BMP Form Status:	Year:
Otay Water District	**100% Complete**	**2008**

A. Implementation

Water Service Rate Structure Data by Customer Class

Select the ***Rate Structure*** assigned to the majority of your customers within a specific customer class.

Volumetric Revenue is defined as the revenue derived from the charges based on amount of water use. Water agencies typically refer to these as "commodity charges." Do NOT include: flat fees, monthly service charges, meter charges, minimum usage charges, and other revenue that is not dependant on the amount of water the customer consumes. An example of a "minimum usage" charge might be: customers are charged at least 6 units per month even if they use only 2 units.

1. Single Family Residential	
a. Rate Structure	Increasing Block
b. Total Revenue from Volumetric Rates	18,860,767
c. Total Revenue from Customer Meter/Service (fixed) charges	8,249,822
2. Multi-Family Residential	
a. Rate Structure	Increasing Block
b. Total Revenue from Volumetric Rates	2,673,658
c. Total Revenue from Customer Meter/Service (fixed) charges	545,614
3. Commercial	
a. Rate Structure	Uniform
b. Total Revenue from Volumetric Rates	2,248,192
c. Total Revenue from Customer Meter/Service (fixed) charges	1,727,205
4. Industrial	
a. Rate Structure	Service Not

b. Total Revenue from Volumetric Rates	0
c. Total Revenue from Customer Meter/Service (fixed) charges	0
5. Institutional / Government	
a. Rate Structure	Uniform
b. Total Revenue from Volumetric Rates	1,972,922
c. Total Revenue from Customer Meter/Service (fixed) charges	251,817
6. Dedicated Irrigation (potable)	
a. Rate Structure	Uniform
b. Total Revenue from Volumetric Rates	4,670,431
c. Total Revenue from Customer Meter/Service (fixed) charges	928,295
7. Recycled-Reclaimed	
a. Rate Structure	Uniform
b. Total Revenue from Volumetric Rates	3,596,393
c. Total Revenue from Customer Meter/Service (fixed) charges	425,061
8. Raw	
a. Rate Structure	Service Not
b. Total Revenue from Volumetric Rates	0
c. Total Revenue from Customer Meter/Service (fixed) charges	0
9. Other	
a. Rate Structure	Uniform
b. Total Revenue from Volumetric Rates	1,444,254
c. Total Revenue from Customer Meter/Service (fixed) charges	438,599

B. Implementation Options

	Select Either Option 1 or Option 2:	
	1. Option 1: Use Annual Revenue As Reported V/(V+M) >= 70% V = Total annual revenue from volumetric rates M = Total annual revenue from customer meter/service (fixed) charges	● Option 1 ○ Option 2
	2. Option 2: Use Canadian Water & Wastewater Association Rate Design Model V/(V+M) >= V'/(V'+M') V = Total annual revenue from volumetric rates M = Total annual revenue from customer meter/service (fixed) charges V' = The uniform volume rate based on the signatory's long-run incremental cost of service M' = The associated meter charge	
	a. If you selected Option 2, has your agency submitted to the Council a completed Canadian Water & Wastewater Association rate design model?	○ Yes ○ No
	b. Value for V' (uniform volume rate based on agency's long-run incremental cost of service) as determined by the Canadian Water & Wastewater Association rate design model:	
	c. Value for M' (meter charge associated with V' uniform volume rate) as determined by the Canadian Water & Wastewater Association rate design model:	

C. Retail Wastewater (Sewer) Rate Structure Data by Customer Class

	1. Does your agency provide sewer service? (If YES, answer questions 2 - 7 below, else continue to section D.)	● Yes ○ No
	2. Single Family Residential	
	a. Sewer Rate Structure	Uniform Seasonal
	b. Annual Revenue Requirement	1642768
	c. Total Revenue from Customer Commodity Charges	1388392
	3. Multi-Family Residential	
	a. Sewer Rate Structure	Uniform Seasonal

	b. Annual Revenue Requirement	416542
	c. Total Revenue from Customer Commodity Charges	336982
	4. Commercial	
	a. Sewer Rate Structure	Uniform
	b. Annual Revenue Requirement	156442
	c. Total Revenue from Customer Commodity Charges	156442
	5. Industrial	
	a. Sewer Rate Structure	Service Not
	b. Annual Revenue Requirement	0
	c. Total Revenue from Customer Commodity Charges	0
	6. Institutional / Government	
	a. Sewer Rate Structure	Uniform
	b. Annual Revenue Requirement	143420
	c. Total Revenue from Customer Commodity Charges	143420
	7. Recycled-reclaimed water	
	a. Sewer Rate Structure	Service Not
	b. Annual Revenue Requirement	0
	c. Total Revenue from Customer Commodity Charges	0

D. At Least As Effective As

	1. Is your agency implementing an "at least as effective as" variant of this BMP?	○ Yes ● No
	a. If YES, please explain in detail how your implementation of this BMP differs from Exhibit 1 and why you consider it to be "at least as effective as."	

BMP 12: Conservation Coordinator

Reporting Unit:	BMP Form Status:	Year:
Otay Water District	**100% Complete**	**2005**

A. Implementation

1. Does your Agency have a conservation coordinator?	● Yes ○ No
2. Is a coordinator position supplied by another agency with which you cooperate in a regional conservation program ?	○ Yes ● No
a. Partner agency's name:	
3. If your agency supplies the conservation coordinator:	
a. What percent is this conservation coordinator's position?	100%
b. Coordinator's Name	William Granger
c. Coordinator's Title	Water Conservation Manager
d. Coordinator's Experience and Number of Years	11 years experience developing and managing water conservation programs
e. Date Coordinator's position was created (mm/dd/yyyy)	3/28/1991
4. Number of conservation staff (FTEs), including Conservation Coordinator.	2

B. Conservation Staff Program Expenditures

1. Staffing Expenditures (In-house Only)	196,558.37
2. BMP Program Implementation Expenditures	156,614.71

C. "At Least As Effective As"

1. Is your AGENCY implementing an "at least as effective as" variant of this BMP?	○ Yes ● No
a. If YES, please explain in detail how your implementation of this BMP differs from Exhibit 1 and why you consider it to be "at least as effective as."	

D. Comments

Includes the District's agreed upon cost-share of the Water Conservation Garden's Operations and Maintenance Budget, which is strongly supported by the District and reported under BMP 7.

BMP 12: Conservation Coordinator

Reporting Unit:	BMP Form Status:	Year:
Otay Water District	**100% Complete**	**2006**

A. Implementation

	1. Does your Agency have a conservation coordinator?	● Yes ○ No
	2. Is a coordinator position supplied by another agency with which you cooperate in a regional conservation program ?	○ Yes ● No
	a. Partner agency's name:	
	3. If your agency supplies the conservation coordinator:	
	a. What percent is this conservation coordinator's position?	100%
	b. Coordinator's Name	William Granger
	c. Coordinator's Title	Water Conservation Manager
	d. Coordinator's Experience and Number of Years	12 years experience developing and managing water conservation programs
	e. Date Coordinator's position was created (mm/dd/yyyy)	3/28/1991
	4. Number of conservation staff (FTEs), including Conservation Coordinator.	2

B. Conservation Staff Program Expenditures

?	1. Staffing Expenditures (In-house Only)	198105.61
?	2. BMP Program Implementation Expenditures	183322.73

C. "At Least As Effective As"

?	1. Is your AGENCY implementing an "at least as effective as" variant of this BMP?	○ Yes ● No
	a. If YES, please explain in detail how your implementation of this BMP differs from Exhibit 1 and why you consider it to be "at least as effective as."	

D. Comments

Includes the District's agreed upon cost-share of the Water Conservation Garden's Operations and Maintenance Budget, which is strongly supported by the District and reported under BMP 7.

BMP 12: Conservation Coordinator

Reporting Unit:	BMP Form Status:	Year:
Otay Water District	**100% Complete**	**2007**

A. Implementation

	1. Does your Agency have a conservation coordinator?	● Yes ○ No
	2. Is a coordinator position supplied by another agency with which you cooperate in a regional conservation program ?	○ Yes ● No
	a. Partner agency's name:	
	3. If your agency supplies the conservation coordinator:	
	a. What percent is this conservation coordinator's position?	100%
	b. Coordinator's Name	William Granger
	c. Coordinator's Title	Water Conservation Manager
	d. Coordinator's Experience and Number of Years	13 years experience developing and managing water conservation programs
	e. Date Coordinator's position was created (mm/dd/yyyy)	3/28/1991
	4. Number of conservation staff (FTEs), including Conservation Coordinator.	2

B. Conservation Staff Program Expenditures

?	1. Staffing Expenditures (In-house Only)	212180.18
?	2. BMP Program Implementation Expenditures	192684.41

C. "At Least As Effective As"

?	1. Is your AGENCY implementing an "at least as effective as" variant of this BMP?	○ Yes ● No
	a. If YES, please explain in detail how your implementation of this BMP differs from Exhibit 1 and why you consider it to be "at least as effective as."	

D. Comments

B2: Includes the District's agreed upon cost-share of the Water Conservation Garden's Operations and Maintenance Budget, which is strongly supported by the District and reported under BMP 7.

BMP 12: Conservation Coordinator

Reporting Unit:	BMP Form Status:	Year:
Otay Water District	**100% Complete**	**2008**

A. Implementation

	1. Does your Agency have a conservation coordinator?	● Yes ○ No
	2. Is a coordinator position supplied by another agency with which you cooperate in a regional conservation program ?	○ Yes ● No
	a. Partner agency's name:	
	3. If your agency supplies the conservation coordinator:	
	a. What percent is this conservation coordinator's position?	100%
	b. Coordinator's Name	William Granger
	c. Coordinator's Title	Water Conservation Manager
	d. Coordinator's Experience and Number of Years	14 years experience developing and managing water conservation programs
	e. Date Coordinator's position was created (mm/dd/yyyy)	3/28/1991
	4. Number of conservation staff (FTEs), including Conservation Coordinator.	2.25

B. Conservation Staff Program Expenditures

?	1. Staffing Expenditures (In-house Only)	247,075.41
?	2. BMP Program Implementation Expenditures	309,436.72

C. "At Least As Effective As"

?	1. Is your AGENCY implementing an "at least as effective as" variant of this BMP?	○ Yes ● No
	a. If YES, please explain in detail how your implementation of this BMP differs from Exhibit 1 and why you consider it to be "at least as effective as."	

D. Comments

A.4: The District had hired an intern to work part time between October 2007 and April of 2008.

B2: Includes the District's agreed upon cost-share of the Water Conservation Garden's Operations and Maintenance Budget, which is strongly supported by the District and reported under BMP 7.

BMP 13: Water Waste Prohibition

Reporting Unit:	BMP Form Status:	Year:
Otay Water District	**100% Complete**	**2005**

A. Requirements for Documenting BMP Implementation

1. Is a water waste prohibition ordinance in effect in your service area?	● Yes ○ No

a. If YES, describe the ordinance:

Section 39 of the Otay Water District Code of Ordinances outlines the District's Conservation and Water Shortage Response Program. Section 39.02 states that "available water resources be put to maximum beneficial use to the extent to which they are capable; that the waste or unreasonalbe use, or unreasonable method of use of water be prevented; and that the conservation of such water be encouraged with a view to the maximum reasonable and beneficial use thereof in the interests of the residents of the District and for teh public welfare."

2. Is a copy of the most current ordinance(s) on file with CUWCC?

- [x] Yes
- [ ] No

a. List local jurisdictions in your service area in the first text box and water waste ordinance citations in each jurisdiction in the second text box:

The eastern portions (east of 805) of the City of Chula Vista and portions of unincorporated areas of San Diego County, including Spring Valley, Rancho San Diego, Bonita, Jamul, El Cajon and Otay Mesa, served by the County of San Diego.	District Rules and Regulations for Water Conservation, revised on 12/7/2005. Both the City of Chula Vista and the County of San Diego adopted landscape ordinances in the early 1990s.

B. Implementation

1. Indicate which of the water uses listed below are prohibited by your agency or service area.

a. Gutter flooding	● Yes ○ No
b. Single-pass cooling systems for new connections	● Yes ○ No
c. Non-recirculating systems in all new conveyor or car wash systems	● Yes ○ No
d. Non-recirculating systems in all new commercial laundry systems	● Yes ○ No
e. Non-recirculating systems in all new decorative fountains	● Yes ○ No
f. Other, please name As per Section 39.05 C, "Customers are required to repair all	● Yes ○ No

2. Describe measures that prohibit water uses listed above:

The following measures apply at all times as per Section 39.05 of the District's Code of Ordinances: (a) At no time shall water be wasted or used unreasonably, (b) Water shall not be allowed to leave the the customer's property by drainage onto adjacent properties or public or private roadways or streets due to excessive irrigation and/or neglect, (c) Customers shall be required to repair all water leaks within 48 hours of knowledge that a leak exists, (d) water shall not be used to wash down sidewalks, driveways, parking areas, tennis courts, patios, or other paved areas except to alleviate immediate safety or sanitation hazards, (e) Lawn watering or irrigation, other than by hand or drip methods, is prohibited except between the hours of 4:00 p.m. and 9:00 a.m. the following morning. New plantings and newly seeded areas are exempt from these limits for 30 days, (f) The use of hand-held hose for spraying, lawn watering, vehicle washing or structure washing is prohibited without an automatic shut-off nozzle. The following measures apply during Stage 2 and above: (a) No non-residential fountains shall be operated unless reclaimed water is used, (b) Restaurants shall not serve water to their customers except when specifically requested. During Stages 4 and above: No filling, refilling, or adding to artificial ponds or lakes shall be permitted unless reclaimed water is used

Water Softeners:

3. Indicate which of the following measures your agency has supported in developing state law:

a. Allow the sale of more efficient, demand-initiated regenerating DIR models.	● Yes ○ No
b. Develop minimum appliance efficiency standards that:	
i.) Increase the regeneration efficiency standard to at least 3,350 grains of hardness removed per pound of common salt used.	● Yes ○ No
ii.) Implement an identified maximum number of gallons discharged per gallon of soft water produced.	● Yes ○ No
c. Allow local agencies, including municipalities and special districts, to set more stringent standards and/or to ban on-site	● Yes

districts, to set more stringent standards and/or to ban on-site regeneration of water softeners if it is demonstrated and found by the agency governing board that there is an adverse effect on the reclaimed water or groundwater supply.	○ No
4. Does your agency include water softener checks in home water audit programs?	● Yes ○ No
5. Does your agency include information about DIR and exchange-type water softeners in educational efforts to encourage replacement of less efficient timer models?	● Yes ○ No

C. Water Waste Prohibition Program Expenditures

	This Year	Next Year
1. Budgeted Expenditures		
2. Actual Expenditures		

D. "At Least As Effective As"

1. Is your AGENCY implementing an "at least as effective as" variant of this BMP?	○ Yes ● No

a. If YES, please explain in detail how your implementation of this BMP differs from Exhibit 1 and why you consider it to be "at least as effective as."

E. Comments

While we personally conduct a limited number of residential surveys we always look for or ask if they have a water softener and ask if it is an "on-demand" unit or on a timer.

BMP 13: Water Waste Prohibition

Reporting Unit:	BMP Form Status:	Year:
Otay Water District	**100% Complete**	**2006**

A. Requirements for Documenting BMP Implementation

1. Is a water waste prohibition ordinance in effect in your service area?	● Yes ○ No

a. If YES, describe the ordinance:

Section 39 of the Otay Water District Code of Ordinances outlines the District's Conservation and Water Shortage Response Program. Section 39.02 states that "available water resources be put to maximum beneficial use to the extent to which they are capable; that the waste or unreasonable use, or unreasonable method of use of water be prevented; and that the conservation of such water be encouraged with a view to the maximum reasonable and beneficial use thereof in the interests of the residents of the District and for the public welfare."

2. Is a copy of the most current ordinance(s) on file with CUWCC?

- [x] Yes
- [ ] No

a. List local jurisdictions in your service area in the first text box and water waste ordinance citations in each jurisdiction in the second text box:

The eastern portions (east of 805) of the City of Chula Vista and portions of unincorporated areas of San Diego County, including Spring Valley, Rancho San Diego, Bonita, Jamul, El Cajon and Otay Mesa, served by the County of San Diego.	District Rules and Regulations for Water Conservation, revised on 12/7/2005. Both the City of Chula Vista and the County of San Diego adopted landscape ordinances in the early 1990s.

B. Implementation

1. Indicate which of the water uses listed below are prohibited by your agency or service area.

a. Gutter flooding	● Yes ○ No
b. Single-pass cooling systems for new connections	● Yes ○ No
c. Non-recirculating systems in all new conveyor or car wash systems	● Yes ○ No
d. Non-recirculating systems in all new commercial laundry systems	● Yes ○ No
e. Non-recirculating systems in all new decorative fountains	● Yes ○ No
f. Other, please name As per Section 39.05 C, "Customers are required to repair all	● Yes ○ No

2. Describe measures that prohibit water uses listed above:

The following measures apply at all times as per Section 39.05 of the District's Code of Ordinances: (a) At no time shall water be wasted or used unreasonably, (b) Water shall not be allowed to leave the the customer's property by drainage onto adjacent properties or public or private roadways or streets due to excessive irrigation and/or neglect, (c) Customers shall be required to repair all water leaks within 48 hours of knowledge that a leak exists, (d) water shall not be used to wash down sidewalks, driveways, parking areas, tennis courts, patios, or other paved areas except to alleviate immediate safety or sanitation hazards, (e) Lawn watering or irrigation, other than by hand or drip methods, is prohibited except between the hours of 4:00 p.m. and 9:00 a.m. the following morning. New plantings and newly seeded areas are exempt from these limits for 30 days, (f) The use of hand-held hose for spraying, lawn watering, vehicle washing or structure washing is prohibited without an automatic shut-off nozzle. The following measures apply during Stage 2 and above: (a) No non-residential fountains shall be operated unless reclaimed water is used, (b) Restaurants shall not serve water to their customers except when specifically requested. During Stages 4 and above: No filling, refilling, or adding to artificial ponds or lakes shall be permitted unless reclaimed water is used

Water Softeners:

3. Indicate which of the following measures your agency has supported in developing state law:

a. Allow the sale of more efficient, demand-initiated regenerating DIR models.	● Yes ○ No
b. Develop minimum appliance efficiency standards that:	
i.) Increase the regeneration efficiency standard to at least 3,350 grains of hardness removed per pound of common salt used.	● Yes ○ No
ii.) Implement an identified maximum number of gallons discharged per gallon of soft water produced.	● Yes ○ No
c. Allow local agencies, including municipalities and special districts, to set more stringent standards and/or to ban on-site	● Yes

districts, to set more stringent standards and/or to ban on-site regeneration of water softeners if it is demonstrated and found by the agency governing board that there is an adverse effect on the reclaimed water or groundwater supply.	○ No
4. Does your agency include water softener checks in home water audit programs?	● Yes ○ No
5. Does your agency include information about DIR and exchange-type water softeners in educational efforts to encourage replacement of less efficient timer models?	● Yes ○ No

C. Water Waste Prohibition Program Expenditures

	This Year	Next Year
1. Budgeted Expenditures		
2. Actual Expenditures		

D. "At Least As Effective As"

1. Is your AGENCY implementing an "at least as effective as" variant of this BMP?	○ Yes ● No

a. If YES, please explain in detail how your implementation of this BMP differs from Exhibit 1 and why you consider it to be "at least as effective as."

E. Comments

While we personally conduct a limited number of residential surveys, we always look for or ask if the customer has a water softener and whether it is an "on-demand" unit or on a timer.

BMP 13: Water Waste Prohibition

Reporting Unit:	BMP Form Status:	Year:
Otay Water District	**100% Complete**	**2007**

A. Requirements for Documenting BMP Implementation

1. Is a water waste prohibition ordinance in effect in your service area?	● Yes ○ No

a. If YES, describe the ordinance:

Section 39 of the Otay Water District Code of Ordinances outlines the District's Conservation and Water Shortage Response Program. Section 39.02 states that "available water resources be put to maximum beneficial use to the extent to which they are capable; that the waste or unreasonable use, or unreasonable method of use of water be prevented; and that the conservation of such water be encouraged with a view to the maximum reasonable and beneficial use thereof in the interests of the residents of the District and for the public welfare."

