

TABLE OF CONTENTS

SUPPLEMENT A: 2005 URBAN WATER MANAGEMENT PLAN UPDATE

Purpose of This Supplement	3
UWMP Elements	4
Checklist Organized According to Subject.....	5
Public and Stakeholder Outreach.....	5
Demand, Supply, Reliability and Contingency Planning	5
Wastewater and Reclamation.....	6
Groundwater	7
Water Supply Projects and Water Supply Programs	7
Water Quality.....	8
Section 1 – Agency Coordination.....	9
Section 2 – Step 1: Appropriate level of planning for size agency.....	11
Section 2 – Step 2: Service Area Information with 20-year Projections	13
Section 2 – Step 3 Water Sources.....	15
Section 2 – Step 3 Water Sources - Groundwater.....	16
Section 2 – Step 4: Reliability of Supply.....	20
Section 2 – Step 5: Transfer and Exchange Opportunities	24
Section 2 – Step 6: Water Use by Customer Type- Past, Current, Future.....	25
Section 2 – Step 7: Demand Management Measures.....	25
Section 2 – Step 8: Evaluation of DMMs not implemented	26
Section 2 – Step 9: Planned Water Supply Projects and Programs	26
Section 2 – Step 10: Development of Desalinated Water.....	27
Section 2 – Step 11: Current or Projected Supply Includes Wholesale Water	27
Section 3 – Determination of DMM Implementation.....	29
Section 4 – Water Shortage Contingency Plan.....	29
Section 5 – Recycled Water Plan.....	39
Section 6 – Water Quality Impacts on Reliability	41
Section 7 – Water Service Reliability.....	42
Section 8 – Adoption and Implementation of UWMP.....	43

Mojave Water Agency

2005 Urban Water Management Plan Supplement

December 2005

Purpose of This Supplement

This document supplements the Urban Water Management Plan element of the Mojave Water Agency (MWA) 2004 Regional Water Management Plan (RWMP)¹. The RWMP is the master plan for MWA water management activities through the year 2020. This update provides additional information to meet 2005 Urban Water Management Plan update requirements, especially a projection of supply and demand through at least 2025. The 2005 Urban Water Management Plan is fully described in the 2004 RWMP as updated by this supplement with supply and demand projections through 2030.

The MWA 2005 Urban Water Management Plan is fully described in the 2004 Regional Water Management Plan, as updated by this Supplement.

MWA first prepared a Regional Water Management Plan in 1994². Several subsequent developments prompted MWA to prepare the 2004 Plan update, which was adopted on February 24, 2005 by Resolution 798-05. The Program EIR³ for the Plan was adopted on February 24, 2005 by Resolution 797-05. The 2004 Regional Water Management Plan is an integral part of this 2005 UWMP Update, and is incorporated herein in its entirety. The information in this supplement conforms to the requirements of the DWR UWMP Guidebook⁴.

Recent additions to California law promote development of integrated water resource management plans and groundwater management plans by providing preference to agencies with such plans for funding through state grant programs. **The MWA Regional Water Management Plan serves as an Integrated Regional Water Management Plan, Groundwater Management Plan and Urban Water Management Plan and meets the requirements of SB 221, SB 610, SB 1938 and AB 901.**

¹ Schlumberger Water Services, September 2004, "Mojave Water Agency 2004 Regional Water Management Plan"

² Bookman-Edmonston Engineering, Inc. 1994

³ Environmental Science Associates with Schlumberger Water Services, February 2005, "Mojave Water Agency 2004 Regional Water Management Plan Final Program Environmental Impact Report", State Clearinghouse number 2003101119

⁴ California Department of Water Resources, January 18, 2005, "Guidebook to Assist Water Suppliers in the Preparation of a 2005 Urban Water Management Plan"

