the District service area is typical of MWDOC service area, the findings are considered applicable to the District.

Therefore, in **Table 14** all water **demands** are based on the MWDOC hydrological data. The reliability of imported **supplies** on the other hand are based upon for the single-dry year repeat of 1977 hydrology; and for multiple-dry years repeat of 1990-92 hydrology.

Table 22 below illustrates imported water supply reliability based on MWDOC application of demand projections.

Table 22
Wholesale Supply Reliability - % of normal AFY

		Single Dry	Multiple Dry Water Years		
Wholesale sources		1961	Year 1 (1989)	Year 2 (1990)	Year 3 (1991)
MWDOC - MWD	2010	107%	109%	105%	107%
MWDOC - MWD	2015	107%	109%	105%	107%
MWDOC - MWD	2020	107%	109%	105%	107%
MWDOC - MWD	2025	107%	109%	105%	107%
MWDOC - MWD	2030	107%	109%	105%	107%

3.0 DETERMINATION OF DMM IMPLEMENTATION

Water Code section 10631.5 states that the Department of Water Resources 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 10631, in evaluating applications for grants and loans made available pursuant to Section 79163. The Act allows an urban water supplier who is signatory to the MOU by the CUWCC to 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.

The SCWD recognizes the importance of water conservation and has made water use efficiency an integral part of water use planning. The District also has implemented and actively participated in many water conservation activities. The District is a Member Agency of the CUWCC and signatory to the Best Management Practices MOU.

The SCWD actively participates in most of the Best Management Practices (BMPs) as outlined in the Memorandum of Understanding in cooperation with the MWDOC and other retail agencies. The most recent BMP Activity Report submitted to CUWCC for years 2003-2004 are included in Appendix B.

4.0 WATER SHORTAGE CONTINGENCY PLAN

4.1 Imported Water Shortages

As a wholesaler of imported water to SCWD, it is MWDOC responsibility to manage its supplies during times of shortage. During shortages, MWDOC manages its water supply to ensure it meets the demands of its member (retail) water agencies. In turn, retail water agencies must manage their local supplies they receive from MWDOC utilizing various mechanisms to ensure the reliability of their supply.

4.1.1 Stages of Drought Action

While MWDOC has broad powers to allocate or prohibit uses of water upon the declaration of a Water Shortage Emergency by its Board, MWDOC has not acted to directly mandate how water is used by its member (retail) water agencies in the past. However, MWDOC is responsible for how imported water will be allocated to each member agency, which will then determine specific stages of shortage actions in accordance with situation at hand. During past shortages, MWDOC has adopted Board Resolutions urging its retail agencies to develop and implement water shortage plans; calling upon each agency to adopt and enforce regulations prohibiting the waste of water; and implementing an allocation plan for available imported water consistent with reductions, incentives and penalties imposed on MWDOC by the MWD.

MWDOC receives its imported water from MWD. MWD has a Water Surplus and Drought Management (**WSDM**) Plan for the management of its imported water. The WSDM Plan has identified seven stages of water shortages caused by dry years and drought, with each one getting significantly more severe (see Table 22).

It is anticipated that water shortages would have to be extremely severe for MWD to implement the action listed for Stage 7, which is to allocate its imported water supplies to its member agencies. For example, even with significant reductions in Colorado River water supplies and a repeat of the 1987-1992 drought on the State Water Project, Metropolitan could meet all retail water needs of its member agencies by implementing the stages one through six of the WSDM Plan until 2025 (MWD Integrated Resources Plan Update, 2004).

4.1.2 MWD Water Shortage and Drought Management Plan (WSDM Plan)

In April of 1999, MWD Board of Directors adopted the WSDM Plan. This plan provides policy guidance for management of regional water supplies to achieve the reliability goals of Southern California's Integrated Resources Plan (**IRP**). 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 ten years.

Unlike the previous shortage management plans, the WSDM Plan recognizes the link between surpluses and shortages, and it integrates planned operational actions with respect to both conditions. The WSDM Plan continues MWD commitment to the regional planning approaches initiated in the IRP.

WSDM Plan Development

MWD and its member agencies jointly developed the WSDM Plan during 1998 and 1999. This planning effort included more than a dozen half-day and full-day workshops and more than three dozen meetings of MWD and member agency staff. The result of the planning effort is a consensus plan addressing a broad range of regional water management actions and strategies.

WSDM Plan Principles and Goals

The guiding principle of the WSDM plan is to manage MWD resources and management programs to maximize management of wet year supplies and minimize adverse impacts of water shortages to retail customers. From this guiding principle come the following supporting principles:

- Encourage efficient water use and economical local resource programs.
- Coordinate operations with member agencies to make as much surplus water as possible available for use in dry years.
- Pursue innovative transfer and banking programs to secure more imported water for use in dry years.
- Increase public awareness about water supply issues.

The WSDM Plan also declared that, should mandatory import water allocations be necessary, those allocations would be calculated on the basis of need, as opposed to any type of historical purchases. The WSDM Plan contains the following considerations that would go into an equitable allocation of imported water:

- Impact on retail consumers and regional economy;
- Investments in local resources, including recycling and conservation;
- Population growth;
- Changes and/or losses in local supplies;
- Participation in Metropolitan's Non-firm (interruptible) programs;
- Investment in Metropolitan's facilities.

Ensuring Regional Reliability

As a result of the investments made in conservation, water recycling, storage, and supply, MWD has identified a resource management plan that should result in 100 percent reliability for non-discounted non-interruptible demands through 2025. A key element of MWD strategy is to store surplus supplies during wet periods for use during drought periods.

The WSDM Plan guides the operations of these resources to ensure short- and long-term regional reliability. It identifies the expected sequence of resource management actions MWD will execute during surpluses and shortages to minimize the probability of severe shortages and eliminate the possibility of extreme shortages and shortage allocations.