2. Is a copy of the most current ordinance(s) on file with CUWCC?

- [x] Yes
- [ ] No

a. List local jurisdictions in your service area in the first text box and water waste ordinance citations in each jurisdiction in the second text box:

The eastern portions (east of 805) of the City of Chula Vista and portions of unincorporated areas of San Diego County, including Spring Valley, Rancho San Diego, Bonita, Jamul, El Cajon and Otay Mesa, served by the County of San Diego.	District Rules and Regulations for Water Conservation, revised on 12/7/2005. Both the City of Chula Vista and the County of San Diego adopted landscape ordinances in the early 1990s.

B. Implementation

1. Indicate which of the water uses listed below are prohibited by your agency or service area.

a. Gutter flooding	● Yes ○ No
b. Single-pass cooling systems for new connections	● Yes ○ No
c. Non-recirculating systems in all new conveyor or car wash systems	● Yes ○ No
d. Non-recirculating systems in all new commercial laundry systems	● Yes ○ No
e. Non-recirculating systems in all new decorative fountains	● Yes ○ No
f. Other, please name As per Section 39.05 C, "Customers are required to repair all	● Yes ○ No

2. Describe measures that prohibit water uses listed above:

The following measures apply at all times as per Section 39.05 of the District's Code of Ordinances: (a) At no time shall water be wasted or used unreasonably, (b) Water shall not be allowed to leave the the customer's property by drainage onto adjacent properties or public or private roadways or streets due to excessive irrigation and/or neglect, (c) Customers shall be required to repair all water leaks within 48 hours of knowledge that a leak exists, (d) water shall not be used to wash down sidewalks, driveways, parking areas, tennis courts, patios, or other paved areas except to alleviate immediate safety or sanitation hazards, (e) Lawn watering or irrigation, other than by hand or drip methods, is prohibited except between the hours of 4:00 p.m. and 9:00 a.m. the following morning. New plantings and newly seeded areas are exempt from these limits for 30 days, (f) The use of hand-held hose for spraying, lawn watering, vehicle washing or structure washing is prohibited without an automatic shut-off nozzle. The following measures apply during Stage 2 and above: (a) No non-residential fountains shall be operated unless reclaimed water is used, (b) Restaurants shall not serve water to their customers except when specifically requested. During Stages 4 and above: No filling, refilling, or adding to artificial ponds or lakes shall be permitted unless reclaimed water is used

Water Softeners:

3. Indicate which of the following measures your agency has supported in developing state law:

a. Allow the sale of more efficient, demand-initiated regenerating DIR models.	● Yes ○ No
b. Develop minimum appliance efficiency standards that:	
i.) Increase the regeneration efficiency standard to at least 3,350 grains of hardness removed per pound of common salt used.	● Yes ○ No
ii.) Implement an identified maximum number of gallons discharged per gallon of soft water produced.	● Yes ○ No
c. Allow local agencies, including municipalities and special districts, to set more stringent standards and/or to ban on-site	● Yes

districts, to set more stringent standards and/or to ban on-site regeneration of water softeners if it is demonstrated and found by the agency governing board that there is an adverse effect on the reclaimed water or groundwater supply.	○ No
4. Does your agency include water softener checks in home water audit programs?	● Yes ○ No
5. Does your agency include information about DIR and exchange-type water softeners in educational efforts to encourage replacement of less efficient timer models?	● Yes ○ No

C. Water Waste Prohibition Program Expenditures

	This Year	Next Year
1. Budgeted Expenditures		
2. Actual Expenditures		

D. "At Least As Effective As"

1. Is your AGENCY implementing an "at least as effective as" variant of this BMP?	○ Yes ● No

a. If YES, please explain in detail how your implementation of this BMP differs from Exhibit 1 and why you consider it to be "at least as effective as."

E. Comments

We do not have enforcement capability with regard to this ordinance. Also, while we personally conduct a limited number of residential surveys, we always look for or ask if the customer has a water softener and whether it is an "on-demand" unit or on a timer.

BMP 13: Water Waste Prohibition

Reporting Unit:	BMP Form Status:	Year:
Otay Water District	**100% Complete**	**2008**

A. Requirements for Documenting BMP Implementation

1. Is a water waste prohibition ordinance in effect in your service area?	● Yes ○ No

a. If YES, describe the ordinance:

Section 39 of the Otay Water District Code of Ordinances outlines the District's Conservation and Water Shortage Response Program. Section 39.02 states that "available water resources be put to maximum beneficial use to the extent to which they are capable; that the waste or unreasonable use, or unreasonable method of use of water be prevented; and that the conservation of such water be encouraged with a view to the maximum reasonable and beneficial use thereof in the interests of the residents of the District and for the public welfare."

2. Is a copy of the most current ordinance(s) on file with CUWCC?

- [x] Yes
- [ ] No

a. List local jurisdictions in your service area in the first text box and water waste ordinance citations in each jurisdiction in the second text box:

The eastern portions (east of 805) of the City of Chula Vista and portions of unincorporated areas of San Diego County, including Spring Valley, Rancho San Diego, Bonita, Jamul, El Cajon and Otay Mesa, served by the County of San Diego.	District Rules and Regulations for Water Conservation, revised on 12/7/2005. Both the City of Chula Vista and the County of San Diego adopted landscape ordinances in the early 1990s.

B. Implementation

1. Indicate which of the water uses listed below are prohibited by your agency or service area.

a. Gutter flooding	● Yes ○ No
b. Single-pass cooling systems for new connections	● Yes ○ No
c. Non-recirculating systems in all new conveyor or car wash systems	● Yes ○ No
d. Non-recirculating systems in all new commercial laundry systems	● Yes ○ No
e. Non-recirculating systems in all new decorative fountains	● Yes ○ No
f. Other, please name As per Section 39.05 C, "Customers are required to repair all	● Yes ○ No

2. Describe measures that prohibit water uses listed above:

The following measures apply at all times as per Section 39.05 of the District's Code of Ordinances: (a) At no time shall water be wasted or used unreasonably, (b) Water shall not be allowed to leave the the customer's property by drainage onto adjacent properties or public or private roadways or streets due to excessive irrigation and/or neglect, (c) Customers shall be required to repair all water leaks within 48 hours of knowledge that a leak exists, (d) water shall not be used to wash down sidewalks, driveways, parking areas, tennis courts, patios, or other paved areas except to alleviate immediate safety or sanitation hazards, (e) Lawn watering or irrigation, other than by hand or drip methods, is prohibited except between the hours of 4:00 p.m. and 9:00 a.m. the following morning. New plantings and newly seeded areas are exempt from these limits for 30 days, (f) The use of hand-held hose for spraying, lawn watering, vehicle washing or structure washing is prohibited without an automatic shut-off nozzle. The following measures apply during Stage 2 and above: (a) No non-residential fountains shall be operated unless reclaimed water is used, (b) Restaurants shall not serve water to their customers except when specifically requested. During Stages 4 and above: No filling, refilling, or adding to artificial ponds or lakes shall be

Water Softeners:

3. Indicate which of the following measures your agency has supported in developing state law:

a. Allow the sale of more efficient, demand-initiated regenerating DIR models.	● Yes ○ No
b. Develop minimum appliance efficiency standards that:	
i.) Increase the regeneration efficiency standard to at least 3,350 grains of hardness removed per pound of common salt used.	● Yes ○ No
ii.) Implement an identified maximum number of gallons discharged per gallon of soft water produced.	● Yes ○ No
c. Allow local agencies, including municipalities and special districts, to set more stringent standards and/or to ban on-site	● Yes

districts, to set more stringent standards and/or to ban on-site regeneration of water softeners if it is demonstrated and found by the agency governing board that there is an adverse effect on the reclaimed water or groundwater supply.	○ No
4. Does your agency include water softener checks in home water audit programs?	● Yes ○ No
5. Does your agency include information about DIR and exchange-type water softeners in educational efforts to encourage replacement of less efficient timer models?	● Yes ○ No

C. Water Waste Prohibition Program Expenditures

	This Year	Next Year
1. Budgeted Expenditures		
2. Actual Expenditures		

D. "At Least As Effective As"

1. Is your AGENCY implementing an "at least as effective as" variant of this BMP?	○ Yes ● No

a. If YES, please explain in detail how your implementation of this BMP differs from Exhibit 1 and why you consider it to be "at least as effective as."

E. Comments

We do not have enforcement capability with regard to this ordinance. Also, while we personally conduct a limited number of residential surveys, we always look for or ask if the customer has a water softener and whether it is an "on-demand" unit or on a timer.

BMP 14: Residential ULFT Replacement Programs

Reporting Unit:	BMP Form Status:	Year:
Otay Water District	**100% Complete**	**2005**

A. Implementation

Number of Non-Efficient Toilets Replaced With 1.6 gpf Toilets

		Single-Family Accounts	Multi-Family Units
	1. Does your Agency have program(s) for replacing high-water-using toilets with ultra-low flush toilets (1.6 gpf)?	● Yes ○ No	● Yes ○ No
	Replacement Method	**SF Accounts**	**MF Units**
	2. Rebate	594	133
	3. Direct Install	0	0
	4. CBO Distribution	0	0
	5. Other	0	0
	Total	**594**	**133**

Number of Non-Efficient Toilets Replaced With 1.28 gpf HETs

		Single-Family Accounts	Multi-Family Units
	6. Does your Agency have program(s) for replacing high-water-using toilets with high-efficiency toilets (1.2 gpf)?	○ Yes ● No	○ Yes ● No
	Replacement Method	**SF Accounts**	**MF Units**
	7. Rebate	0	0
	8. Direct Install	0	0
	9. CBO Distribution	0	0
	10. Other	0	0
	Total	**0**	**0**

Number of Non-Efficient Toilets Replaced w/ 1.2 gpf HETs (dual-flush)

	Single-Family Accounts	Multi-Family Units
11. Does your Agency have program(s) for replacing high-water-using toilets with dual flush toilets?	● Yes ○ No	● Yes ○ No
Replacement Method	**SF Accounts**	**MF Units**
12. Rebate	2	0
13. Direct Install	0	0
14. CBO Distribution	0	0
15. Other	0	0
Total	**2**	**0**

SF customers are offered a voucher redeemable for up to $75 off the purchase price of all the 3.5+ gallon per flush toilets in their home. Toilets installed as part of new construction or bathroom additions do not qualify. Beginning last fiscal year, SF customers were offered $95 to replace their older toilets with dual-flush toilets. As a pilot program, the District offered a $70 incentive ($45 last FY) toward dual-flush toilets offered in new construction. Six DFTs were installed this year through this program, but are not included in the totals above.

Participating MF customers are offered a voucher redeemable for up to $75 off the purchase price of all the 3.5+ gallon per flush toilets in the multi-family complex. A $95 voucher was available for the installation of dual-flush toilets in MF residences. New MF residences could apply for the $70 voucher available for installing DFTs in new construction.

18. Is a toilet retrofit on resale ordinance in effect for your service area?	○ Yes ● No

19. List local jurisdictions in your service area in the left box and ordinance citations in each jurisdiction in the right box:

B. Residential ULFT Program Expenditures

1. Estimated cost per ULFT/HET replacement:	24.41

C. "At Least As Effective As"

1. Is your AGENCY implementing an "at least as effective as" variant of this BMP?	○ Yes ● No

a. If YES, please explain in detail how your implementation of this BMP differs from Exhibit 1 and why you consider it to be "at least as effective as."

D. Comments

As noted above, the District has offered an incentive to encourage developers and builders to install dual flush toilets in new contruction. This fiscal year, 6 DFTs were installed through this program but are not counted in the program totals.

BMP 14: Residential ULFT Replacement Programs

Reporting Unit:	BMP Form Status:	Year:
Otay Water District	**100% Complete**	**2006**

A. Implementation

Number of Non-Efficient Toilets Replaced With 1.6 gpf Toilets

		Single-Family Accounts	Multi-Family Units
	1. Does your Agency have program(s) for replacing high-water-using toilets with ultra-low flush toilets (1.6 gpf)?	● Yes ○ No	● Yes ○ No
	Replacement Method	**SF Accounts**	**MF Units**
	2. Rebate	479	79
	3. Direct Install	0	0
	4. CBO Distribution	0	0
	5. Other	0	0
	Total	**479**	**79**

Number of Non-Efficient Toilets Replaced With 1.28 gpf HETs

		Single-Family Accounts	Multi-Family Units
	6. Does your Agency have program(s) for replacing high-water-using toilets with high-efficiency toilets (1.2 gpf)?	● Yes ○ No	● Yes ○ No
	Replacement Method	**SF Accounts**	**MF Units**
	7. Rebate	3	0
	8. Direct Install	0	0
	9. CBO Distribution	0	0
	10. Other	0	0
	Total	**3**	**0**

Number of Non-Efficient Toilets Replaced w/ 1.2 gpf HETs (dual-flush)

	Single-Family Accounts	Multi-Family Units
11. Does your Agency have program(s) for replacing high-water-using toilets with dual flush toilets?	● Yes ○ No	● Yes ○ No
Replacement Method	**SF Accounts**	**MF Units**
12. Rebate	7	0
13. Direct Install	0	0
14. CBO Distribution	0	0
15. Other	0	0
Total	**7**	**0**

SF customers are offered a voucher redeemable for up to $75 off the purchase price of all the 3.5+ gallon per flush toilets in their home and the incentive was increased from $95 to $165 to fund the installation of HETs (including DFTs).

Participating MF customers are offered a voucher redeemable for up to $75 off the purchase price of all the 3.5+ gallon per flush toilets in the multi-family complex, and $165 toward the installation of HETs (including DFTs). New MF residences could apply for the $70 voucher available for installing DFTs in new construction.

18. Is a toilet retrofit on resale ordinance in effect for your service area?	○ Yes ● No

19. List local jurisdictions in your service area in the left box and ordinance citations in each jurisdiction in the right box:

B. Residential ULFT Program Expenditures

1. Estimated cost per ULFT/HET replacement:	23.85

C. "At Least As Effective As"

1. Is your AGENCY implementing an "at least as effective as" variant of this BMP?	○ Yes ● No

a. If YES, please explain in detail how your implementation of this BMP differs from Exhibit 1 and why you consider it to be "at least as effective as."

D. Comments

The District continues to offer an incentive to encourage developers and builders to install dual flush toilets in new contruction, co-funded by CWA and MET.

BMP 14: Residential ULFT Replacement Programs

Reporting Unit:	BMP Form Status:	Year:
Otay Water District	**100% Complete**	**2007**

A. Implementation

Number of Non-Efficient Toilets Replaced With 1.6 gpf Toilets

		Single-Family Accounts	Multi-Family Units
	1. Does your Agency have program(s) for replacing high-water-using toilets with ultra-low flush toilets (1.6 gpf)?	● Yes ○ No	● Yes ○ No
	Replacement Method	**SF Accounts**	**MF Units**
	2. Rebate	947	90
	3. Direct Install	0	0
	4. CBO Distribution	0	0
	5. Other	0	0
	Total	**947**	**90**

Number of Non-Efficient Toilets Replaced With 1.28 gpf HETs

		Single-Family Accounts	Multi-Family Units
	6. Does your Agency have program(s) for replacing high-water-using toilets with high-efficiency toilets (1.2 gpf)?	● Yes ○ No	● Yes ○ No
	Replacement Method	**SF Accounts**	**MF Units**
	7. Rebate	162	12
	8. Direct Install	0	0
	9. CBO Distribution	0	0
	10. Other	0	0
	Total	**162**	**12**

Number of Non-Efficient Toilets Replaced w/ 1.2 gpf HETs (dual-flush)

	Single-Family Accounts	Multi-Family Units
11. Does your Agency have program(s) for replacing high-water-using toilets with dual flush toilets?	○ Yes ● No	○ Yes ● No
Replacement Method	**SF Accounts**	**MF Units**
12. Rebate	136	16
13. Direct Install	0	0
14. CBO Distribution	0	0
15. Other	0	0
Total	**136**	**16**

Though this program, residential customers of participating water agencies are offered a voucher redeemable for up to $75 off the purchase price of an approved ultra-low-flush toilet (ULFT) and $165 for an approved HET and dual-flush toilets. The voucher is a point-of-purchase discount only. No after-purchase rebates are available. For a limited time, there was a $265 voucher available for HETs installed.

The Voucher Incentive Program has extensive marketing outreach through home improvements stores and plumbing supply stores.

Though this program, residential customers of participating water agencies are offered a voucher redeemable for up to $75 off the purchase price of an approved ultra-low-flush toilet (ULFT) and $165 for an approved HET and dual-flush toilets. For a limited time, there was a $265 voucher available for HETs installed.

The voucher is a point-of-purchase discount only. No after-purchase rebates are available. The Voucher Incentive Program has extensive marketing outreach through home improvements stores and plumbing supply stores.

	18. Is a toilet retrofit on resale ordinance in effect for your service area?	○ Yes ● No
	19. List local jurisdictions in your service area in the left box and ordinance citations in each jurisdiction in the right box:	

B. Residential ULFT Program Expenditures

?	1. Estimated cost per ULFT/HET replacement:	24

C. "At Least As Effective As"

?	1. Is your AGENCY implementing an "at least as effective as" variant of this BMP?	○ Yes ● No
	a. If YES, please explain in detail how your implementation of this BMP differs from Exhibit 1 and why you consider it to be "at least as effective as."	

D. Comments

BMP 14: Residential ULFT Replacement Programs

Reporting Unit:	BMP Form Status:	Year:
Otay Water District	**100% Complete**	**2008**

A. Implementation

Number of Non-Efficient Toilets Replaced With 1.6 gpf Toilets

		Single-Family Accounts	Multi-Family Units
	1. Does your Agency have program(s) for replacing high-water-using toilets with ultra-low flush toilets (1.6 gpf)?	○ Yes ● No	● Yes ○ No
	Replacement Method	**SF Accounts**	**MF Units**
	2. Rebate	0	5
	3. Direct Install	0	0
	4. CBO Distribution	0	0
	5. Other	0	0
	Total	**0**	**5**

Number of Non-Efficient Toilets Replaced With 1.28 gpf HETs

		Single-Family Accounts	Multi-Family Units
	6. Does your Agency have program(s) for replacing high-water-using toilets with high-efficiency toilets (1.2 gpf)?	● Yes ○ No	● Yes ○ No
	Replacement Method	**SF Accounts**	**MF Units**
	7. Rebate	0	11
	8. Direct Install	0	0
	9. CBO Distribution	0	0
	10. Other	0	0
	Total	**0**	**11**

Number of Non-Efficient Toilets Replaced w/ 1.2 gpf HETs (dual-flush)

	Single-Family Accounts	Multi-Family Units
11. Does your Agency have program(s) for replacing high-water-using toilets with dual flush toilets?	● Yes ○ No	● Yes ○ No

Replacement Method	SF Accounts	MF Units
12. Rebate	0	178
13. Direct Install	0	0
14. CBO Distribution	0	0
15. Other	0	0
Total	**0**	**178**

The Residential ULFT program was discontinued on June 30, 2007. No Residential toilet programs were available in FY 08.

Multi-Family ULFTs were offered from July 1, 2008 until December 31, 2007 with a voucher redeemable for up to $75 off the purchase price. Multi-Family HET and dual-flush toilets were available all of FY 08 with a voucher of up to $200. The Voucher Incentive program has extensive marketing outreach through home improvements stores and plumbing supply stores.

	18. Is a toilet retrofit on resale ordinance in effect for your service area?	○ Yes ● No
	19. List local jurisdictions in your service area in the left box and ordinance citations in each jurisdiction in the right box:	

B. Residential ULFT Program Expenditures

?	1. Estimated cost per ULFT/HET replacement:	24

C. "At Least As Effective As"

?	1. Is your AGENCY implementing an "at least as effective as" variant of this BMP?	○ Yes ● No
	a. If YES, please explain in detail how your implementation of this BMP differs from Exhibit 1 and why you consider it to be "at least as effective as."	