UWMP Elements

This MWA Regional Water Management Plan was prepared to comply with 2003 California Urban Water Management Act requirements including amendments made by Senate Bill 610 and Assembly Bill 901. The California Urban Water Management Planning Act⁵ requires a water supplier with over 3,000 customers or that supplies over 3,000 acre-feet of water per year to prepare an Urban Water Management Plan (UWMP). MWA does not supply water directly, but holds the State Water Project contract and imports water to replenish groundwater basins and to meet obligations of the Mojave Basin Area and Warren Valley Judgments. Seven water supply agencies within the MWA have developed UWMPs. The checklist below indicates where in this Plan specific UWMP components are located. *Elements changed or added for this 2005 UWMP supplement are shown in italic. Changed or supplemented tables are indicated by a (s) appended to the table number.*

The RWMP incorporates all required elements of an Integrated Regional Water Management Plan (RWMP p.1-7), a Groundwater Management Plan (p.1-12), and an Urban Water Management Plan (p.1-8). There is significant overlap in the requirements of these plans.

Water suppliers that utilize groundwater (all urban suppliers in MWA use groundwater) must include in their UWMPs a description of the groundwater basin and location and amounts of groundwater pumped. Seven water supply agencies (p.7-5) within the MWA have developed Urban Water Management Plans that were reviewed and incorporated into the RWMP. Land use plans in the basin are developed by a number of different entities including San Bernardino County and each of the cities through their General Plans, General Plan Amendments and Public Facilities Element amendments.

The 2004 RWMP included adoption of a 2020 conservation goal of 10 percent of municipal consumptive use in the Mojave basin and 5 percent in the Morongo basin. This goal is incorporated into this 2005 UWMP supplement. Twenty-four regional entities have banded together to form the Alliance for Water Awareness and Conservation (p.7-1) to educate local communities on the importance of water conservation, provide tools to reduce per capita consumption, and reduce regional water use by a more ambitious target of 15 percent⁶ by 2015. *A 15 percent reduction in municipal consumptive use is assumed to be met in 2025 in this supplement.*

⁵ Division 6 Part 2.6 of the Water Code

⁶ 5 percent in the more water efficient Morongo Basin

Urban Water Management Plan Checklist⁷ (s)

Checklist Organized According to Subject

Items to address	Section of Law	Location In 2004 RWMP
Public and Stakeholder Outreach		
Make plan available for public inspection before its adoption.	10642	Chapter 8 Appendix F
Adopt plan as prepared or as modified after the public hearing.		Appendix G
Coordinate the preparation of its plan with other appropriate agencies, including direct and indirect suppliers, wastewater, groundwater, and planning agencies (refer to Section 10633).	10620 (d) (2)	Pg. 2 - 10
Demand, Supply, Reliability and Contingency Planning		
Management tools and options that maximize resources and minimize the need to import water	10620(f)	
Describe the service area	10631 (a)	Chapter 2
Provide current and projected population in 5-year increments to 20 years.		Table 5- 7(s)
Describe the climate and demographic factors.		Pg. 3 – 23 Table 3-5(s)
Identify and quantify the existing and planned sources of water available in 5-year increments to 20 years	10631 (b)	Chapter 4 Table 4 - 2 Table 4- 9(s)
Describe opportunities for exchanges or transfers of water on short-term or long-term basis.	10631 (d)	Pg. 4 - 33
Quantify current and past water use in 5-year increments to 20 years.	10631 (e) (1)	Tables 5-1 and 5-3
Identify projected water uses among water use sectors in 5-year increments to 20 years.	10631 (e) (2)	Pg. 5 – 23, Tables 5-9(s) and 5-10(s)
Describe average, single dry and multiple dry water year data.	10631 (c)	Pg. 4-1 Tables 4 -2 through 4-6
Describe any plans to replace inconsistent water sources.		Pg. 4 – 29
Provide minimum water supply estimates based on driest three-year historic sequence.	10632 (b)	Table 4 – 4
Describe the reliability of water supply.	10631 (c)	Pg. 4 – 27, Table 4-8 and Figure 4-13

