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**Southern California Water Recycling
Projects Initiative**

White Paper on the Southern California Water Recycling Regional Partnership

Cooperative Effort Funded and Managed by:

The United States Bureau of Reclamation

In Partnership with:

Big Bear Area Regional Wastewater Agency
California Department of Water Resources
Central Basin Municipal Water District
City of Los Angeles
City of San Diego
Los Angeles County Sanitation Districts
Metropolitan Water District of Southern California
Orange County Sanitation District
San Diego County Water Authority
Santa Ana Watershed Project Authority
South Orange County Wastewater Authority
West Basin Municipal Water District
Yucaipa Valley MWD

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Abbreviations and Acronyms

AFY	Acre-Feet per Year
BBARWA	Big Bear Area Regional Wastewater Agency
B/C MIS	Brine/Concentrate Management Implementation Strategy
COWSES	Colorado Watershed Salinity Economics Study
DWR	California Department of Water Resources
EMT	Executive Management Team
FY	Federal Fiscal Year
IEMT	Initiative Executive Management Team
Initiative	Southern California Water Recycling Projects Initiative
LACSD	Los Angeles County Sanitation Districts
MWD	Municipal Water District
MWDSC	Metropolitan Water District of Southern California
OCSD	Orange County Sanitation District
OCWD	Orange County Water District
Reclamation	United States Bureau of Reclamation
SAWPA	Santa Ana Watershed Project Authority
SCCWRRS	Southern California Comprehensive Water Reclamation and Reuse Study
SDCWA	San Diego County Water Authority
SOCWA	South Orange County Wastewater Authority
U.S.	United States of America
WD	Water District

Southern California Water Recycling Regional Partnership

1 Contents of this Section

Project Goal of the Southern California Water Recycling Regional Partnership
Background of the Southern California Water Recycling Regional Partnership
Future of the Southern California Water Recycling Regional Partnership

2 Goal of the Southern California Water Recycling Regional Partnership

The goal of the southern California regional water recycling partnership is to support water recycling efforts in southern California. The efforts to support water recycling in southern California that the regional partnership has undertaken include:

- Providing a forum for face-to-face discussions among agencies regarding issues facing water recycling and water recycling projects and effective approaches to resolve those issues,
- Developing regional efforts to support funding initiatives for water recycling projects,
- Developing regional and single-agency recycled water project plans that maximize the potential for water recycling in southern California,
- Examining the barriers to maximizing reuse in southern California,
- Developing materials to assist local agencies in understanding the complexities associated with implementing projects including public involvement, regulatory, and financial aspects,
- Assisting local water and wastewater agencies in funding the final planning and documentation leading to implementation of their recycled water projects through Federal government cost sharing, and
- Implementing regional efforts to investigate and address emerging issues facing water recycling.

To support this effort over eighty local agencies in the southern California region have been involved with the southern California regional water recycling partnership. Among these agencies fourteen, which are listed in Table 1, have come together to become the core of the partnership.

TABLE 1. LIST OF CORE MEMBERS OF THE SOUTHERN CALIFORNIA WATER RECYCLING REGIONAL PARTNERSHIP

Big Bear Area Regional Wastewater Agency	Orange County Sanitation District
California Department of Water Resources	San Diego County Water Authority
Central Basin MWD	Santa Ana Watershed Project Authority
City of Los Angeles	South Orange County Wastewater Authority
City of San Diego	U.S. Bureau of Reclamation
Sanitation Districts of Los Angeles County	West Basin MWD
Metropolitan Water District of Southern California	Yucaipa Valley Water District

3 Background of the Southern California Water Recycling Regional Partnership

Southern California Comprehensive Water Reclamation and Reuse Study

The regional water recycling partnership in southern California has been involved in supporting recycled water projects for over ten years. This partnership was initiated when a preplanning committee was formed to develop the Plan of Study for the Southern California Water Reclamation and Reuse Study (SCCWRRS). Along with developing the Plan of Study, another focus of the preplanning committee was to bring together local and regional entities interested in supporting southern California water recycling. This committee evolved into the non-Federal partnership of state and local water agencies that made the financial commitment to conduct the comprehensive regional planning effort, the SCCWRRS, with Reclamation. In 1993, Reclamation and its non-Federal partners adopted the Plan of Study to evaluate the feasibility of regional water recycling in southern California. The Plan of Study called for a six-year comprehensive effort to examine recycled water opportunities from a regional perspective and to develop a long-term planning strategy to enlarge recycled water supplies for southern California.