Surplus and Shortage Stages

The WSDM Plan distinguishes between *Surpluses*, *Shortages*, *Severe Shortages*, and *Extreme Shortages*. Within the WSDM Plan, these terms have specific meanings relating to MWD capability to deliver water to its customers.

Surplus: MWD can meet full-service and interruptible program demands, and it can deliver water to local, regional and out-of-region storage.

Shortage: MWD can meet full-service demands and partially meet or fully meet interruptible demands, using stored water or water transfers as necessary.

Severe Shortage: MWD can meet full-service demands only by using stored water, transfers, and possibly calling for extraordinary conservation. In a Severe Shortage, Metropolitan may have to curtail Interim Agricultural Water Program deliveries.

Extreme Shortage: MWD must allocate available supply to full-service customers.

Table 23
MWD Water Surplus & Drought Management Plan
Water Supply Shortage Stages and Conditions

Stage No.	Actions
1	Withdraw stored water from Diamond Valley Lake
2	Stage 1 plus draw from out of region groundwater storage
3	Stage 2 plus curtail/temporary suspend deliveries to local groundwater and surface storage replenishment in accordance with their discounted rates
4	Stage 3 plus draw from local Conjunctive Use Groundwater Programs & SWP terminus reservoirs
5	Stage 4 plus extraordinary conservation through coordinated outreach and curtail Interim Agricultural Water Program deliveries in accordance with discounted rates
6	Stage 5 plus exercise water transfer option contracts and/or buy water on open market for consumptive use or for delivery to regional storage facilities
7	Stage 6 plus allocation of imported water to member agencies based on adopted principles of fairness and need

The WSDM Plan also defines five surplus management stages and seven shortage management stages to guide resource management activities. These stages are not defined merely by shortfalls in imported water supply, but also by the water balances in MWD storage programs.

Thus, a ten percent shortfall in imported supplies could be a stage one shortage if storage levels are high. If storage levels are already depleted, the same shortfall in imported supplies could potentially be defined as a more severe shortage. Each year, MWD evaluates the level of supplies available and existing levels of water in storage to determine the appropriate management stage for that year. Each stage is associated with specific resource management actions designed to (1) avoid an Extreme Shortage to the maximum extent possible and (2) minimize adverse impacts to retail customers should an Extreme Shortage occur. The current sequencing outlined in the WSDM Plan reflects anticipated responses based on detailed modeling of MWD existing and expected resource mix.

Storage Actions by Surplus Stage

MWD supply situation is considered to be in surplus as long as net annual deliveries can be made to water storage programs. Deliveries for storage in the Diamond Valley Lake and in the State Water Project (SWP) terminal reservoirs continue through each surplus stage, provided that there is available storage capacity. Withdrawals from Diamond Valley Lake for regulatory purposes or to meet seasonal demands may occur in any stage. Deliveries to other storage facilities may be interrupted, depending on the amount of the surplus. The following section discusses the management actions to be taken under various levels of surplus, ranked from the smallest to the largest amount of surplus.

Surplus Stage 1. MWD may curtail or temporarily suspend (1) deliveries to regional groundwater basins under the Conjunctive Use and Cyclic Storage programs; (2) deliveries to Semitropic and Arvin-Edison groundwater storage programs; (3) deliveries of SWP carryover water to SWP reservoirs; and (4) contractual groundwater storage deliveries.

Surplus Stage 2. MWD may curtail or temporarily suspend (1) deliveries to regional groundwater basins under the Conjunctive Use and Cyclic Storage programs; (2) deliveries to Semitropic and Arvin-Edison groundwater storage programs; and (3) deliveries of SWP carryover water to SWP reservoirs.

Surplus Stage 3. MWD may curtail or temporarily suspend (1) deliveries to regional groundwater basins under the Conjunctive Use and Cyclic Storage programs; and (2) deliveries to Semitropic and Arvin-Edison groundwater storage programs.

Surplus Stage 4. MWD may curtail or temporarily suspend deliveries under the Conjunctive Use and Cyclic Storage programs.

Surplus Stage 5. MWD will make deliveries to all available in-region and out-of-region storage resources, including deliveries under the Conjunctive Use and Cyclic Storage programs.

Shortage Actions by Shortage Stage

When MWD must make net withdrawals from storage to meet demands, it is considered to be in a shortage condition. Under most of these stages, it is still able to meet all end-use demands for

water. The following summaries describe water management actions to be taken under each of the seven shortage stages.

Shortage Stage 1. MWD may make withdrawals from Diamond Valley Lake.

Shortage Stage 2. MWD will continue Shortage Stage 1 actions and may draw from out-of-region groundwater storage.

Shortage Stage 3. MWD will continue Shortage Stage 2 actions and may curtail or temporarily suspend deliveries to Long Term Seasonal and Replenishment Programs in accordance with their discounted rates.

Shortage Stage 4. MWD will continue Shortage Stage 3 actions and may draw from conjunctive use groundwater storage (such as the North Las Posas program) and the SWP terminal reservoirs.

Shortage Stage 5. MWD will continue Shortage Stage 4 actions. MWD Board of Directors may call for extraordinary conservation through a coordinated outreach effort and may curtail Interim Agricultural Water Program deliveries in accordance with their discounted rates. In the event of a call for extraordinary conservation, MWD Drought Program Officer will coordinate public information activities with member agencies and monitor the effectiveness of ongoing conservation programs. The Drought Program Officer will implement monthly reporting on conservation program activities and progress and will provide quarterly estimates of conservation water savings.

Shortage Stage 6. MWD will continue Shortage Stage 5 actions and may exercise any and all water supply option contracts and/or buy water on the open market either for consumptive use or for delivery to regional storage facilities for use during the shortage.

