2010

Azusa Light & Water
Urban Water Management Plan

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2010

URBAN WATER MANAGEMENT PLAN

AZUSA
LIGHT & WATER
For Quality of Life

Azusa Light & Water

JULY, 2011

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SECTION 1: INTRODUCTION

1.1 PURPOSE AND SUMMARY

This is the 2010 Urban Water Management Plan (UWMP) for the City of Azusa Light & Water Department (ALW). This plan has been prepared in compliance with the Urban Water Management Planning Act (Act), which has been codified at California Water Code sections 10610 through 10657 and can be found in Appendix B to this 2010 Plan.

As part of the Act, the legislature declared that waters of the state are a limited and renewable resource subject to ever increasing demands; that the conservation and efficient use of urban water supplies are of statewide concern; that successful implementation of plans is best accomplished at the local level; that conservation and efficient use of water shall be actively pursued to protect both the people of the state and their water resources; that conservation and efficient use of urban water supplies shall be a guiding criterion in public decisions; and that urban water suppliers shall be required to develop water management plans to achieve conservation and efficient use.

The Act requires "every urban water supplier providing water for municipal purposes to more than 3,000 customers or supplying more than 3,000 acre-feet of water annually, to prepare and adopt, in accordance with prescribed requirements, an urban water management plan." These plans must be filed with the California Department of Water Resources (DWR) every five years describing and evaluating reasonable and practical efficient water uses, reclamation, and conservation activities. (*See generally* Wat. Code § 10631.)

The Act has been amended on several occasions since its initial passage in 1983. New requirements of the Act due to SBx7-7 state that per capita water use within an urban water supplier's service area must decrease by 20% by the year 2020 in order to receive grants or loans administered by DWR or other state agencies. The legislation sets an overall goal of reducing per capita urban water use by 20% by December 31, 2020. The state shall make incremental progress towards this goal by reducing per capita water use by at least 10% by December 31, 2015. Each urban retail water supplier shall develop water use targets and an interim water use target by July 1, 2011. Effective 2016, urban retail water suppliers who do not meet the water conservation requirements established by this bill are not eligible for state water grants or loans. An urban retail water supplier shall include in its water management plan the baseline daily per capita water use, interim water use target, and compliance daily per capita water use. DWR, through a public process and in consultation with the California Urban Water Conservation Council, shall develop technical methodologies and criteria for the consistent implementation of this part. These new requirements are included in **Section 4: Water Demands.**

As part of the City's past and current sustainability goals, the City is currently implementing all facets of this plan to achieve 20% conservation by 2020.

1.2 COORDINATION

In preparing this 2010 Plan, the City has encouraged broad community participation.

Copies of the City's draft plan were made available for public review at City Hall and the local public libraries in the City. The City noticed a public hearing to review and accept comments on the draft plan with more than two weeks in advance of the hearing. The notice of the public hearing was published in the local press and mailed to City Clerk. On June 27, 2011, the City held a noticed public hearing to review and accept comments on the draft plan. Notice of the public hearing was published in the local press. Following the consideration of public comments received at the public hearing, the City adopted the 2010 Plan. A copy of the City Council resolution approving the 2010 Plan is included in **Appendix D**.

As required by the Act, the 2010 Plan is being provided by the City to the California Department of Water Resources, the California State Library, and the public within 30 days of the City's adoption.

Table 1.1
Coordination and Public Involvement

	Participated In Plan Preparation	Notice of Preparation/ Contacted for Assistance	Commented on Draft	Notified of Public Hearing	Attended Public Hearing
Azusa Light & Water Staff	x	x	x	x	x
Azusa City Council/Staff		x		x	x
The Metropolitan Water District (MWD)		x		x	
CA Dept of Water Resources				x	
City of Glendora		x		x	
City of Covina		x		x	
City of West Covina		x		x	
City of Irwindale		x		x	
Suburban Water Company		x		x	
Upper San Gabriel Valley MWD		x		x	
San Gabriel Valley MWD		x		x	
Three Valleys MWD		x		x	
California American Water Co.		x		x	
Covina Irrigating Company		x		x	
Main San Gabriel Basin Watermaster		x		x	
Valley County Water District		x			
LA County Waterworks		x		x	
Interested General Public				x	x

1.3 FORMAT OF THE PLAN

The chapters in this UWMP correspond to the items presented in the Act as follows:

Section 1 - Introduction

This chapter describes the City's existing service area, the local climate, population served and the City's distribution system.

Section 2 – Water Supply Resources

This chapter describes the existing water supplies available to the City. In addition, this chapter discusses potential future water supplies, including transfers and exchanges, recycled water, and desalinated water.

Section 3 – Water Quality

This chapter discuss water quality issues with the City's water sources and the effect of water quality on management strategies and supply reliability.

Section 4 – Water Demand

This chapter describes past, current and projected water usage within the City's service area.

Section 5 – Reliability Planning

This chapter presents an assessment of the reliability of the City's water supplies for a normal year, a single dry year, and multiple dry years. Based on current supply capacities, no water shortages are anticipated in the City's service area through 2035.

Section 6 – Demand Management

This chapter addresses the City's implementation of the current Best Management Practices (BMPs). The BMPs correspond to the 14 Demand Management Measures (DMMs) listed in the UWMP Act and are described in this section.

Section 7 – Contingency Planning

This chapter describes the City's response plan to water shortages, including penalties and prohibitions to conserve the City's water supplies during periods of drought.

Appendices

The appendices contain references and specific documents that contain the data used to prepare this 2010 Plan.

1.4 WATER SYSTEM HISTORY

The City of Azusa's history dates back to the early 1800s after the San Gabriel Valley Region began to be settled. The City incorporated in 1898, and the City of Azusa's water system began operation in 1899, relying mostly on groundwater sources to supply water to its customers.

Figure 1.1: Morris Dam

As the region began to experience urban growth during the early 1900s, significant infrastructure was built to sustain further urban development and protect citizens from

adverse climatic effects. Infrastructural projects during that time included a series of dams (i.e. Morris 1934) as well as distribution facilities and groundwater wells. From 1899-1993, the City's water system served only the City of Azusa. In 1993, the City of Azusa purchased the Azusa Valley Water Company, which expanded Azusa's service area. Upon integration with the Azusa Valley Water Company, the City's water system became known as Azusa Light and Water or ALW.

1.5 WATER SERVICE AREA

ALW's service area encompasses about 8,900 acres (15 square miles) in the San Gabriel Valley located about 25 miles northeast of downtown Los Angeles and 15 miles east of Pasadena. ALW's water system provides service to 5 cities and portions of Los Angeles county. The service area includes the entire City of Azusa and portions of the cities of Glendora, Covina, West Covina, Irwindale, and Los Angeles County as shown in **Figure 1-5** on Page 1-6.

Figure 1.2: Azusa Ave.

Since expansion, the City of Azusa accounts for approximately 40 percent of ALW's total service area and resident population. With the exception of the City of Azusa, ALW serves a portion of each city as well as Los Angeles County. Land use within the service area is principally composed of single and multi-family residences, a centralized business and commercial district, and some institutional and industrial areas as shown in **Figure 1.7**. Since the area is mostly under built-out conditions, changes in land use types will result from re-development of existing lots.

1.6 CLIMATE

ALW's service area has a Mediterranean climate with moderate, dry summers with an average temperature of about 70°F and cool, wet winters with an average temperature of 52°F. The average rainfall for the region is approximately 19 inches.

Table 1.2
Climate Characteristics

Month	Rainfall (in)	ETo (in)
Jan	3.9	1.9
Feb	3.8	2.2
Mar	2.9	3.4
Apr	1.7	4.8
May	0.3	5.6
Jun	0.1	6.3
Jul	0.0	6.5
Aug	0.0	6.2
Sep	0.3	4.8
Oct	0.6	3.7
Nov	1.9	2.4
Dec	3.7	1.9
Totals:	**19.3**	**49.7**

Overall, service area receives higher than average rainfall totals than other cities within the Los Angeles Basin.

1.7 POPULATION

The current resident population of the City of Azusa is approximately 49,100 persons. Including the portions of Glendora, Irwindale, Covina, West Covina, and Los

Angeles County -(see **Figure 1.5**), the total current resident population served by the ALW water system is approximately 110,000 persons. Population is expected to expand modestly with an annual growth rate of about 1.0% as shown in **Table 1.2** below.

Table 1.2
Service Area Population Projections

Year	Estimated Population
2015	115,000
2020	120,000
2025	125,000
2030	130,000
2035	135,000

Since the service area does not have major attractions, daytime populations are not significantly higher than the total residential populations shown in **Table 1.2** above.

1.8 WATER SYSTEM

Imported Water

ALW's imported water supply is delivered through its connection to USGVMWD (Upper District), which receives water from MWD's Middle Feeder System. The connection is designated as USG-8 with a capacity of 3,300 gpm. USG-8 is located on Badillo Street east of Vincent Avenue and is shown in **Figure 1.6**. Overall, imported water is used only on an emergency basis to supplement groundwater and surface water supplies.

Groundwater

ALW produces groundwater from eleven groundwater wells that pump water from the Main San Gabriel Basin. Another well (Well No. 9) is inactive due to high nitrate levels. The City's wells range in capacity from 1,100 gpm to 3,500 gpm (see **Table 2.3)** and provide 65 percent of the total water supply.

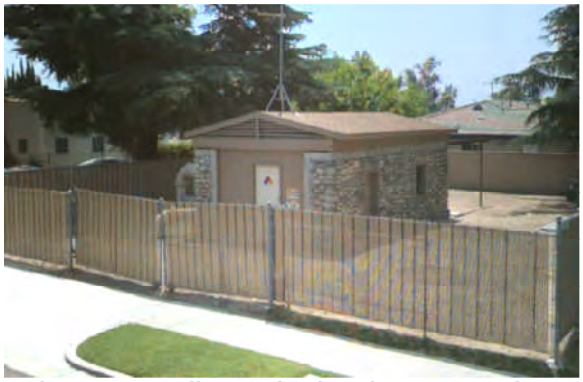

Figure 1.3: Well No. 8 (11th St./Orange Ave.)

Surface Water

In addition to groundwater, ALW also diverts San Gabriel River water from either the San Gabriel or the Morris Reservoir and treats it at its Joseph F. Hsu Filtration Plant. The Plant has a capacity of 12 MGD and provides approximately 35 percent of the total water supply.

Figure 1.4: Construction of Filtration Plant

Distribution System

ALW distributes water to its 22,000 service customers through a 300 mile network of distribution mains ranging from 2 to 30 inches in size. The water system consists of five pressure zones, and two small subzones that provide modified pressure to customers. The water service area and system facilities are shown in **Figures 1.5** and **1.6** on the following pages.

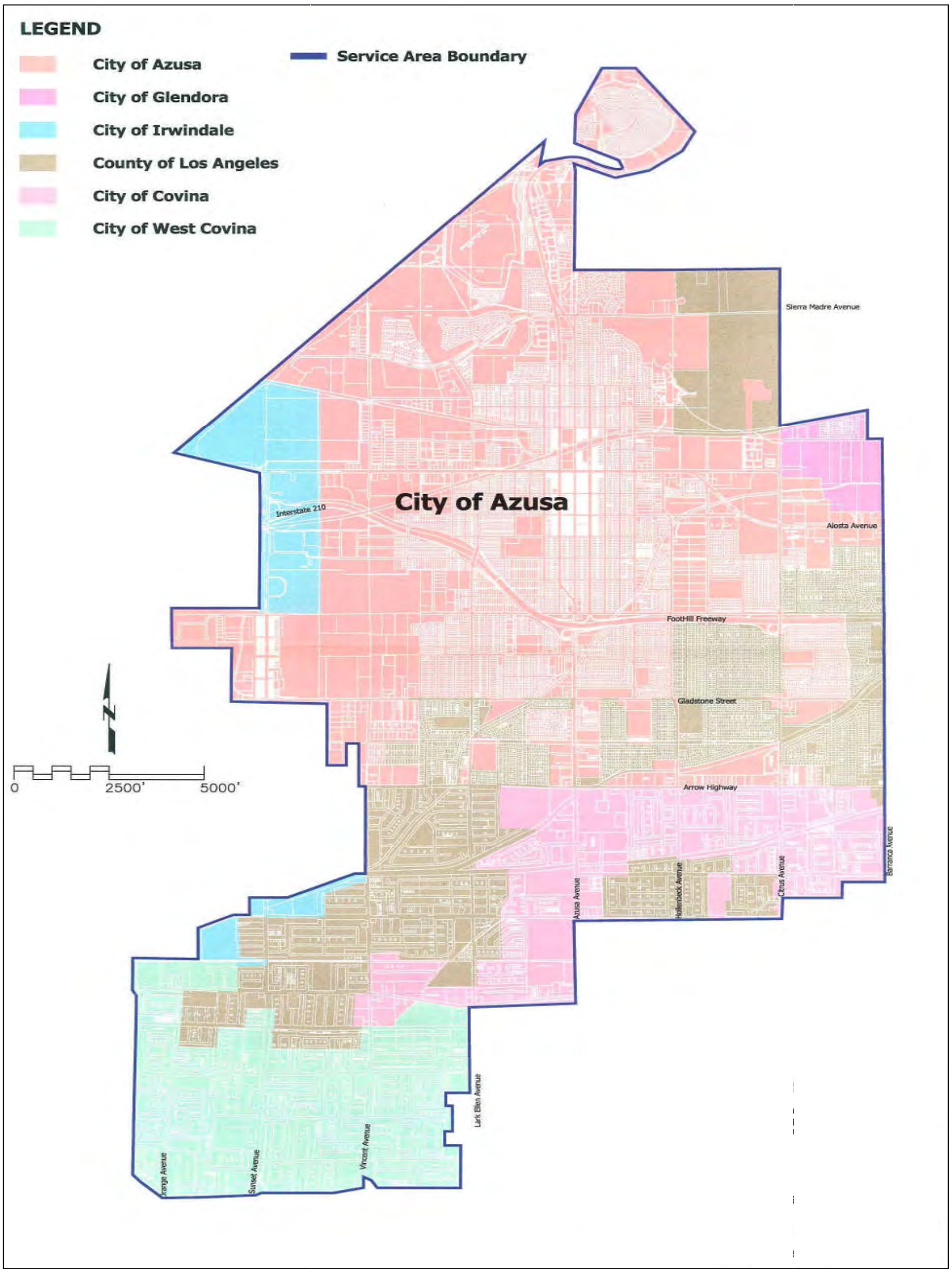

Figure 1.5: ALW Water Service Area (Carollo Engineers)

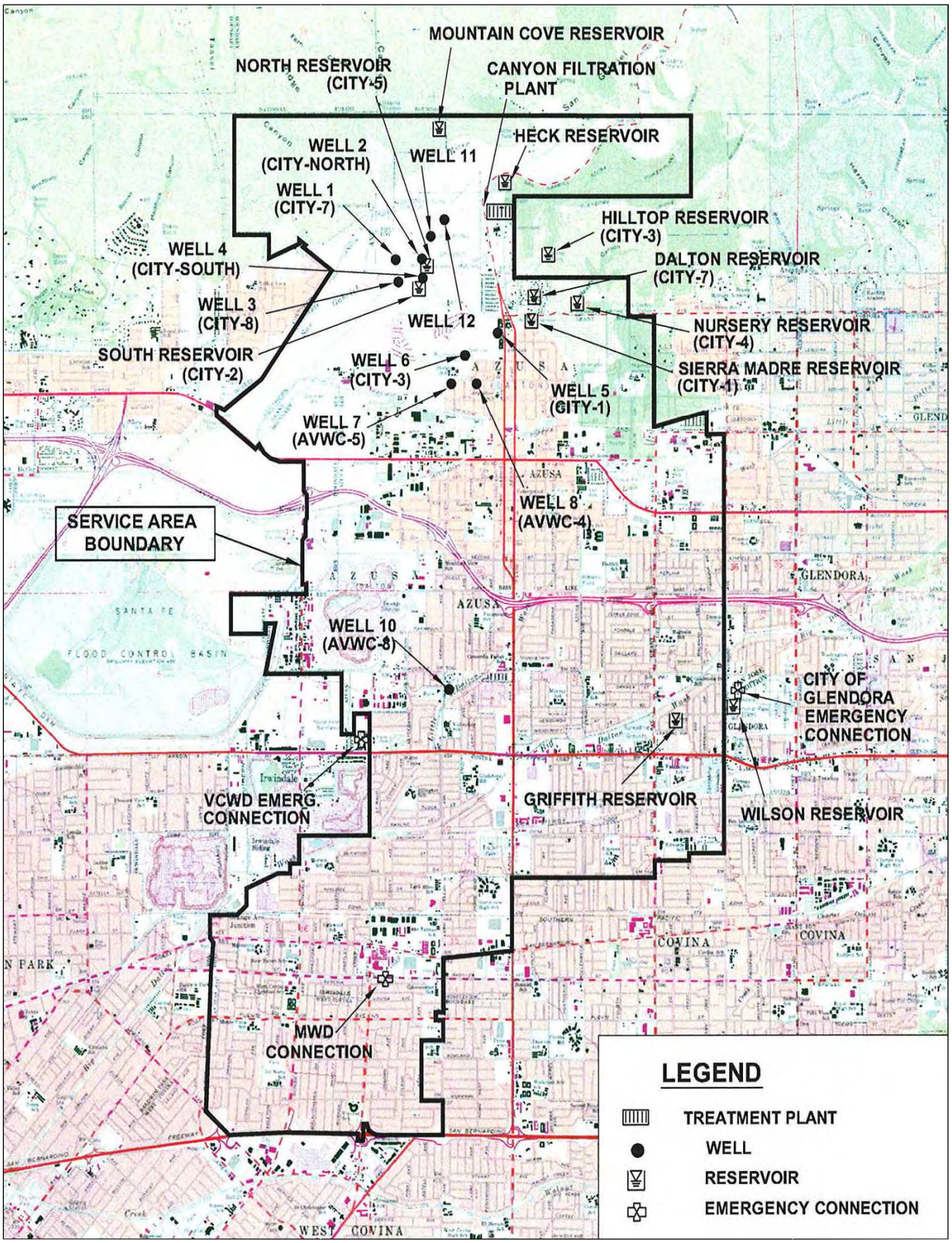

Figure 1.6: ALW Water System Facilities (Stetson Engineers)

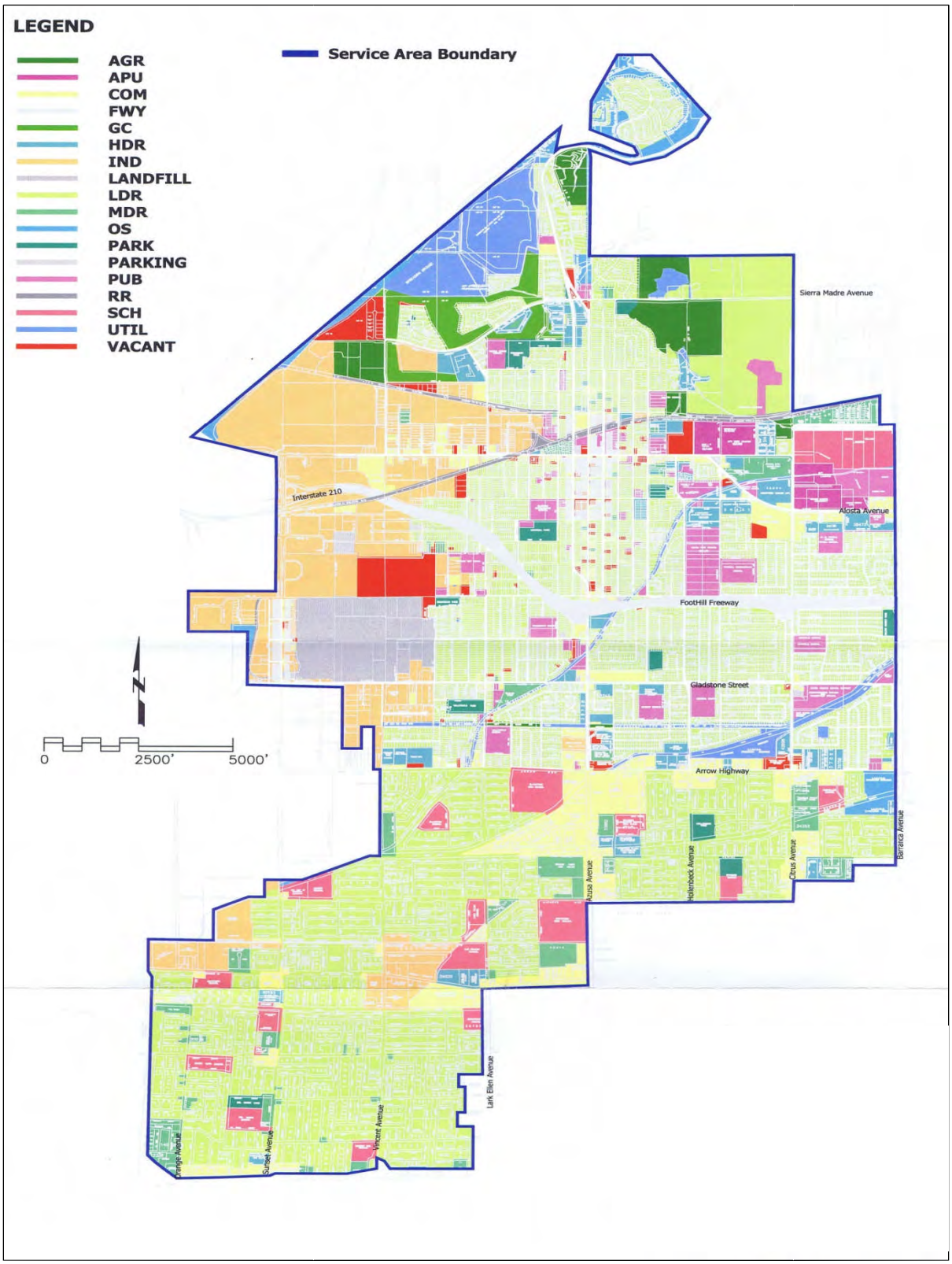

Figure 1.7: Land Use Map of Water Service Area (Carollo Engineers)

Water Storage

For storage needs, ALW maintains 13 storage reservoirs with a capacity of 38 million gallons, 11 of which are located in the northern portion of the City above the 210 freeway as shown in **Figure 1.6**.

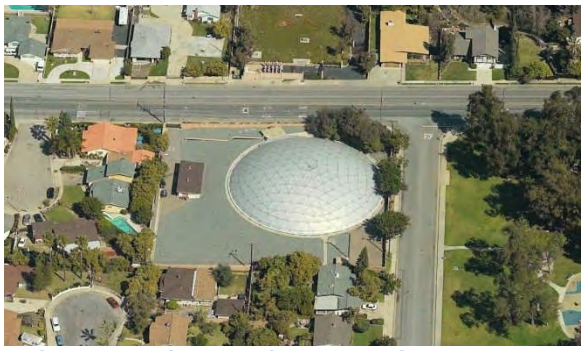

Figure 1.8: Sierra Madre Reservoir

Table 1.4 lists ALW's reservoirs:

Table 1.4
ALW Reservoirs

Reservoir	Base Elevation	Capacity (MG)
Hilltop	1,001.0	0.6
Mountain Cove	1,000.0	1.0
Nursery (2)	861.0	6.5
HSV	740	4.0
Heck	745.5	4.0
1023	1,000.0	1.25
Sierra Madre	704.0	1.5
Dalton	690.6	2.0
North	690.0	3.0
South	686.0	2.5
Wilson	613.0	6.5
Griffith	582.0	5.0
Aspan (inactive)	N/A	N/A
	Total Capacity:	**38**

Emergency Interconnections

In addition to imported water and groundwater, ALW's water supply system also includes one emergency interconnections with the water system of the Valley County Water District (VCWD). The connection with VCWD is located on the western side of the service area. The connection is located south of the 210 freeway and is established for emergency water supply for the mutual benefit of both municipalities.

Table 1.5 summarizes the City's emergency interconnections:

Table 1.5
ALW Emergency Connections

Connection	Capacity (gpm)
VCWD: 8-inch	1,500

In addition to the above connection, ALW also uses its connection with Upper District (USG-8) as a source of emergency imported supply.

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SECTION 2: WATER SOURCES & SUPPLIES

2.1 INTRODUCTION

ALW's water supply sources consist of groundwater produced from the Main San Gabriel Basin, surface water from the San Gabriel River and imported water from MWD, purchased through Upper District.

2.2 WATER SUPPLY SOURCES

Imported Water

ALW has access to imported MWD water from the Colorado River and the Sacramento-San Joaquin River Delta in Northern California. These two water systems provide Southern California with approximately 2 million acre-feet (MAF) of water annually for urban uses.

The Colorado River supplies California with 4.4 MAF annually for agricultural and urban uses with approximately 3.85 MAF used for agriculture in Imperial and Riverside Counties. The remaining unused portion (600,000 - 800,000 AF) is used for urban purposes in MWD's service area.

Figure 2.1: Parker Dam at Colorado River

In addition to the Colorado River, the Sacramento-San Joaquin River Delta provides a significant amount of supply annually to Southern California. The Delta is located at the confluence of the Sacramento and San Joaquin Rivers east of the San Francisco Bay and is the West Coast's largest estuary. The Delta supplies Southern California with over 1 MAF of water annually.

Figure 2.2: Sacramento-San Joaquin Delta

The use of water from the Colorado River and the Sacramento-San Joaquin Delta continues to be a critical issue. In particular, Colorado River water allotments have been debated among the seven basin states and various regional water agencies at both the federal and state levels. The use of Delta water has been debated as competing uses for water supply and ecological habitat have jeopardized the Delta's ability to meet either need and have threatened the estuary's ecosystem.

In order to provide the region imported water, MWD utilizes two separate aqueduct systems (one for each source of supply) to obtain its supplies. These two aqueduct systems convey water from each source into two separate reservoirs whereupon MWD pumps the water to one of its five treatment facilities. One of these aqueduct systems is

known as the Colorado River Aqueduct (CRA). The CRA was constructed as a first order of business shortly after MWD's incorporation in 1928. The CRA is 242 miles long and carries water from the Colorado River to Lake Matthews and is managed by MWD.

Figure 2.3: Colorado River Aqueduct

In addition to the CRA, MWD receives water from northern California via the California Aqueduct. Also known as the State Water Project, the California Aqueduct is 444 miles long and carries water from the Delta to Southern California and is operated by the Department of Water Resources.

Figure 2.4: California Aqueduct

The previously mentioned aqueducts supply Southern California with a significant amount of its water and are crucial to its sustainability. In addition to these two water systems, there are also many other aqueducts that are vital to the State. The major aqueducts in California are shown in **Figure 2.5** on page 2-3.

As a wholesale agency, MWD distributes imported water to its 26 member agencies throughout Southern California as shown in **Figure 2.6** on Page 2-4. Upper District is one of 11 Wholesale agencies served by MWD. ALW has one connection (USG-8) to MWD's Middle Feeder system (see **Figure 2.7**) located on Badillo St. East of Vincent Avenue with a rated capacity of 4.8 MGD (5,377 AFY).

Upper District's Tier 1 rate allocation from MWD is 16,512 AFY which is distributed to its member agencies. **Table 2.1** presents ALW's five-year historic imported water purchases from 2005 to 2009. Imported supplies typically account for less than 1% of ALW's supply totals.

Table 2.1
Five-Year Imported Water Supply
(Purchases from MWD via Upper District)

Year	Purchases (AF)
2009	0
2008	0
2007	192
2006	0
2005	0
Total:	**192**

As indicated by **Table 2.1**, imported water is not a significant component of ALW's supply totals and is used for emergency purposes only. This is due mainly to the financial feasibility of local groundwater extraction versus imported water. If ALW experiences water quality issues with its groundwater wells requiring supplemental supply, they will purchase imported water to meet its supply needs.

Figure 2.5: Aqueduct Systems in California (Figure A.2-5 in MWD's 2010 RUWMP)

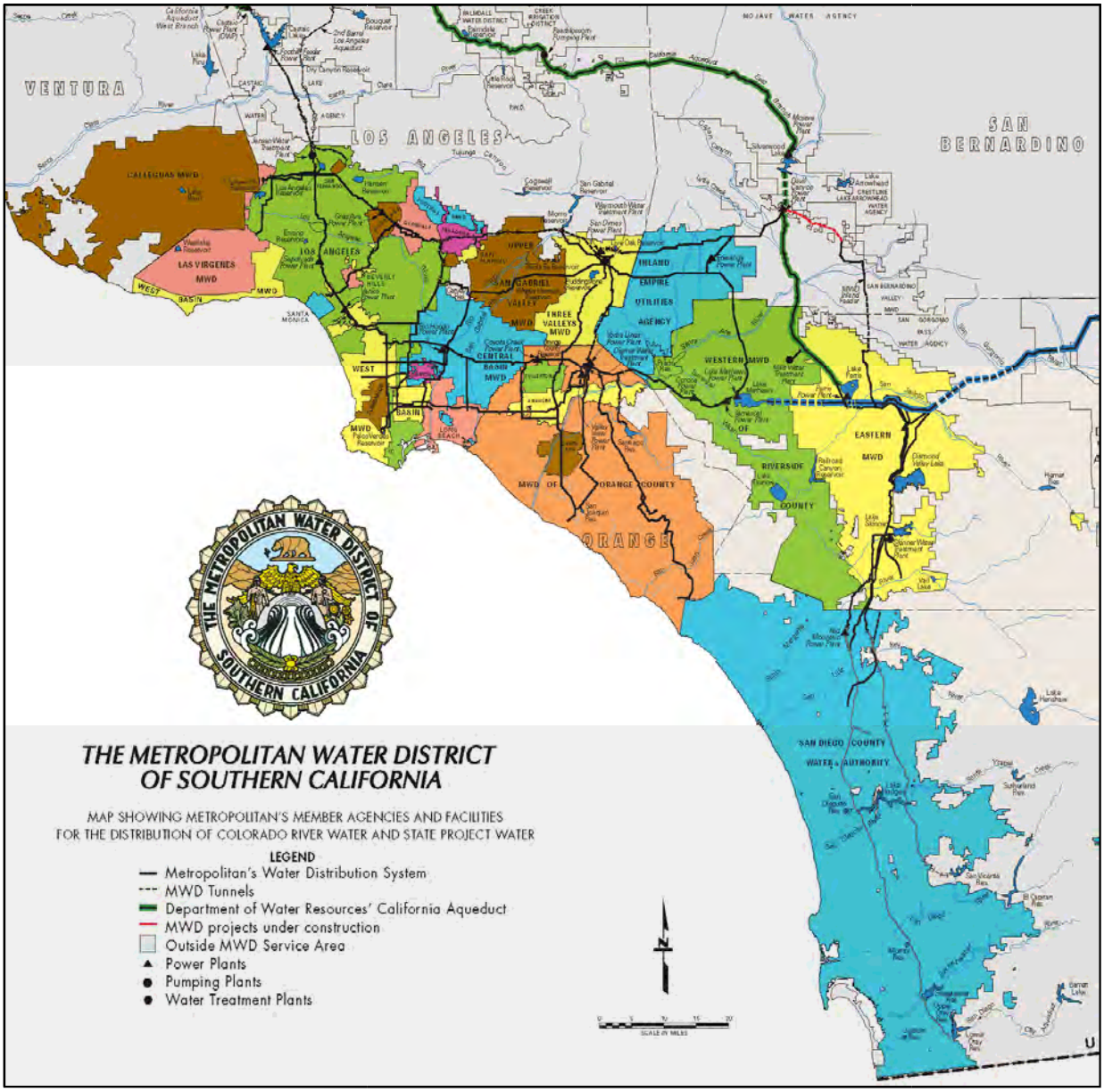

Figure 2.6: MWD Service Area Map (See Figure 2.7 for Upper District & Three Valleys)

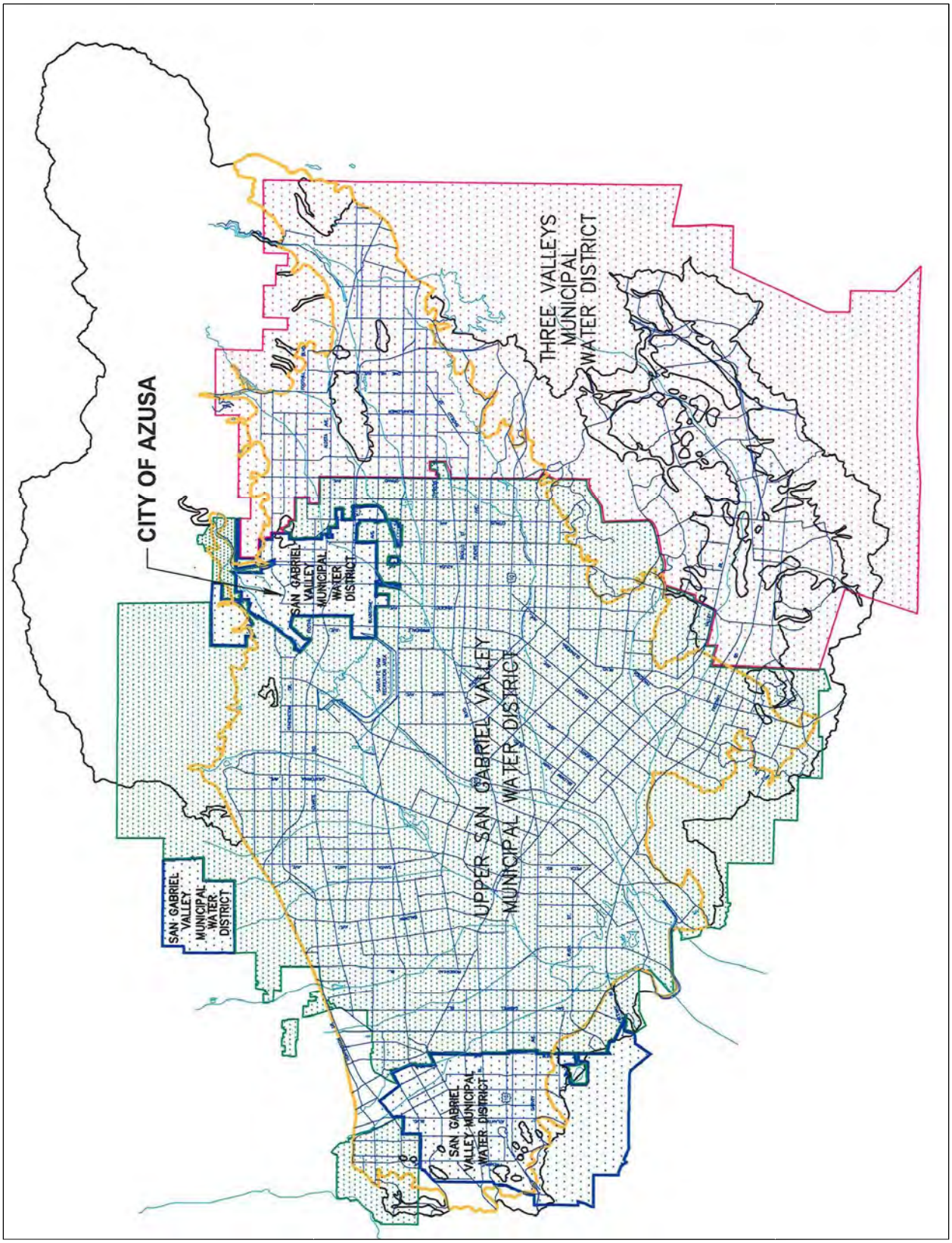

Figure 2.7: Map of San Gabriel Valley Water Agencies (Stetson)

Groundwater

ALW obtains its groundwater supply from the Main San Gabriel Groundwater Basin. The basin is located in eastern Los Angeles County and overlies the majority of the San Gabriel Valley with a surface area of 167 square miles of valley terrain. The basin is bounded by the San Gabriel Mountains to the north, San Jose Hills to the east, Puente Hills to the south, Raymond Basin to the Northwest, and by a series of hills and the Whittier Narrows to the Southwest. As a low gap between the Merced and Puente Hills, the Whittier Narrows is a natural topographic divide which directs the movement of groundwater in the basin as groundwater levels generally follow topographic slope, with groundwater flow from the edges of the basin towards the center and then exiting southwestward through the Whittier Narrows.

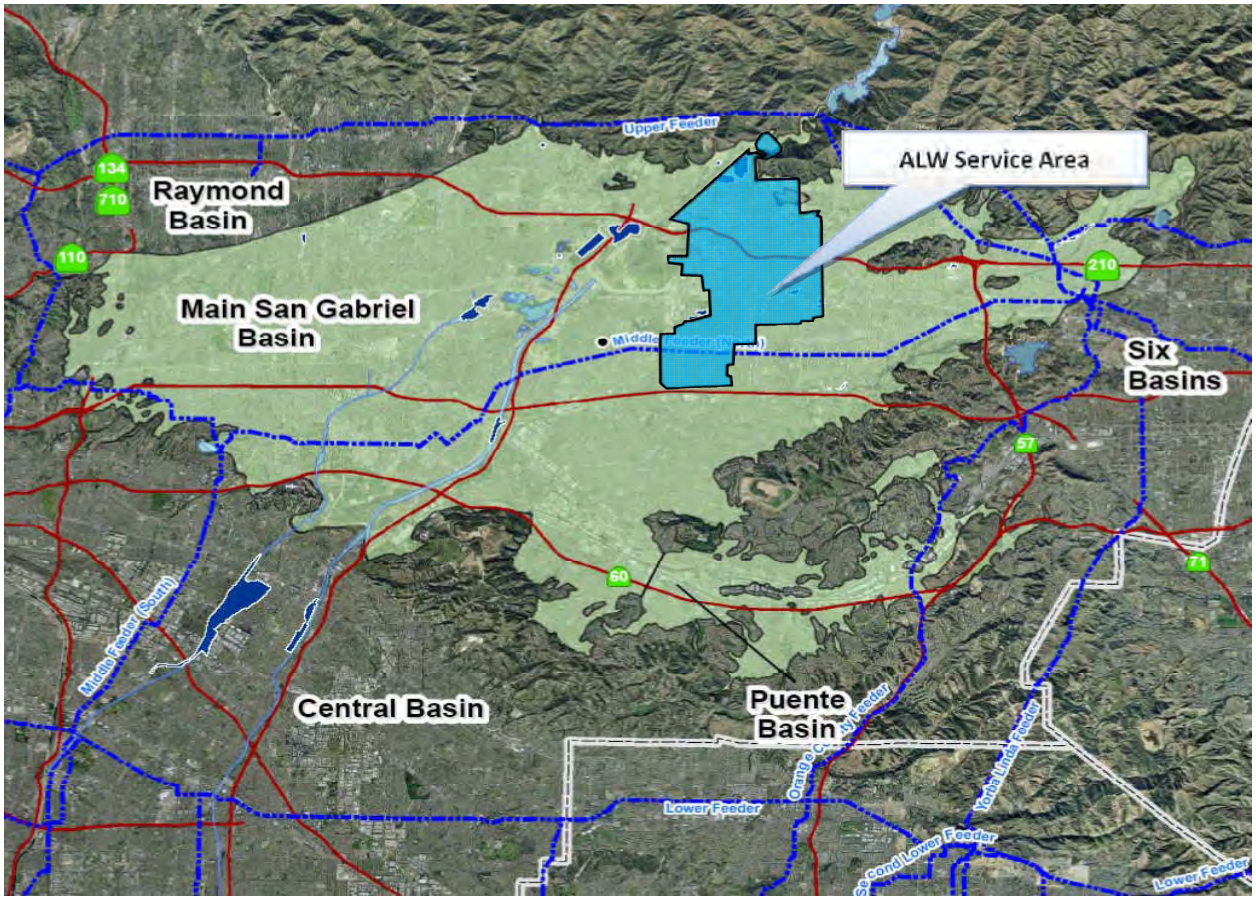

Figure 2.8: Main San Gabriel Basin and Puente Subbasin

The basin consists of a bowl-shaped depression of bedrock, which alluvial deposits have filled over time. The bowl-shaped depressed has groundwater depths ranging from about 800 feet at the edge of the basin near the City of San Dimas to 2,000 feet at the center of the basin near the City of South El Monte. The water-bearing materials in the basin consist of un-consolidated to semi-consolidated alluvium deposited by streams flowing from the San Gabriel Mountains, which range in thickness from 200-300 feet near the base of the mountains to 4,000 feet in the South El

Monte area. These alluvial sediments range in size from course gravel at the base of the mountains to fine grain sands, silts, and clays further away from the mountains. Soils in the basin average about six feet in depth and are generally deeper at the perimeter of the basin and shallower at the center near the San Gabriel River.

Groundwater in the Basin is replenished by percolation from precipitation, receiving an average annual precipitation of 19 inches, and by percolation of runoff from the surrounding mountains. The basin is also replenished from imported water conveyed in the San Gabriel River and from treated sewage effluent. Since the basin is mostly urbanized and soil surfaces have been paved to construct roads, buildings, and flood channels, only a small portion of basin soils are capable of transmitting water to the water-bearing alluvial deposits below.

Figure 2.9: Snowfall on San Gabriel Mountains

The total storage capacity of the basin is estimated to be approximately 8.6 to 10.5 million acre-feet (MAF). Although the safe yield capacity of the basin is estimated to be 152,700 AFY, groundwater extraction in the basin typically exceeds the safe yield capacity of the basin, and thus imported water is used to supplement natural precipitation and streamflow in 17 spreading basins. The spreading basins are managed by the LA County Dept. of Public Works and are used to replenish the Main Basin with a total re-charge capacity of over 600,000 AFY. Six of ALW's twelve wells are located in the spreading grounds located near the San Gabriel River in the Northwest portion of the City.

Figure 2.10: Spreading Grounds in City

Throughout the Main Basin, there exists approximately 250 active wells and 55 inactive wells capable of producing over 500,000 AFY of groundwater. As part of groundwater management operations, a Key Well is maintained in Baldwin Park by the Watermaster in order to determine the Operating Safe Yield (OSY) for each fiscal year. At the Key Well (see black dot on **Figure 2-8** near center of map), one foot of elevation change is equivalent to 8,000 AF of water storage.

Within the Main Basin, there exists a total of six (6) sub-basins which include the Canyon Basin (Upper and Lower), Glendora Basin, Foothill Basin, Way Hill Basin and San Dimas Basin. With the exception of Well No. 10, all of ALW's groundwater production occurs in the Canyon Basin. The Canyon Basin, consisting of Upper and Lower basins, has a combined capacity of 40,000 AF with an average annual production of 30,000 AF. Since the Canyon Basin has the potential for overdraft, the basin is carefully managed. In 2004, ALW, along with the California-American Water

Company and the City of Glendora, entered into a Canyon Basin Memorandum of Understanding (CBMOU) to form a cooperative and coordinated effort towards managing the Canyon Basin with the assistance of the Main Basin Watermaster.