This multiyear study, the SCCWRRS, which was completed in 2002, was successful in bringing together a number of local and regional entities interested in southern California water recycling. The agencies that participated in the project include over eighty agencies listed in Table 2. These local and regional entities were led by an Executive Management Team (EMT), which was composed of the major funding partners for the study. This committee was the basis for the non-Federal partnership of state and local water agencies that has made the financial commitment to conduct this comprehensive regional planning effort. These eight agencies represent a variety of water recycling interests in southern California and are listed in Table 3.

The SCCWRRS was organized into Phase IA, Phase IB, and Phase II. During Phase IA, the cost-sharing partners, along with Reclamation, developed an extensive database of existing and potential recycled water demands and supplies, land use, environmental assets, and local water and wastewater agency recycling plans. During Phase IB, a set of sophisticated planning tools was developed with which to analyze the data and evaluate the benefits of regional water recycling strategies. During Phase II, the cost-sharing partners opened the planning process to all southern California water and wastewater agencies, to work together in partnership using the tools and database developed in Phase I. The product of Phase II of the SCCWRRS was the generation of a list of 34 short-term projects for implementation by 2010, as well as the development of a long-term regional recycling strategy for projects through 2040. The short-term projects, which were developed with the assistance of over eighty local agencies, have a total potential yield of approximately 451,500 afy of additional recycled water. This quantity of water represents a significant commitment to recycling by southern California water and wastewater agencies. The long-term analysis determined that an additional 296,300 afy of new demand could potentially be satisfied by the year 2040.

Southern California Water Recycling Projects Initiative

After completion of the SCCWRRS in 2002, Reclamation along with the non-Federal partners decided to continue their financial commitment for regional efforts to support water-recycling projects. However, the scope of the analysis was shifted away from one that primarily focused on identifying potential water recycling yields to include a broader focus

TABLE 2. LIST OF AGENCIES WHO PARTICIPATED IN THE SOUTHERN CALIFORNIA COMPREHENSIVE RECLAMATION AND REUSE STUDY

Inland Empire Area Agencies	Los Angeles Region Agencies	Orange County Agencies	San Diego County Agencies
Big Bear Area Regional Wastewater Agency	Calleguas Municipal Water District	Aliso Water Management Agency	Carlsbad Municipal Water District
Chino Basin Watermaster	Camrosa Water District	City of Anaheim	City of Escondido
City of Banning	Central Basin Municipal Water District	City of San Juan Capistrano/Capo Valley Water District	City of Oceanside
City of Chino	City of Burbank	City of Santa Ana	City of Poway
City of Corona	City of Cerritos Water District	Coastal Municipal Water District	City of San Diego
City of Montclair	City of Glendale	El Toro Water District	Fallbrook Public Utilities District
City of Ontario	City of Los Angeles Department Public Works	Irvine Ranch Water District	Leucadia County Water District
City of Redlands	City of Pasadena	Los Alisos Water District	Marine Corps Base Camp Pendleton
City of Rialto	City of Santa Monica	Marine Corps Base Camp Pendleton	Metropolitan Water District of Southern California
City of Riverside	Crescenta Valley Water District	Metropolitan Water District of Southern California	Olivenhain Municipal Water District
City of San Bernardino	Foothill Municipal Water District	Moulton Niguel Water District	Otay Water District
City of Upland	Las Virgenes Municipal Water District	Municipal Water District of Orange County	Padre Dam Municipal Water District
Cucamonga County Water District	Long Beach Water District	Orange County Public Facilities and Resource Department	San Diego County Water Authority
Eastern Municipal Water District	Los Angeles County Department Public Works	Orange County Sanitation District	San Elijo Joint Powers Authority
Elsinore Valley Municipal Water District	Los Angeles Department of Water and Power	Orange County Water District	Sweetwater Authority
Fallbrook Public Utilities District	Metropolitan Water District of Southern California	Santa Ana Watershed Project Authority	Tia Juana Valley County Water District
Inland Empire Utilities Agency	Sanitation Districts of Los Angeles County	Santa Margarita Water District	Valley Center Municipal Water District
Marine Corps Base Camp Pendleton	Southern California Water Company	South Coast Water District	
Metropolitan Water District of Southern California	Three Valleys Municipal Water District	Southern California Water Company	
Pechanga Indian Reservation	Water Replenishment District	South Orange County Wastewater Authority	
Rancho California Water District	West Basin Municipal Water District	Trabuco Canyon Water District	
Running Springs Water District			
San Bernardino Valley Water District			
San Bernardino Valley Conservation District			
San Geronio Pass Water Agency			
Santa Ana Watershed Project Authority			
Western Municipal Water District			
Yucaipa Valley Water District			