Shortage Stage 7. MWD will discontinue deliveries to regional storage facilities, except on a regulatory or seasonal basis, continue extraordinary conservation efforts, and develop a plan to allocate available supply fairly and efficiently to full-service customers. The allocation plan will be based on the Board-adopted principles for allocation listed previously. MWD intends to enforce these allocations using rate surcharges. Under the current WSDM Plan, the surcharges will be set at a minimum of $175 per AF for any deliveries exceeding a member agency's allotment. Any deliveries exceeding 102% of the allotment will be assessed a surcharge equal to three times MWD full-service rate.

Although WSDM Plan did not specify the exact formula for how imported water would be allocated in Stage 7, it did include some principles for allocation. MWD Board adopted the WSDM Plan and principles for imported water allocation in 1999. Should the severity of drought warrant the need to allocate imported water, MWD would do so following an overall principle of equity, and on the basis of meeting agencies' retail needs.
During a severe water shortage (50% or greater loss in imported supply), MWDOC would be responsible for allocating its allocation of imported water from MWD. MWDOC would use the same principles as identified in the WSDM Plan for the allocation of imported water to its

member (retail) water agencies, subject to any locally developed principles or adjustments found to be relevant and adopted by the MWDOC Board. The stages of imported water management during a drought would give MWDOC sufficient time to work with its retail water agencies to develop an equitable formula for the allocation of imported water.

4.1.3 SCWD Water Shortage Ordinance

California Water Code Section 375 et seq. permits retail water agencies to adopt and enforce a water conservation program for the purpose of reducing water consumption and conserving water supplies. SCWD water conservation program was initially established in response to the '76-'77 drought. In 1984 the District's Board of Directors adopted a formal water conservation program. In April of 1990 the District created a Water Shortage Contingency Plan (Resolution No. 20-89/90)

Voluntary and Mandatory Water Conservation Contingency Plans

As in the past, the District prefers to use voluntary means to achieve its water conservation goals. Any media means available, direct mailings, newsletters, bill stuffers, direct contact with community groups, and information presented to local schools is used to inform the District's constituents of the need to conserve water beyond that which is normally practiced. In the past these measures have been sufficient. Notwithstanding, critical events in the future could require much more stringent means. To this end, the District has developed a Water Shortage Contingency Plan designed to enforce mandatory water conservation.

If voluntary measures are ineffective or insufficient, mandatory measures will be invoked.

Stages of Action and Reduction Goal

Stage I (Minimal) – 5 to 10 percent reduction.

SCWD will initiate a public information campaign explaining the drought situation and request voluntary water conservation. Ordinances banning water waste will be adopted. Educational brochures will be prepared and disseminated. Stage I is a voluntary reduction that would require the elimination of hosing down hard surfaces, irrigation between 10 am and 5 pm, no run-off into the street, no fountains unless they use re-circulated water, and no un-repaired leaks.

Stage II (Moderate) – 10 to 20 percent reduction.

SCWD will continue a rigorous public information campaign explaining drought conditions. Consumers will be asked for 10 to 20 percent mandatory water use reductions. Rate structures, with penalties and surcharges for excess water use, will be instituted to cause conservation. Stage II incorporates all of Stage I and makes reductions mandatory. Car washing allowed only with a bucket and hose with automatic shutoff nozzle. Additionally rate changes can be utilized to penalize customers who do not meet the mandatory reductions. The District's leak detection

program would intensify and employees assigned to water conservation would actively patrol the District to inform customers of the situation and stop violations.

Stage III (Severe) – 20 to 35 percent reduction.

SCWD will institute rationing programs through fixed allotments or percentage cutbacks. Rate changes in the pricing structure will be implemented to penalize use over allotment. Stage III incorporates all the previous stages with the institution of rationing based upon fixed allotments or percentage cutbacks. All homeowners would be required to utilize low flow devices before granting increases in their allotments. Rate changes would be incorporated to penalize overuse.

Stage IV (Critical) – 35 to 50+ percent reduction.

Stage IV includes extensive restrictions on water use and will be initiated only in very extreme circumstances. All of the Stage III steps will be intensified during Stage IV. The District will be monitoring weekly for compliance with necessary reductions. Per capita water use allocations will be instituted for residential customers. No potable water will be served to landscape meters. Stage IV is the most severe requirement. All previous stage requirements would be upheld. Residential customers rationing allocations would be based on per capita for their particular household. Car washing would be allowed only at car washes that utilize recycled water. All domestic irrigation meters would be turned off.

Water Shortage Stages and Triggering Mechanisms

Table 24
Water Supply Shortage Stages and Conditions
Rationing Stages

Stage No.	Water Supply Conditions	% Shortage
Stage 1: Voluntary compliance	5-10 cut-back in Imported Supply	5-10
Stage 2: Mandatory Compliance	10-20 cut-back in Imported Supply	10-20
Stage 3: Mandatory Reduction Rationing First Stage	20-35cut-back in Imported Supply	20-35
Stage 4: Mandatory Reduction Rationing Second Stage	35-50 cut-back in Imported Supply	35-50

Mechanism to Determine Reductions in Water Use

Should it become necessary for South Coast Water District to initiate the actions mandated by the Water Shortage Contingency Plan, the District will continuously compare actual demand and supply with projected demand to determine if adjustments are required. The District utilizes a sophisticated Telemetry and Control System that monitors District consumption in real time.

This along with increasing the frequency of its meter reading will allow the District to monitor the effectiveness of its reduction program.

4.2 Estimate of Minimum Water Supply for Next Three Years

MWD has declared 100 % reliability for full service through the year 2010. The MWD Regional Urban Water Management Plan documents MWD demand supply balance in multiple dry years, single dry year and average year as shown in Section 2.5 herein. Therefore the District anticipates the ability to meet its water demand through the next three years.