The key characteristics of the Main Basin are listed below in **Table 2.2**:

Table 2.2
Main San Gabriel Basin
Summary of Characteristics

Item	Capacity
Depth to Groundwater	800-2,000 ft.
Thickness of Groundwater Table	200-4,000 ft.
Storage Capacity	8.6-10.5 MAF
Safe Yield	152,000 AFY
Spreading Basins (Total)	17
Spreading Basin Capacity	600,000 AFY
Wells (Active)	250
Wells (Inactive)	55
Well Capacity (Total)	500,000 AFY

The management of water resources in the Main San Gabriel Basin is provided by Watermaster services under two separate court judgments: The Long Beach Judgment and The Main Basin Judgment. The Long Beach Judgment established the River Watermaster and the Main Basin Judgment established the Basin Watermaster. Through the Long Beach Judgment and the Main Basin Judgment, operations of the Main Basin are optimized to conserve local water to meet the needs of the parties of the Main Basin Judgment. A more detailed description of the management of water supplies in the Main San Gabriel Basin, along with copies of the Long Beach and Main Basin Judgments, is provided in Appendices F and G.

Groundwater Production

ALW extracts groundwater from twelve groundwater wells, eleven of which are active, which produce approximately 60-75 percent of the total water supply (2009 estimate). Groundwater well statistics are listed below in **Table 2.3**:

Table 2.3
ALW Groundwater Wells

Well No.	Location	Capacity (gpm)
1	Spreading Grounds	2,794
2	Spreading Grounds	2,325
3	Spreading Grounds	2,609
4	Spreading Grounds	2,096
5	Hermitage Ln so/of Sierra Madre Blvd.	1,000
6	12th St near Northside Park	2,134
7	11th St/McKeever Av	687
8	11th St/Orange Av	1,623
9	710 W. Gladstone	N/A
10	Vernon Av @ Little Dalton Wash	2,216
11	Spreading Grounds	1,761
12	Spreading Grounds	1,274
	Total Capacity:	**20,118**

Well No. 9 is currently inactive due to high nitrate levels and the presence of PCE above maximum contaminant levels. In addition, Well No. 10 also experiences high nitrate levels and PCE levels but is currently active due to a CDHS approved blending plan. All active wells listed in **Table 2.3** are equipped

with flowmeters to measure water production. Water production is recorded monthly by ALW water staff and reported annually to the Department of Water Resources (DWR) In the past five years, groundwater extraction has ranged from 16,500 AF to 21,700 AF (average of 18,837 AF). **Table 2.4** displays ALW's groundwater production for the past five years:

Table 2.4
Five-Year Groundwater Production
(Total All Wells)

Year	Production (AF)
2005	21,122
2006	21,744
2007	18,107
2008	16,727
2009	16,487
Average:	**18,837**

Of the total amounts shown in **Table 2.4** above, Well No. 2 supplied ALW with the largest single amount of groundwater supply at an average rate of 3,750 AFY (20 percent of total groundwater supply) over the past five years.

Surface Water

The San Gabriel River consists of East, West, and North Forks which receive water from creeks and streams in the Angeles National Forest. The Angeles National Forest, located in the San Gabriel Mountains north of the City, provides approximately 230 square miles of watershed that drains into the San Gabriel River before entering the San Gabriel Valley. The river is dammed several times along its course to provide flood control protection, water supply, and power generation. The West Fork of the river is dammed by the Cogswell dam at its West Fork and at the San Gabriel and Morris Dams at the confluence of its East, West, and North Forks.

Figure 2.11: East Fork of San Gabriel River

Surface water from the river is delivered to the Canyon Filtration Plant via the Committee of Nine Ditch either from the San Gabriel and Morris Reservoirs via the Azusa Conduit or directly from the river via the Azusa-Duarte Tunnel. Water diverted directly from the river via the Azusa-Duarte Tunnel can only be used during emergencies as approved by the California Department of Health Services (DHS). With the expansion of the Canyon Filtration Plant, however, river water may be diverted as a normal operation under DHS approval.

Surface water available during the summer is dependent on the releases from the San Gabriel Reservoir and Morris Reservoir. The LA County Department of Public Works operates the reservoirs, and the amount of storage and flows to be provided during the summer are determined at an annual meeting of the Distribution Committee of the San Gabriel River Protective Association. The amount of storage available is a limitation on the summer supply of surface water.

Surface Water Production

Over the past five years, surface water has accounted for 16 to 27 percent of ALW's overall water supply. **Table 2.5** below lists the total production of surface water (effluent) from the Canyon Filtration Plant:

Table 2.5
Five-Year Surface Water Supply
(Canyon Filtration Plant Effluent)

Year	Production (AF)
2005	4,013
2006	4,313
2007	6,907
2008	5,319
2009	5,059
Average:	**5,122**

With a production capacity of 8,407 AFY, the Canyon Plant has been operated at an average of 60 percent capacity for the past five years. Overall, ALW's annual use of surface water accounts for about 12 percent of the San Gabriel Reservoir's 44,183 AF capacity.

2.3 WATER SUPPLY SUMMARY

Table 2.6 lists ALW's supply totals:

Table 2.6
Water Supply Summary

Yr.	Imported (AF)	Ground (AF)	Surface (AF)	Total (AF)
2005	0	21,122	4,013	**25,135**
2006	0	21,744	4,313	**26,057**
2007	192	18,107	6,907	**25,014**
2008	0	16,727	5,319	**22,046**
2009	0	16,487	5,059	**21,546**

2.4 PROJECTED WATER SUPPLY

As population and land-use densities increase, ALW understands the need to discover and support local water supply projects in order to continue its independency of imported water. As part of this process, ALW intends to focus its efforts on its existing water supply infrastructure in order to maximize its local supply capacity. Additionally, ALW will look into the possibility of receiving imported water and will work with Upper District towards the advancement of recycled water infrastructure. ALW will also work with other regional agencies and the Main San Gabriel Basin Watermaster to ensure that groundwater supplies are maximized when natural replenishment is limited during dry climate conditions. ALW will also implement conservation measures to offset demand and provide additional reliability. Based on the current capacity of ALW's supply infrastructure, ALW can expect to meet the needs of its customers through 2035 in accordance with **Table 2.7** below:

Table 2.7
Projected Water Supply Availability

Year	Imported (AF)	Ground (AF)	Surface (AF)
2015	4,000	24,350	10,100
2020	4,000	24,350	10,100
2025	4,000	24,350	10,100
2030	4,000	24,350	10,100
2035	4,000	24,350	10,100

Overall, AW's supply reliability in the near future is expected to increase through continued upgrades to its groundwater facilities, expansion of the Joseph F. Hsu Filtration Plant (from 12 to 16 MGD), continued access to imported water, and

through the future potential use of recycled water. ALW will also continue to benefit indirectly from regional conservation efforts and also through MWD's efforts to augment its supplies and improve storage capacities. **Section 5: Reliability Planning** discusses reliability issues and compares the projected water supplies to projected demands for normal, dry, and multiple dry years through 2035.

2.5 ALTERNATE WATER SOURCES

This section provides an overview of alternative water sources and their potential uses. Alternative water sources include recycled water, graywater, and desalinated sweater.

Recycled Water

Background

In 1976, Upper District and San Gabriel District completed a study entitled "Potential Use of Reclaimed Water for Groundwater Replenishment in the Basin." This study was updated at the request of the Basin Watermaster in 1980 and again in March 1987. In 1979, a cooperative study was completed by Metropolitan and others entitled "Orange and Los Angeles Counties Water Reuse Study." These studies concluded that water reuse in the Main Basin could be feasible. However, the cost of utilizing recycled water varies widely with the quantity to be used and the distance from the treatment plant to the point of use. ALW currently does not use recycled water and could not directly benefit from a large-scale recycling project due to its distance from the source of supply. However, ALW could receive indirect benefits from a large-scale recycling project through the reduction of groundwater pumping by others in the Main Basin.

Wastewater Collection & Treatment System

There are no wastewater treatment facilities in ALW's service area. All wastewater flows generated by the City (not including storm water) are collected by the City's local sewer mains and delivered to LA County Sanitation District (CSD) District No. 22 main trunk lines. Other Cities served by ALW do likewise. The City's sewer system currently handles about 38 cfs using pipes with a capacity of 48 cfs. The trunk lines convey wastewater flows to the San Jose Creek Water Reclamation Plant in the City of Industry and the Joint Water Pollution Control Plant in the City of Carson. These two plants treat up to 100 to 350 MGD of wastewater, of which the City generates approximately 20.3 MGD of wastewater according to its 2001 Sewer Master Plan.

The treatment applied at the plants includes primary, secondary and tertiary treatment for the re-use of water. At the San Jose Creek Plant, Approximately 35 million gallons per day of the treated water is reused at 17 different reuse sites. These include groundwater recharge and irrigation of parks, and schools. The remainder is discharged to the San Gabriel River.

Recycled Water Use

Currently ALW does not use recycled water and does not have the ability to use recycled water due to a lack of infrastructure. However, ALW may benefit from regional uses of recycled water in the Main Basin.

Potential Uses of Recycled Water

Upper District, along with San Gabriel District and in cooperation with Main Basin Watermaster, proposed to implement a groundwater recharge program using recycled water referred to as the San Gabriel

Valley Recycled Water Demonstration Project. This project proposes to recharge the Main Basin using up to 10,000 AFY tertiary treated recycled water. The source of the recycled water will be the SJCWRP and the point of recharge will be the San Gabriel River. Although the maximum amount of recycled water that would be recharged into the San Gabriel River in any year would be 10,000 acre-feet, in some years this amount is anticipated to be less due to Key Well limitations on groundwater recharge and other constraints. Recycled water recharge over the long term is anticipated to average about 8,000 AFY. The design portion of this project has been completed; however, a study of the project's potential is still underway.

Figure 2.12: Clarifier Treating Wastewater

During calendar year 1994, Upper District participated in a study to determine potential direct users of recycled water. In October 1994, a draft report of the study entitled, "Direct Reuse Study" was released, which identified over 600 potential recycled water users within the Main Basin, of which 48 are located in ALW's service area. The potential users include parks, schools, hospital and golf courses.

Projected Use of Recycled Water

The projected use of recycled water within ALW's service area for the next 20 years is uncertain until a plan is fully developed. Additional information regarding recycled water use is located in San Gabriel District and Upper District's UWMPs, which are incorporated by reference

Future Plans for Recycled Water

As previously discussed, Upper District has conducted studies to identify potential direct users of recycle water in ALW's service area. Based on the results of the studies, a plan may be developed for potential recycled water use within ALW's service area. Because none of the recycled water

facilities have been constructed, it is premature to quantify financial incentives

Graywater

Graywater systems have been used in California to provide a source of water supply for subsurface irrigation and also as a means to reduce overall water use. Graywater consists of water discharged from sinks, bathtubs, dishwashers, and clotheswashers. Graywater systems consist of an underground tank and pumping system. Graywater is currently legal for subsurface irrigation in the State of California. However, strict regulations and high installation costs have impeded installation of professional graywater systems and has the unintended consequence of undocumented and noncompliant use of graywater.

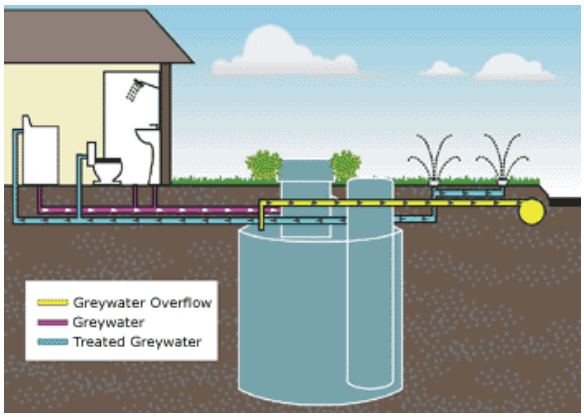

Figure 2.13: Graywater System

The promotion of graywater systems as a means to reduce ALW's overall water use is not recommended since the use of graywater is currently limited to subsurface irrigation and therefore the overall service area-wide reduction in water use (in AF) would be minimal at best. With the recent passage of SB 1258, however, graywater use is expected to be expanded to include use for toilet flushing, and may have its place as a potential water supply.

Desalinated Water

Seawater desalination is a process whereby seawater is treated to remove salts and other contents to develop both potable and non-potable supplies. There are over 10,000 desalination facilities worldwide that produce over 13 million AFY. Desalinated water can add to Southern California's supply reliability by diversifying its water supply sources and mitigating against possible supply reductions due to conservation. With its Seawater Desalination Program (SDP), the MWD facilitates progress and provides financial incentives for the development of seawater desalination facilities within its service area.

Figure 2.14: Seawater Desalination Plant

A total of five member agencies submitted projects totaling 142,000 AFY. In 2004, MWD adopted an Integrated IRP update which included a desalination goal of 150,000 AFY by the year 2025. Currently, the five member agency projects are in various levels of development. Since ALW's service area is not located adjacent to the Ocean, there are no plans to incorporate desalinated seawater into its supply sources.

In addition to seawater desalination, some agencies require desalination facilities to treat groundwater that is high in Total Dissolved Solids (TDS). Groundwater pumped from the Main Basin and Canyon

Basin has an average TDS value of 275 mg/l and therefore does not require desalination. ALW does not maintain any desalination facilities and therefore does not incorporate desalinated water into its supply. Therefore, ALW does not need to desalinate water at this time.

2.6 TRANSFERS OR EXCHANGES

Short Term

ALW has three interconnections to obtain water in case of an emergency. If its water supply is interrupted, it can receive emergency supplies from MWD, the City of Glendora and Valley County Water District (VCWD). Locations of the interconnections are shown on Plate 1. The following is a list of emergency interconnections that deliver water to the ALW.

Table 2.8
Short-Term Transfer Opportunities
(Emergency Transfers)

Connection	Capacity (gpm)
10-inch (MWD)	3,300
8-inch (City of Glendora)	1,000
8-inch (VCWD)	1,500
Total:	**5,800**

Long Term

ALW is a party to the Main Basin Judgment and has adjudicated water rights. The Main Basin Judgment does not restrict the quantity of groundwater that can be produced, but provides for a Replacement Water assessment for production in excess of water rights. The Main Basin Judgment also allows parties to enter into temporary transfers (leases) of water rights to acquire additional water rights on an annual basis to reduce the quantity of production that may be subject to a Replacement Water assessment.

ALW also has a Cyclic Storage agreement with the Main Basin Watermaster to store imported water in the Main Basin for a period of up to five years to be used to offset a future Replacement Water requirement. ALW relies on San Gabriel District and Upper District to deliver imported water to the Main Basin. ALW is allowed to store a maximum of 15,000 acre feet at any given time in its Cyclic Storage account with the Main Basin Watermaster. As of June 30, 2004, ALW had 1,500 acre-feet in its Cyclic Storage account from San Gabriel District. In addition, as of June 30, 2004, ALW had 454.81 acre-feet in its Cyclic Storage account from Upper District. Because water is often in Cyclic Storage for many years before being required as Replacement Water, the Cyclic Storage program, although technically a conjunctive use operation, may be considered an exchange or transfer program in that it takes advantage of surplus water, when available, and stores it in the Main Basin for future use.

SECTION 3: WATER QUALITY

3.1 WATER QUALITY SUMMARY

In 1974, Congress passed the Safe Drinking Water Act in order to protect public health by regulating the nation's drinking water supply. As required by the Safe Drinking Water Act, ALW provides annual Water Quality Reports to its customers. Currently all of the water that ALW distributes to its customers meet federal EPA standards and California Department of Health Services (CDHS) Standards.

The quality of water distributed to the ALW's water system is directly related to the quality of the supply sources from which they obtains their water. This section explores the quality of the ALW's supply sources and examines important water contaminants that the are actively monitored as part of its efforts to supply safe drinking water to its customers.

3.2 QUALITY OF SOURCES

Imported Water

ALW receives imported water from MWD on an as-needed basis for emergency purposes and for blending needs to meet Federal and CDHS standards. Imported water obtained from the SWP and the CRA contain specific contaminants which are characteristic of the Bay Delta and the Colorado River regions. Some of the contaminants of concern include: salinity, biological loads, disinfection by-products, percholorate, uranium, and arsenic. MWD's 2010 RUWMP discusses the water quality concerns of its supplies.

To provide safe drinking water to its customers, MWD treats its water supply at five (5) separate treatment plants, three of which blend a mixture of SWP and CRA water. Of the five plants that serve Southern California, ALW has access to treated effluent from the Weymoth Treatment Plant via MWD's Middle Feeder pipeline.

Figure 3.1: Weymouth Treatment Plant

Although MWD water meets all regulatory requirements, MWD understands the need for stringent testing and quality assurance for its customers. Water is analyzed and tested at one central, state-of-the-art treatment facility in addition to five satellite laboratories at each treatment facility to ensure the quality and safety of its water.

Surface Water

The San Gabriel River accounts for up to 25 percent of the total ALW service area water supply. ALW obtains its supplies from the San Gabriel or Morris Reservoirs or directly from the river. ALW diverts raw river water to the Joseph F. Hsu Water Filtration Plant where it is treated to meet CDHS Standards. The San Gabriel River, like all other sources of water, has its own unique water quality concerns which require specific treatment.

Figure 3.2: Morris & San Gabriel Reservoirs along San Gabriel River

The San Gabriel River, like the Colorado River, runs through rock bed formations which erode naturally and add to the water's mineral content. In addition, organic vegetation debris often gets washed into the river and adds to the turbidity levels of the river water. As a result, turbidity levels in the San Gabriel River can at times rise to high levels which affect the treatment process. Occasionally, ALW is unable to treat its surface water diversions at the Hsu Plant due to the high levels of turbidity. However, ALW has the option to divert its surface water supply to an alternative location at the Azusa-Duarte Tunnel (A-D Tunnel). When ALW diverts San Gabriel River water to the A-D Tunnel, the water may be mixed with untreated water imported by MWD. The untreated water from MWD is higher in organic matter, which may contribute to higher disinfection byproducts levels in the distribution system.

Other threats posing health risks found in raw water from the San Gabriel River include microbiological threats such as cryptosporidium, coliform bacteria and disinfection by-products. In 2009, ALW completed the $36 million Joseph F. Hsu Water Filtration Plant to enable ALW to treat surface water to a much greater degree. The facility is the largest Capital Project in the City's history and has a current capacity of 12 MGD (expandable to 16 MGD) which will enable ALW to treat San Gabriel River water and imported water from the Colorado River and State Water Project.

Groundwater

Groundwater extracted from the Main San Gabriel Basin and its sub basins contains various contaminants of concern which include Nitrate, Total Dissolved Solids (TDS), Volatile Organic Compounds

(VOCs), Perchlorate, and NDMA. Of the contaminants of concern in the Main San Gabriel Basin, ALW has only dealt with the effects of high Nitrate levels in its groundwater wells. In particular, due to high Nitrate concentrations, ALW has de-activated its Well No. 9. In addition, ALW's Well No. 10 experiences Nitrate concentrations which require an approved blending plan to continue operation.

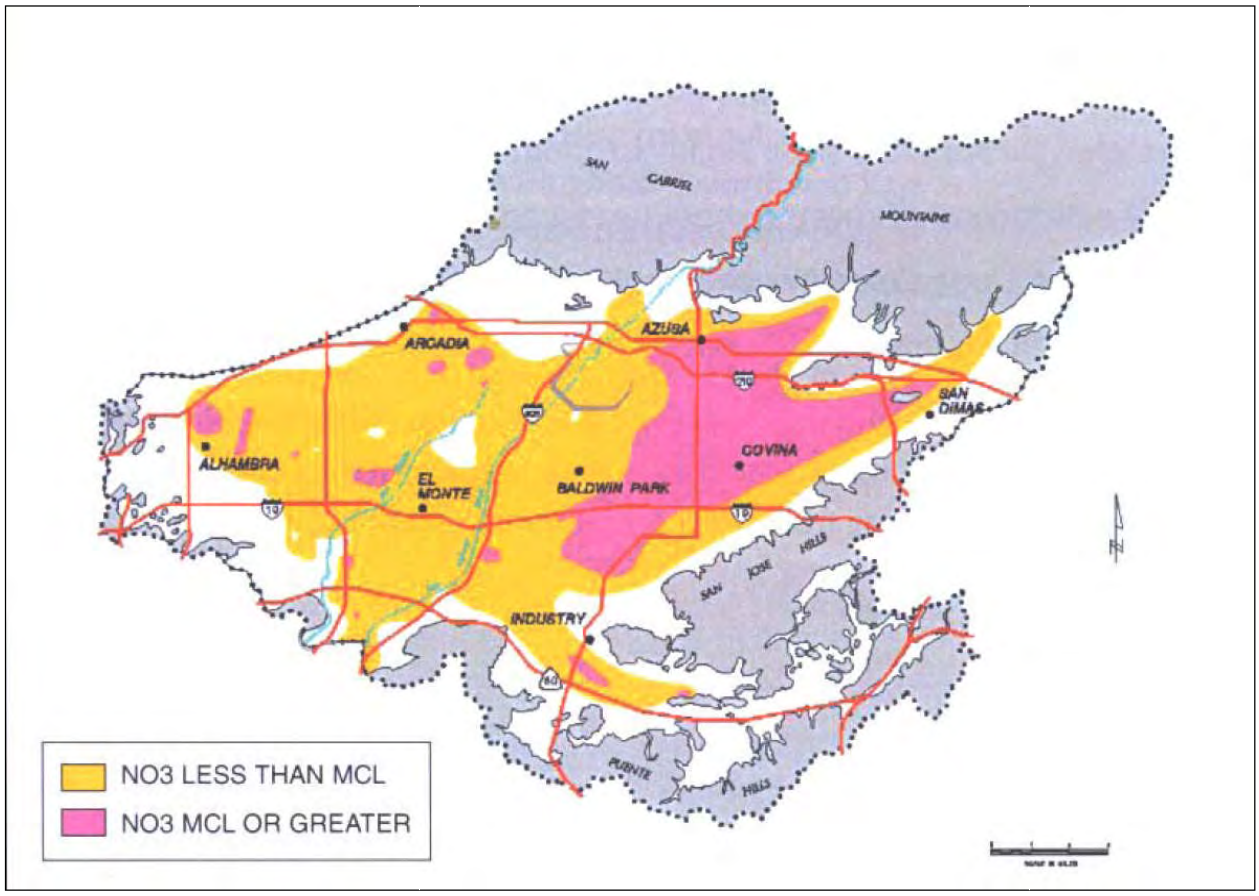

Figure 3.3: Nitrate Plumes in the Main San Gabriel Basin

Other than Nitrate contamination, groundwater quality within the ALW service area is typically good and does not require special treatment before entering the distribution system. All groundwater entering the ALW's distribution system meet CDHS standards.

Summary of Water Supply Contaminants

The three sources of ALW's water supply have unique water quality characteristics which require specific treatment to mitigate the effects of contaminants. As required by CDHS, ALW routinely monitors its surface and groundwater supplies to meet the Primary Standards (mandatory health-related standards) as well as Secondary Standards (aesthetic standards).

In accordance with the available data, the only contaminants affecting day-do-day operations of ALW's water production include Nitrate in Well No. 10 and Turbidity of San Gabriel River water. Table 3.1 below summarizes the concerns to ALW's water supply:

Table 3.1
Major Water Quality Issues
Affecting Supply Operations

Contaminant	Source of Supply	
	Surface	Ground
Turbidity	√	
Nitrates		√

Although ALW provides an annual comprehensive report (Consumer Confidence Report) documenting all of the contaminants discovered in ALW's water supply, all concentration levels of contaminants remain below CDHS standards. New regulations and/or the discovery of new contaminants could broaden ALW's contaminant concerns.

3.3 EFFECTS OF WATER QUALITY ON MANAGEMENT STRATEGIES & SUPPLY RELIABILITY

The previous section discussed water quality issues affecting ALW's water supply operations. Due to advanced treatment procedures and an approved blending plan, ALW does not anticipate any reductions in its water supplies due to water quality issues. Future regulatory changes enacted by the EPA and/or the State legislature will be met through additional mitigation actions in order to meet the standards and to maintain water supply to ALW's customers. Thus, ALW does not expect water quality to be a major factor in its supply reliability considerations.

SECTION 4: WATER DEMANDS

4.1 FACTORS AFFECTING DEMAND

Water use within the ALW service area is variable and depends on a number of factors which range from increases and decreases in irrigation and water losses to changes in plumbing fixtures and customer usage habits. This section explores the water usage trends within the ALW service area and quantifies total usage per customer type.

Urbanization's Affect On Water Use

The City of Azusa, like most of Southern California, began as small, suburban town with plenty of room for development. Previous land uses in the City at that time consisted of either residential or agricultural wherein which orange groves were a common sight. By 1900, approximately 500 acres of land -nearly 10% of Azusa's current acreage, was used for citrus planting. **Figure 4.1** below shows an artist's rendering of earlier days in Azusa.

Figure 4.1: Early Azusa

Through incorporation in 1898 and the beginning of its water operations in 1899, the City paved the way for urban development and population expansion. At the turn 20th century, the City's population was a mere 863 persons. Gradually and through a series of infrastructural milestones such as the Morris Dam in 1934, the City population expanded. The City is now all but fully developed with most of the development devoted to residential and commercial uses.

Figure 4.2: Azusa Today

Through urbanization, the City has become one of the key cities among the Foothill communities of the San Gabriel Valley. The City's adjacent location to the San Gabriel Mountains allows for easy access to surface water from the San Gabriel River in order to provide additional supply reliability to sustain its populous as future growth require a reliable supply of water. Due to near "built-out" conditions, additional growth can be expected through re-development.

Water Use Within ALW's Service Area

The City's image as the "Canyon City" -a desirable community to live in, is due in part to its dedication to maintain its parks, schools, and recreational facilities both in the private and in the public sector. With over half of the City zoned for low to medium single family dwellings, the City has a significant number of residential lots

which require consistent irrigation to maintain those landscapes. This means that hydrologic conditions will continue to extend a major influence on water use within the City.

Figure 4.3: Residential Irrigation

In addition to water demand for residential irrigation purposes in the City, there are a number of high water users within ALW's service area. These include institutional users such as Azusa Pacific University and Citrus College, industrial users such as Miller, Ready Pac, and S&S, and irrigation users such as Azusa Greens Public Golf Course.

Figure 4.4: Azusa Greens Public Golf Course

Although the service area is located at the base of the San Gabriel Mountains and therefore receives slightly higher than average rainfall totals (compare 19 inches to 13 inches annually for LA area), overall water use characteristics within ALW's service area reflects the regional water use characteristics within Southern California and in particular the San Gabriel Valley. As indicated previously, this is due mainly to landscape irrigation water use.

4.2 HISTORIC WATER DEMAND

Water demands within ALW's service area are met by groundwater from the Main San Gabriel Basin and surface water from the San Gabriel River. Annual water use since 2005 has ranged from 16,487 AF to 21,744 AF with an average of 18,837 AF as shown below in **Table 4.1**:

Table 4.1
ALW Service Area
Historic Water Use (2005-2009)

Year	Demand (AF)
2009	21,546
2008	22,046
2007	25,014
2006	26,057
2005	25,136
Average:	**23,960**

As indicated by **Table 4.1** above, annual water use fluctuates each year and is dependent on climatologic conditions.

4.3 WATER DEMAND BY SECTOR

ALW maintains records of water consumption and bills its customers on a monthly basis for its water service. ALW maintains approximately 22,000 service connections with a mixture of residential, commercial, industrial, and institutional accounts.

Of the 22,000 current service connections, approximately 90 percent are either single family or multi-family residential with well over half of the service area zoned

for low, medium, or high-density single family dwellings. Commercial and institutional connections, on the other hand, account for approximately 7 percent of the total current service connections while industrial connections account for almost 2 percent of the total current service connections. Landscape irrigation connections and other connections account for approximately 1 percent of the It is noteworthy that the landscape irrigation sector accounts for a significant portion of ALW's current water use with relatively few service connections.

The water use by each connection type for the past five years and the total number of service connections is listed below in **Tables 4.2 & 4.3**. The average proportions of water use by sector listed in this table will be used to analyze projected water use by sector in Section 4.5.

Table 4.2
Historic Demand By Sector

Sector	2005	2006	2007	2008	2009
Single Family/Multi-Family Res	10,506	11,344	11,503	9,755	9,673
Commercial/Institutional	4,017	4,110	4,077	4,447	4,227
Industrial	4,705	5,426	2,486	1,790	1,921
Landscape Irrigation	1,059	992	3,460	2,705	2,771
Other	2	2	3	3	4
Subtotal:	**20,288**	**21,874**	**21,528**	**18,720**	**18,596**
Unaccounted for Water	4,847	4,183	3,678	3,326	2,951
Total Water Use:	**25,136**	**26,057**	**25,206**	**22,046**	**21,547**

Table 4.3
Historic Number of Service Connections

Sector	2005	2006	2007	2008	2009
Single Family/Multi-Family Res	19,418	19,418	19,701	19,862	19,852
Commercial/Institutional	1,604	1,604	1,526	1,562	1,619
Industrial	330	330	339	346	330
Landscape Irrigation	223	223	238	238	157
Other	292	292	282	282	292
Total No. of Connections:	**21,867**	**21,867**	**22,086**	**22,290**	**22,250**

As can be noted from **Table 4.2** above, unaccounted for water accounts for a significant portion of ALW's overall water use at approximately 15 percent. A portion of this water is used for groundwater recharge and the remaining consists of water losses. Although water losses in the 10% range are not uncommon for many water agencies, they have cost impacts which require strong effort to reduce the cost impact of water losses on water operations.

4.4 WATER CONSERVATION

SBx7-7 Background

Due to supply concerns in the San Joaquin Delta, the California Legislature drafted the Water Conservation Act of 2009 (SBx7-7) to enforce statewide water conservation. The new legislation called for a 20% reduction in water use by the year 2020. SBx7-7 also amended the water code to call for reporting changes in the 2010 Urban Water Management Plans and allows the Department of Water Resources (DWR) to enforce compliance to the new water use standards. The new reporting requirements allow provisions for agencies located within different Hydrologic Regions to satisfy the requirements of the new legislation.

Figure 4.5: California's 2020 Water Conservation Goals

In addition to an overall statewide 20% water use reduction, the objective of SBx7-7 is to reduce water use in within each hydrologic region in accordance with the agricultural and urban water needs of each region. Currently, the Department of Water Resources (DWR) recognizes 10 separate hydrologic regions in California as shown in **Figure 4.5**. Each hydrologic region has been established for planning purposes and corresponds to the State's major drainage areas. The service area of ALW is located in the South Coast Hydrologic Region (HR), which includes all of Orange County, most

of San Diego and Los Angeles Counties, parts of Riverside, San Bernardino, and Ventura counties, and a small amount of Kern and Santa Barbara Counties. The South Coast HR is shown below in **Figure 4.6.** Per capita water use, measured in gallons per capita per day (GPCD), in the South Coast HR varies between different water agencies, depending on the geographic and economic conditions of the agency's service area. Regions with more affluence, such as Beverly Hills, typically consume more water and therefore have higher per capita water use numbers. The South Coast Hydrologic Region has an overall baseline per capita water use of 180 GPCD and DWR has established a regional target of 149 GPCD for the region as a compliance target to satisfy the provisions of SBx7-7 legislation.

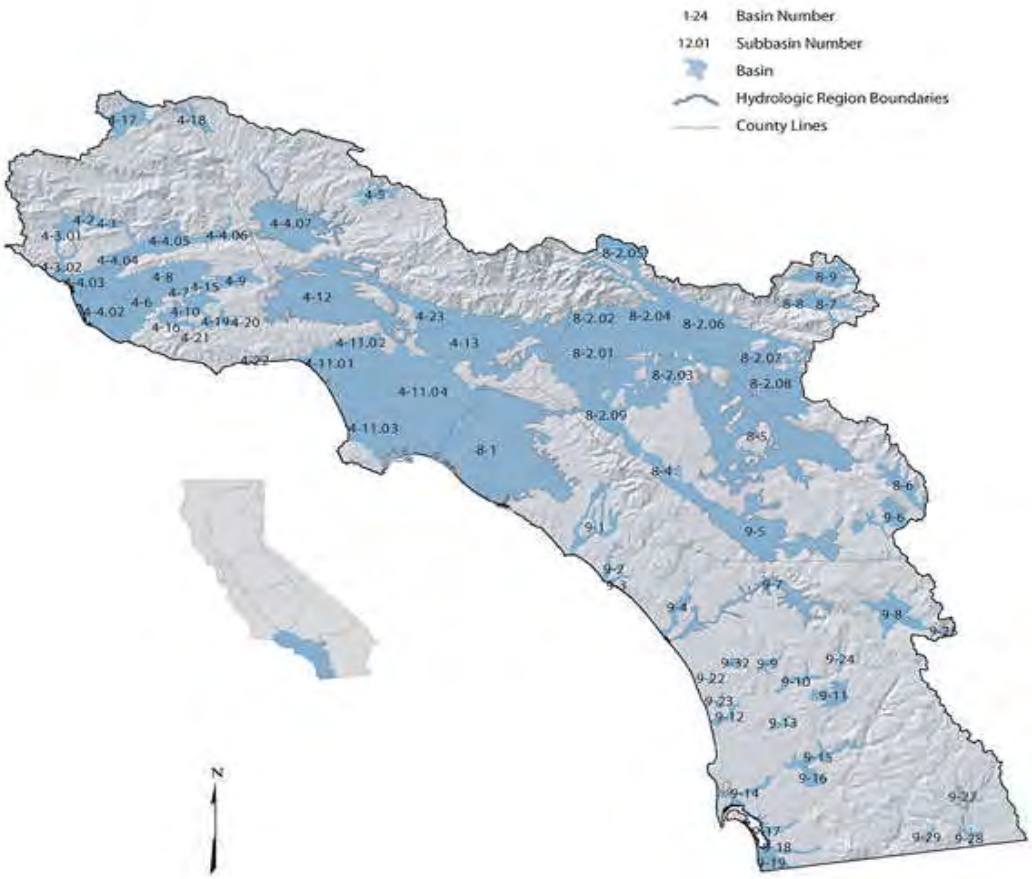

Figure 4.6: South Coast Hydrologic Region

SBx7-7 Methodologies

To satisfy the provisions of SBx7-7, ALW must establish a per capita water use target for the year 2020 as well as an interim target. DWR has provided guidelines for determining these targets in its *Methodologies for Calculating Baseline and Compliance Urban Per Capita Water Use* and also in the 2010 UWMP Guidebook (Section D). ALW's baseline water use is based on ALW's historic water use and is determined by the procedure on the following page:

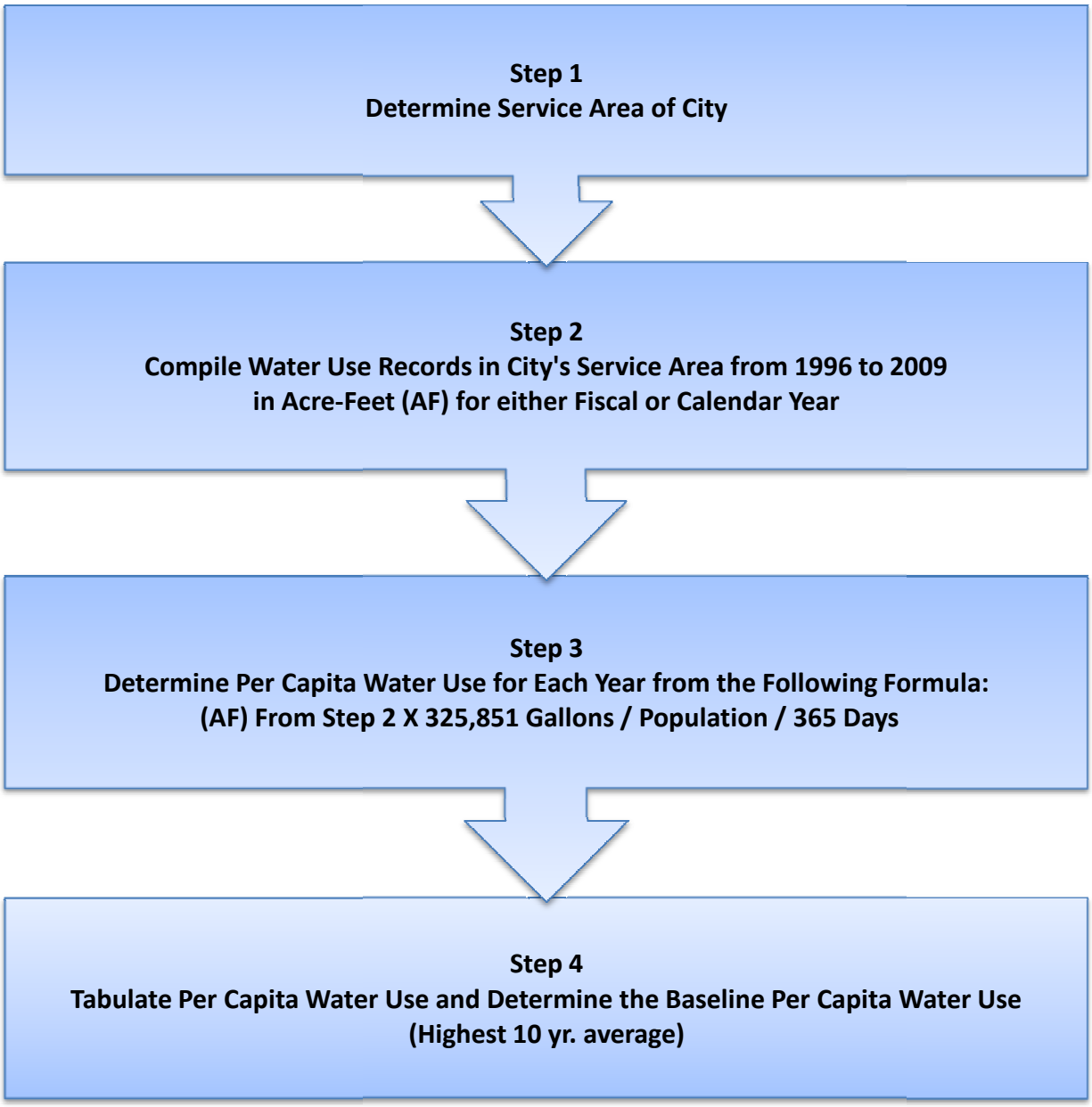

Figure 4.7: Procedure for Determining Baseline Per Capita Water Use

In the same fashion, ALW is responsible for determining a five-year baseline water use in accordance with DWR's guidelines. The *Methodologies* guidebook makes provisions which allow a water supplier to meet the target requirements by achieving any one of a number of target requirements, provided that the water supplier's per capita water use is low enough relative to the region within which it supplies water. The basic options include a minimum reduction requirement of 5% (Water Code § 10620), a 5% Reduction from the Regional (South Coast HR) target (Water Code § 10608.20 (b) (3)), or a strict 20% reduction.

These options have been established in order

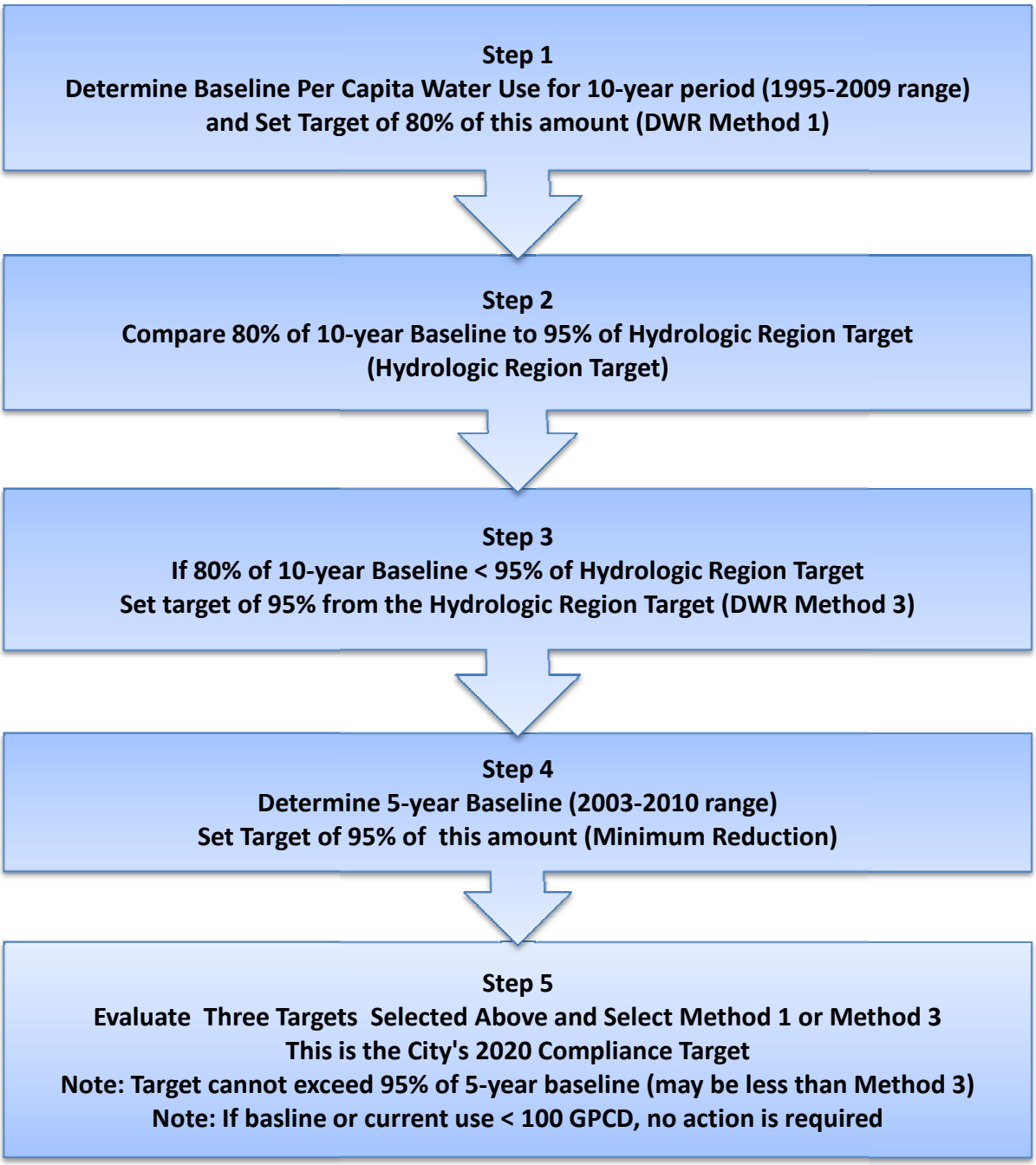

Figure 4.8: Procedure for Determining Baseline Per Capita Water Use

avoid placing any undue hardship on water agencies that have already been implementing water conservation measures for some time. The basic procedure for determining the applicable water reduction target is illustrated by **Figure 4.8** above. If an agency's 10-year baseline is slightly higher than the Hydrologic Region's Target, that agency still must achieve a 5% reduction from its 5-yr. baseline. If an agency has a per capita water use of 100 GPCD or less, that agency will not have to adhere to any reduction targets as that agency is already water efficient.

SBx7-7 Targets

Due to the options available to water agencies, some neighbor agencies within the South Coast HR with lower baseline water usages, such as Los Angeles, (baseline of 150.6 GPCD) will not have to adhere to stringent reduction requirements. **Table 4.4** below shows an example of these options available to the City of Los Angeles:

Table 4.4
Reduction Example for Los Angeles
(Baseline = 150.6 GPCD)

Min. Reduction Requirement (5% of 5-year baseline) (10608.22)	20% Target (10608.20) (b)(1)	5% Reduction from Regional Target (10608.20) (b)(3)
143.07	120.5	141.5
2020 Per Capita Target:		**141.5**
Interim (2015) Target:		

As indicated by the above table, the City of Los Angeles cannot select a minimum reduction requirement of 143.07 GPCD (5% from its baseline) as this amount is greater than 141.5 GPCD (5% reduction from the South Coast HR's regional target). However, since Los Angeles's 20% reduction target (120.5 GPCD) is less than the minimum reduction requirement that is required by DWR (141.5 GPCD), it is feasible to select 141.5 GPCD as its 2020 water use target.

