

# **2005 URBAN WATER MANAGEMENT PLAN**



**Irvine Ranch Water District  
15600 Sand Canyon Avenue  
Irvine, CA 92618**

**NOVEMBER 2005**

RESOLUTION NO. 2005 -46

IRVINE RANCH WATER DISTRICT RESCINDING  
RESOLUTION NO. 2000-39 AND ADOPTING THE  
2005 URBAN WATER MANAGEMENT PLAN FOR  
SAID DISTRICT

WHEREAS, Irvine Ranch Water District is a California Water District organized and existing under the California Water District Law; and

WHEREAS, pursuant to Section 10620 et seq. of the California Water Code the District prepared and adopted an Urban Water Management Plan for said District on December 18, 2000; and

WHEREAS, the Board of Directors of the District, pursuant to Section 10621 of the Water Code has reviewed the Plan and directed that it be amended; and

WHEREAS, the amended Plan, entitled "2005 Urban Water Management Plan" has been made available for public inspection and notice of a public hearing thereon has been given pursuant to Section 6066 of the California Government Code; and

WHEREAS, at the time set, the duly noticed public hearing was held and all persons interested were given an opportunity to be heard concerning any matter set forth in the Plan.

NOW, THEREFORE, the Board of Directors of the Irvine Ranch Water District does hereby RESOLVE, DETERMINE and ORDER as follows:

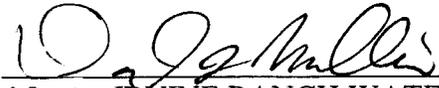
Section 1. Resolution No. 2000-39 adopted the 18th day of December 2000 be and hereby is rescinded in its entirety.

Section 2. The 2005 Urban Water Management Plan of the Irvine Ranch Water District, dated November 2005, is hereby adopted pursuant to Section 10642 of the California Water Code.

Section 3. The Secretary is directed to file a copy of the 2005 Urban Water Management Plan of the Irvine Ranch Water District with the Department of Water Resources of the State of California, pursuant to Section 10644 of the California Water Code.

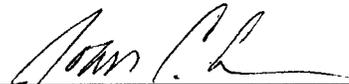
ADOPTED, SIGNED and APPROVED this 28th day of November, 2005.

  
Secretary, IRVINE RANCH WATER  
DISTRICT and of the Board of  
Directors thereof



\_\_\_\_\_  
President, IRVINE RANCH WATER  
DISTRICT and of the Board of  
Directors thereof

APPROVED AS TO FORM:  
BOWIE, ARNESON, WILES & GIANNONE  
Legal Counsel - IRWD

By:  \_\_\_\_\_  
/

STATE OF CALIFORNIA )  
 ) SS.  
COUNTY OF ORANGE )

I, Nancy Savedra, Assistant Secretary of the Board of Directors of Irvine Ranch Water District, do hereby certify that the foregoing Resolution was duly adopted by the Board of Directors of said District at a regular meeting of said Board held on the 28th day of November 2005, and that it was so adopted by the following vote:

AYES:	DIRECTORS	Miller, Matheis, Reinhart, Swan and Withers
NOES:	DIRECTORS	None
ABSTAIN:	DIRECTORS	None
ABSENT:	DIRECTORS	None

(SEAL)

  
\_\_\_\_\_  
Assistant Secretary of IRVINE RANCH WATER  
DISTRICT and of the Board of  
Directors thereof

STATE OF CALIFORNIA )  
 ) SS.  
COUNTY OF ORANGE )

I, Nancy Savedra, Assistant Secretary of the Board of Directors of Irvine Ranch Water District, do hereby certify that the above and foregoing is a full, true and correct copy of Resolution No. 2005-46 of said Board, and that the same has not been amended or repealed.

Dated: 11/30/05

  
\_\_\_\_\_  
Assistant Secretary of IRVINE RANCH WATER  
DISTRICT and of the Board of  
Directors thereof

(SEAL)



# IRVINE RANCH WATER DISTRICT

## 2005 URBAN WATER MANAGEMENT PLAN CONTACT SHEET

Date Submitted to Department of Water Resources	December 1, 2005
Name of person responsible for this plan	Richard A. Diamond
Phone	(949) 453-5594
Fax	(949) 453-0228
E-mail address	<a href="mailto:diamond@irwd.com">diamond@irwd.com</a>
The water supplier is a	Special District
The water supplier is a	-Retailer
Utility services provided by the water supplier	Water, sewer, recycled water
Is this agency a Bureau of Reclamation Contractor?	No
Is the Agency a State Water Project Contractor?	No

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2) California Urban Water Management Planning Act

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Appendix C... ..Letters to Cities and County within the Irvine Ranch Water District Service Area

Appendix D... ..Best Management Practices Annual Reports 2003-2004

Appendix E... ..Best Management Practices Annual Report Coverage Reports 2003-04

Appendix F... ..1) IRWD Resolution No. 1987-52  
2) Water Shortage Contingency Plan

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## **SECTION I: AGENCY COORDINATION**

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### **Law**

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.

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).

10620 (d) (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.

Irvine Ranch Water District (“IRWD”, “District”) is a multi-service agency responsible for providing domestic water service, sewage collection, advanced wastewater treatment and water recycling for a 133-square mile service area in south central Orange County. IRWD provides water service to approximately 316,000 county residents.

This Urban Water Management Plan (UWMP) of the Irvine Ranch Water District has been prepared in response to the Urban Water Management Planning Act (Water Code), Water Code Sections 10610 through 10656, which were added by Statute 1983, Chapter 1009, and became effective on January 1, 1984. The sections of this UWMP correspond to the outline of the Act, specifically Articles 2, 2.5 and 3 (Appendix A). Several sources of information were referenced in preparation of this UWMP as listed under Appendix B and are referred to throughout the UWMP.

### **I. Agency Coordination**

#### **A. Coordination with Appropriate Agencies (§ 10620(d))**

IRWD is the largest constituent agency of the Municipal Water District of Orange County (MWDOC). MWDOC is a member agency of the Metropolitan Water District of Southern California (MWD), the regional imported water wholesaler. MWDOC serves all of Orange County except for the cities of Anaheim, Fullerton and Santa Ana. IRWD coordinated the development of this UWMP with MWDOC. In accordance with the Act, IRWD provided its imported water needs (demands) to MWDOC and MWDOC and MWD have documented available imported supplies for retailers in their respective Regional Urban Water Management Plans (RUWMP). References are made in a more general aspect to the RUWMPs prepared by both the MWD and MWDOC.

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**SECTION I: AGENCY COORDINATION**

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Table 1 shows IRWD's UWMP coordination with appropriate agencies.

Agency	Participated in developing the plan	Contacted for assistance	Attended public meetings	Opportunity to comment on the draft	Sent notice of public hearing
MWD		X		X	X
MWDOC	X	X	X	X	X
City of Irvine		X		X	X
City of Tustin		X		X	X
City of Lake Forest		X		X	X
City of Newport Beach		X		X	X
City of Orange		X		X	X
City of Costa Mesa		X		X	X
County of Orange		X		X	X
Santa Margarita Water District				X	X
Orange County WD				X	X
The Irvine Company				X	X

**B. UWMP Preparation (§ 10620(e))**

IRWD's staff prepared the 2005 UWMP in coordination with the other agencies as indicated in Table 1. In preparing the UWMP, IRWD staff utilized the *Guidebook to Assist Water Suppliers in the Preparation of a 2005 Urban Water Management Plan* prepared by the California Department of Water Resources.

**C. Water Management Tools (§ 10620(f))**

IRWD's principal water management planning tool is its "Water Resources Master Plan" ("WRMP") which describes both the potable and non-potable systems and provides a basis for future IRWD water resource planning [1]. The WRMP is a comprehensive document compiling data and analysis, including current and future land uses, which IRWD considers necessary for its planning needs. The WRMP provides identification of an optimum mix of water recourses to meet normal and emergency requirements prioritizing local supplies vs. imported supplies. As a submember agency of MWD, IRWD is aware of future challenges with imported water and it is within this context that IRWD's future water resource development plan has been fashioned. For many years, IRWD's potable water system relied on imported water supplies from MWD; however, in an effort to increase local supplies IRWD developed the Dyer Road Wellfield. To

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**SECTION I: AGENCY COORDINATION**

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further offset the need for imported water for non-potable uses, IRWD expanded its recycled water program to meet future non-potable demands. IRWD utilizes its WRMP to implement its water resources program, which puts emphasis and planning on maximizing local supplies to meet demands through increased recycled water use, increased groundwater development, groundwater treatment, and investigating supplemental supply options such as groundwater banking. The WRMP describes IRWD's plans to reduce reliance on imported supplies including assumptions to maximize groundwater development, full expansion of IRWD's Michelson Water Reclamation Plant to 33 mgd treatment capacity or larger as required; and the conversion of the San Joaquin Reservoir to an IRWD recycled water seasonal storage reservoir, which was recently completed in 2005.

**D. Plan Updated in Years Ending in Five and Zero (§ 10621(a))**

IRWD's 2005 Urban Water Management Plan was prepared in accordance with the requirement under the Act that urban water purveyors submit a UWMP to the Department of Water Resources addressing water supply and demands, conservation measures, and water recycling among other things. IRWD prepared previous UWMPs in 1985, 1990, 1995 and 2000. Several legislative amendments have been made to the Act since IRWD's last submission of 2000 and this UWMP update incorporates all of the new requirements.

*Senate Bills 610 and 221*

The passage of Senate Bills 610 and 221 in 2002 required additional information be included in the UWMP and also identified the UWMP as a source document that may be used by water agencies to fulfill the water supply assessment and verification requirements. The UWMP Act requires a 20-year projection (through 2025 for the 2005 UWMP) for supply and demand information required in the UWMP. Some water agencies preparing an assessment or verification between 2006 and 2010 will utilize the UWMP data to comply with these requests and therefore provide data to the year 2030. IRWD, however, prepares separate water supply assessments and verifications based upon its principle planning document, the Water Resources Master Plan. Although not required, IRWD included supply and demand data to the year 2030 in this 2005 UWMP.

**E. City and County Notification and Participation (§ 10621(b))**

During the preparation of the UWMP, IRWD notified all of the cities within IRWD's service area and the County of Orange of the opportunity to submit comments regarding the UWMP during the update process. IRWD received a letter from the County of Orange (see copy under

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**SECTION I: AGENCY COORDINATION**

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Appendix C) which provided planning information for IRWD's unincorporated areas. IRWD acknowledged receipt of the letter and noted the information was previously incorporated into IRWD's demand projections. As indicated in Table 1 above, IRWD sent draft UWMPs to the cities and county, and provided notification of IRWD's public hearing (held on November 28, 2005) and opportunity for comments on the draft. Copies of all letters notifying the cities and county of Orange of IRWD's UWMP update process are included under Appendix C.

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## SECTION II: CONTENTS OF UWMP

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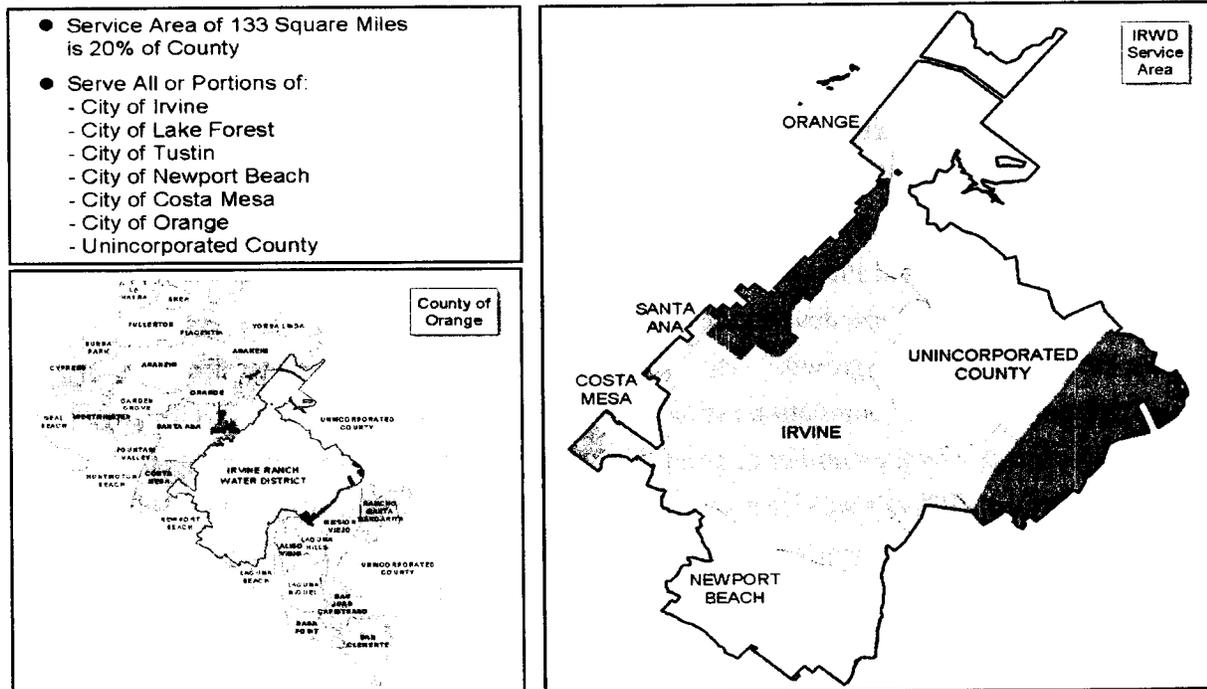
### Law

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.

## II. Contents of UWMP

The Irvine Ranch Water District, a California Water District, was formed in 1961 and is located in the south central portion of Orange County. IRWD provides potable and non-potable water supply, wastewater collection, treatment and disposal, and wastewater reclamation. IRWD overlies much of the old Irvine Ranch property and includes all of the City of Irvine and portions of the surrounding jurisdictional agencies such as the cities of Tustin, Santa Ana, Orange, Costa Mesa, Lake Forest, Newport Beach, and unincorporated areas of the County of Orange. Currently, IRWD encompasses a 133-square mile service area with an estimated population of 316,000.

### District Location



In 1997, IRWD acquired neighboring Santa Ana Heights Mutual Water Company with approximately 2,800 connections. In 2001, IRWD merged on the east boundary with the Los Alisos Water District with approximately 12,400 connections. IRWD's current records show approximately 92,800 connections serve approximately 56,000 acre-feet of potable water and 30,000 acre-feet of non-potable water annually.

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**SECTION II: CONTENTS OF UWMP**

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the City of Lake Forest is proposing to develop 950 acres (commercial and residential) of vacant land which is adjacent to the former Marine Corps Air Station at El Toro.

**B. Climate (§ 10631(a))**

IRWD's service areas have a generally mild and relatively uniform climate with an average rainfall of approximately 14.2 inches. Table 3 below shows average climate characteristics for the IRWD service area.

	Jan.	Feb	March	April	May	June
Monthly Average ETo	2.12	2.26	3.42	4.65	4.98	5.59
Average Rainfall	2.997	4.3	2.36	1.08	0.47	0.1
Average Temperature	56.1	56.9	57.8	59.0	65.8	65.5
	July	Aug	Sept	Oct	Nov	Dec
Monthly Average ETo	6.03	6.06	4.55	3.49	2.43	2.13
Average Rainfall	0.0	0.005	0.22	0.27	1.39	1.66
Average Temperature	69.9	68.9	71.2	62.0	56.7	56.2

ET and Rainfall are reported in inches; Temperature is degrees in Fahrenheit.

**C. Other demographic factors (§ 10631(a))****Industrial and Commercial Activities**

Industrial and commercial development within IRWD is concurrent with residential development. Again, the jurisdictional agencies' General Plans define industrial and commercial development within the IRWD service area. These developments consist of regional commercial centers with high-rise buildings, major business and industrial complexes located along the eastern and western edges of IRWD [1].

In late 2001, the Irvine Company (the major land owner in IRWD) announced the planned dedication of a large area as permanent open space. The majority of this land is located in the northwestern portion of IRWD (City of Orange sphere of influence), with an additional area near Laguna Canyon Road. Based on this change, IRWD has made appropriate reductions in its demand calculations.

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**SECTION II: CONTENTS OF UWMP**

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**Law**

10631 (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 [to 20 years or as far as data is available.]

**E. Current and planned Water Supplies (§ 10631(b))**

IRWD is a constituent agency of the MWDOC, a member agency and wholesale importer of water from MWD and, as such, is entitled to receive water from the available sources of MWD. Groundwater is used as an additional source of water and its use is anticipated to increase in the future. In addition, recycled water currently meets a large portion of the landscape irrigation demands within IRWD's service area.

Table 4 below shows IRWD's variety of current and projected planned water supplies. The water supplies projected here do not represent the total supply capacity available to IRWD but rather the projected supplies to meet the projected demands.

<i>Table 4</i>						
<i>IRWD Current and Planned Water Supplies (AFY)</i>						
	2005	2010	2015	2020	2025	2030
<u>Potable Supplies:</u>						
Purchased MWD treated	19,306	25,318	31,508	35,477	37,395	38,161
Clear groundwater	29,960	28,000	28,000	28,000	28,000	28,000
Treated groundwater	7,200	22,988	25,066	27,306	29,459	29,753
<u>Non-potable Supplies:</u>						
Recycled water	15,296	26,203	26,091	27,948	29,231	29,523
Purchased MWD untreated	5,304	6,303	4,556	3,434	3,225	3,225
Native (surface water)	7,251	4,000	4,000	4,000	4,000	4,000
Non-potable groundwater	2,285	3,898	3,898	3,898	3,898	3,898
Total	86,602	116,710	123,119	130,063	135,208	136,560

**Imported Water Supplies.** Currently, approximately 34% of IRWD's potable water needs are met by water imported by MWD through MWDOC. The majority of imported potable water is supplied from a single source; the MWD Diemer Filtration Plant (DFP) located north of Yorba Linda. Typically, the DFP receives a blend of Colorado River water from Lake Matthews through the MWD lower feeder and State Water Project (SWP) water through the Yorba Linda Feeder.

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## SECTION II: CONTENTS OF UWMP

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has 52.70 cfs in the first reach, 12.50 cfs in each of the second, third and fourth reaches and 7.51 cfs in the fifth reach of the Baker Pipeline.

**Native Surface Water.** An average of about 8,000 AFY of Santiago Creek local runoff is captured in the Irvine Lake. IRWD and Serrano Water District have the right to 28,000 AY from the Lake under license. Since the base flow from the catchment is very low, the annual yield from the reservoir may be extreme, from a few hundred acre-feet per year to overflow conditions. On average, IRWD uses about 4,000 AFY for agricultural irrigation and the remainder is treated for domestic use by Serrano Water District, which owns 25% of the capacity in the Irvine Lake. During single or multiple dry years, IRWD's annual use of local runoff is about 1,000 AFY.

### **F. Groundwater Sources (§ 10631(b)(1)-(2))**

#### *Orange County Groundwater Basin*

The source of IRWD's groundwater supply is the Lower Santa Ana River Basin. IRWD is an operator of groundwater-producing facilities in the Orange County Groundwater Basin ("Basin"). Although the rights of the producers within the Basin vis a vis one another have not been adjudicated, they nevertheless exist and have not been abrogated by the Orange County Water District Act, Water Code App., Ch 40 ("Act"). The rights consist of municipal appropriators' rights and may include overlying and riparian rights.

The Basin is managed solely by the Orange County Water District (OCWD) under the Act and is described at pages 3-1 through 3-14 of the OCWD Master Plan Report, dated April 1999 ("MPR") [4]. OCWD manages the Basin for the benefit of municipal, agricultural and private groundwater producers and is responsible for the protection of water rights to the Santa Ana River in Orange County as well as the management and replenishment of the Basin. Current groundwater production from the Basin was 336,789 AF for 2003-2004 [5]. OCWD's Groundwater Management Plan was most recently updated in March 2004 [6].

#### *Irvine Subbasin*

Within the Basin, degraded groundwater from the Irvine Subbasin provides non-potable water for agricultural and landscape use. The groundwater in this Subbasin is high in total dissolved solids, color and nitrates. This Subbasin has a perennial groundwater yield estimated at 13,000 AF. The Irvine Company ("TIC"), the major landowner in IRWD, has historically pumped agricultural water from the Irvine Subbasin. (As in the rest of the Basin of which this Subbasin is a part, the groundwater rights have not been adjudicated, and OCWD provides governance and management under the Act.) By agreement between TIC and IRWD, the TIC production capability, wells and

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**SECTION II: CONTENTS OF UWMP**

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provided any amount of the latter 8,000 AFY not produced results in a matching reduction of the 28,000 AFY BPP. Although typically, IRWD production from the DRWF does not materially exceed the equivalent BPP, the equivalent BPP is not an extraction limitation; it results in imposition of monetary assessments on the excess production.

As stated, no pumping restrictions exist in the Basin, however, OCWD manages the production through financial disincentives for production above the BPP. Table 5 provides IRWD's allowable production under the OCWD Act and IRWD's agreements.

Basin Name	Allowable Pumping – AFY
Lower Santa Ana River Basin	28,000 AFY through DRWF agreement
Lower Santa Ana River Basin	7,200 AFY through 3 <sup>rd</sup> Amendment to DRWF agreement
Lower Santa Ana River Basin	Currently approximately 6,000 AFY
Lower Santa Ana River Basin (Irvine Subbasin)	11,592 AFY (both potable and non-potable)

***Basin overdraft***

The Department of Water Resources has not identified the Basin as overdrafted in its most current bulletin that characterizes the condition of the Basin, Bulletin 118 (2004). OCWD's Act defines annual basin overdraft to be the quantity by which production exceeds the natural replenishment of groundwater supplies during a water year. The efforts being under taken by OCWD to eliminate long-term overdraft in the Basin are described in the OCWD MPR, including in particular, Chapter 4, 5, 6, 14 and 15 of the MPR and also in the OCWD Groundwater Management Plan [6].

The accumulated overdraft is defined by the Act to be the quantity of water needed in the groundwater basin forebay to prevent landward movement of seawater into the fresh groundwater body. However, seawater intrusion control facilities have been constructed and others are under construction or planned by OCWD since the Act was written, and have been effective in preventing landward movement of seawater into the fresh groundwater body. These facilities allow greater utilization of the Basin's storage capacity. Based on these opportunities, a "target" dewatered storage of 200,000 AF has been implemented for the past several years as the appropriate accumulated overdraft level of the Basin [5].

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**SECTION II: CONTENTS OF UWMP**

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**Table 7a**  
***Amount of Groundwater Projected to be Pumped (AFY) without annexation***

Location	2010	2015	2020	2025	2030
Orange County Groundwater Basin	43,294	45,372	47,612	49,765	50,059
Irvine Subbasin (Irvine Desalter)	11,592	11,592	11,592	11,592	11,592
% of Total Water Supply	47%	46%	45%	45%	45%

**Table 7b**  
***Amount of Groundwater Projected to be Pumped (AFY) with annexation***

Location	2010	2015	2020	2025	2030
Orange County Groundwater Basin	63,580	67,529	70,783	73,436	74,170
Irvine Subbasin (Irvine Desalter)	11,592	11,592	11,592	11,592	11,592
% of Total Water Supply	64%	64%	63%	63%	63%

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## SECTION II: CONTENTS OF UWMP

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In 1996, MWD completed its Integrated Resource Plan (“IRP”) to establish regional targets for the development of water resources and a preferred resource mix which would ensure MWD would meet the region’s present and future needs for dependable supplies without interruption through 2025. In 2004 MWD completed its IRP Update with three objectives 1) to review the goals and achievements of the 1996 IRP, 2) to identify changed conditions for water resource development and 3) to update the resource targets through 2025. MWD made revisions to the IRP including any changed conditions, which serve as the foundation for planning assumptions used in the RUMWP.