⁷ From p.1-8 of the 2004 Regional Water Management Plan

Items to address	Section of Law	Location In 2004 RWMP
Describe the vulnerability of water supply to seasonal or climatic shortage.		Pg. 4 - 29
Provide an assessment of the reliability of the water supplier's water service to its customers during normal, single dry, and multiple dry water years.	10635 (a)	Pg. 4 - 16
Compare the total water supply sources available to the water supplier with the total projected water use over the next 20 years, in 5-year increments (refer to 10631 (c)).		Table 5-15(s)
Compare normal, single dry, and multiple dry water year projected water supply sources available to the water supplier with the normal, single dry, multiple dry water year projected water uses (refer to 10631 (c)).		Tables 5-12 to 5-14
Provide actions a water supplier will take to prepare for a catastrophe.	10632 (c)	Chapter 6
Provide a copy of a draft water shortage contingency resolution or ordinance	10632 (h)	Pg. 6-2
Provide water shortage stages of action, including up to a 50 percent reduction outlining specific water supply conditions at each stage.	10632 (a)	Chapter 6
Provide mandatory prohibitions.	10632 (d)	Chapter 6
Provide penalties or charges.	10632 (f)	Chapter 6
Provide consumption reduction methods	10632 (e)	Chapter 6
Provide an analysis of the impacts on the water supplier revenues and expenditures	10632 (g)	Chapter 6
Provide measures to overcome revenue and expenditure impacts.		Chapter 6
Provide a mechanism for determining actual reductions in water use.	10632 (i)	Chapter 6

Wastewater and Reclamation

Describe the wastewater collection and treatment systems in the supplier's service area.	10633 (a)	Pg. 3 - 23
Quantify the amount of wastewater collected and treated in the supplier's service area.		Pg. 3 – 25, Table 3-3
Describe the methods of wastewater disposal in the supplier's service area.		Pg. 3 - 23
Describe the type, place, and quantity of recycled water currently used in the supplier's service area.	10633 (b)	Pg. 3 - 23
Describe and quantify potential uses of recycled water in 5-year increments to 20 years.	10633 (c) (d)	Table 3 – 4(s)
Describe the technical and economic feasibility of serving the potential users of recycled water.		Pg. 3 - 25

Items to address	Section of Law	Location In 2004 RWMP
Describe the actions that may be taken to encourage recycled water use.	10633 (e)	Pg. 3 - 25
Provide the projected acre-feet results of recycled water used per year.	10633 (e)	Table 3 – 4(s)
Provide a plan for optimizing the use of recycled water in the supplier’s service area.	10633 (f)	Pg. 3 - 24
Provide actions to facilitate the installation of dual distribution systems and to promote recirculating uses.		Pg. 3 - 25

Groundwater

Identification of groundwater as a water supply source.	10631 (b)	Pg. 4 - 12
Groundwater management plan preparation.		Pg. 1 - 2
Copy of the groundwater management plan.	10631 (b)(1)	This Plan
Groundwater management plan adoption (2/24/05).		Appendix G
Describe groundwater basin(s).	10631 (b)(2)	Pg. 3 – 4
Identify the groundwater basin(s).		Table 3 - 1 Fig. 3 - 2
Identify adjudicated basins.		Pg. 2 - 6
Copy of order or decree of adjudication.		Appendix A
Describe the amount of groundwater the supplier has the legal right to pump.		Appendix A
Describe and analyze location and amount of groundwater pumped for past 5 years based on information that is reasonably available.	10631 (b)(3)	Chapter 5 Table 5-4(s) Figs 5-4 through 5-9 Table 5 -5 Table 5-9(s)
Describe and analyze sufficiency of groundwater pumped for past 5 years based on information that is reasonably available.		Pg. 4 - 12
Describe and analyze location and amount of groundwater that is projected to be pumped based on information that is reasonably available.	10631 (b)(4)	Chapter 5 Table 5-9(s)

Water Supply Projects and Water Supply Programs

The description explains how all the water supply projects and water supply programs increase the water supplies to meet the total projected water use as established pursuant to subdivision (a) of Section 10635.	10631 (h)	Chapter 9
Identify specific future water supply projects and water supply programs that may be implemented to increase the amount of water available during average, single-dry and multiple-dry water years.		Chapter 9 Table 9-1 Fig. 9-1