Unlike the City of Los Angeles, water consumption quantities within ALW's service area are slightly higher due to socio-economic and land-use characteristics. This indicates that ALW's options will be limited within the provisions of SBx7-7.

To determine ALW's historic per capita water use and to set 10-yr. and 5-yr. baselines, water use data was gathered from 1996-2009 and ALW's baseline was determined as shown below in **Table 4.5:**

Table 4.5
ALW
Historic GPCPD Water Use

Year	Total Consumption (AF)	Per Capita (GPCD)
2009	21,547	179
2008	22,046	185
2007	25,206	214
2006	26,057	223
2005	25,136	217
2004	25,703	225
2003	23,380	206
2002	22,408	200
2001	21,861	197
2000	22,557	205
1999	22,347	205
1998	21,373	198
1997	23,826	223
1996	22,910	217
10 yr. Baseline (1996-2005) (SB7: 10608.20)		**210**
5 yr. Baseline (2003-2007) (SB7: 10608.22)		**217**
South Coast HR:		**180**

The baseline numbers shown in the above table will be used to determine ALW's compliance target. In order to determine the correct compliance target, ALW's baseline water use will be compared to the regional compliance target as in the Los Angeles example in order to determine the applicable reduction amounts per the SBx7-7 additions to the water code.

The legal stipulations applicable to ALW and the required target to be enforced by DWR is shown below in **Table 4.6**:

Table 4.6
ALW
2020 Water Use Targets

Min. Reduction Requirement (10608.22)	20% Target (10608.20) (b)(1)	5% Reduction from Regional Target (10608.20) (b)(3)
206	168	141.5
	2020 Per Capita Target:	**168**
	Interim (2015) Target:	**189**
	2009 Per Capita Water Use:	**179**
	Current (2010) Per Capita Water Use:	**165**

As indicated by the above table, ALW cannot select a minimum reduction requirement of 206 GPCD (5% from its baseline) as this amount is greater than 141.5 GPCD (5% reduction from the South Coast HR's regional target). Therefore 10608.22 does not apply to ALW. In addition, since ALW's 20% reduction target (168 GPCD) far exceeds the South Coast HR's target of 141.5 GPCD, it is feasible for ALW to select 168 GPCD as its 2020 water use target. Therefore, ALW's compliance target for per capita water consumption is 168 GPCD in accordance with 10608.20(b)(1).

Although the requirements of SBx7-7 seem stringent, it is noteworthy to mention that ALW has seen an increase in water efficiency. This is due in part to a greater achievement of conservation measures, saturation of water-saving plumbing fixtures, and overall water conservation awareness.

Methods to Achieve 2020 Water Use Target

Through adherence to strict 20% reduction requirements, ALW can participate in Statewide efforts to conserve Sacramento-San Joaquin Bay-Delta Water and to protect the ecological habitat of the region. Although ecological motives are controversial, ensuring a reliable supply of water for human use is a top priority without controversy. Through conservation measures and the use of renewable, local groundwater supplies, ALW can reduce demand for Bay-Delta water.

Figure 4.9: Bay-Delta Water Must Be Preserved

ALW understands the unique needs of its customers and also the importance of efficient water use. As a result, ALW will utilize management strategies specific to the needs of its residents. The methods to be used in achieving its 2020 reduction requirements, include, but are not limited to the Demand Management Measures listed in **Table 6.1**. In addition, ALW may enact additional water use restrictions in accordance with its Emergency Conservation Plan Ordinance. With increased public awareness of SBx7-7 requirements, it is likely that the public will begin to understand the importance of water conservation and will begin to use water more efficiently.

4.5 PROJECTED WATER DEMAND

As ALW's population continues to grow and as water conservation measures continue to be implemented, ALW should experience moderate increases in its water consumption following a moderate drop in water use from 2011-2020 due to SBx7-7 requirements. Per capita consumption rates, however, should be expected to remain constant or decrease to be in compliance with the law.

Future water use projections must consider significant factors on water demand, such as development and/or redevelopment, and climate patterns, among other less significant factors which affect water demand. Although redevelopment is expected to be an ongoing process, it is not expected to significantly impact water use since ALW is already in a near "built-out" condition. Rainfall, however, will continue to extend a major influence on demand as drought conditions will increase demand at a time when these supplies are limited and may therefore result in water use restrictions in accordance with ALW's Emergency Conservation Plan Ordinance.

For planning purposes, the City's projected water use for 2015-2035 is broken down by sector in **Table 4.7**. The residential sector includes low-income housing units as the Housing Element for ALW (2009) lists 299 low and very low income housing units to meet the Housing Needs Assessment for the service area. The likely residential per unit water demand is 0.53 acre-feet/unit/year and thus 158 AF/year is needed for these projected lower income housing units. These water demands are included in future demand projections for single family and multi-family homes listed in **Table 4.7** below.

Table 4.7
Projected Water Use By Sector

Sector	2015	2020	2025	2030	2035
Single Family/ Multi-Family Res.	9,646	10,065	10,485	10,904	11,323
Commercial/Institutional	3,848	4,015	4,182	4,350	4,517
Industrial	2,653	2,768	2,883	2,999	3,114
Landscape Irrigation	2,266	2,365	2,463	2,561	2,660
Other	3	3	3	3	3
Subtotal:	**18,415**	**19,216**	**20,016**	**20,817**	**21,617**
Unaccounted For Water	3,226	3,366	3,507	3,647	3,788
Total Water Use:	**21,641**	**22,582**	**23,523**	**24,464**	**25,405**

SECTION 5: RELIABILITY PLANNING

5.1 INTRODUCTION

Drought conditions continue to be a critical issue for Southern California's water supply. As the population of Southern California continues to increase and as environmental regulations restrict imported and local water supplies, it is important that each agency manage its water consumption in the face of drought. Even during times of seasonal drought, each agency ought to anticipate a surplus of supply. This can be accomplished through conservation and supply augmentation, and additionally through prohibitions under penalty of law during times of seasonal or catastrophic shortage in accordance with local ordinances.

This section discusses local and regional efforts to ensure a reliable supply of water and compares projected supply to projected demand. Demand and supply projections are provided in **Tables 5.2- 5.8**.

5.2 HISTORIC DROUGHTS

Climate data has been recorded in California since 1858. Since then, California has experienced several periods of severe drought: 1928-34, 1976-77 and 1987-91, and most recently in 2007-2009. California has also experienced several periods of less severe drought. The year 1977 is considered to be the driest year of record in the Four Rivers Basin by DWR. These rivers flow into the Delta and are the source of water for the SWP. Southern California sustained few adverse impacts from the 1976-77 drought, but the 1987-91 drought created considerably more concern.

As a result of previous droughts, the State legislature has enacted, among other things, the Urban Water Management Planning Act, which requires the preparation of this plan. Subsequent amendments to the Act have been made to ensure the plans are responsive to drought management. In 1991. several water agencies came together to form the California Urban Water Conservation Council (CUWCC) to manage the impacts of drought through the promotion of water conservation.

Figure 5.1: Lake Oroville: Drought Conditions

The recent drought of 2007-2009 has resulted in significant impacts on the State's water supplies. The Water Conservation Act of 2009 (SBx7-7) was signed into law by Gov. Schwarzenegger which requires mandatory water conservation up to 20% by 2020.

At the local level, water agencies have enacted their own ordinances to deal with the impacts of drought. The City has enacted an Water Conservation Ordinance, which manages ALW's water supply during droughts. Compliance ranges from voluntary to mandatory depending on the drought severity.

5.3 REGIONAL SUPPLY RELIABILITY

As a result of continued challenges to its water supplies, MWD understands the importance of reliable water supplies. MWD strives to meet the water needs of Southern California by developing new projects to increase the capacity of its supplies while encouraging its member agencies to develop local supply project to meet the needs of its customers. Also, MWD is committed to developing and maintaining high-capacity storage reservoirs, such as Diamond Valley Lake, to meet the needs of the region during times of drought and emergency.

Figure 5.2: MWD's 800,000 AF Diamond Valley Lake

MWD operates Diamond Valley lake, an 800,000 AF reservoir, to avoid the repercussions of reduced supplies from the SWP and CRA. In addition, MWD operates several additional storage reservoirs in Riverside, San Bernardino, and San Diego Counties to store water obtained from the SWP and the CRA. Storage reservoirs like these are a key component of MWD's supply capability and are crucial to MWD's ability to meet projected demand without having to implement the Water Supply Allocation Plan (WSAP). This is crucial since the SWP and CRA have become more restricted which could render ALW's supplies more vulnerable to shortage.

Colorado River Aqueduct Reliability

Water supply from the CRA continues to be a critical issue for Southern California as MWD competes with several agricultural

water agencies in California for unused water rights to the Colorado River. Although California's allocation has been established at 4.4 million acre-feet (MAF) per yer, MWD's allotment stands at 550,000 AFY with additional amounts which increase MWD's allotment to 842,000 AFY if there is any unused water from the agricultural agencies.

MWD recognizes that due to competition from other states and other agencies within California has decreased the CRA's supply reliability. In 2003, the Quantification Settlement Agreement (QSA) was signed which facilitated the transfer of water from agricultural agencies to urban uses.

State Water Project Reliability

The reliability of the SWP impacts Metropolitan's member agencies' ability to plan for future growth and supply. DWR's Bulletin 132-03, December 2004, provides certain SWP reliability information, and in 2002, the DWR Bay-Delta Office prepared a report specifically addressing the reliability of the SWP. This report, The State Water Project Delivery Reliability Report, provides information on the reliability of the SWP to deliver water to its contractors assuming historical precipitation patterns.

On an annual basis, each of the 29 SWP contractors including Metropolitan request an amount of SWP water based on their anticipated yearly demand. In most cases, Metropolitan's requested supply is equivalent to its full Table A Amount.. After receiving the requests, DWR assesses the amount of water supply available based on precipitation, snow pack on northern California watersheds, volume of water in storage, projected carry over storage, and Sacramento-San Joaquin Bay Delta regulatory requirements. For example, the SWP annual delivery of water to contractors has ranged from 552,600 AFY in 1991 to 3.5 MAF in 2000. Due to the uncertainty in water supply, contractors are not typically guaranteed their full Table A Amount, but instead a percentage of that amount based on the available supply.

Each December, DWR provides the contractors with their first estimate of allocation for the following year. As conditions develop throughout the year, DWR revises the allocations.

Figure 5.3: State Water Project (SWP)

Due to the variability in supply for any given year, it is important to understand the reliability of the SWP to supply a specific amount of water each year to the contractors.

5.4 CURRENT RESERVOIR LEVELS

Statewide, storage reservoir levels rise and fall due to seasonal climate changes which induce increase in demand. During periods of drought, reservoir levels can drop significantly and can limit the amount of supplies available. As a result, both DWR and MWD monitor their reservoir levels regularly. In 2009, conditions of several key reservoirs indicated drought conditions. Currently, reservoir levels are high as indicated by **Figures 5.4** and **5.5**:

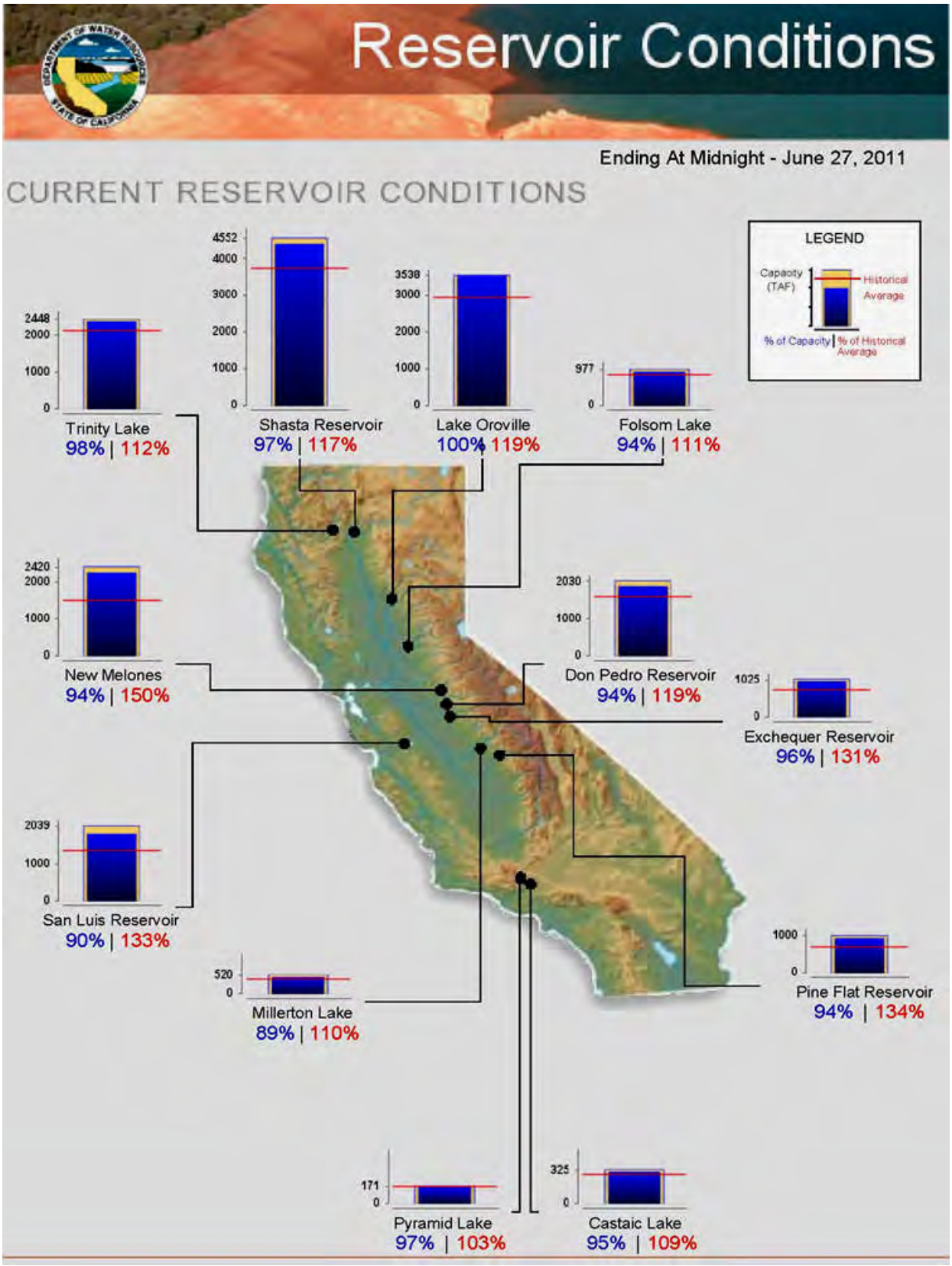

Figure 5.4: California State Reservoir Levels

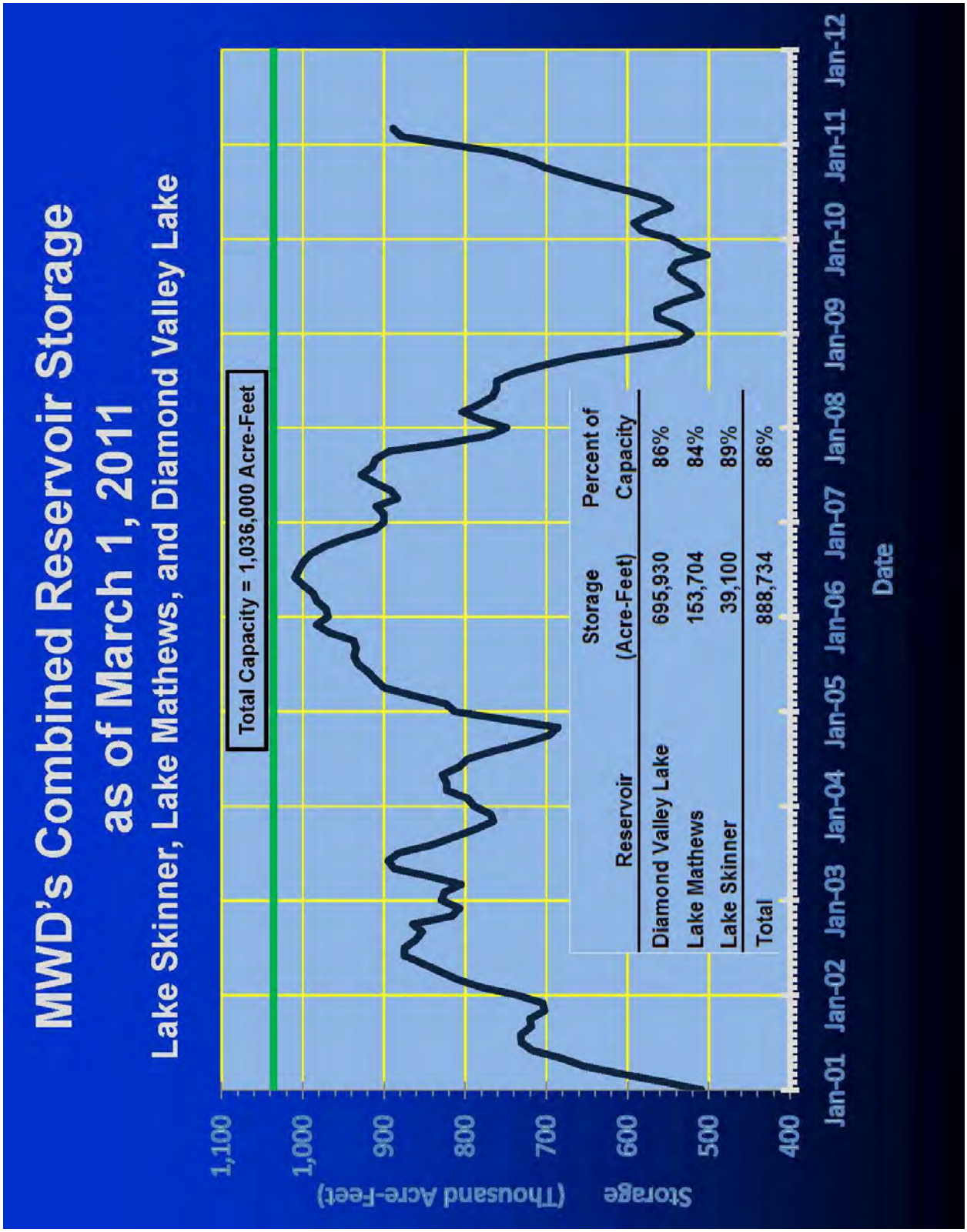

Figure 5.5: MWD Reservoir Levels

5.5 SUPPLY VS. DEMAND

As ALW obtains its water sources from local groundwater and surface water, ALW's water supply reliability is based on the capacity of its infrastructure in addition to the seasonal demand changes brought by periods of drought. Population growth will continue to be a factor in future reliability projections. In addition, since ALW obtains emergency supplies from Upper District, regional demands will continue to be a factor in ALW's supply reliability.

Regional Supply Reliability

Southern California is expected to experience an increase in regional demands in the years 2015 through 2035 as a result of population growth. Although increases in demand are expected, they are limited due to the requirements of SBx7-7 which provides a cap on water consumption rates (i.e. per capita water use). It can be reasonably expected that the majority of agencies will be at or near their compliance targets by 2020 and thereafter as conservation measures are more effectively enforced.

Tables 2.9-2.11 of MWD's 2010 RUWMP shows supply reliability projections for average and single dry years through the year 2035. The data in these tables is important to effectively project and analyze supply and demand over the next 25 years for many regional agencies. It is noteworthy that projected supplies during single and multiple dry years will exceed projected single and multiple dry year demands in all years. Likewise, for average years, MWD supply exceeds projected demands for all years. The data contained in these tables has an indirect affect on ALW and thus this data will also be used to develop ALW's projected supply and demand over the next 25 years.

ALW Supply Reliability

To project future supply and demand comparisons, it will be assumed that demand will increase annually based on population growth and a constant of 168 GPCD in accordance with SBx7-7 requirements. **Table 5.1** contains the projected populations that will be used to project demand:

Table 5.1
ALW Service Area
Projected Populations

Year	Population
2015	115,000
2020	120,000
2025	125,000
2030	130,000
2035	135,000
Demand = Population x GPCD Rate	

During times of drought, demand will increase at a time when supply will decrease. To project demands during drought periods, the following factors measured from actual demand data from 2001, and 2002-2004 will be assumed:

- **Single Dry Year Demand Increase**: 115% of Normal
- **Multiple Dry Year Demand Increases (Years 1, 2, & 3)**: 115%, 112.5%, 110.0% of Normal

The increases in demand for multiple dry years 1, 2, and 3 are expected to decrease with drought awareness and the implementation of a Phase I, II, or III water shortage per the City's conservation plan.

Table 5.2
ALW Water Supply Availability & Demand Projections
Normal Water Year

Water Sources	2015	2020	2025	2030	2035
Available Supply					
Imported Water	4,000	4,000	4,000	4,000	4,000
Surface Water	10,100	10,100	10,100	10,100	10,100
Groundwater	24,350	24,350	24,350	24,350	24,350
Total Supply	**38,450**	**38,450**	**38,450**	**38,450**	**38,450**
% of Normal Year	**100%**	**100%**	**100%**	**100%**	**100%**
Demand					
Imported Water	0	0	0	0	0
Surface Water	4,664	4,866	5,069	5,272	5,475
Groundwater	16,978	17,716	18,454	19,192	19,930
Total Demand (w/ SBx7-7 conservation)	**21,641**	**22,582**	**23,523**	**24,464**	**25,405**
% of 2005-2009 Avg. Demand (21,546)	90.3%	94.2%	98.2%	102.1%	106.0%
Supply/Demand Comparison					
Supply/ Demand Difference	16,809	15,868	14,927	13,986	13,045
Difference as % of Supply	43.72%	41.27%	38.82%	36.37%	33.93%
Difference as % of Demand	77.67%	70.27%	63.46%	57.17%	51.35%

Table is intended only to show ALW will be able to meet demand for all years per the following*:

1. Imported Water Supply Totals Represent Supply Available to ALW, if needed, based on the rated capacity of USG-8 operating 75% percent of the time (i.e. 18 hours per day).

2. Surface Water Supplies based on the rated capacity of Joseph F Hsu Filtration Plant (12 MGD) operating 75% percent of the time (i.e. 18 hours per day).

3. Groundwater Supplies based on the rated capacity of ALW Wells operating 75% percent of the time (i.e. 18 hours per day).

*This Table not intended to be a projection of ALW's actual groundwater production, surface water production, or imported water purchases.

Table 5.3
ALW Water Supply Availability & Demand Projections
Single Dry Year

Water Sources	2015	2020	2025	2030	2035
Available Supply					
Imported Water	2,500	2,500	2,500	2,500	2,500
Surface Water	10,100	10,100	10,100	10,100	10,100
Groundwater	24,350	24,350	24,350	24,350	24,350
Total Supply	**36,950**	**36,950**	**36,950**	**36,950**	**36,950**
Normal Year Supply	38,450	38,450	38,450	38,450	38,450
% of Normal Year	96%	96%	96%	96%	96%
Demand					
Imported Water	200	200	200	200	200
Surface Water	5,263	5,496	5,730	5,963	6,196
Groundwater	19,424	20,273	21,122	21,971	22,280
Total Demand (w/ SBx7-7 conservation)	**24,887**	**25,969**	**27,051**	**28,134**	**29,216**
Normal Year Demand	21,641	22,582	23,523	24,464	25,405
% of Normal Year	115.0%	115.0%	115.0%	115.0%	115.0%
Supply/Demand Comparison					
Supply/Demand Difference	12,063	10,981	9,899	8,816	7,734
Difference as % of Supply	32.65%	29.72%	26.79%	23.86%	20.93%
Difference as % of Demand	48.47%	42.29%	36.59%	31.34%	26.47%

Table is intended only to show ALW will be able to meet demand for all years per the following*:

1. All items derived in similitude to Table 5.2

2. Dry Year % Increase in Demand Based on a single dry year increase of 115%

*This Table not intended to be a projection of ALW's actual groundwater production, surface water production, or imported water purchases.

Table 5.4
ALW Water Supply Availability & Demand Projections
Multiple Dry Years (2011-2015)

Water Sources	2011	2012	2013	2014	2015
Available Supply					
	Normal Years		**Multiple Dry Years**		
Imported Water	4,000	4,000	2,580	2,580	2,580
Surface Water	10,100	10,100	10,100	10,100	10,100
Groundwater	24,350	24,350	24,350	24,350	24,350
Total Supply	**38,450**	**38,450**	**37,030**	**37,030**	**37,030**
Normal Year Supply	38,450	38,450	38,450	38,450	38,450
% of Normal Year	100%	100%	96%	96%	96%
Demand					
	Normal Years		**Multiple Dry Years**		
Imported Water	0	0	200	200	200
Surface Water	4,501	4,542	5,170	5,101	5,030
Groundwater	16,387	16,535	19,085	18,834	18,575
Total Demand (w/ SBx7-7 conservation)	**20,888**	**21,077**	**24,455**	**24,135**	**23,805**
Normal Year Demand	20,888	21,077	21,265	21,453	21,641
% of Normal Year	100%	100%	115.0%	112.5%	110.0%
Supply/Demand Comparison					
	Normal Years		**Multiple Dry Years**		
Supply/Demand Difference	17,562	17,373	12,575	12,895	13,225
Difference as % of Supply	45.67%	45.18%	33.96%	34.82%	35.71%
Difference as % of Demand	84.08%	82.43%	51.42%	53.43%	55.56%

Table is intended only to show ALW will be able to meet demand for all years per the following*:

1. All items derived in similitude to Table 5.2

2. Multiple Dry Year % Increase in Demand Based on a single dry year increase of 115%, 112.5%, & 110%

*This Table not intended to be a projection of ALW's actual groundwater production, surface water production, or imported water purchases.

Table 5.5
ALW Water Supply Availability & Demand Projections
Multiple Dry Years (2016-2020)

Water Sources	2016	2017	2018	2019	2020
Available Supply					
	Normal Years		**Multiple Dry Years**		
Imported Water	4,000	4,000	2,536	2,536	2,536
Surface Water	10,100	10,100	10,100	10,100	10,100
Groundwater	24,350	24,350	24,350	24,350	24,350
Total Supply	**38,450**	**38,450**	**36,986**	**36,986**	**36,986**
Normal Year Supply	38,450	38,450	38,450	38,450	38,450
% of Normal Year	100%	100%	96%	96%	96%
Demand					
	Normal Years		**Multiple Dry Years**		
Imported Water	0	0	200	200	200
Surface Water	4,704	4,745	5,403	5,329	5,253
Groundwater	17,125	17,273	19,933	19,664	19,387
Total Demand (w/ SBx7-7 conservation)	**21,829**	**22,018**	**25,537**	**25,193**	**24,840**
Normal Year Demand	21,829	22,018	22,206	22,394	22,582
% of Normal Year	100%	100%	115.0%	112.5%	110.0%
Supply/Demand Comparison					
	Normal Years		**Multiple Dry Years**		
Supply/Demand Difference	16,621	16,432	11,449	11,793	12,146
Difference as % of Supply	43.23%	42.74%	30.95%	31.89%	32.84%
Difference as % of Demand	76.14%	74.63%	44.83%	46.81%	48.90%

Table is intended only to show ALW will be able to meet demand for all years per the following*:

1. All items derived in similitude to Table 5.2

2. Multiple Dry Year % Increase in Demand Based on a single dry year increase of 115%, 112.5%, & 110%

*This Table not intended to be a projection of ALW's actual groundwater production, surface water production, or imported water purchases.

Table 5.6
ALW Water Supply Availability & Demand Projections
Multiple Dry Years (2021-2025)

Water Sources	2021	2022	2023	2024	2025
Available Supply					
	Normal Years		**Multiple Dry Years**		
Imported Water	4,000	4,000	2,464	2,464	2,464
Surface Water	10,100	10,100	10,100	10,100	10,100
Groundwater	24,350	24,350	24,350	24,350	24,350
Total Supply	**38,450**	**38,450**	**36,914**	**36,914**	**36,914**
Normal Year Supply	38,450	38,450	38,450	38,450	38,450
% of Normal Year	100	100	96%	96%	96%
Demand					
	Normal Years		**Multiple Dry Years**		
Imported Water	0	0	200	200	200
Surface Water	4,907	4,948	5,636	5,557	5,476
Groundwater	17,863	18,011	20,782	20,494	20,199
Total Demand (w/ SBx7-7 conservation)	**22,770**	**22,958**	**26,619**	**26,252**	**25,875**
Normal Year Demand	22,770	22,958	23,147	23,335	23,523
% of Normal Year	100%	100%	115.0%	112.5%	110.0%
Supply/Demand Comparison					
	Normal Years		**Multiple Dry Years**		
Supply/Demand Difference	15,680	15,492	10,295	10,662	11,039
Difference as % of Supply	40.78%	40.29%	27.89%	28.88%	29.90%
Difference as % of Demand	68.86%	67.48%	38.68%	40.61%	42.66%

Table is intended only to show ALW will be able to meet demand for all years per the following*:

1. All items derived in similitude to Table 5.2

2. Multiple Dry Year % Increase in Demand Based on a single dry year increase of 115%, 112.5%, & 110%

*This Table not intended to be a projection of ALW's actual groundwater production, surface water production, or imported water purchases.

Table 5.7
ALW Water Supply Availability & Demand Projections s
Multiple Dry Years (2026-2030)

Water Sources	2026	2027	2028	2029	2030
Available Supply					
	Normal Years		**Multiple Dry Years**		
Imported Water	4,000	4,000	2,492	2,492	2,492
Surface Water	10,100	10,100	10,100	10,100	10,100
Groundwater	24,350	24,350	24,350	24,350	24,350
Total Supply	**38,450**	**38,450**	**36,942**	**36,942**	**36,942**
Normal Year Supply	38,450	38,450	38,450	38,450	38,450
% of Normal Year	100	100	96%	96%	96%
Demand					
	Normal Years		**Multiple Dry Years**		
Imported Water	0	0	200	200	200
Surface Water	5,110	5,150	5,870	5,785	5,699
Groundwater	18,601	18,749	21,631	21,325	21,011
Total Demand (w/ SBx7-7 conservation)	**23,711**	**23,899**	**27,701**	**27,310**	**26,910**
Normal Year Demand	23,711	23,899	24,088	24,276	24,464
% of Normal Year	100%	100%	115.0%	112.5%	110.0%
Supply/Demand Comparison					
	Normal Years		**Multiple Dry Years**		
Supply/Demand Difference	14,739	14,551	9,241	9,632	10,032
Difference as % of Supply	38.33%	37.84%	25.01%	26.07%	27.16%
Difference as % of Demand	62.16%	60.89%	33.36%	35.27%	37.28%

Table is intended only to show ALW will be able to meet demand for all years per the following*:

1. All items derived in similitude to Table 5.2

2. Multiple Dry Year % Increase in Demand Based on a single dry year increase of 115%, 112.5%, & 110%

*This Table not intended to be a projection of ALW's actual groundwater production, surface water production, or imported water purchases.

Table 5.8
ALW Water Supply Availability & Demand Projections
Multiple Dry Years (2031-2035)

Water Sources	2031	2032	2033	2034	2035
Available Supply					
	Normal Years		**Multiple Dry Years**		
Imported Water	4,000	4,000	2,532	2,532	2,532
Surface Water	10,100	10,100	10,100	10,100	10,100
Groundwater	24,350	24,350	24,350	24,350	24,350
Total Supply	**38,450**	**38,450**	**36,982**	**36,982**	**36,982**
Normal Year Supply	38,450	38,450	38,450	38,450	38,450
% of Normal Year	100	100	96%	96%	96%
Demand					
	Normal Years		**Multiple Dry Years**		
Imported Water	0	0	200	200	200
Surface Water	5,313	5,353	6,103	6,013	5,922
Groundwater	19,340	19,487	22,480	22,155	21,823
Total Demand (w/ SBx7-7 conservation)	**24,652**	**24,840**	**28,783**	**28,369**	**27,945**
Normal Year Demand	24,652	24,840	25,028	25,217	25,405
% of Normal Year	100%	100%	115.0%	112.5%	110.0%
Supply/Demand Comparison					
	Normal Years		**Multiple Dry Years**		
Supply/Demand Difference	13,798	13,610	8,199	8,613	9,037
Difference as % of Supply	35.89%	35.40%	22.17%	23.29%	24.44%
Difference as % of Demand	55.97%	54.79%	28.49%	30.36%	32.34%

Table is intended only to show ALW will be able to meet demand for all years per the following*:

1. All items derived in similitude to Table 5.2

2. Multiple Dry Year % Increase in Demand Based on a single dry year increase of 115%, 112.5%, & 110%

*This Table not intended to be a projection of ALW's actual groundwater production, surface water production, or imported water purchases.

Based on the data contained in **Tables 5.2-5.8**, ALW can expect to meet future demands through 2035 for all climatologic classifications. Projected groundwater and surface water supply capacities are not expected to be affected during period of low rainfall over short-term droughts of three years. Since periods of low rainfall increases demand over a large region, imported water supply capacities are expected to decrease due to an increase in area-wide demand as indicated by the tables.

5.6 VULNERABILITY OF SUPPLY

As mentioned previously, the ALW service area is located in a semi-arid environment. The area must depend on imported surface water supplies since precipitation is limited and thus natural groundwater replenishment is inadequate. As a result, the service area is vulnerable to water shortages due to its climatic environment and seasonally hot summer months. While the data shown in **Tables 5.2** through **5.8** identifies water availability during single and multiple dry year scenarios, response to a future drought would follow the water use efficiency mandates of the City's Water Conservation Ordinance, along with implementation of the appropriate stage of regional plans (MWD). These programs are discussed in **Section 7**.

5.7 WATER SUPPLY OPPORTUNITIES

ALW Projects

ALW continually reviews practices that will provide its customers with adequate and reliable supplies. ALW projects water demands within its service area to remain relatively fairly constant over the next 20 years due to minimal growth combined with water use efficiency measures.

Due to this fact, ALW does not have current plans for additional water supply projects other than upgrades to its existing wells and storage reservoirs.

Regional Projects (MWD)

Since the San Gabriel Valley Region purchases imported water, the projects implemented by MWD to secure their water supplies have a indirect effect on ALW. MWD is implementing water supply alternative strategies for the region and on behalf of member agencies to ensure available water in the future. Some of these strategies include:

- Conservation
- Water recycling & groundwater recovery
- Storage/groundwater management programs within the region
- Storage programs related to the SWP and the Colorado River
- Other water supply management programs outside of the region

MWD has made investments in conservation and supply augmentation as part of its long-term water management strategy. MWD's approach to a long-term water management strategy was to develop an Integrated Resource Plan (IRP) to include many supply sources. A brief description of the various programs implemented by MWD to improve reliability is included **Table 5.9** on the following page:

Table 5.9
MWD IRP 2010 Regional Resources Status

Supply	Description	
Colorado River Aqueduct (CRA)	Metropolitan holds a basic apportionment of Colorado River water and has priority for an additional amount depending on availability of surplus supplies. Water management programs supplement these apportionments.	
State Water Project (SWP)	Metropolitan receives water delivered under State Water Contract provisions, including Table A contract supplies, use of carryover storage in San Luis Reservoir, and Article 21 interruptible supplies.	
Conservation	Metropolitan and the member agencies sponsor numerous conservation programs in the region that involve research and development, incentives, and consumer behavior modification.	
	Code-Based Conservation	Water savings resulting from plumbing codes and other institutionalized water efficiency measures.
	Active Conservation	Water saved as a direct result of programs and practices directly funded by a water utility, e.g., measures outlined by the California Urban Water Conservation Council's (CUWCC) Best Management Practices (BMPs). Water savings from active conservation completed through 2008 will decline to zero as the lifetime of those devices is reached. This will be offset by an increase in water savings for those devices that are mandated by law, plumbing codes or other efficiency standards.
	Price Effect Conservation	Reductions in customer use attributable to changes in the real (inflation adjusted) cost of water.
Local Resources	*Groundwater*	Member-agency produced groundwater from the groundwater basins within the service area.
	Groundwater Recovery	Locally developed and operated, groundwater recovery projects treat contaminated groundwater to meet potable use standards. Metropolitan offers financial incentives to local and member agencies through its Local Resources Program for recycled water and groundwater recovery. Details of the local resources programs are provided in **Appendix A.6**.
	Los Angeles Aqueduct (LAA)	A major source of imported water is conveyed from the Owens Valley via the LAA by Los Angeles Department of Water and Power (LADWP). Although LADWP imports water from outside of Metropolitan's service area, Metropolitan classifies water provided by the LAA as a local resource because it is developed and controlled by a local agency.
	Recycling	Recycled water projects recycle wastewater for M&I use.
	Surface Water	Surface water used by member agencies comes from stream diversions and rainwater captured in reservoirs.
Groundwater Conjunctive Use Storage Programs	Metropolitan sponsors various groundwater storage programs, including, cyclic storage programs, long-term replenishment storage programs, and contractual conjunctive use programs. Details of the groundwater storage programs are provided in **Appendix A.4**.	
Surface Water Storage	Metropolitan reservoirs (Diamond Valley Lake, Lake Mathews, Lake Skinner) and flexible storage in California Department of Water Resources (DWR) reservoirs (Castaic Lake, Lake Perris). Details of the surface storage reservoirs are provided in **Appendix A.5**.	
Central Valley Storage & Transfers	Central Valley storage programs consist of partnerships with Central Valley water districts to allow Metropolitan to store SWP supplies in wetter years for return in drier years. Metropolitan's Central Valley transfer programs consist of partnerships with Central Valley Project and SWP settlement contractors to allow Metropolitan to purchase water in drier years. Details of the Central Valley Storage and Transfer programs are provided in **Appendix A.3**.	

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SECTION 6: CONSERVATION MEASURES

6.1 INTRODUCTION

As a result of diminished existing supplies and difficulty in developing new supplies, water conservation is important to Southern California's sustainability. Therefore, ALW acknowledges that efficient water use is the foundation of its current and future water planning and operations policies.

To conserve California's water resources, several public water agencies, and other interested parties of the California Urban Water Conservation Council (CUWCC) drafted the Memorandum of Understanding Regarding Urban Water Conservation (MOU) in 1991. The MOU establishes 14 Best Management Practices (BMPs) which are defined roughly as policies, programs, practices, rules, regulations, or ordinances that result in the more efficient use or conservation of water.

The 14 BMPs coincide with the 14 Demand Management Measures (DMMs) defined in the UWMP Act. The BMPs are intended to reduce long-term urban demands from what they would have been without their implementation and are in addition to programs which may be instituted during occasional water supply shortages.

6.2 DMM IMPLEMENTATION

ALW encourages its customers to practice water-wise conservation methods and is committed to maximizing its local water resources. Although ALW is not a member of the CUWCC, ALW works in conjunction with Upper District which has been a member since 1992. ALW recognizes that these measures are important for the reliability of its water sources and has made continued efforts to comply with all DMMs required by the Act. These efforts have enabled ALW to maintain total water consumption over the past 15 years in spite of increases in population throughout its service area.

Figure 6.1: Water Waste is Prohibited by City Code

In accordance with the UWMP Act, the 14 DMMs are abbreviated as follows:

1. Water Survey Programs
2. Residential Plumbing Retrofit
3. Water Audits/Leak Detection
4. Metering with Commodity Rates
5. Large Landscape Conservation
6. H-E Washing Machine Rebates
7. Public Information Programs
8. School Education Programs
9. Commercial/Industrial Conservation
10. Wholesale Agency Programs
11. Conservation Pricing
12. Water Conservation Coordinator
13. Water Waste Prohibition
14. Ultra-Low-Flush Toilet Replacement

ALW's commitment to these measures is described in **Table 6-1** as follows:

Table 6.1
Demand Management Measures

Conservation Measure	Description & Implementation
DMM No. 1: Water Survey Programs for Single & Multi-Family Residential Customers	ALW has a computerized billing system that automatically audits customer's water bills. ALW's billing system monitors water consumption data and if flags unusual variations in consumption, which alerts ALW's staff about leaks in the system or inoperable meters. If a problem exists within a customer's service connection a customer can make a request to have a service representative inspect the customer's system and make the necessary repairs. This program effectively helps eliminate leaks within customer's service connection and informs the customer of their water usage. However, it is difficult to calculate the amount of water savings this program provides for ALW.
DMM No. 2: Residential Plumbing Retrofit	ALW does not directly implement this DMM; however, as a member agency of Upper District, ALW participates in a residential plumbing retrofit program. Upper District implements this DMM in conjunction with MWD. Upper District's plumbing retrofit program consist of a rebate program for the installation of ultra-low-flush toilets and high-efficiency washing machines. Upper District periodically distributes ultra-low-flush toilets within its service area (including ALW service area) at public events. Additional information regarding these programs is located in Upper District's 2005 UWMP, which is incorporated by reference.
DMM No. 3: System Water Audits, Leak Detection, and Repair	ALW monitors its water production and consumption to calculate the amount of "unaccountable water". Unaccounted water for ALW is approximately 12 percent of its annual water production. ALW has implemented two meter programs, the Meter Replacement Program and the Meter Calibration Program, to reduce the amount of unaccounted water. Under the Meter Replacement Program, ALW replaces older, inefficient dial meters with new, efficient direct reading meters. Ten percent of the meters in the distribution system are replaced each year. Under the Meter Calibration Program, large meters are being rebuilt and/or calibrated. In 1984, ALW established a program to seal existing concrete reservoirs. ALW periodically inspects its reservoirs and if a problem occurs, removes the reservoirs from service to repair. This program assures proper maintenance of the reservoirs and provides conservation of water by eliminating leakage. In addition, utilizing a leak history map, ALW places portions of the distribution system in an annual replacement program. This program targets older steel mains and services in corrosive soil area.
DMM No. 4: Metering With Commodity Rates	ALW's distribution system within its service area is completely metered. ALW has an increasing block rate billing system. ALW encourages conservation by charging an increased rate to customers who use more water during a billing period. This promotes water conservation by providing financial incentives to its customers through a rate schedule. ALW's rate structure is discussed in detail in Section 5.1.11. Conservation through water rate structuring has produced modest results although the amount of savings cannot be quantified.