TABLE 3. LIST OF EMT MEMBERS FOR THE SOUTHERN CALIFORNIA COMPREHENSIVE RECLAMATION AND REUSE STUDY

California Department of Water Resources	San Diego County Water Authority
Central Basin and West Basin MWD	Santa Ana Watershed Project Authority
City of Los Angeles	South Orange County Reclamation Authority (now South Orange County Wastewater Authority)
City of San Diego	U.S. Bureau of Reclamation
Metropolitan Water District of Southern California	

of assisting local agencies in planning and addressing issues associated with the implementation of projects. This effort was entitled the Southern California Water Recycling Projects Initiative (Initiative). In the same way that the SCCWRRS developed, the Initiative began with the formation of a preplanning committee. The number of Initiative EMT (IEMT) members was expanded to include three new agencies, Big Bear Area Regional Wastewater Agency, the Orange County Sanitation District, and the Sanitation Districts of Los Angeles County. Table 1 provides a full list of the IEMT members. In Federal budget year (FY) 2000, the twelve IEMT members came together to develop the plan of study for the Initiative. During the development of the Initiative Plan of Study, the IEMT decided that water recycling should be addressed on an agency as well as a regional level.

The Plan of Study for the Initiative called for a five-year planning study that is currently in its third year. The Plan of Study for the Initiative identified two major work components, a project-specific component that assists local agencies in funding the planning of recycled water projects and a regional component that assists local agencies in addressing recycled water project implementation issues from a regional perspective. In Phase I of the Initiative a potential for over 790,000 afy of additional reuse in southern California was identified based on projects currently in the planning stages by local agencies. As part of the project-specific work, Reclamation has supported the planning of thirty-two local agency recycled water-planning projects, as seen on Figure 1, by providing funding for these efforts totaling over \$732,000. Table 4 provides a list of the agencies that received project specific funding from Reclamation under the Initiative by year. Table 5 provides a summary of the potential water recycling planning projects identified in Phase I (FY 2000) of the Initiative. This represents a minimum project planning investment of \$930,000 based on Reclamation's required 50/50 cost-sharing policy. In Phase II of the Initiative, along with the continued



TABLE 4. AGENCIES THAT RECEIVED PROJECT SPECIFIC FUNDING FROM RECLAMATION UNDER THE INITIATIVE

Project Specific Agency	Year 2001	Year 2002	Year 2003	Year 2004
BBARWA	\$19,983	\$5,000	\$20,000	\$12,000
Calleguas MWD	\$12,500	--	--	--
Carlsbad MWD	\$14,780	--	--	--
City of Corona	\$19,387	--	\$20,000	\$12,000
City of Escondido	\$19,350	--	--	--
City of Oceanside	--	\$5,000	\$20,000	--
City of Ontario	\$18,773	--	--	--
City of Oxnard	\$17,363	--	--	--
City of Redlands	\$20,363	--	--	\$12,000
City of Riverside	\$18,943	--	--	\$12,000
City of Santa Paula	--	\$5,000	--	--
Cresenta Valley WD	--	--	\$20,000	--
Elsinore Valley MWD	--	--	\$20,000	--
IEUA	\$22,608	--	--	--
Irvine Ranch WD	\$16,349	\$10,000	\$40,000	--
LADPW	\$14,719	--	--	--
LADWP	\$16,708	\$5,000	\$40,000	\$12,000
Las Virgenes MWD	\$17,659	--	--	--
Long Beach WD	\$19,243	--	--	--
Murrieta County WD	--	\$5,000	\$20,000	--
Orange County WD/ Orange County SD	\$22,517	--	\$40,000	\$12,000
Ramona MWD	--	--	--	\$12,000
Rancho California WD	\$19,262	--	--	--
Running Springs WD	--	\$5,000	--	--
SAWPA	\$21,271	--	--	--
West Basin MWD	\$18,124	\$10,000	--	--
Western MWD	\$17,738	\$10,000	--	--
Yucaipa Valley WD	\$6,272	--	--	--
Yuima MWD	--	--	\$20,000	--
Total	\$373,912	\$60,000	\$260,000	\$84,000