Items to address	Section of Law	Location In 2004 RWMP
Describe the increase in water supply that is expected to be available from each of the specific future water supply projects and water supply programs.		Chapter 9
Describe the estimated implementation timeline for each future water supply project and water supply program.		Chapter 9 Table 10-2

Water Quality

Includes information, to the extent practicable, relating to the quality of existing water supply sources over the next 20 years in five year increments.	10634	Pg. 4 - 28
Describes the manner in which water quality affects water management strategies.		Chapter 10
Describes the manner in which water quality affects supply reliability.		Chapter 10

Section 1 – Agency Coordination

This UWMP 2005 supplement is based on the 2004 RWMP for the Mojave Water Agency service area prepared by Mojave Water Agency in cooperation with local water purveyors and stakeholders. The RWMP was collaborative effort to address a variety of issues related to potential water management activities.

RWMP Chapter 2 Agency and Stakeholder Background provides information about Mojave Water Agency, water management, and identifies the major stockholders in the basin. RWMP Chapter 8 Stakeholder Assessment and Public Outreach presents the process used to identify potential water purveyors, interested parties, and stakeholders and invite them to participate in this development of the 2004 RWMP.

Significant public outreach efforts were made during development of the RWMP. These efforts involved evaluation of questionnaires, and conducting meetings with individuals, groups, agencies, and a Technical Advisory Committee (TAC). The TAC met regularly during development of the Regional Water Management Plan, reviewing and providing comments and suggestions on the Plan. Outreach efforts were directed at stakeholders from local water agencies, state and federal agencies, municipalities, San Bernardino County, and 13 local community groups. A list of stakeholder groups involved in the Plan process is presented starting on RWMP page 2-11.

RWMP Management Actions⁸ related to planning and stakeholder involvement include:

- MWA will provide information regarding regional water balances and availability of supplemental supply to local purveyors to allow them to reach appropriate conclusions regarding the sufficiency of supply for SB 221 and SB610 assessments.
- MWA will work with local planning agencies to ensure that areas that should be set aside to recharge the groundwater basin are reserved for that purpose and are not subject to development.
- MWA will coordinate with local planning agencies to ensure that growth projections, proposed land use changes, and types of proposed developments are consistent with water planning efforts, as required by SB 221 and SB 610. Significant deviations from projected growth and water needs will be noted and corrective action taken. Corrective actions could include securing additional sources of water, or making a finding pursuant to SB221 or SB 610 that an adequate water supply does not exist and notifying the water purveyor.
- MWA will work with the Alliance for Water Awareness and Conservation (AWAC) and serve as a clearinghouse for water conservation measures and performance data. Water conservation programs will be evaluated through the AWAC and actions taken as needed.
- Increased water conservation efforts will be identified and plans developed for implementation of cost effective demand management measures based on the reports on effectiveness.

⁸ RWMP Chapter 10

- MWA will continue to coordinate, participate in, and implement recommendations of the Alliance for Water Awareness and Conservation.
- MWA has organized and held water symposia with local water leaders and regulators in Victorville and the Morongo Basin in 2003 and 2004, and may make the water symposium a semi-annual event for each area (alternating location annually).
- MWA will continue its outreach and education efforts through continued funding of the Community Liaison Officer.
- MWA will continue to develop and publish its newsletter, *The Panorama*. Regular updates on the development of the Regional Water Management Plan have been included.
- MWA will maintain its Speakers Bureau to provide timely water related information to the public.
- MWA's web site (<http://www.mojavewater.org/>) contains information on MWA projects, water supplies and resources, water education, Watermaster, Agency publications, a calendar of events, meeting agendas, and general information about MWA. MWA will continue to provide this service.

Section 2 – Step 1: Appropriate level of planning for size agency

Mojave Water Agency - The California State Legislature authorized the formation of the Mojave Water Agency (MWA) in 1959 for the purpose of managing declining groundwater levels in the Mojave Basin Area, El Mirage Basin, and Lucerne Valley Basin. With the vote of the people, MWA was formed on July 21, 1960. MWA was expanded by annexation in 1965 to include the Johnson Valley and Morongo Basin areas.