Table 6.1 (cont.)
Demand Management Measures

Conservation Measure	Description & Implementation
DMM No. 5: Large Landscape Conservation Programs and Incentives	ALW implements a large landscape conservation program by offering rebates for water conserving landscape equipment and materials. ALW provides rebates to customers within its service area for the purchase of low water consuming and drought resistant landscape materials, including trees, shrubs, ground covers, flowers and turfs and for water conserving irrigation systems. The purpose of this program is to create low-maintenance landscapes that will reduce water consumption in the long run. All of ALW's customers, including residents, businesses, and schools are eligible to participate in the program. Customers applying for a rebate must have an adjustable irrigation system to prevent over-watering. The rebate has a maximum value of $1,400 per residential water customer, and up to $15,000 for school and business customers. This program encourages ALW's customers to install water conservation fixtures and landscape, which contributes to the water conservation goals of ALW.
DMM No. 6: High-Efficiency Washing Machine Rebate Programs	This program is available to the ALW's customers through Upper District, which in partnership with MWD, offers a residential high-efficiency clothes washer rebate program. Residential dwellings (single-family homes, condominiums, townhouses, apartments or mobile homes) that are located within Upper District's service area can install a high-efficiency washing machine in place of standard-efficiency washing machine for a rebate. High-efficiency washers can use up to 50 percent less water and 50 percent less energy compared to standard-efficiency washers. Residences that install a high-efficiency washing machine can receive up to a $325 rebate for their water conservation measures. More information on the high-efficiency washing machine rebate program can be found in Upper District's 2005 UWMP, which is incorporated by reference.
DMM No. 7: Public Information Programs	ALW's public information programs include the use of press releases, City Council meetings and cable television, to educate the public on the need to conserve water and the available water-wise practices and methods available. ALW will continue to implement this program and will also expand its citywide public information program to promote responsible water usage. Future educational programs will address specific usage patterns such as over-watering lawns, washing off driveways and sidewalks. Various media will be explored to reach all components of the service area including the use of newspaper advertisements, brochures, buttons, kitchen magnets, classroom and civic group lectures, cable television instructional programs and water conservation signs. As a member agency of San Gabriel District, ALW's customers receive conservation literature from San Gabriel District that informs the consumers of the ongoing need to conserve water and provides several practical ways to reduce water usage. During droughts, additional literature and other conservation materials are distributed by San Gabriel District. In addition, as a member agency of Upper District, ALW's customers also receive public information about water conservation through Upper District public information program. Upper District raises awareness about water conservation through press releases, news advertisements and media events. Upper District offers conservation brochures, posters and activity booklets. In addition, Upper District annually hosts a water awareness festival, Water Fest, with ALW participating, to encourage water conservation.

Table 6.1 (cont.)
Demand Management Measures

Conservation Measure	Description & Implementation
DMM No. 8: School Education Programs	ALW's distribution system within its service area is completely metered. ALW has an increasing block rate billing system. ALW encourages conservation by charging an increased rate to customers who use more water during a billing period. This promotes water conservation by providing financial incentives to its customers through a rate schedule. ALW's rate structure is discussed in detail in Section 5.1.11. Conservation through water rate structuring has produced modest results although the amount of savings cannot be quantified.
DMM No. 9: Conservation Programs for Comm./Indust./Institutional Accounts	ALW uses metered manifold assemblies instead of the older compound meters for its commercial, industrial and institutional customers. These meters are more effective at measuring low flows and intermediate flows for large users. In addition, all contractors doing work within ALW's service area are required to use a hydrant meter for construction water, which has caused contractors to be more conscientious in the use of construction water. In addition, as a member agency of Upper District, ALW customers can participate in Upper District's Commercial, Industrial and Institutional (CII) Program. Upper District's CII Program includes the installation and retrofit of ultra-low-flush toilets, ultra-low-flush urinals, flush valve kits, cooling tower conductivity controllers, coin-or card-operated high-efficiency clothes washers, automatic faucet shut-off valves, hospital x-ray processor recirculating systems, and water pressurized brooms. Additional information regarding Upper District's CII program can be found in its 2005 UWMP, which is incorporated by reference.
DMM No. 10: Wholesale Agency Programs	ALW is a retail agency and therefore cannot implement wholesale agency programs. However, ALW is a member agency of San Gabriel District and Upper District, which have a number of wholesale agency programs. San Gabriel District implements a system water audit leak detection and repair program for its water distribution system, metering with commodity rates which is passed down to its member-agencies, public information programs, school education programs, conservation pricing, a water conservation coordinator, and a residential ultra-low-flush toilet program. Upper District implements a system water audit and leak detection and repair program for its water distribution system, metering with commodity rates which is passed on to its member agencies, public information programs, school education programs, conservation programs for commercial, industrial, and institutional accounts, conservation pricing, a water conservation coordinator and a residential ultra-low-flush toilet program. Information on San Gabriel District and Upper District's wholesale conservation programs can be found in their 2005 UWMPs, which are incorporated by reference.
DMM No. 11: Conservation Pricing	ALW utilizes a two-tier water rate structure to provide financial incentives for customers that conserve water. The water rate structure consists of two components; a service charge and a commodity charge. The service charge is a fixed charge, included in each customer's water bill that is based on the size of the customer's connection. A customer with a 5/8-inch meter size is charged a service charge of $11.56 and a customer with a 1-inch meter size is charged a service charge of $20.11. As the meter, size increases so does the amount of the service charge. The service charge applies to domestic, commercial, agriculture, and municipal customers.

Table 6.1 (cont.)
Demand Management Measures

Conservation Measure	Description & Implementation
DMM No. 11: Conservation Pricing (cont.)	ALW's commodity charges are measured in units or increments of a hundred cubic feet or CCF (748 gallons). For example, for a 5/8–inch to 1-inch meter, ALW charges $0.822 per CCF for all water delivered up to 17 CCF in one month per residence, and $1.30 per CCF for all water delivered over 17 CCF in one month. ALW has a commodity charge for water delivered from 0 CCF to 600 CCF, as shown on ALW's rate schedule. ALW's conservation pricing is an effective way to promote water conservation because customers that conserve water will save money.
DMM No. 12: Water Conservation Coordinator	Within ALW staff is a customer service representative who works with the conservation coordinator at San Gabriel District and Upper District to carry out water conservation programs. San Gabriel District's General Manager and staff represent San Gabriel's water conservation coordinator. The activities of San Gabriel staff as the water conservation coordinator include oversight of public information programs, school education programs and the ultra-low-flush toilet replacement program. Upper District's water conservation coordinator does research on water managements practices and advises the Upper District Board Members and its member agencies, including ALW, on water conservation issues. More information about San Gabriel District and Upper District's conservation coordinator can be found in their 2005 UWMPs, which are incorporated by reference.
DMM No. 13: Water Waste Prohibition	The Azusa City Council passed Ordinance No. 2446 entitled "Water Conservation Plan" on May 21, 1990 to prohibit the waste of water and imposes penalties for violations. The Ordinance includes water use prohibitions as listed below: • No customer of ALW shall cause or allow the use of water to escape from any hose pipe, valve, faucet, sprinkler, or irrigation device onto any sidewalk, street or gutter. In the event of a break or leak within the customer's plumbing system, it shall be fixed within forty-eight hours after discovering the break or leak • There shall be no excessive run off from landscape watering • Landscape watering is to be done only between 6:00 pm to 8:00 am during the months of May through October • Agriculture water users and commercial nurseries shall conduct watering between 6:00 pm and 11:00 am during the months of May through October • There shall be no washing down of sidewalks, walkways, driveways, parking lots, and all other paved surfaces except to alleviate immediate health, fire or sanitation hazards • Restaurants may not serve water to their customers except requested by customers • It is unlawful to remove, replace, alter or damage any water meter • Use of water form fire hydrants shall not be used for any purpose other than to fight fires or to maintain the health, safety and welfare of the residence • Schools, golf courses, governmental agencies, city parks and cemeteries, public or private, may be required to submit a copy of a water conservation plan and landscape irrigation schedule

Table 6.1 (cont.)
Demand Management Measures

Conservation Measure	Description & Implementation
DMM No. 14: Ultra-Low-Flush Toilet Replacement Program	This program is available to the ALW's customers through Upper District, in partnership with MWD. The residential ultra-low-flush toilet replacement program is funded by MWD in conjunction with its member agencies. MWD offers financial incentives for replacing high-flush-volume toilets with ultra-low-flush toilets. Residential communities are encouraged to replace their high-flush-volume toilets with ultra-low flush toilets by being offered a financial rebate. More information regarding the residential ultra-low-flush toilet replacement program is located in Upper District's 2005 UWMP, which is incorporated by reference.

SECTION 7: CONTINGENCY PLANNING

7.1 INTRODUCTION

Water supplies may be interrupted or reduced significantly in a number of ways including droughts, earthquakes, and power outages which hinder a water agencies ability to effectively delivery water. Drought impacts increase with the length of a drought, as carry-over supplies in reservoirs are depleted and water levels in groundwater basins decline. The ability to manage water supplies in times of drought or other emergencies is an important part of water resources management for a community. Although ALW's water supply is produced locally, response to an emergency will be a coordinated effort of its own staff in conjunction with other local and regional water agencies.

During water shortage emergencies, ALW will implement its Water Conservation Ordinance which imposes up to a 90 percent mandatory reduction in the total water use to conserve supplies. The City will also work in conjunction with MWD to implement water shortage plans on a regional level.

7.2 RESPONSE PLAN

In 2000, the Azusa City Council adopted a Water Conservation Ordinance (Article V Division 6: Conservation Plan), which establishes three phases of water shortage severity based on predicted or actual water supply reductions. The City implements certain initiatives to optimize water supply during water shortages or drought conditions. In the event of a water shortage, the director of utilities will declare the appropriate water conservation stage by resolution.

The objectives of the response plan are to:

1. Prioritize essential uses of available water
2. Avoid irretrievable loss of natural resources
3. Manage current water supplies to meet ongoing and future needs
4. Maximize local municipal water supplies
5. Eliminate water waste city-wide
6. Create equitable demand reduction targets; and
7. Minimize adverse financial effects

The following priorities for use of available water are listed in order from highest to lowest priority:

1. Health and Safety including: consumption and sanitation for all water users; fire suppression; hospitals, emergency care, nursing and other convalescent homes and other similar health care facilities; shelters and water treatment
2. Institutions, including government facilities and schools such as public safety facilities, essential government operations, public pools and recreation areas
3. All non-essential commercial and residential water uses
4. Landscaped areas of significance, including parks, cemeteries, open spaces, government-facility landscaped areas and green belt areas
5. New water demand

Stages of Action

ALW has a legal responsibility to provide for the health and safety water needs of the community. ALW will manage water supplies to minimize the social and economic impacts of water shortages. The Water Conservation Ordinance is designed to provide a minimum of 10 percent of normal supply during a severe or extended water shortage. ALW's three potable water sources are local groundwater, local surface water and Metropolitan deliveries through Upper District. Rationing stages may be triggered by a shortage in one source or a combination of sources, and shortages may trigger a stage at any time. **Table 7.1** shows the stages of action of the ordinance:

Table 7.1
Water Shortage Reduction Targets

Shortage Stage	Restriction Type	Total Water Supply Reduction Percentage
Phase 1	Mandatory	20%
Phase 2	Mandatory	50%
Phase 3	Mandatory	90%

The Director of Utilities may declare that a Phase 1, 2, or 3 water supply shortage exists when the San Gabriel Valley Municipal Water District (SGVMWD) formally notifies the City that DWR has reduced the water supply from the SWP to the District by 20, 50, or 90 percent. The type of event which may prompt a Phase 1, 2, or 3 water supply shortage may include, among other factors, moderate to severe drought, state or local emergency, a natural disaster that critically impacts the water treatment or water distribution system, a localized event that critically impacts the water supply, groundwater or surface water quality issues (reduced ability to provide water treatment), or MWD requests extraordinary water conservation efforts in order to avoid mandatory water allocations per the Water Supply Allocation Plan (WSAP).

Metropolitan WSDM Plan

In addition to the provisions of the Conservation Ordinance, ALW will also work in conjunction with MWD to implement conservation measures within the framework of MWD's Water Surplus and Drought Management (WSDM) Plan. The WSDM Plan was developed in 1999 by MWD with assistance and input with its member agencies. The plan addresses both surplus and shortage contingencies.

The WSDM Plan guiding principle is to minimize adverse impacts of water shortage and ensure regional reliability. The plan guides the operations of water resources (local resources, Colorado River, SWP, and regional storage) to ensure regional reliability. It identifies the expected

sequence of resource management actions MWD will take during surpluses and shortages of water to minimize the probability of severe shortages that require curtailment of full-service demands. Mandatory allocations are avoided to the extent practicable, however, in the event of an extreme shortage an allocation plan will be implemented in accordance with the principles of the WSAP.

Figure 7.1: Severe Droughts Highlight the Importance of Conservation Ordinances

7.3 THREE-YEAR MINIMUM SUPPLY

Due to the surface and subsurface inflows received from the San Gabriel Mountains, natural percolation, and artificial recharge activities, (including the spreading grounds in the northwest portion of the City), the Main San Gabriel Basin is not as affected by dry seasons as other neighboring groundwater basins. Additionally, due to lack of pumping restrictions from the Main Basin Judgment, ALW may exceed its annual right (so long as it provides replenishment water). This has significant benefits for water supply reliability for ALW during dry seasons as supplemental water may be purchased if it exceeds its pumping allocation. Thus, ALW's water supply is considered to be 100% reliable during all climatic conditions for the near future. Surface water from the San Gabriel River is more subject to climatic conditions than groundwater and is typically reserved for summer months when rainfall is low. In 2010 (wet year), the surface water supplies were about 33% greater than in 2009 (dry year). Imported water, like surface water, is contingent upon demand variances and available supplies during dry years. In its 2010 Regional UWMP, however, MWD

predicts 100% reliability of its supplies to meet demands during all climatic seasons Since ALW may import water on an as-needed basis, they are capable of supplementing surface water supplies to meet or exceed demand (see **Tables 5.2 - 5.8**) . Based on the conditions described above, ALW's three year minimum supply estimate is listed below in **Table 7.2**

Table 7.2
Projected 3-yr Minimum Water Supply (AF)

Source	2011	2012	2013
Imported	2,580	2,580	2,580
Ground	24,350	24,350	24,350
Surface	10,100	10,100	10,100
Total	**37,030**	**37,030**	**37,030**

Based on the above analysis, ALW should expect 100% supply reliability during a three year drought period over the next three years.

7.4 CASTROPHIC INTERRUPTIONS

The City of Azusa has an Emergency Operations Center that can be activated in times of local and regional emergencies. ALW maintains its equipment and vehicles in good repair in preparation for responding to emergency conditions. The water system is designed with redundant features in its production, storage and distribution systems, and it has been recently automated by the installation of a telemetry and control system.

The City has prepared an Emergency Response Plan Ordinance (Ordinance No. 2446), which describes the actions ALW will take during a catastrophic interruption of water supplies including, a regional power outage, an earthquake, a fire, emergency chlorination, damage or destruction to its facilities and other disaster.

Due to the planning efforts of the MWD, large reservoirs are capable of supplying ALW's (and the region's) water needs for several months under provided that the water use restrictions of each agency are met. Diamond Valley Lake is the most recent reservoir constructed to provide emergency supplies and is capable of providing up to 800,000 AF of emergency and non-emergency supplies.

Figure 7.2: Reservoirs Provide Emergency Supplies

During times of seasonal or catastrophic supply interruptions, ALW also will work in conjunction with regional water supply agencies such as Upper District, San Gabriel District, and the Metropolitan Water District of Southern California (MWD) to facilitate the flow of information and requests for mutual-aid within Metropolitan's 5,100-square mile service area. In the event of groundwater supply loss, all supply could be imported from Metropolitan, and it is confirmed that the necessary capacity is available to do so. Additional emergency services in the State of California include the Master Mutual Aid Agreement, California Water Agencies Response Network (WARN) and Plan Bulldozer. The Master Mutual Aid Agreement includes all public agencies that have signed the

agreement and is planned out of the California Office of Emergency Services. WARN includes all public agencies that have signed the agreement to WARN and provides mutual aid assistance. It is managed by a State Steering Committee. Plan Bulldozer provides mutual aid for construction equipment to any public agency for the initial time of disaster when danger to life and property exists.

7.5 PROHIBITIONS

Mandatory Prohibitions

In accordance with the Conservation Plan, ALW has enacted several water use restrictions which are enacted during times of shortage as part of the City's Municipal Code. Restrictions are based on severity of shortage include, but are not limited to, the following:

- Limits on Watering Days
- No filling of ornamental lakes/ponds
- No washing down of driveways
- No filling of swimming pools
- Limits on washing of vehicles

ALW's water-use prohibitions are included in the City's Conservation Plan and in **Table 7.3** on the following page.

Consumption Reduction Methods

In addition to ALW's demand management measures, the following is a list of some of the consumption reduction methods that ALW may implement during a water shortage:

- Reduce pressure in water mains
- Flow restrictions
- Restrict building permits
- Restrict for only priority uses
- Water Shortage pricing
- Mandatory rationing

ALW's consumption reduction methods are included in the City's Conservation Ordinance and in **Table 7.3**.

Penalties or Charges

Violation of the regulations and restrictions on water use in accordance with the City's Conservation Plan will result in penalties punishable by fees and additional water restrictions as follows:

- 1st violation: $50.00
- 2nd violation: $100.00
- 3rd violation: $200.00 along with a flow-restrictor at the customer's expense. Third violation constitutes a misdemeanor.
- 4th violation: termination of service along with a $100.00 fee for termination.

7.6 FISCAL IMPACTS

ALW’s water rate structure is designed to provide adequate reserves to allow operation of the system during periods of low consumption due to water shortages. The rates have been designed to recover fixed costs through the monthly service charge based on meter size, and commodity charge based on water usage. ALW generates a positive revenue stream from continued water sales and maintains a reserve fund. This structure minimizes ALW’s vulnerability to funding shortages when water consumption levels are reduced.

7.7 COUNCIL RESOLUTOIN

ALW’s contingency plan (Ordinance No. 2446) is included in Appendix K.

Table 7.3
Mandatory Prohibitions & Consumption Reduction Methods

Shortage Phase	Restrictions
Phase I	No water user within ALW's service area shall knowingly make, cause, use or permit the use of water for residential, commercial, industrial, agriculture, or any other purpose in a manner contrary to its conservation plan or in any amount in excess of that use permitted by the conservation stages designated in the conservation plan. The conservation methods shall be as follows: • No customer of ALW shall cause or allow the use of water to escape from any hose pipe, valve, faucet, sprinkler, or irrigation device onto any sidewalk, street or gutter. In the event of a break or leak within the customer's plumbing system, it shall be fixed within forty-eight hours after discovering the break or leak • There shall be no excessive run off from landscape watering • Landscape watering is to be done only between 6:00 pm to 8:00 am during the months of May through October • Agriculture water users and commercial nurseries shall conduct watering between 6:00 pm and 11:00 am during the months of May through October • There shall be no washing down of sidewalks, walkways, driveways, parking lots, and all other paved surfaces except to alleviate immediate health, fire or sanitation hazards • Restaurants may not serve water to their customers except requested by customers • It is unlawful to remove, replace, alter or damage any water meter • Use of water form fire hydrants shall not be used for any purpose other than to fight fires or to maintain the health, safety and welfare of the residence • Schools, golf courses, governmental agencies, city parks and cemeteries, public or private, may be required to submit a copy of a water conservation plan and landscape irrigation schedule • Washing of motor vehicles, trailers, boats and other types of equipment shall be done only with a hand-held bucket or a hose equipped with a positive shutoff nozzle, except if reclaimed wastewater or recycled water is used. • No water shall be used to clean, fill or maintain levels in decorative fountains, ponds, lakes or other similar aesthetic structures, unless such water is part of a recycling system. • The filling or replenishment of swimming pools shall be permitted, but the property owner will be liable for any use of allotted water in excess of the Phase II and Phase III requirements. • The owner and operator of any commercial lodging shall post a notice of water shortage and any necessary compliance measures
Phase II	All the conservation methods under Phase I Shortage apply, except the following: • Landscape watering is to be done only between 6:00 pm to 6:00 am once every three days • Agriculture, commercial nurseries and golf courses shall conduct watering only between 6:00 pm and 10:00 am once every other day, except using reclaimed wastewater
Phase III	All the conservation methods under Phase I and Phase II Shortage apply, except the following: • There should be no landscape watering, except by using a bucket • Agriculture, commercial nurseries, golf courses, parks and other public open spaces and commercial landscaped areas shall conduct watering only between 6:00 pm and 10:00 am once every three days, except using reclaimed wastewater

7.8 MECHANISMS TO DETERMINE REDUCTIONS IN WATER USE

Under normal water supply conditions, water production figures are recorded daily and reported monthly to the Director of Utilities. Quarterly totals are reported to the Main Basin Watermaster and are included in the Main Basin Watermaster's Annual Reports. In addition, ALW meters all service connections in its distribution system and monitors water consumption on a regular basis. ALW takes into consideration factors that may affect consumption, such as precipitation. ALW prepares annual reports that include water production and consumption for its distribution system. Such reports are used to determine reductions in water use and take into consideration seasonal and annual fluctuations in water production.

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Appendix A: References

Azusa Light & Water 2010 Urban Water Management Plan

References

1. Azusa Light & Water. "2005 Urban Water Management Plan"
2. Metropolitan Water District of Southern California. "2010 MWD Regional Urban Water Management Plan (RUWMP)" December, 2010
3. Metropolitan Water District of Southern California. "2010 MWD Integrated Resources Plan (IRP) Update" July, 2010
4. http://www.worldclimate.com/ "Weather, rainfall, and temperature data" April, 2011
5. Metropolitan Water District of Southern California. "Chapter IV - Groundwater Basin Reports Los Angeles Coastal Plain Basins - Santa Monica Basin" September, 2007
6. California Department of Water Resources. " Main San Gabriel Valley Groundwater Basin" (Bulletin 118) February, 2004
7. California Department of Water Resources. "Guidebook to Assist Urban Water Suppliers to Prepare a 2010 Urban Water Management Plan" February, 2011
8. City of Azusa. "Water Conservation Ordinance" Ordinance No. 2446
9. City of Azusa. "Conservation Plan" Article V Division 6
10. Azusa Light & Water. "Department of Water Resources - Water System Statistics" (Annual Report Showing Production & Sales), 1995-2009

Appendix B: UWMP Act

Azusa Light & Water 2010 Urban Water Management Plan

Established: AB 797, Klehs, 1983
Amended: AB 2661, Klehs, 1990
AB 11X, Filante, 1991
AB 1869, Speier, 1991
AB 892, Frazee, 1993
SB 1017, McCorquodale, 1994
AB 2853, Cortese, 1994
AB 1845, Cortese, 1995
SB 1011, Polanco, 1995
AB 2552, Bates, 2000
SB 553, Kelley, 2000
SB 610, Costa, 2001
AB 901, Daucher, 2001
SB 672, Machado, 2001
SB 1348, Brulte, 2002
SB 1384, Costa, 2002
SB 1518, Torlakson, 2002
AB 105, Wiggins, 2004
SB 318, Alpert, 2004
SB 1087, Florez, 2005
SBX7 7, Steinberg, 2009

CALIFORNIA WATER CODE DIVISION 6
PART 2.6. URBAN WATER MANAGEMENT PLANNING

CHAPTER 1. GENERAL DECLARATION AND POLICY

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

10610.2. (a) The Legislature finds and declares all of the following:

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

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

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

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

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

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

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

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

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

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

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

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

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

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

CHAPTER 2. DEFINITIONS

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

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

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

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

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

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

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

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

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

CHAPTER 3. URBAN WATER MANAGEMENT PLANS
Article 1. General Provisions

10620.

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

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

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

(d)

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

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

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

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

10621.

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

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

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

Article 2. Contents of Plans

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

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

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

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

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

(2) A description of any groundwater basin or basins from which the urban water supplier pumps groundwater. For those basins for which a court or the board has adjudicated the rights to pump groundwater, a copy of the order or decree adopted by the court or the board and a description of the amount of groundwater the urban water supplier has the legal right to pump under the order or decree.

For basins that have not been adjudicated, information as to whether the department has identified the basin or basins as overdrafted or has projected that the basin will become overdrafted if present management conditions continue, in the most current official departmental bulletin that characterizes the condition of the groundwater basin, and a detailed description of the efforts being undertaken by the urban water supplier to eliminate the long-term overdraft condition.

(3) A detailed description and analysis of the location, amount, and sufficiency of groundwater pumped by the urban water supplier for the

past five years. The description and analysis shall be based on information that is reasonably available, including, but not limited to, historic use records.

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

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

(1) An average water year.
(2) A single dry water year.
(3) Multiple dry water years.

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

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

(e)

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

(A) Single-family residential.
(B) Multifamily.
(C) Commercial.
(D) Industrial.
(E) Institutional and governmental.
(F) Landscape.
(G) Sales to other agencies.
(H) Saline water intrusion barriers, groundwater recharge, or conjunctive use, or any combination thereof.
(I) Agricultural.

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

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

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

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

(B) Residential plumbing retrofit.

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

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

(E) Large landscape conservation programs and incentives.

(F) High-efficiency washing machine rebate programs.

(G) Public information programs.

(H) School education programs.

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

(J) Wholesale agency programs.

(K) Conservation pricing.

(L) Water conservation coordinator.

(M) Water waste prohibition.

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

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

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

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

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

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

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

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

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

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

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

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

(k) Urban water suppliers that rely upon a wholesale agency for a source of water, shall provide the wholesale agency with water use projections from that agency for that source of water in five-year increments to 20 years or as far as data is available. The wholesale agency shall provide information to the urban water supplier for inclusion in the urban water supplier’s plan that identifies and quantifies, to the extent practicable, the existing and planned sources of water as required by subdivision (b), available from the wholesale agency to the urban water supplier over the same five-year increments, and during various water-year types in accordance with subdivision (c). An urban water supplier may rely upon water supply information provided by the wholesale agency in fulfilling the plan informational requirements of subdivisions (b) and (c), including, but not limited to, ocean water, brackish water, and groundwater, as a long-term supply.

10631.5. The department shall take into consideration whether the urban water supplier is implementing or scheduled for implementation, the water demand management activities that the urban water supplier identified in its urban water management plan, pursuant to Section 10631, in evaluating applications for grants and loans made available pursuant to Section 79163. The urban water supplier may submit to the department copies of its annual reports and other relevant documents to assist the department in determining whether the urban water supplier is implementing or scheduling the implementation of water demand management activities.

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

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

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

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

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

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

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

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

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

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

10633. The plan shall provide, to the extent available, information on recycled water and its potential for use as a water source in the service area of the urban water supplier. The preparation of the plan shall be coordinated with local water, wastewater, groundwater, and planning agencies that operate within the supplier's service area, and shall include all of the following:

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

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

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

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

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

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

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

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

Article 2.5 Water Service Reliability

10635.

(a) Every urban water supplier shall include, as part of its urban water management plan, an assessment of the reliability of its water service to its customers during normal, dry, and multiple dry water years. This water supply and demand assessment shall compare the total water supply sources available to the water supplier with the total projected water use over the next 20 years, in five-year increments, for a normal water year, a single dry water year, and multiple dry water years. The water service reliability assessment shall be based upon the information compiled

pursuant to Section 10631, including available data from state, regional, or local agency population projections within the service area of the urban water supplier.

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

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

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

Articl 3. Adoption and Implementation of Plans

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

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

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

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

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

10644.

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

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

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

CHAPTER 4. MISCELLANEOUS PROVISIONS

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

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

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

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

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

supplies for fish and wildlife, or any project for implementation of the plan, other than projects implementing Section 10632, or any project for expanded or additional water supplies.

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

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

10655. If any provision of this part or the application thereof to any person or circumstances is held invalid, that invalidity shall not affect other provisions or applications of this part which can be given effect without the invalid provision or application thereof, and to this end the provisions of this part are severable.

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

10657.

(a) The department shall take into consideration whether the urban water supplier has submitted an updated urban water management plan that is consistent with Section 10631, as amended by the act that adds this section, in determining whether the urban water supplier is eligible for funds made available pursuant to any program administered by the department.

(b) This section shall remain in effect only until January 1, 2006, and as of that date is repealed, unless a later enacted statute, that is enacted before January 1, 2006, deletes or extends that date.

Appendix C: UWMP Checklist

Azusa Light & Water 2010 Urban Water Management Plan

Table I-1 Urban Water Management Plan checklist, organized by legislation number

No.	UWMP requirement [a]	Calif. Water Code reference	Subject [b]	Additional clarification	UWMP location
1	Provide baseline daily per capita water use, urban water use target, interim urban water use target, and compliance daily per capita water use, along with the bases for determining those estimates, including references to supporting data.	10608.20(e)	System Demands		**Section 4.4**
2	*Wholesalers:* Include an assessment of present and proposed future measures, programs, and policies to help achieve the water use reductions. *Retailers:* Conduct at least one public hearing that includes general discussion of the urban retail water supplier's implementation plan for complying with the Water Conservation Bill of 2009.	10608.36 10608.26(a)	System Demands	Retailer and wholesalers have slightly different requirements	**Section 1.2** **Appendix D**
3	Report progress in meeting urban water use targets using the standardized form.	10608.40	Not applicable	Standardized form not yet available	**Not Applicable**
4	Each urban water supplier shall coordinate the preparation of its plan with other appropriate agencies in the area, including other water suppliers that share a common source, water management agencies, and relevant public agencies, to the extent practicable.	10620(d)(2)	Plan Preparation		**Section 1.2** **Appendices D & E**
5	An urban water supplier shall describe in the plan water management tools and options used by that entity that will maximize resources and minimize the need to import water from other regions.	10620(f)	Water Supply Reliability . . .		**Section 2** **Section 4.5** City has 100% local sustainability.
6	Every urban water supplier required to prepare a plan pursuant to this part shall, at least 60 days prior to the public hearing on the plan required by Section 10642, notify any city or county within which the supplier provides water supplies that the urban water supplier will be reviewing the plan and considering amendments or changes to the plan. The urban water supplier may consult with, and obtain comments from, any city or county that receives notice pursuant to this subdivision.	10621(b)	Plan Preparation		**Section 1.2** **Appendix E**
7	The amendments to, or changes in, the plan shall be adopted and filed in the manner set forth in Article 3 (commencing with Section 10640).	10621(c)	Plan Preparation		**Section 1.1** **Section 1.2** **Appendix D**
8	Describe the service area of the supplier	10631(a)	System Description		**Section 1.5**
9	(Describe the service area) climate	10631(a)	System Description		**Section 1.6**

No.	UWMP requirement [a]	Calif. Water Code reference	Subject [b]	Additional clarification	UWMP location
10	(Describe the service area) current and projected population . . . The projected population estimates shall be based upon data from the state, regional, or local service agency population projections within the service area of the urban water supplier . . .	10631(a)	System Description	Provide the most recent population data possible. Use the method described in "Baseline Daily Per Capita Water Use." See Section M.	**Section 1.7** Projections based on combinations of ALW's service area cities.
11	. . . (population projections) shall be in five-year increments to 20 years or as far as data is available.	10631(a)	System Description	2035 and 2040 can also be provided to support consistency with Water Supply Assessments and Written Verification of Water Supply documents.	**Section 1.7** Projections based on combinations of ALW's service area cities.
12	Describe . . . other demographic factors affecting the supplier's water management planning	10631(a)	System Description		**Section 1.7** City does not have significant daytime populations or other demographic factors.
13	Identify and quantify, to the extent practicable, the existing and planned sources of water available to the supplier over the same five-year increments described in subdivision (a).	10631(b)	System Supplies	The 'existing' water sources should be for the same year as the "current population" in line 10. 2035 and 2040 can also be provided to support consistency with Water Supply Assessments and Written Verification of Water Supply documents.	**Section 2** Groundwater Surface Water Imported Water

No.	UWMP requirement [a]	Calif. Water Code reference	Subject [b]	Additional clarification	UWMP location
14	(Is) groundwater . . . identified as an existing or planned source of water available to the supplier . . .?	10631(b)	System Supplies	Source classifications are: surface water, groundwater, recycled water, storm water, desalinated sea water, desalinated brackish groundwater, and other.	**Section 2.2** Yes groundwater is a source of supply
15	(Provide a) copy of any groundwater management plan adopted by the urban water supplier, including plans adopted pursuant to Part 2.75 (commencing with Section 10750), or any other specific authorization for groundwater management. Indicate whether a groundwater management plan been adopted by the water supplier or if there is any other specific authorization for groundwater management. Include a copy of the plan or authorization.	10631(b)(1)	System Supplies		**Appendices F, G, H, & J**
16	(Provide a) description of any groundwater basin or basins from which the urban water supplier pumps groundwater.	10631(b)(2)	System Supplies		**Section 2.2 "Groundwater"**
17	For those basins for which a court or the board has adjudicated the rights to pump groundwater, (provide) a copy of the order or decree adopted by the court or the board	10631(b)(2)	System Supplies		**Appendices F, G, H, & J**
18	(Provide) a description of the amount of groundwater the urban water supplier has the legal right to pump under the order or decree.	10631(b)(2)	System Supplies		**City does not have a specific adjudicated right but an annual allocation. However City may exceed this amount.**
19	For basins that have not been adjudicated, (provide) information as to whether the department has identified the basin or basins as overdrafted or has projected that the basin will become overdrafted if present management conditions continue, in the most current official departmental bulletin that characterizes the condition of the groundwater basin, and a detailed description of the efforts being undertaken by the urban water supplier to eliminate the long-term overdraft condition.	10631(b)(2)	System Supplies		**Not Applicable**
20	(Provide a) detailed description and analysis of the location, amount, and sufficiency of groundwater pumped by the urban water supplier for the past five years. The description and analysis shall be based on information that is reasonably available, including, but not limited to, historic use records.	10631(b)(3)	System Supplies		**Section 2.2 "Groundwater"** ***Groundwater Production*** **Pages 2-8, 2-9**

No.	UWMP requirement [a]	Calif. Water Code reference	Subject [b]	Additional clarification	UWMP location
21	(Provide a) detailed description and analysis of the amount and location of groundwater that is projected to be pumped by the urban water supplier. The description and analysis shall be based on information that is reasonably available, including, but not limited to, historic use records.	10631(b)(4)	System Supplies	Provide projections for 2015, 2020, 2025, and 2030.	**Section 2.5** **Section 5.5 (Tables 5.2-5.8)**
22	Describe the reliability of the water supply and vulnerability to seasonal or climatic shortage, to the extent practicable, and provide data for each of the following: (A) An average water year, (B) A single dry water year, (C) Multiple dry water years.	10631(c)(1)	Water Supply Reliability . . .		**Section 5.5 (Tables 5.2-5.8)**
23	For any water source that may not be available at a consistent level of use - given specific legal, environmental, water quality, or climatic factors - describe plans to supplement or replace that source with alternative sources or water demand management measures, to the extent practicable.	10631(c)(2)	Water Supply Reliability . . .		**Section 5; Section 7** During times of groundwater or surface supply interruption, City will import water and implement its Conservation Ordinance.
24	Describe the opportunities for exchanges or transfers of water on a short-term or long-term basis.	10631(d)	System Supplies		**Section 2.6**
25	Quantify, to the extent records are available, past and current water use, and projected water use (over the same five-year increments described in subdivision (a)), identifying the uses among water use sectors, including, but not necessarily limited to, all of the following uses: (A) Single-family residential; (B) Multifamily; (C) Commercial; (D) Industrial; (E) Institutional and governmental; (F) Landscape; (G) Sales to other agencies; (H) Saline water intrusion barriers, groundwater recharge, or conjunctive use, or any combination thereof;(I) Agricultural.	10631(e)(1)	System Demands	Consider “past” to be 2005, present to be 2010, and projected to be 2015, 2020, 2025, and 2030. Provide numbers for each category for each of these years.	**Section 4.3** **Section 4.6**

No.	UWMP requirement [a]	Calif. Water Code reference	Subject [b]	Additional clarification	UWMP location
26	(Describe and provide a schedule of implementation for) each water demand management measure that is currently being implemented, or scheduled for implementation, including the steps necessary to implement any proposed measures, including, but not limited to, all of the following: (A) Water survey programs for single-family residential and multifamily residential customers; (B) Residential plumbing retrofit; (C) System water audits, leak detection, and repair; (D) Metering with commodity rates for all new connections and retrofit of existing connections; (E) Large landscape conservation programs and incentives; (F) High-efficiency washing machine rebate programs; (G) Public information programs; (H) School education programs; (I) Conservation programs for commercial, industrial, and institutional accounts; (J) Wholesale agency programs; (K) Conservation pricing; (L) Water conservation coordinator; (M) Water waste prohibition;(N) Residential ultra-low-flush toilet replacement programs.	10631(f)(1)	DMMs	Discuss each DMM, even if it is not currently or planned for implementation. Provide any appropriate schedules.	**Section 6**
27	A description of the methods, if any, that the supplier will use to evaluate the effectiveness of water demand management measures implemented or described under the plan.	10631(f)(3)	DMMs		**Section 6**
28	An estimate, if available, of existing conservation savings on water use within the supplier's service area, and the effect of the savings on the supplier's ability to further reduce demand.	10631(f)(4)	DMMs		**Section 6**
29	An evaluation of each water demand management measure listed in paragraph (1) of subdivision (f) that is not currently being implemented or scheduled for implementation. In the course of the evaluation, first consideration shall be given to water demand management measures, or combination of measures, that offer lower incremental costs than expanded or additional water supplies. This evaluation shall do all of the following: (1) Take into account economic and noneconomic factors, including environmental, social, health, customer impact, and technological factors; (2) Include a cost-benefit analysis, identifying total benefits and total costs; (3) Include a description of funding available to implement any planned water supply project that would provide water at a higher unit cost; (4) Include a description of the water supplier's legal authority to implement the measure and efforts to work with other relevant agencies to ensure the implementation of the measure and to share the cost of implementation.	10631(g)	DMMs	See 10631(g) for additional wording.	**Not Applicable (See Section 6)**

No.	UWMP requirement [a]	Calif. Water Code reference	Subject [b]	Additional clarification	UWMP location
30	(Describe) all water supply projects and water supply programs that may be undertaken by the urban water supplier to meet the total projected water use as established pursuant to subdivision (a) of Section 10635. The urban water supplier shall include a detailed description of expected future projects and programs, other than the demand management programs identified pursuant to paragraph (1) of subdivision (f), that the urban water supplier may implement to increase the amount of the water supply available to the urban water supplier in average, single-dry, and multiple-dry water years. The description shall identify specific projects and include a description of the increase in water supply that is expected to be available from each project. The description shall include an estimate with regard to the implementation timeline for each project or program.	10631(h)	System Supplies		**Section 5.7** **Appendix M**
31	Describe the opportunities for development of desalinated water, including, but not limited to, ocean water, brackish water, and groundwater, as a long-term supply.	10631(i)	System Supplies		**Section 2.5** No plans for desalination.
32	Include the annual reports submitted to meet the Section 6.2 requirement (of the MOU), if a member of the CUWCC and signer of the December 10, 2008 MOU.	10631(j)	DMMs	Signers of the MOU that submit the annual reports are deemed compliant with Items 28 and 29.	**Not Applicable/Section 6** City is a Not a member of CUWCC.
33	Urban water suppliers that rely upon a wholesale agency for a source of water shall provide the wholesale agency with water use projections from that agency for that source of water in five-year increments to 20 years or as far as data is available. The wholesale agency shall provide information to the urban water supplier for inclusion in the urban water supplier's plan that identifies and quantifies, to the extent practicable, the existing and planned sources of water as required by subdivision (b), available from the wholesale agency to the urban water supplier over the same five-year increments, and during various water-year types in accordance with subdivision (c). An urban water supplier may rely upon water supply information provided by the wholesale agency in fulfilling the plan informational requirements of subdivisions (b) and (c).	10631(k)	System Demands	Average year, single dry year, multiple dry years for 2015, 2020, 2025, and 2030.	**Section 2** **Section 5.5** Tables 5.2-5.8 deal with imported water supply available from MWD. Groundwater supply is also shown up 2035. City uses imported water only for emergency purposes.

No.	UWMP requirement [a]	Calif. Water Code reference	Subject [b]	Additional clarification	UWMP location
34	The water use projections required by Section 10631 shall include projected water use for single-family and multifamily residential housing needed for lower income households, as defined in Section 50079.5 of the Health and Safety Code, as identified in the housing element of any city, county, or city and county in the service area of the supplier.	10631.1(a)	System Demands		**Section 4.5**
35	Stages of action to be undertaken by the urban water supplier in response to water supply shortages, including up to a 50 percent reduction in water supply, and an outline of specific water supply conditions which are applicable to each stage.	10632(a)	Water Supply Reliability . . .		**Section 7.2** ***Stages of Action***
36	Provide an estimate of the minimum water supply available during each of the next three water years based on the driest three-year historic sequence for the agency's water supply.	10632(b)	Water Supply Reliability . . .		**Section 7.3** Based on Tables 5.2-5.8
37	(Identify) actions to be undertaken by the urban water supplier to prepare for, and implement during, a catastrophic interruption of water supplies including, but not limited to, a regional power outage, an earthquake, or other disaster.	10632(c)	Water Supply Reliability . . .		**Section 7.4**
38	(Identify) additional, mandatory prohibitions against specific water use practices during water shortages, including, but not limited to, prohibiting the use of potable water for street cleaning.	10632(d)	Water Supply Reliability . . .		**Section 7.5**
39	(Specify) consumption reduction methods in the most restrictive stages. Each urban water supplier may use any type of consumption reduction methods in its water shortage contingency analysis that would reduce water use, are appropriate for its area, and have the ability to achieve a water use reduction consistent with up to a 50 percent reduction in water supply.	10632(e)	Water Supply Reliability . . .		**Section 7.5**
40	(Indicated) penalties or charges for excessive use, where applicable.	10632(f)	Water Supply Reliability . . .		**Section 7.5**
41	An analysis of the impacts of each of the actions and conditions described in subdivisions (a) to (f), inclusive, on the revenues and expenditures of the urban water supplier, and proposed measures to overcome those impacts, such as the development of reserves and rate adjustments.	10632(g)	Water Supply Reliability . . .		**Section 7.6**
42	(Provide) a draft water shortage contingency resolution or ordinance.	10632(h)	Water Supply Reliability . . .		**Section 7.7** **Appendix K**
43	(Indicate) a mechanism for determining actual reductions in water use pursuant to the urban water shortage contingency analysis.	10632(i)	Water Supply Reliability . . .		**Section 7.8**

No.	UWMP requirement [a]	Calif. Water Code reference	Subject [b]	Additional clarification	UWMP location
44	Provide, to the extent available, information on recycled water and its potential for use as a water source in the service area of the urban water supplier. The preparation of the plan shall be coordinated with local water, wastewater, groundwater, and planning agencies that operate within the supplier's service area	10633	System Supplies		**Section 2.5** No current recycled water use
45	(Describe) the wastewater collection and treatment systems in the supplier's service area, including a quantification of the amount of wastewater collected and treated and the methods of wastewater disposal.	10633(a)	System Supplies		**Section 2.5** Recycled Water
46	(Describe) the quantity of treated wastewater that meets recycled water standards, is being discharged, and is otherwise available for use in a recycled water project.	10633(b)	System Supplies		**Section 2.5**
47	(Describe) the recycled water currently being used in the supplier's service area, including, but not limited to, the type, place, and quantity of use.	10633(c)	System Supplies		**Section 2.5** No current recycled water use
48	(Describe and quantify) the potential uses of recycled water, including, but not limited to, agricultural irrigation, landscape irrigation, wildlife habitat enhancement, wetlands, industrial reuse, groundwater recharge, indirect potable reuse, and other appropriate uses, and a determination with regard to the technical and economic feasibility of serving those uses.	10633(d)	System Supplies		**Section 2.5** Appendix P
49	(Describe) The projected use of recycled water within the supplier's service area at the end of 5, 10, 15, and 20 years, and a description of the actual use of recycled water in comparison to uses previously projected pursuant to this subdivision.	10633(e)	System Supplies		**Section 2.5**
50	(Describe the) actions, including financial incentives, which may be taken to encourage the use of recycled water, and the projected results of these actions in terms of acre-feet of recycled water used per year.	10633(f)	System Supplies		**Section 2.5**
51	(Provide a) plan for optimizing the use of recycled water in the supplier's service area, including actions to facilitate the installation of dual distribution systems, to promote recirculating uses, to facilitate the increased use of treated wastewater that meets recycled water standards, and to overcome any obstacles to achieving that increased use.	10633(g)	System Supplies		**Section 2.5**

No.	UWMP requirement [a]	Calif. Water Code reference	Subject [b]	Additional clarification	UWMP location
52	The plan shall include information, to the extent practicable, relating to the quality of existing sources of water available to the supplier over the same five-year increments as described in subdivision (a) of Section 10631, and the manner in which water quality affects water management strategies and supply reliability.	10634	Water Supply Reliability . . .	For years 2010, 2015, 2020, 2025, and 2030	**Section 3**
53	Every urban water supplier shall include, as part of its urban water management plan, an assessment of the reliability of its water service to its customers during normal, dry, and multiple dry water years. This water supply and demand assessment shall compare the total water supply sources available to the water supplier with the total projected water use over the next 20 years, in five-year increments, for a normal water year, a single dry water year, and multiple dry water years. The water service reliability assessment shall be based upon the information compiled pursuant to Section 10631, including available data from state, regional, or local agency population projections within the service area of the urban water supplier.	10635(a)	Water Supply Reliability . . .		**Section 5**
54	The urban water supplier shall provide that portion of its urban water management plan prepared pursuant to this article to any city or county within which it provides water supplies no later than 60 days after the submission of its urban water management plan.	10635(b)	Plan Preparation		**To be performed**
55	Each urban water supplier shall encourage the active involvement of diverse social, cultural, and economic elements of the population within the service area prior to and during the preparation of the plan.	10642	Plan Preparation		**Public Notification sent out. 60-day notice prior to Public Hearing. Proof of Notice & Public Hearing to be included in Appendices**
56	Prior to adopting a plan, the urban water supplier shall make the plan available for public inspection and shall hold a public hearing thereon. Prior to the hearing, notice of the time and place of hearing shall be published within the jurisdiction of the publicly owned water supplier pursuant to Section 6066 of the Government Code. The urban water supplier shall provide notice of the time and place of hearing to any city or county within which the supplier provides water supplies. A privately owned water supplier shall provide an equivalent notice within its service area.	10642	Plan Preparation		**Public Notification sent out. 60-day notice prior to Public Hearing. Proof of Notice & Public Hearing to be included in Appendices**
57	After the hearing, the plan shall be adopted as prepared or as modified after the hearing.	10642	Plan Preparation		**Proof of Adoption/Resolution included in Appendices**

No.	UWMP requirement [a]	Calif. Water Code reference	Subject [b]	Additional clarification	UWMP location
58	An urban water supplier shall implement its plan adopted pursuant to this chapter in accordance with the schedule set forth in its plan.	10643	Plan Preparation		**Section 1.1**
59	An urban water supplier shall submit to the department, the California State Library, and any city or county within which the supplier provides water supplies a copy of its plan no later than 30 days after adoption. Copies of amendments or changes to the plans shall be submitted to the department, the California State Library, and any city or county within which the supplier provides water supplies within 30 days after adoption.	10644(a)	Plan Preparation		**To be performed**
60	Not later than 30 days after filing a copy of its plan with the department, the urban water supplier and the department shall make the plan available for public review during normal business hours.	10645	Plan Preparation		**To be performed**

a The UWMP Requirement descriptions are general summaries of what is provided in the legislation. Urban water suppliers should review the exact legislative wording prior to submitting its UWMP.

b The Subject classification is provided for clarification only. It is aligned with the organization presented in Part I of this guidebook. A water supplier is free to address the UWMP Requirement anywhere with its UWMP, but is urged to provide clarification to DWR to facilitate review.