The SCWD has determined maximum water demands for each of the next three-years, 2006-2008. Table 25 compares demands under normal conditions and under a hypothetical repeat of the historical driest three-year period for SCWD service area. During multiple dry years retail demands increase, resulting in the use of increased imported supplies from MWD. MWD is expected to meet all retail consumption during a three-year dry period of 2006-2008 based on the three-driest years on record. MWD 2005 Regional Urban Water Management Plan (Draft) indicates that MWD can provide 100% of the supply demanded by its member agencies until 2025. **Table 25** below compares the total supplies available to SCWD with the projected total demand for normal as well as multiple dry year scenarios for years 2006 through 2008.

Table 25
Three-Year Estimated Minimum Water Supply (Based on Multiple Dry Years) - AF Year

Supply Source	Normal			Multiple Dry Year		
	2006	2007	2008	2006	2007	2008
Recycled Water Supplies	1,000	1,000	1,000	1,000	1,000	1,000
Groundwater Supplies	0	800	800	0	800	800
Imported Supply	13,225	13,225	13,225	13,225	13,225	13,225
Total Supply Capability	14,225	15,025	15,025	14,225	15,025	15,025
Total Demand	8,581	8,671	8,753	9,156	8,992	9,239

4.3 Catastrophic Supply Interruption Plan

From a regional perspective, Orange County and all of Southern California is heavily dependent upon imported water supplies from MWD. Imported water is conveyed through the SWP and CRA, which travel hundreds of miles to reach urban Southern California, and specifically to Orange County. Additionally, this water is distributed to customers through an intricate network of pipes and water mains that are susceptible to damage from earthquakes and other disasters. Regional storage for southern California and Orange County is provided by MWD to mitigate an outage of either the SWP or CRA. The recently completed Diamond Valley Lake is an 800,000 acre-foot reservoir, of which about 400,000 acre-feet of water is reserved for catastrophic emergencies. In fact, protection from catastrophic events such as earthquakes was a major reason for the construction of Diamond Valley Lake.

In 1983, the Orange County water community developed a ***Water Supply Emergency Preparedness Plan*** to respond effectively to disasters impacting the regional water distribution system. The collective efforts of these agencies resulted in the formation of the Water Emergency Response Organization of Orange County (WEROC) to coordinate emergency response on behalf of all Orange County water agencies, develop an emergency plan to respond to disasters, and conduct disaster training exercises for the Orange County water community. WEROC is unique in its ability to provide a single point of contact for representation of all water utilities in Orange County during a disaster. This representation is to the county, state, and federal disaster coordination agencies. Within the Orange County Operational Area, WEROC is the recognized contact for emergency disaster response for the water community. For more details on WEROC, please refer to MWDOC Regional UWMP.

SCWD relies on imported water for the majority of its supply. In the event of a supply interruption in the importation facilities, the District's, as well as most of South Orange County's, customers would be greatly impacted. In December of 1999, the AMP unexpectedly ruptured, immediately eliminating a major source of supply to South Orange County. MWD was able to repair the pipeline and restore regular operations within (7) days. It was fortunate that this pipeline failure occurred during the winter in a relatively accessible location. A more difficult pipeline repair or a major failure at the Diemer Filtration Plant could result in an interruption in import supply of far greater than seven days. The MWD Administrative Policy requires its member agencies be able to withstand planned supply shutdowns of at least seven days between the months of October and April. This policy is designed to facilitate MWD ability to conduct scheduled maintenance of the supply and treatment systems. The 1999 MWD failure made it quite apparent that the agencies in South Orange County that depend on the import supply must plan for unexpected supply interruptions during potential peak demand conditions.

Over the years, the District has secured additional connections to the importation system allowing the District to be served water from multiple points. The District should be able to sustain itself for approximately seven days should there be an interruption in its source of supply. This is an estimate based upon the District's normal usage and storage levels with the addition of water conservation measures and the curtailment of potable irrigation. Several factors have a direct bearing upon how long the District can survive without additional supplies. These include the weather, time of day, time of year, amount of water actually in storage at the time of the interruption, coincidental firefighting, conservation measures, and the integrity of the District's internal distribution system.

Should the District incur an internal catastrophe disrupting service within the District boundaries, the District has made modifications to its internal distribution system allowing it to flow water in reverse of normal operation to restore service to affected areas. The District has constructed numerous interties with its neighboring agencies to allow for emergency water exchanges.

4.4 Water Use Prohibitions

During periods of extreme water shortage District residents are prohibited from washing down driveways, sidewalks, parking lots, etc., or washing vehicles, boats, or trailers on hard areas. Restaurants are allowed to serve water only upon request. Runoff from a property, that can be

reasonably prevented, is prohibited. Water leaking from any facility on the premises is prohibited. Fountains, pools, or other devices with a capacity of fifty or more gallons may not be filled or refilled. Any person suspected of a violation will be given a preliminary notice describing the infraction. If the infraction is not corrected within twenty-four hours, the General Manager may (1) issue a warning notice; (2) install a flow-restricting device; or (3) discontinue service to the property. A copy of the District's mandatory conservation and no waste ordinance is included in Appendix D in this plan.

4.5 Penalties for Excessive Use

In the event that a drought or water shortage occurs, water conservation stages will begin and water rates will be increased for those customers exceeding their allocation. Depending upon the circumstances, several types of penalties would be utilized by the District to attain reduction goals or force mandatory conservation. These would include invoking a rate structure that includes surcharges for excessive use. The District recently (fiscal year 2004/05) implemented a tiered rate structure for its water rates. Those surcharges would be progressive for each succeeding occurrence and would be added to the fourth and fifth tiers (above the District average use). As in past drought conditions, a Drought Stabilization Fund would be established to assist the District in financially managing its conservation efforts. Funds for this Drought Stabilization Fund would be collected from customers who paid the surcharges. The District would also invoke surcharges to those customers who do not comply, discontinue service for severe or repeat violators and ration water in times of critical need.