### *Demands on MWD*

Estimates of demands on MWD for the RUWMP were derived by first estimating the total retail demands for the region and then factoring in impacts of conservation. MWD uses the “MWD-Main Water Use Forecasting System” that is a combination of statistical and end-use methods that has been adapted to conditions in Southern California. MWD also uses projections of local supplies and expected local supply programs to arrive at total demands on MWD. MWD estimates demands for single dry year, multiple dry years and average years. MWD’s RUWMP shows that the region can provide reliable water supplies under both the single driest year and the multiple dry year hydrologies that have existed in past dry periods throughout the period 2010 through 2030. MWD’s RUWMP provides detailed justifications for the sources of supply used for the reliability analyses. MWD has also identified buffer supplies, including additional groundwater storage and transfers that could serve to supply additional water needs [3].

**Groundwater Supply Management.** As stated under the “Groundwater Source” section above, OCWD is required to annually investigate the condition of the Basin, assess overdraft and accumulated overdraft, and determine the amount of water necessary for replenishment. OCWD has studied the Basin replenishment needs and potential projects to address growth in demand until 2020. This is described in detail in the OCWD MPR and Groundwater Management Plan. OCWD’s Groundwater Management Plan describes OCWD’s general management approach to the Basin. OCWD has historically sought to increase supply rather than restrict demand. No pumping restrictions exist and producers can obtain 100 percent of their water needs from the Basin, which greatly enhances water reliability [6].

OCWD has invested over \$250 million in seawater intrusion control (injection barriers), recharge facilities, laboratories, and Basin monitoring to effectively manage the Basin. Consequently, although the Basin is currently in an “overdraft” condition, it is actually managed to allow utilization of up to 500,000 acre-feet of storage capacity of the basin during dry periods, acting as an underground reservoir and buffer against drought. OCWD also operates the basin to keep the

**SECTION II: CONTENTS OF UWMP**

<b>Table 8</b>					
<b>Supply Reliability for IRWD</b>					
		Multiple Dry Water Years			
	Normal Water Year (2010)	Single Dry Year	Year 1	Year 2	Year 3
<b>Potable Supplies</b>					
Purchased MWD treated	25,318	25,318	25,318	25,318	25,318
Clear groundwater	28,000	28,000	28,000	28,000	28,000
Treated groundwater	22,988	22,988	22,988	22,988	22,988
<b>Non-potable Supplies</b>					
Recycled water	26,203	26,203	26,203	26,203	26,203
Purchased MWD untreated	6,303	9,303	9,303	9,303	9,303
Native (surface water)	4,000	1,000	1,000	1,000	1,000
Non-potable groundwater	3,898	3,898	3,898	3,898	3,898
<b>Total</b>	<b>116,710</b>	<b>116,710</b>	<b>116,710</b>	<b>116,710</b>	<b>116,710</b>
<b>% of Normal</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>

<b>Table 9</b>			
<b>Basis of Water Year Data</b>			
Water Year Type			
Normal Water Year	(Average)		
Single Dry Water Year	1961		
Multiple Dry Water Years	1959	1960	1961

<b>Table 10</b>	
<b>Factors Resulting in Inconsistency of Supply</b>	
Source of Supply	Climatic
Non-potable Native	Native water stored in the Santiago Dam (Irvine Lake) results from local runoff from the Santiago Creek which is dependent upon annual rainfall.

As noted in Table 8, IRWD expects 100% of normal supply reliability under single-dry and multiple-dry years. Although, native local runoff from Santiago Creek is reduced during single-dry and multiple dry-years, if needed, IRWD could purchase supplemental supplies from MWD.

**SECTION II: CONTENTS OF UWMP**

**Law**

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

10631 (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; and (I) Agricultural.

**K. Water Use by Customer-type – Past, Current and Future (§ 10631(e))**

Past, current and projected data on water use within IRWD from 2000 to 2030 is provided in Table 12. The current information is based on monthly records of water sales throughout the service area.

Year	Water Use Sectors	Single family	Multi-family	Com-mercial	Indust-rial	Instit/ Gov	Land-Scape	Agric.	Total
2000	# of accts.	42,300	26,551	3,308	885	154	4,574	73	77,845
	AFY	23,014	4,884	6,986	6,816	2,645	27,052	16,677	88,074
2005	# of accts.	47,650	30,147	3,973	1,054	223	5,306	81	88,434
	AFY	26,103	4,868	7,663	6,047	2,842	23,371	8,801	79,696
2010	# of accts.	68,409	34,947	4,631	1,141	224	5,923	38	115,313
	AFY	36,475	6,300	9,584	8,615	3,769	34,332	8,615	107,690
2015	# of accts.	74,937	44,723	5,385	1,204	254	6,308	41	132,851
	AFY	39,156	7,901	10,922	8,904	4,183	35,829	9,295	116,190
2020	# of accts.	82,896	48,076	6,017	1,347	272	6,841	31	145,479
	AFY	42,665	8,366	12,020	9,813	4,416	38,272	7,115	122,668
2025	# of accts.	86,363	52,698	6,694	1,433	329	7,102	21	154,641
	AFY	43,783	9,033	13,173	10,287	5,269	39,141	4,767	125,453
2030	# of accts.	91,053	54,966	7,011	1,504	343	7,431	18	162,326
	AFY	45,468	9,280	13,590	10,635	5,405	40,339	4,008	128,725

All connections for IRWD are metered. Each single-family dwelling unit and many townhouses and condominiums have individual meters. Apartments and some condominiums average 15 - 20 units per meter. The majority of irrigation use within IRWD is served with recycled water; and irrigation uses throughout the IRWD service area such as school sites, parks, greenbelts, medians, homeowner association common areas, and front yard common areas are classified under Landscape.

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**SECTION II: CONTENTS OF UWMP**

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IRWD's total water use including customer demands, wholesale to other agencies and unaccounted for water use for past, current and projected years is shown in Table 15.

Water Use	2000	2005	2010	2015	2020	2025	2030
Sum of Tables 12, 13, 14	96,164	86,602	116,710	123,119	130,063	135,208	136,560

**L. Demand Management Measures (§ 10631(f)-(j))**

It is stated under Water Code Section 10631 (j), "Urban water supplies that are members of the California Urban Water Conservation Council and submit annual reports to that council in accordance with the "Memorandum of Understanding Regarding Urban Water Conservation in California," dated September 1991, may submit the annual reports identifying water demand management measures currently being implemented, or scheduled for implementation, to satisfy the requirements of subdivisions (f) and (g)."

*California Urban Water Conservation Council*

IRWD became a signatory to the Memorandum of Understanding Regarding Water Conservation in California (MOU) in August 1991 and therefore implements a prescribed set of urban water conservation Best Management Practices (BMPs). The urban water conservation practices are intended to reduce long-term urban demands and are in addition to programs that may be instituted during occasional water supply shortages and IRWD is very committed to water use efficiency. IRWD provides the detail of its water demand management activities either implemented or scheduled to be implemented in its 2003 and 2004 Annual Report filed with the California Urban Water Conservation Council (CUWCC). Under Appendix D is a copy of IRWD's 2003 and 2004 filed Annual Report to the CUWCC.

*IRWD's Rules and Regulations*

IRWD's adopted Rules and Regulations [7] state:

"it is the desire of the District to effect conservation of water resources whenever possible, such measures being consistent with legal responsibilities to utilize the water resources of the State of California and the District.

Facilities for irrigation of new or existing parks, median strips, landscaped public areas or landscaped areas, lawns or gardens surrounding single family homes, condominiums, townhouses, apartments and industrial parks shall be designed and installed in such a way as to conserve water.

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## SECTION II: CONTENTS OF UWMP

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nozzles. (The implementation of these devices is included in IRWD's annual BMP reporting to the California Urban Water Conservation Council under Appendix D.)

**Lawn Watering Guide.** IRWD offers a lawn-watering guide to its customers free-of-charge. The guide is designed to help customers determine the volume of water needed to adequately irrigate lawns.

**Home Water Audit Program.** Home water audits are available at no charge to assist IRWD customers who maintain exterior home landscaping. The audit takes about one hour to complete. A trained auditor visits the customer's home and gives instruction on how to read the water meter, evaluate the landscaping and irrigation system, check for leaks, and install low flow showerheads, faucet aerators and toilet displacement devices. (The home water audit program is documented in IRWD's annual BMP reporting to the California Urban Water Conservation Council under Appendix D.)

**Public Education Program.** IRWD's public education program is aimed at promoting voluntary water conservation. The program consists of making the general public understand what the situation is, what actions are proposed, what needs to be achieved, and how to implement the program. IRWD informs its customers through billing inserts, mailers, water conservation booths, newsletters, bumper stickers, community association meetings, and local public events. Literature provided informs customers of any drought conditions that may exist, conservation methods, and their impact on water reduction. This program appeals for voluntary conservation from IRWD's customers.

**Regional Conservation Efforts.** The MWD and the MWDOC implement a number of conservation activities in Southern California at a regional level. These conservation activities are addressed at length in MWDOC's and MWD's RUWMPs [2], [3].

**Incentive Pricing.** In an effort to promote water conservation, IRWD provides untreated and recycled water supplies at lower rates than potable water. The untreated water pricing does not include a service charge, only a commodity charge to recover the cost of water purchases. The recycled water pricing policy includes a monthly service charge identical to the potable system and a lower commodity rate to encourage the use of recycled water. Moreover, as an incentive to reduce water consumption, IRWD provides a reduced sewer service charge for residential customers who use less domestic water.

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## SECTION II: CONTENTS OF UWMP

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Least As Effective As implementation does not result in deterioration of savings over time, as is the case with standard water survey savings.

### BMP 5: Large Landscape Conservation Programs and Incentives

IRWD implemented a water-budget based tiered rate structure for all accounts in 1991 that penalizes customers for inefficient use. BMP 5 is designed to achieve a 15% reduction in landscape use. IRWD's rate structure is As Least As Effective As BMP 5, and in fact has resulted in a greater level of savings as shown below. Landscape water use decreased 56% from 1991 to 2004, and 18.75% from 1997 to 2004. The CUWCC estimates landscape savings from water use surveys at only 15%. The Table below shows the acre-feet savings per acre of landscape from IRWD's tiered rate structure.

Acre Ft/Acre/Year Water Savings from IRWD's Tier Rate Structure													
1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004
4.4	3.5	3.3	3.2	2.5	2.4	2.4	1.9	2.0	2.1	2.0	2.2	1.93	1.95

### BMP 9: Conservation Programs for Commercial, Industrial and Institutional (CII) Accounts

IRWD is implementing an As Least As Effective As program for BMP 9. IRWD assigns water budget allocations to all commercial, industrial and institutional customers. Customers exceeding the water budget allocation due to inefficient water use incur penalty rates, thus providing a financial incentive for CII customers to conserve water resources. BMP 9 allows agencies to implement combined programs, and agencies are considered on track if the percent of water savings when added together equals or exceeds 2.4% from 1997 baseline year use. In 1997, IRWD's total CII use was 17,249 AF for a total of 3,077 CII accounts. In 2004, total CII use had dropped to 16,835.1 AF, but the number of CII accounts increased to 4,761. IRWD's CII water use reduction from the 1997 baseline year to 2004 is 2.3%, however the number of accounts increased by 55%. Additionally, IRWD's largest single customer is the University of California, Irvine (UCI), one of the fastest growing campuses in the UC system. Therefore, the baseline comparison data is somewhat skewed, however, on a per account basis, water use has reduced from 5.6 AF per CII account in 1997 to 3.54 AF per CII account in 2004, a per account reduction of 36%.

### BMP 11: Conservation Pricing

IRWD's rate structure assigns a water budget allocation to every account: residential, landscape and CII consistent with BMP 11. Customers are penalized for exceeding any use above the allocation with rates that double each tier. This rate structure was instituted to promote the efficient use of water and provide customers with economic signals as their use increased. The

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## SECTION II: CONTENTS OF UWMP

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### Law

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

10631 (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 Section 10635(a). 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.

### **N. Planned Water Supply Projects and Programs (§ 10631(h))**

In general, IRWD's supplies that are planned or under development may necessitate the preparation and completion of environmental documents, regulatory approvals and/or contracts prior to full construction and implementation. As outlined in the WRMP, prudent water supply and financial planning dictates that development of supplies be phased over time consistent with the growth in demand.

**Imported Water.** Planned water supply projects related to IRWD's imported supply is addressed in detail in MWD's and MWDOC's 2005 RUWMPs [2, 3] and may include improvements associated with the "Central Pool Augmentation Project" including a new pipeline tunnel supply to South Orange County. MWD has done extensive planning over the past decade to develop new supplies to meet its IRP reliability goals.

**Groundwater.** IRWD's potential sources for increased local groundwater supplies in the future include the following:

*West Irvine Wells.* IRWD is pursuing the installation of production facilities in the west Irvine portion of the Basin. This supply is considered to be planned and under development, however, one well has been drilled, a site for an additional well and treatment facilities has been acquired by IRWD, and IRWD is in negotiation for the purchase of a third well site. The production facilities can be constructed and operated under the Act; no statutory or contractual approval is required to do so. (See discussion of the Act under Groundwater Section above.)

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**SECTION II: CONTENTS OF UWMP**

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existing plant site to produce sufficient recycled water to meet the projected demand at full build out.

Table 17 includes the estimated normal-year supply, single dry-year supply and multiple dry-year supplies from IRWD's planned water supply projects.

Project Name	Start Date	Completion Date	Normal Year	Single Dry Year	Multiple Dry Years
IDP-Potable	2005	2007	7,694	7,694	7,694
IDP-Non-potable	2005	2007	3,898	3,898	3,898
West Irvine Wells	2008	2009	12,700	12,700	12,700
Recycled Water System Upgrades	2005	2007	8,500	8,500	8,500
Recycled Water Expansion	2010	2013	9,107	9,107	9,107

In addition, there may be an opportunity in the future for IRWD to receive recycled water from the El Toro Water District Wastewater Treatment Plant which could serve portions of IRWD's service area. This is a proposed joint project with IRWD, Moulten Niguel Water District and El Toro Water District that is under review.

**O. Ocean Desalination (§ 10631(i))**

A number of sites in Southern California are currently being considered for ocean water desalination facilities. Since IRWD could someday receive potable water produced by one or more of these facilities, staff has been tracking the development of these projects. Most recently, an ocean water desalination facility is being proposed at a site in Huntington Beach. The proposed project consists of the construction and operation of a 50 million gallon per day ocean water desalination facility within the City of Huntington Beach. Currently as proposed, IRWD would not be receiving any potential supplies from this plant to meet future water demands. MWD addresses seawater desalination on a regional basis in its 2005 RUWMP and it is included in the IRP Update target under local water production [3]. Table 18 shows opportunities for ocean desalination supplies for IRWD.

**SECTION II: CONTENTS OF UWMP**

<i>Table 19</i>					
<i>IRWD imported water demand projections provided to wholesaler (AFY)</i>					
Wholesaler	2010	2015	2020	2025	2030
MWD	37,203	34,519	38,680	29,748	41,520

<i>Table 20</i>					
<i>Wholesaler identified &amp; quantified existing and planned sources for IRWD (AFY)</i>					
Wholesaler	2010	2015	2020	2025	2030
MWD	37,203	34,519	38,680	29,748	41,520

<i>Table 21</i>					
<i>Wholesale Supply Reliability - % of Normal (AFY)</i>					
		Single Dry	Multiple Dry Years		
Wholesaler Sources		1961	Year 1 (1959)	Year 2 (1960)	Year 3 (1961)
MWD	2010	100%	100%	100%	100%
MWD	2015	100%	100%	100%	100%
MWD	2020	100%	100%	100%	100%
MWD	2025	100%	100%	100%	100%
MWD	2030	100%	100%	100%	100%

Through the IRP process, MWD has analyzed the supply reliability using historical hydrology under normal and dry year scenarios to develop estimates of water surplus and shortage over the 30-year planning horizon. MWD has estimated its demands for single dry year, multiple dry years and average years. MWD’s reliability analysis from the IRP Update, shows that MWD can maintain reliable supplies under the conditions that have existed in past dry periods, throughout the period 2010 through 2025. The RUWMP shows that level of reliability extends through 2030 [3]. Although climatic factors could affect MWD’s surface supplies, MWD has identified buffer supplies, including groundwater storage and transfers that could serve to supply the additional water needed. Table 22 shows factors that may result in inconsistency of MWD’s supply.

<i>Table 22</i>				
<i>Factors Resulting in Inconsistency of Wholesaler’s Supply</i>				
Source	Legal	Environmental	Water Quality	Climatic
MWD				x

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## **SECTION III: DEMAND MANAGEMENT MEASURES IMPLEMENTATION**

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### **Law**

10631.5 The department shall take into consideration whether the urban water supplier is implementing or scheduled for implementation, the water demand management activities that the urban water supplier identified in its urban water management plan pursuant to Section 79163. 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.

### **III. Demand Management Measures Implementation (§ 10631.5)**

IRWD is a signatory to the Memorandum of Understanding Regarding Water Conservation in California (MOU) and therefore implements a prescribed set of urban water conservation Best Management Practices (BMPs). IRWD provides the details of the water demand management activities either implemented or scheduled to be implemented in its 2003-2004 Annual Report filed with the CUWCC in January 2005. Under Appendix D is a copy of IRWD's 2003-2004 filed Annual Report to the California Urban Water Conservation Council (CUWCC), which provides the demand management activities implemented by IRWD.

Under Appendix E is a copy of IRWD's Coverage Report (filed with CUWCC) which shows IRWD's compliance with implementing the BMPs. IRWD is in compliance with all BMPs unless indicated that it is implementing an "at least as effective as" program implementation. See additional description of IRWD's demand management activities and implementation of its programs including "at least as effective as" program implementation under Section II subsections L and M.

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## SECTION IV: WATER SHORTAGE CONTINGENCY PLAN

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### Law

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:

10632 (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.

## IV. Water Shortage Contingency Plan

### A. Stages of Action (§ 10632(a))

This section presents information on how IRWD manages the water supply and system during a water shortage that could result from an emergency outage or a drought. IRWD's response to inadequate water supplies varies depending on the magnitude of the shortfall.

In the event of a water shortage situation, IRWD would rely on its Water Shortage Contingency Plan (WSCP) adopted in 1987 and recently updated in 2005 (Appendix F). The WSCP provides guidelines for specific responses to specific levels of shortage ranging from Stage 1 to Stage 4 with a series of measures that may be implemented during a water shortage or drought conditions. During varying water supply conditions, IRWD has performed analysis related to reduced supply and efforts to reduce demands accordingly, including voluntary and mandatory demand reduction measures. These stages of action have been included in IRWD's Rules and Regulations (Section 15) in relation to the WSCP, which states, "the measures may be applied singly or in combination and may vary according to the severity and duration of the shortage. Other measures may be applied in lieu of or in addition to those described in the WSCP." IRWD's Board declares the level or stage of shortage based on water supply conditions.

Table 23 below identifies water supply conditions and shortage stages for IRWD.

Stage	Water Supply Conditions	% Shortage
Stage 1	drought warning and low level shortage condition	10%
Stage 2	Significant drought condition	10% to 25%
Stage 3	Emergency condition	25% to 40%
Final Stage	Crisis condition of water supply shortage	40%+

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## SECTION IV: WATER SHORTAGE CONTINGENCY PLAN

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### *MWD's Water Shortage Contingency Analysis*

MWD developed a Water Surplus and Drought Management Plan (WSDM Plan) in April 1999, which guides MWD's planning and operations during both shortage and surplus conditions to achieve MWD's IRP reliability goals. MWD has undertaken extensive analysis of system reservoirs, forecasted demands and probable hydrologic conditions. The results of the analysis demonstrated the benefit of coordinated management of regional supply and storage resources.

The WSDM Plan recognized the link between surpluses and shortages and integrates planned responses to both conditions. The WSDM Plan identifies the expected sequence of resource management actions MWD will take during surpluses and shortages to minimize the probability of severe shortages that require curtailment of demands. Through effective management of its water supply, MWD fully expects to be 100 percent reliable in meeting all non-discounted, non-interruptible demands throughout the next 25 years. [3].

During water shortages, MWDOC manages its water supply to ensure it meets the demands of its member agencies. During a severe water shortage, MWDOC would use the same principles as identified in MWD's WSDM Plan, subject to any locally developed principles or adjustments found to be relevant and adopted by MWDOC Board. The details of the regional coordination and operation of the water supply during a drought are included in both MWDOC's and MWD's RUWMPs [2, 3].

### *Groundwater*

As previously discussed under the "Groundwater" section, groundwater production typically remains constant or increases in cycles of dry years. Even if overdraft of the basin temporarily increases, the basin serves as a buffer against water shortages as groundwater producers reduce their demand on imported supplies to secure reliability.

### *Non-Potable*

Recycled water production also remains constant, and is considered "drought-proof" as a result of the fact that sewage flows remain virtually unaffected by dry years. Only a small portion of IRWD's non-potable supply, native water captured in Irvine Lake, is reduced in single-dry and multiple-dry years. In addition, significant quantities of "reserve" water supplies (excess of supplies over demands) will be available to serve as a buffer against inaccuracies in demand projections, future changes in land use, or alterations in supply availability. In addition, the potential exists for the treatment and conversion of some reserve non-potable supplies to potable water.

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## **SECTION IV: WATER SHORTAGE CONTINGENCY PLAN**

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### **Service Area Interties**

IRWD has existing interties between its Lake Forest service area and its main service area, which provide a positive service delivery benefit by increasing availability of supplies of water and the opportunities to share and expand the use of recycled water. The interties provide opportunities to increase regional facility operational efficiency by opening existing “emergency” interconnections on a regular basis. This increases access to water supply and allocates reservoir storage to support all systems thereby allowing flexibility of water operations and reducing the need for redundant storage capacity.

On an intercounty basis, IRWD has emergency water interconnections with several neighboring water purveyors providing a means to exchange and transfer water between agencies. Currently, IRWD has 10 interconnections: four with City of Newport Beach; one with East Orange County Water District; one with Santa Margarita Water District; one with Trabuco Canyon Water District; one with the City of Tustin; one with Mesa Consolidated Water District; and one with the City of Orange.

In the early 1980s, Orange County’s regional water agencies formed the Water Emergency Response Organization of Orange County (WEROC) of which IRWD is also a member of. WEROC coordinates emergency response on behalf of all Orange County water agencies, develops an emergency plan to respond to disasters and conducts disaster training exercises for the Orange County water community.

IRWD District personnel have been cross-trained in emergency planning for water, wastewater and recycled water systems. In the potable water system, there will be access to multiple sources of supply and storage facilities. Existing “emergency” interconnections can be opened to regular service, which will increase access and reliability of water supply. Reservoir storage can be allocated to cross support all systems, which will increase reliability and flexibility of water operations and reduce the need for redundant storage capacity.

IRWD plans for and responds to emergency incidents, including power outage, earthquakes, fires, floods and hazardous materials incidents. Table 25 below provides a summary of actions in response to possible catastrophes which are intended to minimize the impacts of supply interruption on IRWD’s service area.