Appendix D: Resolution Adopting 2010 UWMP

Azusa Light & Water 2010 Urban Water Management Plan

RESOLUTION NO. 11-C48

A RESOLUTION OF THE CITY COUNCIL OF THE CITY OF AZUSA, CALIFORNIA, ADOPTING THE YEAR 2010 URBAN WATER MANAGEMENT PLAN

WHEREAS, Division 6, Part 2.6 of the California Water Code mandates an update of the City's Urban Water Management Plan every five years; and

WHEREAS, the Urban Water Management Plan is required to be presented at a public hearing; and

WHEREAS, following the public hearing the Urban Water Management Plan is to be adopted by the City Council by resolution and thereafter submitted to the Department of Water Resources;

NOW, THEREFORE, THE CITY COUNCIL/ UTILITY BOARD OF THE CITY OF AZUSA DOES HEREBY FIND AS FOLLOWS:

Section 1. The 2010 Urban Water Management Plan has been properly prepared in conformance with California State Water Code; and

Section 2. The 2010 Urban Water Management Plan has been properly considered at a public hearing conducted by the Azusa City Council / Utility Board on July 27, 2011 as required by California State Water Code; and

Section 3. That the 2010 Urban Water Management Plan is hereby adopted and staff is hereby directed to submit the Plan to the California State Department of Water Resources.

PASSED, APPROVED AND ADOPTED this 27th day of June, 2011.

Joseph R. Rocha

Joseph R. Rocha, Mayor

I HEREBY CERTIFY that the foregoing Resolution was duly adopted by the City Council/ Utility Board of the City of Azusa at a regular meeting thereof held on the 27th day of June, 2011.

AYES: COUNCIL MEMBERS: GONZALES, CARRILLO, MACIAS, HANKS, ROCHA
NOES: COUNCIL MEMBERS: NONE
ABSENT: COUNCIL MEMBERS: NONE

Vera Mendoza

Vera Mendoza, City Clerk

NOTICE OF PUBLIC HEARING

NOTICE IS HEREBY GIVEN that the City Council of the City of Azusa will hold a **PUBLIC HEARING**, to consider adoption of the 2010 Urban Water Management Plan.

Said **PUBLIC HEARING** will be held before the Utility Board/City Council of the City of Azusa on **MONDAY, June 27, 2011, at 7:30 P.M.**, or as soon thereafter as the matter may be heard, in the **Azusa Light & Water Conference Room, 729 N. Azusa Avenue, Azusa.** Any person wishing to testify may file a written statement prior to that time, and/or may appear and be heard.

A copy of the proposed 2010Urban Water Management Plan will be available for public inspection at the Office of the City Clerk.

If you challenge the proposed actions in Court, you may be limited to raising only those issues you or someone else raised at the public hearing described in this notice, or in written correspondence delivered to the City Clerk or City Council at, or prior to, the public hearing.

/S/ VERA MENDOZA, CITY CLERK

Published: June 13 and 20, 2011

San Gabriel Valley Tribune Ad#40739

Appendix E: 60-Day Notification

Azusa Light & Water 2010 Urban Water Management Plan

City of Azusa

AZUSA
LIGHT & WATER
For Quality of Life

NOTICE OF PREPARATION
OF
URBAN WATER MANAGEMENT PLAN UPDATE

May 25, 2011

To whom it may concern:

Sections 10610-10657 of the California Water Code (Urban Management Plan Act) require the preparation of an Urban Management Plan by water purveyors who provide water to over 3,000 customers or over 3,000 acre-feet per year. Beginning in 1985 the Act requires that the Plan be revised every five years in years ending in "0" or "5".

This letter serves as notice that the Water Division of Azusa Light & Water is in the process of preparing its Urban Water Management Plan Update for the year 2010.

The Plan will be considered for acceptance by the Utility Board of the City of Azusa at a Public Hearing to be held June 27, 2011. A draft of the Plan will be available for review prior to the Public Hearing.

For more information or questions, please contact Chet Anderson, at 626-812-5209 or by e-mail at canderson@ci.azusa.ca.us

Very truly yours,

Chet F. Anderson. P.E.
Assistant Director, Water Operations

cc: George Morrow, Shahn Ahmad

Azusa Light & Water *729 N. Azusa Avenue* *P. O. Box 9500* *Azusa, California 91702*
626/812-5208 (phone) *626/334-3163 (fax)* *www.azusalw.com (web)* *information@azusalw.com (e-mail)*

CITY OF GLENDORA
116 East Foothill Blvd.
Glendora, CA 91741-3380

CITY OF COVINA
125 East College St.
Covina, CA 91723-2199

COUNTY OF LOS ANGELES BOARD OF SUPERVISORS
500 West Temple St.
Los Angeles, CA 90012

CITY OF WEST COVINA
P.O.Box 1440
West Covina, CA 91793

CITY OF IRWINDALE
5050 North Irwindale Avenue
Irwindale, CA 91706

SUBURBAN WATER COMPANY
1211 East Center Court
Covina, CA 91724

UPPER SAN GABRIEL VALLEY MUNICIPAL WATER DISTRICT
11310 Valley Boulevard
El Monte, CA 91731

SAN GABRIEL VALLEY MUNICIPAL WATER DISTRICT
P.O. Box 1299
Azusa, CA 91702

THREE VALLEYS MUNICIPAL WATER DISTRICT
1021 E. Miramar Avenue
Claremont, CA 91711-2052

CALIFORNIA AMERICAN WATER COMPANY
2020 Huntington Drive
San Marino, CA 91108

COVINA IRRIGATING COMPANY
146 East College St.
Covina, CA 91723

MAIN SAN GABRIEL BASIN WATERMASTER
725 N. Azusa Av.
Azusa, CA 91702

VALLEY COUNTY WATER DISTRICT
14521 Ramona Blvd.
Baldwin Park, CA 91706

Appendix F: Long Beach Judgment

Azusa Light & Water 2010 Urban Water Management Plan

Superior Court of the State of California
For the County of Los Angeles

BOARD OF WATER COMMISSIONERS OF THE CITY OF LONG BEACH, et al., *Plaintiffs* vs. SAN GABRIEL VALLEY WATER COMPANY, et al., *Defendants*	No. 722647 **SETTLEMENT DOCUMENTS**

STIPULATION FOR JUDGMENT
JUDGMENT
MAP OF WHITTIER NARROWS
ENGINEERING APPENDIX
REIMBURSEMENT CONTRACT

Approved by Joint Negotiating Committees July 6, 1964.

EXHIBIT NO. 7

SUPERIOR COURT OF THE STATE OF CALIFORNIA

FOR THE COUNTY OF LOS ANGELES

BOARD OF WATER COMMISSIONERS OF THE CITY OF LONG BEACH, a municipal corporation; CENTRAL BASIN MUNICIPAL WATER DISTRICT, a municipal water district; and CITY OF COMPTON, a municipal corporation,

Plaintiffs,

vs.

SAN GABRIEL VALLEY WATER COMPANY, a corporation; AZUSA AGRICULTURAL WATER COMPANY, a corporation; AZUSA VALLEY WATER COMPANY, a corporation; CALIFORNIA WATER & TELEPHONE COMPANY, a corporation; THE COLUMBIA LAND AND WATER COMPANY, a corporation; COVINA IRRIGATING COMPANY, a corporation; CROSS WATER COMPANY, a corporation; DUARTE WATER COMPANY, a corporation; EAST PASADENA WATER CO. LTD., a corporation; GLENDORA IRRIGATING COMPANY, a corporation; SAN DIMAS WATER COMPANY, a corporation; SOUTHERN CALIFORNIA WATER COMPANY, a corporation; SUBURBAN WATER SYSTEMS, a corporation; SUNNY SLOPE WATER CO., a corporation; VALLECITO WATER CO., a corporation; CITY OF ALHAMBRA, a municipal corporation; CITY OF ARCADIA, a municipal corporation; CITY OF AZUSA, a municipal corporation; CITY OF COVINA, a municipal corporation; CITY OF EL MONTE, a municipal corporation; CITY OF GLENDORA, a municipal corporation; CITY OF MONROVIA, a municipal corporation; CITY OF MONTEREY PARK, a municipal corporation; CITY OF SOUTH PASADENA, a municipal corporation; BALDWIN PARK COUNTY WATER DISTRICT, a county water district; and SAN GABRIEL COUNTY WATER DISTRICT, a county water district,

Defendants,

UPPER SAN GABRIEL VALLEY MUNICIPAL WATER

NO. 722,647

STIPULATION FOR JUDGMENT

DISTRICT, a municipal water district, and CALIFORNIA DOMESTIC WATER COMPANY, a corporation,

Intervenors.

Plaintiffs Central Basin Municipal Water District, a municipal water district (herein sometimes referred to as Central Municipal); City of Long Beach, a municipal corporation, acting by and through the Board of Water Commissioners of the City of Long Beach; and City of Compton, a municipal corporation; and defendants City of Alhambra, a municipal corporation; City of Arcadia, a municipal corporation; City of Azusa, a municipal corporation; Azusa Agricultural Water Company, a corporation, sued herein as DOE 1; Azusa Valley Water Company, a corporation, for itself and as successor by merger to Azusa Irrigating Company, a corporation; Baldwin Park County Water District, a county water district; California Water and Telephone Company, a corporation; Columbia Land and Water Company, a corporation; City of Covina, a municipal corporation; Covina Irrigating Company, a corporation; Cross Water Company, a corporation, sued herein as DOE 2; Duarte Water Company (formerly Duarte Domestic Water Company), a corporation; East Pasadena Water Company, Ltd., a corporation, for itself and as successor by merger to California-Michigan Land and Water Company, a corporation; City of El Monte, a municipal corporation; City of Glendora, a municipal corporation; Glendora Irrigating Company, a corporation; City of Monrovia, a municipal corporation; City of Monterey Park, a municipal corporation; San Dimas Water Company, a corporation, sued herein as DOE 3; San Gabriel County Water District, a county water district; San Gabriel Valley Water Company, a corporation; Southern California Water Company, a corporation; City of South Pasadena, a municipal corporation; Suburban Water Systems, a corporation; Sunny Slope Water Company, a corporation; and Vallecito Water Company, a corporation; and

intervening defendant Upper San Gabriel Valley Municipal Water District, a municipal water district (herein sometimes referred to as Upper District); and intervening defendant California Domestic Water Company, a corporation; stipulate and agree as follows:

1. A Judgment in the form attached hereto as Exhibit I may be made and entered by the Court in the above-entitled action.

2. The following facts, considerations and objectives, among others, provide the basis for this Stipulation for Judgment:

(a) By their complaint plaintiffs seek a determination of the rights of the defendants, other than Upper District, in and to the waters of the San Gabriel River System and further seek to restrain defendants, other than Upper District, from an alleged interference with the rights of plaintiffs and persons represented by Central Municipal in and to said waters.

(b) At the present time, and for some time prior to the commencement of this action, the water supply of the San Gabriel River System has been inadequate to supply the diversions and extractions of both plaintiffs and defendants other than Central Municipal and Upper District but including the persons represented by Central Municipal and by Upper District, and as a result said diversions and extractions have exceeded, and still exceed, the natural replenishment of the water supply of the San Gabriel River System.

(c) The parties recognize and agree that the natural outflow from the San Gabriel Valley

to the Lower Area as defined in the Judgment has varied, and will vary from year to year, depending on the amount of precedent rainfall and other conditions.

(d) The parties recognize and agree that there is a need for a declaration of rights and a physical solution for the problems resulting from the inadequate and varying water supplies of the San Gabriel River System.

(e) The parties agree that the physical solution contained in said Judgment will bring about a fair division of the water of the San Gabriel River System as between plaintiffs and defendants other than Central Municipal and Upper District but including the persons represented by Central Municipal and by Upper District.

(f) The parties recognize that it may be necessary for defendants or some of them to use supplemental water in order to comply with the obligations imposed under said physical solution.

(g) Defendant Upper District is now a member unit of The Metropolitan Water District of Southern California, which will be supplied with water from sources in northern California under an existing contract with the State of California. Certain of the defendants not within the area of defendant Upper District are within the area of San Gabriel Valley Municipal Water District, which district also has contracted with the State of California for delivery of water from sources in northern California. It is anticipated that the

importation of this water will augment the natural supply of ground water within Upper Area as defined in the Judgment. Defendant Upper District intends to replenish the San Gabriel Valley with supplemental supplies.

3. The parties hereto hereby waive any and all Findings of Fact, Conclusions of Law, and any and all notice of the making or entry herein of the attached form of Judgment, and all rights of appeal, if any, from such Judgment.

4. Plaintiffs and defendants agree that during the period prior to entry of the attached form of Judgment, they will cooperate in endeavoring to collect such information as the Watermaster would obtain if the attached form of Judgment had been entered and the Watermaster had been appointed by the Court pursuant to paragraph 6 of the Judgment, which information is herein referred to as "said information." To that end, the parties hereto hereby agree that promptly following the complete execution of this stipulation by all parties, Upper District and Central Municipal shall each notify the other in writing as to the identity of the person who it expects will be nominated as the representative of Upper Area Parties or Lower Area Parties, as the case may be, under paragraph 6 of the Judgment. Upon receiving such notice, Upper District and Central Municipal shall each instruct its designated nominee that until the attached form of Judgment is entered and the Watermaster has been appointed pursuant to paragraph 6 of the Judgment he shall in cooperation with the other designated nominee do all things reasonably necessary to obtain such of said information as is available from the parties hereto or any public agency.

5. Judgment shall not be rendered pursuant hereto unless and until the execution of this stipulation by Central Basin Municipal Water District and by Upper San Gabriel Valley

Municipal Water District shall have been validated by a decree or decrees rendered in a proceeding or proceedings instituted in a court of competent jurisdiction of the State of California, and either such decree or decrees shall have become final or both of said Districts shall have further stipulated that said Judgment shall be rendered.

6. This stipulation may be executed in counterparts (each counterpart being an exact copy or duplicate of the original) and all counterparts collectively shall be considered as constituting one complete Stipulation for Judgment.

DATED: _____, 1964.

Attorneys (for the respective party listed opposite and to the right of the respective attorneys listed below)	Signature of Stipulating Party and Its Designation of Mailing Address
Leonard Putnam City Attorney Clifford E. Hayes Principal Deputy City Attorney City of Long Beach	Board of Water Commissioners of the City of Long Beach
By _____	By _____ Its _____ President
	By _____ Its _____ Secretary
Burris & Lagerlof Stanley C. Lagerlof H. Jess Senecal Jack T. Swafford	1800 East Wardlow Road Long Beach 7, California
By _____	

Burris & Lagerlof
Stanley C. Lagerlof
H. Jess Senecal
Jack T. Swafford

By _____

Central Basin Municipal Water District

By _____

Its President

By _____

Its Secretary

7439 East Florence Avenue
Downey, California

Lloyd A. Bulloch
City Attorney
City of Compton

_____

City of Compton

By _____

Its Mayor

205 South Willowbrook Avenue
Compton, California

Burris & Lagerlof
Stanley C. Lagerlof
H. Jess Senecal
Jack T. Swafford

By _____

Don D. Bercu
City Attorney
City of Alhambra

_____

City of Alhambra

By _____

Its Mayor

City Hall
111 South First Street
Alhambra, California

Taylor & Smith

By _____

James A. Nicklin
City Attorney
City of Arcadia

_____

Surr & Hellyer

By _____

Clayson, Stark, Rothrock
& Mann

By _____

City of Arcadia

By _____

Its Mayor

City Hall
Arcadia, California

Harry C. Williams
City Attorney
City of Azusa

_____

Taylor & Smith

By _____

City of Azusa

By _____

Its Mayor

City Hall
213 East Foothill Boulevard
Azusa, California

Taylor & Smith

By _____

Azusa Agricultural Water Company

By _____

Its ____ President

By _____

Its _____ Secretary

18352 East Foothill Boulevard
Azusa, California

Surr & Hellyer

By _____

Clayson, Stark, Rothrock
& Mann

By _____

Azusa Valley Water Company

By _____

Its ____ President

By _____

Its _____ Secretary

P. O. Box "W"
Azusa, California

Surr & Hellyer

By _____

Clayson, Stark, Rothrock & Mann

By _____

Baldwin Park County Water District

By _____

Its ____ President

By _____

Its _____ Secretary

14521 East Ramona Boulevard
Baldwin Park, California

Bacigalupi, Elkus & Salinger

By _____

Surr & Hellyer

By _____

Clayson, Stark, Rothrock & Mann

By _____

California Water & Telephone Company

By _____

Its ____ President

By _____

Its _____ Secretary

300 Montgomery Street
San Francisco, California

Allard, Shelton & O'Connor

By _____

Surr & Hellyer

By _____

Clayson, Stark, Rothrock & Mann

By _____

Columbia Land & Water Company

By _____

Its ____ President

By _____

Its _____ Secretary

P. O. Box 296
San Dimas, California

Allard, Shelton & O'Connor

By _____

Surr & Hellyer

By _____

Clayson, Stark, Rothrock
& Mann

By _____

Kerckhoff & Kerckhoff

By _____

Surr & Hellyer

By _____

Clayson, Stark, Rothrock
& Mann

By _____

George C. Gillette

_____

Henry W. Shatford
Shatford & Shatford

By _____

Surr & Hellyer

By _____

Clayson, Stark, Rothrock
& Mann

By _____

City of Covina

By _____

Its Mayor

City Hall
Covina, California

Covina Irrigating Company

By _____

Its _____ President

By _____

Its _____ Secretary

146 East College Street
Covina, California

Cross Water Company

By _____

Its _____ President

By _____

Its _____ Secretary

15825 East Main Street
La Puente, California

Duarte Water Company

By _____

Its _____ President

By _____

Its _____ Secretary

1101 South Oak Avenue
Duarte, California

Gray & Maddox

By _____

Surr & Hellyer

By _____

Clayson, Stark, Rothrock
& Mann

By _____

East Pasadena Water Company, Ltd.

By _____

Its ____ President

By _____

Its _____ Secretary

269 South Rosemead
Pasadena, California

James A. Nicklin
City Attorney
City of El Monte

_____

Surr & Hellyer

By _____

Clayson, Stark, Rothrock
& Mann

By _____

City of El Monte

By _____

Its Mayor

City Hall
El Monte, California

Leonard A. Shelton
City Attorney
City of Glendora

_____

Surr & Hellyer

By _____

Clayson, Stark, Rothrock
& Mann

By _____

City of Glendora

By _____

Its Mayor

City Hall
Glendora, California

Allard, Shelton & O'Connor

By _____

Surr & Hellyer

By _____

Clayson, Stark, Rothrock
& Mann

By _____

Glendora Irrigating Company

By _____

Its _____ President

By _____

Its _____ Secretary

224 North Michigan Avenue
Glendora, California

Homer H. Bell
City Attorney
City of Monrovia

_____

Surr & Hellyer

By _____

Clayson, Stark, Rothrock
& Mann

By _____

City of Monrovia

By _____

Its Mayor

City Hall
Monrovia, California

Charles R. Martin
City Attorney
City of Monterey Park

_____

Taylor & Smith

By _____

City of Monterey Park

By _____

Its Mayor

City Hall
320 West Newmark Avenue
Monterey Park, California

Allard, Shelton & O'Connor

By _____

Surr & Hellyer

By _____

Clayson, Stark, Rothrock & Mann

By _____

Surr & Hellyer

By _____

Clayson, Stark, Rothrock & Mann

By _____

J. E. Skelton

_____

Surr & Hellyer

By _____

Clayson, Stark, Rothrock & Mann

By _____

San Dimas Water Company

By _____

Its ____ President

By _____

Its _____ Secretary

P. O. Box 181
San Dimas, California

San Gabriel County Water District

By _____

Its ____ President

By _____

Its _____ Secretary

8229 East Las Tunas Drive
San Gabriel, California

San Gabriel Valley Water Company

By _____

Its ____ President

By _____

Its _____ Secretary

11142 Garvey Avenue
El Monte, California

O'Melveny & Myers

By _____

Surr & Hellyer

By _____

Clayson, Stark, Rothrock
& Mann

By _____

Charles R. Martin
City Attorney
City of South Pasadena

_____

Surr & Hellyer

By _____

Clayson, Stark, Rothrock
& Mann

By _____

Frank E. Gray

_____

Surr & Hellyer

By _____

Clayson, Stark, Rothrock
& Mann

By _____

Hahn & Hahn

By _____

Southern California Water Company

By _____

Its ____ President

By _____

Its _____ Secretary

11911 South Vermont Avenue
Los Angeles 44, California

City of South Pasadena

By _____

Its Mayor

825 Mission Street
South Pasadena, California

Suburban Water Systems

By _____

Its ____ President

By _____

Its _____ Secretary

16340 East Maplegrove Street
La Puente, California

Sunny Slope Water Company

By _____

Its ____ President

By _____

Its _____ Secretary

1040 El Campo Drive
Pasadena, California

Surr & Hellyer

By _____

Clayson, Stark, Rothrock & Mann

By _____

Vallecito Water Company

By _____

Its ____ President

By _____

Its _____ Secretary

749 South Ninth Avenue
City of Industry, California

Stearns, Gross and Moore

By _____

California Domestic Water Company

By _____

Its ____ President

By _____

Its _____ Secretary

P. O. Box 1026, Perry Annex
Whittier, California

Ralph B. Helm

_____

Upper San Gabriel Valley Municipal Water District

By _____

Its ____ President

By _____

Its _____ Secretary

11229 East Valley Boulevard
El Monte, California

SUPERIOR COURT OF THE STATE OF CALIFORNIA

FOR THE COUNTY OF LOS ANGELES

BOARD OF WATER COMMISSIONERS OF THE CITY OF LONG BEACH, a municipal corporation; CENTRAL BASIN MUNICIPAL WATER DISTRICT, a municipal water district; and CITY OF COMPTON, a municipal corporation, Plaintiffs, vs. SAN GABRIEL VALLEY WATER COMPANY, a corporation; AZUSA AGRICULTURAL WATER COMPANY, a corporation; AZUSA VALLEY WATER COMPANY, a corporation; CALIFORNIA WATER & TELEPHONE COMPANY, a corporation; THE COLUMBIA LAND AND WATER COMPANY, a corporation; COVINA IRRIGATING COMPANY, a corporation; CROSS WATER COMPANY, a corporation; DUARTE WATER COMPANY, a corporation; EAST PASADENA WATER CO. LTD., a corporation; GLENDORA IRRIGATING COMPANY, a corporation; SAN DIMAS WATER COMPANY, a corporation; SOUTHERN CALIFORNIA WATER COMPANY, a corporation; SUBURBAN WATER SYSTEMS, a corporation; SUNNY SLOPE WATER CO., a corporation; VALLECITO WATER CO., a corporation; CITY OF ALHAMBRA, a municipal corporation; CITY OF ARCADIA, a municipal corporation; CITY OF AZUSA, a municipal corporation; CITY OF COVINA, a municipal corporation; CITY OF EL MONTE, a municipal corporation; CITY OF GLENDORA, a municipal corporation; CITY OF MONROVIA, a municipal corporation; CITY OF MONTEREY PARK, a municipal corporation; CITY OF SOUTH PASADENA, a municipal corporation; BALDWIN PARK COUNTY WATER DISTRICT, a county water district; and SAN GABRIEL COUNTY WATER DISTRICT, a county water district, Defendants, UPPER SAN GABRIEL VALLEY MUNICIPAL WATER	NO. 722,647 JUDGMENT

DISTRICT, a municipal water district, and CALIFORNIA DOMESTIC WATER COMPANY, a corporation,

Intervenors.

The original complaint herein was filed by Plaintiffs on May 12, 1959, and an amended complaint was filed herein on June 8, 1961. Each Defendant in this action filed an answer to the amended complaint denying the material allegations therein. On _____, 1964, and _____, 1964, respectively, Upper San Gabriel Valley Municipal Water District, a municipal water district, and California Domestic Water Company, a corporation, intervened in the action as Defendants. On _____, 1964, there was filed herein a Stipulation for Judgment signed by all of the parties to this action.

After due examination and consideration of the pleadings, said Stipulation for Judgment and other documents and papers on file herein, it appears to the Court that:

(a) In bringing and maintaining this action, plaintiff Central Basin Municipal Water District, a municipal water district, has done so as a representative of and for the benefit of all owners of water rights within, all owners of land within, and all inhabitants of, the district, except to the extent that defendant California Domestic Water Company is representing itself.

(b) In intervening in this action, defendant Upper San Gabriel Valley Municipal Water District, a municipal water district, has done so as representative of and for the benefit of all owners of water rights within, all owners of land within, and all inhabitants of, the district, except to the extent that other Defendants who are within the district are representing themselves.

(c) There is a need for a physical solution to the complex water problems which have given rise to this action.

(d) The physical solution embodied in this Judgment is a feasible, equitable and just resolution of the issues presented by the amended complaint and answers thereto on file herein, and it will bring about a fair division of the water supply of the San Gabriel River System between Upper Area and Lower Area, as those terms are hereinafter defined.

(e) On the basis of the Stipulation for Judgment filed herein and the consent of all Plaintiffs and Defendants it is in the interests of justice and in furtherance of the water policy of the State of California to proceed without trial and to make and enter this Judgment.

Now, therefore, it is hereby ORDERED, ADJUDGED AND DECREED:

JURISDICTION 1. The Court has jurisdiction of the subject matter of this action and of the Upper Area Parties and Lower Area Parties, as those terms are hereinafter defined.

EXHIBITS 2. The following Exhibits marked A and B, are attached to this Judgment and made a part hereof:

(a) Exhibit A -- Map entitled "Rio Hondo and San Gabriel River in Vicinity of Whittier Narrows Dam".

(b) Exhibit B -- Engineering Appendix.

DEFINITIONS 3. As used in this Judgment, the following terms shall have the meanings assigned to them:

(a) Central Municipal -- Central Basin Municipal Water District.

(b) Upper District -- Upper San Gabriel Valley Municipal Water District.

(c) Lower Area Parties -- the Plaintiffs, and

all persons, firms and corporations, public or private, who are represented by Central Municipal.

(d) Upper Area Parties -- the Defendants, and all persons, firms and corporations, public or private, who are represented by Upper District.

(e) Upper Area -- the area (exclusive of the Raymond Basin and the portion of San Gabriel Mountains tributary thereto) wherein surface and subsurface waters are tributary to Whittier Narrows upstream from the common boundary of Upper District and Central Municipal through Whittier Narrows.

(f) Lower Area -- the area which lies downstream from the common boundary of Central Municipal and Upper District through Whittier Narrows and which is included within the incorporated limits of the Plaintiffs.

(g) Whittier Narrows -- a gap between Merced Hills and Puente Hills shown on Exhibit A.

(h) Montebello Forebay -- the area designated as such on Exhibit A.

(i) Export to Lower Area -- water diverted from surface streams in Upper Area or pumped or developed from underground sources in Upper Area, and in either case conveyed by conduit through Whittier Narrows.

(j) Subsurface Flow -- all water which passes as ground water through Whittier Narrows at the "narrowest section" as shown on Exhibit A.

(k) Surface Flow -- all water other than Export to Lower Area and Subsurface Flow, which passes from Upper Area to Lower Area through Whittier Narrows.

(l) Usable Water -- all Surface Flow, Subsurface Flow and Export to Lower Area, but excluding:

(1) that portion of Surface Flow, if any, which crosses the southerly boundary of Montebello Forebay as surface runoff less the amount of Surface Flow which has been caused to flow out of Montebello Forebay as surface runoff by any spreading of water in Montebello Forebay by or on behalf of Lower Area Parties, or any of them;

(2) water imported by or on behalf of Lower Area Parties from outside of the watershed of the San Gabriel River System;

(3) Reclaimed Water, as defined in subparagraph (o) herein, provided, however, that Reclaimed Water (other than that reclaimed by or on behalf of Lower Area Parties) which is percolated and commingled with ground water in Upper Area shall be deemed Subsurface Flow, Surface Flow, or Export to Lower Area as the case may be, when and if it passes through Whittier Narrows;

(4) that portion, if any, of Export to Lower Area which in any Water Year after September 30, 1966, exceeds 23,395 acre-feet;

(5) Make-up Water, as defined in subpara-

graph (m) herein; and

(6) any water whether flowing on the surface or beneath the surface of the ground which has passed any of the points of surface measurement in Whittier Narrows shown on Exhibit B and prior to its passing from Upper Area to Lower Area is intercepted and returned upstream by conduit or otherwise so that it could again pass any such points of measurement.

(m) Make-up Water -- water of usable quality for ground water recharge required to be delivered to Lower Area under terms of paragraph 5 of this Judgment.

(n) Water Year -- October 1 through the following September 30.

(o) Reclaimed Water -- water reclaimed from sewage generated in the watershed of the San Gabriel River System above Whittier Narrows.

DECLARATION OF RIGHT

4. Lower Area Parties have rights in the water supply of the San Gabriel River System. The nature and extent of such rights is not known; however, Lower Area Parties and all other persons downstream from Whittier Narrows who receive water from the San Gabriel River System or have rights in and to such water, shall have, as against Upper Area Parties and all other pumpers of water in the San Gabriel Valley, a right to receive from Upper Area an average annual usable supply of ninety-eight thousand four hundred fifteen (98,415) acre-feet of water over a long-term period of normal rainfall derived as set forth in Exhibit B, consisting

of Surface Flow, Subsurface Flow, Export to Lower Area and Make-up Water. If in the future a court of competent jurisdiction shall decree that any person downstream from Whittier Narrows within Central and West Basin Water Replenishment District who is not bound by this Judgment, shall have, as against Upper Area Parties and substantially all other pumpers in the San Gabriel Valley, a right to receive from Upper Area a stated amount of usable supply consisting of Surface Flow, Subsurface Flow, Export to Lower Area or Make-up Water, which right arose out of and is based upon the ownership of land or the production of water downstream from Whittier Narrows and within Central and West Basin Water Replenishment District, then and in that event the stated amount of such right so decreed shall not increase the declared rights as set forth in this paragraph 4.

PHYSICAL SOLUTION

5. In recognition of the complexities of annual supply and demand and variations in the components thereof, the Court hereby declares the following physical solution to be a fair and equitable basis for satisfaction of the declared right set forth in paragraph 4 hereof. Compliance with this paragraph 5 shall constitute full and complete satisfaction of said declared right.

AVERAGE ANNUAL ENTITLEMENT

(a) It is determined that the amount of Lower Area average annual entitlement to Usable Water is ninety-eight thousand four hundred fifteen (98,415) acre-feet.

BASIS OF ANNUAL ENTITLEMENT

(b) The outflow of water from Upper Area through Whittier Narrows to Lower Area has

varied from year to year and will vary from year to year in the future depending on changing conditions of supply and demand; and as to any Water Year, the average annual rainfall for the San Gabriel Valley during the ten (10) consecutive Water Years ending with that Water Year, is a reasonable basis for determining the entitlement of Lower Area to Usable Water for such Water Year.

DETERMINATION OF RAINFALL

(c) The rainfall in each Water Year for the San Gabriel Valley shall be determined by application of the procedures described in Exhibit B.

RAINFALL ADJUSTMENT TABLE

(d) The quantity of water which Lower Area is entitled to receive in any Water Year (hereinafter called Lower Area Annual Entitlement) shall be determined in accordance with the following table, except that no determination of Lower Area Annual Entitlement shall be made for the last year of any Long-term Accounting Period as hereinafter defined.

TABLE A

LOWER AREA ANNUAL ENTITLEMENT
BASED ON 10-YEAR AVERAGE RAINFALL
FOR SAN GABRIEL VALLEY

(In Acre-feet)

Inches of Rain-fall	0	.1	.2	.3	.4	.5	.6	.7	.8	.9
14	64,200	64,900	65,700	66,500	67,200	68,000	68,700	69,500	70,300	71,100
15	71,800	72,600	73,400	74,100	74,900	75,600	76,400	77,200	77,900	78,700
16	79,500	80,200	81,000	81,800	82,600	83,300	84,000	84,800	85,600	86,400
17	87,100	87,900	88,700	89,400	90,200	91,000	91,500	92,500	93,200	94,000
18	94,800	95,300	96,200	96,900	97,600	98,300	98,800	99,500	100,100	100,800
19	101,400	102,000	102,700	103,300	103,900	104,500	105,100	105,700	106,300	107,000
20	107,600	108,200	108,800	109,400	110,100	110,700	111,300	111,900	112,500	113,100
21	113,700	114,300	115,000	115,600	116,200	116,800	117,400	118,100	118,600	119,300
22	119,900	120,400	121,000	121,600	122,200	122,700	123,300	123,900	124,400	125,000
23	125,500	126,100	126,700	127,200	127,800	128,400	128,900	129,500	130,100	130,600
24	131,200	131,700	132,200	132,700	133,100	133,700	134,100	134,700	135,100	135,600

DETERMINATION OF ACCRUED DEBIT OR CREDIT

(e) The difference between the aggregate of water entitlements determined as provided in this Judgment and the aggregate of Usable Water and delivered Make-up Water shall be computed as of the end of each Water Year. Any excess of water entitlements over the quantity of Usable Water and Make-up Water received by Lower Area after September 30, 1963, is hereinafter referred to as Accrued Debit of Upper Area. Any excess of Usable Water and Make-up Water received by Lower Area after September 30, 1963, over water entitlements, is hereinafter referred to as Accrued Credit of Upper Area.

ACCRUED DEBIT

(f) If at the end of any Water Year it is determined pursuant to subparagraph (e) of this paragraph 5 that there is an Accrued Debit of Upper Area, then Upper District shall cause Make-up Water to be delivered to Lower Area during the following Water Year in an amount not less than the sum of (1) one-third of such Accrued Debit of Upper Area, and (2) that portion, if any, of such Accrued Debit of Upper Area over 25,000 acre-feet which remains after deducting said one-third. If Upper District shall fail to deliver Make-up Water as next above provided and Plaintiffs shall have diligently pursued their legal and equitable remedies to cause Upper District to so deliver, and either: (1) it shall be finally determined that Upper District is not obligated to so deliver, or (2) it shall appear that Upper District will not thereafter deliver Make-up Water, then Defendants and any successor or successors in interest by title to a Defendant's water right in Upper Area shall be obligated to so deliver Make-up Water. The provisions of this paragraph are subject to the provisions of paragraph 5(h) below.

ACCRUED CREDIT

(g) If at the end of any Water Year it is determined pursuant to subparagraph (e) of this paragraph 5 that there is an Accrued Credit of Upper Area, then there shall be no obligation to deliver Make-up Water to Lower Area during the following Water Year.

LONG-TERM ACCOUNTING

(h) Following September 30, 1963, a Long-term Accounting shall be made from time to time but not sooner than at the end of 15 Water Years, nor later than 25 Water Years after September 30, 1963, or after the last such accounting, whichever is later. A Long-term Accounting shall be made sooner than said 25-year period whenever the average annual rainfall in the San Gabriel Valley for a period of 15 Water Years or more after September 30, 1963, or after the last such accounting, whichever is later, is at least 18 inches but not more than 19 inches.

In making such Long-term Accounting for any such period (herein called Long-term Accounting Period), the aggregate of all Usable Water and Make-up Water received by Lower Area during such period shall be determined and (a) there shall be deducted from said aggregate the amount of Make-up Water, if any, delivered during such period by reason of the existence of an Accrued Debit of Upper Area at the end of the immediately preceding Long-term Accounting Period, or (b) there shall be added to said aggregate the amount of any Accrued Credit of Upper Area determined to exist at the end of the immediately preceding Long-term Accounting Period. The net aggregate amount of Usable Water and Make-up Water so computed shall be compared to the result to be obtained by (1) multiplying the 98,415 acre-feet of water to be received by

Lower Area as its average annual usable supply by the number of Water Years in the Long-term Accounting Period, and (2) adjusting the product by the percentage by which the average annual rainfall (to the nearest one hundredth of an inch) for the Long-term Accounting Period involved exceeds or is less than 18.52 inches. (i.e.:

$$98{,}415 \times (\text{number of Water Years in Period}) \times \frac{(\text{average rainfall for the Period})}{18.52}.)$$

If as a result of such comparison it is determined that there is a deficiency in the net aggregate amount of Usable Water and Make-up Water received during the Long-term Accounting Period, then such deficiency shall be compensated in the following Water Year by delivery of Make-up Water to Lower Area in the manner and by the means provided herein. If it is determined as a result of such comparison that there is an excess of net aggregate Usable Water and Make-up Water received, then the amount of such excess shall be carried forward as an Accrued Credit of Upper Area.

MAKE-UP WATER DELIVERY

(i) Make-up Water which Defendants are obligated to deliver through Upper District may be delivered by any one or more of the following means:

SURFACE FLOW DELIVERY

(1) By causing water other than Reclaimed Water to flow on the surface into Montebello Forebay by any means and from any source, provided that such deliveries shall

be at such rates or flows and at such times as may be scheduled by the Watermaster.

RECLAIMED WATER CREDIT

(2) By paying to Central Municipal for the benefit of all Lower Area Parties the total amount or any portion of the total amount which Central and West Basin Water Replenishment District or any Plaintiff shall have expended in reclaiming water or for the purchase of Reclaimed Water in the preceding Water Year, and which water when so reclaimed or purchased shall have been passed through Whittier Narrows to Lower Area. Upon written request made by Upper District not later than three months after the end of a Water Year, Central Municipal shall give a written notice to Upper Distric and the Watermaster of the total number of acre-feet of such Reclaimed Water so reclaimed or purchased during the preceding Water Year and of the cost per acre-foot therefor at the existing Whittier Narrows Water Reclamation Plant for reclamation of waste water, and at any future additions thereto, and payment therefor at said cost, or costs, may be made not later than one year after receipt of such written notice. Such payment shall be made for the total production of Reclaimed Water from the existing plant in the preceding Water Year before Upper District shall be entitled to make payment for all, or any portion of,

Reclaimed Water produced in that year by any future addition to that plant. Such payment by Upper District on behalf of Defendants shall be deemed a delivery of Make-up Water equal to the quantity of Reclaimed Water for which the expenditure of a like sum would have paid at the cost, or costs, per acre-foot so paid for such Reclaimed Water. In no event, however, shall any payment by Upper District under this subparagraph (i)(2) be deemed a delivery of Make-up Water in excess of 14,735 acre-feet in any Water Year during which the amount of Make-up Water required to be furnished by Upper Area is available to it at ground water replenishment rates for delivery to Lower Area, except with the prior written consent of Plaintiffs.

DIRECT DELIVERY

(3) By delivering, or causing to be delivered, water to any of Lower Area Parties with consent of Plaintiffs for use in Lower Area.

WATER RIGHTS BOUND

(j) It is further determined and adjudicated that the obligations provided above in subparagraphs (f) and (h) of this paragraph 5 for each Defendant shall constitute and be a servitude upon the existing water rights of each Defendant in and to the water supply of the San Gabriel River System upstream from Lower Area and shall run with and forever bind said water rights for the benefit of the water

rights of Lower Area Parties.

TRANSFER OF WATER RIGHTS

(k) If any Defendant, other than Upper District, shall desire to transfer all or any of its said water rights to a person, firm or corporation, public or private, who or which is not then bound by this Judgment as a Defendant, such Defendant shall as a condition to being discharged as hereinafter provided cause such transferee to appear in this action and file a valid and effective express assumption of the obligations imposed upon such Defendant under this Judgment as to such transferred water rights. Such appearance and assumption of obligations shall include the filing of a designation of the address to which shall be mailed all notices, requests, objections, reports and other papers permitted or required by the terms of this Judgment.