TABLE 5. IDENTIFIED PROJECT SPECIFIC WORK

Area	Number of Agencies	Number of Projects	Project Yield (AFY)	Projected Planning Costs			Total Projected Planning Costs
				Year 2001	Year 2002	Year 2003	
Inland Empire	14	38	243,760	\$6,565,786	\$1,838,798	\$1,969,000	\$10,373,584
Los Angeles County	9	28	263,600	\$3,692,500	\$2,102,050	\$ -	\$5,794,550
Orange County	6	20	186,154	\$1,425,000	\$1,134,000	\$3,030,000	\$5,589,000
San Diego County	6	16	54,130	\$409,500	\$5,594,600	\$9,717,900	\$15,722,000
Ventura County	6	9	43,881	\$854,573	\$667,000	\$160,000	\$1,681,573
Total	41	111	791,525	\$12,947,359	\$11,336,448	\$14,876,900	\$39,160,707

project specific work, the regional component was initiated. The focus of the regional work includes:

- Development of a regional water quality issues analysis to investigate impediments to successful water recycling project implementation in southern California.
- Development of a program addressing a public information strategy designed to assist southern California water and wastewater agencies in successfully implementing their recycled water projects.
- Development of a compendium of successful project implementation strategies and provide a source list and a guide outlining how to apply for financial/funding options for recycled water projects.

Phase II of the Initiative is on going with the initial effort on the water quality analysis completed and summarized in a technical memorandum. This effort focused on identifying water recycling issues pertaining to regulatory, use types, water quality constituents, and salinity. As a result of the water quality analysis, the IEMT has decided to focus the next phase of the Initiative's water quality analysis on brine/concentrate management. Brine/Concentrate Management is an important issue to address as agencies continue to get the most out of the limited water supply resources in the southern California region. The two

additional components of the Initiative, the public information strategy and successful implementation strategy, are also on going with technical memoranda to be completed in early FY 2004.

4 Future of the Southern California Water Recycling Regional Partnership

The regional partnership that was started during the SCCWRRS and fostered as part of the Initiative provides an excellent forum for addressing issues facing local water recycling agencies. As seen in Table 1, the IEMT consists of a number of key water recycling agencies in southern California. These agencies have been at the forefront of water recycling in not only California but also the world. The IEMT brings together the vast experience of these agencies in implementing water-recycling projects as well as the knowledge of the effort required to develop and the face the challenges associated with recycled water projects. In addition, this regional partnership creates a forum for agencies to discuss successful strategies as well as the difficulties facing their agencies. These face-to-face discussions enable the IEMT to provide agencies with local and regional perspectives on water recycling issues. These discussions also provide agencies a forum to focus on the potential regulations, water quality, or public perspective issues. This is particularly important to the continued implementation of water recycling projects especially for smaller agencies that may not have the economic ability or technical experience to overcome the myriad of stumbling blocks that can face water recycling projects.

The regional water recycling partnership provides a vehicle to disseminate knowledge and assistance to these agencies regarding the pitfalls of successfully implementing recycled water projects. The regional partnership developed during the SCCWRRS and expanded by the Initiative will continue to thrive as agencies implement recycled water projects. With the quantity of water available from imported water supplies being reduced and drought, an ever-looming threat to supply reliability in the west, the importance of developing new reliable sources of water is at a premium. It is for these reasons that the regional water recycling partnership existence is so vital. The real value of this regional partnership is its leadership, skills, and guidance in developing water reclamation and reuse projects. In the

future, the partnership will continue to provide a forum for agencies to come together and share knowledge regarding how to address new and more difficult regulatory, technological, and public perspective issues.

A prominent issue that recycled water agencies must address in the future is how to deal with brine/concentrate management. Managing brine/concentrate affects a number of agencies in the west. It is for this reason that the regional partnership, as represented by the membership in the IEMT, defined a new regional endeavor to investigate brine/concentrate management, which will also include communities outside of southern California who face the similar or even identical issues. In addition, the southern California water recycling regional partnership is already beginning to address this issue in the Initiative through a preliminary study of brine/concentrate management in southern California. These efforts will continue in a proposed Reclamation Study called the Brine/Concentrate Management Implementation Strategy (B/C MIS), which will look at the issue from a multi-state perspective. It is for these reasons and others like them that the continual existence of this regional partnership is so important. Especially as these and other issues continue to be potential barriers to implementation of recycled water projects, the southern California water recycling regional partnership will continue to provide a significant value in examining the impacts and addressing concerns at a regional level in support of local agency project implementation plans.