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## SECTION IV: WATER SHORTAGE CONTINGENCY PLAN

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### D. Mandatory Prohibitions (§ 10632(d))

The following general prohibitions contained in IRWD's Rules and Regulations, Section 15 are in effect at all times regardless of whether a declared shortage condition is in effect [7]:

- (a) **Gutter Flooding** - No person shall cause or permit any water furnished to any property within the District to run or to escape from any hose, pipe, valve, faucet, sprinkler, or irrigation device into any gutter or otherwise to escape from the property if such running or escaping can reasonably be prevented.
- (b) **Leaks** - No person shall permit leaks of water that he has the authority to eliminate.
- (c) **Waste** - No person shall cause or permit water under his control to be wasted. Wasteful usage includes, but is not limited to, the uses listed in Section 13(a) of Exhibit 1 to the Memorandum of Understanding Regarding Urban Water Conservation in California, dated December 11, 2002, as amended from time to time, or the counterpart of said list contained in any successor document.

In the case of a declared water shortage by the Board, responses to water shortages must be made early on to prevent severe rationing and economic impacts to customers. IRWD recognizes that it is best to caution customers of a water shortage as early as possible, at a minimal level, to encourage voluntary rationing and to gain public support and participation, and reduce the likelihood of more severe shortage levels later.

During Stage or Level 1 water alert conditions are declared and voluntary conservation is strongly encouraged. The water shortage situation is explained to the public and voluntary water conservation is requested. Because a prolonged drought would be a regional water problem covered by the media, it is reasonable to assume that demands would eventually be reduced as a result of the media coverage and attention.

As noted, the IRWD Board adopted a "Prohibition of Water Wastage" as included under Section 15 of IRWD's Rules and Regulations which identifies the prohibition measures, enforcement and penalties, some of which are in effect regardless of water supply conditions. The prohibitions intend to encourage and then mandate water conservation and set policies against water waste. They range from general and voluntary measures to emergency/mandatory. IRWD further defines mandatory restrictions and prohibitions in its WSCP based on declared water shortage level outlined below in Table 26.

**SECTION IV: WATER SHORTAGE CONTINGENCY PLAN**

During water shortage stages 1 and 2, IRWD takes the approach to appeal for voluntary cooperation of all customers to conserve water, to impose restrictions on low priority uses, to enforce prohibitions on nonessential uses, and to initiate a public information and education campaign to achieve the specified conservation goal. During levels 3 and 4, the conservation measures are anticipated to be mandatory, including surcharges and rationing. Rationing for residential customers and certain irrigation accounts may begin in Stage 3. Business, industrial and other nonresidential customer categories are required to reduce consumption by a certain percentage as a group. Commercial/industrial water customers using recycled water may be exempt from rationing.

It should be noted regarding landscape irrigation, approximately 90% of IRWD’s landscape accounts are served with recycled water which is considered to be drought tolerant supply. Therefore, if no shortage of recycled water supplies exists, consumption reduction may only apply to potable water accounts. This, however, may not apply to non-potable water accounts since these may be dependent on imported non-potable supplies which would most likely be reduced in a drought.

Through the adopted resolutions, IRWD has provisions for consumption reduction methods to be implemented if necessary based on the water shortage level declared. The consumption reduction measures used by IRWD and included in the WSCP are summarized in Table 27.

<i>Table 27</i>		
<i>Consumption Reduction Methods</i>		
<b>Consumption Reduction Method</b>	<b>Stage (Level) When Method Takes Effect</b>	<b>Projection Reduction (%)</b>
<b>Inform public of water shortage through schools, community associations, homeowner associations, business groups and media. Develop the public consciousness for voluntary compliance. Highlight conservation methods and water-saving devices, emphasize changing water use habits; disseminate water conservation and drought literature</b>	<b>Level 1</b>	<b>Level 1 methods are expected to reduce demands up to 10%</b>
<b>Increase commodity rates or reduce allocation, reduce potable landscape irrigation by 50%; activate District Task Force to consult with high-volume users to assist in reducing demands</b>	<b>Level 2</b>	<b>Cumulative levels 1 and 2 methods are estimated to reduce demand by 10-25%</b>

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## **SECTION IV: WATER SHORTAGE CONTINGENCY PLAN**

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and penalizes excessive water use. The Ascending Block rate structure continues to be used by IRWD to promote conservation during normal conditions and could be tightened (allocations reduced) to further reduce water use and promote conservation as necessary.

**Irrigation Restriction.** In the event of a serious drought condition (Stage 3 or higher), it may be necessary for IRWD to enforce mandatory consumption reduction methods, in addition to voluntary measures. In addition to excess use penalties, all common area potable water use landscape irrigation and agricultural irrigation would be reduced drastically or eliminated completely if necessary. Complete elimination could be accomplished by locking off irrigation meters where one meter serves irrigation only, however, significant losses of permanent plantings would result. When one meter serves both internal use and landscaping (small percentage of meters), monitoring and public support would be used to eliminate irrigation. Again as previously noted, most of IRWD irrigation accounts utilized recycled water service, which may or may not require similar consumption reduction methods since this supply is considered to be drought tolerant supply. Therefore, if no shortage of recycled water supplies exist, consumption reduction/penalties may only apply to potable water accounts. This, however, may not apply to non-potable water accounts since these may be dependent on imported non-potable supplies which would most likely be reduced in a drought.

**Rationing.** A crisis drought condition may require the District to ration water, especially in the event of a cutback by MWDOC through MWD. A rationing may be accomplished by a variable percentage reduction based upon prior year's usage or average year's usage. A modified billing system reflecting the revised allocation would identify violators or those who exceed the rationed amount and penalties would be charged. If violations continued, the District could threaten termination of service. All nonessential uses such as car washing, pool filling, street cleaning, hydrant flushing, washing sidewalks should be banned and industrial use should be restricted as much as possible. Recycled water users may be exempt from rationing during drought.

**Flow Restrictors.** Under extreme conditions, flow restrictors could be installed in individual service lines.

### **G. Analysis of Impacts on Revenues and Expenditures (§ 10632(g))**

The California Code Section 10632(g) requires an analysis of the impacts of each of the actions taken for conservation and water restriction on the revenues and expenditures of the water supplier. IRWD's WSCP does not provide a detailed analysis of revenue and expenditure impacts of water shortages because IRWD's billing structure is designed to be insulated from

**SECTION IV: WATER SHORTAGE CONTINGENCY PLAN**

The following Tables show components of revenue and expenditure impacts that have been evaluated by IRWD and found no impact on IRWD revenues and expenditures.

<i>Actions and Conditions that Impact Revenues</i>	
Type	Anticipated Revenue Reduction
Reduced sales	no impact
Development of reserves	no impact
Impact of supplier’s higher rates (Tier 2)	no impact

<i>Actions and Conditions that Impact Expenditures</i>	
Category	Anticipated Cost
Change in quantity of sales	no impact
Increased staff salaries/overtime	no impact
Increased costs of new supplies/transfers/exchanges	no impact

Tables 29 and 30 below show how IRWD’s measures overcome any revenue or expenditure impacts from a severe water shortage.

<i>Table 29 Proposed Measures to Overcome Revenue Impacts</i>	
Names of Measures	Summary of Effects
Review of rate adjustment	IRWD can revise its rates during water shortage stages to increase commodity revenues if needed to offset MWD rates.
Reserves	IRWD maintains reserves that can stabilize water rates during times of reduced water sales
Reduce overhead or decreased capital expenditures	If needed, IRWD can reduce overhead and postpone capital expenditures

<i>Table 30 Proposed Measures to Overcome Expenditure Impacts</i>	
Names of measures	Summary of Effects
Reserves	IRWD maintains reserves that can be used to overcome expenditure impacts caused by water shortage.
Reduce overhead or decreased capital expenditures	If needed, IRWD can reduce overhead and postpone capital expenditures

**H. Water Shortage Contingency Ordinance/Resolution (§ 10632(h))**

The IRWD Board adopted Resolution No. 1987-52 and modified Section 15 – Prohibition of Water Wastage – providing the District with a series of options that may be utilized during periods of water shortages (Appendix F). IRWD also prepared its Water Shortage Contingency Plan (WSCP) which provides the specific water supply conditions and District measures that may

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## SECTION V: RECYCLED WATER PLAN

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### Law

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 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.

### V. Recycled Water Plan (§ 10633)

In 1963, IRWD made the decision to provide sewage collection, treatment and production of recycled water. Since 1967, IRWD has provided wastewater collection and tertiary treatment services with a defined purpose of delivering recycled water for non-potable uses. The Michelson Water Reclamation Plant (MWRP) first began delivering recycled water to agricultural users. The District began serving recycled water to agricultural users and expanded to include landscape irrigation (parks, golf courses, school grounds and play fields, community associations, open space area, green belts), and eventually to as well as front and backyard irrigation for large estate-sized residential lots, toilet flushing for large commercial buildings, carpet dying, construction dust control and a cooling tower application. IRWD also owns and operates a tertiary treatment plant called the Los Alisos Water Reclamation Plant (LAWRP) through its merger with Los Alisos Water District. IRWD currently produces approximately 13,000 AFY of recycled water from its MWRP and 2,000 AFY from its LAWRP which meets over 20% of IRWD's total water resource demands.

IRWD's Rules and Regulations, Section 1 state, "The plans for facilities to be constructed within the District are intended to be an integrated part of the District's Water Resources Master Plan, Sewer Master Plan and Sub-Area Master Plans. As it is the mandate of the State of California to effect conservation of water resources whenever possible, these Plans are also directed toward collecting, treating and reclaiming sewage and wastewater and beneficially reusing the resulting recycled water" [7].

IRWD's recycled water plan conserves and optimizes high-quality drinking water supplies for critical public purposes by reducing the use of these supplies for non-potable uses. The program also reduces the quantity of treated wastewater discharged through ocean outfalls. IRWD's

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## SECTION V: RECYCLED WATER PLAN

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used by nature to biodegrade wastes. The end result is high quality water that earned IRWD the first unrestricted use permit issued in the state, which allows the recycled water to be used for virtually everything but drinking. The permitted treatment capacity of the MWRP is 18.0 mgd and average flow is approximately 14 mgd. The efficiency of MWRP recycled water production has been estimated to be approximately 86% of the wastewater inflow to the plant.

After the clarification process, most of the sludge settles to the bottom of the primary clarification tanks and is pumped through underground pipes to the Orange County Sanitation District (OCSD) where it undergoes further treatment and ultimate ocean discharge. IRWD joined the OCSD in order to secure an alternate method of sewage treatment and disposal. The remaining primary effluent flows to the next stage of treatment at MWRP.

The LAWRP recycled water system is a separate wastewater collection and treatment system from MWRP, which consists of 105 miles of pipeline and one lift station which delivers wastewater to its 7.5 mgd capacity wastewater treatment plant. Secondary effluent from the wastewater plant is pumped to either the tertiary treatment plant where it is treated for use in the Lake Forest area's non-potable blended water distribution system, or to the South Orange County Wastewater Authority (SOCWA) pumping station which directs flows to the effluent transmission mains and subsequent ocean outfall. As part of the Upgrades project that IRWD is currently undergoing, LAWRP recycled water will be delivered to Zone B of the IRWD distribution system, as well as to the Zone A areas in the Lake Forest service area.

IRWD's overall service area also includes areas not served by MWRP or LAWRP wastewater treatment. Approximately 35% of all wastewater collected within IRWD's service area does not go to MWRP or LAWRP but is currently served by OCSD, Santa Margarita Water District or El Toro Water District. There are future plans to divert some of these other area flows to IRWD's treatment facilities. The following Tables 33 and 34 summarize current and projected wastewater collected by IRWD (tributary to MWRP and LAWRP), treated to recycled water standards and disposal.

	2000	2005	2010	2015	2020	2025	2030
Wastewater Collected by IRWD	16.71	18.64	22.33	23.63	24.91	26.11	26.37
Water treated to recycled water standard by IRWD	14.81	13.97	16.75	17.73	18.68	19.58	19.78

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**SECTION V: RECYCLED WATER PLAN**

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groundwater and imported supplies. The previous Tables 33 and 34 show merely wastewater flows and tertiary treated supplies as collected and produced by IRWD. Of the total 22,878 AF non-potable water used in 2005, approximately 67% (15,296 AF) was from recycled water produced by IRWD and used by customers. The difference represents supplemental supplies from non-potable wells (2,285 AF), native supplies (4,241 AF) and supplemental imported water (1,056 AF).

Type of Use	Treatment Level	2005 AFY
Agriculture	Tertiary or better	1,288
Landscape	Tertiary or better	18,220
Construction	Tertiary or better	219
Commercial/Industrial	Tertiary or better	57
Sales to others	Tertiary or better	3,094
Total		22,878

As stated, in addition to recycled water customers, IRWD serves untreated water to certain agricultural customers that are not on the recycled water distribution system but are served untreated imported supplies and native supplies. The following table represents the billed usage for untreated demands served in 2005.

Type of Use	Treatment Level	2005 AFY
Agriculture	Untreated/Runoff	6,301
Total		6,301

## SECTION V: RECYCLED WATER PLAN

To increase utilization of recycled water in lieu of potable, IRWD is investigating potential opportunities for industrial customer uses such as industrial process water, car washing, cooling tower makeup water, boiler feed water, production of ready-mix concrete, carpet and fabric dyeing, electronics manufacturing and use in laundry facilities. IRWD works closely with commercial customers who are considering the use of recycled water, carefully reviewing water quality concerns, safety, treatment, costs, regulatory compliance, and operations. IRWD has found that customers are very encouraged and recognize the benefits that using recycled water for non-potable applications can bring to the service area.

Tables 35b and 36 shows projections of IRWD's potential and future for recycled water demands by type of use through the year 2030. These amounts represent the projected recycled water produced by IRWD's treatment plants.

Type of Use	Treatment Level	2010	2015	2020	2025	2030
Agriculture	Tertiary or better	1,800	1,180	1,100	1,000	1,000
Landscape	Tertiary or better	20,088	23,114	25,048	26,441	26,805
Construction	Tertiary or better	250	222	220	200	200
Commercial/Industrial	Tertiary or better	65	75	80	90	90
Sales to others	Tertiary or better	4,000	1,500	1,500	1,500	1,500
<b>Total</b>		<b>26,203</b>	<b>26,091</b>	<b>27,948</b>	<b>29,231</b>	<b>29,595</b>

Type of Use	2010	2015	2020	2025	2030
Agriculture	1,800	1,180	1,100	1,000	1,000
Landscape	20,088	23,114	25,048	26,441	26,805
Construction	250	222	220	200	200
Commercial/Industrial	65	75	80	90	90
Sales to other agencies	4,000	1,500	1,500	1,500	1,500
<b>Total projected use of recycled water</b>	<b>26,203</b>	<b>26,091</b>	<b>27,948</b>	<b>29,231</b>	<b>29,595</b>

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**SECTION V: RECYCLED WATER PLAN**

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**Table 38**  
**Methods to Encourage Recycled Water Use**

Actions	AF of use projected to result from this action				
	2010	2015	2020	2025	2030
Rate discounts	5	5	5	5	5
Prohibit specific potable use	5	5	5	5	5
Grants/low interest loans	30	50	50	50	50
Dual plumbing standards	10	10	10	10	10
Total	50	70	70	70	70

**D. Recycled Water Optimization Plan (§ 10633(g))**

Since 1967, IRWD has been providing recycled water for irrigation within its service area. IRWD’s reclamation program has evolved from supplying agricultural needs to meeting the majority of landscape irrigation demands within the service area via an extensive dual distribution system. In addition to agricultural crops, other areas such as government facilities, schools, homeowner associations, golf courses, parks, green belts and street medians are currently supplied with recycled water.

***Recycled Water Demand***

The expansion of IRWD’s recycled distribution system is ongoing. In addition to new development areas over the last ten years, older areas within IRWD have been converted from domestic water to recycled water use primarily for irrigation. As stated, IRWD requires that all new office buildings within its service area be dual plumbed to use recycled water for flushing toilets and urinals. Next year, IRWD plans to convert 12 more commercial buildings to recycled water.

IRWD’s recycled system demands are expected to nearly double by the 2025. This is due to expansion of the system into new areas and “infill” and retrofit demands in areas currently served. To meet increased demand, IRWD is reviewing an expansion of MWRP treatment capacity. The treatment capacity of MWRP can be expanded depending on sufficient influent wastewater flow into the plant and assurance that the expansion is economically, technologically and environmentally feasible.

IRWD expects the Lake Forest service area to have some growth within its recycled system serving additional landscape irrigation demand. It is anticipated that interconnecting the two

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## SECTION VI: WATER QUALITY IMPACTS ON RELIABILITY

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### Law

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.

## VI. Water Quality Impacts on Reliability

### Groundwater

The OCWD performs extensive groundwater quality management throughout the basin. Overall the Basin has good water quality, however, OCWD Groundwater Management Plan describes some existing water quality concerns in the Basin and the OCWD's management, monitoring and improvement projects to address these concerns. Increasing salinity is a concern for all water sources and is a function of recharge water coming into the Basin and seawater intrusion. OCWD has taken a watershed management approach to avoid the potential loss of water supplies due to increasing salinity. Several management options to reduce salts input include obtaining lower TDS source water for replenishment, constructing desalter facilities (like Irvine Desalter Project) to remediate degraded groundwater, expanding barrier injection facilities to retard seawater intrusion, and maintaining an aggressive water quality monitoring program to assess Basin conditions [6].

OCWD has shown to have an extensive groundwater quality management program to protect the producers and consumers within the Basin. IRWD participates in this management program with its colored water treatment plant (DATS – Deep Aquifer Treatment System) and the Irvine Desalter Project (IDP) which is currently under construction. IRWD and OCWD are implementing the IDP which will remove total dissolved solids (TDS), nitrates and selenium from the Basin and produce quality potable water supplies. In addition, the non-potable component of the IDP will remove a plume of volatile organic compounds and high concentrations of TDS from the portions of the groundwater basin beneath the former El Toro Marine Corps Air Station.

Currently, there are no known water quality concerns affecting the availability or reliability of IRWD's groundwater supplies which cannot be mitigated for, if necessary, in the future.

### Imported Water

As stated in MWD's RUWMP and IRP, MWD's planning efforts have acknowledged the importance of water quality and have set specific targets for imported water. Each of MWD's sources has specific quality issues or concerns and to date MWD has not identified any water

**SECTION VII: WATER SERVICE RELIABILITY**

**Law**

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 the state, regional or local agency population projections within the service area of the urban water supplier.

**VII. Water Service Reliability**

**A. Projected Normal Water Year Supply and Demand (§ 10635(a))**

System supply reliability is the governing factor both during normal operations, water shortage from droughts and emergencies. IRWD’s water supply reliability is enhanced through development of multiple sources of supply and adequate storage, pumping and distribution facilities. IRWD is well-positioned with regards to water supply reliability because of the availability of several independent sources of supply. As discussed, strategies to meet emergency situations, such as development of interconnection arrangements, also help to enhance system reliability.

**Water Supply Comparison.** Tables 40, 41 and 42 below present IRWD’s supplies and demands under normal year. During normal conditions, demand does not fluctuate except for projected system growth. Water supplies projected do not represent the total supply capacity available to IRWD but rather projected supplies that would be used to meet projected demands.

**Table 40**  
**Projected Normal Water Year Supply AFY**

	2010	2015	2020	2025	2030
Supply	164,121	161,421	165,014	166,434	166,434
% of Normal Year*	100%	100%	100%	100%	100%

\*from Table 9. Base year for Normal water year.

**Table 41**  
**Projected Normal Water Year Demand AFY**

	2010	2015	2020	2025	2030
Demand	116,710	123,119	130,063	135,208	136,560
% of year 2005	135%	142%	150%	156%	156%

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**SECTION VII: WATER SERVICE RELIABILITY**


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<b>Table 43</b>					
<b>Projected Single Dry Year Water Supply AFY</b>					
	2010	2015	2020	2025	2030
Supply	161,121	158,421	162,014	163,434	163,434
% of projected normal*	98%	98%	98%	98%	98%

\*Projected normal from Table 40

<b>Table 44</b>					
<b>Projected Single Dry Year Water Demand AFY</b>					
	2010	2015	2020	2025	2030
Demand	124,879	131,737	139,167	144,672	146,119
% of projected normal*	1.07%	1.07%	1.07%	1.07%	1.07%

\*Projected normal from Table 41

<b>Table 45</b>					
<b>Projected Single Dry Year Supply and Demand Comparison AFY</b>					
	2010	2015	2020	2025	2030
Supply totals	161,121	158,421	162,014	163,434	163,434
Demand totals	124,879	131,737	139,167	144,672	146,119
Difference (supply - demand)	36,242	26,684	22,847	18,762	17,315
Difference as % of Supply	22%	17%	14%	11%	11%
Difference as % of Demand	29%	20%	16%	13%	12%

In the event of a single dry year, IRWD has sufficient supply to meet demand without requiring any reduction in use. In regards to IRWD's imported supplies, as stated in its 2005 RUWMP, MWD fully expects to be 100 percent reliable throughout the next twenty years through effective management of its water supply. [3]

IRWD's effective water efficiency improvements and additional water supply will help to enhance IRWD's water supply position and ensure IRWD meets projected water demand. The District will continue to assess improving water supplies, including expanding water recycling through conversions, groundwater storage, other groundwater treatment methods or other such water supply alternatives. If necessary, for subsequent dry years, the District would enter into a Stage 1 alert (see Section IV) and emphasize voluntary reduction in water use to all customers, but may not impose any additional restrictions.

**SECTION VII: WATER SERVICE RELIABILITY**

**Table 50**  
**Projected Demand During Multiple Dry Year P/E 2015 AFY**

	2011	2012	2013	2014	2015
Demand	126,810	125,987	127,903	129,821	131,737
% of Projected Normal	107%	107%	107%	107%	107%

**Table 51**  
**Projected Supply & Demand Comparison During Multiple Dry Year P/E 2015 AFY**

	2011	2012	2013	2014	2015
Supply totals	161,121	158,204	158,421	158,421	158,421
Demand totals	126,810	125,987	127,903	129,821	131,737
Difference (supply - demand)	34,311	32,217	30,518	28,600	26,684
Difference as % of Supply	21%	20%	19%	18%	17%
Difference as % of Demand	27%	26%	24%	22%	20%

Tables 52 through 54 provide projections of supply and demand under multiple dry year scenarios occurring between 2016 and 2020.

**Table 52**  
**Projected Supply During Multiple Dry Year P/E 2020 AFY**

	2016	2017	2018	2019	2020
Supply	159,052	159,872	160,690	161,509	162,014
% of Projected Normal	98%	98%	98%	98%	98%

**Table 53**  
**Projected Supply During Multiple Dry Year P/E 2020 AFY**

	2016	2017	2018	2019	2020
Demand	133,222	134,709	136,195	137,681	139,167
% of Projected Normal	107%	107%	107%	107%	107%

**Table 54**  
**Projected Supply & Demand Comparison During Multiple Dry Year P/E 2020 AFY**

	2016	2017	2018	2019	2020
Supply totals	159,052	159,872	160,690	161,509	162,014
Demand totals	133,222	134,709	136,195	137,681	139,167
Difference (supply - demand)	25,830	25,163	24,495	23,828	22,847
Difference as % of Supply	16%	16%	15%	15%	14%
Difference as % of Demand	19%	19%	18%	17%	16%

Tables 55 through 57 provide projections of supply and demand under multiple dry year scenarios occurring between 2021 and 2025.