The MWA covers about 4,900 square miles, and includes 22 groundwater basins with about 2 million acre-feet of groundwater storage, that acts as the primary water supply for public and private water purveyors and other individual water users in the basin.

Water Supply Setting – The groundwater basins act as the primary water storage facility for the MWA service area, and all water supplies generated within the MWA or imported from outside the MWA are recharged into the groundwater basins for future use. This provides water users in the basins with a buffering capacity to absorb the effects of dry years without an immediate impact on water supply availability. While the basins maintain a high level of water supply reliability, overall management is required to maintain groundwater levels for long-term benefit of basin users.

Mojave Basin Area Judgment and Warren Valley Basin Judgment – Adjudication proceedings began in the early 1990's following a series of complaints and cross-complaints filed by local water users and the MWA. The resulting Warren Valley Basin Judgment and the Mojave Basin Area Judgment both require that additional surface water be imported to help balance the basins. The Physical Solution of the Mojave Basin Area Judgment set limits on the amount of groundwater production that can occur in each subarea without incurring an obligation to buy imported water. The Mojave Water Agency serves as Watermaster in the Mojave Basin. The Hi-Desert Water District is Watermaster for the Warren Valley Basin.

Regional Planning - The large size of the basin and long-term water management considerations require a regional entity working cooperatively with the local water purveyors and stakeholders to plan for long-term management of the basin. The RWMP was prepared by MWA in cooperation with the local water purveyors and stakeholders to provide long-term water management for the entire 4,900 square mile MWA service area.

Because of the regional nature of water management in the basin, the recently prepared Regional Water Management Plan is used as the basis for the 2005 Urban Water Management Plan Supplement. While this UWMP relies extensively on the RWMP, additional new information was developed to extend data beyond the 2020-planning horizon of the RWMP. Specific purveyor information was evaluated in the development of the RWMP and is included in this UWMP by reference.

RWMP Chapter 2 Agency Stakeholder and Background describes the MWA, water purveyors and other stakeholders, and Chapter 3 Physical Setting, describes the physical setting of the Mojave Water Agency. Other chapters of the RWMP are referenced by this document as needed to meet the requirements of the UWMP.

Section 2 – Step 2: Service Area Information with 20-year Projections

This Section of the UWMP addresses the demographic factors that may affect water use. This update includes population estimates through 2030 and climatic characteristics of the area.

Population

Actual and projected population and data sources for 1990 through 2020 are reported in Chapter 5⁹. The California State Department of Finance projects that San Bernardino County will grow at a rate of 1.8 percent per year from 2020 through 2030. *Table 5-7(s)* uses the assumption that each of the subareas grow at the county-wide rate, with total MWA population increasing 80 percent over the 2005-2030 period.

Table 5-7(s): Current and Projected Population Estimates

	2005	2010	2015	2020	2025	2030	Annual Percent Change 2005- 2030
Mojave Basin Area							
Alto	266,700	303,700	348,900	407,700	432,400	486,300	2.4%
Baja	5,300	5,600	5,900	6,200	6,600	7,400	1.3%
Centro	36,100	41,500	47,100	54,100	57,400	64,600	2.4%
Este	6,800	8,100	9,400	11,300	12,000	13,500	2.8%
Oeste	8,300	9,400	11,300	13,600	14,400	16,200	2.7%
Subtotal Mojave	323,200	368,300	422,600	492,900	522,800	588,000	2.4%
MB/JV Area*							
Copper Mtn. Valley	10,300	11,000	11,800	12,700	13,500	15,200	1.6%
Johnson Valley	400	500	500	600	600	700	2.3%
Means/Ames Valley	8,300	9,300	10,400	11,700	12,400	13,900	2.1%
Warren Valley	16,600	18,600	21,000	23,600	25,000	28,100	2.1%
Subtotal MB/JV	35,600	39,400	43,700	48,600	51,500	57,900	2.0%
Total	358,800	407,700	466,300	541,500	574,300	645,900	2.0%

Climate¹⁰

The Mojave Water Agency maintains a Climatology Network that consists of 14 weather stations collecting various weather data on temperature, precipitation, and evaporation. Rain gages are mostly located within the Mojave Basin Area and the surrounding mountains.