If any Defendant shall have transferred all of its said water rights and each transferee not theretofore bound by this Judgment as a Defendant shall have appeared in this action and filed a valid and effective express assumption of the obligations imposed upon such Defendant under this Judgment as to such transferred water rights, such transferring Defendant shall thereupon be discharged from all obligations hereunder. If any Defendant other than Upper District shall cease to own any rights in and to the water supply of the San Gabriel River System upstream from Lower Area, and shall have caused the appearance

and assumption provided for in the third preceding sentence with respect to each voluntary transfer, then upon application to this Court and after notice and hearing such Defendant shall thereupon be relieved and discharged from all further obligations hereunder. Any such discharge of any Defendant hereunder shall not impair the aggregate rights of Lower Area Parties or the responsibility hereunder of the remaining Defendants or any of the successors.

WATERMASTER PROVISIONS

WATERMASTER APPOINTMENT

6. A Watermaster comprised of three persons to be nominated as hereinafter provided shall be appointed by and serve at the pleasure of and until further order of this Court. One shall be a representative of Upper Area Parties nominated by and through Upper District, one shall be a representative of Lower Area Parties nominated by and through Central Municipal, and one shall be jointly nominated by Upper District and Central Municipal. If a dispute arises in choosing the joint appointee, the Court shall make the appointment. If Central Municipal or Upper District shall at any time or times nominate a substitute appointee in place of the appointee last appointed to represent Lower Area Parties, in the case of Central Municipal, or to represent Upper Area Parties, in the case of Upper District, or if Central Municipal and Upper District shall at any time or times jointly nominate a substitute appointee in place of the joint appointee last appointed,

such substitute appointee shall be appointed by the Court in lieu of such last appointee or joint appointee. Each such nomination shall be made in writing, served upon the other parties to this action and filed with the Court. The Watermaster when so appointed shall administer and enforce the provisions of this Judgment and the instructions and subsequent orders of this Court.

POWERS AND DUTIES

7. The Watermaster shall have the following powers and duties and shall take all steps necessary to make the following determinations for each Water Year promptly after the end of such Water Year:

(a) the amount of Surface Flow,

(b) the amount of Subsurface Flow,

(c) the amount of Export to Lower Area,

(d) the amount of water which passed as Surface Flow or Subsurface Flow across the boundary between Upper Area and Lower Area through Whittier Narrows and which was imported by or on behalf of Lower Area Parties from outside of the watershed of the San Gabriel River System above Whittier Narrows,

(e) the amount and quality of Reclaimed Water reclaimed by or on behalf of Lower Area,

(f) the total amount of Make-up Water delivered to Lower Area, together with the respective amounts delivered by each method specified in paragraph 5 of this Judgment,

(g) the amount of Usable Water received by Lower Area,

(h) the amount of local storm inflow, originating in Lower Area, to the channel of

each of Rio Hondo and San Gabriel River within Montebello Forebay,

(i) the surface outflow from Montebello Forebay in the channel of each of the Rio Hondo and San Gabriel River,

(j) the number of inches of depth of average rainfall in the San Gabriel Valley,

(k) the average annual rainfall in the San Gabriel Valley for the ten consecutive Water Years just ended,

(l) Lower Area Annual Entitlement or the entitlement for the Long-term Accounting Period, determined pursuant to subparagraph (d) or (h), respectively, of paragraph 5 of this Judgment,

(m) Accrued Debit of Upper Area, if any, or Accrued Credit of Upper Area, if any, as it exists at the end of such Water Year, and

(n) the amount, if any, of Make-up Water which Upper District is obligated to deliver during the following Water Year.

DETERMINATIONS TO BE BASED ON EXHIBIT B

8. Each of the above required determinations shall be based on and conform to the procedures specified in this Judgment and in Exhibit B insofar as said exhibit provides a procedure.

REPORTS MEASUREMENTS AND DATA

9. The Watermaster shall report to the Court and to each party in writing at the same time and not more than five months after the end of each Water Year the determinations required by paragraph 7 above.

The Watermaster shall cause to be installed and maintained in good working order such measuring

devices in Whittier Narrows and elsewhere as are necessary or required and not otherwise available for the making of the determinations required by paragraph 7 above.

The Watermaster shall collect and assemble from each of the parties, and the parties shall make available to the Watermaster, such records, reports and other data as may reasonably be required in the making of the determinations required of the Watermaster under paragraph 7 above. All records, reports and data received, maintained or compiled by the Watermaster shall be open to inspection by any party or its representative.

OBJECTIONS

10. Any party who objects to any determination made by the Watermaster pursuant to paragraph 7 above, may make such objection in writing to the Watermaster within thirty (30) days after the Watermaster gives the required written notice of such determination. Within thirty (30) days after expiration of the time within which objection may be made to such determination, the Watermaster shall consider all objections thereto and shall amend, modify or affirm the determination and give notice thereof at the same time to all parties and shall file a copy of such final determination with the Court. If the Watermaster denies any objection in whole or in part, the party whose objection was so denied may within thirty (30) days after service of the final determination upon it, make written objection to such denial by filing its objections with the Court after first mailing a copy of such objections to the

Watermaster and to each party, and such party shall bring its objections on for hearing before the Court upon notice and motion and at such time as the Court may direct. If the Watermaster shall change or modify any determination, then any party may within fifteen (15) days after service of such final determination upon it object to such change or modification by following the procedure prescribed above in the case of a denial of an objection to the first determination. If objection to a final determination is filed with the Court as herein provided and brought on for hearing, then such final determination may be confirmed or modified in whole or in part as the Court may deem proper.

CHANGE IN METHOD OF MEASUREMENT

11. If the Watermaster shall deem it advisable to make a change in the method of making any measurement required under the terms of this Judgment, the Watermaster shall notify all parties of such proposed change, and if within sixty (60) days of such notification no party shall file written objections to such change with the Watermaster, the Watermaster may put such proposed change into effect. If, however, any party files its written objection to the proposed change, it shall by notice of motion filed not later than fifteen (15) days after the expiration of said 60-day period and served on the Watermaster and all parties bring its objection on for hearing before the Court at such time as the Court may direct, and the Court shall rule on whether the Watermaster may make such proposed change.

BUDGET

12. In addition to the above-specified administrative powers and duties, the Watermaster shall prepare a tentative budget for each Water Year, stating the estimated expense for discharging the duties of the Watermaster set forth in this Judgment. The Watermaster shall mail a copy of the tentative budget to each of the parties at the same time at least sixty (60) days before the beginning of each Water Year. However, with respect to the first Water Year following the entry of this Judgment, the tentative budget shall be mailed not later than one hundred and twenty (120) days from the entry of this Judgment. If any party has an objection to a tentative budget, or any suggestions with respect thereto, that party shall present the same in writing to the Watermaster within fifteen (15) days after service of the tentative budget upon it. If no objections are received, the tentative budget shall become the final budget. If objections to the tentative budget are received, the Watermaster shall, within fifteen (15) days after the expiration of the time for presenting objections, consider all such objections, prepare a final budget, and mail a copy thereof to each party, together with a statement of the amount assessed, if any, to each party, computed as provided in paragraph 13. If the Watermaster denies any objection in whole or in part, the party whose objection was so denied may, within fifteen (15) days after service of the final budget upon it, make written objection to such denial by filing

its objections with the Court after first mailing a copy of such objections to each party, and such party shall bring its objections on for hearing before the Court upon notice and motion and at such time as the Court may direct. If the Watermaster makes a change in the tentative budget, then any party may within fifteen (15) days after service of the final budget upon it object to any such change by following the procedure prescribed above in the case of a denial of an objection to the tentative budget. If objection to the final budget is filed with the Court as herein provided and brought on for hearing, then such final budget may be confirmed or adjusted in whole or part as the Court may deem proper.

FEES AND EXPENSES

13. The fees, compensation and expenses of the Watermaster hereunder shall be borne by the parties in the following proportions: 50% by Upper District, 41.2% by Central Municipal, 7.125% by the City of Long Beach, and 1.675% by the City of Compton, or such other division among the Plaintiffs as they may agree upon in writing and file with the Watermaster.

Payment of the amount assessed to a party, whether or not subject to adjustment by the Court as provided in paragraph 12, shall be paid on or prior to the beginning of the Water Year to which the final budget and statement of assessed costs is applicable. If such payment by any party is not made on or before said date, the Watermaster shall add a penalty of 5% thereof to such party's

statement. Payment required of any party hereunder may be enforced by execution issued out of this Court, or as may be provided by order hereinafter made by this Court. All such payments and penalties received by the Watermaster shall be expended by him for the administration of this Judgment. Any money remaining at the end of any Water Year shall be available for use in the following Water Year.

SUCCESSOR OF UPPER DISTRICT

14. If a public agency or district shall be formed hereafter which shall include the present area of Upper District and shall have ability equal to or greater than that which Upper District now has to perform the obligations under this Judgment, and shall appear in this action and file a valid and effective assumption of such obligations, then Upper District upon application to this Court, and after notice and hearing, shall thereupon be relieved and discharged from all further obligations hereunder.

CONTINUING JURISDICTION OF THE COURT

15. Full jurisdiction, power and authority is retained and reserved by the Court for the purpose of enabling the Court upon application of any party by motion and upon at least thirty (30) days notice thereof, and after hearing thereon (i) to make such further or supplemental orders or directions as may be necessary or appropriate for the construction, enforcement or carrying out of this Judgment, and (ii) to modify, amend or amplify any of the provisions of this Judgment whenever substantial developments affecting the physical, hydrological or other conditions dealt

with herein may, in the Court's opinion, justify or require such modification, amendment or amplification.

If at any time Plaintiffs and at least two-thirds of the Defendants including any two of the cities of Alhambra, Azusa and Monterey Park, shall file with the Court a written stipulation (i) that henceforth in determining any one or more of the component parts of Usable Water received by Lower Area in any Water Year, the Watermaster shall not use the method specified in this Judgment but shall use instead a new, different or altered method as specified and described in such stipulation, and (ii) that such new, different or altered method or methods shall be applied to redetermine the average annual amount of Usable Surface Flow, Subsurface Flow and Export to Lower Area which Lower Area received each Water Year during the period October 1, 1934 to September 30, 1959, referred to as the base period, and that on the basis of such redetermination the Court may modify paragraphs 4 and 5 of this Judgment to establish a new and different water entitlement and yearly adjustment thereto which shall thereafter control, then and in that event, after hearing pursuant to motion and notice to all parties, held at such time as the Court may direct, the Court may deny the motion or it may grant it and (a) approve the future use of the stipulated new, different or altered method or methods, by the Watermaster, and (b) by use of the stipulated new, different or altered method or

methods, redetermine the average annual amount of Usable Surface Flow, Subsurface Flow and Export to Lower Area received each Water Year during the base period, and on the basis thereof modify paragraphs 4 and 5 of this Judgment to provide for a new and different water entitlement and yearly adjustment thereto, which modifications shall be effective and control commencing with the Water Year following the entry of the order so modifying paragraphs 4 and 5.

REPORT OF TRANSFER OF WATER RIGHTS

16. Every transfer of any of those water rights of Defendants which are the subject of Paragraph 5(j) of this Judgment, whether such transfer is voluntary or involuntary, shall be reported promptly in writing by the transferor to the Watermaster; and the Watermaster shall give prompt written notice of such transfer to each party and to each transferee involved in every other transfer of any of those water rights. Such report by the transferor and notice by the Watermaster shall contain the following information as to each such transfer:

(a) The identity of the transferor;

(b) The identity of the transferee;

(c) The effective date of the transfer;

(d) A brief description of the document by which such transfer is made, and the recording data, if any;

(e) A statement as to whether the transfer was voluntary or involuntary;

(f) A statement whether or not after such transfer the transferor still has or

claims to have any of the water rights which are the subject of Paragraph 5(j) of this Judgment.

NOTICES

17. All notices, requests, objections, reports and other papers permitted or required by the terms of this Judgment shall be given or made by written document and shall be served by mail on each party and on each transferee of water rights who has appeared and filed the assumption of obligations required by paragraph 5(k) of this Judgment, and where required or appropriate, on the Watermaster. For all purposes of this paragraph the mailing address of each party shall be that set forth below its signature to the Stipulation for Judgment, and the mailing address of each transferee of water rights shall be that set forth in the appearance and assumption of obligations required by paragraph 5(k) of this Judgment, until changed as provided below. No further notice of any kind as to any matter arising hereunder, including notice to attorneys of record for any party or such transferee, need be given, made or served.

If any party or any such transferee of water rights shall desire to change its designation of mailing address, it shall file a written notice of such change with the clerk of this court and shall serve a copy thereof by mail on the Watermaster. Upon the receipt of any such notice the Watermaster shall promptly give written notice thereof to each party and to each transferee of water rights.

EFFECTIVE DATE

18. The rights decreed and the obligations imposed by this Judgment shall be effective October 1, 1963, and shall accrue from that date.

COSTS

19. None of the parties shall recover any costs from any other party.

Dated: _____, 1964.

_____
Judge

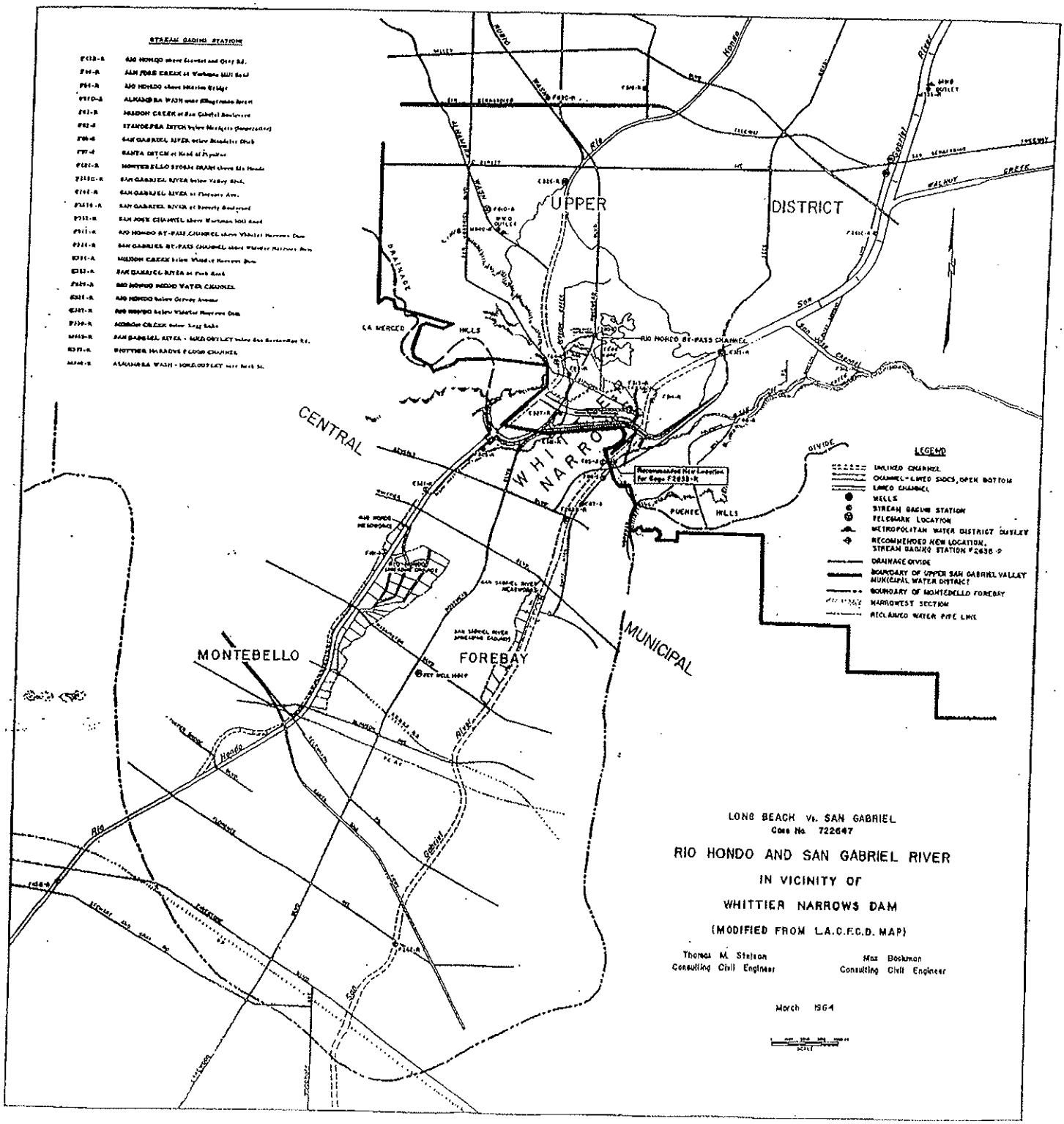
STREAM GAGING STATIONS
UPPER
DISTRICT
CENTRAL
MUNICIPAL
MONTEBELLO
FOREBAY
WHITTIER NARROWS
LA MERCED HILLS
PUENTE HILLS
RIO HONDO BY-PASS CHANNEL
Recommended New Location for Gage F2635-R
LEGEND
UNLINED CHANNEL
CHANNEL-LINED SIDES, OPEN BOTTOM
LINED CHANNEL
WELLS
STREAM GAGING STATION
FLOODMARK LOCATION
METROPOLITAN WATER DISTRICT OUTLET
RECOMMENDED NEW LOCATION, STREAM GAGING STATION F2635-R
DRAINAGE DIVIDE
BOUNDARY OF UPPER SAN GABRIEL VALLEY MUNICIPAL WATER DISTRICT
BOUNDARY OF MONTEBELLO FOREBAY
NARROWEST SECTION
RECLAIMED WATER PIPE LINE
LONG BEACH Vs. SAN GABRIEL
Case No. 722647
RIO HONDO AND SAN GABRIEL RIVER
IN VICINITY OF
WHITTIER NARROWS DAM
(MODIFIED FROM L.A.C.F.C.D. MAP)
Thomas M. Stetson
Consulting Civil Engineer
Max Bookman
Consulting Civil Engineer
March 1964

EXHIBIT A

LONG BEACH v. SAN GABRIEL

ENGINEERING APPENDIX

EXHIBIT B

ENGINEERING APPENDIX

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ENGINEERING APPENDIX

INTRODUCTION

Pursuant to the declaration of rights contained in paragraph 4 of the Judgment and the physical solution contained in paragraph 5 of the Judgment, the purpose of this exhibit is to establish the basis for calculations and measurements to provide for operation of the Judgment in the future.

Unless otherwise provided in this exhibit, all terms used herein are used in the same sense as defined or used in the Judgment.

The derivation of the Lower Area average annual entitlement is based upon the data presented herein covering the base period. However, if a more accurate method of determining Subsurface Flow is developed at some future time, it will be acceptable for use in carrying out the terms of this Judgment so long as it can also apply to the base period and to the years over which the Judgment shall have operated to that time.

I. DERIVATION OF LOWER AREA AVERAGE ANNUAL ENTITLEMENT

The Lower Area average annual entitlement is stipulated in paragraph 5 (a) of the Judgment to be 98,415 acre-feet. It was derived from three components of water supply over the base period, October 1, 1934, through September 30, 1959. Said components were: (1) Usable Surface Flow, (2) Subsurface Flow, and (3) Export to Lower Area.

A. Usable Surface Flow

For the base period, Usable Surface Flow was calculated as that portion of Surface Flow which percolated

in Montebello Forebay, less the calculated amounts of Lower Area Replenishment Water (hereby defined as water imported from outside of the watershed of the San Gabriel River system by or on behalf of Lower Area Parties for replenishment of Montebello Forebay and passing from Upper Area to Lower Area), and less one-half of the Raymond Basin sewage discharged in Upper Area from the Tri-City Sewage Treatment Plant.

Table 1 presents the calculation of Usable Surface Flow during the base period. The average annual quantity was calculated to be 51,620 acre-feet. Its derivation is summarized in the following tabulation.

		Average annual quantity in acre-feet
1. Surface Flow		108,560
2. Montebello Forebay surface outflow	45,000	
3. Local storm inflow within Montebello Forebay	1,660	
4. Portion of Surface Flow leaving Montebello Forebay (2 minus 3)		43,340
5. Surface Flow percolated in Montebello Forebay (1 minus 4)		65,220
6. Lower Area Replenishment Water (Colorado River water) passing through Whittier Narrows	11,870	
7. One-half of Raymond Basin sewage discharged in Upper Area	1,730	
8. Usable Surface Flow (5 minus 6 minus 7)		51,620

TABLE

CALCU N OF US URFACE

G BASE)

cre-Fe

(1) Water Year	2) Hondo -64	Su (4) Rio H Bypa F-3	Flo (5) ycamore Canyon	6) abriel at num g water	il +5+6)	Montebe (9) San Gabri Rive F-26	(10) bbtotal (8+9)	) Bello Drain 81	2) ow of rface low -11)	(13) ios Flat plated in stobello rebay (-12)	(14) olorado vater pa ittier N	One-l Basin in	Raymond Discharg Area	(16) Usable rface Fl 13-14-1
1934-3	9,230		390	2,410	170	4,7	10,700	50	9,050	52,120				),470
3	0,700		70	6,140	720	1,7	5,970	90	5,080	41,640				3,905
3	0,900		260	7,750	750	21,0	47,870	70	5,700	64,050				,185
3	9,330		510	9,120	660	60,0	132,100	50	0,050	103,610				),650
3	0,650		200	8,380	560	2,8	12,080	80	1,100	74,460				,490
1939-4	7,660		110	9,510	490	1,9	6,750	90	5,860	67,630				4,645
4	0,650		1,070	2,440	280	75,7	169,040	90	4,950	97,330				4,125
4	8,810		80	3,770	400	13,5	20,300	60	9,340	72,060				,920
4	9,470		150	2,670	700	186,4	128,330	80	5,750	73,950				,715
4	1,390		220	1,420	880	79,9	106,750	90	4,360	87,520				,975
1944-4	2,300		70	7,130	520	26,1	34,570	70	3,800	73,720				,230
4	3,160		70	1,580	440	16,4	27,760	70	6,890	83,550				,915
4	8,410		110	6,790	540	27,6	43,680	50	2,330	77,210				,425
4	5,370		20	0,970	030		3,510	10	2,600	56,430				,365
4	1,100		40	3,590	370		1,490	60	630	34,740				,740
1949-5	2,280		110	1,780	950		2,840	40	1,600	31,350				,350
5	7,880		0	8,420	000		780	90	-110	23,110				,110
5	4,570		530	6,800	990	24,2	50,290	30	6,960	51,030				,030
5	6,120		50	2,350	730	9	4,430	30	3,000	41,730				,730
5	3,390	7,2	100	8,130	430	3,7	14,550	90	2,360	40,070	15,6			,380
1954-5	1,350	9,7	70	4,630	880	1,0	9,000	10	7,790	31,090	23,1			,960
5	6,180	14,9	150	8,930	560	10,3	24,900	10	2,790	39,770	42,8			,100
5	6,840	20,4	50	2,220	350	1,3	6,030	20	4,910	56,440	51,8			,570
5	9,320	15,3	540	1,320	140	23,9	54,220	50	0,970	78,170	103,9			,270
1958-5	9,800		10	9,790	520	3,1	7,030	30	5,800	77,720	59,3			,330
TOTAL	6,860	67,6	4,980	8,040	060	586,6	124,970	10	3,560	30,500	296,8			,385
Averag	3,870	2,7	200	1,120	560	23,4	45,000	60	3,340	65,220	11,87			,620

B. Subsurface Flow

The State of California, Department of Water Resources, published in April 1962, Appendix B, "Safe Yield Determinations", of Bulletin No. 104, a report entitled "Planned Utilization of the Ground Water Basins of the Coastal Plain of Los Angeles County". That report included estimates of the seasonal Subsurface Flow through Whittier Narrows for each Water Year during the period 1934-35 through 1956-57. By applying the same methods of computation, the estimates have been extended through the Water Year 1958-59 and a 25-year average of 28,400 acre-feet derived.

Table 2 sets out the Subsurface Flow for each Water Year in the base period and the average annual Subsurface Flow during the base period.

TABLE 2

SUBSURFACE FLOW
DURING BASE PERIOD

Water Year	Acre-Feet
1934-35	33,500
36	33,500
37	31,100
38	25,600
39	25,000
1939-40	23,900
41	23,300
42	21,800
43	21,900
44	23,700
1944-45	23,500
46	23,100
47	22,400
48	25,700
49	30,300
1949-50	34,000
51	32,800
52	32,100
53	32,800
54	33,200
1954-55	33,600
56	32,200
57	32,600
58	30,500
1958-59	27,800
TOTAL	709,900
Average	28,400

C. Export to Lower Area

During the base period there were a number of water producers or water service agencies which produced water by surface diversions or wells in Upper Area and exported it to Lower Area. At the present time, and for the past several years, all such water has been pumped from wells in Upper Area.

There are four water service agencies which currently so export water. They are the Rincon Ditch Company, California Domestic Water Company, Suburban Water Systems, and the City of Whittier.

Table 3 sets forth Export to Lower Area for each Water Year during the base period and the average annual Export to Lower Area during the base period.

TABLE 3

EXPORT TO LOWER AREA
DURING BASE PERIOD

Water Year	Acre-Feet
1934-35	15,049
35-36	21,644
36-37	22,668
37-38	25,151
38-39	27,532
1939-40	22,566
40-41	24,191
41-42	27,514
42-43	30,484
43-44	31,182
1944-45	25,953
45-46	27,456
46-47	29,877
47-48	30,165
48-49	25,515
1949-50	18,363
50-51	21,651
51-52	16,302
52-53	18,141
53-54	18,360
1954-55	18,796
55-56	20,728
56-57	19,686
57-58	22,031
58-59	23,881
TOTAL	584,886
Average	23,395

D. Derivation of Lower Area Average Annual Entitlement

Table 4 presents the derivation of the Lower Area average annual entitlement.

TABLE 4

LOWER AREA AVERAGE ANNUAL ENTITLEMENT

(In acre-feet for base period)

Usable Surface Flow (Table 1)	51,620
Subsurface Flow (Table 2)	28,400
Export to Lower Area (Table 3)	23,395
Sub-total	103,415
Stipulated deduction	5,000
Lower Area average annual entitlement	98,415

II. DETERMINATION OF FUTURE LOWER AREA ANNUAL ENTITLEMENT

In determining a future Lower Area Annual Entitlement, as set forth in paragraph 5 (d) of the Judgment, the annual rainfall for San Gabriel Valley shall be determined in accordance with procedures set forth below, which are those presently utilized by the Los Angeles County Flood Control District. The 90-year (1872-73 through 1961-62) average rainfall for San Gabriel Valley has been calculated by said District to be eighteen and fifty-two one-hundredths (18.52) inches. For purposes of this Judgment, this quantity shall be the long-term average annual rainfall for San Gabriel Valley and shall not be subject to change.

The arithmetic average of the annual rainfall recorded at the four precipitation stations listed below shall constitute the rainfall for San Gabriel Valley for the respective Water Year.

Station No.	Location
95	114 East First Street, San Dimas
102C	19711 East Valley Blvd., Walnut
108C	119 South Hoyt Avenue, El Monte
610B	City Hall, Pasadena

Table 5 presents the annual rainfall for San Gabriel Valley for the Water Years 1954-55 through 1962-63.

TABLE 5

ANNUAL RAINFALL FOR SAN GABRIEL VALLEY

Water Year	Rainfall, Inches
1954-55	13.9
56	16.7
57	13.7
58	30.2
59	8.5
1959-60	10.6
61	5.9
62	22.4
63	12.3

The average rainfall in inches for the ten (10) consecutive Water Years ending with the year for which entitlement is being calculated shall be used as the basis for determining Lower Area Annual Entitlement.

Lower Area Annual Entitlements have been computed for 10-year average rainfall in increments of one-tenth (0.1) inch between fourteen (14) and twenty-five (25) inches and are set forth in Table A in paragraph 5 (d) of the Judgment. The following outlines the procedure for determining Lower Area Annual Entitlement from Table A:

(1) Derive the 10-year average rainfall for San Gabriel Valley to the nearest one-tenth (0.1) inch;

(2) Enter Table A in left-hand column at whole number of inches of rainfall; and

(3) Read horizontally to the vertical column representing the appropriate tenth of an inch of rainfall to obtain the quantity of Lower Area Annual Entitlement in acre-feet.

III. FUTURE MEASUREMENTS

It will be necessary to maintain records of measurement of stream flow, flow in pipelines, rainfall and depth to ground water at a number of locations. The purpose of this Part III is to locate and identify those measurement stations and to specify the manner in which the measurements are to be used in the future operation of the Judgment. The line through Whittier Narrows shown on Exhibit A as "narrowest section" is the line at which accounting shall be made of the water to be received in the future by Lower Area Parties. The Watermaster shall, insofar as practicable, utilize measurement data available from existing sources. When such data are not available the Watermaster may make such measurements as may be necessary or reasonably required for the purposes of this Judgment. The Watermaster is hereby authorized to re-establish, rebuild or replace measuring stations whenever necessary for the operation of this Judgment.

A. Surface Water Measurements and Calculations.

There may be several categories of water flowing on the surface through Whittier Narrows. Among them may be local stream flow, Lower Area Replenishment Water, Reclaimed Water and Make-up Water. The Watermaster shall have the responsibility of determining the quantities of each category of water flowing through Whittier Narrows in the future.

The approximate locations of stream measuring stations in and near Whittier Narrows are shown on Exhibit A. The surface

water measurements and calculations shall include the following:

1. Measurements of Surface Flow.

   a. Rio Hondo above Mission Bridge, Station F64-R.

   b. Mission Creek at San Gabriel Boulevard, Station F83-R.

   c. Rio Hondo By-pass Channel, Station F313-R.

   d. Whittier Narrows Flood Channel, Station E337-R.

   e. Calculation of Sycamore Canyon runoff based on annual rainfall to nearest inch at Station 170-C as shown on Table 6.

   f. San Gabriel River near Parkway Bridge. This is to be a new station to replace the existing station on San Gabriel River at Beverly Boulevard, Station F263B-R.

   g. The portion of Reclaimed Water from Whittier Narrows Reclamation Plant diverted to Rio Hondo.

2. Measurement of local storm inflow to the channel of each of the Rio Hondo and San Gabriel River within Montebello Forebay.

   a. Montebello storm drain, Station F181-R.

   b. Calculation of unmeasured local storm inflow.

3. Measurements of diversions to spreading grounds Montebello Forebay.

4. Measurement of surface outflow from Montebello Forebay in the channel of each of Rio Hondo and

San Gabriel River.

a. Rio Hondo above Stewart and Gray Road, Station F45B-R.

b. San Gabriel River at Florence Avenue, Station F262-R.

5. Measurement of Lower Area Replenishment Water imported to Upper Area from outside the watershed of the San Gabriel River system.

a. Rio Hondo By-pass Channel, Station F313-R.

b. San Gabriel By-pass Channel, Station F314-R.

c. San Gabriel River MWD Outlet, Station M335-R.

d. Alhambra Wash MWD Outlet, Station M340-R.

e. Any other measuring point or points in Upper Area at which such replenishment water is released.

6. Measurement of total Reclaimed Water from Whittier Narrows Reclamation Plant reclaimed by or on behalf of Lower Area Parties.

In the event that any of the aforementioned gaging stations are inoperative for any reason and for any period of time the Watermaster shall estimate the quantity that would have been measured at the station had it been operative. The estimate shall be based on correlation to nearby operative measuring stations or on other reasonable engineering methods.

TABLE 6

RAINFALL - RUNOFF RELATIONSHIP OF SYCAMORE CANYON*

Annual rainfall, in inches at Precipitation Station No. 170-C	Estimated runoff in acre-feet
6	5
7	10
8	15
9	25
10	35
11	45
12	60
13	75
14	90
15	105
16	125
17	145
18	170
19	200
20	240
21	275
22	315
23	355
24	400
25	445
26	490
27	535
28	580
29	630
30	685

Extrapolate for rainfall values in excess of 30 inches.

* Located on Westerly side of Whittier Narrows, upstream from dam and downstream from stream gaging Station F64-R. Approximate drainage area is 2.77 square miles.

B. Subsurface Flow

The determination of Subsurface Flow involves certain measurements and procedures which are set forth in this section. In connection with a recent comprehensive study made by the State of California, Department of Water Resources, for Bulletin No. 104, "Planned Utilization of the Ground Water Basins of the Coastal Plain of Los Angeles County", estimates were made of Subsurface Flow through Whittier Narrows. The State concluded that a reasonable method of determining Subsurface Flow was by the transmissibility method, which is based on Darcy's Law applied

at the location shown on Exhibit A as "narrowest section".

Darcy's Law states that $Q = PIA$, in which

Q = Subsurface Flow

P = Permeability, in gallons per day per square foot under unit hydraulic gradient

I = Slope of water table

A = Cross-sectional area

Under this Judgment calculations shall be made by the Watermaster for the spring and fall of each year and because of slight variations due to the nature of the data available, Subsurface Flow for any one year will be equal to the tri-annual average of the quantities calculated for the three years ending with the year of calculation. In this manner, annual Subsurface Flow shall be based on the average of six calculations, the first of which shall be the spring of 1962.

The elevation of the ground surface at the "narrowest section" of Whittier Narrows is deemed to be 208 feet above sea level, and the width of the section is deemed to be 7,900 feet. Water levels fluctuate at Whittier Narrows and the cross-sectional area of the ground water at Whittier Narrows will vary with fluctuations in ground water elevation.

It should be noted that $T = PD$, where T = transmissibility in gallons per day per foot of width under unit hydraulic gradient and D = saturated depth in feet. Therefore $PA = TW$ and $Q = PAI = TWI$. The product TW (or PA) for the entire cross-sectional area was determined to be 4,739.5 x 1,000,000 gallons per day, or 7,333.6 cfs. The actual slope of the water table, I, would then be applied to the calculated quantity of TW (or PA).

The average permeability of the material to a depth of 100 feet below the ground surface has been determined to be equal to 2,000 gallons per day per square foot, which is

equal to .003095 cubic feet per second per square foot. This represents the average permeability in the zone of water level fluctuation.

In order to correct for the unsaturated depth, the equation $Q = TWI$ is modified to $Q = (TW - C)I$ where

$C = P_1Wd$,

C = The flow which would occur in the unsaturated section if it were saturated, in cubic feet per second under unit hydraulic gradient.

P_1 = Average permeability for a distance of 100 feet below the ground surface.

W = The cross-sectional width, or 7,900 feet.

d = The distance from the water surface to the top of the ground, or 208 feet minus ground water elevation.

Utilizing the values of permeability shown above, then

$C = 24.45\ d$, in cubic feet per second, for values of "d" to a depth of 100 feet below the ground surface.

The "effective transmissibility" is equal to the total transmissibility times the width at the narrowest section minus C, or,

$$Tw_e = TW - C$$

$$Tw_e = 7{,}334 - C, \text{ in cubic feet per second.}$$

Subsurface Flow is equal to the effective transmissibility times the average slope of the water table. The formula derived from the foregoing, may be stated as follows:

$$Q = 724\ I\ [7{,}334 - 24.45\ (208 - E)]$$

Where: Q = Subsurface Flow in acre-feet per year,

I = Average adjusted slope of ground water surface at narrowest section, and

E = Ground water elevation of the water surface in feet above sea level at the narrowest cross-section.

The detailed steps to be carried out by the Watermaster are as follows:

(1) Ground water level contour maps in the vicinity of Whittier Narrows are drawn on the basis of water level measurements.

(2) A line representing the narrowest cross-section is drawn on the ground water contour maps.

(3) This line is subdivided into four equal lengths.

(4) The average slope of the water table at each of the three points within the narrowest section is determined along a line perpendicular to the ground water contours in the manner heretofore used by the State of California, Department of Water Resources.

(5) Adjustment is made to the ground water slope at each of the three points so that it is perpendicular to the narrowest section by:

(a) measuring the angle, in degrees, between the line representing the narrowest cross-section and the tangent to the flow line at the narrowest cross-section,

(b) applying the sine of that angle to the previously determined slope to determine the adjusted slope, and

(c) obtaining an average of the three adjusted slopes to represent the average slope through the narrowest cross-section.

(6) The elevation of the water surface at the narrowest cross-section is determined by interpolating between the ground water contours.

(7) The distance to the ground water surface is computed from the top of the ground by the formula: $d = 208 - E$, where E represents the average water level elevation of the narrowest cross-section, in feet.

(8) The correction factors for the transmissibility for the area from the top of ground to the water surface is computed by the formula $C = 24.45\ d$, in cubic feet per second.

(9) The effective transmissibility is computed by the formula $Tw_e = 7,334 - C$, in cubic feet per second.

(10) Subsurface Flow is computed by multiplying the effective transmissibility by the average adjusted slope.

(11) The computed Subsurface Flow, in cubic feet per second, is converted to acre-feet per year by multiplying it by 724.

The selected wells within the vicinity of Whittier Narrows which have been used for drawing the ground water contours are as follows:

Location No.	State No.
2927B	2S 11W 06M01S
2927D	06K01S
2928	07B01S
2936	06A01S
2936A	1S 11W 31J03S
2938A	2S 11W 07H1S
2938D	05N05S
2939	08N01S
2939B	18B01S
2939G	07R01S
2947C	-
2947F	05L01S
2947N	05P01S
2948	05N04S
2948E	08B02S
2948F	08L03S
2957H	-

The Watermaster shall obtain measurements of ground water elevations in the spring and fall of each year when they are at their approximate high and low levels, respectively. Such measurements may be made at, but need not be limited to, all of the above listed wells.

C. Export to Lower Area

If present measuring devices on existing conduits are inadequate, the Watermaster shall install or cause to be installed adequate measuring devices to determine the amount of Export to Lower Area.

IV. ACCOUNTING

Utilizing the appropriate measurements described in the previous portion of this Exhibit B, the Watermaster shall maintain accounts for the determination of Lower Area Annual Entitlement, the annual amount of Usable Water, Make-up Water to be delivered, Make-up Water received, the annual total amount of Usable Water and Make-up Water, the accumulated Lower Area Annual Entitlements, the accumulated amounts of Usable Water and Make-up Water received subsequent to September 30, 1963, Accrued Debit of Upper Area or Accrued Credit of Upper Area, and records necessary for accomplishing the Long-term Accounting.

In maintaining the accounting records listed above, the Watermaster shall establish the necessary accounting procedures to accomplish the recordation of data and required calculations for accomplishment of the provisions set forth in paragraph 5 of the Judgment.

A. Components of Usable Water

1. Surface Flow. Surface Flow shall be measured as set forth in Part III.A. of this exhibit to include all water other than Export to Lower Area and Subsurface Flow which passes from Upper Area to Lower Area through Whittier Narrows. When the new station to be constructed on the San Gabriel River near Parkway Bridge is completed, it shall replace the gaging station on the San Gabriel River at Beverly Boulevard, Station F263B-R. Until such new station is in operation, Surface Flow as measured at Station F263B-R shall be increased by the amount of Surface Flow which has percolated or been diverted between Station F263B-R and the point of maximum rising water. The Watermaster shall determine the quantity so percolated or diverted based upon available measurements by the Los Angeles County Flood Control District.

2. Subsurface Flow. Subsurface Flow shall be calculated in accordance with the procedures heretofore set forth.

3. Export to Lower Area. The Watermaster shall reduce to acre-feet the meter readings on each of the conduits transporting through Whittier Narrows water diverted from surface streams in Upper Area or pumped or developed from underground sources in Upper Area. These quantities shall be used to determine Export to Lower Area except that after September 30, 1966, Export to Lower Area used for determination of Usable Water shall not exceed 23,395 acre-feet per year. (Paragraph 3(1) of this Judgment.)

B. Calculation of Usable Water

After determining the amounts of Surface Flow, Subsurface Flow and Export to Lower Area during a Water Year, as provided above, the Watermaster, in order to determine the extent to which such water constitutes the receipt of Usable Water by Lower Area during such Water Year, shall deduct from the total of such amounts, the following:

1. Lower Area Replenishment Water. An amount equal to the total quantity of Lower Area Replenishment Water released in Upper Area in each Water Year subsequent to September 30, 1963, less such amount, if any, as the Watermaster determines to be lost due to evaporation or transpiration prior to the receipt of such water in Lower Area;

2. Reclaimed Water. An amount equal to the total quantity of Reclaimed Water which is reclaimed by or on behalf of Lower Area Parties;

3. Make-up Water. An amount equal to the quantity of Make-up Water delivered to Lower Area during such Water Year, calculated as hereafter provided, to the extent included in

Surface Flow or Export to Lower Area;

4. Paragraph 3(1)(6) Water. An amount equal to the quantity of any water which falls within the scope of paragraph 3(1)(6) of the Judgment; and

5. Unusable Surface Flow. An amount equal to the quantity of Unusable Surface Flow, which is determined by deducting from the total outflow as measured at Stations F45B-R and F262-R: (1) Local Storm Outflow and (2) the portion of Surface Flow which has been caused to pass said stations by reason of any spreading of water in Montebello Forebay by or on behalf of Lower Area Parties.

Local Storm Outflow is a portion of local storm inflow originating in Montebello Forebay upstream from said measuring stations, the amount of which outflow is to be determined as hereinafter provided. When actual measurements of local storm inflow are not available, the amount thereof discharging to the channels of Rio Hondo or San Gabriel River within Montebello Forebay upstream from stations F45B-R and F262-R shall be estimated by correlation with the local storm inflow measured at Montebello Storm Drain, Station F181-R. Such quantities shall be estimated on the basis of the individual drainage areas of storm drain projects and the runoff per unit area determined from the Montebello Storm Drain, Station F181-R, during the particular time interval under consideration. When water is flowing out of Montebello Forebay on the surface in the Rio Hondo or San Gabriel River channels, the Watermaster shall determine Local Storm Outflow as follows:

a. Local Storm Outflow from Rio Hondo. When outflow occurs at Station F45B-R, all local storm inflow, both measured and estimated, which enters the Rio Hondo channel between that station and Upper Area shall constitute Local Storm Outflow from Rio Hondo, but the amount thereof shall not exceed the amount of

outflow at Station F45B-R for such periods.

b. Local Storm Outflow from San Gabriel River. At such times as local storm inflow does not join Surface Flow in San Gabriel River, the portion of such local storm inflow passing Station F262-R shall constitute Local Storm Outflow. In addition, at such times as Surface Flow in the San Gabriel River commingles with the local storm inflow, then the Watermaster shall determine Local Storm Outflow as follows:

(1) Calculate the total amount of local storm inflow to the San Gabriel River during such times, but such amount to be used in the determination of Local Storm Outflow shall not exceed the amount of San Gabriel River outflow passing Station F262-R during such periods.

(2) Calculate the Local Storm Outflow passing Station F262-R during such times, which calculation shall be based on the Surface Flow and local storm inflow to the San Gabriel River channel, giving appropriate weight to the quantities involved and the distance the respective quantities of water traverse Montebello Forebay in said channel.

(3) These two calculations shall then be averaged arithmetically and the resulting amount shall be Local Storm Outflow from San Gabriel River.

C. Determination and Delivery of Make-up Water

1. By Additions to Surface Flow (paragraph 5(i)(1) of Judgment). The determination of the amount of Make-up Water which is delivered to Lower Area as an addition to Surface Flow shall be based upon (a) measurements of Make-up Water at the

delivery outlet of such water upstream from Whittier Narrows, (b) measurements of water consisting in whole or in part of Make-up Water passing the applicable stations listed in Part III.A.1. of this Exhibit B, and (c) such deductions from the measurements of Make-up Water at said stations so listed as are necessary to take into account (i) the amount of any water other than Make-up Water included in the measurements at said stations so listed, (ii) any losses due to evaporation or transpiration of Make-up Water after such measurement and prior to its receipt in Lower Area, and (iii) any percolation of Make-up Water after such measurement and prior to the time it reaches the "narrowest section" in Whittier Narrows.