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**SECTION VII: WATER SERVICE RELIABILITY**

	2026	2027	2028	2029	2030
Supply totals	163,434	163,434	163,434	163,434	163,434
Demand totals	144,961	145,250	145,540	145,829	146,119
Difference (supply - demand)	18,473	18,184	17,894	17,605	17,315
Difference as % of Supply	11%	11%	11%	11%	11%
Difference as % of Demand	13%	13%	12%	12%	12%

IRWD's overall supply availability contains several margins of safety or buffers:

- Significant quantities of “reserve” water supplies (excess of supplies over demands) will be available to serve as a buffer against inaccuracies in demand projects, future changes in land use, or alterations in supply availability.
- The potential exists for the treatment and conversion of some reserve non-potable supplies to potable water.
- Information provided by MWD, as the imported water supplier, concerning the adequacy of its regional supplies (from its 2005 RUWMP and IRP).
- Conservative estimates of annual potable and non-potable *imported* supplies have been made based on connected delivery capacity; additional supplies are expected to be available from these sources, based on legal entitlements, historical uses and information provided by MWD.

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## SECTION VIII: ADOPTION AND IMPLEMENTATION OF UWMP

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### Law

10640. Every urban water supplier required to prepare a plan pursuant to this part shall prepare its plan pursuant to Article 2.

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 this 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... 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 the plan.

## VIII. Adoption and Implementation of UWMP

### A. Public Participation (§ 10642)

Irvine Ranch Water District (IRWD) has supported community participation in its Urban Water Management Planning efforts since development of its first plan in 1985. IRWD has held hearings inviting the public to attend prior to UWMP adoption in 1985, 1990, 1995 and 2000. IRWD notified customers in its *Pipelines* newsletters (copy following this Section VIII) to all customers information about the UWMP 2005 update and invited interested customers in reviewing the UWMP to review on line at IRWD's website at [www.irwd.com](http://www.irwd.com) or in person at IRWD's headquarters located at 15600 Sand Canyon Avenue, Irvine.

On February 17, 2005, IRWD notified all of the cities within the service area and the County of Orange of the opportunity to submit comments regarding the UWMP during the update process. IRWD received one letter from the County of Orange (See copy of letter under Appendix C) advising the District of unincorporated planning areas within IRWD's service boundary. IRWD was aware of these plans and had previously included these demands for development of these areas because IRWD coordinates closely with the land owner (The Irvine Company) on all planning areas within unincorporated areas. All of the cities within IRWD's service area and the County of Orange received a copy of the draft UWMP mailed on October 28, 2005. Letters to cities and county are included under Appendix C.

A draft of the 2005 update was also made available on the website [www.irwd.com](http://www.irwd.com) and at IRWD's offices in October 2005. Notice of the IRWD public hearing was published in the

## DWR Review for Completeness Form Checklist

UWMP Act Code	Reference in IRWD 2005 UWMP
Water Code §10620(d) – Agency coordination	Section I-A – page 1
Water Code §10620(e) – UWMP preparation	Section I-B – page 2
Water Code §10620(f) – Water management tools	Section I-C – page 2
Water Code §10621(a) – Plan updated in years ending in five and zero	Section I-D – page 3
Water Code §10621(b) – City and county notification and participation	Section I-E – pages 3-4
Water Code §10631(a) – Population, climate, demographics, land use	Section II-A-C – pages 6-8
Water Code §10631(b) – Current and planned water supplies	Section II-E – pages 9-10
Water Code §10631(b)(1)-(4) – Groundwater sources	Section II-F-H – pages 11-14
Water Code §10631(c) – Supply reliability and vulnerability to seasonal shortage	Section II-I – pages 16-19
Water Code §10631(d) – Transfer and exchange opportunities	Section II-J – page 20
Water Code §10631(e) – Water use by customer type, past, current and future	Section II-K – pages 21-22
Water Code §10631(f)-(g) – Demand management measures	Section II-L-M – pages 23-28
Water Code §10631(h) – Planned water supply projects	Section II-N – pages 29-31
Water Code §10631(i) – Ocean desalination	Section II-O – page 31
Water Code §10631(k) – Current or projected supply includes wholesale water	Section II-P – pages 32-33
Water Code §10631.5 – Determination of demand management measures implementation	Section III – page 34
Water Code §10632(a) – Water shortage contingency stages of action	Section IV-A – page 35
Water Code §10632(b) – Estimate of minimum supply for next 3 years	Section IV-B – pages 36-37
Water Code §10632(c) – Catastrophic supply interruption plan	Section IV-C – pages 38-40
Water Code §10632(d)-(f) – Prohibitions, penalties and consumption reduction methods	Section IV-E-F – pages 41-45
Water Code §10632(g) – Analysis of revenue impacts of reduced sales during shortages	Section IV-G – pages 45-47
Water Code §10632(h)-(i) – Draft ordinance and use monitoring procedure	Section IV-H – pages 47-48
Water Code §10633 – Recycled water plan coordination	Section V – pages 49-50
Water Code §10633(a)-(c) – Wastewater quantity, quality and current uses	Section V-A – pages 50-53
Water Code §10633(d)-(g) – Potential and projected use, optimization plan with incentives	Section V-B-D – pages 54-58
Water Code §10634 – Water quality impacts on reliability	Section VI – pages 59-60
Water Code §10635 – Water service reliability normal year	Section VII-A – page 61
Water Code §10635(a)-(d) – Projected single-dry year	Section VII-B – pages 62-63
Water Code §10635(a)-(d) – Projected multiple-dry year	Section VII-C – pages 64-67
Water Code §10642, §10644(a), §10645 – Public involvement, file with DWR, plan available to public	Section VIII – pages 68-69

## Free Water Awareness Tours

Irvine Ranch Water District (IRWD) offers free Water Awareness Tours to all its customers.

The Fall tours will be held on Friday and Saturday, October 7 and 8.

These tours, open to those who live or work with IRWD boundaries, are an excellent opportunity to gain valuable information about the water system, wastewater treatment, and recycled water use.

The free tours start promptly at 8 a.m. and conclude at approximately 2 p.m. Lunch is provided. The tours fill very quickly and are first-come first-served based on the date we receive your reservation. You will receive a call if your selection is not available. We are unable to accommodate children under 16 years of age.

Customers may register on the IRWD Web site at [www.irwd.com](http://www.irwd.com) or call (949) 453-5500.

## STATE TAKES IRWD PROPERTY TAXES

As you well know, property owners in Orange County pay billions of dollars in basic property taxes each year. These tax revenues are allocated according to a complex formula among local governments and special districts such as IRWD.

While property taxes are assessed, levied, collected and distributed at the local level, in 1978 Proposition 13 made the state the final arbiter in deciding who receives basic property tax monies and how much they receive. Proposition 13 also set the maximum basic tax rate at 1% of assessed property value per year. Thus, it is commonly referred to as the "1% property tax."

### How IRWD Uses 1% Property Taxes

IRWD maintains over 1,000 miles of drinking water pipelines, over 300 miles of recycled water pipelines, over 600 miles of sewer pipes, 40 reservoirs and two large wastewater treatment plants. Without these facilities, water could not be supplied or delivered and sewage could not be collected and treated.

IRWD finances facilities needed to provide water and sewer service to our growing customer base by issuing general obligation bonds, much like you finance your home with a mortgage from the bank. IRWD uses the 1% property taxes received from the state to make payments on these bonds. This makes sense - IRWD facilities are paid for by a tax on the property that directly benefits from the service we provide.

### State Takes IRWD 1% Property Taxes

In early 2004 we warned you of a possible attempt by the state to change this formula that might result in the elimination or a big reduction in the portion of the 1% property taxes IRWD and many other special districts receive from the state. Unfortunately, this prediction came true. In late 2004, Governor Schwarzenegger asked local governments to help solve the state budget crisis by transferring \$1.3 billion in property taxes to the state budget for the next two years. As part of this action special districts statewide lost \$350 million a year in local property taxes, with cities and counties making up the difference. In Orange County alone

*continued on page two...*

## FREE Fall Residential Landscape Workshop



**WHEN:**  
Friday, October 28  
6:00 to 9:00 p.m.

**WHERE:**  
IRWD Headquarters  
15600 Sand Canyon Avenue  
Irvine CA, 92618

Fall 2005 brings a new, fun workshop format which features both fact-filled talks and hands-on demonstrations by local irrigation, gardening and landscape specialists.

Workshop topics may include:

- How to water for plant health and low water bills
- Irrigation system basics
- Landscape design basics
- How to prepare soil for greater plant success

Limited seating. Reserve your seat(s) online at <http://www.irwd.com/FreePrograms/workshops.php>

If you do not have internet access, please call 949-453-5327 to make your reservation.



## **IRVINE RANCH WATER DISTRICT**

15600 Sand Canyon Ave., P.O. Box 57000, Irvine, CA 92619-7000 (949) 453-5300

October 28, 2005

**NOTICE OF PUBLIC HEARING  
IRVINE RANCH WATER DISTRICT  
ADOPTION OF 2005 URBAN WATER MANAGEMENT PLAN**

Notice is hereby given that the Board of Directors of Irvine Ranch Water District will conduct a public hearing at 6:00 p.m. on November 28, 2005, in the District office located at 15600 Sand Canyon Avenue, Irvine, California for the purpose of receiving public comments concerning the proposed adoption of IRWD's 2005 Urban Water Management Plan, as required under the California Urban Water Management Planning Act. Any person desiring to make comments or present information to the Board may make an oral presentation at the public hearing or may submit written comments or information for the Board's consideration by delivering them to the District office prior to the time of the hearing. A draft of the Plan is available for review on IRWD's Web site ([www.irwd.com](http://www.irwd.com)) or at the District office at the above address.

Leslie Bonkowski  
District Secretary

RESOLUTION NO. 2005 -46

IRVINE RANCH WATER DISTRICT RESCINDING  
RESOLUTION NO. 2000-39 AND ADOPTING THE  
2005 URBAN WATER MANAGEMENT PLAN FOR  
SAID DISTRICT

WHEREAS, Irvine Ranch Water District is a California Water District organized and existing under the California Water District Law; and

WHEREAS, pursuant to Section 10620 et seq. of the California Water Code the District prepared and adopted an Urban Water Management Plan for said District on December 18, 2000; and

WHEREAS, the Board of Directors of the District, pursuant to Section 10621 of the Water Code has reviewed the Plan and directed that it be amended; and

WHEREAS, the amended Plan, entitled "2005 Urban Water Management Plan" has been made available for public inspection and notice of a public hearing thereon has been given pursuant to Section 6066 of the California Government Code; and

WHEREAS, at the time set, the duly noticed public hearing was held and all persons interested were given an opportunity to be heard concerning any matter set forth in the Plan.

NOW, THEREFORE, the Board of Directors of the Irvine Ranch Water District does hereby RESOLVE, DETERMINE and ORDER as follows:

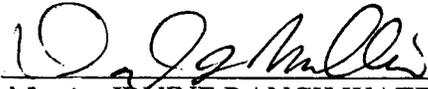
Section 1. Resolution No. 2000-39 adopted the 18th day of December 2000 be and hereby is rescinded in its entirety.

Section 2. The 2005 Urban Water Management Plan of the Irvine Ranch Water District, dated November 2005, is hereby adopted pursuant to Section 10642 of the California Water Code.

Section 3. The Secretary is directed to file a copy of the 2005 Urban Water Management Plan of the Irvine Ranch Water District with the Department of Water Resources of the State of California, pursuant to Section 10644 of the California Water Code.

ADOPTED, SIGNED and APPROVED this 28th day of November, 2005.

  
Secretary, IRVINE RANCH WATER  
DISTRICT and of the Board of  
Directors thereof



President, IRVINE RANCH WATER  
DISTRICT and of the Board of  
Directors thereof

APPROVED AS TO FORM:  
BOWIE, ARNESON, WILES & GIANNONE  
Legal Counsel - IRWD

By: \_\_\_\_\_

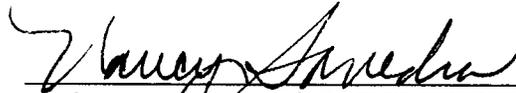


STATE OF CALIFORNIA )  
 ) SS.  
COUNTY OF ORANGE )

I, Nancy Savedra, Assistant Secretary of the Board of Directors of Irvine Ranch Water District, do hereby certify that the foregoing Resolution was duly adopted by the Board of Directors of said District at a regular meeting of said Board held on the 28th day of November 2005, and that it was so adopted by the following vote:

AYES:	DIRECTORS	Miller, Matheis, Reinhart, Swan and Withers
NOES:	DIRECTORS	None
ABSTAIN:	DIRECTORS	None
ABSENT:	DIRECTORS	None

(SEAL)

  
Assistant Secretary of IRVINE RANCH WATER DISTRICT and of the Board of Directors thereof

STATE OF CALIFORNIA )  
 ) SS.  
COUNTY OF ORANGE )

I, Nancy Savedra, Assistant Secretary of the Board of Directors of Irvine Ranch Water District, do hereby certify that the above and foregoing is a full, true and correct copy of Resolution No. 2005-46 of said Board, and that the same has not been amended or repealed.

Dated: 11/30/05

  
Assistant Secretary of IRVINE RANCH WATER DISTRICT and of the Board of Directors thereof

(SEAL)



**APPENDIX D**

**IRVINE RANCH WATER DISTRICT  
BEST MANAGEMENT PRACTICES ANNUAL REPORTS  
2003-2004**



Reported as of 6/27/05

**Water Supply & Reuse**

Reporting Unit:

**Irvine Ranch Water District**

Year:

**2003****Water Supply Source Information**

<b>Supply Source Name</b>	<b>Quantity (AF) Supplied</b>	<b>Supply Type</b>
MWDSC-Treated	19840.2	Imported
MWDSC-Untreated	17074.8	Imported
MWDSC-Reclaimed	143	Recycled
OCWD	35907.7	Groundwater
MWRP	15048.6	Recycled
Los Alisos Plant	2056.5	Recycled
Well 78 & ET 1	2132.3	Groundwater
Wells	113.8	Groundwater

**Total AF: 92316.9**

Reported as of 6/27/05

**Accounts & Water Use**

Reporting Unit Name:  
Irvine Ranch Water District

Submitted to  
CUWCC  
01/25/2005

Year:  
2003

**A. Service Area Population Information:**

1. Total service area population 300700

**B. Number of Accounts and Water Deliveries (AF)**

Type	Metered		Unmetered	
	No. of Accounts	Water Deliveries (AF)	No. of Accounts	Water Deliveries (AF)
1. Single-Family	44878	19962.1	0	0
2. Multi-Family	28603	9715.6	0	0
3. Commercial	3571	7228.3	0	0
4. Industrial	1047	6566.3	0	0
5. Institutional	192	2489.6	0	0
6. Dedicated Irrigation	1803	5238.8	0	0
7. Recycled Water	3356	17748.4	0	0
8. Other	101	11167	0	0
9. Unaccounted	NA	3769.4	NA	0
<b>Total</b>	<b>83551</b>	<b>83885.5</b>	<b>0</b>	<b>0</b>
		<b>Metered</b>		<b>Unmetered</b>

Reported as of 6/27/05

## BMP 01: Water Survey Programs for Single-Family and Multi-Family Residential Customers

Reporting Unit: **Irvine Ranch Water District**      BMP Form Status: **100% Complete**      Year: **2003**

### A. Implementation

- |                                                                                                                              |            |
|------------------------------------------------------------------------------------------------------------------------------|------------|
| 1. Based on your signed MOU date, 08/26/1991, your Agency STRATEGY DUE DATE is:                                              | 08/25/1993 |
| 2. Has your agency developed and implemented a targeting/marketing strategy for SINGLE-FAMILY residential water use surveys? | yes        |
| a. If YES, when was it implemented?                                                                                          | 7/14/1990  |
| 3. Has your agency developed and implemented a targeting/marketing strategy for MULTI-FAMILY residential water use surveys?  | yes        |
| a. If YES, when was it implemented?                                                                                          | 7/14/1990  |

### B. Water Survey Data

Survey Counts:	Single Family Accounts	Multi-Family Units
1. Number of surveys offered:	36	0
2. Number of surveys completed:	36	0

### Indoor Survey:

- |                                                                                                                                                                                                             |     |     |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----|-----|
| 3. Check for leaks, including toilets, faucets and meter checks                                                                                                                                             | yes | yes |
| 4. Check showerhead flow rates, aerator flow rates, and offer to replace or recommend replacement, if necessary                                                                                             | no  | no  |
| 5. Check toilet flow rates and offer to install or recommend installation of displacement device or direct customer to ULFT replacement program, as necessary; replace leaking toilet flapper, as necessary | no  | no  |

### Outdoor Survey:

- |                                                                                                                          |                |     |
|--------------------------------------------------------------------------------------------------------------------------|----------------|-----|
| 6. Check irrigation system and timers                                                                                    | yes            | yes |
| 7. Review or develop customer irrigation schedule                                                                        | yes            | yes |
| 8. Measure landscaped area (Recommended but not required for surveys)                                                    | yes            | yes |
| 9. Measure total irrigable area (Recommended but not required for surveys)                                               | yes            | yes |
| 10. Which measurement method is typically used (Recommended but not required for surveys)                                | Odometer Wheel |     |
| 11. Were customers provided with information packets that included evaluation results and water savings recommendations? | yes            | yes |
| 12. Have the number of surveys offered and completed, survey results, and survey costs been tracked?                     | yes            | yes |
| a. If yes, in what form are surveys tracked?                                                                             | database       |     |

b. Describe how your agency tracks this information.

Surveys are tracked in utility billing database. Costs calculated as needed.

### C. Water Survey Program Expenditures

	This Year	Next Year
1. Budgeted Expenditures	1200	5000
2. Actual Expenditures	5783	

### D. "At Least As Effective As"

1. Is your AGENCY implementing an "at least as effective as" variant of this BMP? yes

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."

IRWD's billing system incorporated individualized water budgets, sending a price signal when the customer has a leak or is over-watering. IRWD responds with on-site surveys for high bill customers as requested.

### E. Comments

IRWD also operated a fall campaign targeted specifically at residential customers exceeding fall water budgets.

Reported as of 6/27/05

## BMP 02: Residential Plumbing Retrofit

Reporting Unit: **Irvine Ranch Water District**      BMP Form Status: **100% Complete**      Year: **2003**

### 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? 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

3. Estimated percent of single-family households with low-flow showerheads: 91.7%

4. Has your agency satisfied the 75% saturation requirement for multi-family housing units? yes

5. Estimated percent of multi-family households with low-flow showerheads: 79.9%

6. If YES to 2 OR 4 above, please describe how saturation was determined, including the dates and results of any survey research.

In 2000, MWDOC and MWD conducted the OC Saturation Survey and found countywide saturation rates of 66.9% in SF and 59.8% in mf dwelling units. Saturation rates reported above represent linear extrapolations of saturation results for 02-03.

### B. Low-Flow Device Distribution Information

1. Has your agency developed a targeting/ marketing strategy for distributing low-flow devices? yes

a. If YES, when did your agency begin implementing this strategy? 07/14/1990

b. Describe your targeting/ marketing strategy.

Devices are distributed through residential audits, workshops, tours, community events and on demand.

Low-Flow Devices Distributed/ Installed	SF Accounts	MF Units
2. Number of low-flow showerheads distributed:	106	66
3. Number of toilet-displacement devices distributed:	0	0
4. Number of toilet flappers distributed:	0	0
5. Number of faucet aerators distributed:	201	125
6. Does your agency track the distribution and cost of low-flow devices?		yes

a. If YES, in what format are low-flow devices tracked? Database

b. If yes, describe your tracking and distribution system :

Devices are tracked in the customer database and the costs are tracked in the accounts payable database.

**C. Low-Flow Device Distribution Expenditures**

	<b>This Year</b>	<b>Next Year</b>
1. Budgeted Expenditures	6000	5000
2. Actual Expenditures	3566	

**D. "At Least As Effective As"**

1. Is your AGENCY implementing an "at least as effective as" variant of this BMP? 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**

Reported as of 6/27/05

### BMP 03: System Water Audits, Leak Detection and Repair

Reporting Unit: **Irvine Ranch Water District**      BMP Form Status: **100% Complete**      Year: **2003**

#### A. Implementation

1. Has your agency completed a pre-screening system audit for this reporting year? yes
2. If YES, enter the values (AF/Year) used to calculate verifiable use as a percent of total production:
  - a. Determine metered sales (AF) 80141.3
  - b. Determine other system verifiable uses (AF) 8406.2
  - c. Determine total supply into the system (AF) 92316.9
  - d. Using the numbers above, if (Metered Sales + Other Verifiable Uses) / Total Supply is < 0.9 then a full-scale system audit is required. 0.96
3. Does your agency keep necessary data on file to verify the values used to calculate verifiable uses as a percent of total production? yes
4. Did your agency complete a full-scale audit during this report year? no
5. Does your agency maintain in-house records of audit results or the completed AWWA audit worksheets for the completed audit? yes
6. Does your agency operate a system leak detection program? yes
  - a. If yes, describe the leak detection program:

On file in 1997-98 BMP report

#### B. Survey Data

1. Total number of miles of distribution system line. 1330
2. Number of miles of distribution system line surveyed. 1200

#### C. System Audit / Leak Detection Program Expenditures

	<b>This Year</b>	<b>Next Year</b>
1. Budgeted Expenditures	148000	148997
2. Actual Expenditures	188320	

#### D. "At Least As Effective As"

1. Is your AGENCY implementing an "at least as effective as" variant of this BMP? 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

Reported as of 6/27/05

## BMP 04: Metering with Commodity Rates for all New Connections and Retrofit of Existing

Reporting Unit: **Irvine Ranch Water District**      BMP Form Status: **100% Complete**      Year: **2003**

### A. Implementation

1. Does your agency require meters for all new connections and bill by volume-of-use? yes

2. Does your agency have a program for retrofitting existing unmetered connections and bill by volume-of-use? no

a. If YES, when was the plan to retrofit and bill by volume-of-use existing unmetered connections completed?

b. Describe the program:

There are no unmetered accounts

3. Number of previously unmetered accounts fitted with meters during report year. 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? 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. 992

3. Number of CII accounts with mixed-use meters retrofitted with dedicated irrigation meters during reporting period. 1

### C. Meter Retrofit Program Expenditures

	This Year	Next Year
1. Budgeted Expenditures	0	0
2. Actual Expenditures	0	

### D. "At Least As Effective As"

1. Is your AGENCY implementing an "at least as effective as" variant of this BMP? 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

Meter retrofit result of conversion to reclaimed, and not part of conservation budget.