D. Comments

BMP 02: Residential Plumbing Retrofit

Reporting Unit:	BMP Form Status:	Year:
Otay Water District	**100% Complete**	**2005**

A. Implementation

1. Is there an enforceable ordinance in effect in your service area requiring replacement of high-flow showerheads and other water use fixtures with their low-flow counterparts?	○ Yes ● No
a. If YES, list local jurisdictions in your service area and code or ordinance in each:	
2. Has your agency satisfied the 75% saturation requirement for single-family housing units?	● Yes ○ No
3. Estimated percent of single-family households with low-flow showerheads:	75 %
4. Has your agency satisfied the 75% saturation requirement for multi-family housing units?	● Yes ○ No
5. Estimated percent of multi-family households with low-flow showerheads:	75 %
6.a. If YES to 2 OR 4 above, did your survey methodology fully comply with the requirements of BMP 2?	● Yes ○ No

b. If YES to 2 OR 4 above, please describe how saturation was determined, including the dates and results of any survey research.

The San Diego County Water Authority and its member agencies distributed over 550,000 showerheads between 1991 and 2002. The average rate of natural replacement is 4.0%, while housing demolition in 0.5%. And, effective January 1, 1994 showerheads manufactured in the United States must be 2.5 gpm maximum. Data from the 01/02 Residential Survey Program showed a 80-95% home saturation. The Otay Water District is one of five agencies within the San Diego County that will be participating in an upcoming (beginning late FY 07) California Single-Family Residential Water Efficiency Study.

B. Low-Flow Device Distribution Information

1. Has your agency developed a targeting/ marketing strategy for distributing low-flow devices?	● Yes ○ No
a. If YES, when did your agency begin implementing this strategy? (Use four-digit year, mm/dd/yyyy)	1/1/1992
b. Common targeting/ marketing methods.	

- ☐ Bill Messages
- ☐ Bill Stuffer
- ☐ Direct Mail to Owners
- ☐ Direct Mail to Residents
- ☐ Door-to-Door
- ☐ Other
- ☐ PSAs
- ☐ Telemarketing

c. Describe your targeting/ marketing strategy.

Over 550,000 showerheads have been distributed in the region to date. Marketing that has been done in the San Diego region includes the following: residential survey distribution, direct distribution to customers (lobby counter), distribution at community events, by customer request and distribution at CBO events. In addition, this fiscal year, the Otay Water District distributed 300 showerheads to customers

Low-Flow Devices Distributed/ Installed	SF Account	MF Units
2. Number of low-flow showerheads distributed:	191	0
3. Number of toilet-displacement devices distributed:	0	0
4. Number of toilet flappers distributed:	0	0
5. Number of faucet aerators distributed:	0	0

6. Does your agency track the distribution and cost of low-flow devices?	● Yes ○ No
a. If YES, in what format are low-flow devices tracked?	○ Database ● Spreadsheet ○ Manual Activity ○ None

b. If yes, describe your tracking and distribution system :

The San Diego County Water Authority documented distribution in the region in a spreadsheet by region, rather than by specific member agency. The District began tracking the distribution of showerheads it personally distributed beginning in FY 02.

C. Low-Flow Device Program Expenditures

	This Year	Next Year
1. Budgeted Expenditures		

	1. Budgeted Expenditures		
	2. Actual Expenditures		

D. "At Least As Effective As"

	1. Is your AGENCY implementing an "at least as effective as" variant of this BMP?	○ Yes ● No
	a. If YES, please explain in detail how your implementation of this BMP differs from Exhibit 1 and why you consider it to be "at least as effective as."	

E. Comments

We distribute 2.0 gpm showerheads. Most of the homes within the district were constructed after 1992.

BMP 02: Residential Plumbing Retrofit

Reporting Unit:	BMP Form Status:	Year:
Otay Water District	**100% Complete**	**2006**

A. Implementation

1. Is there an enforceable ordinance in effect in your service area requiring replacement of high-flow showerheads and other water use fixtures with their low-flow counterparts?	○ Yes ● No
a. If YES, list local jurisdictions in your service area and code or ordinance in each:	
2. Has your agency satisfied the 75% saturation requirement for single-family housing units?	● Yes ○ No
3. Estimated percent of single-family households with low-flow showerheads:	75 %
4. Has your agency satisfied the 75% saturation requirement for multi-family housing units?	● Yes ○ No
5. Estimated percent of multi-family households with low-flow showerheads:	75 %
6.a. If YES to 2 OR 4 above, did your survey methodology fully comply with the requirements of BMP 2?	● Yes ○ No

b. If YES to 2 OR 4 above, please describe how saturation was determined, including the dates and results of any survey research.

The San Diego County Water Authority and its member agencies distributed over 550,000 showerheads between 1991 and 2002. The average rate of natural replacement is 4.0%, while housing demolition in 0.5%. And, effective January 1, 1994 showerheads manufactured in the United States must be 2.5 gpm maximum. Data from the 01/02 Residential Survey Program showed a 80-95% home saturation. The Otay Water District is one of five agencies within the San Diego County that will be participating in an upcoming (beginning late FY 07) California Single-Family Residential Water Efficiency Study.

B. Low-Flow Device Distribution Information

1. Has your agency developed a targeting/ marketing strategy for distributing low-flow devices?	● Yes ○ No
a. If YES, when did your agency begin implementing this strategy? (Use four-digit year, mm/dd/yyyy)	1/1/1992
b. Common targeting/ marketing methods.	

- ☐ Bill Messages
- ☐ Bill Stuffer
- ☐ Direct Mail to Owners
- ☐ Direct Mail to Residents
- ☐ Door-to-Door
- ☐ Other
- ☐ PSAs
- ☐ Telemarketing

c. Describe your targeting/ marketing strategy.

Over 550,000 showerheads have been distributed in the region to date. Marketing that has been done in the San Diego region includes the following: residential survey distribution, direct distribution to customers (lobby counter), distribution at community events, by customer request and distribution at CBO events. In addition, this fiscal year, the Otay Water District distributed 5002 showerheads to customers

Low-Flow Devices Distributed/ Installed	SF Account	MF Units
2. Number of low-flow showerheads distributed:	220	0
3. Number of toilet-displacement devices distributed:	0	0
4. Number of toilet flappers distributed:	0	0
5. Number of faucet aerators distributed:	0	0

6. Does your agency track the distribution and cost of low-flow devices?	● Yes ○ No
a. If YES, in what format are low-flow devices tracked?	○ Database ● Spreadsheet ○ Manual Activity ○ None

b. If yes, describe your tracking and distribution system :

The San Diego County Water Authority documented distribution in the region in a spreadsheet by region, rather than by specific member agency. The District began tracking the distribution of showerheads it personally distributed beginning in FY 02.

C. Low-Flow Device Program Expenditures

	This Year	Next Year
1. Budgeted Expenditures		

	1. Budgeted Expenditures		
	2. Actual Expenditures		

D. "At Least As Effective As"

	1. Is your AGENCY implementing an "at least as effective as" variant of this BMP?	○ Yes ● No
	a. If YES, please explain in detail how your implementation of this BMP differs from Exhibit 1 and why you consider it to be "at least as effective as."	

E. Comments

We distribute 2.0 gpm showerheads. In addition, a large portion of our service area was built after 1992.

BMP 02: Residential Plumbing Retrofit

Reporting Unit:	BMP Form Status:	Year:
Otay Water District	**100% Complete**	**2007**

A. Implementation

1. Is there an enforceable ordinance in effect in your service area requiring replacement of high-flow showerheads and other water use fixtures with their low-flow counterparts?	○ Yes ● No
a. If YES, list local jurisdictions in your service area and code or ordinance in each:	
2. Has your agency satisfied the 75% saturation requirement for single-family housing units?	● Yes ○ No
3. Estimated percent of single-family households with low-flow showerheads:	75 %
4. Has your agency satisfied the 75% saturation requirement for multi-family housing units?	● Yes ○ No
5. Estimated percent of multi-family households with low-flow showerheads:	75 %
6.a. If YES to 2 OR 4 above, did your survey methodology fully comply with the requirements of BMP 2?	● Yes ○ No

b. If YES to 2 OR 4 above, please describe how saturation was determined, including the dates and results of any survey research.

The San Diego County Water Authority and its member agencies distributed over 550,000 showerheads between 1991 and 2002. The average rate of natural replacement is 4.0%, while housing demolition in 0.5%. And, effective January 1, 1994 showerheads manufactured in the United States must be 2.5 gpm maximum. Data from the 01/02 Residential Survey Program showed a 80-95% home saturation. The Otay Water District is one of five agencies within the San Diego County that will be participating in an upcoming (beginning late FY 07) California Single-Family Residential Water Efficiency Study.

B. Low-Flow Device Distribution Information

1. Has your agency developed a targeting/ marketing strategy for distributing low-flow devices?	● Yes ○ No
a. If YES, when did your agency begin implementing this strategy? (Use four-digit year, mm/dd/yyyy)	1/1/1992
b. Common targeting/ marketing methods.	

- ☐ Bill Messages
- ☐ Bill Stuffer
- ☐ Direct Mail to Owners
- ☐ Direct Mail to Residents
- ☐ Door-to-Door
- ☐ Other
- ☐ PSAs
- ☐ Telemarketing

c. Describe your targeting/ marketing strategy.

Over 550,000 showerheads have been distributed in the region to date. Marketing that has been done in the San Diego region includes the following: residential survey distribution, direct distribution to customers (lobby counter), distribution at community events, by customer request and distribution at CBO events.

Low-Flow Devices Distributed/ Installed	SF Account	MF Units
2. Number of low-flow showerheads distributed:	454	0
3. Number of toilet-displacement devices distributed:	0	0
4. Number of toilet flappers distributed:	0	0
5. Number of faucet aerators distributed:	0	0

6. Does your agency track the distribution and cost of low-flow devices?	● Yes ○ No
a. If YES, in what format are low-flow devices tracked?	○ Database ● Spreadsheet ○ Manual Activity ○ None

b. If yes, describe your tracking and distribution system :

The San Diego County Water Authority documented distribution in the region in a spreadsheet by region, rather than by specific member agency. The District began tracking the distribution of showerheads it personally distributed beginning in FY 02.

C. Low-Flow Device Program Expenditures

	This Year	Next Year
1. Budgeted Expenditures		

	1. Budgeted Expenditures		
	2. Actual Expenditures		

D. "At Least As Effective As"

	1. Is your AGENCY implementing an "at least as effective as" variant of this BMP?	○ Yes ● No
	a. If YES, please explain in detail how your implementation of this BMP differs from Exhibit 1 and why you consider it to be "at least as effective as."	

E. Comments

We distribute 2.0 gpm showerheads. In addition, a large portion of our service area was built after 1992.

BMP 02: Residential Plumbing Retrofit

Reporting Unit:	BMP Form Status:	Year:
Otay Water District	**100% Complete**	**2008**

A. Implementation

1. Is there an enforceable ordinance in effect in your service area requiring replacement of high-flow showerheads and other water use fixtures with their low-flow counterparts?	○ Yes ● No
a. If YES, list local jurisdictions in your service area and code or ordinance in each:	
2. Has your agency satisfied the 75% saturation requirement for single-family housing units?	● Yes ○ No
3. Estimated percent of single-family households with low-flow showerheads:	75 %
4. Has your agency satisfied the 75% saturation requirement for multi-family housing units?	● Yes ○ No
5. Estimated percent of multi-family households with low-flow showerheads:	75 %
6.a. If YES to 2 OR 4 above, did your survey methodology fully comply with the requirements of BMP 2?	● Yes ○ No

b. If YES to 2 OR 4 above, please describe how saturation was determined, including the dates and results of any survey research.

The San Diego County Water Authority and its member agencies distributed over 550,000 showerheads between 1991 and 2002. The average rate of natural replacement is 4.0%, while housing demolition in 0.5%. And, effective January 1, 1994 showerheads manufactured in the United States must be 2.5 gpm maximum. Data from the 01/02 Residential Survey Program showed a 80-95% home saturation. The Otay Water District is one of five agencies within the San Diego County that will be participating in an upcoming (beginning late FY 07) California Single-Family Residential Water Efficiency Study.

B. Low-Flow Device Distribution Information

1. Has your agency developed a targeting/ marketing strategy for distributing low-flow devices?	● Yes ○ No
a. If YES, when did your agency begin implementing this strategy? (Use four-digit year, mm/dd/yyyy)	1/1/1992
b. Common targeting/ marketing methods.	

- ☐ Bill Messages
- ☐ Bill Stuffer
- ☐ Direct Mail to Owners
- ☐ Direct Mail to Residents
- ☐ Door-to-Door
- ☐ Other
- ☐ PSAs
- ☐ Telemarketing

c. Describe your targeting/ marketing strategy.

Over 550,000 showerheads have been distributed in the region to date. Marketing that has been done in the San Diego region includes the following: residential survey distribution, direct distribution to customers (lobby counter), distribution at community events, by customer request and distribution at CBO events. In addition, this fiscal year, the Otay Water District distributed 75 showerheads to customers

Low-Flow Devices Distributed/ Installed	SF Account	MF Units
2. Number of low-flow showerheads distributed:	~~75~~	0
3. Number of toilet-displacement devices distributed:	0	0
4. Number of toilet flappers distributed:	0	0
5. Number of faucet aerators distributed:	0	0

6. Does your agency track the distribution and cost of low-flow devices?	● Yes ○ No
a. If YES, in what format are low-flow devices tracked?	○ Database ● Spreadsheet ○ Manual Activity ○ None

b. If yes, describe your tracking and distribution system :

The San Diego County Water Authority documented distribution in the region in a spreadsheet by region, rather than by specific member agency. The District began tracking the distribution of showerheads it personally distributed beginning in FY 02.

C. Low-Flow Device Program Expenditures

	This Year	Next Year
1. Budgeted Expenditures		

	1. Budgeted Expenditures		
	2. Actual Expenditures		

D. "At Least As Effective As"

	1. Is your AGENCY implementing an "at least as effective as" variant of this BMP?	● Yes ○ No
	a. If YES, please explain in detail how your implementation of this BMP differs from Exhibit 1 and why you consider it to be "at least as effective as."	

E. Comments

We distribute 2.0 gpm showerheads. In addition, a large portion (over half) of our service area was built after 1992.

BMP 03: System Water Audits, Leak Detection and Repair

Reporting Unit:	BMP Form Status:	Year:
Otay Water District	**100% Complete**	**2005**

A. Implementation

	1. Does your agency own or operate a water distribution system?	● Yes ○ No
	- IF YOU ANSWERED NO TO #1, YOU ARE DONE WITH THE FORM. - IF YOU ANSWERED YES TO #1, PLEASE ANSWER THE FOLLOWING QUESTIONS.	
	2. Has your agency completed a pre-screening system audit for this reporting year?	● Yes ○ No
	3. If YES, enter the values (AF/Year) used to calculate verifiable use as a percent of total production:	
	a. Determine metered sales (AF)	37515
	b. Determine other system verifiable uses (AF)	635.7
	c. Determine total supply into the system (AF)	38828.4
	d. Using the numbers above, if (Metered Sales + Other Verifiable Uses) / Total Supply is < 0.9 then a full-scale system audit is required. *(This number will automatically calculate when you Save the Session)*	0.983
	4. Does your agency keep necessary data on file to verify the values entered in question 3?	● Yes ○ No
	5. Did your agency complete a full-scale system water audit during this report year?	○ Yes ● No
	6. Does your agency maintain in-house records of audit results or completed AWWA audit worksheets for the completed audit which could be forwarded to CUWCC?	● Yes ○ No
	7. Does your agency operate a system leak detection program?	● Yes ○ No

a. If yes, describe the leak detection program:

Leak detection is based on purchased vs. sales, physical observations of wet spots, mainflushing load contents, and field staff calls. Otay staff calls in American Leak Detection Service depending upon the urgency or the staffing.

B. Survey Data

1. Total number of miles of distribution system line:	853.8
2. Number of miles of distribution system line surveyed:	12.75

C. "At Least As Effective As"

1. Is your agency implementing an "at least as effective as" variant of this BMP?	○ Yes ● No

a. If YES, please explain in detail how your implementation of this BMP differs from Exhibit 1 and why you consider it to be "at least as effective as."

D. Comments

3b-"other" includes Otay water district meters, unbilled water usage and work orders
B1: now includes laterals. Normally we do not include this number in our official number of miles of distribution system line

BMP 03: System Water Audits, Leak Detection and Repair

Reporting Unit:	BMP Form Status:	Year:
Otay Water District	**100% Complete**	**2006**

A. Implementation

	1. Does your agency own or operate a water distribution system?	● Yes ○ No
	- IF YOU ANSWERED NO TO #1, YOU ARE DONE WITH THE FORM. - IF YOU ANSWERED YES TO #1, PLEASE ANSWER THE FOLLOWING QUESTIONS.	
	2. Has your agency completed a pre-screening system audit for this reporting year?	● Yes ○ No
	3. If YES, enter the values (AF/Year) used to calculate verifiable use as a percent of total production:	
	a. Determine metered sales (AF)	40570
	b. Determine other system verifiable uses (AF)	273.8
	c. Determine total supply into the system (AF)	42492.14
	d. Using the numbers above, if (Metered Sales + Other Verifiable Uses) / Total Supply is < 0.9 then a full-scale system audit is required. *(This number will automatically calculate when you Save the Session)*	0.961
	4. Does your agency keep necessary data on file to verify the values entered in question 3?	● Yes ○ No
	5. Did your agency complete a full-scale system water audit during this report year?	○ Yes ● No
	6. Does your agency maintain in-house records of audit results or completed AWWA audit worksheets for the completed audit which could be forwarded to CUWCC?	● Yes ○ No
	7. Does your agency operate a system leak detection program?	● Yes ○ No

a. If yes, describe the leak detection program:

Leak detection is based on purchased vs. sales, physical observations of wet spots, mainflushing load contents, and field staff calls. Otay staff calls in American Leak Detection Service depending upon the urgency or the staffing.
B. Survey Data

B. Survey Data

1. Total number of miles of distribution system line:	928
2. Number of miles of distribution system line surveyed:	9.2

C. "At Least As Effective As"

1. Is your agency implementing an "at least as effective as" variant of this BMP?	○ Yes ● No

a. If YES, please explain in detail how your implementation of this BMP differs from Exhibit 1 and why you consider it to be "at least as effective as."

D. Comments

A3b-"other" includes Otay water district meters, work orders and unbilled water usage
B1: now includes laterals. Normally we do not include this number in our official number of miles of distribution system line.

BMP 03: System Water Audits, Leak Detection and Repair

Reporting Unit:	BMP Form Status:	Year:
Otay Water District	**100% Complete**	**2007**

A. Implementation

	1. Does your agency own or operate a water distribution system?	● Yes ○ No
	- IF YOU ANSWERED NO TO #1, YOU ARE DONE WITH THE FORM. - IF YOU ANSWERED YES TO #1, PLEASE ANSWER THE FOLLOWING QUESTIONS.	
	2. Has your agency completed a pre-screening system audit for this reporting year?	● Yes ○ No
	3. If YES, enter the values (AF/Year) used to calculate verifiable use as a percent of total production:	
	a. Determine metered sales (AF)	41275.83
	b. Determine other system verifiable uses (AF)	263.3
	c. Determine total supply into the system (AF)	43390.8
	d. Using the numbers above, if (Metered Sales + Other Verifiable Uses) / Total Supply is < 0.9 then a full-scale system audit is required. *(This number will automatically calculate when you Save the Session)*	0.957
	4. Does your agency keep necessary data on file to verify the values entered in question 3?	● Yes ○ No
	5. Did your agency complete a full-scale system water audit during this report year?	○ Yes ● No
	6. Does your agency maintain in-house records of audit results or completed AWWA audit worksheets for the completed audit which could be forwarded to CUWCC?	● Yes ○ No
	7. Does your agency operate a system leak detection program?	● Yes ○ No

a. If yes, describe the leak detection program:

Leak detection is based on purchased vs. sales, physical observations of wet spots, mainflushing load contents, and field staff calls. Otay staff calls in American Leak Detection Service depending upon the urgency or the staffing. B. Survey Data

B. Survey Data

1. Total number of miles of distribution system line:	1041
2. Number of miles of distribution system line surveyed:	6.1

C. "At Least As Effective As"

1. Is your agency implementing an "at least as effective as" variant of this BMP?	○ Yes ● No

a. If YES, please explain in detail how your implementation of this BMP differs from Exhibit 1 and why you consider it to be "at least as effective as."