⁹ RWMP Tables 5-1 and 5-7

¹⁰ RWMP p. 3-23

Representative precipitation, temperature, and reference evapotranspiration (ET_o) data are reported in Table 3-5(s). Runoff in the upper watershed contributes substantially more to the recharge of the basin than precipitation falling in the basin. Average rainfall within the lower lying areas of the Mojave Basin Area and Morongo Basin/Johnson Valley area is roughly five inches per year. The large variation in annual rainfall within the surrounding mountains directly affects the annual water supply of the basin, and is further discussed in RWMP Chapter 4 Water Supply.

Table 3-5(s) – Climate Data

Station:	Victorville			Barstow			Twentynine Palms	
	Average Precipitation (in.)	Average Temperature (degF)	Average ETo (in.)	Average Precipitation (in.)	Average Temperature (degF)	Average ETo (in.)	Average Precipitation (in.)	Average Temperature (degF)
Period of	7/1/48	5/1/05	2/1/94	1/6/13	3/27/05	1/1/97	7/1/48	5/1/05
Record:	12/31/04	6/26/05	12/1/04	12/31/04	6/26/05	12/1/04	12/31/04	6/26/05
Jan	1.00	44.4	2.02	0.76	46.0	2.20	0.49	49.3
Feb	0.98	47.9	2.61	0.71	50.4	3.09	0.40	53.4
Mar	0.83	51.9	4.55	0.64	55.2	5.13	0.36	58.6
Apr	0.34	57.7	6.19	0.22	62.1	6.61	0.13	65.7
May	0.16	65.0	7.30	0.09	69.6	8.18	0.09	74.0
Jun	0.05	73.0	8.85	0.11	78.5	9.21	0.01	82.8
Jul	0.15	79.5	9.77	0.29	84.7	9.40	0.57	88.5
Aug	0.19	78.7	8.99	0.31	82.9	8.18	0.76	86.9
Sep	0.28	73.0	6.52	0.28	76.5	6.38	0.47	80.5
Oct	0.30	62.8	4.66	0.23	65.7	4.76	0.23	69.3
Nov	0.51	51.4	2.68	0.39	53.4	2.83	0.26	56.6
Dec	0.73	44.5	2.05	0.56	46.0	2.07	0.40	49.3
Annual	5.51	60.8	66.19	4.57	64.3	68.04	4.18	67.9

Sources:

<http://www.wrcc.dri.edu/cgi-bin/cliMAIN.pl?cavict+sca>

<http://www.cimis.water.ca.gov/cimis/frontMonthlyEToReport.do>

Section 2 – Step 3 Water Sources

As described in RWMP Chapter 4 Water Supply, much of the water supply within the Mojave Basin Area originates as rain or snowfall in the San Bernardino Mountains, which enters the basin via the Mojave River. The RWMP evaluated the water sources for the Mojave Basin Area for the 1931 to 2001 period, which includes numerous single year and multiple year wet and dry periods. Based on the evaluation of the 1941 to 2001 hydrologic data for the basin, the net long-term average annual water supply for the basin is 63,400 acre-feet. RWMP Tables 4-2 through 4-4 presents the average, dry year, and multiple dry year water supply for each of the subareas in the Mojave Basin Area. Tables 4-5 through 4-7 present water supply availability for the Morongo Basin/Johnson Valley Area.

Imported Water Supplies – Current imported supplies are available to MWA through 75,800 acre-feet per year of water contracted through the State Water Project (SWP). This includes the addition of 25,000 acre-feet of Table “A” that was purchased from Berrenda Mesa Water District in 1998. DWR has published preliminary revised estimates of State Water Project deliveries in the May 2005 “Excerpts from Working Draft of 2005 State Water Project Delivery Reliability Report.” The updated estimates of SWP demand in the report were developed by DWR together with representatives of the SWP contractors as part of the revised Environmental Impact Report for the Monterey Amendment. Estimated 2005 (current) demands as well as 2025 (future) demands were developed. DWR interpolates between these current and future demands to produce estimates for 2010, 2015, 2020, and 2025¹¹. Average, dry, and multiple dry-year SWP supplies are summarized in RWMP Table 4-8.