Reported as of 6/27/05

## BMP 05: Large Landscape Conservation Programs and Incentives

Reporting Unit:  
**Irvine Ranch Water District**

BMP Form Status:  
**100% Complete**

Year:  
**2003**

### A. Water Use Budgets

- |                                                                                            |       |
|--------------------------------------------------------------------------------------------|-------|
| 1. Number of Dedicated Irrigation Meter Accounts:                                          | 5138  |
| 2. Number of Dedicated Irrigation Meter Accounts with Water Budgets:                       | 4283  |
| 3. Budgeted Use for Irrigation Meter Accounts with Water Budgets (AF):                     | 26983 |
| 4. Actual Use for Irrigation Meter Accounts with Water Budgets (AF):                       | 14769 |
| 5. Does your agency provide water use notices to accounts with budgets each billing cycle? | yes   |

### B. Landscape Surveys

- |                                                                                      |    |
|--------------------------------------------------------------------------------------|----|
| 1. Has your agency developed a marketing / targeting strategy for landscape surveys? | no |
| a. If YES, when did your agency begin implementing this strategy?                    |    |
| b. Description of marketing / targeting strategy:                                    |    |
| 2. Number of Surveys Offered.                                                        | 0  |
| 3. Number of Surveys Completed.                                                      | 0  |
| 4. Indicate which of the following Landscape Elements are part of your survey:       |    |
| a. Irrigation System Check                                                           | no |
| b. Distribution Uniformity Analysis                                                  | no |
| c. Review / Develop Irrigation Schedules                                             | no |
| d. Measure Landscape Area                                                            | no |
| e. Measure Total Irrigable Area                                                      | no |
| f. Provide Customer Report / Information                                             | no |
| 5. Do you track survey offers and results?                                           | no |
| 6. Does your agency provide follow-up surveys for previously completed surveys?      | no |
| a. If YES, describe below:                                                           |    |

### 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 |
| 2. Number of CII mixed-use accounts with landscape budgets.                                                                                                                                   | 226 |
| 3. Do you offer landscape irrigation training?                                                                                                                                                | yes |
| 4. Does your agency offer financial incentives to improve                                                                                                                                     | no  |

landscape water use efficiency?

Type of Financial Incentive:	Budget (Dollars/Year)	Number Awarded to Customers	Total Amount Awarded
a. Rebates	0	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

a. If YES, describe below:

They become part of the monthly mailing to all landscape accounts which includes information on efficient watering.

6. Do you have irrigated landscaping at your facilities?

yes

a. If yes, is it water-efficient?

yes

b. If yes, does it have dedicated irrigation metering?

yes

7. Do you provide customer notices at the start of the irrigation season?

yes

8. Do you provide customer notices at the end of the irrigation season?

yes

#### D. Landscape Conservation Program Expenditures

	This Year	Next Year
1. Budgeted Expenditures	32500	110000
2. Actual Expenditures	38146	

#### E. "At Least As Effective As"

1. Is your AGENCY implementing an "at least as effective as" variant of this BMP?

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

Reported as of 6/27/05

## BMP 06: High-Efficiency Washing Machine Rebate Programs

Reporting Unit: **Irvine Ranch Water District**      BMP Form Status: **100% Complete**      Year: **2003**

### A. Implementation

1. Do any energy service providers or waste water utilities in your service area offer rebates for high-efficiency washers? yes

a. If YES, describe the offerings and incentives as well as who the energy/waste water utility provider is.

SCE rebate and So.Cal Gas Company had rebates at various times. Rebate amounts varied.

2. Does your agency offer rebates for high-efficiency washers? yes

3. What is the level of the rebate? 100

4. Number of rebates awarded. 619

### B. Rebate Program Expenditures

	This Year	Next Year
1. Budgeted Expenditures	0	0
2. Actual Expenditures	0	

### C. "At Least As Effective As"

1. Is your AGENCY implementing an "at least as effective as" variant of this BMP? 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

IRWD participates in regional rebate program offered by wholesaler, and funded by other agencies. IRWD supplements regional program with targeted marketing, Point of Purchase displays, special events and notices in bill insert newsletters.

Reported as of 6/27/05

**BMP 07: Public Information Programs**

Reporting Unit: **Irvine Ranch Water District**      BMP Form Status: **100% Complete**      Year: **2003**

**A. Implementation**

1. Does your agency maintain an active public information program to promote and educate customers about water conservation? **yes**

a. If YES, describe the program and how it's organized.

IRWD communicates water conservation regularly through use of its monthly newsletter, resident tour program, web site, brochure distribution and landscape workshops. The Conservation Department has the main responsibility for program content, with assistance from the Public Affairs Dept.

2. Indicate which and how many of the following activities are included in your public information program.

Public Information Program Activity	Yes/No	Number of Events
a. Paid Advertising	no	0
b. Public Service Announcement	yes	4
c. Bill Inserts / Newsletters / Brochures	yes	12
d. Bill showing water usage in comparison to previous year's usage	yes	
e. Demonstration Gardens	yes	1
f. Special Events, Media Events	yes	9
g. Speaker's Bureau	yes	1
h. Program to coordinate with other government agencies, industry and public interest groups and media	yes	

**B. Conservation Information Program Expenditures**

	This Year	Next Year
1. Budgeted Expenditures	63800	45020
2. Actual Expenditures	22354	

**C. "At Least As Effective As"**

1. Is your AGENCY implementing an "at least as effective as" variant of this BMP? **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**

Budget = conservation + public affairs

Reported as of 6/27/05

### BMP 08: School Education Programs

Reporting Unit: **Irvine Ranch Water District**      BMP Form Status: **100% Complete**      Year: **2003**

#### A. Implementation

1. Has your agency implemented a school information program to promote water conservation? yes

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	52	4609	2
Grades 4th-6th	yes	22	2763	1
Grades 7th-8th	yes	8	1376	1
High School	yes	0	0	2

3. Did your Agency's materials meet state education framework requirements? yes

4. When did your Agency begin implementing this program? 1/1/1975

#### B. School Education Program Expenditures

	This Year	Next Year
1. Budgeted Expenditures	29800	25800
2. Actual Expenditures	21357	

#### C. "At Least As Effective As"

1. Is your AGENCY implementing an "at least as effective as" variant of this BMP? 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

MWDOC conducted 34 presentations - 7022 students. Balance conducted by IRWD. Expenditures only cover IRWD's portion. See MWDOC report for their expenditures. Also held total of 6 teacher workshops for all grades- (5 MWDOC, 1 IRWD)

Reported as of 6/27/05

**BMP 09: Conservation Programs for CII Accounts**

Reporting Unit:

**Irvine Ranch Water  
District**

BMP Form Status:

**100% Complete**

Year:

**2003****A. Implementation**

1. Has your agency identified and ranked COMMERCIAL customers according to use? **yes**
2. Has your agency identified and ranked INDUSTRIAL customers according to use? **yes**
3. Has your agency identified and ranked INSTITUTIONAL customers according to use? **yes**

**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**

<b>CII Surveys</b>	<b>Commercial Accounts</b>	<b>Industrial Accounts</b>	<b>Institutional Accounts</b>
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
<b>CII Survey Components</b>	<b>Commercial Accounts</b>	<b>Industrial Accounts</b>	<b>Institutional Accounts</b>
e. Site Visit	yes	yes	yes
f. Evaluation of all water-using apparatus and processes	yes	yes	yes
g. Customer report identifying recommended efficiency measures, paybacks and agency incentives	no	no	no
<b>Agency CII Customer Incentives</b>	<b>Budget (\$/Year)</b>	<b>No. Awarded to Customers</b>	<b>Total \$ Amount Awarded</b>
h. Rebates	0	1043	241190
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
- 6. Does your agency document and maintain records on how savings were realized and the method of calculation for estimated savings? yes
- 7. Estimated annual savings (AF/yr) from site-verified actions taken by agency since 1991. 16.02
- 8. Estimated annual savings (AF/yr) from non-site-verified actions taken by agency since 1991. 144.14

**B. Conservation Program Expenditures for CII Accounts**

	This Year	Next Year
1. Budgeted Expenditures	75000	30000
2. Actual Expenditures	276982	

**C. "At Least As Effective As"**

- 1. Is your AGENCY implementing an "at least as effective as" variant of this BMP? yes

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."

In addition to participating in regional incentive programs, IRWD also establishes water budgets with a penalty rate structure for CII accounts. The water budgets incorporate financial disincentives for leaks, over-watering and equipment malfunctions.

**D. Comments**

IRWD is not following options A or B in favor of applying water budgets. IRWD's water budgets incorporate financial disincentives for leaks, over-watering and equipment malfunctions. However, IRWD does participate in MWDSC's regional program, and has reported number of rebates awarded. Budgeted expenditures = IRWD only. Actual expenditures = IRWD (\$6186) + MWDSC (\$270,856).

Reported as of 6/27/05

**BMP 09a: CII ULFT Water Savings**

Reporting Unit: **Irvine Ranch Water District**      BMP Form Status: **100% Complete**      Year: **2003**

1. Did your agency implement a CII ULFT replacement program in the reporting year? Yes  
If No, please explain why on Line B. 10.

**A. Targeting and Marketing**

1. What basis does your agency use to target customers for participation in this program? Consumption ranking  
CII Sector or subsector  
CII ULFT Study subsector targeting  
Check all that apply.

a. Describe which method you found to be the most effective overall, and which was the most effective per dollar expended.

IRWD efforts, exclusive of regional program vendor, were limited to personal contact during on-site water surveys. See MWDSC program for regional program details.

2. How does your agency advertise this program? Check all that apply. Direct letter  
Trade shows and events

a. Describe which method you found to be the most effective overall, and which was the most effective per dollar expended.

MWDSC's vendor is tracking program marketing and effectiveness. See MWDSC

**B. Implementation**

1. Does your agency keep and maintain customer participant information? (Read the Help information for a complete list of all the information for this BMP.) Yes
2. Would your agency be willing to share this information if the CUWCC did a study to evaluate the program on behalf of your agency? Yes
3. What is the total number of customer accounts participating in the program during the last year? 2

4. CII Subsector	Number of Toilets Replaced			
	Standard Gravity Tank	Air Assisted	Valve Floor Mount	Valve Wall Mount
a. Offices	8	0	0	0
b. Retail / Wholesale	0	0	0	0
c. Hotels	0	0	0	0
d. Health	0	0	0	0
e. Industrial	0	0	0	0
f. Schools: K to 12	0	0	0	0
g. Eating	0	0	0	0
h. Government	0	0	0	0

i. Churches	0	0	0	0
j. Other	8	0	0	0

5. Program design.

Rebate or voucher

6. Does your agency use outside services to implement this program? Yes

a. If yes, check all that apply.

Consultant

7. Participant tracking and follow-up.

No follow-up

8. Based on your program experience, please rank on a scale of 1 to 5, with 1 being the least frequent cause and 5 being the most frequent cause, the following reasons why customers refused to participate in the program.

a. Disruption to business	3
b. Inadequate payback	5
c. Inadequate ULFT performance	2
d. Lack of funding	5
e. American's with Disabilities Act	1
f. Permitting	2
g. Other. Please describe in B. 9.	1

9. Please describe general program acceptance/resistance by customers, obstacles to implementation, and other issues affecting program implementation or effectiveness.

Customers need budget approval and time consuming assistance to "sell" the idea to upper management. Customers who were most interested were those with high water bill penalties.

10. Please provide a general assessment of the program for this reporting year. Did your program achieve its objectives? Were your targeting and marketing approaches effective? Were program costs in line with expectations and budgeting?

See information provided by MWDSC.

**C. Conservation Program Expenditures for CII ULFT**

1. CII ULFT Program: Annual Budget & Expenditure Data

	<b>Budgeted</b>	<b>Actual Expenditure</b>
a. Labor	0	0
b. Materials	0	0
c. Marketing & Advertising	0	0
d. Administration & Overhead	0	0
e. Outside Services	0	0
f. Total	0	0

2. CII ULFT Program: Annual Cost Sharing

a. Wholesale agency contribution	960
----------------------------------	-----

b. State agency contribution	0
c. Federal agency contribution	0
d. Other contribution	0
e. Total	960

**D. Comments**

MWDSC is providing reporting for this program unless other data is indicated. MWDSC providing participation numbers, expenditures etc.

Reported as of 6/27/05

## BMP 11: Conservation Pricing

Reporting Unit:  
Irvine Ranch Water District

BMP Form  
Status:  
100% Complete

Year:  
2003

### A. Implementation

#### Rate Structure Data Volumetric Rates for Water Service by Customer Class

##### 1. Residential

a. Water Rate Structure	Increasing Block
b. Sewer Rate Structure	Non-volumetric Flat Rate
c. Total Revenue from Volumetric Rates	\$10758284
d. Total Revenue from Non-Volumetric Charges, Fees and other Revenue Sources	\$10858464

##### 2. Commercial

a. Water Rate Structure	Increasing Block
b. Sewer Rate Structure	Uniform
c. Total Revenue from Volumetric Rates	\$4031282
d. Total Revenue from Non-Volumetric Charges, Fees and other Revenue Sources	\$1817237

##### 3. Industrial

a. Water Rate Structure	Increasing Block
b. Sewer Rate Structure	Uniform
c. Total Revenue from Volumetric Rates	\$2926063
d. Total Revenue from Non-Volumetric Charges, Fees and other Revenue Sources	\$838780

##### 4. Institutional / Government

a. Water Rate Structure	Increasing Block
b. Sewer Rate Structure	Uniform
c. Total Revenue from Volumetric Rates	\$1172463
d. Total Revenue from Non-Volumetric Charges, Fees and other Revenue Sources	\$182360

##### 5. Irrigation

a. Water Rate Structure	Budget-Based Rate
b. Sewer Rate Structure	Service Not Provided
c. Total Revenue from Volumetric Rates	\$6957345
d. Total Revenue from Non-Volumetric Charges, Fees and other Revenue Sources	\$1500176

##### 6. Other

a. Water Rate Structure	Uniform
-------------------------	---------

b. Sewer Rate Structure	Uniform
c. Total Revenue from Volumetric Rates	\$3122777
d. Total Revenue from Non-Volumetric Charges, Fees and other Revenue Sources	\$4946

### B. Conservation Pricing Program Expenditures

	This Year	Next Year
1. Budgeted Expenditures	0	0
2. Actual Expenditures	0	

### C. "At Least As Effective As"

1. Is your AGENCY implementing an "at least as effective as" variant of this BMP? yes

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."

Non-irrigation accounts are billed on a budget-based rate structure. Costs are considered part of ordinary billing procedures and are not specially tracked.

### D. Comments

Reported as of 6/27/05

**BMP 12: Conservation Coordinator**

Reporting Unit: **Irvine Ranch Water District**      BMP Form Status: **100% Complete**      Year: **2003**

**A. Implementation**

- 1. Does your Agency have a conservation coordinator? yes
- 2. Is this a full-time position? yes
- 3. If no, is the coordinator supplied by another agency with which you cooperate in a regional conservation program ? no
- 4. Partner agency's name:
- 5. If your agency supplies the conservation coordinator:
  - a. What percent is this conservation coordinator's position? 100%
  - b. Coordinator's Name Fiona Sanchez
  - c. Coordinator's Title Conservation Analyst
  - d. Coordinator's Experience and Number of Years 12 years in water conservation
  - e. Date Coordinator's position was created (mm/dd/yyyy) 5/1/2001
- 6. Number of conservation staff, including Conservation Coordinator. 4

**B. Conservation Staff Program Expenditures**

	This Year	Next Year
1. Budgeted Expenditures	255460	355602
2. Actual Expenditures	258596	

**C. "At Least As Effective As"**

- 1. Is your AGENCY implementing an "at least as effective as" variant of this BMP? 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**



- c. Allow local agencies, including municipalities and special 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. yes
- 4. Does your agency include water softener checks in home water audit programs? yes
- 5. Does your agency include information about DIR and exchange-type water softeners in educational efforts to encourage replacement of less efficient timer models? no

**C. Water Waste Prohibition Program Expenditures**

	This Year	Next Year
1. Budgeted Expenditures	0	0
2. Actual Expenditures	0	

**D. "At Least As Effective As"**

- 1. Is your AGENCY implementing an "at least as effective as" variant of this BMP? 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**

Reported as of 6/27/05

**BMP 14: Residential ULFT Replacement Programs**

Reporting Unit: **Irvine Ranch Water District**      BMP Form Status: **100% Complete**      Year: **2003**

**A. Implementation**

	<b>Single-Family Accounts</b>	<b>Multi-Family Units</b>
1. Does your Agency have program(s) for replacing high-water-using toilets with ultra-low flush toilets?	yes	yes
<b>Number of Toilets Replaced by Agency Program During Report Year</b>		
<b>Replacement Method</b>	<b>SF Accounts</b>	<b>MF Units</b>
2. Rebate	686	164
3. Direct Install	0	0
4. CBO Distribution	0	0
5. Other	1145	247
<b>Total</b>	<b>1831</b>	<b>411</b>

6. Describe your agency's ULFT program for single-family residences.

IRWD participates in regional rebate program operated by wholesaler (MWDOC). MWDOC contracts with vendor to administer the program. IRWD also participates in regional distribution program operated by MWDOC, administered by vendor.

7. Describe your agency's ULFT program for multi-family residences.

See response to #6. The rebate and distribution programs are offered to both single and multi-family customers

8. Is a toilet retrofit on resale ordinance in effect for your service area?      no

9. 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**

	<b>This Year</b>	<b>Next Year</b>
1. Budgeted Expenditures	0	20000
2. Actual Expenditures	0	

**C. "At Least As Effective As"**

1. Is your AGENCY implementing an "at least as effective as" variant of this BMP?      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**

Reported as of 6/27/05

**Water Supply & Reuse**

Reporting Unit:

**Irvine Ranch Water District**

Year:

**2004**

**Water Supply Source Information**

<b>Supply Source Name</b>	<b>Quantity (AF) Supplied</b>	<b>Supply Type</b>
MWDSC-Treated	25448.6	Imported
MWDSC-Untreated	8826.4	Imported
MWDSC-Reclaimed	289.1	Recycled
OCWD	34377.4	Groundwater
Los Alisos Plant	2996.5	Recycled
Well 78 & ET 1	1937.6	Groundwater
MWRP	14461.6	Recycled

**Total AF: 88337.2**

Reported as of 6/27/05

**Accounts & Water Use**

Reporting Unit Name:  
Irvine Ranch Water District

Submitted to  
CUWCC  
01/25/2005

Year:  
2004

**A. Service Area Population Information:**

1. Total service area population 308400

**B. Number of Accounts and Water Deliveries (AF)**

Type	Metered		Unmetered	
	No. of Accounts	Water Deliveries (AF)	No. of Accounts	Water Deliveries (AF)
1. Single-Family	46110	21152.2	0	0
2. Multi-Family	29312	9979.4	0	0
3. Commercial	3728	7548.8	0	0
4. Industrial	891	6685.1	0	0
5. Institutional	216	2601.2	0	0
6. Dedicated Irrigation	1827	5669.7	0	0
7. Recycled Water	3547	19568.2	0	0
8. Other	97	11085.5	0	0
9. Unaccounted	NA	5626.3	NA	0
<b>Total</b>	85728	89916.4	0	0
		<b>Metered</b>		<b>Unmetered</b>

Reported as of 6/27/05

## BMP 01: Water Survey Programs for Single-Family and Multi-Family Residential Customers

Reporting Unit: **Irvine Ranch Water District**      BMP Form Status: **100% Complete**      Year: **2004**

### A. Implementation

- |                                                                                                                              |            |
|------------------------------------------------------------------------------------------------------------------------------|------------|
| 1. Based on your signed MOU date, 08/26/1991, your Agency STRATEGY DUE DATE is:                                              | 08/25/1993 |
| 2. Has your agency developed and implemented a targeting/marketing strategy for SINGLE-FAMILY residential water use surveys? | yes        |
| a. If YES, when was it implemented?                                                                                          | 7/14/1990  |
| 3. Has your agency developed and implemented a targeting/marketing strategy for MULTI-FAMILY residential water use surveys?  | yes        |
| a. If YES, when was it implemented?                                                                                          | 7/14/1990  |

### B. Water Survey Data

Survey Counts:	Single Family Accounts	Multi-Family Units
1. Number of surveys offered:	21	0
2. Number of surveys completed:	21	0

### Indoor Survey:

- |                                                                                                                                                                                                             |     |     |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----|-----|
| 3. Check for leaks, including toilets, faucets and meter checks                                                                                                                                             | yes | yes |
| 4. Check showerhead flow rates, aerator flow rates, and offer to replace or recommend replacement, if necessary                                                                                             | no  | no  |
| 5. Check toilet flow rates and offer to install or recommend installation of displacement device or direct customer to ULFT replacement program, as necessary; replace leaking toilet flapper, as necessary | no  | no  |

### Outdoor Survey:

- |                                                                                                                          |                |     |
|--------------------------------------------------------------------------------------------------------------------------|----------------|-----|
| 6. Check irrigation system and timers                                                                                    | yes            | yes |
| 7. Review or develop customer irrigation schedule                                                                        | yes            | yes |
| 8. Measure landscaped area (Recommended but not required for surveys)                                                    | yes            | yes |
| 9. Measure total irrigable area (Recommended but not required for surveys)                                               | yes            | yes |
| 10. Which measurement method is typically used (Recommended but not required for surveys)                                | Odometer Wheel |     |
| 11. Were customers provided with information packets that included evaluation results and water savings recommendations? | yes            | yes |
| 12. Have the number of surveys offered and completed, survey results, and survey costs been tracked?                     | yes            | yes |
| a. If yes, in what form are surveys tracked?                                                                             | database       |     |

b. Describe how your agency tracks this information.

Surveys are tracked in utility billing database. Costs calculated as needed.

### C. Water Survey Program Expenditures

	This Year	Next Year
1. Budgeted Expenditures	5000	0
2. Actual Expenditures	0	

### D. "At Least As Effective As"

1. Is your AGENCY implementing an "at least as effective as" variant of this BMP? yes

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."

IRWD's billing system incorporates individualized water budgets, sending a price signal when the customer has a leak or is over-watering. IRWD responds with on-site surveys for high bill customers as requested.

### E. Comments

Reported as of 6/27/05

**BMP 02: Residential Plumbing Retrofit**

Reporting Unit: **Irvine Ranch Water District**      BMP Form Status: **100% Complete**      Year: **2004**

**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? 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
- 3. Estimated percent of single-family households with low-flow showerheads: 100%
- 4. Has your agency satisfied the 75% saturation requirement for multi-family housing units? yes
- 5. Estimated percent of multi-family households with low-flow showerheads: 86.6%
- 6. If YES to 2 OR 4 above, please describe how saturation was determined, including the dates and results of any survey research.

In 2000, MWDOC and MWD conducted the OC Saturation Survey and found countywide saturation rates of 66.9% in SF and 59.8% in mf dwelling units. Saturation rates reported above represent linear extrapolations of saturation results for 02-03. B. Low-Flow Device Distribution Information

**B. Low-Flow Device Distribution Information**

- 1. Has your agency developed a targeting/ marketing strategy for distributing low-flow devices? yes
  - a. If YES, when did your agency begin implementing this strategy? 07/14/1990
  - b. Describe your targeting/ marketing strategy.

Devices are distributed through residential audits, workshops, tours, community events and on demand.

<b>Low-Flow Devices Distributed/ Installed</b>	<b>SF Accounts</b>	<b>MF Units</b>
2. Number of low-flow showerheads distributed:	388	360
3. Number of toilet-displacement devices distributed:	0	0
4. Number of toilet flappers distributed:	0	0
5. Number of faucet aerators distributed:	675	227
6. Does your agency track the distribution and cost of low-flow devices? <span style="float: right;">yes</span>		
a. If YES, in what format are low-flow devices tracked? <span style="float: right;">Database</span>		
b. If yes, describe your tracking and distribution system :		

Devices are tracked in the customer database and the costs are tracked

in the accounts payable database.