D. Comments

A3b-"other" includes Otay water district meters, work orders and unbilled water usage B1: now includes laterals. Normally we do not include this number in our official number of miles of distribution system line.

BMP 03: System Water Audits, Leak Detection and Repair

Reporting Unit:	BMP Form Status:	Year:
Otay Water District	**100% Complete**	**2008**

A. Implementation

	1. Does your agency own or operate a water distribution system?	● Yes ○ No
	- IF YOU ANSWERED NO TO #1, YOU ARE DONE WITH THE FORM. - IF YOU ANSWERED YES TO #1, PLEASE ANSWER THE FOLLOWING QUESTIONS.	
	2. Has your agency completed a pre-screening system audit for this reporting year?	● Yes ○ No
	3. If YES, enter the values (AF/Year) used to calculate verifiable use as a percent of total production:	
	a. Determine metered sales (AF)	40350.7
	b. Determine other system verifiable uses (AF)	221.4
	c. Determine total supply into the system (AF)	42979.4
	d. Using the numbers above, if (Metered Sales + Other Verifiable Uses) / Total Supply is < 0.9 then a full-scale system audit is required. *(This number will automatically calculate when you Save the Session)*	0.944
	4. Does your agency keep necessary data on file to verify the values entered in question 3?	● Yes ○ No
	5. Did your agency complete a full-scale system water audit during this report year?	○ Yes ● No
	6. Does your agency maintain in-house records of audit results or completed AWWA audit worksheets for the completed audit which could be forwarded to CUWCC?	● Yes ○ No
	7. Does your agency operate a system leak detection program?	● Yes ○ No

a. If yes, describe the leak detection program:

Leak detection is based on purchased vs. sales, physical observations of wet spots, mainflushing load contents, and field staff calls. Otay staff calls in American Leak Detection Service depending upon the urgency or the staffing. B. Survey Data

B. Survey Data

1. Total number of miles of distribution system line:	1071
2. Number of miles of distribution system line surveyed:	7.9

C. "At Least As Effective As"

1. Is your agency implementing an "at least as effective as" variant of this BMP?	○ Yes ● No

a. If YES, please explain in detail how your implementation of this BMP differs from Exhibit 1 and why you consider it to be "at least as effective as."

D. Comments

A3b-"other" includes Otay water district meters, work orders and unbilled water usage B1: now includes laterals. Normally we do not include this number in our official number of miles of distribution system line.

BMP 04: Metering with Commodity Rates for all New Connections and Retrofit of Existing Connections

Reporting Unit:	BMP Form Status:	Year:
Otay Water District	**100% Complete**	**2005**

A. Implementation

1. Please fill out the matrix:

Types of Billed Accounts	% Accounts Metered	% Accounts Measured	% Accounts Volumetric Billing
a. Treated Water SF Residential Accounts	100		100
b. Treated Water MF Residential Accounts	100		100
c. Treated Water Commercial Accounts	100		100
d. Treated Water Industrial Accounts	100		100
e. Treated Water Institutional Accounts	100		100
f. Raw Water Residential Deliveries	100	0	100
g. Raw Water Non-Residential Deliveries	100	0	100

2. If your agency does not meter 100% of all treated water accounts:

a. Does your agency have a plan or program for retrofitting existing unmetered treated water connections?	○ Yes ○ No
b. By what date would 100% of all treated water accounts be metered?	
c. Number of previously unmetered accounts fitted with meters during reporting period:	

3. If your agency does not bill 100% of all **treated** water accounts by volume of use:

a. By what date (Year must be four digits mm/dd/yyyy) will all customers with meters be billed by volume of use	

	4. If your agency does not meter or measure 100% of all **raw** water delivery fields, does your agency intend to develop a program for measuring all raw water deliveries?	○ Yes ○ No
	5. If your agency does not volumetrically bill 100% of all **raw** water delivery, does your agency intend to develop a program for billing all raw water deliveries by volume of use?	○ Yes ○ No
	6. Does your agency meter by volume of use all municipal and governmental accounts?	● Yes ○ No
	a. If no, which types of accounts are not included: ☐ Landscape Irrigation ☐ Municipal Facilities ☐ Airports ☐ Hospitals and Health Care Facilities ☐ Utility Owned Services ☐ Street Sweeping ☐ Fire Flows or Hydrant Uses	
	7. Does your agency bill by volume of use all municipal and governmental accounts?	● Yes ○ No
	a. If no, which types of accounts are not included: ☐ Landscape Irrigation ☐ Municipal Facilities ☐ Airports ☐ Hospitals and Health Care Facilities ☐ Utility Owned Services ☐ Street Sweeping ☐ Fire Flows or Hydrant Uses	

B. Feasibility Study

?	1. Has your agency conducted a feasibility study to assess the merits of a program to provide incentives to switch mixed-use accounts to dedicated landscape meters?	○ Yes ● No
	a. If YES, when was the feasibility study conducted? (mm/dd/yy)	
	b. Describe the feasibility study:	

2. Number of CII accounts with mixed-use meters:	423
3. Number of CII accounts with mixed-use meters retrofitted with dedicated irrigation meters during reporting period	0

C. "At Least As Effective As"

1. Is your agency implementing an "at least as effective as" variant of this BMP?	○ Yes ● No

a. If YES, please explain in detail how your implementation of this BMP differs from Exhibit 1 and why you consider it to be "at least as effective as."

D. Comments

B2. The figure is from a query of our billing system. Since 1990, the District has required that all CII acccounts on a parcel larger than one acre have a dedicated irrigation meter. There are known CII sites with mixed use meters including Donovan Correctional Facility, Southwestern College and Cuyamaca College.

BMP 04: Metering with Commodity Rates for all New Connections and Retrofit of Existing Connections

Reporting Unit:	BMP Form Status:	Year:
Otay Water District	**100% Complete**	**2006**

A. Implementation

1. Please fill out the matrix:

Types of Billed Accounts	% Accounts Metered	% Accounts Measured	% Accounts Volumetric Billing
a. Treated Water SF Residential Accounts	100		100
b. Treated Water MF Residential Accounts	100		100
c. Treated Water Commercial Accounts	100		100
d. Treated Water Industrial Accounts	100		100
e. Treated Water Institutional Accounts	100		100
f. Raw Water Residential Deliveries	100	0	100
g. Raw Water Non-Residential Deliveries	100	0	100

2. If your agency does not meter 100% of all treated water accounts:

a. Does your agency have a plan or program for retrofitting existing unmetered treated water connections?	○ Yes ○ No
b. By what date would 100% of all treated water accounts be metered?	
c. Number of previously unmetered accounts fitted with meters during reporting period:	

3. If your agency does not bill 100% of all **treated** water accounts by volume of use:

a. By what date (Year must be four digits mm/dd/yyyy) will all customers with meters be billed by volume of use	

	4. If your agency does not meter or measure 100% of all **raw** water delivery fields, does your agency intend to develop a program for measuring all raw water deliveries?	○ Yes ○ No
	5. If your agency does not volumetrically bill 100% of all **raw** water delivery, does your agency intend to develop a program for billing all raw water deliveries by volume of use?	○ Yes ○ No
	6. Does your agency meter by volume of use all municipal and governmental accounts?	● Yes ○ No
	a. If no, which types of accounts are not included: ☐ Landscape Irrigation ☐ Municipal Facilities ☐ Airports ☐ Hospitals and Health Care Facilities ☐ Utility Owned Services ☐ Street Sweeping ☐ Fire Flows or Hydrant Uses	
	7. Does your agency bill by volume of use all municipal and governmental accounts?	● Yes ○ No
	a. If no, which types of accounts are not included: ☐ Landscape Irrigation ☐ Municipal Facilities ☐ Airports ☐ Hospitals and Health Care Facilities ☐ Utility Owned Services ☐ Street Sweeping ☐ Fire Flows or Hydrant Uses	

B. Feasibility Study

?	1. Has your agency conducted a feasibility study to assess the merits of a program to provide incentives to switch mixed-use accounts to dedicated landscape meters?	○ Yes ● No
	a. If YES, when was the feasibility study conducted? (mm/dd/yy)	
	b. Describe the feasibility study:	

2. Number of CII accounts with mixed-use meters:	423
3. Number of CII accounts with mixed-use meters retrofitted with dedicated irrigation meters during reporting period	0

C. "At Least As Effective As"

1. Is your agency implementing an "at least as effective as" variant of this BMP?	○ Yes ● No

a. If YES, please explain in detail how your implementation of this BMP differs from Exhibit 1 and why you consider it to be "at least as effective as."

D. Comments

Since 1990, the District has required that all CII acccounts on a parcel larger than one acre have a dedicated irrigation meter. There are known CII sites with mixed use meters including Donovan Correctional Facility, Southwestern College and Cuyamaca College.

BMP 04: Metering with Commodity Rates for all New Connections and Retrofit of Existing Connections

Reporting Unit:	BMP Form Status:	Year:
Otay Water District	**100% Complete**	**2007**

A. Implementation

	1. Does your agency have any unmetered service connections?	○ Yes ● No
	a. If YES, has your agency completed a meter retrofit plan?	○ Yes ○ No
	b. If YES, number of previously unmetered accounts fitted with meters during report year:	
	2. Are all new service connections being metered?	● Yes ○ No
	3. Are all new service connections being billed volumetrically with meters?	● Yes ○ No
	4. Has your agency completed and submitted electronically to the Council a written plan, policy or program to test, repair & replace meters?	● Yes ○ No

5. Please fill out the following matrix:

Account Type	# Metered Accounts	# Accounts Read	# Accounts Vol Billing	Billing Frequency	# Vol Estimates
a. Single Family	40637	40637	40637	12	0
b. Multi-Family	3433	3433	3433	12	0
c. Commercial	1147	1147	1147	12	0
d. Industrial	0	0	0	0	0
e. Institutional	233	233	233	12	0
f. Landscape Irrigation	1752	1752	1752	12	0

B. Feasibility Study

	1. Has your agency conducted a feasibility study to assess the merits of a program to provide incentives to switch mixed-use accounts to dedicated landscape meters?	○ Yes ● No

a. If YES, when was the feasibility study conducted? (mm/dd/yy)	
b. Describe the feasibility study:	
2. Number of CII accounts with mixed-use meters:	422
3. Number of CII accounts with mixed-use meters retrofitted with dedicated irrigation meters during reporting year	0

C. "At Least As Effective As"

1. Is your agency implementing an "at least as effective as" variant of this BMP?	● Yes ○ No

a. If YES, please explain in detail how your implementation of this BMP differs from Exhibit 1 and why you consider it to be "at least as effective as."

Since 1990 we have required dedicated irrigation meters for commercial accounts. We recently contacted all of our mixed use accounts and are finding that the vast majority of the 422 accounts noted above as "mixed" have less than 5,000 square feet of landscape and it would not be cost effective for the District or for the customer to retrofit to a dedicated irrigation meter. However, we are examining a number of sites to determine if they might be candidates for recycled water should we expand our recycled water system.

D. Comments

BMP 04: Metering with Commodity Rates for all New Connections and Retrofit of Existing Connections

Reporting Unit:	BMP Form Status:	Year:
Otay Water District	**100% Complete**	**2008**

A. Implementation

	1. Does your agency have any unmetered service connections?	○ Yes ● No
	a. If YES, has your agency completed a meter retrofit plan?	○ Yes ○ No
	b. If YES, number of previously unmetered accounts fitted with meters during report year:	
	2. Are all new service connections being metered?	● Yes ○ No
	3. Are all new service connections being billed volumetrically with meters?	● Yes ○ No
	4. Has your agency completed and submitted electronically to the Council a written plan, policy or program to test, repair & replace meters?	● Yes ○ No

5. Please fill out the following matrix:

Account Type	# Metered Accounts	# Accounts Read	# Accounts Vol Billing	Billing Frequency	# Vol Estimates
a. Single Family	40698	40698	40698	12	0
b. Multi-Family	3432	3432	3432	12	0
c. Commercial	1185	1185	1185	12	0
d. Industrial	0	0	0	0	0
e. Institutional	231	231	231	12	0
f. Landscape Irrigation	1813	1813	1813	12	0

B. Feasibility Study

?	1. Has your agency conducted a feasibility study to assess the merits of a program to provide incentives to switch mixed-use accounts to dedicated landscape meters?	○ Yes ● No

a. If YES, when was the feasibility study conducted? (mm/dd/yy)	
b. Describe the feasibility study:	
2. Number of CII accounts with mixed-use meters:	422
3. Number of CII accounts with mixed-use meters retrofitted with dedicated irrigation meters during reporting year	0

C. "At Least As Effective As"

1. Is your agency implementing an "at least as effective as" variant of this BMP?	● Yes ○ No

a. If YES, please explain in detail how your implementation of this BMP differs from Exhibit 1 and why you consider it to be "at least as effective as."

Since 1990, the District has required commercial properties to separate their irrigation onto a dedicated meter. In late 2007, this ordinance was revised to be consistent with AB 2717, and the requirement is now at 5,000 square feet. The District is currently in the process of contacting all of its mixed use meters and is finding that the vast majority have less than 5,000 square feet of landscape. However, we are evaluating whether some mixed use sites might be candidates for conversion to recycled water.

D. Comments

BMP 05: Large Landscape Conservation Programs and Incentives

Reporting Unit:	BMP Form Status:	Year:
Otay Water District	**100% Complete**	**2005**

A. Water Use Budgets

1. Number of Dedicated Irrigation Meter Accounts:	1613
2. Number of Dedicated Irrigation Meter Accounts with Water Budgets:	1351
3. Budgeted Use for Irrigation Meter Accounts with Water Budgets (AF):	12513
4. Actual Use for Irrigation Meter Accounts with Water Budgets (AF):	7374
5. Does your agency provide water use notices to accounts with budgets each billing cycle?	● Yes ○ No

B. Landscape Surveys

1. Has your agency developed a marketing / targeting strategy for landscape surveys?	● Yes ○ No
a. If YES, when did your agency begin implementing this strategy? (Year must be four digit mm/dd/yyyy)	8/10/1990

b. Description of marketing / targeting strategy:

The Water Authority in partnership with the District and its other member agencies developed a number of new programs including a voucher program for "smart" irrigation controllers and mini-grants for improving the irrigation efficiency. The programs were marketed to all of the district's 1600 landscape accounts but specifically to accounts who had already received a large landscape survey

2. Number of Surveys Offered:	650
3. Number of Surveys Completed:	2
4. Indicate which of the following Landscape Elements are part of your survey:	
a. Irrigation System Check	● Yes ○ No
b. Distribution Uniformity Analysis	● Yes ○ No
c. Review / Develop Irrigation Schedules	● Yes ○ No

	d. Measure Landscape Area	● Yes ○ No
	e. Measure Total Irrigable Area	● Yes ○ No
	f. Provide Customer Report / Information	● Yes ○ No
?	5. Do you track survey offers and results?	● Yes ○ No
	6. Does your agency provide follow-up surveys for previously completed surveys?	● Yes ○ No
?	a. If YES, describe below: Follow-up surveys are offered at the customer's request.	

C. Other BMP 5 Actions

?	1. An agency can provide mixed-use accounts with ETo-based landscape budgets in lieu of a large landscape survey program. Does your agency provide mixed-use accounts with landscape budgets?	○ Yes ● No
	2. Number of CII mixed-use accounts with landscape budgets.	0
	From BMP 4 report: Number of CII accounts with mixed-use meters retrofitted with dedicated irrigation meters during reporting period.	0
	Total number of change-outs from mixed-use to dedicated irrigation meters since Base Year.	0
	3. Do you offer landscape irrigation training?	● Yes ○ No
?	4. Does your agency offer financial incentives to improve landscape water use efficiency? If YES, describe below:	● Yes ○ No

	Type of Financial Incentive	Budget (Dollars/ Years)	Number Awarded to Customers	Total Amount Award

	a. Rebates	27000	0	0
	b. Loans	0	0	0
	c. Grants	0	0	0

	5. Do you provide landscape water use efficiency information to new customers and customers changing services?	● Yes ○ No
	a. If YES, describe below:	
	Yes, new customers are required by Otay's planning department to provide square footage of landscaped area and receive notice of the Water Efficient Irrigation Ordinance and monthly allocation. On changing services, they are notified by Customer Service or Water Conservation of the allocation and banking system. Surveyed account info kept in file and tracked.	
	6. Do you have irrigated landscaping at your facilities?	● Yes ○ No
	a. If yes, is it water-efficient?	● Yes ○ No
	b. If yes, does it have dedicated irrigation metering?	○ Yes ● No
?	7. Do you provide customer notices at the start of the irrigation season?	○ Yes ● No
?	8. Do you provide customer notices at the end of the irrigation season?	○ Yes ● No

D. Landscape Conservation Program Expenditures

		This Year	Next Year
?	1. Budgeted Expenditures		
?	2. Actual Expenditures		

E. "At Least As Effective As"

?	1. Is your AGENCY implementing an "at least as effective as" variant of this BMP?	● Yes ○ No
	a. If YES, please explain in detail how your implementation of this BMP differs from Exhibit 1 and why you consider it to be "at least as effective as."	
	On October 17, 1990 the Otay Water District passed Ordinance No. 367 which mandated the installation of a separate landscape meter on commercial or industrial properties if they are located on a parcel of land an acre or more in size. Then in December of 1993, the District approved Ordinance No. 424 allowing commercial customers who obtained a single water meter to October 1990 to obtain a second	

meter for indoor use without paying water capacity fees if the additional meter is solely

F. Comments

A.2 and A.3: This information is only for those accounts that participated in the pilot web-based water budget reporting program over the past two fiscal years. At the beginning of this FY, the Water Authority hired ConserVision to develop a web-based water budget reporting program for its member agencies. This program was running by about the mid point of the fiscal year and there were numerous issues to resolve

BMP 05: Large Landscape Conservation Programs and Incentives

Reporting Unit:	BMP Form Status:	Year:
Otay Water District	**100% Complete**	**2006**

A. Water Use Budgets

1. Number of Dedicated Irrigation Meter Accounts:	1692
2. Number of Dedicated Irrigation Meter Accounts with Water Budgets:	1565
3. Budgeted Use for Irrigation Meter Accounts with Water Budgets (AF):	6110
4. Actual Use for Irrigation Meter Accounts with Water Budgets (AF):	2656
5. Does your agency provide water use notices to accounts with budgets each billing cycle?	● Yes ○ No

B. Landscape Surveys

1. Has your agency developed a marketing / targeting strategy for landscape surveys?	● Yes ○ No
a. If YES, when did your agency begin implementing this strategy? (Year must be four digit mm/dd/yyyy)	8/10/1990

b. Description of marketing / targeting strategy:

The Water Authority in partnership with the District and its other member agencies developed a number of new programs including a voucher program for "smart" irrigation controllers and mini-grants for improving the irrigation efficiency. The programs were marketed to all of the district's 1692 landscape accounts but specifically to accounts who had already received a large landscape survey

2. Number of Surveys Offered:	700
3. Number of Surveys Completed:	3
4. Indicate which of the following Landscape Elements are part of your survey:	
a. Irrigation System Check	● Yes ○ No
b. Distribution Uniformity Analysis	● Yes ○ No
c. Review / Develop Irrigation Schedules	● Yes ○ No

	d. Measure Landscape Area	● Yes ○ No
	e. Measure Total Irrigable Area	● Yes ○ No
	f. Provide Customer Report / Information	● Yes ○ No
?	5. Do you track survey offers and results?	● Yes ○ No
	6. Does your agency provide follow-up surveys for previously completed surveys?	● Yes ○ No
?	a. If YES, describe below: Follow-up surveys are offered at the customer's request.	