As changing conditions may require, the Watermaster shall change the points of measurement of Make-up Water in order to obtain those measurements necessary to determine the amount of Make-up Water delivered to Lower Area Parties by means of increasing Surface Flow.

2. By Payment for Reclaimed Water (paragraph 5(i)(2) of the Judgment). The Watermaster shall determine (a) the quantity of Reclaimed Water reclaimed at the Whittier Narrows Water Reclamation Plant as it existed October 1, 1963, and which when so reclaimed shall have been passed through Whittier Narrows, and (b) the quantity, if any, of Reclaimed Water reclaimed at any future additions to said plant after September 30, 1963, and which when so reclaimed shall have been passed through Whittier Narrows. Such quantities shall be ascertained from the records of Los Angeles County Flood Control District.

Upon being advised that a payment has been made by Upper District or Defendants to Central Municipal pursuant to the provisions of paragraph 5(i)(2) of the Judgment, the Watermaster shall credit Upper Area Parties with the delivery of Make-up Water computed according to said paragraph of the

Judgment.

3. By Deliveries to a Lower Area Party (paragraph 5(i)(3) of the Judgment). Any Make-up Water delivered directly to a Lower Area Party with the consent of Plaintiffs shall be metered and the meter records reduced to acre-feet per year. Upon being advised that a Lower Area Party has received a direct delivery of Make-up Water pursuant to the provisions of paragraph 5(i)(3) of the Judgment, the Watermaster shall credit Upper Area Parties with delivery of such Make-up Water in the Water Year in which it was so delivered.

D. Long-term Accounting

The Watermaster shall maintain a record of the annual rainfall in the San Gabriel Valley, including a running average of such rainfall, so that the Watermaster will be informed when a Long-term Accounting shall be carried out as specified in paragraph 5(h) of the Judgment, and shall thereafter perform the necessary calculations for accomplishment of the adjustment, if any, between the aggregate amount of water received compared to the aggregate entitlement for the period.

E. Water Usable for Ground Water Replenishment

With respect to any delivery of Make-up Water the Watermaster shall determine the suitability of such water for ground water replenishment. The Watermaster shall gather, insofar as readily available from public and private agencies, data relating to the quality of all categories of water, Surface Flow, Subsurface Flow, Export to Lower Area, Reclaimed Water, Lower Area Replenishment Water and Make-up Water.

REIMBURSEMENT CONTRACT

LONG BEACH v. SAN GABRIEL

REIMBURSEMENT CONTRACT

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ed.

REIMBURSEMENT CONTRACT

THIS CONTRACT is made by and between UPPER SAN GABRIEL VALLEY MUNICIPAL WATER DISTRICT, herein called "Upper District", and the cities of ALHAMBRA, ARCADIA, AZUSA, COVINA, EL MONTE, GLENDORA, MONTEREY PARK, MONROVIA, SOUTH PASADENA, and WHITTIER; BALDWIN PARK COUNTY WATER DISTRICT, and SAN GABRIEL COUNTY WATER DISTRICT; AZUSA AGRICULTURAL WATER COMPANY, AZUSA VALLEY WATER COMPANY, CALIFORNIA DOMESTIC WATER COMPANY, CALIFORNIA WATER & TELEPHONE COMPANY, COLUMBIA LAND AND WATER COMPANY, COVINA IRRIGATING COMPANY, CROSS WATER COMPANY, DUARTE WATER COMPANY, EAST PASADENA WATER COMPANY, LTD., GLENDORA IRRIGATING COMPANY, SAN DIMAS WATER COMPANY, SAN GABRIEL VALLEY WATER COMPANY, SOUTHERN CALIFORNIA WATER COMPANY, SUBURBAN WATER SYSTEMS, SUNNYSLOPE WATER COMPANY, and VALLECITO WATER COMPANY, corporations, herein collectively called "Pumpers."

ed.

RECITALS

1. The Action. In the matter of Board of Water Commissioners of the City of Long Beach, et al. v. San Gabriel Valley Water Company, et al., (L. A. Superior Court No. 722,647) the water rights of substantially all major water producers in the main San Gabriel Valley are sought to be restricted.

2. Judgment. The parties named above, except City

of Whittier, are concurrently executing a Stipulation that a Judgment substantially in the form annexed hereto shall be rendered and it is anticipated that such Judgment will be rendered in the action.

3. Public Interest in Settlement. It is in the best interests of the Pumpers and in the best interests of the water users and taxpayers within the corporate boundaries of those Pumpers which are public agencies, of the consumers of those Pumpers which are utilities or mutual water companies, and of all residents and taxpayers of Upper District, that said action be settled and disposed of in accordance with the terms of said judgment in order to preserve the water supplies within Upper Area.

DEFINITIONS

1. "Contract Costs" -- All costs hereafter paid by Upper District:

ed.

(a) In providing Make-up Water under the terms of the judgment. In computing such cost of providing Make-up Water, any cost which Upper District shall pay which it would have paid even though it had not provided Make-up Water shall be excluded; and particularly but not exclusively, no amount which shall be paid to The Metropolitan Water District of Southern California as a condition to any past or future annexation shall be

deemed a cost of providing Make-up Water. Such costs may include interest paid by Upper District upon money borrowed for advancements made by it or interest which would have been received by the District, but which it lost by reason of making such advancements.

(b) In complying with the terms of said judgment.

(c) In keeping the records, making the determinations and collecting the moneys required by the later provisions of this contract.

2. "Assessable Pumpage" -- The amount of ground water produced in the applicable calendar year by or on behalf of any Pumper by pumping or extraction thereof from the Upper Area, including ground water produced under rights hereafter acquired from any source.

3. Common Terms With Judgment -- All terms specially defined in said judgment are used herein in the sense in which they are therein defined, and said special definitions are incorporated herein by this reference.

OPERATIVE PROVISIONS

1. Consideration for Execution. The great majority of the defendants in the action are situated in whole or in part within Upper District and pump water therein. Certain defendants, including the Cities of Alhambra, Azusa and

Monterey Park, as well as the City of Whittier which is not a defendant, lie outside Upper District. Execution of this agreement by all parties to it is essential to induce each party hereto to execute this agreement, and likewise, execution of the Stipulation for Judgment by all defendants in the action is necessary to induce each party hereto to execute this contract. Each party executes this contract in consideration of its execution by the other parties, and in consideration of the execution of the Stipulation by the parties thereto. Moreover, by this contract each party other than City of Whittier waives its right to cross-complain in the action so as to bring City of Whittier into the action as a party.

2. Intervention by Upper District. In consideration of the execution of this contract by Pumpers and to contribute to the physical solution of providing adequate water for its inhabitants, Upper District has intervened as a defendant in the action and agrees to execute the stipulation for said judgment.

3. Administration. Upper District shall administer the provisions of Paragraphs 6 through 9, below, as to all Pumpers, including additional parties hereto mentioned in Paragraph 16.

4. Covenant to Reimburse. Each Pumper hereby agrees to pay to Upper District such Pumper's share of Contract

Costs allocated and determined as provided below.

5. Allocation of Costs Among Pumpers. Pumpers agree among themselves, each for the benefit of all other Pumpers, to share and participate in the payment of any sums due Upper District hereunder in such proportion as the Assessable Pumpage of each Pumper bears to the total Assessable Pumpage of all Pumpers for the applicable period covered by any assessment as hereinafter provided, subject to the provisions of Paragraph 9 below.

6. Reports by Pumpers. Pumpers shall file under penalty of perjury the reports hereinafter specified in the form provided by Upper District, as follows:

(a) Time and Procedure for Filing. Each year, on or before March 1, each Pumper shall file with Upper District a written report of its extractions of water from Upper Area for the preceding calendar year containing the information set forth in subparagraph (b) of this paragraph.

ed.

(b) Contents of the Report. Such annual reports to Upper District shall set forth:

(1) The name and address of the Pumper; and

(2) The number of acre feet of water which was pumped or extracted from Upper Area by or on behalf of the Pumper during

the calendar year covered.

(c) Determination in Lieu of Report. In the event any Pumper fails to so file such report, Upper District may make a determination of the Assessable Pumpage of such Pumper, which determination shall be final and binding.

7. Notice of Assessment. On or before June 1 of each year, Upper District shall serve a Notice of Assessment on each Pumper covering the preceding calendar year which will contain a statement of:

(a) The amount of Assessable Pumpage by each Pumper;

(b) A detailed statement of Contract Costs during the preceding calendar year, if any; and

(c) A statement of the amount of such Contract Costs which are assessable to and payable by the Pumper to whom such notice is sent.

ed.

8. Payment--Delinquency and Default. All assessments herein provided for shall be due and payable on the following July 31. In the event of nonpayment of any assessment, Upper District may bring an action and shall have the right to recover such assessment, together with interest thereon at the rate of 7% per annum from the date of delinquency and costs of suit, including any reasonable attorneys' fees incurred.

If, after due diligence, Upper District is unable to collect a Pumper's allocated cost, such uncollectible amount (including interest, costs and attorneys' fees) shall be prorated among and paid by the other Pumpers in the same proportions as they paid assessments for the year or years in question. Said proration shall be billed and payable with the next succeeding assessment.

9. Redetermination of Assessable Pumpage. Any Pumper may at any time within 90 days after receipt of any Notice of Assessment request a redetermination of the Assessable Pumpage of such Pumper or of any other Pumper or Pumpers reflected in such notice. Such request shall be addressed in writing to Upper District and shall set forth the basis of the requesting Pumper's belief that such data are incorrect. Upon the receipt of any request, the following procedures shall be undertaken by Upper District:

ed.

(a) Notice of Request for Redetermination. Upper District shall forthwith notify in writing any Pumper whose Assessable Pumpage has been questioned, of the fact of such request and the name of the requesting Pumper. Notice shall further be sent to all Pumpers that procedures will be undertaken pursuant to this paragraph, and shall state briefly the issues to be determined.

(b) Availability of Records. Subsequent to such notice, the records of the Pumper whose Assessable Pumpage is subject to a request for redetermination shall be made available at reasonable hours and upon reasonable demand to Upper District, insofar as such records are relevant to a determination of the Assessable Pumpage of the Pumper during the period involved.

(c) Investigation and Notice of Hearing. Upper District shall conduct an investigation and shall by written decision served on all Pumpers redetermine or affirm such Assessable Pumpage. Upper District may at its option set a date for hearing. In such event, at least ten days' notice in writing of said hearing date shall be given to all Pumpers.

ed.

(d) Conduct of Hearing and Decision. If hearing be held, Upper District shall not be bound therein by strict rules of evidence, but may rely on any evidence which it deems of probative value. Any Pumper may present evidence and arguments thereat. The written decision of Upper District, with or without such hearing, shall be served on all Pumpers and shall be conclusive for purposes of this contract, unless said issue is submitted

to a court of competent jurisdiction within 90 days from notice of such decision.

(e) Reallocation of Contract Costs. If Assessable Pumpage is modified by any such decision, Contract Costs shall be reallocated in accordance therewith. Said reallocation shall be billed and payable with the next succeeding assessment.

10. Water Rights Unaffected. This contract relates solely to the equitable allocation of Contract Costs and does not involve or constitute an admission or agreement as to the water rights of any Pumper. Execution of this contract shall not prevent any party hereto from bringing or maintaining any action or proceeding to determine rights to pump, extract or store water, or to limit or curtail any pumping, extraction or storage of water in or from Upper Area or elsewhere, except as limited by Paragraphs 1 and 16 of the Operative Provisions hereof.

ed.

11. Changed Conditions. It is recognized that conditions in Upper Area may hereafter change to such an extent that it may become equitable to modify either the total obligation of Pumpers to Upper District hereunder or the allocation of Contract Costs. While this contract is entered into to assure Upper District of reimbursement of an amount up to its entire Contract Costs, it is not intended hereby, and this contract shall not be deemed, to prevent Upper District

from modifying and reducing such obligation or from applying other relief which may reduce the burden on Pumpers. Without limitation upon the power of Upper District to otherwise reduce the aggregate amount payable under this contract, the following specific instances of changed conditions are contemplated:

(a) Allocation of Portion of Burden to Taxes. It may at some future date appear equitable and fair to allocate all or a portion of Contract Costs to ad valorem taxes or other revenues of Upper District. In such event, Upper District may, in the discretion of its Board of Directors, allocate all or a portion of Contract Costs to such revenue sources and the remainder, if any, thereof, shall be payable under the terms of this contract.

(b) Imposition of Pump Tax. If Upper District should acquire and exercise the right to levy a tax upon the pumping or extraction of ground water, then the aggregate of such tax shall be credited proportionally amongst Pumpers with respect to Assessable Pumpage within Upper District.

(c) Adjudication of Rights. If all or substantially all of the water rights within Upper Area shall be adjudicated (including the rights of all Pumpers), and its natural and safe yield

determined, then this contract shall be deemed modified to the extent that Assessable Pumpage shall include only that amount of water produced over and above the safe yield portion of adjudicated rights owned by any Pumper; provided that this subparagraph (c) shall not apply to any year in which the aggregate of all Assessable Pumpage as so modified is less than 25,000 acre feet.

12. Effective Date. This contract shall be effective ten (10) days after notice in writing of execution thereof by all parties, which notice shall be given to all Pumpers by Upper District, but shall cease and terminate on July 1, 1966, unless by said date (a) this contract shall have been validated as provided below, and (b) the Judgment shall have been rendered.

ed.

13. Validation. Within four months after this contract becomes effective, a proceeding or proceedings shall be instituted by Upper District in a court of competent jurisdiction by an appropriate action or actions for determination of the validity of this contract.

14. Term. The term of this contract shall commence upon its effective date and continue so long as the Judgment, as entered or as modified, shall remain in effect, subject, however, to the provisions of Paragraph 12 above.

15. Notices. Any notice to be served upon any party hereunder may be served either personally or by mail. If served by mail, such notice shall be mailed in the County of Los Angeles, State of California, by certified mail, postage prepaid, return receipt requested, or by registered mail, and shall be addressed to the party to be served at its address as set forth below, or (in the case of Upper District) at such other address as it may have last specified in writing to the Pumper or Pumpers involved for the service of notices hereunder, or (in the case of a Pumper) at such other address as it may have last specified in writing to Upper District for the service of notices hereunder. Any notice so served by mail shall be deemed to have been served upon the first business day (excluding Saturdays, Sundays and holidays) after such mailing.

ed.

16. Additional Parties. In addition to Pumpers and their successors and assigns referred to in Paragraph 17 below, any other person or entity who or which shall pump or extract water in or from Upper Area (herein referred to as an "additional party"), may become a party to this contract, provided (a) Upper District shall give its written consent thereto, and (b) no Pumper or additional party shall serve upon Upper District its written objection thereto. If Upper District shall give its written consent to execution of this contract by an applying additional party, it shall

then give written notice of such application and consent by Upper District to each Pumper and each additional party, and if within thirty (30) days after such notice no Pumper or additional party shall have served upon Upper District its written objection to execution of this contract by the applying additional party, such additional party's application shall be deemed to have been accepted and it may become a party to this contract by delivery to Upper District of a duly executed instrument in writing stating that such person or entity joins in and becomes a party to this contract.

Any additional party so joining shall become bound by all obligations of this contract, becoming due or which should be performed within the terms of this contract on and after the ensuing January 1. Such obligations include the duty to make the report of extractions during the preceding calendar year (i.e., the year in which the contract is executed) required by Paragraph 6, and to make the payment based upon such extractions as required by Paragraph 5, provided, however, that such additional party shall have no liability under Paragraph 8 with respect to any nonpayments of an assessment based upon extractions by a Pumper or other additional party prior to the year in which such additional party joins in this contract.

ed.

As to each Pumper who executes this contract after it becomes effective, Upper District agrees that for a

period of 90 days after giving its said written consent, it will bring no action against such additional party to limit or define its rights to pump water in or from Upper Area. Further, if more than one such Pumper shall become a party to this agreement at the same time as any other pumper, each will execute and shall be deemed to have executed this contract and to have joined therein in consideration of the joinder in this contract by the other or others concurrently joining in this contract.

Any such additional party shall be deemed a Pumper for all purposes of this agreement.

17. Successors and Assigns. This contract shall inure to the benefit of and bind the successors in ownership of the water rights of the parties. If any Pumper shall sell or transfer or agree to sell or transfer its water rights in Upper Area or any part of such water rights, such Pumper shall require as a condition of any such sale, transfer or agreement that the purchaser or transferee, if not already a party to this contract, shall execute this contract and become a party thereto. Upon a full transfer of such rights by a Pumper and assumption by the assignee as above provided, the assigning Pumper shall be discharged of obligation hereunder. If such Pumper fails to obtain such assumption (except in cases of a transfer under order of court or by operation of law) the assigning Pumper shall

remain bound by the contract and production of water by said assignee by the exercise of the right assigned shall be treated as production by such Pumper.

18. Execution in Counterparts. This contract may be executed in counterparts (each counterpart being an exact copy or duplicate of the original) and all counterparts collectively shall be considered as constituting one complete contract.

IN WITNESS WHEREOF this contract is executed by the undersigned by its duly authorized officer.

Dated: _____.

_____

(SEAL) By _____

By _____

ed.

Appendix G: Main Basin Judgment

Azusa Light & Water 2010 Urban Water Management Plan

SUPERIOR COURT OF THE STATE OF CALIFORNIA

FOR THE COUNTY OF LOS ANGELES

UPPER SAN GABRIEL VALLEY
MUNICIPAL WATER DISTRICT

Plaintiff,

vs.

CITY OF ALHAMBRA, et al,

Defendants.

No. 924128

AMENDED JUDGMENT
(and Exhibits Thereto),

Honorable Florence T. Pickard
Assigned Judge Presiding

Original Judgment
Signed and Filed: December 29, 1972;
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Book 6741, Page 197

JUDGMENT AS AMENDED AUGUST 24, 1989

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SUPERIOR COURT OF CALIFORNIA, COUNTY OF LOS ANGELES

UPPER SAN GABRIEL VALLEY MUNICIPAL WATER DISTRICT, Plaintiff, vs. CITY OF ALHAMBRA, et al., Defendants.	No. 924128 AMENDED JUDGMENT (And Exhibits Thereto)

HONORABLE FLORENCE T. PICKARD

Assigned Judge Presiding

DEPARTMENT 38

August 24, 1989

AMENDED JUDGMENT
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"B" -- Boundaries of Relevant Watershed

"C" -- Table Showing Base Annual Diversion Rights of Certain Diverters

"D" -- Table Showing Rights and Pumper's Share of Each Pumper

"E" -- Table Showing Production Rights of Each Integrated Producer

"F" -- Table Showing Special Category Rights

"G" -- Table Showing Non-consumptive Users

"H" -- Watermaster Operating Criteria

"J" -- Puente Narrows Agreement

"K" -- Overlying Rights

"L" -- List of Producers and Their Designees (New)

"M" -- Watermaster Members, Officers, and Staff Including Calendar Year 1989 (New)

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SUPERIOR COURT OF CALIFORNIA, COUNTY OF LOS ANGELES

UPPER SAN GABRIEL VALLEY MUNICIPAL WATER DISTRICT, Plaintiff, vs. CITY OF ALHAMBRA, et al., Defendants.	No. 924128 AMENDED JUDGMENT Hearing: August 24, 1989 Department 38, 9:00 A.M.

The Petition of the MAIN SAN GABRIEL BASIN WATERMASTER for this AMENDED JUDGMENT herein, came on regularly for hearing in this Court before the HONORABLE FLORENCE T. PICKARD, ASSIGNED JUDGE PRESIDING, on August 24, 1989; Ralph B. Helm appeared as attorney for Watermaster - Petitioner; and good cause appearing, the following ORDER and AMENDED JUDGMENT are, hereby, made:

I. INTRODUCTION

1. Pleadings, Parties, and Jurisdiction. The complaint herein was filed on January 2, 1968, seeking an adjudication of water rights. By amendment of said complaint and dismissals of certain parties, said adjudication was limited to the Main San Gabriel Basin and its Relevant Watershed. Substantially all

defendants and the cross-defendant have appeared herein, certain defaults have been entered, and other defendants dismissed. By the pleadings herein and by Order of this Court, the issues have been made those of a full inter se adjudication of water rights as between each and all of the parties. This Court has jurisdiction of the subject matter of this action and of the parties herein.

2. Stipulation for Entry of Judgment. A substantial majority of the parties, by number and by quantity of rights herein Adjudicated, Stipulated for entry of a Judgment in substantially the form of the original Judgment herein.

3. Lis Pendens. (New) A Lis Pendens was recorded August 20, 1970, as Document 2650, in Official Records of Los Angeles County, California, in Book M 3554, Page 866.

4. Findings and Conclusions. (Prior Judgment Section 3) Trial was had before the Court, sitting without a jury, John Shea, Judge Presiding, commencing on October 30, 1972, and Findings of Fact and Conclusions of Law have been entered herein.

5. Judgment. (New) Judgment (and Exhibits Thereto), Findings of Fact and Conclusions of Law (and Exhibits thereto), Order Appointing Watermaster, and Initial Watermaster Order were signed and filed December 29, 1972, and Judgment was entered January 4, 1973, in Book 6791, Page 197.

6. Intervention After Judgment. (New) Certain defendants have, pursuant to the Judgment herein and the Court's continuing jurisdiction, intervened and appeared herein after entry of Judgment.

7. Amendments to Judgment. (New) The original Judgment herein was previously amended on March 29, 1979, by: (1) adding definition (r [1]) thereto, (2) amending definition (bb) therein, (3) adding Exhibit "K" thereto, (4) adding Sections 14.5 and 16.5 thereto, and (5) amending Sections 37(b), 37(c), 37(d), and Section 47 therein; it was again amended on December 21, 1979, by amending Section 38(c) thereof; again amended on February 21, 1980, by amending Section 24 thereof; again amended on September 12, 1980, by amending Sections 35(a), 37(a), and 38(a); again amended on December 22, 1987, by adding Section 37(e) thereto; and last amended on July 22, 1988 by amending Section 37(e) thereof and Ordering an Amended Judgment herein.

8. Transfers. (New) Since the entry of Judgment herein there have been numerous transfers of Adjudicated water rights. To the date hereof, said transfers are reflected in Exhibits "C", "D", and "E".

9. Producers and Their Designees. (New) The current status of Producers and their Designees is shown on Exhibit "L".

10. Definitions. (Prior Judgment Section 4) As used in this Judgment, the following terms shall have the meanings herein set forth:

(a) Base Annual Diversion Right -- The average annual quantity of water which a Diverter is herein found to have the right to Divert for Direct Use.

(b) Direct Use --Beneficial use of water other than for spreading or Ground Water recharge.

(c) Divert or Diverting -- To take waters of any surface stream within the Relevant Watershed.

(d) Diverter -- Any party who Diverts.

(e) Elevation -- Feet above mean sea level.

(f) Fiscal Year -- A period July 1 through June 30, following.

(g) Ground Water -- Water beneath the surface of the ground and within the zone of saturation.

(h) Ground Water Basin -- An interconnected permeable geologic formation capable of storing a substantial Ground Water supply.

(i) Integrated Producer -- Any party that is both a Pumper and a Diverter, and has elected to have its rights adjudicated under the optional formula provided in Section 18 of this Judgment.

(j) In-Lieu Water Cost -- The differential between a Producer's non-capital cost of direct delivery of Supplemental Water and the cost of Production of Ground Water (including depreciation on Production facilities) to a particular Producer who has been required by Watermaster to take direct delivery of Supplemental Water in lieu of Ground Water.

(k) Key Well -- Baldwin Park Key Well, being elsewhere designated as State Well No. 1S/10W-7R2, or Los Angeles County Flood Control District Well No. 3030-F. Said well has a ground surface Elevation of 386.7.

(l) Long Beach Case -- Los Angeles Superior Court Civil Action No. 722647, entitled, "Long Beach, et al., v. San Gabriel Valley Water Company, et al."

(m) Main San Gabriel Basin or Basin -- The Ground Water Basin underlying the area shown as such on Exhibit "A".

(n) Make-up Obligation -- The total cost of meeting the obligation of the Basin to the area at or below Whittier Narrows, pursuant to the Judgment in the Long Beach Case.

(o) Minimal Producer -- Any party whose Production in any Fiscal Year does not exceed five (5) acre feet.

(p) Natural Safe Yield -- The quantity of natural water supply which can be extracted annually from the Basin under conditions of long term average annual supply, net of the requirement to meet downstream rights as determined in the Long Beach Case (exclusive of Pumped export), and under cultural conditions as of a particular year.

(q) Operating Safe Yield -- The quantity of water which the Watermaster determines hereunder may be Pumped from the Basin in a particular Fiscal Year, free of the Replacement Water Assessment under the Physical Solution herein.

(r) Overdraft -- A condition wherein the total annual Production from the Basin exceeds the Natural Safe Yield thereof.

(s) Overlying Rights -- (Prior Judgment Section 4 (r) [1]) The right to Produce water from the Basin for use on Overlying Lands, which rights are exercisable only on specifically defined Overlying Lands and which cannot be separately conveyed or transferred apart therefrom.

(t) Physical Solution -- (Prior Judgment Section 4 (s)) The Court decreed method of managing the waters of the Basin so as to achieve the maximum utilization of the Basin and its water supply, consistent with the rights herein declared.

(u) Prescriptive Pumping Right -- (Prior Judgment

Section 4 (t)) The highest continuous extractions of water by a Pumper from the Basin for beneficial use in any five (5) consecutive years after commencement of Overdraft and prior to filing of this action, as to which there has been no cessation of use by that Pumper during any subsequent period of five (5) consecutive years, prior to the said filing of this action.

(v) Produce or Producing -- (Prior Judgment Section 4 (u)) To Pump or Divert water.

(w) Producer -- (Prior Judgment Section 4 (v)) A party who Produces water.

(x) Production -- (Prior Judgment Section 4 (w)) The annual quantity of water Produced, stated in acre feet.

(y) Pump or Pumping -- (Prior Judgment Section 4 (x)) To extract Ground Water from the Basin by Pumping or any other method.

(z) Pumper -- (Prior Judgment Section 4 (y)) Any party who Pumps water.

(aa) Pumper's Share -- (Prior Judgment Section 4 (z)) A Pumper's right to a percentage of the entire Natural Safe Yield, Operating Safe Yield and appurtenant Ground Water storage.

(bb) Relevant Watershed -- (Prior Judgment Section 4(aa)) That portion of the San Gabriel River watershed tributary to Whittier Narrows which is shown as such on Exhibit "A", and the exterior boundaries of which are described in Exhibit "B".

(cc) Replacement Water -- (Prior Judgment Section 4 (bb)) Water purchased by Watermaster to replace:

(1) Production in excess of a Pumper's Share of Operating Safe Yield; (2) The consumptive use portion resulting from the exercise of an Overlying Right; and (3) Production in excess of a Diverter's right to Divert for Direct Use.

(dd) Responsible Agency -- (Prior Judgment Section 4 (cc)) The municipal water district which is the normal and appropriate source from whom Watermaster shall purchase Supplemental Water for replacement purposes under the Physical Solution, being one of the following:

(1) Upper District -- Upper San Gabriel Valley Municipal Water District, a member public agency of The Metropolitan Water District of Southern California (MWD).

(2) San Gabriel District -- San Gabriel Valley Municipal Water District, which has a direct contract with the State of California for State Project Water.

(3) Three Valleys District -- Three Valleys Municipal Water District, formerly, "Pomona Valley Municipal Water District", a member public agency of MWD.

(ee) Stored Water -- (Prior Judgment Section 4 (dd)) Supplemental Water stored in the Basin pursuant to a contract with Watermaster as authorized by Section 34(m).

(ff) Supplemental Water -- (Prior Judgment Section 4 (ee)) Nontributary water imported through a Responsible Agency.

(gg) Transporting Parties -- (Prior Judgment Section 4 (ff)) Any party presently transporting water (i.e., during the 12 months immediately preceding the making of the findings herein) from the Relevant Watershed or Basin to an area outside

thereof, and any party presently or hereafter having an interest in lands or having a service area outside the Basin or Relevant Watershed contiguous to lands in which it has an interest or a service area within the Basin or Relevant Watershed. Division by a road, highway, or easement shall not interrupt contiguity. Said term shall also include the City of Sierra Madre, or any party supplying water thereto, so long as the corporate limits of said City are included within one of the Responsible Agencies and if said City, in order to supply water to its corporate area from the Basin, becomes a party to this action bound by this Judgment.

(hh) Water Level -- (Prior Judgment Section 4 (gg)) The measured Elevation of water in the Key Well, corrected for any temporary effects of mounding caused by replenishment or local depressions caused by Pumping.

(ii) Year -- (Prior Judgment Section 4 (hh)) A calendar year, unless the context clearly indicates a contrary meaning.

11. Exhibits. (Prior Judgment Section 5) The following exhibits are attached to this Judgment and incorporated herein by this reference:

Exhibit "A" -- Map entitled "San Gabriel River Watershed Tributary to Whittier Narrows", showing the boundaries and relevant geologic and hydrologic features in the portion of the watershed of the San Gabriel River lying upstream from Whittier Narrows.

Exhibit "B" -- Boundaries of Relevant Watershed.

Exhibit "C" -- Table Showing Base Annual Diversion

Rights of Certain Diverters.

Exhibit "D" -- Table Showing Prescriptive Pumping Rights and Pumper's Share of Each Pumper.

Exhibit "E" -- Table Showing Production Rights of Each Integrated Producer.

Exhibit "F" -- Table Showing Special Category Rights.

Exhibit "G" -- Table Showing Non-consumptive Users.

Exhibit "H" -- Watermaster Operating Criteria.

Exhibit "J" -- Puente Narrows Agreement.

Exhibit "K" -- Overlying Rights, Nature of Overlying Right, Description of Overlying Lands to which Overlying Rights are Appurtenant, Producers Entitled to Exercise Overlying Rights and their Respective Consumptive Use Portions, and Map of Overlying Lands.

Exhibit "L" -- (New) List of Producers And Their Designees, as of June 1988.

Exhibit "M" -- (New) Watermaster Members, Officers and Staff, Including Calendar Year 1989.

II. DECREE

NOW, THEREFORE, IT IS HEREBY DECLARED, ORDERED, ADJUDGED AND DECREED:

A. DECLARATION OF HYDROLOGIC CONDITIONS

12. Basin as Common Source of Supply. (Prior Judgment Section 6) The area shown on Exhibit "A" as Main San Gabriel Basin overlies a Ground Water basin. The Relevant Watershed is the watershed area within which rights are herein adjudicated. The waters of the Basin and Relevant Watershed constitute a common source of natural water supply to the parties herein.

13. Determination of Natural Safe Yield. (Prior Judgment Section 7) The Natural Safe Yield of the Main San Gabriel Basin is found and declared to be one hundred fifty-two thousand seven-hundred (152,700) acre feet under Calendar Year 1967 cultural conditions.

14. Existence of Overdraft. (Prior Judgment Section 8) In each and every Calendar Year commencing with 1953, the Basin has been and is in Overdraft.

B. DECLARATION OF RIGHTS

15. Prescription. (Prior Judgment Section 9) The use of water by each and all parties and their predecessors in interest has been open, notorious, hostile, adverse, under claim of right, and with notice of said overdraft continuously from January 1, 1953 to January 4, 1973. The rights of each party herein declared are prescriptive in nature. The following aggregate consequences of said prescription within the Basin and Relevant Watershed are hereby declared:

(a) Prior Prescription. Diversions within the Relevant Watershed have created rights for direct consumptive use within the Basin, as declared and determined in Sections 16 and 18 hereof, which are of equal priority *inter se*, but which are prior and paramount to Pumping Rights in the Basin.

(b) Mutual Prescription. The aggregate Prescriptive Pumping Rights of the parties who are Pumpers now exceed, and for many years prior to filing of this action, have exceeded, the Natural Safe Yield of the Basin. By reason of said condition, all rights of said Pumpers are declared

to be mutually prescriptive and of equal priority, inter se.

(c) Common Ownership of Safe Yield and Incidents Thereto. By reason of said Overdraft and mutual Prescription, the entire Natural Safe Yield of the Basin, the Operating Safe Yield thereof and the appurtenant rights to Ground Water storage capacity of the Basin are owned by Pumpers in undivided Pumpers' Shares as hereinafter individually declared, subject to the control of Watermaster, pursuant to the Physical Solution herein decreed. Nothing herein shall be deemed in derogation of the rights to spread water pursuant to rights set forth in Exhibit "G".

16. Surface Rights. (Prior Judgment Section 10) Certain of the aforesaid prior and paramount prescriptive water rights of Diverters to Divert for Direct Use stream flow within the Relevant Watershed are hereby declared and found in terms of Base Annual Diversion Right as set forth in Exhibit "C". Each Diverter shown on Exhibit "C" shall be entitled to Divert for Direct Use up to two hundred percent (200%) of said Base Annual Diversion Right in any one (1) Fiscal Year; provided that the aggregate quantities of water Diverted in any consecutive ten (10) Fiscal Year period shall not exceed ten (10) times such Diverter's Base Annual Diversion Right.

17. Ground Water Rights. (Prior Judgment Section 11) The Prescriptive Pumping Right of each Pumper, who is not an Integrated Producer, and his Pumper's Share are declared as set forth in Exhibit "D".

18. Optional Integrated Production Rights. (Prior Judgment Section 12) Those parties listed on Exhibit "E" have elected to be treated as Integrated Producers. Integrated Production Rights have two (2) historical components:

(1) a fixed component based upon historic Diversions for Direct Use; and

(2) a mutually prescriptive Pumper's Share component based upon Pumping during the period 1953 through 1967.

Assessment and other Watermaster regulation of the rights of such parties shall relate to and be based upon each such component. So far as future exercise of such rights is concerned, however, the gross quantity of the aggregate right in any Fiscal Year may be exercised, in the sole discretion of such party, by either Diversion or Pumping or any combination or apportionment thereof; provided, that for Assessment purposes the first water Produced in any Fiscal Year (other than "carry-over", under Section 49 hereof) shall be deemed an exercise of the Diversion component, and any Production over said quantity shall be deemed Pumped water, regardless of the actual method of Production.

19. Special Category Rights. (Prior Judgment Section 13) The parties listed on Exhibit "F" have water rights in the Relevant Watershed which are not ordinary Production rights. The nature of each such right is as described in Exhibit "F".

20. Non-consumptive Practices. (Prior Judgment Section 14) Certain Producers have engaged in Water Diversion and spreading practices which have caused such Diversions to have a

non-consumptive or beneficial impact upon the aggregate water supply available in the Basin. Said parties, and a statement of the nature of their rights, uses and practices, are set forth in Exhibit "G". The Physical Solution decreed herein, and particularly its provisions for Assessments, shall not apply to such non-consumptive uses. Watermaster may require reports on the operations of said parties.

21. Overlying Rights. (Prior Judgment Section 14.5) Producers listed in Exhibit "K" hereto were not parties herein at the time of the original entry of Judgment herein. They have exercised in good faith Overlying Rights to Produce water from the Basin during the periods subsequent to the entry of Judgment herein and have by self-help initiated or maintained appurtenant Overlying Rights. Such rights are exercisable without quantitative limit only on specifically described Overlying Land and cannot be separately conveyed or transferred apart therefrom. As to such rights and their exercise, the owners thereof shall become parties to this action and be subject to Watermaster Replacement Water Assessments under Section 45 (b) hereof, sufficient to purchase Replenishment Water to offset the net consumptive use of such Production and practices. In addition, the gross amount of such Production for such overlying use shall be subject to Watermaster Administrative Assessments under Section 45 (a) hereof and the consumptive use portion of such Production for overlying use shall be subject to Watermaster's In-Lieu Water Cost Assessments under Section 45 (d) hereof. The Producers presently entitled to exercise Overlying Rights, a description of the Overlying Land to which

Overlying Rights are appurtenant, the nature of use and the consumptive use portion thereof are set forth in Exhibit "K" hereto. Watermaster may require reports and make inspections of the operations of said parties for purposes of verifying the uses set forth in said Exhibit "K", and, in the event of a material change, to redetermine the net amount of consumptive use by such parties as changed in the exercise of such Overlying Rights. Annually, during the first two (2) weeks of June in each Calendar Year, such Overlying Rights Producers shall submit to Watermaster a verified statement as to the nature of the then current uses of said Overlying Rights on said Overlying Lands for the next ensuing Fiscal Year, whereupon Watermaster shall either affirm the prior determination or redetermine the net amount of the consumptive use portion of the exercise of such Overlying Right by said Overlying Rights Producer.

C. INJUNCTION

22. Injunction Against Unauthorized Production. (Prior Judgment Section 15) Effective July 1, 1973, each and every party, its officers, agents, employees, successors and assigns, to whom rights to waters of the Basin or Relevant Watershed have been declared and decreed herein is ENJOINED AND RESTRAINED from Producing water for Direct Use from the Basin or the Relevant Watershed except pursuant to rights and Pumpers' Shares herein decreed or which may hereafter be acquired by transfer pursuant to Section 55, or under the provisions of the Physical Solution in this Judgment and the Court's continuing jurisdiction, provided that no party is enjoined from Producing up to five (5) acre feet per Fiscal Year.

23. Injunction re Non-consumptive Uses. (Prior Judgment Section 16) Each party listed in Exhibit "G", its officers, agents, employees, successors and assigns, is **ENJOINED AND RESTRAINED** from materially changing said non-consumptive method of use.

24. Injunction Re Change in Overlying Use Without Notice Thereof To Watermaster. (Prior Judgment Section 16.5) Each party listed in Exhibit "K", its officers, agents, employees, successors and assigns, is **ENJOINED AND RESTRAINED** from materially changing said overlying uses at any time without first notifying Watermaster of the intended change of use, in which event Watermaster shall promptly redetermine the consumptive use portion thereof to be effective after such change.

25. Injunction Against Unauthorized Recharge. (Prior Judgment Section 17) Each party, its officers, agents, employees, successors and assigns, is **ENJOINED AND RESTRAINED** from spreading, injecting or otherwise recharging water in the Basin except pursuant to: (a) an adjudicated non-consumptive use, or (b) consent and approval of or Cyclic Storage Agreement with Watermaster, or (c) subsequent order of this Court.

26. Injunction Against Transportation From Basin or Relevant Watershed. (Prior Judgment Section 18) Except upon further order of Court, all parties, other than Transporting Parties and MWD in its exercise of its Special Category Rights, to the extent authorized therein, are **ENJOINED AND RESTRAINED** from transporting water hereafter Produced from the Relevant Watershed or Basin outside the areas thereof. For purposes of

this Section, water supplied through a city water system which lies chiefly within the Basin shall be deemed entirely used within the Basin. Transporting Parties are entitled to continue to transport water to the extent that any Production of water by any such party does not violate the injunctive provisions contained in Section 22 hereof; provided that said water shall be used within the present service areas or corporate or other boundaries and additions thereto so long as such additions are contiguous to the then existing service area or corporate or other boundaries; except that a maximum of ten percent (10%) of use in any Fiscal Year may be outside said then existing service areas or corporate or other boundaries.

D. CONTINUING JURISDICTION

27. Jurisdiction Reserved. (Prior Judgment Section 19) Full jurisdiction, power and authority are retained by and reserved to the Court for purposes of enabling the Court upon application of any party or of the Watermaster, by motion and upon at least thirty (30) days notice thereof, and after hearing thereon, to make such further or supplemental orders or directions as may be necessary or appropriate for interim operation before the Physical Solution is fully operative, or for interpretation, enforcement or carrying out of this Judgment, and to modify, amend or amplify any of the provisions of this Judgment or to add to the provisions thereof consistent with the rights herein decreed. Provided, that nothing in this paragraph shall authorize:

(1) modification or amendment of the quantities specified in the declared rights of any party;

(2) modification or amendment of the manner of exercise of the Base Annual Diversion Right or Integrated Production Right of any party; or

(3) the imposition of an injunction prohibiting transportation outside the Relevant Watershed or Basin as against any Transporting Party transporting in accordance with the provisions of this Judgment or against MWD as to its Special Category Rights.

E. WATERMASTER

28. Watermaster to Administer Judgment. (Prior Judgment Section 20) A Watermaster comprised of nine (9) persons, to be nominated as hereinafter provided and appointed by the Court, shall administer and enforce the provisions of this Judgment and any subsequent instructions or orders of the Court thereunder.

29. Qualification, Nomination and Appointment. (Prior Judgment Section 21) The nine (9) member Watermaster shall be composed of six (6) Producer representatives and three (3) public representatives qualified, nominated and appointed as follows:

(a) Qualification. Any adult citizen of the State of California shall be eligible to serve on Watermaster; provided, however, that no officer, director, employee or agent of Upper District or San Gabriel District shall be qualified as a Producer member of Watermaster.

(b) Nomination of Producer Representatives. A meeting of all parties shall be held at the regular meeting of Watermaster in November of each year, at the offices of Watermaster. Nomination of the six (6) Producer

representatives shall be by cumulative voting, in person or by proxy, with each Producer entitled to one (1) vote for each one hundred (100) acre feet, or portion thereof, of Base Annual Diversion Right or Prescriptive Pumping Right or Integrated Production Right.

(c) Nomination of Public Representatives. On or before the regular meeting of Watermaster in November of each year, the three (3) public representatives shall be nominated by the boards of directors of Upper District (which shall select two [2]) and San Gabriel District (which shall select one [1]). Said nominees shall be members of the board of directors of said public districts.

(d) Appointment. All Watermaster nominations shall be promptly certified to the Court, which will in ordinary course confirm the same by an appropriate order appointing said Watermaster; provided, however, that the Court at all times reserves the right and power to refuse to appoint, or to remove, any member of Watermaster.

30. Term and Vacancies. (Prior Judgment Section 22) Each member of Watermaster shall serve for a one (1) year term commencing on January 1, following his appointment, or until his successor is appointed. In the event of a vacancy on Watermaster, a successor shall be nominated at a special meeting to be called by Watermaster within ninety (90) days (in the case of a Producer representative) or by action of the appropriate district board of directors (in the case of a public representative).

31. Quorum. (Prior Judgment Section 23) Five (5) members

of the Watermaster shall constitute a quorum for the transaction of affairs of the Watermaster. Action by the affirmative vote of five (5) members shall constitute action by Watermaster, <u>except</u> that the affirmative vote of six (6) members shall be required:

(a) to approve the purchase, spreading or injection of water for Ground Water recharge, or

(b) to enter in any Agreement pursuant to Section 34 (m) hereof.

32. <u>Compensation.</u> (Prior Judgment Section 24) Each Watermaster member shall receive compensation of One Hundred Dollars ($100.00) per day for each day's attendance at meetings of Watermaster or for each day's service rendered as a Watermaster member at the request of Watermaster, together with any expenses incurred in the performance of his duties required or authorized by Watermaster. No member of the Watermaster shall be employed by or compensated for professional services rendered by him to Watermaster, other than the compensation herein provided, and any authorized travel or related expense.

33. <u>Organization.</u> (Prior Judgment Section 25) At its first meeting in each year, Watermaster shall elect a chairman and a vice chairman from its membership. It shall also select a secretary, a treasurer and such assistant secretaries and assistant treasurers as may be appropriate, any of whom may, but need not be, members of Watermaster.