### C. Low-Flow Device Distribution Expenditures

	<b>This Year</b>	<b>Next Year</b>
1. Budgeted Expenditures	5000	5000
2. Actual Expenditures	3953	

### D. "At Least As Effective As"

1. Is your AGENCY implementing an "at least as effective as" variant of this BMP? 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

Reported as of 6/27/05

**BMP 03: System Water Audits, Leak Detection and Repair**

Reporting Unit: **Irvine Ranch Water District**      BMP Form Status: **100% Complete**      Year: **2004**

**A. Implementation**

- 1. Has your agency completed a pre-screening system audit for this reporting year? yes
- 2. If YES, enter the values (AF/Year) used to calculate verifiable use as a percent of total production:
  - a. Determine metered sales (AF) 84291.6
  - b. Determine other system verifiable uses (AF) 3905.4
  - c. Determine total supply into the system (AF) 93823.3
  - d. Using the numbers above, if (Metered Sales + Other Verifiable Uses) / Total Supply is < 0.9 then a full-scale system audit is required. 0.94
- 3. Does your agency keep necessary data on file to verify the values used to calculate verifiable uses as a percent of total production? yes
- 4. Did your agency complete a full-scale audit during this report year? no
- 5. Does your agency maintain in-house records of audit results or the completed AWWA audit worksheets for the completed audit? yes
- 6. Does your agency operate a system leak detection program? yes
  - a. If yes, describe the leak detection program:

On file in 1997-98 BMP report

**B. Survey Data**

- 1. Total number of miles of distribution system line. 1330
- 2. Number of miles of distribution system line surveyed. 1230

**C. System Audit / Leak Detection Program Expenditures**

	This Year	Next Year
1. Budgeted Expenditures	148997	149000
2. Actual Expenditures	228595	

**D. "At Least As Effective As"**

- 1. Is your AGENCY implementing an "at least as effective as" variant of this BMP? 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**

Reported as of 6/27/05

## BMP 04: Metering with Commodity Rates for all New Connections and Retrofit of Existing

Reporting Unit: **Irvine Ranch Water District**      BMP Form Status: **100% Complete**      Year: **2004**

### A. Implementation

1. Does your agency require meters for all new connections and bill by volume-of-use? yes
2. Does your agency have a program for retrofitting existing unmetered connections and bill by volume-of-use? no
- a. If YES, when was the plan to retrofit and bill by volume-of-use existing unmetered connections completed?
- b. Describe the program:
- There are no unmetered accounts
3. Number of previously unmetered accounts fitted with meters during report year. 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? 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. 992
3. Number of CII accounts with mixed-use meters retrofitted with dedicated irrigation meters during reporting period. 0

### C. Meter Retrofit Program Expenditures

	This Year	Next Year
1. Budgeted Expenditures	0	0
2. Actual Expenditures	0	

### D. "At Least As Effective As"

1. Is your AGENCY implementing an "at least as effective as" variant of this BMP? 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

Reported as of 6/27/05

## BMP 05: Large Landscape Conservation Programs and Incentives

Reporting Unit:  
**Irvine Ranch Water District**

BMP Form Status:  
**100% Complete**

Year:  
**2004**

### A. Water Use Budgets

- |                                                                                            |       |
|--------------------------------------------------------------------------------------------|-------|
| 1. Number of Dedicated Irrigation Meter Accounts:                                          | 5355  |
| 2. Number of Dedicated Irrigation Meter Accounts with Water Budgets:                       | 4498  |
| 3. Budgeted Use for Irrigation Meter Accounts with Water Budgets (AF):                     | 30671 |
| 4. Actual Use for Irrigation Meter Accounts with Water Budgets (AF):                       | 17102 |
| 5. Does your agency provide water use notices to accounts with budgets each billing cycle? | yes   |

### B. Landscape Surveys

- |                                                                                      |    |
|--------------------------------------------------------------------------------------|----|
| 1. Has your agency developed a marketing / targeting strategy for landscape surveys? | no |
| a. If YES, when did your agency begin implementing this strategy?                    |    |
| b. Description of marketing / targeting strategy:                                    |    |
| 2. Number of Surveys Offered.                                                        | 0  |
| 3. Number of Surveys Completed.                                                      | 0  |
| 4. Indicate which of the following Landscape Elements are part of your survey:       |    |
| a. Irrigation System Check                                                           | no |
| b. Distribution Uniformity Analysis                                                  | no |
| c. Review / Develop Irrigation Schedules                                             | no |
| d. Measure Landscape Area                                                            | no |
| e. Measure Total Irrigable Area                                                      | no |
| f. Provide Customer Report / Information                                             | no |
| 5. Do you track survey offers and results?                                           | no |
| 6. Does your agency provide follow-up surveys for previously completed surveys?      | no |
| a. If YES, describe below:                                                           |    |

### 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 |
| 2. Number of CII mixed-use accounts with landscape budgets.                                                                                                                                   | 266 |
| 3. Do you offer landscape irrigation training?                                                                                                                                                | yes |
| 4. Does your agency offer financial incentives to improve                                                                                                                                     | no  |

landscape water use efficiency?

Type of Financial Incentive:	Budget (Dollars/Year)	Number Awarded to Customers	Total Amount Awarded
a. Rebates	0	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

a. If YES, describe below:

They become part of the monthly mailing to all landscape accounts which includes information on efficient watering and usage versus allocation.

6. Do you have irrigated landscaping at your facilities? yes

a. If yes, is it water-efficient? yes

b. If yes, does it have dedicated irrigation metering? yes

7. Do you provide customer notices at the start of the irrigation season? yes

8. Do you provide customer notices at the end of the irrigation season? yes

**D. Landscape Conservation Program Expenditures**

	This Year	Next Year
1. Budgeted Expenditures	110000	142197
2. Actual Expenditures	68867	

**E. "At Least As Effective As"**

1. Is your AGENCY implementing an "at least as effective as" variant of this BMP? 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**

Reported as of 6/27/05

**BMP 06: High-Efficiency Washing Machine Rebate Programs**

Reporting Unit: **Irvine Ranch Water District**      BMP Form Status: **100% Complete**      Year: **2004**

**A. Implementation**

1. Do any energy service providers or waste water utilities in your service area offer rebates for high-efficiency washers? yes

a. If YES, describe the offerings and incentives as well as who the energy/waste water utility provider is.

SCE rebate and So.Cal Gas Company had rebates at various times. Rebate amounts varied.

2. Does your agency offer rebates for high-efficiency washers? yes

3. What is the level of the rebate? 100

4. Number of rebates awarded. 1084

**B. Rebate Program Expenditures**

	<b>This Year</b>	<b>Next Year</b>
1. Budgeted Expenditures	0	0
2. Actual Expenditures	0	

**C. "At Least As Effective As"**

1. Is your AGENCY implementing an "at least as effective as" variant of this BMP? 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**

IRWD participates in regional rebate program offered by wholesaler, and funded by other agencies. IRWD supplements regional program with targeted marketing, Point of Purchase displays, special events and notices in bill insert newsletters.

Reported as of 6/27/05

**BMP 07: Public Information Programs**

Reporting Unit: **Irvine Ranch Water District**      BMP Form Status: **100% Complete**      Year: **2004**

**A. Implementation**

1. Does your agency maintain an active public information program to promote and educate customers about water conservation? yes

a. If YES, describe the program and how it's organized.

IRWD communicates water conservation regularly through use of its monthly newsletter, resident tour program, web site, brochure distribution and landscape workshops. The Conservation Department has the main responsibility for program content, with assistance from the Public Affairs Dept.

2. Indicate which and how many of the following activities are included in your public information program.

Public Information Program Activity	Yes/No	Number of Events
a. Paid Advertising	no	
b. Public Service Announcement	yes	5
c. Bill Inserts / Newsletters / Brochures	yes	12
d. Bill showing water usage in comparison to previous year's usage	yes	
e. Demonstration Gardens	yes	1
f. Special Events, Media Events	yes	8
g. Speaker's Bureau	yes	1
h. Program to coordinate with other government agencies, industry and public interest groups and media	yes	

**B. Conservation Information Program Expenditures**

	This Year	Next Year
1. Budgeted Expenditures	45020	33020
2. Actual Expenditures	39629	

**C. "At Least As Effective As"**

1. Is your AGENCY implementing an "at least as effective as" variant of this BMP? 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**

Web site also contains extensive conservation information.

Reported as of 6/27/05

### BMP 08: School Education Programs

Reporting Unit: **Irvine Ranch Water District**      BMP Form Status: **100% Complete**      Year: **2004**

#### A. Implementation

1. Has your agency implemented a school information program to promote water conservation? yes
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	51	2352	1
Grades 4th-6th	yes	23	1511	1
Grades 7th-8th	yes	2	70	1
High School	yes	12	428	1

3. Did your Agency's materials meet state education framework requirements? yes
4. When did your Agency begin implementing this program? 1/1/1975

#### B. School Education Program Expenditures

	This Year	Next Year
1. Budgeted Expenditures	25800	25800
2. Actual Expenditures	23270	

#### C. "At Least As Effective As"

1. Is your AGENCY implementing an "at least as effective as" variant of this BMP? 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

Reported as of 6/27/05

**BMP 09: Conservation Programs for CII Accounts**

Reporting Unit:  
Irvine Ranch Water  
District

BMP Form Status:  
100% Complete

Year:  
2004

**A. Implementation**

1. Has your agency identified and ranked COMMERCIAL customers according to use? yes
2. Has your agency identified and ranked INDUSTRIAL customers according to use? yes
3. Has your agency identified and ranked INSTITUTIONAL customers according to use? yes

**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

<b>CII Surveys</b>	<b>Commercial Accounts</b>	<b>Industrial Accounts</b>	<b>Institutional Accounts</b>
a. Number of New Surveys Offered	0	1	0
b. Number of New Surveys Completed	0	1	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
<b>CII Survey Components</b>	<b>Commercial Accounts</b>	<b>Industrial Accounts</b>	<b>Institutional Accounts</b>
e. Site Visit	yes	yes	yes
f. Evaluation of all water-using apparatus and processes	yes	yes	yes
g. Customer report identifying recommended efficiency measures, paybacks and agency incentives	yes	yes	yes
<b>Agency CII Customer Incentives</b>	<b>Budget (\$/Year)</b>	<b>No. Awarded to Customers</b>	<b>Total \$ Amount Awarded</b>
h. Rebates	0	122	17110
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  |
| 6. Does your agency document and maintain records on how savings were realized and the method of calculation for estimated savings? | yes  |
| 7. Estimated annual savings (AF/yr) from site-verified actions taken by agency since 1991.                                          | 2.61 |
| 8. Estimated annual savings (AF/yr) from non-site-verified actions taken by agency since 1991.                                      | 23.5 |

## B. Conservation Program Expenditures for CII Accounts

	This Year	Next Year
1. Budgeted Expenditures	30000	30000
2. Actual Expenditures	20542	

## C. "At Least As Effective As"

- |                                                                                   |     |
|-----------------------------------------------------------------------------------|-----|
| 1. Is your AGENCY implementing an "at least as effective as" variant of this BMP? | yes |
|-----------------------------------------------------------------------------------|-----|

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."

In addition to participating in regional programs, IRWD also establishes water budgets with a penalty rate structure for CII accounts. The water budgets incorporate financial disincentives for leaks, over-watering and equipment malfunctions. Budgeted expenditures = IRWD only. Actual = IRWD (\$3,432) + MWD rebates (\$17,110)

## D. Comments

IRWD is not following options A or B in favor of applying water budgets. IRWD's water budgets incorporate financial disincentives for leaks, over-watering and equipment malfunctions. However, IRWD does participate in MWDSC's regional program, and has reported number of rebates awarded. MWDSC is reporting the associated savings and expenditures. Budgeted expenditures = IRWD only. Actual = MWDSC

Reported as of 6/27/05

**BMP 09a: CII ULFT Water Savings**

Reporting Unit: **Irvine Ranch Water District**      BMP Form Status: **100% Complete**      Year: **2004**

1. Did your agency implement a CII ULFT replacement program in the reporting year? Yes  
 If No, please explain why on Line B. 10.

**A. Targeting and Marketing**

1. What basis does your agency use to target customers for participation in this program? Consumption ranking  
CII Sector or subsector  
 Check all that apply. CII ULFT Study subsector targeting

a. Describe which method you found to be the most effective overall, and which was the most effective per dollar expended.

IRWD efforts, exclusive of regional program vendor, were limited to personal contact during on-site water surveys. See MWDC program for regional program details.

2. How does your agency advertise this program? Check all that apply. Direct letter

a. Describe which method you found to be the most effective overall, and which was the most effective per dollar expended.

MWDC's vendor is tracking program marketing and effectiveness. See MWDC IRWD supplements with personal visits with customers during CII site surveys to high use customers. Customers are provided with copies of rebate program literature, and program/benefits are explained.

**B. Implementation**

1. Does your agency keep and maintain customer participant information? (Read the Help information for a complete list of all the information for this BMP.) Yes

2. Would your agency be willing to share this information if the CUWCC did a study to evaluate the program on behalf of your agency? Yes

3. What is the total number of customer accounts participating in the program during the last year? 1

4. CII Subsector	Number of Toilets Replaced			
	Standard Gravity Tank	Air Assisted	Valve Floor Mount	Valve Wall Mount
a. Offices	0	0	0	0
b. Retail / Wholesale	0	0	0	0
c. Hotels	0	0	0	0
d. Health	0	0	0	0
e. Industrial	0	0	0	0
f. Schools: K to 12	0	0	0	0
g. Eating	0	0	0	0

h. Govern-ment	0	0	0	0
i. Churches	0	0	0	0
j. Other	0	0	0	0

5. Program design.

Rebate or voucher

6. Does your agency use outside services to implement this program? Yes

a. If yes, check all that apply.

Consultant

7. Participant tracking and follow-up.

No follow-up

8. Based on your program experience, please rank on a scale of 1 to 5, with 1 being the least frequent cause and 5 being the most frequent cause, the following reasons why customers refused to participate in the program.

a. Disruption to business	1
b. Inadequate payback	1
c. Inadequate ULFT performance	1
d. Lack of funding	1
e. American's with Disabilities Act	1
f. Permitting	1
g. Other. Please describe in B. 9.	1

9. Please describe general program acceptance/resistance by customers, obstacles to implementation, and other issues affecting program implementation or effectiveness.

Customers need budget approval and time consuming assistance to "sell" the idea to upper management. Customers who were most interested were those with high water bill penalties. For other information, see MWDC program details.

10. Please provide a general assessment of the program for this reporting year. Did your program achieve its objectives? Were your targeting and marketing approaches effective? Were program costs in line with expectations and budgeting?

See information provided by MWDC

### C. Conservation Program Expenditures for CII ULFT

1. CII ULFT Program: Annual Budget & Expenditure Data

	<b>Budgeted</b>	<b>Actual Expenditure</b>
a. Labor	0	0
b. Materials	0	0
c. Marketing & Advertising	0	0
d. Administration & Overhead	0	0
e. Outside Services	0	0
f. Total	0	0

**2. CII ULFT Program: Annual Cost Sharing**

a. Wholesale agency contribution	0
b. State agency contribution	0
c. Federal agency contribution	0
d. Other contribution	0
e. Total	0

**D. Comments**

MWDSC is providing reporting for this program unless other data is indicated. MWDSC providing participation numbers, expenditures, program design etc.

Reported as of 6/27/05

## BMP 11: Conservation Pricing

Reporting Unit:  
Irvine Ranch Water District

BMP Form  
Status:  
100% Complete

Year:  
2004

### A. Implementation

#### Rate Structure Data Volumetric Rates for Water Service by Customer Class

##### 1. Residential

a. Water Rate Structure	Increasing Block
b. Sewer Rate Structure	Non-volumetric Flat Rate
c. Total Revenue from Volumetric Rates	\$11977872
d. Total Revenue from Non-Volumetric Charges, Fees and other Revenue Sources	\$12937249

##### 2. Commercial

a. Water Rate Structure	Increasing Block
b. Sewer Rate Structure	Uniform
c. Total Revenue from Volumetric Rates	\$5586777
d. Total Revenue from Non-Volumetric Charges, Fees and other Revenue Sources	\$2263122

##### 3. Industrial

a. Water Rate Structure	Increasing Block
b. Sewer Rate Structure	Uniform
c. Total Revenue from Volumetric Rates	\$4128178
d. Total Revenue from Non-Volumetric Charges, Fees and other Revenue Sources	\$1041875

##### 4. Institutional / Government

a. Water Rate Structure	Increasing Block
b. Sewer Rate Structure	Uniform
c. Total Revenue from Volumetric Rates	\$1624457
d. Total Revenue from Non-Volumetric Charges, Fees and other Revenue Sources	\$226722

##### 5. Irrigation

a. Water Rate Structure	Budget-Based Rate
b. Sewer Rate Structure	Service Not Provided
c. Total Revenue from Volumetric Rates	\$8382461
d. Total Revenue from Non-Volumetric Charges, Fees and other Revenue Sources	\$1893903

##### 6. Other

a. Water Rate Structure	Uniform
-------------------------	---------

- b. Sewer Rate Structure Uniform
- c. Total Revenue from Volumetric Rates \$3090342
- d. Total Revenue from Non-Volumetric Charges, Fees and other Revenue Sources \$5308

### B. Conservation Pricing Program Expenditures

	This Year	Next Year
1. Budgeted Expenditures	0	0
2. Actual Expenditures	0	

### C. "At Least As Effective As"

1. Is your AGENCY implementing an "at least as effective as" variant of this BMP? yes

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."

Non-irrigation accounts are billed on budget-based rate structure. Costs are considered part of ordinary billing procedures and are not specially tracked.

### D. Comments

Other = ag use.

Reported as of 6/27/05

**BMP 12: Conservation Coordinator**

Reporting Unit: **Irvine Ranch Water District**      BMP Form Status: **100% Complete**      Year: **2004**

**A. Implementation**

- 1. Does your Agency have a conservation coordinator? yes
- 2. Is this a full-time position? yes
- 3. If no, is the coordinator supplied by another agency with which you cooperate in a regional conservation program ? no
- 4. Partner agency's name:
- 5. If your agency supplies the conservation coordinator:
  - a. What percent is this conservation coordinator's position? 100%
  - b. Coordinator's Name Fiona Sanchez
  - c. Coordinator's Title Conservation Analyst
  - d. Coordinator's Experience and Number of Years 13 years in water conservation
  - e. Date Coordinator's position was created (mm/dd/yyyy) 5/1/2001
- 6. Number of conservation staff, including Conservation Coordinator. 4

**B. Conservation Staff Program Expenditures**

	This Year	Next Year
1. Budgeted Expenditures	355602	272681
2. Actual Expenditures	248896	

**C. "At Least As Effective As"**

- 1. Is your AGENCY implementing an "at least as effective as" variant of this BMP? 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**

Budget and actual expenditures estimated. Conservation combined with other dept.



c. Allow local agencies, including municipalities and special 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. yes

4. Does your agency include water softener checks in home water audit programs? yes

5. Does your agency include information about DIR and exchange-type water softeners in educational efforts to encourage replacement of less efficient timer models? no

**C. Water Waste Prohibition Program Expenditures**

	<b>This Year</b>	<b>Next Year</b>
1. Budgeted Expenditures	0	0
2. Actual Expenditures	0	

**D. "At Least As Effective As"**

1. Is your AGENCY implementing an "at least as effective as" variant of this BMP? 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**

Reported as of 6/27/05

### BMP 14: Residential ULFT Replacement Programs

Reporting Unit: **Irvine Ranch Water District**      BMP Form Status: **100% Complete**      Year: **2004**

#### A. Implementation

	<b>Single-Family Accounts</b>	<b>Multi-Family Units</b>
1. Does your Agency have program(s) for replacing high-water-using toilets with ultra-low flush toilets?	yes	yes
<b>Number of Toilets Replaced by Agency Program During Report Year</b>		
<b>Replacement Method</b>	<b>SF Accounts</b>	<b>MF Units</b>
2. Rebate	347	173
3. Direct Install	0	0
4. CBO Distribution	0	0
5. Other	1649	8916
<hr/>		
<b>Total</b>	<b>1996</b>	<b>9089</b>

6. Describe your agency's ULFT program for single-family residences.

IRWD participates in regional rebate program operated by wholesaler (MWDOC). MWDOC contracts with vendor to administer the program. IRWD also participates in regional distribution program operated by MWDOC, administered by vendor.

7. Describe your agency's ULFT program for multi-family residences.

See response to #6. The rebate and distribution programs are offered to both single and multi-family customers

8. Is a toilet retrofit on resale ordinance in effect for your service area? no

9. 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

	<b>This Year</b>	<b>Next Year</b>
1. Budgeted Expenditures	20000	20000
2. Actual Expenditures	0	

#### C. "At Least As Effective As"

1. Is your AGENCY implementing an "at least as effective as" variant of this BMP? 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

**APPENDIX E**

**IRVINE RANCH WATER DISTRICT  
BEST MANAGEMENT PRACTICES ANNUAL REPORT  
COVERAGE REPORTS 2003-04**



## BMP 01 Coverage: Water Survey Programs for Single-Family and Multi-Family Residential Customers

Reporting Unit:  
Irvine Ranch Water District

Reporting Period:  
03-04

### MOU Exhibit 1 Coverage Requirement

No exemption request filed

Agency indicated "at least as effective as" implementation during report period? Yes

A Reporting Unit (RU) 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

Irvine Ranch Water District to Implement Targeting/Marketing Program by:	1999		
		<b>Single-Family</b>	<b>Multi-Family</b>
Year Irvine Ranch Water District Reported Implementing Targeting/Marketing Program:	1990	1990	1990
Irvine Ranch Water District Met Targeting/Marketing Coverage Requirement:	YES	YES	YES

### Test for Condition 2

			<b>Single-Family</b>	<b>Multi-Family</b>
Survey Program to Start by:	1998	Residential Survey Offers (%)	0.22%	
Reporting Period:	03-04	Survey Offers > 20%	NO	NO

### Test for Condition 3

	Completed Residential Surveys	
	<b>Single Family</b>	<b>Multi-Family</b>
Total Completed Surveys 1999 - 2004:	868	120
Past Credit for Surveys Completed Prior to 1999 (Implementation of Reporting Database):	1,723	341
Total + Credit	2,591	461
Residential Accounts in Base Year	25,607	21,658
Irvine Ranch Water District Survey Coverage as % of Base Year Residential Accounts	10.12%	2.13%

Coverage Requirement by Year 7 of Implementation per Exhibit 1	7.90%	7.90%
Irvine Ranch Water District on Schedule to Meet 10-Year Coverage Requirement	YES	NO

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**BMP 1 COVERAGE STATUS SUMMARY:****Water supplier has not met one or more coverage requirements for this BMP.**

**BMP 02 Coverage: Residential Plumbing Retrofit**

Reporting Unit:

**Irvine Ranch Water District**

Reporting Period:

**03-04****MOU Exhibit 1 Coverage Requirement**

No exemption request filed

Agency indicated "at least as effective as" implementation during report period?

No

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**

Report Year	Report Period	Single-Family		Multi-Family	
		Reported Saturation	Saturation > 75%?	Reported Saturation	Saturation > 75%?
1999	99-00	60.00%	NO	65.00%	NO
2000	99-00	60.00%	NO	65.00%	NO
2001	01-02	68.00%	NO	60.00%	NO
2002	01-02	68.00%	NO	60.00%	NO
2003	03-04	91.70%	YES	79.90%	YES
2004	03-04	100.00%	YES	86.60%	YES

**Test for Condition 2**

Report Year	Report Period	Irvine Ranch Water District 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

**Test for Condition 3**

Reporting Period: 03-04

<u>1992 SF Accounts</u>	<u>Num. Showerheads Distributed to SF Accounts</u>	<u>Single-Family Coverage Ratio</u>	<u>SF Coverage Ratio &gt; 10%</u>
22,131	494	2.2%	NO
<u>1992 MF Accounts</u>	<u>Num. Showerheads Distributed to MF Accounts</u>	<u>Multi-Family Coverage Ratio</u>	<u>MF Coverage Ratio &gt; 10%</u>
31,217	426	1.4%	NO

---

**BMP 2 COVERAGE STATUS SUMMARY:**

**Water supplier is meeting coverage requirements for this BMP.**

## BMP 03 Coverage: System Water Audits, Leak Detection and Repair

Reporting Unit:  
Irvine Ranch Water District

Reporting Period:  
03-04

### MOU Exhibit 1 Coverage Requirement

No exemption request filed

Agency indicated "at least as effective as" implementation during report period?