4.6 Impacts on Revenues and Expenditures

A reduction in water use could mean a revenue shortfall for South Coast Water District. In this case, the District would impose a drought surcharge. The funds from this drought surcharge would be allocated to a Drought Stabilization Fund. Imposing a drought surcharge will allow the District to recover all of its extraordinary drought-related expenses and lost revenues to meet fixed costs. This method of cost recovery is straightforward to administer and will allow for more accurate prediction of the additional revenue that will be generated. As in the past, the District would establish a rate stabilization fund to assist the District in managing the shortfall.

5.0 RECYCLED WATER PLAN

5.1 Wastewater System

The SCWD collects wastewater via a network of gravity pipelines, 14 sewer lift stations and force mains throughout its service area. Wastewater is primarily residential in nature. There is very little contribution from commercial and industrial activities as the District is primarily residential.

The wastewater collection system is actually three separate systems (from the former separate public agencies) that collect the wastewater for treatment at two separate treatment facilities. This is because of the Districts natural terrain and original boundaries of the three Districts that now comprise SCWD.

The District is a member agency of the South Orange County Wastewater Authority (SOCWA), a Joint Powers Authority that treats and disposes of wastewater effluent and biosolids from various service areas covering South Orange County. All treatment of District wastewater is provided by SOCWA. There are ten member agencies of SOCWA: the City of San Clemente, the City of San Juan Capistrano, the City of Laguna Beach, Irvine Ranch Water District, El Toro Water District, Molton Niguel Water District, Santa Margarita Water District, Trabuco Canyon Water District and Emerald Bay Community Services District. Costs for the operation and maintenance of the treatment facilities are proportioned to each member agency primarily based on ownership capacity in the treatment plants and contributing flow of wastewater.

The southern portion of the District, or the areas served by the former Dana Point Sanitary District and the Capistrano Beach Water District, utilizes a system of gravity pipelines, 7 sewer lift stations and force mains to supply wastewater to the J.B. Latham Treatment Plant located in the City of Dana Point. The treatment plant has a design capacity of 13 MGD. The District's capacity ownership is 4.0 MGD. The current average daily flow from this area is approximately 2.4 MGD. There is currently no recycled water capability at this facility. The treatment plant utilizes a conventional activated sludge treatment process that treats the wastewater to secondary treatment standards. The effluent is disposed of by means of an ocean outfall that discharges treated effluent approximately 11,000 feet off the coast of Dana Point.

In the northern portion of the District, or the former South Coast Water District service area, the wastewater is collected through a series of gravity pipelines, 7 sewer lift stations, and force mains to supply wastewater to the Coastal Treatment Plant (CTP). The treatment plant has a design capacity of 6.7 MGD. The District's capacity ownership is 2.0 MGD. The current average daily flow from this area is approximately 1.7 MGD. The treatment plant utilizes a conventional activated sludge treatment process that treats the wastewater to secondary treatment standards. The effluent is disposed of by means of an ocean outfall that discharges treated effluent approximately 8.000 feet of the coast of Laguna Beach. The District owns the Advanced Wastewater Treatment (AWT) plant that produces approximately 900 acre feet of recycled water at this location.

5.2 Coordination

There are number of water agencies in southern Orange County that provide potable water service as well as wastewater collection and treatment. These agencies depend on imported water supplies for the majority of their potable water supplies due to misfortune of geography in that very little in the way of groundwater supplies are available. These agencies have been in the forefront of recycled water development to diversify water supplies. Over the years most agencies have given up individual wastewater treatment facilities and joined SOCWA. There are serious discussions between MNWD, SCWD, ETWD and the City of San Juan Capistrano to increase recycled water usage. SCWD currently sells about 200 AF/Yr of recycled water to

MNWD. There are additional discussions to sell additional quantities of recycled water from SCWD to MNWD. MNWD is also interested in purchasing recycled water to be produced at ETWD Advanced Wastewater Treatment Plant.

5.3 Recycled Water System

In 1984 the South Coast Water District completed a wastewater reclamation project. Constructed at the cost of approximately $7,120,000, this project conveys recycled (tertiary-treated) water through a separate distribution system for multiple irrigation purposes throughout the Laguna Beach - Dana Point Area. The District annually sells approximately 200 acre-feet of recycled water to the Moulton Niguel Water District (MNWD). This was one of the first recycled water projects built in California whose objective was water conservation.

The main components of the project consist of (1) initial facilities constructed and funded outside the State Assistance Program, (2) the backbone filtration, pumping, transmission and storage facilities partially funded by the State Assistance Program in 1984, and (3) dual distribution system constructed within a private community and partially funded through the means of an Assessment District in 1985.

This project had a 2.61 MGD capacity Advanced Wastewater Treatment Plant (AWT), designed to produce recycled water meeting all applicable requirements of Title 22, Division 4 of the California Administrative Code. This plant receives influent from the nearby SOCWA Coastal Treatment Plant (which currently provides secondary treatment to municipal wastewaters that are collected from various portions of Laguna Niguel, Emerald Bay Services District, City of Laguna Beach, and the South Coast Water District, before discharging the treated effluent into the sea through an ocean outfall).

The recycled water distribution system consists of three (3) pumping stations with a total pumping capacity of 5,200 gallons per minute, three (3) reservoirs with a storage capacity of 4.7 million gallons, and 12 miles of distribution pipelines.

The recycled water project was designed to distribute about 860 acre-feet of recycled water each year to specific customers for controlled irrigation purposes. The customers who are participating in the project represent a cross-section of planned communities with extensive greenbelt areas, several parks, one golf course, a high school athletic field, plus highway and residential landscaping. Over the years the project has undergone several enhancements. In 1989 additional filters were added to the AWT. RW No.1, originally having a capacity of 0.5 MG, was replaced in 1990 with a new 2 MG steel reservoir. The original RPS No.1 was replaced in 1991. RW No.3 was built in 1992, along with the complete upgrading of RPS No.3. These enhancements have added to the system's capacity, reliability, and flexibility.