C. Other BMP 5 Actions

?	1. An agency can provide mixed-use accounts with ETo-based landscape budgets in lieu of a large landscape survey program. Does your agency provide mixed-use accounts with landscape budgets?	○ Yes ● No
	2. Number of CII mixed-use accounts with landscape budgets.	0
	From BMP 4 report: Number of CII accounts with mixed-use meters retrofitted with dedicated irrigation meters during reporting period.	0
	Total number of change-outs from mixed-use to dedicated irrigation meters since Base Year.	0
	3. Do you offer landscape irrigation training?	● Yes ○ No
?	4. Does your agency offer financial incentives to improve landscape water use efficiency? If YES, describe below:	● Yes ○ No

	Type of Financial Incentive	Budget (Dollars/ Years)	Number Awarded to Customers	Total Amount Award

	a. Rebates	27000	2	6699
	b. Loans	0	0	0
	c. Grants	0	0	0

	5. Do you provide landscape water use efficiency information to new customers and customers changing services?	● Yes ○ No
	a. If YES, describe below:	

Yes, new customers are required by Otay's planning department to provide square footage of landscaped area and receive notice of the Water Efficient Irrigation Ordinance and monthly allocation. On changing services, they are notified by Customer Service or Water Conservation of the allocation and banking system. Surveyed account info kept in file and tracked. If consumption history shows no

	6. Do you have irrigated landscaping at your facilities?	● Yes ○ No
	a. If yes, is it water-efficient?	● Yes ○ No
	b. If yes, does it have dedicated irrigation metering?	○ Yes ● No
?	7. Do you provide customer notices at the start of the irrigation season?	○ Yes ● No
?	8. Do you provide customer notices at the end of the irrigation season?	○ Yes ● No

D. Landscape Conservation Program Expenditures

		This Year	Next Year
?	1. Budgeted Expenditures		
?	2. Actual Expenditures		

E. "At Least As Effective As"

?	1. Is your AGENCY implementing an "at least as effective as" variant of this BMP?	● Yes ○ No
	a. If YES, please explain in detail how your implementation of this BMP differs from Exhibit 1 and why you consider it to be "at least as effective as."	

On October 17, 1990 the Otay Water District passed Ordinance No. 367 which mandated the installation of a separate landscape meter on commercial or industrial properties if they are located on a parcel of land an acre or more in size. Then in December of 1993, the District approved Ordinance No. 424 allowing commercial customers who obtained a single water meter to October 1990 to obtain a second

meter for indoor use without paying water capacity fees if the additional meter is solely

F. Comments

A.2 and A.3: While the district has calculated water budgets for all of its dedicated irrigation accounts, the information noted is only for those accounts that participated in the pilot web-based water budget reporting program over the past two fiscal years. The district stopped participating in the pilot program about midway through the fiscal year and the water use and budgets for the accounts noted above are only through

BMP 05: Large Landscape Conservation Programs and Incentives

Reporting Unit:	BMP Form Status:	Year:
Otay Water District	**100% Complete**	**2007**

A. Water Use Budgets

1. Number of Dedicated Irrigation Meter Accounts:	1752
2. Number of Dedicated Irrigation Meter Accounts with Water Budgets:	1752
3. Budgeted Use for Irrigation Meter Accounts with Water Budgets (AF):	15499
4. Actual Use for Irrigation Meter Accounts with Water Budgets (AF):	9633
5. Does your agency provide water use notices to accounts with budgets each billing cycle?	● Yes ○ No

B. Landscape Surveys

1. Has your agency developed a marketing / targeting strategy for landscape surveys?	● Yes ○ No
a. If YES, when did your agency begin implementing this strategy? (Year must be four digit mm/dd/yyyy)	8/10/1990

b. Description of marketing / targeting strategy:

The Water Authority in partnership with the District and its other member agencies developed a number of new programs including a voucher program for "smart" irrigation controllers and mini-grants for improving the irrigation efficiency. The programs were marketed to all of the district's 1692 landscape accounts but specifically to accounts who had already received a large landscape survey

2. Number of Surveys Offered:	750
3. Number of Surveys Completed:	5
4. Indicate which of the following Landscape Elements are part of your survey:	
a. Irrigation System Check	● Yes ○ No
b. Distribution Uniformity Analysis	● Yes ○ No
c. Review / Develop Irrigation Schedules	● Yes ○ No

	d. Measure Landscape Area	● Yes ○ No
	e. Measure Total Irrigable Area	○ Yes ● No
	f. Provide Customer Report / Information	● Yes ○ No
	5. Do you track survey offers and results?	● Yes ○ No
	6. Does your agency provide follow-up surveys for previously completed surveys?	● Yes ○ No
	a. If YES, describe below:	

The consultant contacts the customer approximately three to six months after a full audit was completed, to discuss implementation of the recommendations. The consultant records changes and improvement in the site's condition. Photos may be taken documenting improvements. If significant changes have been made at the site, the consultant performs a distribution uniformity check to verify changes and assist

C. Other BMP 5 Actions

	1. An agency can provide mixed-use accounts with ETo-based landscape budgets in lieu of a large landscape survey program. Does your agency provide mixed-use accounts with landscape budgets?	○ Yes ● No
	2. Number of CII mixed-use accounts with landscape budgets.	0
	From BMP 4 report: Number of CII accounts with mixed-use meters retrofitted with dedicated irrigation meters during reporting period.	0
	Total number of change-outs from mixed-use to dedicated irrigation meters since Base Year.	0
	3. Do you offer landscape irrigation training?	● Yes ○ No
	4. Does your agency offer financial incentives to improve landscape water use efficiency? If YES, describe below:	● Yes ○ No

	Type of Financial Incentive	Budget (Dollars/ Years)	Number Awarded to Customers	Total Amount Award

	a. Rebates	0	19	6536.5
	b. Loans	0	0	0
	c. Grants	12000	9	5653.5

	5. Do you provide landscape water use efficiency information to new customers and customers changing services?	● Yes ○ No
	a. If YES, describe below:	
	Yes, new customers are required by Otay's planning department to provide square footage of landscaped area and receive notice of the Water Efficient Irrigation Ordinance and monthly allocation. On changing services, they are notified by Customer Service or Water Conservation of the allocation and banking system. Surveyed account info kept in file and tracked. If consumption history shows no	
	6. Do you have irrigated landscaping at your facilities?	● Yes ○ No
	a. If yes, is it water-efficient?	● Yes ○ No
	b. If yes, does it have dedicated irrigation metering?	○ Yes ● No
?	7. Do you provide customer notices at the start of the irrigation season?	● Yes ○ No
?	8. Do you provide customer notices at the end of the irrigation season?	● Yes ○ No

D. Landscape Conservation Program Expenditures

		This Year	Next Year
?	1. Budgeted Expenditures		
?	2. Actual Expenditures		

E. "At Least As Effective As"

?	1. Is your AGENCY implementing an "at least as effective as" variant of this BMP?	● Yes ○ No
	a. If YES, please explain in detail how your implementation of this BMP differs from Exhibit 1 and why you consider it to be "at least as effective as."	
	On October 17, 1990 the Otay Water District passed Ordinance No. 367 which mandated the installation of a separate landscape meter on commercial or industrial properties if they are located on a parcel of land an acre or more in size. Then in December of 1993, the District approved Ordinance No. 424 allowing commercial customers who obtained a single water meter to October 1990 to obtain a second	

meter for indoor use without paying water capacity fees if the additional meter is solely

F. Comments

The District offers large landscape surveys on a monthly basis to accounts that exceed their historic water budget. Approximately half of the District's irrigation only customers were contacted and offered this service. 4 surveys were conducted by Honeywell and 1 by Otay staff, for Balboa Thrift and Loan. 18 of the 19 rebates were for commercial smart irrigation controllers.

BMP 05: Large Landscape Conservation Programs and Incentives

Reporting Unit:	BMP Form Status:	Year:
Otay Water District	**100% Complete**	**2008**

A. Water Use Budgets

1. Number of Dedicated Irrigation Meter Accounts:	1813
2. Number of Dedicated Irrigation Meter Accounts with Water Budgets:	1813
3. Budgeted Use for Irrigation Meter Accounts with Water Budgets (AF):	16092
4. Actual Use for Irrigation Meter Accounts with Water Budgets (AF):	9743
5. Does your agency provide water use notices to accounts with budgets each billing cycle?	● Yes ○ No

B. Landscape Surveys

1. Has your agency developed a marketing / targeting strategy for landscape surveys?	● Yes ○ No
a. If YES, when did your agency begin implementing this strategy? (Year must be four digit mm/dd/yyyy)	8/10/1990

b. Description of marketing / targeting strategy:

The Water Authority in partnership with the District and its other member agencies developed a number of new programs including a voucher program for "smart" irrigation controllers and mini-grants for improving the irrigation efficiency. The programs were marketed to all of the district's 1692 landscape accounts but specifically to accounts who had already received a large landscape survey

2. Number of Surveys Offered:	800
3. Number of Surveys Completed:	9
4. Indicate which of the following Landscape Elements are part of your survey:	
a. Irrigation System Check	● Yes ○ No
b. Distribution Uniformity Analysis	● Yes ○ No
c. Review / Develop Irrigation Schedules	● Yes ○ No

	d. Measure Landscape Area	● Yes ○ No
	e. Measure Total Irrigable Area	○ Yes ● No
	f. Provide Customer Report / Information	● Yes ○ No
	5. Do you track survey offers and results?	● Yes ○ No
	6. Does your agency provide follow-up surveys for previously completed surveys?	● Yes ○ No
	a. If YES, describe below:	

The consultant contacts the customer approximately three to six months after a full audit was completed, to discuss implementation of the recommendations. The consultant records changes and improvement in the site's condition. Photos may be taken documenting improvements. If significant changes have been made at the site, the consultant performs a distribution uniformity check to verify changes and assist

C. Other BMP 5 Actions

	1. An agency can provide mixed-use accounts with ETo-based landscape budgets in lieu of a large landscape survey program. Does your agency provide mixed-use accounts with landscape budgets?	○ Yes ● No
	2. Number of CII mixed-use accounts with landscape budgets.	0
	From BMP 4 report: Number of CII accounts with mixed-use meters retrofitted with dedicated irrigation meters during reporting period.	0
	Total number of change-outs from mixed-use to dedicated irrigation meters since Base Year.	0
	3. Do you offer landscape irrigation training?	● Yes ○ No
	4. Does your agency offer financial incentives to improve landscape water use efficiency? If YES, describe below:	● Yes ○ No

	Type of Financial Incentive	Budget (Dollars/ Years)	Number Awarded to Customers	Total Amount Award

	a. Rebates	108500	62	115933
	b. Loans	0	0	0
	c. Grants	0	5	10876.5

	5. Do you provide landscape water use efficiency information to new customers and customers changing services?	● Yes ○ No
	a. If YES, describe below:	
	Yes, new customers are required by Otay's planning department to provide square footage of landscaped area and receive notice of the Water Efficient Irrigation Ordinance and monthly allocation. On changing services, they are notified by Customer Service or Water Conservation of the allocation and banking system. Surveyed account info kept in file and tracked. If consumption history shows no	
	6. Do you have irrigated landscaping at your facilities?	● Yes ○ No
	a. If yes, is it water-efficient?	● Yes ○ No
	b. If yes, does it have dedicated irrigation metering?	● Yes ○ No
?	7. Do you provide customer notices at the start of the irrigation season?	● Yes ○ No
?	8. Do you provide customer notices at the end of the irrigation season?	● Yes ○ No

D. Landscape Conservation Program Expenditures

		This Year	Next Year
?	1. Budgeted Expenditures		
?	2. Actual Expenditures		

E. "At Least As Effective As"

?	1. Is your AGENCY implementing an "at least as effective as" variant of this BMP?	● Yes ○ No
	a. If YES, please explain in detail how your implementation of this BMP differs from Exhibit 1 and why you consider it to be "at least as effective as."	
	On October 17, 1990 the Otay Water District passed Ordinance No. 367 which mandated the installation of a separate landscape meter on commercial or industrial properties if they are located on a parcel of land an acre or more in size. Then in December of 1993, the District approved Ordinance No. 424 allowing commercial customers who obtained a single water meter to October 1990 to obtain a second	

meter for indoor use without paying water capacity fees if the additional meter is solely

F. Comments

The District offers large landscape surveys on a monthly basis to accounts that exceed their historic water budget. Approximately half of the District's irrigation only customers were contacted and offered this service. 9 surveys were conducted by Honeywell; 2 were mini audits. 58 commercial smart controller incentives (vouchers) were provided. The other four rebates were for turfgrass replacement.

BMP 06: High-Efficiency Washing Machine Rebate Programs

Reporting Unit:	BMP Form Status:	Year:
Otay Water District	**100% Complete**	**2005**

A. Coverage Goal

	Single Family	Multi Family
1. Number of **residential** dwelling units in the agency service area.	40866	12422
2. Coverage Goal = **53288** Total Dwelling Units x 0.0768		4,093 Pts

B. Implementation

1. Does your agency offer rebates for **residential** high-efficiency washers with water factors of 9.5 or less? ● Yes ○ No

		Total Value ofFinancial Incentives				
HEW Water Factor	No.of Financial Incentives Issued	Retail Water Agency	Wholesaler/ Grants	Energy Utilities	TOTAL	Points Awarded
2. Greater than 8.5 but not exceeding 9.5	205	3,163	27,368	0	30,531	205
3. Greater than 6.0 but not exceeding 8.5	267	4,101	35,511	0	39,612	534
4. Less than or equal to 6.0	559	8,625	74,627	0	83,252	1,677
TOTALS:	1,031	15,890	137,505	0	153,395	2,416

C. Past Credit Points

For incentives issued before July 1, 2004, select ONE of the following options:

Agency earns 1 point for each HEW

NOTE: Agency shall not receive credit for any HEW incentives where the agency did not provide a financial incentive of $25 or more.

Method One: Points based on HEW Water Factor

			Total Value of Financial Incentives				
	HEW Water Factor	**No.of Financial Incentives Issued**	Retail Water Agency	Wholesaler/ Grants	Energy Utilities	TOTAL	**Points Awarded**
	2. Greater than 8.5 but not exceeding 9.5						
	3. Greater than 6.0 but not exceeding 8.5						
	4. Less than or equal to 6.0						

Method Two: Agency earns 1 point for each HEW

	4. Total HEWs installed	2053	256,375				2053
	Past Cr TOTALS:	2,053				256,375	2,053

D. Rebate Program Expenditures

	1. Average or Estimated Administration and Overhead	32292
	2. Is the financial incentive offered per HEW at least equal to the marginal benefits of the water savings per HEW?	● Yes ○ No

E. "At Least As Effective As"

1. Is your AGENCY implementing an "at least as effective as" variant of this BMP?

- ○ Yes
- ● No

a. If YES, please explain in detail how your implementation of this BMP differs from Exhibit 1 and why you consider it to be "at least as effective as."

F. Comments

Our billing system does note the number of dwelling units per multi-family account. The number of SF and MF dwelling units is as of the first day of FY 05 (7/1/2004).

BMP 06: High-Efficiency Washing Machine Rebate Programs

Reporting Unit:	BMP Form Status:	Year:
Otay Water District	**100% Complete**	**2006**

A. Coverage Goal

	Single Family	Multi Family
1. Number of **residential** dwelling units in the agency service area.		
2. Coverage Goal = Total Dwelling Units x 0.0768		4,093 Pts

B. Implementation

1. Does your agency offer rebates for **residential** high-efficiency washers with water factors of 9.5 or less?	● Yes ○ No

			Total Value ofFinancial Incentives				
HEW Water Factor	No.of Financial Incentives Issued	Retail Water Agency	Wholesaler/ Grants	Energy Utilities	TOTAL	Points Awarded
2. Greater than 8.5 but not exceeding 9.5	0	0	0	0	0	0
3. Greater than 6.0 but not exceeding 8.5	0	0	0	0	0	0
4. Less than or equal to 6.0	807	29,471	107,735	0	137,206	2,421
TOTALS:	807	29,471	107,735	0	137,206	2,421

C. Past Credit Points

For incentives issued before July 1, 2004, select ONE of the following options:

NOTE: Agency shall not receive credit for any HEW incentives where the agency did not provide a financial incentive of $25 or more.

Method One: Points based on HEW Water Factor

			Total Value of Financial Incentives				
	HEW Water Factor	**No.of Financial Incentives Issued**	Retail Water Agency	Wholesaler/ Grants	Energy Utilities	TOTAL	**Points Awarded**
	2. Greater than 8.5 but not exceeding 9.5						
	3. Greater than 6.0 but not exceeding 8.5						
	4. Less than or equal to 6.0						

Method Two: Agency earns 1 point for each HEW

	4. Total HEWs installed	2053	256,375				2053
	Past Cr TOTALS:	0				0	2,053

D. Rebate Program Expenditures

	1. Average or Estimated Administration and Overhead	25824
	2. Is the financial incentive offered per HEW at least equal to the marginal benefits of the water savings per HEW?	● Yes ○ No

E. "At Least As Effective As"

	1. Is your AGENCY implementing an "at least as effective as" variant of this BMP?	○ Yes ● No
	a. If YES, please explain in detail how your implementation of this BMP differs from Exhibit 1 and why you consider it to be "at least as effective as."	

F. Comments

Beginning this FY, only washers with a water factor of 6.0 or less were eligible for the $125 voucher. Per the district's MOU with CWA, Honeywell's administrative cost is $32/HEW

BMP 06: High-Efficiency Washing Machine Rebate Programs

Reporting Unit:	BMP Form Status:	Year:
Otay Water District	**100% Complete**	**2007**

A. Coverage Goal

	Single Family	Multi Family
1. Number of **residential** dwelling units in the agency service area.		
2. Coverage Goal = Total Dwelling Units x 0.0768		4,093 Pts

B. Implementation

1. Does your agency offer rebates for **residential** high-efficiency washers with water factors of 9.5 or less?	● Yes ○ No

			Total Value ofFinancial Incentives				
	HEW Water Factor	No.of Financial Incentives Issued	Retail Water Agency	Wholesaler/ Grants	Energy Utilities	TOTAL	Points Awarded
	2. Greater than 8.5 but not exceeding 9.5	0	0	0	0	0	0
	3. Greater than 6.0 but not exceeding 8.5	0	0	0	0	0	0
	4. Less than or equal to 6.0	780	18,720	104,520	39,000	162,240	2,340
	TOTALS:	780	18,720	104,520	39,000	162,240	2,340

C. Past Credit Points

For incentives issued before July 1, 2004, select ONE of the following options:

NOTE: Agency shall not receive credit for any HEW incentives where the agency did not provide a financial incentive of $25 or more.

Method One: Points based on HEW Water Factor

			Total Value of Financial Incentives				
	HEW Water Factor	**No.of Financial Incentives Issued**	Retail Water Agency	Wholesaler/ Grants	Energy Utilities	TOTAL	**Points Awarded**
	2. Greater than 8.5 but not exceeding 9.5						
	3. Greater than 6.0 but not exceeding 8.5						
	4. Less than or equal to 6.0						

Method Two: Agency earns 1 point for each HEW

	4. Total HEWs installed	2053	256,375				2053
	Past Cr TOTALS:	0				0	2,053

D. Rebate Program Expenditures

	1. Average or Estimated Administration and Overhead	18720
	2. Is the financial incentive offered per HEW at least equal to the marginal benefits of the water savings per HEW?	● Yes ○ No

E. "At Least As Effective As"

1. Is your AGENCY implementing an "at least as effective as" variant of this BMP?

- ○ Yes
- ● No

a. If YES, please explain in detail how your implementation of this BMP differs from Exhibit 1 and why you consider it to be "at least as effective as."