Estimates of system-wide SWP reliability range from 69 percent under 2005 demands to 77 percent under 2025 conditions. The RWMP used a previous DWR estimate of 77 percent delivery for all years from 2000 through 2020. Table 4-9(s) displays DWR’s estimates of SWP availability through 2030.

Table 4-9(s): Available Water Supply Sources Through 2030

Supply Type	2005	2010	2015	2020	2025	2030
Natural*	65,500	65,500	65,500	65,500	65,500	65,500
SWP	52,300	53,800	55,300	58,400	58,400	58,400
Total	117,800	119,300	120,800	123,900	123,900	123,900

*Average annual natural water supply data as shown in Tables 4-2 and 4-5 excluding Johnson Valley

¹¹ For the MWA UWMP, 2030 SWP demands and SWP deliveries are assumed equal to 2025 levels.

Section 2 – Step 3 Water Sources - Groundwater

The RWMP serves as MWA’s Groundwater Management Plan and is compliant with Senate Bill 1938. The RWMP addresses the requirements of the SB 1938 as described below:

- Chapter 3 describes the geology and groundwater basins within MWA
- Chapter 9 includes basin management objectives and alternatives
- Chapter 10 includes water management actions including groundwater recharge activities
- Appendix H includes the monitoring plan for the basin

The Mojave and Morongo groundwater basins are essentially closed – very little groundwater enters or exits. Groundwater is discharged primarily by well pumping, evaporation through the soil, transpiration by plants, seepage into dry lakes where accumulated water evaporates, and by seepage into the Mojave River.

Efforts to Eliminate Groundwater Overdraft -- The Mojave Basin Area and Warren Valley adjudications mandate that groundwater extractions from each basin do not exceed the estimated annual supplies, and empower the Watermasters of each basin to enforce pumping limits as mandated by the Court.

One of the fundamental objectives of the RWMP is to “balance future water demands with available supplies recognizing the need to stabilize the groundwater basin storage balance over long-term hydrologic cycles.” As part of preparation of this 2004 RWMP, projects and management actions were identified that would allow MWA to meet this objective by 2020 while also meeting a second objective to “maximize the overall beneficial use of water throughout MWA by supplying water in quantity and of quality suitable to the various beneficial uses.” These objectives are described in greater detail in Chapter 9.

Groundwater Pumping amounts by Subbasin – Historical groundwater pumping quantities for the Mojave Basin from 1994 through 2004 are presented in Table 5-4(s). Estimates of consumptive use of pumped groundwater are presented by Subbasin and demand sector in Tables 5-9(s) and 5-10(s).

**Table 5-4(s) - Verified Annual Production of Major Producers
(Acre-feet per year)**

	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004
Este	8,800	8,700	9,700	8,800	7,100	7,200	7,100	6,600	6,700	5,900	6,500
Oeste	6,800	5,600	6,300	6,300	5,100	5,100	4,900	4,400	5,200	4,700	5,300
Alto	81,100	75,100	87,500	88,500	75,900	83,300	88,300	82,800	87,100	86,700	92,700
Centro	26,000	25,500	38,700	34,800	25,300	28,200	27,700	23,100	24,500	21,900	22,000
Baja	40,700	35,800	45,200	41,700	36,300	39,100	38,800	35,500	36,700	30,700	29,600
Total	163,400	150,700	187,400	180,100	149,700	162,900	166,800	152,400	160,200	149,900	156,100

Source: Mojave Basin Watermaster Annual Reports, Appendix L

Groundwater Consumptive Use – In adopting the 2004 RWMP, *MWA has committed to achieving 10 percent municipal conservation by 2020 (5 percent in the more water-efficient Morongo Basin)*. As described in Chapter 7, the regional Alliance for Water Awareness and Conservation has targeted the more ambitious goals of reducing regional water use by 10 percent gross per capita by 2010 and 15 percent gross per capita by 2015 in the Mojave Basin, and 5 percent in the Morongo Basin by 2015. Table 5-9(s) reflects Mojave Basin consumptive use reductions of 10 percent of municipal use by 2010, increasing to 15 percent by 2025. Table 5-10(s) reflects Morongo Basin consumptive use reductions of 5 percent by 2015.