The recycled water project allows the District and its customers the distinct advantage of a supplemental, non-interruptible supply of irrigation water to protect and beautify their communities, even during the times of most severe drought, when they might otherwise be prevented from using imported water for these irrigation purposes. Customers also benefit from the reduced cost, since the recycled water is sold at 80 percent of the cost of domestic water.

South Coast Water District annually produces approximately 1,000 acre-feet of recycled water, of which 200 acre-feet is sold to MNWD.

Table 26
Wastewater Collection and Treatment - AF Year

Type of Wastewater	2000	2005	2010	2015	2020	2025	2030
Wastewater collected & treated in service area	4,000	4,300	5,256	5,437	5,701	5,955	5,955
Volume that meets recycled water standard	4,000	4,300	5,256	5,437	5,701	5,955	5,955

Table 27
Disposal of Wastewater (non-recycled) AF Year

Method of disposal	Treatment Level	2005	2010	2015	2020	2025	2030
Ocean Discharge	Secondary	3,410	3,300	4,256	4,701	4,955	5,048
Total							

Table 28
Recycled Water Uses - Actual and Potential (AFY)

User type	Treatment Level	2005	2010	2015	2020	2025	2030
Agriculture		0	0	0	0	0	0
Landscape	Disinfected Tertiary	890	1,000	1,000	1,000	1,000	1,000

5.4 Barriers to Expansion of Recycled Water Uses

Barriers to expanding recycled water systems vary depending on the agencies unique constraints. The ability to serve end users must take into account the size of customer demands, the type of water use, proximity to existing recycled water systems, and willingness to use recycled water. An underlying theme limiting expansion of the recycled water systems in the District's service area is the significant capital costs. As expansion of existing recycled water systems continues, the cost tends to increase for each new connection as most of the recycled water systems already serve those customers where capital and operation and maintenance costs are the lowest.

6.0 WATER QUALITY IMPACTS ON RELIABILITY

SCWD obtains currently 100 percent of its potable water supply from MWD through MWDOC. The District is proceeding with construction of a groundwater desalination plant; however, it is not slated to go into operation until 2007.

The MWD has two primary sources of water, the State Water Project (SWP) and the Colorado River Aqueduct (CRA). For most of Orange County, imported water is served as a blend of both sources with the proportions of the blend dependent upon the year to year availability of CRA and SWP water. Colorado River water tends to be higher in Total Dissolved Solids (TDS) and lower in dissolved organics. State Project water usually has a lower TDS but higher organic material, which can lead to formation of disinfection byproducts (DBPs). MWD recognizes the impacts of water quality on its member agencies and has embraces water quality planning in its Integrated Resources Plan and monitoring efforts to address water quality issues. Planning efforts have identified management strategies that allow flexibility in operations to improve water quality and source protection while maintaining reliability. MWD water quality staff conducts both required monitoring and monitoring for constituents of concern that are currently unregulated. Over 300,000 water quality tests are performed each year.

6.1 MWD Water Quality Issues

6.1.1 Total Dissolved Solids Management

High TDS levels in imported water delivered by MWD leads to increased recycled water treatment costs, results in increased water losses during the recycled water treatment processes, reduces in recycled water use as demand decreases for recycled water with high TDS levels, provides recycled water that may not meet RWQCB standards, increases brine volumes, and ultimately diminishes the ability to use the underlying groundwater basins for water storage. MWD has established an operational policy objective to deliver water to each of its member agencies at a TDS of 500 mg/l when feasible. This requires careful operational planning and management to achieve.

Colorado River Aqueduct

CRA water has high TDS levels, averaging 650 mg/L during normal water years. Salinity levels are dependent upon precipitation in the Colorado River Basin. During drought years salinity levels increase and during years with above normal precipitation salinity levels decline as naturally occurring salt concentrations decline. In times of extreme droughts salinity levels could exceed 900mg/L. A long term salinity management strategy is in place at the state and federal level for the Colorado River Basin. Funds are appropriated annually to help fund salinity mitigation and reduction projects throughout the watershed.

State Water Project

SWP TDS levels are significantly lower than CRA water, averaging 250mg/L for water delivered via the East Branch of the SWP and 325 mg/L for the West Branch deliveries. West Branch deliveries have higher TDS levels as a result of salt loading in local streams, operational issues, and evaporation losses at Pyramid and Castaic Lakes. TDS levels and available supply vary

based on hydrologic conditions in the Sacramento-San Joaquin watersheds, introduction of saline non project waters by upstream parties, as well as saline intrusion in the Sacramento San Joaquin Bay Delta. Variations of TDS levels over short periods of time are attributed to seasonal and tidal flow patterns presenting a unique challenge in trying to achieve 500 mg/L TDS objective. During periods when TDS levels are high at the SWP intake facilities and in the Colorado River it may not be possible to meet MWD salinity objective and maintain water supply reliability. The MWD Board has adopted a statement of needs "to meet Metropolitan's 500 mg/L salinity-by-blending objective in a cost-effective manner while minimizing resource losses and ensuring the viability of recycling and groundwater management programs."

Management Actions

MWD has taken numerous actions to reduce TDS concentrations in its water supplies. For more detailed discussion of the management actions please refer to MWDOC Regional Urban Water Management Plan.

6.1.2 Perchlorate Management

Perchlorate has been detected at low levels in the CRA water supply, but not in the SWP water supply. An exceedance level for perchlorate has not been adopted at this time by DHS. However, DHS has adopted a notification level of 6 µg/L, requiring agencies to inform their governing bodies. Notification of customers and of potential health risks is also recommended. DHS recommends non-utilization of sources with perchlorate levels greater than 60 µg/L. Perchlorate primarily interferes with the production of hormones for normal growth and development in the thyroid gland. Further research on the health effects of Perchlorate is pending.