F. Comments

BMP 06: High-Efficiency Washing Machine Rebate Programs

Reporting Unit:	BMP Form Status:	Year:
Otay Water District	**100% Complete**	**2008**

A. Coverage Goal

	Single Family	Multi Family
1. Number of **residential** dwelling units in the agency service area.		
2. Coverage Goal = Total Dwelling Units x 0.0768		4,093 Pts

B. Implementation

1. Does your agency offer rebates for **residential** high-efficiency washers with water factors of 9.5 or less? ● Yes ○ No

		Total Value ofFinancial Incentives					
HEW Water Factor	No.of Financial Incentives Issued	Retail Water Agency	Wholesaler/ Grants	Energy Utilities	TOTAL	Points Awarded
2. Greater than 8.5 but not exceeding 9.5	0	0	0	0	0	0
3. Greater than 6.0 but not exceeding 8.5	0	0	0	0	0	0
4. Less than or equal to 6.0	1,130	27,120	151,420	56,500	235,040	3,390
TOTALS:	1,130	27,120	151,420	56,500	235,040	3,390

C. Past Credit Points

For incentives issued before July 1, 2004, select ONE of the following options:

NOTE: Agency shall not receive credit for any HEW incentives where the agency did not provide a financial incentive of $25 or more.

Method One: Points based on HEW Water Factor

			Total Value of Financial Incentives				
	HEW Water Factor	**No.of Financial Incentives Issued**	Retail Water Agency	Wholesaler/ Grants	Energy Utilities	TOTAL	**Points Awarded**
	2. Greater than 8.5 but not exceeding 9.5						
	3. Greater than 6.0 but not exceeding 8.5						
	4. Less than or equal to 6.0						

Method Two: Agency earns 1 point for each HEW

	4. Total HEWs installed	2053	256,375				2053
	Past Cr TOTALS:	0				0	2,053

D. Rebate Program Expenditures

	1. Average or Estimated Administration and Overhead	27120
	2. Is the financial incentive offered per HEW at least equal to the marginal benefits of the water savings per HEW?	● Yes ○ No

E. "At Least As Effective As"

1. Is your AGENCY implementing an "at least as effective as" variant of this BMP?

- ○ Yes
- ● No

a. If YES, please explain in detail how your implementation of this BMP differs from Exhibit 1 and why you consider it to be "at least as effective as."

F. Comments

BMP 07: Public Information Programs

Reporting Unit:	BMP Form Status:	Year:
Otay Water District	**100% Complete**	**2005**

A. Implementation

1. How is your public information program implemented?

- ○ Wholesaler
- ● Mixed
- ○ Retailer
- ○ None

Wholesaler sponsors: San Diego County Water Authority

2. Describe the program and how it's organized.

Otay's water conservation division promotes and educates customers about its water conservation and school education programs with help from the District's Public Information Officer. The District regularly promotes water conservation and seeks to educate its customers about waterwise landscaping principals, as well as to encourage them to participate in the ULFT and HEW voucher programs. The District is active in a number of large public outreach events including the City of Chula Vista's Cinco de Mayo (May) and Lemon Festival (August), Bonita Festival (September), and events held at the Water Conservation Garden such as it's California Friendly Gardening Festival (October), its California Friendly Plant Sale (March) and its Spring Garden Festival (May).

The District also promotes the California Friendly Landscape Contest, which started in Otay in 2003 and expanded to include 4 of the 23 CWA member agencies in FY 2005. Winners are highlighted at the Spring Garden Festival each May and prizes are awarded to the winners. Signs announcing that the landscape is a winner is displayed and agency websites along with the contest website (www.landscapecontest.com) highlight the winners and outline the process.

The District also regularly encourages its customers to visit the Water Conservtion Garden, which it built in cooperation with the Helix Water District and Cuyamaca College in 1999. The District regularly encourages its customers to attend residential and professional landscape classes at the Garden through its webpage, messages on the bill, bill inserts and distribution of class flyers at outreach events.

The Water Conservation outreach is part of the District's community and government outreach plan which includes quarterly newsletters, monthly bill inserts, monthly bill messaging and press releases on district programs and services including water conservation.

3. Indicate which and how many of the following activities are included in your public information program:

Survey Counts	Yes/No	Number of Events
a. Paid Advertising	● Yes ○ No	3
b. Public Service Announcement	● Yes ○ No	0
c. Bill Inserts / Newsletters / Brochures	● Yes ○ No	8
d. Bill showing water usage in comparison to previous year's usage	● Yes ○ No	
e. Demonstration Gardens	● Yes ○ No	3
f. Special Events, Media Events	● Yes ○ No	1
g. Speaker's Bureau	● Yes ○ No	2
h. Program to coordinate with other government agencies, industry and public interest groups and media	● Yes ○ No	

B. Conservation Information Program Expenditures

	This Year	Next Year
1. Budgeted Expenditures		
2. Actual Expenditures	21000	

C. "At Least As Effective As"

1. Is your AGENCY implementing an "at least as effective as" variant of this BMP? ○ Yes ● No

a. If YES, please explain in detail how your implementation of this BMP differs from Exhibit 1 and why you consider it to be "at least as effective as."

D. Comments

2. a. paid advertising included two ads cofunded with Sweetwater Authority promoting the California Friendly Landscape Contest in the Star News and one ad co-funded with the Helix Water District in the Daily Californian. c. Includes four newsletters, two bill inserts, Welcome to Otay brochure, and California Friendly Gardening brochure. e. Includes the Spring and Fall Festival at the Garden as well as the Water-wise Technologies Expo held at the Garden in April 2005. F: Special event is the annual Otay Developer's luncheon where staff presents an update on its water conservation programs G. Presentations include WindingWalk HOA, CWA Water Conservation Action Committee, intermediate landscape design students at Cuyamaca College

B1: includes printing of bill inserts, graphic design services, and the portion of the newsletters (typically 1/4 devoted to water conservation), the reprinting of the "Welcome to Otay" brochure, plus printing, brochure design budget and funding for outreach materials (seed packets, magnets, brochures) from Water Conservation.

BMP 07: Public Information Programs

Reporting Unit:	BMP Form Status:	Year:
Otay Water District	**100% Complete**	**2006**

A. Implementation

1. How is your public information program implemented?

- ○ Wholesaler
- ○ Retailer
- ● Mixed
- ○ None

Wholesaler sponsors: San Diego County Water Authority

2. Describe the program and how it's organized.

Otay's water conservation division promotes and educates customers about its water conservation and school education programs with help from the District's Public Information Officer. The District regularly promotes water conservation and seeks to educate its customers about waterwise landscaping principals, as well as to encourage them to participate in voucher programs. The District is active in a number of large public outreach events including the City of Chula Vista's Cinco de Mayo (May) and Lemon Festival (August), Bonita Festival (September), and events held at the Water Conservation Garden such as it's California Friendly Gardening Festival (October), its California Friendly Plant Sale (March) and its Spring Garden Festival (May).

The District also promotes the California Friendly Landscape Contest, which started in Otay in 2003 and expanded to include 6 of the 23 CWA member agencies in FY 2006. Winners are highlighted at the Spring Garden Festival each May and prizes are awarded to the winners. Signs announcing that the landscape is a winner is displayed and agency websites along with the contest website (www.landscapecontest.com) highlight the winners and outline the process.

The District also regularly encourages its customers to visit the Water Conservtion Garden, which it built in cooperation with the Helix Water District and Cuyamaca College in 1999. The District regularly encourages its customers to attend residential and professional landscape classes at the Garden through its webpage, messages on the bill, bill inserts and distribution of class flyers at outreach events.

3. Indicate which and how many of the following activities are included in your public information program:

Survey Counts	Yes/No	Number of Events
a. Paid Advertising	● Yes ○ No	84
b. Public Service Announcement	● Yes ○ No	2
c. Bill Inserts / Newsletters / Brochures	● Yes ○ No	7
d. Bill showing water usage in comparison to previous year's usage	● Yes ○ No	
e. Demonstration Gardens	● Yes ○ No	3
f. Special Events, Media Events	● Yes ○ No	1
g. Speaker's Bureau	● Yes ○ No	2
h. Program to coordinate with other government agencies, industry and public interest groups and media	● Yes ○ No	

B. Conservation Information Program Expenditures

	This Year	Next Year
1. Budgeted Expenditures		
2. Actual Expenditures	21000	

C. "At Least As Effective As"

1. Is your AGENCY implementing an "at least as effective as" variant of this BMP?	○ Yes ● No

a. If YES, please explain in detail how your implementation of this BMP differs from Exhibit 1 and why you consider it to be "at least as effective as."

D. Comments

3a. The increase in the number of paid advertising was due to grants that heavily funded the growing California Friendly Landscape Contest. There were 2 paid ads in the Homescape section of the San Diego Union tribune and 80 spots on four radio stations. b. PSA was written and distributed promoting the new technologies and clothes washer give-away at the May 2006 Spring Garden Festival. c. Includes four newsletters, two bill inserts, Welcome to Otay brochure, and new California Friendly Landscape brochure that emphasizes water-wise landscape designs. In addition, it includes promotion of the California Friendly Landscape Contest. e. e. Includes the Spring and Fall Festival at the Garden and the first ever California Friendly Plant Sale at the Garden in March of 2006. G. Presentations WindingWalk HOA, CWA Water Conservation Action Committee, and intermediate landscape design students at Cuyamaca College

B1: includes giveaway items such as magnets, stress balls, bill inserts, brochures, graphic design services, advertising.

BMP 07: Public Information Programs

Reporting Unit:	BMP Form Status:	Year:
Otay Water District	**100% Complete**	**2007**

A. Implementation

1. How is your public information program implemented?

- ○ Wholesaler
- ○ Retailer
- ● Mixed
- ○ None

Wholesaler sponsors: San Diego County Water Authority

2. Describe the program and how it's organized.

Otay's water conservation division promotes and educates customers about its water conservation and school education programs with help from the District's Public Information Officer. The District regularly promotes water conservation and seeks to educate its customers about waterwise landscaping principals, as well as to encourage them to participate in voucher programs. The District is active in a number of large public outreach events including the City of Chula Vista's Cinco de Mayo (May) and Lemon Festival (August), Bonita Festival (September), and events held at the Water Conservation Garden such as it's California Friendly Gardening Festival (October), its California Friendly Plant Sale (March) and its Spring Garden Festival (May). The District also promotes the California Friendly Landscape Contest, which started in Otay in 2003 and expanded to include 12 of the 23 CWA member agencies in FY 2007. Winners are highlighted at the Spring Garden Festival each May and prizes are awarded to the winners. Signs announcing that the landscape is a winner is displayed and agency websites along with the contest website (www.landscapecontest.com) highlight the winners and outline the process. The District also regularly encourages its customers to visit the Water Conservtion Garden, which it built in cooperation with the Helix Water District and Cuyamaca College in 1999. The District regularly encourages its customers to attend residential and professional landscape classes at the Garden through its webpage, messages on the bill, bill inserts and distribution of class flyers at outreach events.

3. Indicate which and how many of the following activities are included in your public information program:

Survey Counts	Yes/No	Number of Events
a. Paid Advertising	● Yes ○ No	51
b. Public Service Announcement	● Yes ○ No	2
c. Bill Inserts / Newsletters / Brochures	● Yes ○ No	7
d. Bill showing water usage in comparison to previous year's usage	● Yes ○ No	
e. Demonstration Gardens	● Yes ○ No	3
f. Special Events, Media Events	● Yes ○ No	0
g. Speaker's Bureau	● Yes ○ No	12
h. Program to coordinate with other government agencies, industry and public interest groups and media	● Yes ○ No	

B. Conservation Information Program Expenditures

	This Year	Next Year
1. Budgeted Expenditures		
2. Actual Expenditures	15400	

C. "At Least As Effective As"

1. Is your AGENCY implementing an "at least as effective as" variant of this BMP?	○ Yes ● No

a. If YES, please explain in detail how your implementation of this BMP differs from Exhibit 1 and why you consider it to be "at least as effective as."

D. Comments

3a. There were 9 paid ads in the Homescape section of the San Diego Union tribune, the SD Horticultural Society Magazine, the SD CLCA newsletter, the Garden Compass Magazine and 42 radio ad spots on KLSD, KPBS and KFMB.

b. PSA was written and distributed promoting the new technologies and clothes washer give-away at the May 2007 Spring Garden Festival. c. Includes four newsletters, two bill inserts, Welcome to Otay brochure, and new California Friendly Landscape brochure that emphasizes water-wise landscape designs. In addition, it includes promotion of the California Friendly Landscape Contest. e. Includes the Spring and Fall Festival at the Garden and the first ever California Friendly Plant Sale at the Garden in March of 2007. G.

B1: includes budget for giveaway items such as magnets, stress balls, bill inserts, brochures, graphic design services, advertising, but does not include Otay's $80,000 annual contribution to the Water Conservation Garden toward their O & M expenses.

BMP 07: Public Information Programs

Reporting Unit:	BMP Form Status:	Year:
Otay Water District	**100% Complete**	**2008**

A. Implementation

1. How is your public information program implemented?

- ○ Wholesaler
- ○ Retailer
- ● Mixed
- ○ None

Wholesaler sponsors: San Diego County Water Authority

2. Describe the program and how it's organized.

Otay's water conservation division promotes and educates customers about its water conservation and school education programs with help from the District's Public Information Officer. The District regularly promotes water conservation and seeks to educate its customers about waterwise landscaping principals, as well as to encourage them to participate in voucher programs. The District is active in a number of large public outreach events including the City of Chula Vista's Cinco de Mayo (May) and Lemon Festival (August), Bonita Festival (September), and events held at the Water Conservation Garden such as it's California Friendly Gardening Festival (October), its California Friendly Plant Sale (March) and its Spring Garden Festival (May). The District also promotes the California Friendly Landscape Contest, which started in Otay in 2003 and expanded to include 17 of the 24 CWA member agencies in FY 2008. Winners are highlighted at the Spring Garden Festival each May and prizes are awarded to the winners. Signs announcing that the landscape is a winner is displayed and agency websites along with the contest website (www.landscapecontest.com) highlight the winners and outline the process. The District also regularly encourages its customers to visit the Water Conservtion Garden, which it built in cooperation with the Helix Water District and Cuyamaca College in 1999. The District regularly encourages its customers to attend residential and professional landscape classes at the Garden through its webpage, messages on the bill, bill inserts and distribution of class flyers at outreach events.

3. Indicate which and how many of the following activities are included in your public information program:

Survey Counts	Yes/No	Number of Events
a. Paid Advertising	● Yes ○ No	18
b. Public Service Announcement	● Yes ○ No	2
c. Bill Inserts / Newsletters / Brochures	● Yes ○ No	7
d. Bill showing water usage in comparison to previous year's usage	● Yes ○ No	
e. Demonstration Gardens	● Yes ○ No	3
f. Special Events, Media Events	● Yes ○ No	0
g. Speaker's Bureau	● Yes ○ No	12
h. Program to coordinate with other government agencies, industry and public interest groups and media	● Yes ○ No	

B. Conservation Information Program Expenditures

	This Year	Next Year
1. Budgeted Expenditures		
2. Actual Expenditures	13500	

C. "At Least As Effective As"

1. Is your AGENCY implementing an "at least as effective as" variant of this BMP?	○ Yes ● No

a. If YES, please explain in detail how your implementation of this BMP differs from Exhibit 1 and why you consider it to be "at least as effective as."

D. Comments

3a. There were 18 paid ads in the Homescape section of the San Diego Union tribune, the SD Horticultural Society Magazine, the SD CLCA newsletter, the Garden Compass Magazine, but no radio ads, as it was determined not to be effective after trying this method for two years. b. PSA was written and distributed promoting the new technologies and clothes washer give-away at the May 2007 Spring Garden Festival. c. Includes four newsletters, two bill inserts, Welcome to Otay brochure, and new California Friendly Landscape brochure that emphasizes water-wise landscape designs. In addition, it includes promotion of the California Friendly Landscape Contest. e. e. Includes the Spring and Fall Festival at the Garden and the first ever California Friendly Plant Sale at the Garden in March of 2008. G. B1: includes budget for giveaway items such as magnets, stress balls, bill inserts, brochures, graphic design services, advertising, but does not include Otay's $78,8000 FY 08 contribution to the Water Conservation Garden toward their O & M expenses.

BMP 08: School Education Programs

Reporting Unit:	BMP Form Status:	Year:
Otay Water District	**100% Complete**	**2005**

A. Implementation

1.How is your school education program implemented?

- ○ Wholesaler
- ○ Retailer
- ● Mixed
- ○ None

Wholesaler sponsors: San Diego County Water Authority

2. Please provide information on your school programs (by grade level):

Grade	Are grade-appropriate materials distributed?	No. of class presentations	No. of students reached	No. of teachers' workshops
Grades K-3rd	● Yes ○ No	33	2439	0
Grades 4th-6th	● Yes ○ No	10	850	1
Grades 7th-8th	● Yes ○ No	0	0	0
High School	● Yes ○ No	0	0	0

3. Did your Agency's materials meet state education framework requirements? ● Yes ○ No

4. When did your Agency begin implementing this program? (Year must be four digit mm/dd/yyyy) 9/9/1990

B. School Education Program Expenditures

	This Year	Next Year
1. Budgeted Expenditures		
2. Actual Expenditures	8346.21	

C. "At Least As Effective As"

1. Is your AGENCY implementing an "at least as effective as" variant of this BMP?

- ○ Yes
- ● No

a. If YES, please explain in detail how your implementation of this BMP differs from Exhibit 1 and why you consider it to be "at least as effective as."

D. Comments

Teacher workshops are open to grades K-12 but indicated just once above. Classroom presentations include school tours conducted at the Water Conservation Garden and kits used by teachers in their classroom. Kits are available on the water cycle, water pollution, or water conservation. The District funds tours to the Garden for schools within its service area and staffs the tours.
B1. The District budgeted $12,200, but amount shown above is actual budget expended. No longer includes CWA activity within the District's service area

BMP 08: School Education Programs

Reporting Unit:	BMP Form Status:	Year:
Otay Water District	**100% Complete**	**2006**

A. Implementation

1.How is your school education program implemented?

- ○ Wholesaler
- ○ Retailer
- ● Mixed
- ○ None

Wholesaler sponsors: San Diego County Water Authority

2. Please provide information on your school programs (by grade level):

Grade	Are grade-appropriate materials distributed?	No. of class presentations	No. of students reached	No. of teachers' workshops
Grades K-3rd	● Yes ○ No	26	1907	0
Grades 4th-6th	● Yes ○ No	15	1181	1
Grades 7th-8th	● Yes ○ No	0	0	0
High School	● Yes ○ No	0	0	0

3. Did your Agency's materials meet state education framework requirements? ● Yes ○ No

4. When did your Agency begin implementing this program? (Year must be four digit mm/dd/yyyy) 9/9/1990

B. School Education Program Expenditures

	This Year	Next Year
1. Budgeted Expenditures		
2. Actual Expenditures	13987.59	

C. "At Least As Effective As"

1. Is your AGENCY implementing an "at least as effective as" variant of this BMP?

- ○ Yes
- ● No

a. If YES, please explain in detail how your implementation of this BMP differs from Exhibit 1 and why you consider it to be "at least as effective as."

D. Comments

Teacher workshops are open to grades K-12 and conducted at least once a year in partnership with our neighboring water agencies, but indicated just once above. A.2: Presentations include school tours conducted at the Water Conservation Garden as well as kits used by teachers in the classroom on water cycle, water pollution and water conservation. The District funds tours to the Garden for schools within its service area.

B.1: Reflects expenditures for FY 06. $12,200 was budgeted for this FY, but Board agreed to expand funding for Splash Labs.

BMP 08: School Education Programs

Reporting Unit:	BMP Form Status:	Year:
Otay Water District	**100% Complete**	**2007**

A. Implementation

1.How is your school education program implemented?

- ○ Wholesaler
- ○ Retailer
- ● Mixed
- ○ None

Wholesaler sponsors: San Diego County Water Authority

2. Please provide information on your school programs (by grade level):

Grade	Are grade-appropriate materials distributed?	No. of class presentations	No. of students reached	No. of teachers' workshops
Grades K-3rd	● Yes ○ No	33	1804	1
Grades 4th-6th	● Yes ○ No	6	281	1
Grades 7th-8th	● Yes ○ No	0	0	0
High School	● Yes ○ No	0	0	0

3. Did your Agency's materials meet state education framework requirements? ● Yes ○ No

4. When did your Agency begin implementing this program? (Year must be four digit mm/dd/yyyy) 9/9/1990

B. School Education Program Expenditures

	This Year	Next Year
1. Budgeted Expenditures		
2. Actual Expenditures	13061.05	

C. "At Least As Effective As"

1. Is your AGENCY implementing an "at least as effective as" variant of this BMP?

- ○ Yes
- ● No

a. If YES, please explain in detail how your implementation of this BMP differs from Exhibit 1 and why you consider it to be "at least as effective as."