No

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.

### Test 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	94.1%	No	NO
2000	99-00	YES	94.9%	No	NO
2001	01-02	YES	97.7%	No	NO
2002	01-02	YES	92.0%	No	NO
2003	03-04	YES	95.9%	No	NO
2004	03-04	YES	94.0%	No	NO

### BMP 3 COVERAGE STATUS SUMMARY:

**Water supplier is meeting coverage requirements for this BMP.**

## **BMP 04 Coverage: Metering with Commodity Rates for all New Connections and Retrofit of Existing**

Reporting Unit:  
Irvine Ranch Water District

Reporting Period:  
03-04

### **MOU Exhibit 1 Coverage Requirement**

No exemption request filed

Agency indicated "at least as effective as" implementation during report period?

No

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An agency must be on track to retrofit 100% of its unmetered accounts within 10 years to be in compliance with BMP 4.

---

### **Test for Compliance**

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Total Meter Retrofits  
Reported through 2004

No. of Unmetered Accounts  
in Base Year

Meter Retrofit Coverage as  
% of Base Year Unmetered  
Accounts

Coverage Requirement by  
Year 6 of Implementation per  
Exhibit 1

42.0%

RU on Schedule to meet 10  
Year Coverage Requirement

YES

---

### **BMP 4 COVERAGE STATUS SUMMARY:**

**Water supplier is meeting coverage requirements for this BMP.**

## BMP 05 Coverage: Large Landscape Conservation Programs and Incentives

Reporting Unit:  
Irvine Ranch Water District

Reporting Period:  
03-04

### MOU Exhibit 1 Coverage Requirement

No exemption request filed

Agency indicated "at least as effective as" implementation during report period? No

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

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	1	3,425	3,303	96.4%	NA
2000	99-00	2	3,691	3,561	96.5%	NA
2001	01-02	3	4,752	3,903	82.1%	NA
2002	01-02	4	5,001	4,148	82.9%	No
2003	03-04	5	5,138	4,283	83.4%	No
2004	03-04	6	5,355	4,498	84.0%	No

#### Test for Condition 2a (survey offers)

Select Reporting Period: 03-04

Large Landscape Survey Offers as % of Mixed Use Meter CII Accounts

Survey Offers Equal or Exceed 20% Coverage Requirement NO

#### Test for Condition 2a (surveys completed)

Total Completed Landscape Surveys Reported through Credit for Surveys Completed Prior to Implementation of Reporting Database

Total + Credit

CII Accounts in Base Year 3,077

RU Survey Coverage as a % of Base Year CII Accounts

Coverage Requirement by Year of Implementation per Exhibit 1 6.3%

RU on Schedule to Meet 10 Year Coverage Requirement NO

**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	1	YES	99
2000	99-00	2	YES	99
2001	01-02	3	YES	133
2002	01-02	4	YES	223
2003	03-04	5	YES	226
2004	03-04	6	YES	266

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	1,194	
2000	99-00	2	1,194	
2001	01-02	3	992	
2002	01-02	4	992	
2003	03-04	5	992	1
2004	03-04	6	992	

**Test for Condition 3**

Report Year	Report Period	BMP 5 Implementation Year	RU offers financial incentives?	No. of Loans	Total Amt. Loans
1999	99-00	1	NO		
2000	99-00	2	NO		
2001	01-02	3	NO		
2002	01-02	4	NO		
2003	03-04	5	NO		
2004	03-04	6	NO		

Report Year	Report Period	No. of Grants	Total Amt. Grants	No. of rebates	Total Amt. Rebates
1999	99-00				
2000	99-00				
2001	01-02				
2002	01-02				
2003	03-04				
2004	03-04				

**BMP 5 COVERAGE STATUS SUMMARY:**

**Water supplier has not met one or more coverage requirements for this BMP.**

## BMP 06 Coverage: High-Efficiency Washing Machine Rebate Programs

Reporting Unit:  
Irvine Ranch Water District

Reporting Period:  
03-04

### MOU Exhibit 1 Coverage Requirement

No exemption request filed

Agency indicated "at least as effective as" implementation during report period? No

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.

#### Test for Condition 1

Year	Report Period	BMP 6 Implementation Year	Rebate Offered by ESP?	Rebate Offered by RU?	Rebate Amount
1999	99-00	1	YES	NO	
2000	99-00	2	YES	NO	
2001	01-02	3	YES	NO	
2002	01-02	4	YES	YES	100.00
2003	03-04	5	YES	YES	100.00
2004	03-04	6	YES	YES	100.00

Year	Report Period	BMP 6 Implementation Year	No. Rebates Awarded	Coverage Met?
1999	99-00	1		NO
2000	99-00	2		NO
2001	01-02	3		NO
2002	01-02	4	158	YES
2003	03-04	5	619	YES
2004	03-04	6	1,084	YES

#### BMP 6 COVERAGE STATUS SUMMARY:

Water supplier is meeting coverage requirements for this BMP.

**BMP 07 Coverage: Public Information Programs**

Reporting Unit:

**Irvine Ranch Water District**

Reporting Period:

**03-04****MOU Exhibit 1 Coverage Requirement**

No exemption request filed

Agency indicated "at least as effective as" implementation during report period?

No

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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**

Year	Report Period	BMP 7 Implementation Year	RU Has Public Information Program?
1999	99-00	2	YES
2000	99-00	3	YES
2001	01-02	4	YES
2002	01-02	5	YES
2003	03-04	6	YES
2004	03-04	7	YES

---

**BMP 7 COVERAGE STATUS SUMMARY:****Water supplier is meeting coverage requirements for this BMP.**

**BMP 08 Coverage: School Education Programs**

Reporting Unit:  
Irvine Ranch Water District

Reporting Period:  
**03-04**

**MOU Exhibit 1 Coverage Requirement**

No exemption request filed

Agency indicated "at least as effective as" implementation during report period?

No

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**

Year	Report Period	BMP 8 Implementation Year	RU Has School Education Program?
1999	99-00	2	YES
2000	99-00	3	YES
2001	01-02	4	YES
2002	01-02	5	YES
2003	03-04	6	YES
2004	03-04	7	YES

**BMP 8 COVERAGE STATUS SUMMARY:**

**Water supplier is meeting coverage requirements for this BMP.**

## BMP 09 Coverage: Conservation Programs for CII Accounts

Reporting Unit:  
Irvine Ranch Water District

Reporting Period:  
03-04

### MOU Exhibit 1 Coverage Requirement

No exemption request filed

Agency indicated "at least as effective as" implementation during report period?

Yes

An agency must meet three 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

Year	Report Period	BMP 9 Implementation Year	Ranked Com. Use	Ranked Ind. Use	Ranked Inst. Use
1999	99-00	1	YES	YES	YES
2000	99-00	2	YES	YES	YES
2001	01-02	3	YES	YES	YES
2002	01-02	4	YES	YES	YES
2003	03-04	5	YES	YES	YES
2004	03-04	6	YES	YES	YES

#### Test for Condition 2a

	Commercial	Industrial	Institutional
Total Completed Surveys Reported through 2004			
Credit for Surveys Completed Prior to Implementation of Reporting Databases	40	6	3
Total + Credit	40	7	3
CII Accounts in Base Year	1,475	1,460	142
RU Survey Coverage as % of Base Year CII Accounts	2.7%	0.5%	2.1%
Coverage Requirement by Year 6 of Implementation per Exhibit 1	4.2%	4.2%	4.2%
RU on Schedule to Meet 10 Year Coverage Requirement	NO	NO	NO

#### Test for Condition 2a

Year	Report Period	BMP 9 Implementation Year	Performance Target Savings (AF/yr)	Performance Target Savings Coverage	Performance Target Savings Coverage Requirement	Coverage Requirement Met
------	---------------	---------------------------	------------------------------------	-------------------------------------	-------------------------------------------------	--------------------------

1999 99-00	1			0.5%	NO
2000 99-00	2			1.0%	NO
2001 01-02	3			1.7%	NO
2002 01-02	4			2.4%	NO
2003 03-04	5	52	0.3%	3.3%	NO
2004 03-04	6	8	0.0%	4.2%	NO

---

**Test for Condition 2c**


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Total BMP 9 Surveys + Credit	50
BMP 9 Survey Coverage	1.6%
BMP 9 Performance Target Coverage	0.3%
BMP 9 Survey + Performance Target Coverage	1.9%
Combined Coverage Equals or Exceeds Coverage Requirement?	NO

---

**BMP 9 COVERAGE STATUS SUMMARY:**

**Water supplier has not met one or more coverage requirements for this BMP.**

**BMP 11 Coverage: Conservation Pricing**

Reporting Unit:  
Irvine Ranch Water District

Reporting Period:  
03-04

**MOU Exhibit 1 Coverage Requirement**

No exemption request filed

Agency indicated "at least as effective as" implementation during report period? Yes

An agency must meet one condition to comply with BMP 11.

Agency shall maintain rate structure consistent with BMP 11's definition of conservation pricing. Implementation methods shall be at least as effective as eliminating non-conserving pricing and adopting conserving pricing. For signatories supplying both water and sewer service, this BMP applies to pricing of both water and sewer service. Signatories that supply water but not sewer service shall make good faith efforts to work with sewer agencies so that those sewer agencies adopt conservation pricing for sewer service.

a) Non-conserving pricing provides no incentives to customers to reduce use. Such pricing is characterized by one or more of the following components: rates in which the unit price decreases as the quantity used increases (declining block rates); rates that involve charging customers a fixed amount per billing cycle regardless of the quantity used; pricing in which the typical bill is determined by high fixed charges and low commodity charges.

b) Conservation pricing provides incentives to customers to reduce average or peak use, or both. Such pricing includes: rates designed to recover the cost of providing service; and billing for water and sewer service based on metered water use. Conservation pricing is also characterized by one or more of the following components: rates in which the unit rate is constant regardless of the quantity used (uniform rates) or increases as the quantity used increases (increasing block rates); seasonal rates or excess-use surcharges to reduce peak demands during summer months; rates based upon the longrun marginal cost or the cost of adding the next unit of capacity to the system.

**Test for Condition 1**

Year	Report Period	RU Employed Non Conserving Rate Structure	RU Meets BMP 11 Coverage Requirement
1999	99-00	YES	NO
2000	99-00	YES	NO
2001	01-02	YES	NO
2002	01-02	YES	NO
2003	03-04	YES	NO
2004	03-04	YES	NO

**BMP 11 COVERAGE STATUS SUMMARY:**

**Water supplier has not met one or more coverage requirements for this BMP.**

**BMP 12 Coverage: Conservation Coordinator**

Reporting Unit:  
Irvine Ranch Water District

Reporting Period:  
03-04

**MOU Exhibit 1 Coverage Requirement**

No exemption request filed

Agency indicated "at least as effective as" implementation during report period? No

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	2
2000	99-00	YES	3
2001	01-02	YES	2
2002	01-02	YES	4
2003	03-04	YES	4
2004	03-04	YES	4

**BMP 12 COVERAGE STATUS SUMMARY:**

Water supplier is meeting coverage requirements for this BMP.

**BMP 13 Coverage: Water Waste Prohibition**

Reporting Unit:

Reporting Period:

**Irvine Ranch Water District****03-04****MOU Exhibit 1 Coverage Requirement**

No exemption request filed

Agency indicated "at least as effective as" implementation during report period?

No

An agency must meet one condition to comply with BMP 13.

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 Condition 1****Agency or service area prohibits:**

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	no	no	no	no	yes	NO
2000	yes	no	no	no	no	yes	NO
2001	yes	no	no	no	no	yes	NO
2002	yes	no	no	no	no	yes	NO
2003	yes	yes	yes	yes	yes	yes	YES
2004	yes	yes	yes	yes	yes	yes	YES

**BMP 13 COVERAGE STATUS SUMMARY:****Water supplier is meeting coverage requirements for this BMP.**

## BMP 14 Coverage: Residential ULFT Replacement Programs

Reporting Unit: Irvine Ranch Water District

### MOU Exhibit 1 Coverage Requirement

A Reporting Unit (RU) must meet one of the following conditions to be in compliance with BMP 14.

Condition 1: Retrofit-on-resale (ROR) ordinance 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. This report treats an agency with missing base year data required to compute the Exhibit 6 coverage requirement as out of compliance with BMP 14.

**Status: Water supplier is meeting coverage requirements for this BMP. as of 2004**

Coverage Year	BMP 14 Data Submitted to CUWCC	Exemption Filed with CUWCC	ROR Ordinance In Effect	Exhibit 6 Coverage Req'mt (AF)	Toilet Replacement Program Water Savings* (AF)
1998	Yes			73.49	606.07
1999	Yes	No	No	212.34	791.85
2000	Yes	No	No	409.11	1054.01
2001	Yes	No	No	656.99	1350.93
2002	Yes	No	No	949.77	1692.35
2003	Yes	No	No	1281.79	2088.34
2004	Yes	No	No	1647.89	2959.99
2005	No	No	No	2043.34	
2006	No	No	No	2463.88	
2007	No	No	No	2905.62	

\*NOTE: Program water savings listed are net of the plumbing code. Savings are cumulative (not annual) between 1991 and the given year. Residential ULFT count data from unsubmitted forms are NOT included in the calculation.

#### BMP 14 COVERAGE STATUS SUMMARY:

**Water supplier is meeting coverage requirements for this BMP.**

## BMP 14 Coverage: Residential ULFT Replacement Programs

Reporting Unit: Irvine Ranch Water District

### BMP 14 Coverage Calculation Detail: Retrofit on Resale (ROR) Ordinance Water Savings

	Single Family	Multi- Family
<b>1992 Housing Stock</b>		
Average rate of natural replacement (% of remaining stock)	.04	.04
Average rate of housing demolition (% of remaining stock)	.005	.005
Estimated Housing Units with 3.5+ gpf Toilets in 1997	18063.82	25480.01
Average resale rate	.0362	.03
Average persons per unit		
Average toilets per unit		
Average savings per home (gpd; from Exhibit 6)	43.1	53

### Single Family Housing Units

Coverage Year	Unretrofitted Houses	Houses Sold	Houses Unsold	Sold and Retrofitted	Sold and Already Retrofitted	Unsold and Retrofitted	Gross ROR Savings (AFY)	Nat'l Replacement Only Savings (AFY)	Net ROR Savings (AFY)
1998	16720.26	650.64	17322.86	650.64		692.91	261.18	231.03	30.15
1999	15476.64	647.39	17236.24	602.25	45.14	641.38	321.21	264.35	56.86
2000	14325.51	644.15	17150.06	557.45	86.70	593.67	376.78	296.35	80.43
2001	13260.01	640.93	17064.31	515.99	124.94	549.52	428.21	327.07	101.14
2002	12273.75	637.73	16978.99	477.61	160.11	508.64	475.82	356.57	119.25
2003	11360.85	634.54	16894.10	442.09	192.45	470.81	519.89	384.90	134.99
2004	10515.85	631.36	16809.63	409.21	222.16	435.79	560.67	412.10	148.58
2005	9733.70	628.21	16725.58	378.77	249.44	403.38	598.43	438.21	160.22
2006	9009.73	625.07	16641.95	350.60	274.47	373.38	633.38	463.29	170.09
2007	8339.60	621.94	16558.74	324.52	297.42	345.61	665.72	487.37	178.35

### Multi Family Housing Units

Coverage Year	Unretrofitted Houses	Houses Sold	Houses Unsold	Sold and Retrofitted	Sold and Already Retrofitted	Unsold and Retrofitted	Gross ROR Savings (AFY)	Nat'l Replacement Only Savings (AFY)	Net ROR Savings (AFY)
1998	23735.75	760.58	24592.04	760.58		983.68	444.08	400.74	43.34
1999	22110.90	756.78	24469.08	708.51	48.26	916.34	540.53	458.54	81.99
2000	20597.28	752.99	24346.73	660.01	92.98	853.61	630.37	514.04	116.34
2001	19187.27	749.23	24225.00	614.83	134.40	795.18	714.07	567.33	146.74
2002	17873.79	745.48	24103.87	572.74	172.74	740.74	792.04	618.50	173.54
2003	16650.22	741.75	23983.35	533.53	208.22	690.04	864.67	667.63	197.04
2004	15510.41	738.04	23863.44	497.01	241.04	642.80	932.32	714.81	217.52
2005	14448.63	734.35	23744.12	462.99	271.37	598.79	995.35	760.11	235.24
2006	13459.53	730.68	23625.40	431.29	299.39	557.80	1054.06	803.60	250.46

2007	12538.15	727.03	23507.27	401.77	325.26	519.62	1108.75	845.37	263.38
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## **APPENDIX F**

### **IRVINE RANCH WATER DISTRICT**

➤ **RESOLUTION NO. 1987-52**

➤ **WATER SHORTAGE CONTINGENCY PLAN**



RESOLUTION NO. 1987-52

RESOLUTION OF THE BOARD OF DIRECTORS OF  
IRVINE RANCH WATER DISTRICT, ORANGE COUNTY  
CALIFORNIA, RESCINDING RESOLUTION NO. 1984-54  
AND ESTABLISHING REVISED RULES AND REGULATIONS  
OF THE IRVINE RANCH WATER DISTRICT  
FOR WATER, SEWER, AND RECLAIMED WATER  
SERVICE AND EXHIBITS THERETO

WHEREAS, Irvine Ranch Water District (IRWD) is a California Water District organized and existing under the California Water District Law, and all of the lands within the boundaries of said District are located in the County of Orange, State of California; and

WHEREAS, Section 35423 of the California Water Code empowers the District to establish, print and distribute equitable Rules and Regulations for the distribution of water; and

WHEREAS, Section 35506 of said Water Code empowers the District to exercise or use any of the powers or procedures contained in the California Water District Law in carrying out its purposes and powers to furnish sewer service; and

WHEREAS, by adoption of Resolution No. 1984-54 on November 5, 1984, the Board of Directors adopted Revised Rules and Regulations for Water, Sewer, and Reclaimed Water Service and Exhibits thereto; and

WHEREAS, the Board of Directors of IRWD find it in the best interest of the District to modify Section 15 - Prohibition of Water Wastage - to provide the District with a series of options that may be utilized during periods of water shortages.

NOW, THEREFORE, BE IT RESOLVED by the Board of Directors of IRWD as follows:

Section 1. That Resolution No. 1984-54 be and hereby is rescinded in its entirety.

Section 2. That the Rules and Regulations of the Irvine Ranch Water District for Water, Sewer, and Reclaimed Water Service and Exhibits thereto, as more specifically set forth in Exhibit "A" to this Resolution, attached hereto and by this reference made a part hereof, be and hereby are approved and adopted.

Section 3. That the provisions of this Resolution shall become effective upon adoption.



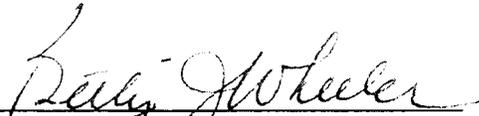
Section 4. That said Rules and Regulations, including all exhibits attached thereto, shall be certified by the Secretary of this District and the Secretary is hereby ordered and directed to publish Section 15 - Prohibition of Water Wastage - which is that Section of the Rules and Regulations being modified at this time, once a week for two weeks in the Orange Coast Daily Pilot, a newspaper of general circulation published in Orange County, California, pursuant to the provisions of Section 35424 of the California Water Code.

ADOPTED, SIGNED and APPROVED this 26th day of October, 1987.



President, IRVINE RANCH WATER DISTRICT and of the Board of Directors thereof

ATTEST:



Secretary, IRVINE RANCH WATER DISTRICT and of the Board of Directors thereof

APPROVED AS TO FORM:  
BOWIE, ARNESON, KADI & DIXON  
Legal Counsel - IRWD

By \_\_\_\_\_



Authorized to Publish Advertisements by Decree of the California, Number A-6214 A-24831, dated 11 June, 1967

STATE OF CALIFORNIA  
County of Orange

I am a Citizen of the United States of the County aforesaid; I am over 21 years of age, and not a party to the matter. I am a member of the Coast DAILY PILOT, NEWS-PRESS, a newspaper printed and published in the County of Orange, State of California. Notice of Rules

of which copy attached hereto, was printed and published in Newport Beach, Huntington Beach, Irvine, the South Coast, and Beach issues of said newspaper for consecutive weeks to wit:

Nov. 18

I declare, under penalty of perjury, that the foregoing is true and correct.

Executed on Nov 18 at Costa Mesa, California

  
S

The Board of Directors of the Irvine Ranch Water District at a regular meeting held October 26, 1967, in accordance with Resolution No. 1987-82 revised the rules and regulations of said District relative to Water Wastage - Section 15, to read as follows:

## PROMOTION OF WATER WASTAGE

### 15.1. DEFINITIONS

For the purpose of this section, the following terms, phrases, words, and their derivations shall have the meanings hereby defined, when not inconsistent with the context. Words used in the present tense shall include the future, words in the plural number shall include the singular number, and words in the singular include the plural number. The word "shall" is always mandatory and not merely directory.

- (1) District shall mean the Irvine Ranch Water District.
- (2) Person is any individual, firm, partnership, association, company, or organization of any kind.
- (3) Water is water supplied by the Irvine Ranch Water District.
- (4) Contingency Plan is the Water Shortage Contingency Plan adopted by the District, as amended from time to time.

### 15.2. APPLICATION

The provisions of this section shall apply to all persons using water in this District, regardless of whether any person using water shall have a contract for such service.

### 15.3. CONTINGENCY PLAN

The District's Contingency Plan provides representative measures that may be implemented during water shortage or drought conditions. The measures may be applied singly or in combination and may vary according to the severity and duration of the shortage. Other measures may be applied in lieu of or in addition to those described in the Contingency Plan.

The following are the levels of shortage which may be declared by the Board and the approximate ranges of conditions they represent:

- Level One (Drought Warning)-Up to 10% shortage.
- Level Two (Significant Drought Condition)-10-25% shortage.
- Level Three (Emergency Drought Condition)-25-40% shortage.
- Level Four (Crisis Drought Condition)-More than 40% shortage.

Generally, the conservation measures which the District will place in effect during Levels One and Two are anticipated to be voluntary and during Levels Three and Four are anticipated to be mandatory, including surcharges and rationing, but this will be determined by the District in its discretion at time of implementation.

### 15.4. GENERAL PROHIBITIONS

The following prohibitions are in effect at all times, regardless of whether any declared shortage condition is in effect.

- (1) Gutter Flooding  
No person shall cause or permit any water furnished to any property within the District to run or to escape from any hole, pipe, valve, faucet, sprinkler, or irrigation device into any gutter otherwise to escape from the property if such running or escaping can reasonably be prevented.
- (2) Leaks  
No person shall permit leaks of water that he has the authority to eliminate.
- (3) Waste  
No person shall cause or permit water under his control to be wasted.