MWD began monitoring for perchlorate in June 1997 after it was detected in the Colorado River and the Lake Mead outlet at Hoover Dam. Sampling was able to isolate the source to the Las Vegas Wash and its potential source in Henderson, Nevada. A quarterly monitoring program for Lake Mead was initiated in August 1997 followed by monthly monitoring of the CRA. The Nevada Department of Environmental Protection manages a remediation project in Henderson area. Since inception the amount of perchlorate entering the Colorado River has been reduced from 900 pounds per day in 1997 to less than 150 pounds per day as of December 2004.

Management Actions

In 2002, MWD adopted a Perchlorate Action Plan. Through its Perchlorate Action Plan, MWD has taken a proactive approach towards addressing a potential water quality issue and ensuring minimal or no water supply losses associated with perchlorate. For more detailed discussion of the management actions please refer to MWDOC Regional Urban Water Management Plan.

6.1.3 Total Organic Carbon and Bromide Management

Treatment of SWP water supplies containing high levels of total organic carbon (TOC) and bromide with disinfectants, such as chlorine, creates disinfection byproducts (DBPs) linked to specific cancer types. CRA water does not have high levels of TOCs and bromide. TOC and bromide in the Delta region of the SWP are of a significant concern to MWD as concentration levels increase as Delta water is impacted by agricultural drainage and seawater intrusion. In 1998, the USEPA adopted more stringent regulations for DBPs that took effect in 2002. Even more stringent regulations are expected to be proposed in 2005.

Management Actions

MWD Board adopted a Statement of Needs for the CALFED Bay-Delta Program in 1999 stating that MWD requires a safe drinking water supply for compliance with existing and future regulatory requirements. CALFED Program has developed numerous conceptual actions to improve Bay/Delta water, however MWD asked CALFED to adopt water quality improvement milestones. These milestones are necessary to assure that MWD and its member agencies will be able to comply with pending water quality regulations.

MWD Board has committed to install ozone treatment processes at its two treatment plants that solely treat SWP water to avoid the production of DBPs through chlorination. In addition to the concern of DBPs, some studies have linked negative reproductive and developmental effects to chlorinated water. The other three treatment plants that receive a combination of SWP and CRA water utilize blending to reduce levels of DBPs below regulatory requirements. By 2010 MWD plans on installing ozonation facilities at the remainder of its treatment faculties removing the percentage of SWP water that requires blending.

6.1.4 Other Contaminants of Concern

MWD has identified various other contaminants of concern to MWD water supply sources. These include MTBE, Arsenic, Uranium as well as emerging contaminants. For detailed discussion of these please refer to MWDOC Regional Urban Water Management Plan.

6.1.5 Water Quality Protection Programs

MWD participates in multiple programs to improve water quality supplies. Programs include:

Watershed Sanitary Surveys, Source Water Assessment, support of DWR policies and programs improving the quality of deliveries to MWD, support of the Sacramento River Watershed Program, water quality exchange partnerships and implementation of additional security measures.

6.1.6 Imported Water Quality Impacts on Supply Reliability

Through its management strategies and in coordination with member agencies, MWD is able to provide member agencies supply options that allow local agencies to meet regulatory standards. Currently known and foreseeable water quality issues are already incorporated into existing management strategies and the reliability of MWD supplies for the next 25 years. However, unforeseeable water quality issues could potentially alter MWD water and potentially impact MWD supply reliability.

6.2 Local Groundwater Quality Issues

Groundwater pumping from the San Juan Basin has declined over the years due to the poor water quality. The mineral content of groundwater in the basin is variable, however, the basin typically has calcium bicarbonate or bicarbonate-sulfate character below the upper reaches of the valleys, and calcium-sodium sulfate or sulfate-chloride near the coast. In general, TDS content in groundwater increases from below 500 mg/L in the upper reaches of the valley to near 2,000 mg/L near the coast. TDS content of water from

3 public supply wells averages 760 mg/L and ranges from 430 mg/L to 1,250 mg/L.

Groundwater in the western part of the basin has a high TDS content, and water coming from springs in Thermal Canyon has high fluorine content. Groundwater found in the lower basin is also high in manganese and iron.

In order to utilize this valuable but underutilized resource the District decided to proceed with construction SCWD Desalter. The SCWD Desalter will help the District to meet its goal of securing a part of its needs through locally available source by treating the brackish groundwater underlying its service area. The construction of the project will be completed in 2006. Water produced by this project will improve the water quality of the basin because the water extracted will create additional storage space in the basin for the percolation of the better quality surface water.

7.0 WATER SERVICE RELIABILITY

Water Code Section 10635 (a) requires every urban water supplier to 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.

Accordingly the water service reliability assessment was prepared based upon the information compiled pursuant to Section 10631, including available data from state, regional or local agency population projections within the service area of SCWD.

SCWD UWMP Update 2005 shall be provided the Cities of Dana Point, San Clemente and Laguna Beach as well as the County of Orange, SOCWA and MWDOC upon its completion and adoption and no later than 60 days after the submission to the Department of Water Resources.

Projected normal water supply to projected normal water use is compared in the following **Table 29** thorough **Table 31** below. SCWD has entitlements and/or written contracts to receive imported (potable) water from MWD via the regional distribution system located in Orange County. Although pipeline capacity rights do not guarantee the availability of water, per se, they do guarantee the ability to convey water when it is available to the MWD distribution system. All imported water supplies assumed in this section are available to the District from existing water transmission facilities.

Table 29 below shows the total water supplies available to the District including groundwater, recycled water and imported water.