D. Comments

Teacher workshops are open to grades K-12 and conducted at least once a year in partnership with our neighboring water agencies, but indicated just once above. A.2: Presentations include school tours conducted at the Water Conservation Garden as well as kits used by teachers in the classroom on water cycle, water pollution and water conservation.

The District funds tours to the Garden for schools within its service area, 1/2 the cost of Splash Labs and School site Gardens or expenses for a water related project. This fiscal year, the District funded two school site gardens.
B.1: Reflects expenditures for FY 07.

BMP 08: School Education Programs

Reporting Unit:	BMP Form Status:	Year:
Otay Water District	**100% Complete**	**2008**

A. Implementation

1.How is your school education program implemented?

- ○ Wholesaler
- ○ Retailer
- ● Mixed
- ○ None

Wholesaler sponsors: San Diego County Water Authority

2. Please provide information on your school programs (by grade level):

Grade	Are grade-appropriate materials distributed?	No. of class presentations	No. of students reached	No. of teachers' workshops
Grades K-3rd	● Yes ○ No	28	1369	0
Grades 4th-6th	● Yes ○ No	6	382	0
Grades 7th-8th	● Yes ○ No	0	0	0
High School	● Yes ○ No	2	80	0

3. Did your Agency's materials meet state education framework requirements? ● Yes ○ No

4. When did your Agency begin implementing this program? (Year must be four digit mm/dd/yyyy) 9/9/1990

B. School Education Program Expenditures

	This Year	Next Year
1. Budgeted Expenditures		
2. Actual Expenditures	9144.52	

C. "At Least As Effective As"

1. Is your AGENCY implementing an "at least as effective as" variant of this BMP?

- ○ Yes
- ● No

a. If YES, please explain in detail how your implementation of this BMP differs from Exhibit 1 and why you consider it to be "at least as effective as."

D. Comments

Teacher workshops are open to grades K-12 and conducted at least once a year in partnership with our neighboring water agencies, but indicated just once above. A.2: Presentations include school tours conducted at the Water Conservation Garden as well as kits used by teachers in the classroom on water cycle, water pollution and water conservation. The District funds tours to the Garden for schools within its service area, 1/2 the cost of Splash Labs and School site Gardens or expenses for a water related project. This fiscal year, the District funded two school site gardens. B.1: Reflects expenditures for FY 08.

BMP 09: Conservation Programs for CII Accounts

Reporting Unit:	BMP Form Status:	Year:
Otay Water District	**100% Complete**	**2005**

A. Implementation

1. Has your agency identified and ranked COMMERCIAL customers according to use?	● Yes ○ No
2. Has your agency identified and ranked INDUSTRIAL customers according to use?	● Yes ○ No
3. Has your agency identified and ranked INSTITUTIONAL customers according to use?	● Yes ○ No

Implement ONE or BOTH of the following TWO options:
• Option A: CII Water Use Survey and Customer Incentives Program
• Option B: CII Conservation Program Targets
NOTE: An agency MUST indicate implementation of at least one option to achieve 100% completion and to submit this form. An agency MUST fill out both sections if it wants to preserve the ability of complying with either option.

Option A: CII Water Use Survey and Customer Incentives Program

4. Is your agency operating a CII water use survey and customer incentives program for the purpose of complying with BMP 9 under this option?	○ Yes ● No

CII Surveys	Commercial Accounts	Industrial Accounts	Institutional Accounts
a. Number of New Surveys Offered	1	0	2
b. Number of New Surveys Completed	0	0	2
c. Number of Site Follow-ups of Previous Surveys (within 1 yr)	0	0	0
d. Number of Phone Follow-ups of Previous Surveys (within 1 yr)	0	0	0

CII Survey Components	Commercial Accounts	Industrial Accounts	Institutional Accounts

	e. Site Visit	○ Yes ○ No	○ Yes ○ No	● Yes ○ No
	f. Evaluation of all water-using apparatus and processes	○ Yes ○ No	○ Yes ○ No	● Yes ○ No
	g. Customer report identifying recommended efficiency measures, paybacks and agency incentives	○ Yes ○ No	○ Yes ○ No	● Yes ○ No
	Agency CII Customer Incentives	**Budget ($/Year)**	**No. Awarded to Customers**	**Total $ Amount Awarded**
	h. Rebates			
	i. Loans			
	j. Grants			
	k. Others			

Option B: CII Conservation Program Targets

	5. Does your agency track CII program interventions and water savings for the purpose of complying with BMP 9 under this option?	● Yes ○ No
	6. Does your agency document and maintain records on how savings were realized and the method of calculation for estimated savings?	● Yes ○ No

7. System Calculated annual savings (AF/year):

	CII Programs	Avg Savings (AF/yr)	# Devices	Savings/ Device
	a. Ultra Low Flush Toilets	.035004	17	0.60
	b. Dual Flush Toilets	.041748	0	0.00
	c. High Efficiency Toilets	.041748	0	0.00
	d. High Efficiency Urinals	.069086	1	0.07
	e. Non-Water Urinals	.0921146	0	0.00
	f. Commercial Clothes Washers (only coin-op; not industrial)	.116618	20	2.33
	g. Cooling Tower Controllers	1.03225		

	g. Cooling Tower Controllers	1.03223	1	1.03
	h. Food Steamers	.25	0	0.00
	i. Ice Machines	.834507	0	0.00
	j. Pre-Rinse Spray Valves	.084701	34	2.88
	k. Steam Sterilizer Retrofits	1.538	0	0.00
	l. X-ray Film Processors	2.57	4	10.28
	TOTAL System Calculated Savings:			17.19

8. Estimated annual savings (AF/yr) from agency programs not including the devices listed in Option B. 7., above:

CII Programs	Annual Savings (AF/yr)
a. Site-verified actions taken by agency. As a direct result of the District and Water Authority funded commercial survey and follow-up at Bailey Detention Facility a significant leak in the water softener line was identified at the end of this FY but	0
b Non-site-verified actions taken by agency.	0 x 25%

Note: agencies may credit 100% of estimated annual savings of interventions that have been site verified and 25% of estimated annual savings of interventions that have not been site verified. (BMP 9 E.4.c.)

TOTAL CII Program Performance Target Savings:	**17.19 AF/Yr**

B. Conservation Program Expenditures for CII Accounts

	This Year	Next Year
1. Budgeted Expenditures	36000	6000
2. Actual Expenditures	25874.28	

C. "At Least As Effective As"

1. Is your AGENCY implementing an "at least as effective as" variant of this BMP?	○ Yes ● No

a. If YES, please explain in detail how your implementation of this BMP differs from Exhibit 1 and why you consider it to be "at least as effective as."

D. Comments

In the 3rd quarter of this FY, the District's Board of Directors agreed to authorize the expenditure of up to $30,000 towards the completion of approximately 3 commercial/institutional water audits. The District signed an agreement to share the costs of the surveys with CWA. Two institutional surveys were completed at the end of this FY, at a total cost of $23,428.28

BMP 09: Conservation Programs for CII Accounts

Reporting Unit:	BMP Form Status:	Year:
Otay Water District	**100% Complete**	**2006**

A. Implementation

1. Has your agency identified and ranked COMMERCIAL customers according to use?	● Yes ○ No
2. Has your agency identified and ranked INDUSTRIAL customers according to use?	● Yes ○ No
3. Has your agency identified and ranked INSTITUTIONAL customers according to use?	● Yes ○ No

Implement ONE or BOTH of the following TWO options:
• Option A: CII Water Use Survey and Customer Incentives Program
• Option B: CII Conservation Program Targets
NOTE: An agency MUST indicate implementation of at least one option to achieve 100% completion and to submit this form. An agency MUST fill out both sections if it wants to preserve the ability of complying with either option.

Option A: CII Water Use Survey and Customer Incentives Program

4. Is your agency operating a CII water use survey and customer incentives program for the purpose of complying with BMP 9 under this option?	○ Yes ● No

CII Surveys	Commercial Accounts	Industrial Accounts	Institutional Accounts
a. Number of New Surveys Offered			
b. Number of New Surveys Completed			
c. Number of Site Follow-ups of Previous Surveys (within 1 yr)			
d. Number of Phone Follow-ups of Previous Surveys (within 1 yr)			

CII Survey Components	Commercial Accounts	Industrial Accounts	Institutional Accounts

	e. Site Visit	○ Yes ○ No	○ Yes ○ No	○ Yes ○ No
	f. Evaluation of all water-using apparatus and processes	○ Yes ○ No	○ Yes ○ No	○ Yes ○ No
	g. Customer report identifying recommended efficiency measures, paybacks and agency incentives	○ Yes ○ No	○ Yes ○ No	○ Yes ○ No
	Agency CII Customer Incentives	**Budget ($/Year)**	**No. Awarded to Customers**	**Total $ Amount Awarded**
	h. Rebates			
	i. Loans			
	j. Grants			
	k. Others			

Option B: CII Conservation Program Targets

	5. Does your agency track CII program interventions and water savings for the purpose of complying with BMP 9 under this option?	● Yes ○ No
	6. Does your agency document and maintain records on how savings were realized and the method of calculation for estimated savings?	● Yes ○ No

7. System Calculated annual savings (AF/year):

	CII Programs	Avg Savings (AF/yr)	# Devices	Savings/ Device
	a. Ultra Low Flush Toilets	.035004	16	0.56
	b. Dual Flush Toilets	.041748	0	0.00
	c. High Efficiency Toilets	.041748	0	0.00
	d. High Efficiency Urinals	.069086	0	0.00
	e. Non-Water Urinals	.0921146	0	0.00
	f. Commercial Clothes Washers (only coin-op; not industrial)	.116618	0	0.00
	g. Cooling Tower Controllers	1.03225		

	g. Cooling Tower Controllers	1.05225	0	0.00
	h. Food Steamers	.25	0	0.00
	i. Ice Machines	.834507	0	0.00
	j. Pre-Rinse Spray Valves	.084701	14	1.19
	k. Steam Sterilizer Retrofits	1.538	0	0.00
	l. X-ray Film Processors	2.57	0	0.00
	TOTAL System Calculated Savings:			1.75

8. Estimated annual savings (AF/yr) from agency programs not including the devices listed in Option B. 7., above:

CII Programs	Annual Savings (AF/yr)
a. Site-verified actions taken by agency. Staff at Bailey Detention Facility repaired a leak that was estimated to be losing 2.6 million gallons per year (8AFY. While the survey was funded and conducted in late FY 05, the repair was made in FY	8
b Non-site-verified actions taken by agency.	0 x 25%

Note: agencies may credit 100% of estimated annual savings of interventions that have been site verified and 25% of estimated annual savings of interventions that have not been site verified. (BMP 9 E.4.c.)

TOTAL CII Program Performance Target Savings:	**9.75 AF/Yr**

B. Conservation Program Expenditures for CII Accounts

	This Year	Next Year
1. Budgeted Expenditures	6000	31000
2. Actual Expenditures	758	

C. "At Least As Effective As"

1. Is your AGENCY implementing an "at least as effective as" variant of this BMP?	○ Yes ● No

a. If YES, please explain in detail how your implementation of this BMP differs from Exhibit 1 and why you consider it to be "at least as effective as."

D. Comments

In the second half of FY 05, Otay and the San Diego County Water Authority co-funded two commercial surveys for its top two commercial/institutional water users. However, the water softener line was not repaired until FY 06 and is noted above.

BMP 09: Conservation Programs for CII Accounts

Reporting Unit:	BMP Form Status:	Year:
Otay Water District	**100% Complete**	**2007**

A. Implementation

1. Has your agency identified and ranked COMMERCIAL customers according to use?	● Yes ○ No
2. Has your agency identified and ranked INDUSTRIAL customers according to use?	● Yes ○ No
3. Has your agency identified and ranked INSTITUTIONAL customers according to use?	● Yes ○ No

Implement ONE or BOTH of the following TWO options:
• Option A: CII Water Use Survey and Customer Incentives Program
• Option B: CII Conservation Program Targets
NOTE: An agency MUST indicate implementation of at least one option to achieve 100% completion and to submit this form. An agency MUST fill out both sections if it wants to preserve the ability of complying with either option.

Option A: CII Water Use Survey and Customer Incentives Program

4. Is your agency operating a CII water use survey and customer incentives program for the purpose of complying with BMP 9 under this option?	○ Yes ● No

CII Surveys	Commercial Accounts	Industrial Accounts	Institutional Accounts
a. Number of New Surveys Offered	1	0	0
b. Number of New Surveys Completed	1	0	0
c. Number of Site Follow-ups of Previous Surveys (within 1 yr)	0	0	0
d. Number of Phone Follow-ups of Previous Surveys (within 1 yr)	3	0	

CII Survey Components	Commercial Accounts	Industrial Accounts	Institutional Accounts

	e. Site Visit	○ Yes ● No	○ Yes ● No	○ Yes ● No
	f. Evaluation of all water-using apparatus and processes	○ Yes ● No	○ Yes ● No	○ Yes ● No
	g. Customer report identifying recommended efficiency measures, paybacks and agency incentives	○ Yes ● No	○ Yes ● No	○ Yes ● No
	Agency CII Customer Incentives	**Budget ($/Year)**	**No. Awarded to Customers**	**Total $ Amount Awarded**
	h. Rebates	6000	73	1110
	i. Loans	0	0	0
	j. Grants	15000	0	0
	k. Others	10000	0	0
	Option B: CII Conservation Program Targets			
	5. Does your agency track CII program interventions and water savings for the purpose of complying with BMP 9 under this option?			● Yes ○ No
	6. Does your agency document and maintain records on how savings were realized and the method of calculation for estimated savings?			● Yes ○ No
	7. System Calculated annual savings (AF/year):			
	CII Programs	**Avg Savings (AF/yr)**	**# Devices**	**Savings/ Device**
	a. Ultra Low Flush Toilets	.035004	52	1.82
	b. Dual Flush Toilets	.041748	0	0.00
	c. High Efficiency Toilets	.041748	0	0.00
	d. High Efficiency Urinals	.069086	0	0.00
	e. Non-Water Urinals	.0921146	0	0.00
	f. Commercial Clothes Washers (only coin-op; not industrial)	.116618	21	2.45
	g. Cooling Tower Controllers	1.03225		

	g. Cooling Tower Controllers	1.05225	0	0.00
	h. Food Steamers	.25	0	0.00
	i. Ice Machines	.834507	0	0.00
	j. Pre-Rinse Spray Valves	.084701	0	0.00
	k. Steam Sterilizer Retrofits	1.538	0	0.00
	l. X-ray Film Processors	2.57	0	0.00
	TOTAL System Calculated Savings:			4.27

8. Estimated annual savings (AF/yr) from agency programs not including the devices listed in Option B. 7., above:

CII Programs	Annual Savings (AF/yr)
a. Site-verified actions taken by agency. As noted in the FY 06 report, a leak was found at Bailey Detention Facility during the audit funded by both Otay and CWA and quickly fixed. It was estimated to be losing 2.6 million gallons per year (2AFY). The repair was made in FY 06.	8
b Non-site-verified actions taken by agency.	0 x 25%

Note: agencies may credit 100% of estimated annual savings of interventions that have been site verified and 25% of estimated annual savings of interventions that have not been site verified. (BMP 9 E.4.c.)

TOTAL CII Program Performance Target Savings:	**12.27 AF/Yr**

B. Conservation Program Expenditures for CII Accounts

	This Year	Next Year
1. Budgeted Expenditures	31000	2000
2. Actual Expenditures	1110	

C. "At Least As Effective As"

1. Is your AGENCY implementing an "at least as effective as" variant of this BMP?	○ Yes ● No

a. If YES, please explain in detail how your implementation of this BMP differs from Exhibit 1 and why you consider it to be "at least as effective as."

D. Comments

We conducted a commercial indoor/outdoor water survey for Balboa Thrift & Loan in the second quarter of this fiscal year. As a result, the customer received one of the smart controllers we were distributing and replaced two of their older toilets with ULFTs.

4.J: This FY, we budgeted an additional $15000 for CII incentives to be provided to the customer in addition to MWD's process improvement program incentive.

4.k: In addition, we also budgeted $10,000 to fund additional CII audits.

BMP 09: Conservation Programs for CII Accounts

Reporting Unit:	BMP Form Status:	Year:
Otay Water District	**100% Complete**	**2008**

A. Implementation

1. Has your agency identified and ranked COMMERCIAL customers according to use?	● Yes ○ No
2. Has your agency identified and ranked INDUSTRIAL customers according to use?	● Yes ○ No
3. Has your agency identified and ranked INSTITUTIONAL customers according to use?	● Yes ○ No

Implement ONE or BOTH of the following TWO options:
• Option A: CII Water Use Survey and Customer Incentives Program
• Option B: CII Conservation Program Targets
NOTE: An agency MUST indicate implementation of at least one option to achieve 100% completion and to submit this form. An agency MUST fill out both sections if it wants to preserve the ability of complying with either option.

Option A: CII Water Use Survey and Customer Incentives Program

4. Is your agency operating a CII water use survey and customer incentives program for the purpose of complying with BMP 9 under this option?	○ Yes ● No

CII Surveys	Commercial Accounts	Industrial Accounts	Institutional Accounts
a. Number of New Surveys Offered	0	0	0
b. Number of New Surveys Completed	0	0	0
c. Number of Site Follow-ups of Previous Surveys (within 1 yr)	0	0	0
d. Number of Phone Follow-ups of Previous Surveys (within 1 yr)	0	0	0

CII Survey Components	Commercial Accounts	Industrial Accounts	Institutional Accounts

	e. Site Visit	○ Yes ○ No	○ Yes ○ No	○ Yes ○ No
	f. Evaluation of all water-using apparatus and processes	○ Yes ○ No	○ Yes ○ No	○ Yes ○ No
	g. Customer report identifying recommended efficiency measures, paybacks and agency incentives	○ Yes ○ No	○ Yes ○ No	○ Yes ○ No
	Agency CII Customer Incentives	**Budget ($/Year)**	**No. Awarded to Customers**	**Total $ Amount Awarded**
	h. Rebates	2000	77	1838.61
	i. Loans	0	0	0
	j. Grants	0	0	0
	k. Others	0	0	0

Option B: CII Conservation Program Targets

	5. Does your agency track CII program interventions and water savings for the purpose of complying with BMP 9 under this option?	● Yes ○ No
	6. Does your agency document and maintain records on how savings were realized and the method of calculation for estimated savings?	● Yes ○ No
	7. System Calculated annual savings (AF/year):	

	CII Programs	Avg Savings (AF/yr)	# Devices	Savings/ Device
	a. Ultra Low Flush Toilets	.035004	0	0.00
	b. Dual Flush Toilets	.041748	0	0.00
	c. High Efficiency Toilets	.041748	4	0.17
	d. High Efficiency Urinals	.069086	0	0.00
	e. Non-Water Urinals	.0921146	2	0.18
	f. Commercial Clothes Washers (only coin-op; not industrial)	.116618	17	1.98
	g. Cooling Tower Controllers	1.03225		

	g. Cooling Tower Controllers	1.05225	1	1.03
	h. Food Steamers	.25	0	0.00
	i. Ice Machines	.834507	0	0.00
	j. Pre-Rinse Spray Valves	.084701	53	4.49
	k. Steam Sterilizer Retrofits	1.538	0	0.00
	l. X-ray Film Processors	2.57	0	0.00
	TOTAL System Calculated Savings:			7.86

8. Estimated annual savings (AF/yr) from agency programs not including the devices listed in Option B. 7., above:

CII Programs	Annual Savings (AF/yr)
a. Site-verified actions taken by agency. 1 water broom installed through the program. Estimated annual water savings: .153 AF/year estimated savings (from MET). 8 AFY saved by repairing leak during CII audit funded by Otay and CWA in FY 06	8.153
b Non-site-verified actions taken by agency.	0 x 25%

Note: agencies may credit 100% of estimated annual savings of interventions that have been site verified and 25% of estimated annual savings of interventions that have not been site verified. (BMP 9 E.4.c.)