Agricultural Scenario 2 was adopted as the basis for further planning in the 2004 Regional Water Management Plan. Under Agricultural Scenario 2, there are significant decreases in agricultural consumptive use assuming agriculture will voluntarily transfer its free production allowance (FPA) to non-agricultural uses in lieu of purchasing replacement water. Examination of FPA transfers through 2004 shows that this trend has already significantly progressed. Estimates for 2025 and 2030 consumptive use are based on no increases in industrial or recreational uses, with municipal and golf course uses increasing in proportion to the population. Estimates of projected consumptive use are presented in Tables 5-9(s) and 5-10(s).

RESOLUTION NO. 816-05
A RESOLUTION OF THE BOARD OF DIRECTORS
OF THE MOJAVE WATER AGENCY APPROVING
THE 2005 URBAN WATER MANAGEMENT PLAN

WHEREAS, Chapter 97 of Appendices to the Water Code ("MWA Law") enabled formation of the Mojave Water Agency, and prescribes the powers and duties of the MWA; and,

WHEREAS, Section 15 (a) of said Chapter 97 declares that "The Agency may do any and every act necessary so that sufficient water may be available for any present or future beneficial use or uses of the lands or inhabitants of the agency including without limiting the generality of the foregoing, irrigation, domestic, fire protection, municipal, commercial, industrial, and recreational uses."; and,

WHEREAS, Subsection (11) of Section 15 (b) of said Chapter 97 empowers the Agency "To gather data for, and to develop and implement, after consultation and coordination with all public and private water entities who are in any way affected, management and master plans to mitigate the cumulative overdraft of groundwater basins, to monitor the condition of the groundwater basins, to pursue all necessary water conservation measures, and to negotiate for additional water supplies from all federal, state and other sources."; and,

WHEREAS, the California Urban Water Management Planning Act requires a water supplier with over 3,000 customers or that supplies over 3,000 acre-feet of water per year to prepare an Urban Water Management Plan (UWMP); and,

WHEREAS, in February of 2005 the Board of Directors adopted a Regional Water Management Plan (RWMP) now known as the 2004 Regional Water Management Plan ("RWMP"); and,

WHEREAS, said RWMP was developed after extensive review and discussion with the Technical Advisory Committee to the Mojave Water Agency over several meetings and presented to the general public at public meetings throughout the Agency; and,

WHEREAS, said RWMP serves as an Integrated Regional Water Management Plan, Groundwater Management Plan and Urban Water Management Plan and meets the requirements of SB 221, SB 610, SB 1938 and AB 901; and,

WHEREAS, the Mojave Water Agency has received additional information since adoption of the RWMP which when incorporated will maintain consistency with the California Urban Water Management Planning Act and the California Department of Water Resources UWMP Guidebook; and,

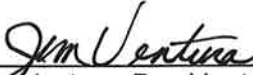
WHEREAS, the Mojave Water Agency will incorporate said additional information through a Supplement ("Mojave Water Agency 2004 Regional Water Management Plan Supplement A: 2005 Urban Water Management Plan Update") to the RWMP and said Supplement has been presented to the Technical Advisory Committee and the public for review and consideration; and,

WHEREAS, a public hearing to adopt the 2005 UWMP Update has been duly publicly noticed and was conducted by this Board of Directors on December 8, 2005.

NOW THEREFORE, IT IS RESOLVED, as follows:

The Board of Directors hereby approves the "Mojave Water Agency 2004 Regional Water Management Plan Supplement A: 2005 Urban Water Management Plan Update" which incorporates the previously adopted 2004 Regional Water Management Plan in its entirety.

PASSED AND ADOPTED at a meeting held on December 8, 2005.



Jim Ventura, President of the Board

ATTEST:



Kimberly Cox, Secretary of the Board