### 15.5. EXEMPTIONS

Persons may be exempted from application of the restrictions set forth in 15.4, to a certain use or restrictions which may be implemented pursuant to the Contingency Plan if the General Manager of the District or his designee issues a permit allowing such use, and if such permit issuance is based on a finding that enforcement of the applicable restriction would either (1) cause an unnecessary and undue hardship to the applicant or the public, or (2) would cause or threaten an emergency condition affecting the health, sanitation, fire protection, or safety of the applicant or the public.

The General Manager of the District or his designee may require the use of such water conservation devices or practices as he deems appropriate as a condition of the exemption permit. He shall promulgate a list of approved devices.

### 15.6. ENFORCEMENT AND PENALTIES

(1) Prior to enforcement of the restrictions pursuant to Section 15.4, any person who is suspected of violating the restrictions hereby imposed shall be given a preliminary notice in writing of such violation, with the description of violation set forth in such preliminary notice. Such person shall have 24 hours to correct such violation, or terminate the use. If the violation is not corrected or the use not terminated, the General Manager of the District or his designee may forthwith order (a) disconnect service, (b) install flow-restricting devices restricting water service, or (c) order issued a second preliminary notice. (Service disconnected or restricted pursuant to (a) or (b) above shall be restored only upon payment of the backflow and other charges fixed by the Board of Directors as provided in these Rules and Regulations.) Any other sanctions or penalties that the District is presently authorized to impose or that the District may at some future time be authorized to impose may be imposed to enforce the prohibition of water wastage.

(2) From and after the publication or posting of any ordinance or resolution implementing any restrictions or mandatory measures under the Contingency Plan, violations thereof shall be misdemeanors punishable by imprisonment in the County Jail for not more than 30 days or by fine of not more than \$1,000, or both, or as otherwise provided by law, ordinance or regulation.



# **WATER SHORTAGE CONTINGENCY PLAN**

**OCTOBER 1987  
AMENDED JANUARY 1992  
UPDATED JULY 2005**

**IRVINE RANCH WATER DISTRICT  
15600 SAND CANYON AVENUE  
IRVINE, CA 92618**



## Background

Normally, the first step in developing a response or set of responses to a water shortage involves projections of future demand measured against estimates of the range of severity in supply cutbacks. This requires extensive research into both supply and demand, a great deal of which becomes assumptive and or speculative.

While the potential cutback in deliveries from Metropolitan Water District of Southern California (MWD) can be mitigated to some extent (at least in the short run) by the addition of other sources of supply, such as increased pumping from the Dyer Road Well field or the construction of treatment facilities at Irvine Lake (see IRWD's Water Resources Master Plan and Urban Water Management Plan), the range of shortages projected herein is assumed to be net of those supply augmentation measures. That is, a supply shortage identified as, say 20%, is the actual shortage confronted by the District's customers after supply augmentation factors have been considered. In short, this plan is intended to develop a set of options to reduce demand; it is not within the scope of this analysis to develop ways to augment supply.

Given the assumption that the degree of water shortages experienced at any point in time is net of mitigating supply factors, two basic considerations emerge in formulating a water shortage opinion plan: (1) the shortage must be offset by demand reduction, and (2) the demand reduction program must be sequential in nature since drought conditions are normally progressive. This means that a drought contingency plan should be designed to address varying levels of supply deficits with recommended actions predicated upon the actual deficit level. Therefore this analysis develops a drought response based upon four levels of supply cutbacks:

- A. Level One should be considered a drought warning and low level shortage condition with cutbacks in supplies of up to 10%.
- B. Level Two is a significant drought condition indicated by shortages of 10 to 25%.
- C. Level Three is an emergency condition indicated by shortages ranging from 25 to 40%.
- D. Level Four is a crisis condition resulting when shortages exceed 40%.

Each drought level requires a specific set of responses aimed at reducing demand to the level of supply cutbacks. Steps taken within each level should be considered cumulative; that is, Level Two responses will include most if not all the responses included in Level One plus the additional actions necessary to meet a Level Two condition. Level Three will include most if not all the responses included in Level Two plus the additional measures necessary to meet a Level Three condition, and so on.

However, if a drought condition persisted over an extended period of time, it may be necessary to implement a higher level response to sustain required cutbacks. Thus both the severity of supply cutbacks and the duration over which the cutbacks are experienced will determine the appropriate response.

In general terms, a Level One and Level Two drought, as identified in this plan, can be met with a set of customer responses that are voluntary in nature. Droughts in the Level Three and Four range will usually require all the voluntary responses expected in Levels One and Two plus additional District-mandated responses.

A. Level One: Drought Warning (up to 10% shortage)

As a result of the 1976-77 drought, a good deal of information was collected by those agencies involved in meeting the supply deficit (i.e. State Department of Water Resources, Los Angeles Department of Water and Power, East Bay Municipal Utility District, Metropolitan Water District of Southern California, etc.). Among the more important conclusions drawn from that experience was that demand reductions of 25% or more could be sustained for a one to two year period by essentially voluntary responses on the part of water users. However, to generate that kind of public support requires an intensive public information and education program on the part of the utility and willingness by the utility to set an aggressive example. The following represent specific actions that should be taken by the District during a Level One drought:

1. Make the general public and influential local decision-makers understand what the situation is, what actions are proposed to be taken and what they are intended to achieve, and,

how these actions are to be implemented. This should be accomplished by having key District personnel (i.e. those with publicly recognized credentials/authority) give presentations to such groups as the city council, community associations, the chamber of commerce, business groups, etc. An endorsement of proposed District plans by these groups will greatly assist in obtaining the support of the general public that is essential in confronting water shortages.

It is crucial that the District elicit the undivided support of the above-mentioned groups at the outset of a water shortage situation so they can be of timely value in forming public opinion. The drought potential need not be aggrandized, but should be represented accurately with clear indications of the consequences and the actions required if conditions deteriorate.

2. School programs should be focused on the water shortage situation. In addition to the usual background information about the District (i.e. what it does and how it functions), the supply situation and conservation methods should be highlighted. Demonstrations using sample water-saving devices can be given; literature should be distributed.

3. The public at large should be informed of the situation and what must be done. Contact can be made through billing inserts, water conservation booths, community association meetings, newsletters, church groups, etc. Literature should be provided on the drought condition, conservation methods, and water-saving devices and distributed through the fire and police stations, libraries, city hall, schools, shopping center, recreation facilities, etc. The public should be counseled that, even under low-level drought conditions, they must change their water use habits since this has proven to be the single most effective way to reduce total water demand. A change in use habits is different than conserving water through the employment of devices or fixtures and would include recommendations such as the following:

- a. Make a survey of all plumbing every two months and eliminate any water loss that results from leaky plumbing fixtures.
- b. Restrict showers to five minutes or less; or, fill the bath tub no more than one-quarter full.

- c. Do not run water unnecessarily while shaving, brushing teeth, bathing, shampooing, preparing food, etc.
- d. Do only full loads of laundry and dishes.
- e. Reduce landscape watering to minimum levels only.
- f. Do not run a hose while washing car; use a bucket, rinse only with the hose.
- g. Fill swimming pools to a lower level to minimize water loss due to splashing.
- h. Do not use the toilet as a wastepaper basket.

(There are many other water-saving hints that can be provided to the customer. A detailed list would be developed by Public Affairs and made available for distribution when the need arises.)

4. Water conservation and drought literature should be disseminated on as wide a basis as possible. This would include brochures, billing inserts, mailers, bumper stickers, etc.

5. A water conservation or drought response logo should be adopted and vigorously promoted as a symbol to influence public attitude about water.

6. Extensive use of the media in all its available forms should be employed. This would include public service messages on radio and television and press releases in local newspapers. Television costs may be prohibitive unless networks donate air time for public service spots.

In sum, the single most important step the District can take during a drought warning or Level One condition is to develop the public consciousness such that voluntary compliance will reduce water demand to the extent necessary. This can be accomplished through education/information programs sponsored by the District, which must adopt an aggressive leadership roll at all times.

The cost to implement Level One responses should be minimal, especially considering the return (in reduced demand) on the investment. None of the recommended steps would be difficult to implement or administer and, in the Public Affairs Department, the District has the basic vehicle to pursue most Level One steps.

**B. Level Two: Significant Drought Conditions (10 to 25% shortage)**

Additional measures that may be required under a Level Two condition can be determined by the amount of reduced demand achieved in Level One. (Bear in mind that demand reductions of up to 25% have been realized under Level One measures when the public is aggressively committed to saving water.) Therefore, a Level Two drought may require only that Level One responses be sustained or, it may mean that further steps must be taken to increase demand reduction when supply cutbacks approach the upper range of a Level Two condition.

Assuming that requests/information/education programs pursued by the District reduced treated water demand by 20% for residential, commercial, public authority, landscape, agricultural, and construction/temporary users (industrial users are considered at 10% since their production modes are usually less amenable to reductions in water usage without capital expenditures), total demand would be reduced by approximately 13.74% as illustrated in Table 1 below (annual usage figures are based on the 2004-05 fiscal year):

User Class	Annual Usage	% of Total Use	% of Cutback	Annual Usage
Residential	30,972	36.3%	20.00%	6,194
Commercial	7,663	9.0%	20.00%	1,533
Industrial-Treated	6,047	7.1%	10.00%	605
Industrial-Recycled	57	0.1%	0.00%	0
Public Authority	2,842	3.3%	20.00%	568
Landscape-Treated	4,953	5.8%	20.00%	991
Landscape-Recycled	20,560	24.1%	0.00%	0
Treated Ag*	1,177	1.4%	20.00%	235
Untreated Ag	7,585	8.9%	20.00%	1,517
Construction/Temp.	489	0.6%	20.00%	98
RW sales to others	3,094	3.6%	0.00%	0
<b>Total</b>	<b>85,440</b>		<b>13.74%</b>	<b>11,741</b>

\*Because of the geographic location of certain agricultural connections and/or because of water quality considerations, there is a certain amount of treated water used for agricultural purposes. In the future, this demand will decline to almost zero.

If a Level Two drought condition was at the severe end of the range, that is, nearing the 25% point, then the District might be required to take some additional measures to reduce demand further. While there are several steps that might be taken, perhaps the most acceptable would be to require irrigation users, both landscape and agricultural, to reduce their usage to 50% of normal. This step alone would increase the level of reduced treated water demand to 21.51%, as illustrated in Table 2 below:

User Class	Annual Usage/AF	% of Total Use	% of Cutback	Annual Usage/AF
Residential	30,972	36.3%	25.00%	7,743
Commercial	7,663	9.0%	25.00%	1,916
Industrial-Treated	6,047	7.1%	15.00%	907
Industrial-Recycled	57	0.1%	0.00%	0
Public Authority	2,842	3.3%	25.00%	710
Landscape-Treated	4,953	5.8%	50.00%	2,477
Landscape-Recycled	20,560	24.1%	0.00%	0
Treated Ag*	1,177	1.4%	50.00%	588
Untreated Ag	7,585	8.9%	50.00%	3,793
Construction/Temp.	489	0.6%	50.00%	245
RW sales to others	3,094	3.6%	0.00%	0
<b>Total</b>	<b>85,440</b>	<b>100.0%</b>	<b>21.51%</b>	<b>18,379</b>

The 1976-77 drought experience indicated that a Level Two drought, as defined here, can be offset by voluntary public compliance and perhaps one or two additional measures, such as mandated reductions in irrigation water use. However, should requests by the District fail to reduce demand to the desired levels, it may be appropriate to institute a penalty or excess use charge (hopefully, this step would not be required until a Level Three condition existed).

A penalty charge assesses a flat fee for usage above a certain amount; an excess use charge increases the price per ccf above a specific usage per billing period. Both of these approaches, when fairly applied, have been shown to be effective, particularly the penalty charge method when backed by the threat of service disconnection for repeated offenses. However, the difficulty in using either one of these approaches arises in determining the parameters that would

define excess use. Because of differences within a user class (i.e. residential family of three compared to residential family of six), it would not be equitable to limit usage per month to the same amount for all members of the same user class.

There are three basic approaches that should be considered to solve the inequity problem: one, determine the penalty or excess use point based upon a per capita allocation for each residence; two, raise the basic commodity rate to all customers high enough to encourage conservation; or, three, make the determination, on an individual account basis, calculated upon a percentage allocation of a prior period use.

Option one, while theoretically the most likely to achieve fairness and equity, would, in practical terms, be almost impossible to implement and administer. The major problem would be to obtain accurate demographic data on the District's customer base that could be used to determine a per capita allocation. The accuracy and validity of survey research data would be suspect since there is no independent method to verify the results; any existing data would probably be too old to be accurate and current data would have to be constantly updated to remain useful. A possible means of implementing this option would be to arbitrarily set each residence at a population of three. For those customers burdened by this assumption, it would be their responsibility to declare, in writing, as to the correct occupancy. Administering this scheme could be expensive because of the large number of declarations likely to be filed resulting in the probable need for an additional customer service clerk. In short, the per capita allocation method would be difficult to administer and costly.

Option two would simply raise the cost per ccf to all customers, regardless of their usage. If the current rate of \$.88/ccf was increased to, say, \$1.60/ccf it is likely that this increase would act as a strong incentive for all classes of users to reduce their demand. Since the District recovers its cost of water through the commodity assessment, the increased revenue would not be required to meet increased District operating costs (unless MWD raised its charges to the District) and it could be ear-marked for a specific purpose, such as funding the distribution of water-saving devices; or the revenue could be returned to the customer when the drought has ended (through some other method).

The major problem with uniformly raising the commodity rate is the inherent unfairness to low-volume users who number approximately 30% of the District's customer base, and who have already reduced their demand so as to conserve water on an on-going basis. For these users, the increased commodity rate would be punitive as opposed to acting as an incentive.

Option three, while not without problems, would be a more attractive method than either option one or two. The current billing system has an ascending block rate structure built into it and, with historical usage data for the prior twelve month period maintained, all existing accounts could be factored at a certain percentage with use above that point assessed at either a higher rate or on a flat fee basis. For example, it is probably reasonable to assume that most, if not all, of the difference between water demand in August compared to January is attributable to outside use. If the District requested that all customers reduce their demand to winter levels (i.e. eliminate most outside use), the billing system could, with less than major modifications, apply January usage as the parameter for the current months not-to-exceed point. An analysis of past usage indicates that the average variance in usage between the four month period December-March and the eight month period April-November is approximately 20.4%. Using this factor to determine the point-to-exceed would allow for the first 80% of current month's usage to be billed at current rates and usage beyond that point to be billed either at a higher rate per ccf (excess use charge) or billed at current rates plus a flat charge. This method would have to be modified for new accounts (since there is no historical data to reveal prior usage) and resales (new tenants) which would need to be handled on an individual basis. The current billing system is configured to a five-tiered rate structure, this option, with certain programming modifications (i.e. ability to calculate parameters based upon a prior period usage applied to current usage and ability to add credits or subtract debits based on accuracy of estimated month) would provide a reasonably equitable format for a penalty or excess use charge.

Although any form of surcharge, excess use, or penalty charge would probably not have to be implemented until a Level Three drought condition occurred, a surcharge could be implemented at a Level Two condition for the purpose of generating revenue to finance the distribution of water-saving devices to households. This form of surcharge would thus have a dual benefit.

Finally, a District Task Force should be activated when a Level Two condition persists. The Task Force would have as its purpose to investigate and consult with high-volume users (i.e. public authorities, apartments, community associations, etc.) to assist them in reducing their water demands to the greatest extent possible.

Level Three: Emergency Drought Condition (25 to 40% shortage)

A Level Three drought condition would most likely entail, in addition to the voluntary measures taken in the Level One and Two responses, the implementation of mandatory measures on the part of the District. If a penalty or excess use charge had been previously avoided, it would almost certainly be needed at this level of supply deficiencies. Given the discussion above, an excess use charge based upon an ascending block rate structure sufficient to encourage demand reduction to required levels would be the most equitable surcharge.

In addition to an excess use charge, all common area landscape irrigation and agricultural irrigation should be reduced drastically, or eliminated completely if necessary. Complete elimination of treated water serving landscape would reduce total treated demand by approximately 9% and could be easily accomplished by locking off the service meter if one meter served landscape needs specifically. When one meter serves both internal use and landscaping, monitoring and public support would be needed to ensure that no irrigation takes place. An expanded irrigation group would be effective in these efforts. Untreated or recycled water use would only be reduced as needed based on impact of reduced wastewater flows to recycled water production.

More intensive efforts to reduce demand in residential, commercial, and public authority usage should be pursued and encouraged. All nonessential use such as outside irrigation, car washing, pool filling, washing down of sidewalks, etc., should be banned. Specific municipal uses such as street cleaning, hydrant flushing, water-based recreation, etc., should be eliminated.

While it is difficult to precisely estimate the total reduction in demand that would be realized from the cumulative measures taken in Levels One, Two, and Three, Table 3 illustrates the projected reduction in demand that would occur when each user class reduces their demand by

the percentages indicated:

User Class	Annual Usage/AF	% of Total Use	% of Cutback	Annual Usage/AF
Residential	30,972	36.3%	25.00%	7,743
Commercial	7,663	9.0%	25.00%	1,916
Industrial-Treated	6,047	7.1%	25.00%	1,512
Industrial-Recycled	57	0.1%	0.00%	0
Public Authority	2,842	3.3%	25.00%	710
Landscape-Treated	4,953	5.8%	100.00%	4,953
Landscape-Recycled	20,560	24.1%	0.00%	0
Treated Ag*	1,177	1.4%	50.00%	588
Untreated Ag	7,585	8.9%	50.00%	3,793
Construction/Temp.	489	0.6%	50.00%	245
RW sales to others	3,094	3.6%	0.00%	0
Total	85,440		25.12%	21,460

Level Four: Crisis Drought Condition (greater than 40% shortage)

A Level Four or severe Level Three drought may require that the District ration water. This would be neither easy nor pleasant; any method of allocation could have as many exceptions as applications. Rationing is usually accomplished in one of two ways: a flat percentage reduction or a variable percentage reduction. The flat percentage reduction would not be appropriate for the IRWD given its current grouping of users into categories based upon prior-year consumption. An across-the-board reduction would unfairly impact low-volume users, who already use water more efficiently, and would create significant inequities.

A percentage reduction based upon prior year's usage, or average year's usage, would probably be the most equitable rationing method. The modified billing system (as discussed above) could provide the necessary information for existing users (new users could be allocated water based upon their per capita household compared to another user with usage history and households of equal size), and when modified so as to perform the necessary calculation (i.e. a percentage times

some prior period usage), could identify violators. Those users who exceed the rationed amount would be fined and, if they are consistent violators, threatened with termination of service.

Under extreme conditions of noncompliance, the District could install flow restrictors in individual service lines. Thus, water would be available for drinking, cooking, sponge baths, and slow fill of toilet tanks, but showers and other high volume type uses would not be possible. Under these conditions individual customer reaction would be severe. It would probably be necessary to augment the meter reader crew to maintain surveillance of these services to assure that unauthorized changes are not made by the customer.

The District's ability to establish restrictions on water use and to discontinue service in the case of repeat violators is provided for under the Water Code of the State of California Chapters 3 and 3.5). Fines of up to \$1,000 may be assessed, imprisonment of up to 30 days may be given and service may be terminated to consumers who willfully violate the regulations and restrictions.

#### CONCLUSION

The District's Water Shortage Contingency Plan is sequential in nature and is aimed at reducing treated water demand primarily through modifying the water use patterns of its customers. It places heavy emphasis on the steps to be taken during pre- and low-level drought conditions, focusing particularly on forming public attitudes.

The Plan also includes provisions for implementing mandatory measures under a severe drought condition, including a ban on certain types of usage, penalty charges, and, if need be, rationing options.

The Water Shortage Contingency Plan has been adopted and by amending the District's Rules and Regulation so as to allow the Plan to be implemented as required.

Section 15

PROHIBITION OF WATER WASTAGE

15.1 APPLICATION

The provisions of this section shall apply to all persons using water in this District, regardless of whether any person using water shall have a contract for such service, and shall apply to all potable and recycled water supplied by the District.

15.2 CONTINGENCY PLAN

The District's Contingency Plan provides representative measures that may be implemented during water shortage or drought conditions. The measures may be applied singly or in combination and may vary according to the severity and duration of the shortage. Other measures may be applied in lieu of or in addition to those described in the Contingency Plan. The following are the levels of shortage which may be declared by the Board and the approximate ranges of conditions they represent:

Level One (Drought Warning)-Up to 10% shortage.

Level Two (Significant Drought Condition)-10-25% shortage.

Level Three (Emergency Drought Condition)-25-40% shortage.

Level Four (Crisis Drought Condition)-More than 40% shortage.

Generally, the conservation measures which the District will place in effect during Levels One and Two are anticipated to be voluntary and during Levels Three and Four are anticipated to be mandatory, including surcharges and rationing, but this will be determined by the District in its discretion at time of implementation.

15.3 GENERAL PROHIBITIONS

The following prohibitions are in effect at all times, regardless of whether any declared shortage condition is in effect.

(1) Gutter Flooding

No person shall cause or permit any water furnished to any property within the District to run or to escape from any hose, pipe, valve, faucet, sprinkler, or irrigation device into any gutter or otherwise to escape from the property if such running or escaping can reasonably be prevented.

(2) Leaks

No person shall permit leaks of water that he has the authority to eliminate.

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(3) Waste

No person shall cause or permit water under his control to be wasted. Wasteful usage includes, but is not limited to, the uses listed in Section 13(A) of Exhibit 1 to the Memorandum of Understanding Regarding Urban Water Conservation in California, dated December 11, 2002, as amended from time to time, or the counterpart of said list contained in any successor document.

15.4 EXEMPTIONS

Persons may be exempted from application of the restrictions set forth in 15.4. to a certain use or restrictions which may be implemented pursuant to the Contingency Plan if the General Manager of the District or his designee issues a permit allowing such use, and if such permit issuance is based on a finding that enforcement of the applicable restriction would either (1) cause an unnecessary and undue hardship to the applicant or the public, or (2) would cause or threaten an emergency condition affecting the health, sanitation, fire protection, or safety of the applicant or the public.

The General Manager of the District or his designee may require the use of such water conservation devices or practices as he deems appropriate as a condition of the exemption permit. He shall promulgate a list of approved devices.

15.5 ENFORCEMENT AND PENALTIES

- (1) Prior to enforcement of the restrictions pursuant to Section 15.4, any person who is suspected of violating the restrictions hereby imposed shall be given a preliminary notice in writing of such violation, with the description of violation set forth in such preliminary notices. Such person shall have 24 hours to correct such violation, or terminate the use. If the violation is not corrected or the use not terminated, the General Manager of the District or his designee may forthwith either (a) disconnect service, (b) install flow-restricting devices restricting water service, or (c) order issued a second preliminary notice. (Service disconnected or restricted pursuant to (a) or (b) above shall be restored only upon payment of the turn-on and other charges fixed by the Board of Directors as provided in these Rules and Regulations.)

Any other sanctions or penalties that the District is presently authorized to impose or that the District may at some future time be authorized to impose may be imposed to enforce this prohibition of water wastage.

- (2) From and after the publication or posting of any ordinance or resolution implementing any restrictions or mandatory measures under the Contingency Plan, violations thereof shall be misdemeanors punishable by imprisonment in the County Jail for not more than 30 days or by fine of not more than \$1,000, or both, or as otherwise provided by law or such resolution or ordinance.