Table 29 Projected Normal Water Supply - AF Year					
(from Table 4)	2010	2015	2020	2025	2030
Local Supply	1,800	2,300	3,000	3,000	3,000
Imported Supply	13,225	13,225	13,225	13,225	13,225
Total Supply	15,025	15,525	16,225	16,225	16,225
% of year 2005	106.4%	110%	114.9%	114.9%	114.9%

Table 30 Projected Normal Water Demand - AF Year					
(from table 7)	2010	2015	2020	2025	2030
Demand	9,063	9,062	9,196	9,306	9,306
% of year 2005	109.2	109.2	110.8	112.1	112.1

Table 31 Projected Normal Supply and Demand Comparison - AF Year					
	2010	2015	2020	2025	2030
Supply totals	15,025	15,525	16,225	16,225	16,225
Demand totals	9,063	9,062	9,196	9,306	9,306
Difference	5,962	6,463	7,029	6,919	6,919
Difference as % of Supply	39.68	41.62	43.32	42.64	42.64
Difference as % of Demand	65.78	71.31	76.44	74.35	74.35

Projected single-dry year water supply to projected single-dry year water use is compared in the following **Table 32** thorough **Table 34** below.

Table 32 Projected Single- dry year Water Supply - AF Year					
	2010	2015	2020	2025	2030
Local Supply	1,800	2,300	3,000	3,000	3,000
Imported Supply	13,225	13,225	13,225	13,225	13,225
Supply Totals	15,025	15,525	16,225	16,225	16,225
% of projected normal	106.4%	110 %	114.9%	114.9%	114.9%

Table 33 Projected Single-dry year Water Demand - AF Year					
	2010	2015	2020	2025	2030
Demand	9,566	9,565	9,706	9,822	9,822
% of projected normal	105.5%	105.5%	105.5%	105.5%	105.5%

Table 34 Projected Single dry-year Supply and Demand Comparison - AF Year					
	2010	2015	2020	2025	2030
Supply totals	15,025	15,525	16,225	16,225	16,225
Demand totals	9,566	9,565	9,706	9,822	9,822
Difference	5,459	5,960	6,519	5,403	5,403
Difference as % of Supply	36.3	38.4	40.1	33.3	33.3
Difference as % of Demand	57.1	62.3	67.2	55.0	55.0

Projected multiple-dry year water supplies and projected multiple-dry year water demand is compared in the following **Tables 35** thorough **37** below. The District has significant supply reserves in multiple-dry years even with very conservative assumption of zero yields from the groundwater basin. Therefore, substituting the more conservative single dry-year water demand projections for multiple-dry year water demand, comparison is made between multiple-dry year supplies and more conservative and higher single dry-year demands as if they are occurring in a string of three years. **Table 35** shows projected multiple-dry year water supplies available to the District.

Table 35 Projected Multiple- dry year Water Supplies - AF Year					
	2010	2015	2020	2025	2030
Recycled Water Supply	1,000	1,000	1,000	1,000	1,000
Groundwater	0	0	0	0	0
Imported Supply	13,225	13,225	13,225	13,225	13,225
Supply Totals	**14,225**	**14,225**	**14,225**	**14,225**	**14,225**
Normal Year Supply Totals	15,025	15,525	16,225	16,225	16,225
% of projected normal	94.6	91.6	87.7	87.7	87.7

Table 36 shows the projected multiple-dry year water demands on the District.

Table 36
Projected multiple- dry year Water Demands - AF Year

	2010	2015	2020	2025	2030
Demand	9,566	9,565	9,706	9,822	9,822
% of projected normal					

Table 37 compares projected water supplies and demands for multiple-dry year.

Table 37
Projected multiple- dry year Supply and Demand Comparison - AF Year

	2010	2015	2020	2025	2030
Supply totals	14,225	14,225	14,225	14,225	14,225
Demand totals	9,566	9,568	9,706	9,822	9,822
Difference	4,659	4,570	4,519	4,403	4,403
Difference as % of Supply	32.8	32.8	31.8	31.0	31.0
Difference as % of Demand	47.7	47.7	46.6	44.8	44.8

The SCWD is capable of providing their customers all their demands with significant supply reserves in single and multiple-dry years through 2030. This is true even if the demand projections were to be increased by a large margin. Therefore, it is not warranted to show supply v. demand comparisons for **each and every year** during multiple - dry periods through 2030. For that reason **Tables 46** through **60** in the DWR guidelines have been condensed into the above **Tables 32** through **37.**

8.0 URBAN WATER MANAGEMENT PLAN ADOPTION AND IMPLEMENTATION

8.1 UWMP Adoption Process

SCWD consulted and obtained comments from the three cities it provides water service as well the County Planning Department prior to and after the release of the Draft UWMP Update. The Draft plan was made available for public review and comment at the District office, the Dana Point Local Library as well as posted on the District website.

A Public hearing was held at the District Tennis Center on November 7, 2005 and at the District Office by the Board of Directors of the District on November 22, 2005. Prior to the hearing, notice of the time and place was published pursuant to Section 6066 of the Government Code. The comments received from the Public Hearing were addressed as appropriate in the Plan.

The Board of Directors adopted the Urban Water Management Plan Update 2005 during a regularly scheduled meeting on November 22, 2005. The Plan is available for public review at the District Offices.

8.2 Review the Implementation of Water Conservation and Water Recycling Programs in 2000 Plan

As required by California Water Code, SCWD summarizes the implementation of the Water Conservation and Water Recycling Programs to date, and compare the implementation to those as planned in its 2000 Urban Water Management Plan (UWMP).

8.2.1 Comparison of 2000 Planned Water Conservation Programs with 2005 Actual Programs

As a signatory to the Memorandum of Understanding regarding urban water use efficiency, SCWD commitment to implement BMP based water use efficiency program continues today. For specific achievements that SCWD accomplished in conservation program, please see BMP Activity Reports.

8.2.2 Comparison of 2000 projected Recycled Water Use with 2005 Actual Use

Current recycled water projections for 2005 for SCWD service area is 410 AF less than previously forecasted in the 2000 UWMP for 2005.

Current 2005 forecasts indicate that approximately 890 AF of recycled water will be consumed by these user types, while the 2000 UWMP forecasted 1300 AF of recycled water use in 2005.