TOTAL CII Program Performance Target Savings:	**16.01 AF/Yr**

B. Conservation Program Expenditures for CII Accounts

	This Year	Next Year
1. Budgeted Expenditures	2000	20500
2. Actual Expenditures	1838.61	

C. "At Least As Effective As"

1. Is your AGENCY implementing an "at least as effective as" variant of this BMP?	○ Yes ● No

a. If YES, please explain in detail how your implementation of this BMP differs from Exhibit 1 and why you consider it to be "at least as effective as."

D. Comments

Water Supply and Reuse

Reporting Unit: **Otay Water District**

Year: **2008**

Supply Source Name	Supply Type	Quantity (AF) Supplied
2008		
CWA Purchased	Imported	38,148.5
Ralph Chapman Recycled	Recycled	1,235.6
CIty of San Diego Southbay	Recycled	3,595.4
2007		
San Diego County Water	Imported	41,474.6
Ralph Chapman Recycled	Recycled	1,263.1
City of San Diego Southbay	Recycled	653.1
2006		
San Diego Water Authority	Imported	41,095.8
Ralph W. Chapman	Recycled	1,233.7
2005		
San Diego County Water	Imported	37,678
Ralph W. Chapman	Recycled	1,150.4
2004		
Ralph W. Chapman Water	Recycled	1,305.3
San Diego County Water	Imported	38,917.8
2003		
Ralph W. Chapman Water	Recycled	1,117.4
San Diego County Water	Imported	34,535.8
2002		
SDCWA	Imported	35,578.6
Otay Reclamation Plant	Recycled	1,082.6
2001		

Water Supply and Reuse

Reporting Unit: **Otay Water District**

Year: **2001**

Supply Source Name	Supply Type	Quantity (AF) Supplied
SDCWA	Imported	30,001.9
Otay Reclamation Plant	Recycled	961.6
2000		
SDCWA	Imported	29,897
Otay Reclamation Plant	Recycled	960
1999		
SDCWA	Imported	25,442
Otay Reclamation Plant	Recycled	833
		368,161.2

APPENDIX J

Section 72 Code
Penalties and Damages

SECTION 72 PENALTIES AND DAMAGES

72.01 GENERAL

A. User and Owner Responsibility. Each person receiving service or that owns a property that receives service, agrees to pay the District any applicable fees and charges. Such persons are also responsible for all costs and damages in connection with any violation of this Code relating to their service.

B. District Not Liable. The District shall bear no liability for any cost, damage, claim or expense (incurred by District or any responsible party or third party) arising from or related to any violation, including but not limited to costs, damages, claims or expenses arising from any corrective action of the District, including but not limited to the removal, confiscation, disposition or use of any device, equipment, improvement or material encroaching on any District property or used in connection with any other violation.

C. District Obligation to Collect Damages. Pursuant to Government Code Section 53069.6, the District shall take all practical and reasonable steps, including appropriate legal action, if necessary, to recover civil damages for the negligent, willful, or unlawful damaging or taking of property of the District.

D. Assessment of Damages. Actual damages resulting from any violation, including late payment or failure or refusal to pay for service and any interest thereon, may be assessed and collected as part of a customer's monthly bill to the extent allowed by law. The District will separately invoice any actual damages not assessed on a monthly bill, including any damages assessed against any responsible person who is not a customer.

E. Unpaid or Partially Paid Bills. Bills issued by the District are due, in full, as provided in such bills. Failure to timely pay bills in full may lead to a reduction, suspension or termination of service, as provided in the paragraph below, in Section 34 of this Code or pursuant to other provisions of this Code or applicable law. In addition, if bills remain unpaid, in full or in part, the District may lien the delinquent real property and may assess damages and penalties established by District or otherwise authorized by law.

F. Notice of Violation. Notice and a reasonable period of time to correct a violation will be given prior to the termination, reduction or suspension of service or the imposition of any administrative fine. However, the District may, without notice, correct any condition or violation that endangers the health or safety or impairs any District service, facility or property or is otherwise determined by the District to require immediate action.

1. Investigative Procedures. If a possible violation is identified, observed or reported, the District will contact the allegedly responsible party to

investigate. If the violation is in fact occurring, the District staff will issue a notice of violation or otherwise inform the responsible party that corrective actions must be taken within a period of time deemed reasonable by the District, taking into consideration the nature of the violation and the potential damage that can arise if the violation continues.

2. Content of Notice of Violation. The notice will describe the violation, indicate the actions that must be taken, and indicate the date by which those actions must be taken. Unless immediate action is required, the notice will provide a reasonable time for the violation to be corrected. The notice will also specify the amount of any delinquency, actual damages or other amounts due the District, if any, and the telephone number of a representative of the District who can provide additional information.

3. No Notice Required; District Action. If the District determines that immediate or prompt correction of the violation is necessary to prevent waste or to maintain the integrity of the water supply, systems or facilities of District or for the immediate protection of the health, safety or welfare of persons or property, or for any other compelling reason, the District will take any action deemed necessary (including suspension, reduction or termination of service; locking or removal of meters; or repairs of any improvements) and a notice will be left at the affected parcel specifying any further corrective actions required. Any costs incurred by District will be the responsibility of the responsible party.

4. Notice; Failure to Comply. The responsible party will be given an opportunity to correct the violation and to provide verbal, written and pictorial exculpatory evidence. If such evidence does not exonerate the responsible parties and if the violation(s) are not corrected to the satisfaction of the District within the time provided, the District may assess cost and penalties, administrative fines and may take any other action or pursue any other remedy available. Furthermore, if the violation concerns any service requirement or facility, or to prevent waste or protect the integrity of the system or the health and safety of the public, the District may suspend, reduce or terminate service to the extent permitted by law.

G. Service Termination, Suspension or Reduction; Removing or Locking Meters. Service may be reduced, suspended or terminated for failure to pay for service or in connection with a violation of this Code or applicable law. Termination, suspension or reduction of service will be as follows:

1. Notice Prior to Termination, Suspension or Reduction of Service. Except as provided in Paragraph F, above, or in other provisions of this Code or applicable law, not less than ten (10) days notice will be given prior to the date service is reduced, suspended or terminated; provided that, where service is terminated due to failure to comply with the terms of an amortization agreement, under Section 34 of this Code, only forty-eight (48) hours prior notice is required. The notice will be delivered to the affected parcel and, if the owner of record does not reside in the affected parcel, a copy of the notice will be forwarded to the owner's address on record with the assessor's

office via any available means, such as personal delivery, certified mail return receipt requested, email, fax or fed-ex.

2. Termination for failure to pay for service. The district may discontinue any or all service due to failure to pay the whole or any part of a bill issued by the District. In connection with termination of water service, the provisions of Section 60373 of the Government Code, or any other appropriate provision of law, or as set forth in Section 34 of this Code of Ordinance, will be followed. In connection with sewer, Section 71672 of the California Water Code or other applicable requirements will be followed.

H. Reconnection or Reinstatement of Service, Unlocking or Reinstalling Meters. If service is reduced, suspended or terminated for any reason, each of the following conditions applicable to the situation must be satisfied or arrangements satisfactory to the General Manager or a designee must be made ***before*** service is reinstated:

1. Outstanding amounts for service bills, including any service charges for benefits derived from the violation, must be paid;

2. All required deposits (including any security deposits), actual damages, fines, costs, charges and penalties must be paid;

3. Any amounts due for the removal, locking, servicing, repair or replacement of meters or other facilities required for service, must be paid at the rates in effect at the time of reinstatement, as set forth on **Appendix A** to this Code or other schedule of fees then in effect;

4. All violations and related damages or conditions must have been corrected and or repaired and evidence satisfactory to the District to that effect and demonstrating that it is safe to reinstate service, must have been provided to and approved by the District; and

5. If the service was originally in the name of a tenant, the District may require the owner of the parcel to request the service account under his or her name and responsibility.

I. Owner Responsibility for Account. Owners may be required to deliver to the District a form of acknowledgement or authorization for service to a tenant. In addition, if a tenant engages in any violation or if the District has reduced, suspended or terminated any service to a tenant three (3) times within any twenty-four (24) month period or the tenant has fails or refuses to comply with the terms of payment arrangements with the District four (4) times, the District reserves the right to demand that the property owner take responsibility for services to the tenant-occupied parcel. The General Manager or a designee shall develop procedures to implement these requirements.

J. Right of Access to Customer's Premises; Interference. If any person refuses to consent to an investigation of a possible violation, or prevents or refuses to allow access to District staff or authorized representatives to any premises or facility during an investigation or in connection with any termination, reduction or suspension of service, the District may seek an injunction or a warrant, as provided in Section 71601 of the Water Code.

K. Other Remedies. In addition to the actions contemplated in this Section, the District may seek other remedies authorized or required by any applicable law, including imposing an administrative fine, pursuant to Section 72.05, or pursuing other available civil or criminal remedies.

72.02 CERTAIN SPECIFIC OPERATIONAL VIOLATIONS

A. Unauthorized Connections. The District shall bear no cost or liability for any unauthorized connection. In addition to other remedies, the District may demand that the unauthorized connection be immediately disconnected. In the alternative, or if the customer refuses to take immediate action, the District may immediately disconnect, remove, destroy or dispose of any parts installed or used for the unauthorized connection, all at the expense of the customer and any other responsible party. To the extent allowed by law, the District may also, immediately or as otherwise deemed advisable by District, terminate service to any parcel and any person that allows, uses or benefits from such unauthorized connection.

B. Water waste. No customer shall knowingly permit leaks or other wastes of water, including but not limited to allowing runoff on any portion of his or her property, engaging in non-permitted uses of water, or failing to take corrective action after notice of any leaks or water waste is given. If the District determines that water waste is occurring, the District may:

1. Without prior notice, repair or replace any District controlled facilities, at the cost of the person identified as the responsible party, if any.

2. If the water waste is due to a condition within the customer's property or facilities, the District may (i) require the customer to repair or replace the affected facilities, immediately or within a reasonable time, depending on the situation; or (ii) if necessary to prevent further waste, adjust, lock or remove the meter. If any repair or replacement required is not timely completed, the District may perform the repair or replacement at the cost of the customer or may terminate service without further notice.

C. Meter Tampering. In addition to other remedies, tampering may be prosecuted as a crime under Section 498 of the California Penal Code, as set forth in Section 73.01 of this Code.

D. Fire Service Violation. Such service is subject to compliance with all provisions of this Code and the law concerning water service and failure to comply with such provisions may result in the reduction, suspension, termination or disconnection of water service for fire protection, without any liability to District. Furthermore, illegal

connections or other violations relating to fire service may result in steep fines and may be prosecuted as crimes.

E. Backflow prevention, screens and other safety devices. If service requirements include the installation, testing and maintenance of backflow prevention devices (Section 23.04 of this Code), screens or other safety operational items, in addition to, or in lieu of, other remedies provided herein, the District may apply any of the remedies under Section VI and VII of the District's Ordinance No. 386, as amended or renumbered. Furthermore, violations relating to backflow testing may be prosecuted as set forth in Section 73.01 of this Code.

F. Violation Concerning Recycled Water Service. In addition to any fine, revocation, suspension or penalty imposed under Section 26 in connection with any violation of said Section, including permit suspension or revocation under Section 26.07.C, the District may (i) suspend or terminate water and or sewer service to the property, the owner and/or the operator; (ii) require payment by the owner for any damage to the District facilities, reimbursement to District of costs and expenses, or fines imposed on the District in connection with such violation; or (iii) prosecute the responsible party under any applicable provision of this Code, the Water Code or the Penal Code.

G. Violation Concerning Sewer Service. In addition to any other remedy, fine or penalty, failure to comply with any requirements of sewer service, including requirements for the preservation of public health, safety and welfare and including but not limited to the requirements established under Article II, Chapter 2, Sections 50 to 56.04 of this Code, as hereafter amended or as supplemented by other District Rules and Regulations for Sewer Service, the California Health and Safety Code, the California Code of Regulations, Titles 17 and 22, and Water Agency Standards. Furthermore, may be prosecuted as set forth in Section 73.01 of this Code.

72.03 VIOLATIONS OF CONSERVATION OR OTHER WATER USE RESTRICTION PROVISIONS

The District has established and published conservation measures set forth in Section 39 of the Code. Commencing with declared Level 2 conditions, the District may assess water shortage rates and charges previously adopted. In addition, after notice of the declared water shortage level is given as required by law, any person who uses, causes to be used, or permits the use of water in violation of such requirements (other than a person who qualifies for an applicable exemption, if any) may be assessed damages, penalties and fines.

A. Additional provisions concerning use restriction violations. In addition to payment of actual damages, the following may apply to a violation of any water conservation or water use restriction measure:

1. A change on the account holder shall not cause the account to revert to pre-violation status unless the new account holder provides evidence that it is not related to the violator and had no responsibility for the prior account.

2. The District may reduce, suspend or terminate service to any parcel immediately and without further notice if the violation involves or results in water waste.

3. Willful violations of mandatory conservation measures described in Section 39 of this Code may be enforced by terminating service to the property at which the violation occurs, as provided by Section 356 of the California Water Code.

B. Prosecution for violations of conservation measures. Pursuant to Section 377 and 71644 of the California Water Code, each violation of the District's Conservation Ordinance, set fort in Section 39 of this Code, may be prosecuted as a misdemeanor, punishable by imprisonment in the County jail for no more than thirty (30) days or by a fine, as set forth in Section 72.05, below.

72.04 VIOLATIONS INVOLVING DISTRICT REAL PROPERTY

A. Removal, Disposition and Costs. The District has absolute discretion to determine the corrective action required in connection with any violation involving District property, including requiring the owner of any unauthorized encroachment or improvement to remove it or taking action to remove it immediately and without notice. Any improvements or uses placed within or on any District property or right of way are subject to the following:

1. Costs and Damages. All costs and damages shall be the responsibility of the customer and any other responsible party. Furthermore, the District shall not be liable for costs to repair or replace any unauthorized encroachment or improvement, or any property, improvement or thing used in connection with, supported by or attached thereto.

2. Burden of proof. The burden shall be on the user to prove to the District's satisfaction, the authority, scope and extent of any right to access, improve or use the District's property. Only written evidence in the form of an agreement, deed, statute, recorded or official map or plat, governmental regulation or other right may be used to establish such claim of right.

B. Notice. In connection with any improvement or use that does not constitute a health hazard and does not interfere with the District's use of its property, the District will give written notice of up to sixty (60) days, at the discretion of the General Manager, to cease, terminate, eliminate or remove the offending improvement, structure or use. Any written notice will be given to the responsible party or posted at the property where the trespass or encroachment occurs. If the responsible party is not the owner of any real property affected by the violation, the District will also give notice to the owner

of record at the address on record with the assessor's office via personal delivery, certified mail return receipt requested or via fed-ex.

C. No notice. In connection with any improvement that constitutes a health hazard or interferes with the District's use of any District property, the District will take any immediate action deemed necessary by the General Manager.

D. Fines. In addition to all other remedies provided under this Article or under applicable law, the District may impose a fine as provided in Section 72.05.

E. Separate violation. A separate violation will accrue for each day after the deadline to cease, terminate, eliminate or remove the trespass or encroachment, as set forth on the notice.

72.05 ADMINISTRATIVE FINES

Any administrative fines established herein shall be in the nature of civil penalties and shall be additional and cumulative to any other administrative fines, damages or any other charges established by the District and are also separate from and cumulative to any other civil or criminal penalty, fine or remedy. In connection with each violation, the District may assess a fine up to the amount specified in the schedule of fines for the type of fine being imposed.

Each day during which a violation is in effect constitutes a separate violation and violations are cumulative while the account is in the name of the original violator or any person that participated in or benefited from the violation.

A. Assessment of Fines for Violations of Conservation or Water Use Restriction Provisions. Any responsible party who fails to comply with any conservation or use restriction measure is subject to the assessment of an administrative Type I fine**, added to account**.

B. Assessment of Fines for Technical Violations of Other Code Provisions. Any person who engages in a violation of any provision of this Code is subject to the assessment of a separate administrative Type I fine.

C. Assessment of Fines for Other Violations. If a higher limit is not otherwise specified in this Code or allowed by law, any act or omission with respect to any District service, system, facility or property, is subject to the following administrative fines:

1. A Type I or Type II fine, at the option of the District, for a violation involving theft, fraud or misappropriation of District water, services or property;

2. A Type II or Type III fine, at the option of the District, for a violation concerning sewer service;

3. Up to Type II or Type IV fine, at the option of the District, for a violation concerning recycled water service; and

4. Up to the amount specified on any sign or a Type I or Type II fine, at the option of the District, in connection with any trespass on District property in violation of a sign prohibiting trespassing.

Nothing in this code or the limits specified per violation shall prevent the imposition of separate fines for each separate violation committed during a single act. For example, in connection with a violation concerning sewer service that involves a trespass on any portion of the District's real property, separate fines may be assessed for the trespass, the damage to District personal property, the damage to District real property; the damage to the sewer system and the activity resulting on all the damages.

D. Types of Fines. The amount for each type of fine specified below may increase automatically to reflect any higher amount authorized by law or regulation. The District has determined to establish four types of fines based on the nature of the violation, as follows:

1. Type I Fine. Any violation that does not have the potential to endanger the health or safety of the public. The fine will not exceed the amount specified in the California Government Code, Section 36900(B) or Appendix A for a first, second, third or each additional violation of that same ordinance or requirement within a twelve-month period.

2. Type II Fine. Any violation that has the potential to endanger the health or safety, including illegal connections or water theft. The fine will not exceed the amount specified on Appendix A per each day the violation is identified or continues.

3. Type III Fine. Pursuant to Section 5411 of the Health and Safety Code, any person who without a discharge permit, or in violation thereof, causes or permits a discharge of sewage or other waste in a manner resulting in contamination, pollution or nuisance, and fails to immediately notify the local health officer of the discharge, is subject to a fine up to the amount specified on Appendix A per each day the violation is identified or continues.

4. Type IV Fine. Pursuant to Section 116820 of the Health and Safety Code, a person who violates a backflow requirement, or knowingly files a false statement or report required by a local health officer, is subject to a fine up to the amount specified on Appendix A per each day the violation is identified or continues.

E. Collection of Fines. Any fines assessed by the District are payable directly to the District, are due upon issuance, or as otherwise indicated on the notice or bill, and are delinquent 30 calendar days from the due date.

F. Notice of Administrative Fine; Content. Notice of an administrative fine will contain the following information: (i) a brief description of the violation(s); (ii) the date and location of the violation(s); (iii) a brief description of corrective action(s) required, as appropriate; (iv) a statement explaining that each day the violation continues constitutes a new violation; (v) the amount of civil penalty assessed; (vi) a statement of the procedure for payment and the consequences of failure to pay; (vii) contact information for the District employee that should be contacted to discuss the notice and provide evidence of compliance; and (viii) a brief statement describing the responsible party's right to request further evaluation.

G. Option to Request Board Consideration. Persons receiving a Notice of Administrative Fine may request Board consideration. The request for Board consideration must be in writing, must be received by the District Secretary within ten (10) calendar days from the date of the notice and must include contact information, an explanation of the basis for the request and any supporting documentation said persons wish to provide to the Board for review and consideration. The District will provide notice of the date, time and place for Board consideration by electronic means, facsimile or first class mail sent to the return addressee indicated on the written request.

Any fines assessed pursuant to the Notice of Administrative Fines must be timely paid notwithstanding the filing of a request for Board review.

At the time of Board consideration, the petitioner may present witnesses, documents or other evidence to show good cause why the fine should not be imposed. In accordance with the provisions of Government Code Section 53069.4, the Board's determination shall be final and conclusive, and shall be deemed confirmed, if not appealed within 20 calendar days to the Superior Court of the County of San Diego.