(a) <u>Minutes</u>. Minutes of all Watermaster meetings shall be kept which shall reflect all actions taken by Watermaster. Draft copies thereof shall be furnished to

any party who files a request therefor in writing with Watermaster. Said draft copies of minutes shall constitute notice of any Watermaster action therein reported; failure to request copies thereof shall constitute waiver of notice.

(b) Regular Meetings. Watermaster shall hold regular meetings at places and times to be specified in Watermaster's rules and regulations to be adopted by Watermaster. Notice of the scheduled or regular meetings of Watermaster and of any changes in the time or place thereof shall be mailed to all parties who shall have filed a request therefor in writing with Watermaster.

(c) Special Meetings. Special meetings of Watermaster may be called at any time by the chairman or vice chairman or by any three (3) members of Watermaster by written notice delivered personally or mailed to each member of Watermaster and to each party requesting notice, at least twenty-four (24) hours before the time of each such meeting in the case of personal delivery, and forty-eight (48) hours prior to such meeting in the case of mail. The calling notice shall specify the time and place of the special meeting and the business to be transacted at such meeting. No other business shall be considered at such meeting.

(d) Adjournments. Any meeting of Watermaster may be adjourned to a time and place specified in the order of adjournment. Less than a quorum may so adjourn from time to time. A copy of the order or notice of adjournment

shall be conspicuously posted on or near the door of the place where the meeting was held within twenty-four (24) hours after adoption of the order of adjournment.

34. Powers and Duties. (Prior Judgment Section 26) Subject to the continuing supervision and control of the Court, Watermaster shall have and may exercise the following express powers, and shall perform the following duties, together with any specific powers, authority and duties granted or imposed elsewhere in this Judgment or hereafter ordered or authorized by the Court in the exercise of its continuing jurisdiction.

(a) Rules and Regulations. To make and adopt any and all appropriate rules and regulations for conduct of Watermaster affairs. A copy of said rules and regulations and any amendments thereof shall be mailed to all parties.

(b) Acquisition of Facilities. To purchase, lease, acquire and hold all necessary property and equipment; provided, however, that Watermaster shall not acquire any interest in real property in excess of year-to-year tenancy for necessary quarters and facilities.

(c) Employment of Experts and Agents. To employ such administrative personnel, engineering, geologic, accounting, legal or other specialized services and consulting assistants as may be deemed appropriate in the carrying out of its powers and to require appropriate bonds from all officers and employees handling Watermaster funds.

(d) Measuring Devices, etc. To cause parties, pursuant to uniform rules, to install and maintain in good

operating condition, at the cost of each party, such necessary measuring devices or meters as may be appropriate; and to inspect and test any such measuring device as may be necessary.

(e) Assessments. To levy and collect all Assessments specified in the Physical Solution.

(f) Investment of Funds. To hold and invest any and all funds which Watermaster may possess in investments authorized from time to time for public agencies in the State of California.

(g) Borrowing. To borrow in anticipation of receipt of Assessment proceeds an amount not to exceed the annual amount of Assessments levied but uncollected.

(h) Purchase of and Recharge with Supplemental Water. To purchase Supplemental Water and to introduce the same into the Basin for replacement or cyclic storage purposes, subject to the affirmative vote of six (6) members of Watermaster.

(i) Contracts. To enter into contracts for the performance of any administrative powers herein granted, subject to approval of the Court.

(j) Cooperation With Existing Agencies. To act jointly or cooperate with agencies of the United States and the State of California or any political subdivision, municipality or district to the end that the purposes of the Physical Solution may be fully and economically carried out. Specifically, in the event Upper District has facilities available and adequate to accomplish any of the

administrative functions of Watermaster, consideration shall be given to performing said functions under contract with Upper District in order to avoid duplication of facilities.

(k) Assumption of Make-up Obligation. Watermaster shall assume the Make-up Obligation for and on behalf of the Basin.

(m) Water Quality. Water quality in the Basin shall be a concern of Watermaster, and all reasonable steps shall be taken to assist and encourage appropriate regulatory agencies to enforce reasonable water quality regulations affecting the Basin, including regulation of solid and liquid waste disposal.

(n) Cyclic Storage Agreements. To enter into appropriate contracts, to be approved by the Court, for utilization of Ground Water storage capacity of the Basin for cyclic or regulatory storage of Supplemental Water by parties and non-parties, for subsequent recovery or Watermaster credit by the storing entity, pursuant to uniform rules and conditions, which shall include provision for:

(1) Watermaster control of all spreading or injection and extraction scheduling and procedures for such stored water;

(2) calculation by Watermaster of any special costs, damages or burdens resulting from such operations;

(3) determination by Watermaster of, and

accounting for, all losses in stored water, assuming that such stored water floats on top of the Ground Water supplies, and accounting for all losses of water which otherwise would have replenished the Basin, with priorities being established as between two or more such contractors giving preference to parties over non-parties; and

(4) payment to Watermaster for the benefit of the parties hereto of all special costs, damages or burdens incurred (without any charge, rent, assessment or expense as to parties hereto by reason of the adjudicated proprietary character of said storage rights, nor credit or offset for benefits resulting from such storage); provided, that no party shall have any direct interest in or control over such contracts or the operation thereof by reason of the adjudicated right of such party, the Watermaster having sole custody and control of all Ground Water storage rights in the Basin pursuant to the Physical Solution herein, and subject to review of the Court.

(o) Notice List. Maintain a current list of party designees to receive notice hereunder, in accordance with Section 54 hereof.

35. Policy Decisions -- Procedure. (Prior Judgment Section 27) It is contemplated that Watermaster will exercise discretion in making policy decisions relating to Basin management under the Physical Solution decreed herein. In order to assure full participation and opportunity to be heard for

those affected, no policy decision shall be made by Watermaster until thirty (30) days after the question involved has been raised for discussion at a Watermaster meeting and noted in the draft of minutes thereof.

36. Reports. (Prior Judgment Section 28) Watermaster shall annually file with the Court and mail to the parties a report of all Watermaster activities during the preceding year, including an audited statement of all accounts and financial activities of Watermaster, summary reports of Diversions and Pumping, and all other pertinent information. To the extent practical, said report shall be mailed to all parties on or before November 1.

37. Review Procedures. (Prior Judgment Section 29) Any action, decision, rule or procedure of Watermaster (other than a decision establishing Operating Safe Yield, see Section 43[c]) shall be subject to review by the Court on its own motion or on timely motion for an Order to Show Cause by any party, as follows:

(a) Effective Date of Watermaster Action. Any order, decision or action of Watermaster shall be deemed to have occurred on the date that written notice thereof is mailed. Mailing of draft copies of Watermaster minutes to the parties requesting the same shall constitute notice to all such parties.

(b) Notice of Motion. Any party may, by a regularly noticed motion, petition the Court for review of said Watermaster's action or decision. Notice of such motion shall be mailed to Watermaster and all parties. Unless so

ordered by the Court, such petition shall not operate to stay the effect of such Watermaster action.

(c) Time for Motion. Notice of motion to review any Watermaster action or decision shall be served and filed within ninety (90) days after such Watermaster action or decision.

(d) De Novo Nature of Proceeding. Upon filing of such motion for hearing, the Court shall notify the parties of a date for taking evidence and argument, and shall review de novo the question at issue on the date designated. The Watermaster decision or action shall have no evidentiary weight in such proceeding.

(e) Decision. The decision of the Court in such proceeding shall be an appealable Supplemental Order in this case. When the same is final, it shall be binding upon the Watermaster and the parties.

F. PHYSICAL SOLUTION

38. Purpose and Objective. (Prior Judgment Section 30) Consistent with the California Constitution and the decisions of the Supreme Court, the Court hereby adopts and Orders the parties to comply with this Physical Solution. The purpose and objective of these provisions is to provide a legal and practical means for accomplishing the most economic, long term, conjunctive utilization of surface, Ground Water, Supplemental Water and Ground Water storage capacity to meet the needs and requirements of the water users dependent upon the Basin and Relevant Watershed, while preserving existing equities.

39. Need for Flexibility. (Prior Judgment Section 31) In

Ralph B. Helm - Bar No. 022004
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Telephone (818) 769-2002

Attorney for Watermaster - Petitioner

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STETSON ENGINEERS INC.

SUPERIOR COURT OF CALIFORNIA, COUNTY OF LOS ANGELES

UPPER SAN GABRIEL VALLEY MUNICIPAL WATER DISTRICT, Plaintiff, vs. CITY OF ALHAMBRA, et al., Defendants.	No. 924129 ORDER AMENDING JUDGMENT TO EXPAND WATERMASTER'S POWERS TO INCLUDE MAINTENANCE, IMPROVEMENT, AND CONTROL OF BASIN WATER QUALITY WITH ALLOWABLE FUNDING THROUGH IN-LIEU ASSESSMENTS Hearing: August 7, 1990 Department 38, 9:15 A. M.

The Petition of the Main San Gabriel Basin Watermaster (Watermaster) for Amendment to Judgment herein to expand its powers to include maintenance, improvement, and control of Basin water quality by controlling pumping in the Basin, with allowable funding for associated costs to be paid through its In-Lieu Assessments, was continued on July 31, 1990, to August 7, 1990, when it duly and regularly came on for hearing, at 9:15 o'clock A. M. in Department 38 of the above entitled Court, the Honorable FLORENCE T. PICKARD, Assigned Judge Presiding. Ralph B. Helm appeared as Attorney for Watermaster - Petitioner; Wayne K. Lemieux appeared for Defendant, San Gabriel Valley Municipal Water District, in support of the Petition; Fred Vendig, General

Counsel, Karen L. Tachiki, Assistant General Counsel, and Victor E. Gleason, Senior Deputy General Counsel, by Victor E. Gleason, appeared for Defendant, The Metropolitan Water District of Southern California, in support of the Petition; Timothy J. Ryan appeared for Defendant, San Gabriel Valley Water Company, in opposition to the Petition; Lagerlof, Senecal, Drescher & Swift, by H. Jess Senecal, appeared for Defendants, Calmat Company, Livingston-Graham, Owl Rock Products, AZ-Two, Inc., and Sully-Miller Contracting Company, in opposition to the Petition; Ira Reiner, Los Angeles County District Attorney, by Jan Chatten-Brown, Special Assistant to the District Attorney, appeared in opposition to the Petition; and Sarah F. Bates and Laurens H. Silver, by Sarah F. Bates, appeared on behalf of Amicus Curiae Sierra Club, in opposition to the Petition.

The Court acknowledged receipt and consideration of: letters in support of the Petition by the California Regional Water Quality Control Board - Los Angeles Region and by the State Water Resources Control Board; a copy of a letter addressed to the Attorney for Petitioner, from the US Environmental Protection Agency - Region IX, by Mark J. Klaiman, Assistant Regional Counsel, regarding several matters of federal law which EPA believed might ultimately affect the subject Petition; a letter in opposition to the Petition by East Valleys Organization; and a FAX communication to the Court, in opposition to the Petition, from Congressman Esteban E. Torres, which was not communicated to nor seen by the parties.

Members of the public, present in Court, were invited to, and did, present oral testimony during the hearing.

Under date of December 10, 1990 the Court entered its Intended Decision Re Amendment To Judgment and, by minute order duly entered and mailed to Counsel for Petitioner, ordered copies thereof mailed forthwith to all appearing parties, including those appearing as friends of the court, and to all other affected parties on the case's current mailing list.

A Proof Of Service by mail on December 13, 1990, Of Intended Decision Re Amendment To Judgment, as ordered, has been filed with the Court.

Opposition to Petitioner's Proposed Order were filed by Amicus Curiae Sierra Club, Amicus Curiae Los Angeles District Attorney, and by Producer Parties Calmat Co., Livingston-Graham, Owl Rock Products Company, AZ-Two, Inc., and Sully-Miller Contracting Company.

Proof being made to the satisfaction of the Court and good cause appearing:

IT IS, HEREBY, ORDERED:

1. That the Amended Judgment herein be further amended by amending Subsection (j) of Section 10 thereof, Definitions, and Section 40 thereof, Division F, Physical Solution, to read as follows:

"10 (j) <u>In-Lieu Water Cost</u> - - The differential between a particular Producer's cost of Watermaster directed produced, treated, blended, substituted, or Supplemental Water delivered or substituted to, for, or taken by, such Producer in-lieu of his cost of otherwise normally Producing a like amount of Ground Water from the Basin.

"40. <u>Watermaster Control.</u> (Prior Judgment Section 32)

In order to develop an adequate and effective program of Basin management, it is essential that Watermaster have broad discretion in the making of Basin management decisions within the ambit hereinafter set forth. The maintenance, improvement, and control of the water quality and quantity of the Basin, withdrawal and replenishment of supplies of the Basin and Relevant Watershed, and the utilization of the water resources thereof, must be subject to procedures established by Watermaster in implementation of the Physical Solution provisions of this Judgment. Both the quantity and quality of said water resource are thereby preserved and its beneficial utilization maximized.

"(a) Watermaster shall develop an adequate and effective program of Basin management. The maintenance, improvement, and control of the water quality and quantity of the Basin, withdrawal and replenishment of supplies of the Basin and Relevant Watershed, and the utilization of the water resources thereof, must be subject to procedures established by Watermaster in implementation of the Physical Solution provisions of this Judgment. All Watermaster programs and procedures shall be adopted only after a duly noticed public hearing pursuant to Sections 37 and 40 of the Amended Judgment herein.

"(b) Watermaster shall have the power to control pumping in the Basin by water Producers therein for Basin cleanup and water quality control so that specific well production can be directed as to a lesser amount, to total cessation, as to an increased amount, and even to require pumping in a new location in the

Basin. Watermaster's right to regulate pumping activities of Producers shall be subordinate to any conflicting Basin cleanup plan established by the EPA or other public governmental agency with responsibility for ground water management or clean up.

"(c) Watermaster may act individually or participate with others to carry on technical and other necessary investigations of all kinds and collect data necessary to carry out the herein stated purposes. It may engage in contractual relations with the EPA or other agencies in furtherance of the clean up of the Basin and enter into contracts with agencies of the United States, the State of California, or any political subdivision, municipality, or district thereof, to the extent allowed under applicable federal or state statutes. Any cooperative agreement between the Watermaster and EPA shall require the approval of the appropriate Agency(s) of the State of California.

"(d) For regulation and control of pumping activity in the Basin, Watermaster shall adopt Rules and Regulations and programs to promote, manage and accomplish clean up of the Basin and its waters, including, but not limited to, measures to confine, move, and remove contaminants and pollutants. Such Rules and Regulations and programs shall be adopted only after a duly Noticed Public Hearing by Watermaster and shall be subject to Court review pursuant to Section 37 of the Amended Judgment herein.

"(e) Watermaster shall determine whether funds from local, regional, state or federal agencies are available for regulating pumping and the various costs associated with, or arising from such activities. If no public funds are available from local,

regional, state, or federal agencies, the costs shall be obtained and paid by way of an In-Lieu Assessment by Watermaster pursuant to Section 10 (j) of the Amended Judgment herein. Provided such In-Lieu Assessments become necessary, the costs shall be borne by all Basin Producers.

"(f) Watermaster is a Court empowered entity with limited powers, created pursuant to the Court's Physical Solution Jurisdiction under Article X, Section 2 of the California Constitution. None of the Powers granted herein to Watermaster shall be construed as designating Watermaster a political subdivision of the State of California or authorizing Watermaster to act as 'lead agency' to administer the federal Superfund for clean up of the Basin."

2. This Amended Judgment shall continue in full force and effect as hereby Ordered and Amended.

Dated: January 29, 1991.

/s/Florence T. Pickard
FLORENCE T. PICKARD
Judge of the Superior Court,
Specially Assigned

order that Watermaster may be free to utilize both existing and new and developing technological, social and economic concepts for the fullest benefit of all those dependent upon the Basin, it is essential that the Physical Solution hereunder provide for maximum flexibility and adaptability. To that end, the Court has retained continuing jurisdiction to supplement the broad discretion herein granted to the Watermaster.

40. Watermaster Control. (Prior Judgment Section 32) In order to develop an adequate and effective program of Basin management, it is essential that Watermaster have broad discretion in the making of Basin management decisions within the ambit hereinafter set forth. Withdrawal and replenishment of supplies of the Basin and Relevant Watershed and the utilization of the water resources thereof, and of available Ground Water storage capacity, must be subject to procedures established by Watermaster in implementation of the provisions of this Judgment. Both the quantity and quality of said water resource are thereby preserved and its beneficial utilization maximized.

41. General Pattern of Contemplated Operation. (Prior Judgment Section 33) In general outline (subject to the specific provisions hereafter and to Watermaster Operating Criteria set forth in Exhibit "H"), Watermaster will determine annually the Operating Safe Yield of the Basin and will notify each Pumper of his share thereof, stated in acre feet per Fiscal Year. Thereafter, no party may Produce in any Fiscal Year an amount in excess of the sum of his Diversion Right, if any, plus his Pumper's Share of such Operating Safe Yield, or his

Integrated Production Right, or the terms of any Cyclic Storage Agreement, without being subject to Assessment for the purpose of purchasing Replacement Water. In establishing the Operating Safe Yield, Watermaster shall follow all physical, economic, and other relevant parameters provided in the Watermaster Operating Criteria. Watermaster shall have Assessment powers to raise funds essential to implement the management plan in any of the several special circumstances herein described in more detail.

42. Basin Operating Criteria. (Prior Judgment Section 34) Until further order of the Court and in accordance with the Watermaster Operating Criteria, Watermaster shall not spread Replacement Water when the water level at the Key Well exceeds Elevation two hundred fifty (250), and Watermaster shall spread Replacement Water, insofar as practicable, to maintain the water level at the Key Well above Elevation two hundred (200).

43. Determination of Operating Safe Yield. (Prior Judgment Section 35) Watermaster shall annually determine the Operating Safe Yield applicable to the succeeding Fiscal Year and estimate the same for the next succeeding four (4) Fiscal Years. In making such determination, Watermaster shall be governed in the exercise of its discretion by the Watermaster Operating Criteria. The procedures with reference to said determination shall be as follows:

(a) Preliminary Determination. On or before Watermaster's first meeting in April of each year, Watermaster shall make a Preliminary Determination of the Operating Safe Yield of the Basin for each of the succeeding five Fiscal Years. Said determination shall be

made in the form of a report containing a summary statement of the considerations, calculations and factors used by Watermaster in arriving at said Operating Safe Yield.

(b) Notice and Hearing. A copy of said Preliminary Determination and report shall be mailed to each Pumper and Integrated Producer at least ten (10) days prior to a hearing to be held at Watermaster's regular meeting in May, of each year, at which time objections or suggested corrections or modifications of said determinations shall be considered. Said hearing shall be held pursuant to procedures adopted by Watermaster.

(c) Watermaster Determination and Review Thereof. Within thirty (30) days after completion of said hearing, Watermaster shall mail to each Pumper and Integrated Producer a final report and determination of said Operating Safe Yield for each such Fiscal Year, together with a statement of the Producer's entitlement in each such Fiscal Year stated in acre feet. Any affected party, within thirty (30) days of mailing of notice of said Watermaster determination, may, by a regularly noticed motion, petition the Court for an Order to Show Cause for review of said Watermaster finding, and thereupon the Court shall hear such objections and settle such dispute. Unless so ordered by the Court, such petition shall not operate to stay the effect of said report and determination. In the absence of such review proceedings, the Watermaster determination shall be final.

44. Reports of Pumping and Diversion. (Prior Judgment

Section 36) Each party (other than Minimal Producers) shall file with the Watermaster quarterly, on or before the last day of January, April, July and October, a report on a form to be prescribed by Watermaster showing the total Pumping and Diversion (separately for Direct Use and for non-consumptive use, if any,) of such party during the preceding calendar quarter.

45. Assessments -- Purpose. (Prior Judgment Section 37) Watermaster shall have the power to levy and collect Assessments from the parties (other than Minimal Producers, non-consumptive users, or Production under Special Category Rights or Cyclic Storage Agreements) based upon Production during the preceding Fiscal Year. Said Assessments may be for one or more of the following purposes:

(a) Watermaster Administration Costs. Within thirty (30) days after completion of the hearing on the Preliminary Determination of the Operating Safe Yield of the Basin and Watermaster's determination thereof, pursuant to Section 43 hereof, Watermaster shall adopt a proposed budget for the succeeding Fiscal Year and shall mail a copy thereof to each party, together with a statement of the level of Administration Assessment levied by Watermaster which will be collected for purposes of raising funds for said budget. Said Assessment shall be uniformly applicable to each acre foot of Production.

(b) Replacement Water Costs. Replacement Water Assessments shall be collected from each party on account of such party's Production in excess of its Diversion

Rights, Pumper's Share or Integrated Production Right, and on account of the consumptive use portion of Overlying Rights, computed at the applicable rate established by Watermaster consistent with the Watermaster Operating Criteria.

(c) Make-Up Obligation. An Assessment shall be collected equally on account of each acre foot of Production, which does not bear a Replacement Assessment hereunder, to pay all necessary costs of Administration and satisfaction of the Make-Up Obligation. Such Assessment shall not be applicable to water Production for an Overlying Right.

(d) In-Lieu Water Cost. Watermaster may levy an Assessment against all Pumping to pay reimbursement for In-Lieu Water Costs except that such Assessment shall not be applicable to the non-consumptive use portion of an Overlying Right.

(e) Basin Water Quality Improvement. For purposes of testing, protecting or improving the water quality in the Basin, Watermaster may, after a noticed hearing thereon, fix terms and conditions under which it may waive all or any part of its Assessments on such ground water Production and if such Production, in addition to his other Production, does not exceed such Producer's Share or entitlement for that Fiscal Year, such stated Production shall be allowed to be carried over for a part of such Producer's next Fiscal Year's Producer's Share or entitlement. In connection therewith, Watermaster may also

waive the provisions of Sections 25, 26 and 57 hereof, relating to Injunction Against Unauthorized Recharge, Injunction Against Transportation From Basin or Relevant Watershed, and Intervention After Judgment, respectively. Nothing in this Judgment is intended to allow an increase in any Producer's annual entitlement nor to prevent Watermaster, after hearing thereon, from entering into contracts to encourage, assist and accomplish the clean up and improvement of degraded water quality in the Basin by non-parties herein. Such contracts may include the exemption of the Production of such Basin water therefor from Watermaster Assessments and, in connection therewith, the waiver of the provisions of Judgment Sections 25, 26, and 57 hereof.

46. Assessments -- Procedure. (Prior Judgment Section 38) Assessments herein provided for shall be levied and collected as follows:

(a) Levy and Notice of Assessment. Within thirty (30) days of Watermaster's annual determination of Operating Safe Yield of the Basin for each Fiscal Year and succeeding four (4) Fiscal Years, Watermaster shall levy applicable Administration Assessments, Replacement Water Assessments, Make-up Water Assessments and In-Lieu Water Assessments, if any. Watermaster shall give written notice of all applicable Assessments to each party on or before August 15, of each year.

(b) Payment. Each Assessment shall be payable, and each party is Ordered to pay the same, on or before

September 20, following such Assessment, subject to the rights reserved in Section 37 hereof.

(c) Delinquency. Any Assessment which becomes delinquent after January 1, 1980, shall bear interest at the annual prime rate plus one percent (1%) in effect on the first business day of August of each year. Said prime interest rate shall be that fixed by the Bank of America NT&SA for its preferred borrowing customers on said date. Said prime interest rate plus one percent (1%) shall be applicable to any said delinquent Assessment from the due date thereof until paid. Provided, however, in no event shall any said delinquent Assessment bear interest at a rate of less than ten percent (10%) per annum. Such delinquent Assessment and interest may be collected in a Show Cause proceeding herein or any other legal proceeding instituted by Watermaster, and in such proceeding the Court may allow Watermaster its reasonable costs of collection, including attorney's fees.

47. Availability of Supplemental Water From Responsible Agencies. (Prior Judgment Section 39) If any Responsible Agency shall, for any reason, be unable to deliver Supplemental Water to Watermaster when needed, Watermaster shall collect funds at an appropriate level and hold them in trust, together with interest accrued thereon, for purchase of such water when available.

48. Accumulation of Replacement Water Assessment Proceeds. (Prior Judgment Section 40) In order to minimize fluctuation in Assessments and to give Watermaster flexibility in Basin

management, Watermaster may make reasonable accumulations of Replacement Water Assessments. Such moneys and any interest accrued thereon shall only be used for the purchase of Replacement Water.

49. Carry-over of Unused Rights. (Prior Judgment Section 41) Any Pumper's Share of Operating Safe Yield, and the Production right of any Integrated Producer, which is not Produced in a given Fiscal Year may be carried over and accumulated for one Fiscal Year, pursuant to reasonable rules and procedures for notice and accounting which shall be adopted by Watermaster. The first water Produced in the succeeding Fiscal Year shall be deemed Produced pursuant to such Carry-over Rights.

50. Minimal Producers. (Prior Judgment Section 42) In the interest of Justice, Minimal Producers are exempted from the operation of this Physical Solution, so long as such party's annual Production does not exceed five (5) acre feet. Quarterly Production reports by such parties shall not be required, but Watermaster may require, and Minimal Producers shall furnish, specific periodic reports. In addition, Watermaster may conduct such investigation of future operations of any Minimal Producer as may be appropriate.

51. Effective Date. (Prior Judgment Section 43) The effective date for commencing accounting and operation under this Physical Solution, other than for Replacement Water Assessments, shall be July 1, 1972. The first Assessment for Replacement Water shall be payable on September 20, 1974, on account of Fiscal Year 1973-74 Production.

G. MISCELLANEOUS PROVISIONS

52. Puente Narrows Flow. (Prior Judgment Section 44) The Puente Basin is tributary to the Main San Gabriel Basin. All Producers within said Puente Basin have been dismissed herein, based upon the Puente Narrows Agreement (Exhibit "J"), whereby Puente Basin Water Agency agreed not to interfere with surface inflow and to assure continuance of historic subsurface contribution of water to Main San Gabriel Basin. The Court declares said Agreement to be reasonable and fair and in full satisfaction of claims by Main San Gabriel Basin for natural water from Puente Basin.

53. San Gabriel District - Interim Order. (Prior Judgment Section 45) San Gabriel District has a contract with the State of California for State Project Water, delivered at Devil Canyon in San Bernardino County. San Gabriel District is **HEREBY ORDERED** to proceed with and complete necessary pipeline facilities as soon as practical.

Until said pipeline is built and capable of delivering a minimum of twenty-eight thousand eight-hundred (28,800) acre feet of State Project water per year, defendant cities of Alhambra, Azusa, and Monterey Park shall pay to Watermaster each Fiscal Year a Replacement Assessment at a uniform rate sufficient to purchase Replenishment Water when available, which rate shall be declared by San Gabriel District. When water is available through said pipeline, San Gabriel District shall make the same available to Watermaster, on his reasonable demand, at said specified rate per acre foot. Interest accrued on such funds shall be paid to San Gabriel

District.

54. Service Upon and Delivery to Parties of Various Papers. (Prior Judgment Section 46) Service of the Judgment on those parties who have executed the Stipulation for Judgment shall be made by first class mail, postage prepaid, addressed to the Designee and at the address designated for that purpose in the executed and filed counterpart of the Stipulation for Judgment, or in any substitute designation filed with the Court.

Each party who has not heretofore made such a designation shall, within thirty (30) days after the Judgment shall have been served upon that party, file with the Court, with proof of service of a copy thereof upon Watermaster, a written designation of the person to whom and the address at which all future notices, determinations, requests, demands, objections, reports and other papers and processes to be served upon that party or delivered to that party are to be so served or delivered.

A later substitute designation filed and served in the same manner by any party shall be effective from the date of filing as to the then future notices, determinations, requests, demands, objections, reports and other papers and processes to be served upon or delivered to that party.

Delivery to or service upon any party by Watermaster, by any other party, or by the Court, of any item required to be served upon or delivered to a party under or pursuant to the Judgment may be made by deposit thereof (or by copy thereof) in the mail, first class, postage prepaid, addressed to the Designee of the party and at the address shown in the latest

designation filed by that party.

55. Assignment, Transfer, etc., of Rights. (Prior Judgment Section 47) Any rights Adjudicated herein except Overlying Rights, may be assigned, transferred, licensed or leased by the owners thereof; provided however, that no such assignment shall be complete until the appropriate notice procedures established by Watermaster have been complied with. No water Produced pursuant to rights assigned, transferred, licensed, or leased may be transported outside the Relevant Watershed except by:

(1) a Transporting Party, or

(2) a successor in interest immediate or mediate to a water system on lands or portion thereof, theretofore served by such a Transporting Party, for use by such successor in accordance with limitations applicable to Transporting Parties, or

(3) a successor in interest to the Special Category rights of MWD.

The transfer and use of Overlying Rights shall be limited, as provided in Section 21 hereof, as exercisable only on the specifically defined Overlying Lands and they cannot be separately conveyed or transferred apart therefrom.

56. Abandonment of Rights. (Prior Judgment Section 48) It is in the interest of reasonable beneficial use of the Basin and its water supply that no party be encouraged to take and use more water in any Fiscal Year than is actually required. Failure to Produce all of the water to which a party is entitled hereunder shall not, in and of itself, be deemed or constitute

an abandonment of such party's right, in whole or in part. Abandonment and extinction of any right herein Adjudicated shall be accomplished only by:

(1) a written election by the party, filed in this case, or

(2) upon noticed motion of Watermaster, and after hearing.

In either case, such abandonment shall be confirmed by express subsequent order of this Court.

57. Intervention After Judgment. (Prior Judgment Section 49) Any person who is not a party or successor to a party and who proposes to Produce water from the Basin or Relevant Watershed, may seek to become a party to this Judgment through a Stipulation For Intervention entered into with Watermaster. Watermaster may execute said Stipulation on behalf of the other parties herein but such Stipulation shall not preclude a party from opposing such Intervention at the time of the Court hearing thereon. Said Stipulation For Intervention must thereupon be filed with the Court, which will consider an order confirming said Intervention following thirty (30) days' notice to the parties. Thereafter, if approved by the Court, such Intervenor shall be a party bound by this Judgment and entitled to the rights and privileges accorded under the Physical Solution herein.

58. Judgment Binding on Successors, etc. (Prior Judgment Section 50) Subject to specific provisions hereinbefore contained, this Judgment and all provisions thereof are applicable to and binding upon and inure to the benefit of not

only the parties to this action, but as well to their respective heirs, executors, administrators, successors, assigns, lessees, licensees and to the agents, employees and attorneys in fact of any such persons.

59. Water Rights Permits. (Prior Judgment Section 51) Nothing herein shall be construed as affecting the relative rights and priorities between MWD and San Gabriel Valley Protective Association under State Water Rights Permits Nos. 7174 and 7175, respectively.

60. Costs. (Prior Judgment Section 52) No party shall recover any costs in this proceeding from any other party.

61. Entry of Judgment. (New) The Clerk shall enter this Judgment.

DATED: August 24, 1989.

s/ Florence T. Pickard
Florence T. Pickard, Judge
Specially Assigned

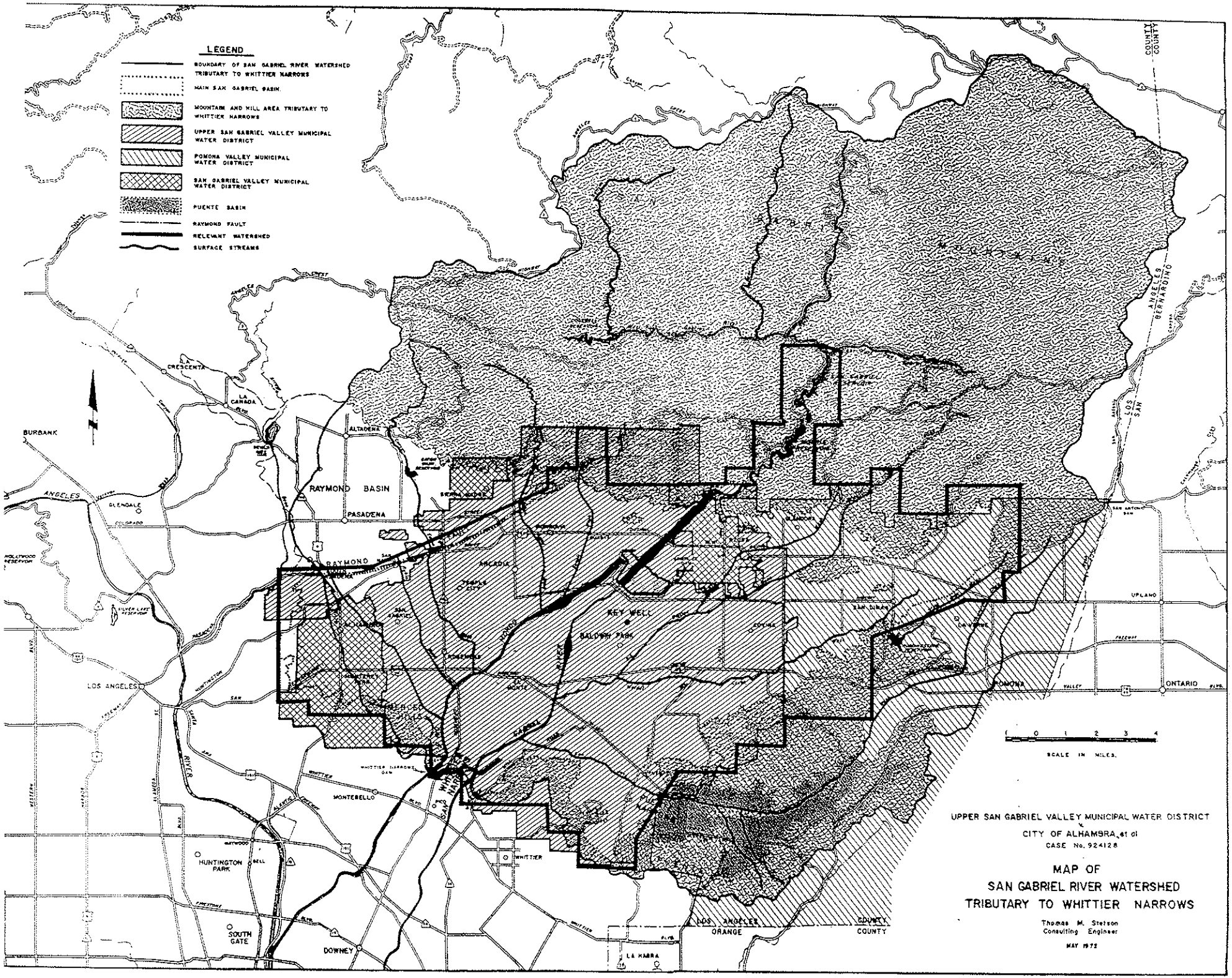

LEGEND
BOUNDARY OF SAN GABRIEL RIVER WATERSHED TRIBUTARY TO WHITTIER NARROWS
MAIN SAN GABRIEL BASIN
MOUNTAIN AND HILL AREA TRIBUTARY TO WHITTIER NARROWS
UPPER SAN GABRIEL VALLEY MUNICIPAL WATER DISTRICT
POMONA VALLEY MUNICIPAL WATER DISTRICT
SAN GABRIEL VALLEY MUNICIPAL WATER DISTRICT
PUENTE BASIN
RAYMOND FAULT
RELEVANT WATERSHED
SURFACE STREAMS
RAYMOND BASIN
BURBANK
GLENDALE
CRESCENTA
LA CANADA
ALTADENA
PASADENA
ARCADIA
SAN GABRIEL
MONTEBELLO
HUNTINGTON PARK
SOUTH GATE
DOWNEY
WHITTIER
LA HABRA
KEY WELL
BALDWIN PARK
UPLAND
POMONA
ONTARIO
LOS ANGELES
ORANGE
COUNTY
SCALE IN MILES
UPPER SAN GABRIEL VALLEY MUNICIPAL WATER DISTRICT
CITY OF ALHAMBRA, et al
CASE No. 924128
MAP OF
SAN GABRIEL RIVER WATERSHED
TRIBUTARY TO WHITTIER NARROWS
Thomas M. Stetson
Consulting Engineer
MAY 1972

Exhibit "B"

BOUNDARIES OF RELEVANT WATERSHED

The following described property is located in Los Angeles County, State of California:

Beginning at the Southwest corner of Section 14, Township 1 North, Range 11 West, San Bernardino Base and Meridian;

Thence Northerly along the West line of said Section 14 to the Northwest corner of the South half of said Section 14;

Thence Easterly along the North line of the South half of Section 14 to the East line of said Section 14;

Thence Northerly along the East line of said Section 14, Township 1 North, Range 11 West and continuing Northerly along the East line of Section 11 to the Northeast corner of said Section 11;

Thence Easterly along the North line of Section 12 to the Northeast corner of said Section 12;

Thence Southerly along the East line of said Section 12 and continuing Southerly along the East line of Section 13 to the Southeast corner of said Section 13, said corner being also the Southwest corner of Section 18, Township 1 North, Range 10 West;

Thence Easterly along the South line of Sections 18, 17, 16 and 15 of said Township 1 North, Range 10 West to the Southwest corner of Section 14;

Thence Northerly along the West line of Section 14 to the Northwest corner of the South half of Section 14;

Thence Easterly along the North line of the South half of Section 14 to the East line of said section;

Thence Northerly along the East line of said Section 14, and continuing Northerly along the West line of Section 12 of said Township 1 North, Range 10 West to the North line of said Section 12;

Thence Easterly along the North line of said Section 12, to the Northeast corner of said Section 12, said corner being also the Southwest corner of Section 6, Township 1 North, Range 9 West;

Thence Northerly along the West line of said Section 6 and continuing Northerly along West line of Sections 31 and 30, Township 2 North, Range 9 West to the Westerly prolongation of the North line of said Section 30;

Thence Easterly along said Westerly prolongation of the North line of said Section 30 and continuing Easterly along the North line of Section 29 to the Northeast corner of said Section 29;

Thence Southerly along the East line of said Section 29 and continuing Southerly along the East line of Section 32, Township 2 North, Range 9 West, and thence continuing Southerly along the East line of Section 5, Township 1 North, Range 9 West to the Southeast corner of said Section 5;

Thence Westerly along the South line of said Section 5 to the Southwest corner of said Section 5, said point being also the Northwest corner of Section 8;

Thence Southerly along the West line of said Section 8 and continuing Southerly along the West line of Section 17, to the Southwest corner of said Section 17, said corner being also the Northwest corner of Section 20;

Thence Easterly along the North line of Sections 20 and 21 to the Northwest corner of Section 22, said corner being also the Southwest corner of Section 15;

Thence Northerly along the West line of said Section 15 to the Northwest corner of the South half of said Section 15;

Thence Easterly along the North line of said South half of Section 15 to the Northeast corner of said South half of Section 15;

Thence Southerly along the East line of Section 15 and continuing Southerly along the East line of Section 22 to the Southeast corner of said Section 22, said point being also the Southwest corner of Section 23;

Thence Easterly along the South line of Sections 23 and 24 to the East line of the West half of said Section 24;

Thence Northerly along said East line of the West half of Section 24 to the North line thereof;

Thence Easterly along said North line of Section 24 to the Northeast corner thereof, said point also being the Northwest corner of Section 19, Township 1 North, Range 8 West;

Thence continuing Easterly along the North line of Section 19 and Section 20 of said Township 1 North, Range 8 West to the Northeast corner of said Section 20;

Thence Southerly along the East line of Sections 20, 29 and 32 of said Township 1 North, Range 8 West to the Southeast corner of said Section 32;

Thence Westerly along the South line of Section 32 to the Northwest corner of the East half of Section 5, Township 1 South, Range 8 West;

Thence Southerly along the West line of the East half of said Section 5 to the South line of said Section 5;

Thence West to the East line of the Northerly prolongation of Range 9 West;

Thence South 67° 30′ West to an intersection with the Northerly prolongation of the West line of Section 27, Township 1 South, Range 9 West;

Thence Southerly along the Northerly prolongation of said West line of Section 27 and continuing Southerly along the West line of Section 27 to the Southwest corner of said Section 27, said point being also the Southeast corner of Section 28;

Thence Westerly along the South line and Westerly projection of the South line of said Section 28 to the Northerly prolongation of the West line of Range 9 West;

Thence Southerly along said prolongation of the West line of Range 9 West to the Westerly prolongation of the North line of Township 2 South;

Thence Westerly along said Westerly prolongation of the North line of Township 2 South, a distance of 8,500 feet;

Thence South a distance of 4,500 feet;

Thence West a distance of 10,700 feet;

Thence South 29° West to an intersection with the Northerly prolongation of the West line of Section 20, Township 2 South, Range 10 West;

Thence Southerly along said Northerly prolongation of the West line of said Section 20 and continuing Southerly along the West line of Section 20 to the Southwest corner of said Section 20;

Thence South a distance of 2,000 feet;

Thence West a distance of two miles, more or less, to an intersection with the East line of Section 26, Township 2 South, Range 11 West;

Thence Northerly along said East line of Section 26 and continuing Northerly along the East line of Section 23, Township 2 South, Range 11 West to the Northeast corner of said Section 23;

Thence Westerly along the North line of said Section 23 to the Northwest corner thereof, said point being also the Southeast corner of Section 15, Township 2 South, Range 11 West;

Thence Northerly and Westerly along the East and North lines, respectively, of said Section 15, Township 2 South, Range 11 West, to the Northwest corner thereof;

Thence continuing Westerly along the Westerly prolongation of said North line of Section 15, Township 2 South, Range 11 West to an intersection with a line parallel to and one mile East of the West line of Range 11 West;

Thence Northerly along said parallel line to an intersection with the Northerly boundary of the City of Pico Rivera as said City of Pico Rivera existed on July 17, 1970;

Thence Westerly along said City boundary to an intersection with the East line of Range 12 West;

Thence Northerly along said East line of Range 12 West to the North line of Township 2 South;

Thence Westerly along the North line of Township 2 South to an intersection with the Southerly prolongation of the East line of the West half of Section 26, Township 1 South, Range 12 West;

Thence Northerly along said Southerly prolongation of said East line of the West half of said Section 26 to the Southeast corner of said West half;

Thence Westerly along the South line of Sections 26, 27 and 28, Township 1 South, Range 12 West, to the Southeast corner of Section 29, Township 1 South, Range 12 West;

Thence Northerly along the East line of said Section 29 to the Northeast corner of the South half of said Section 29;

Thence Westerly along the North line of the South half of said Section 29 to the Northwest corner thereof;

Thence Northerly along the West line of Sections 29, 20, 17 and 8, Township 1 South, Range 12 West;

Thence continuing Northerly along the Northerly prolongation of the West line of Section 8, Township 1 South, Range 12 West to an intersection with the North line of Township 1 South;

Thence Easterly along said North line of Township 1 South to the Northeast corner of Section 3, Township 1 South, Range 12 West;

Thence North 64° 30′ East to an intersection with the West line of Section 23, Township 1 North, Range 11 West;

Thence Northerly along the West line of said Section 23 to the Northwest corner thereof, said point being the Southwest corner of Section 14, Township 1 North, Range 11 West and said point being also the point of beginning.

Exhibit "C"

TABLE
SHOWING BASE
ANNUAL DIVERSION
RIGHTS OF CERTAIN
DIVERTERS

	Base Annual Diversion Right Acre-Feet
Covell, Ralph (Successor to Rittenhouse, Catherine and Rittenhouse, James)	2.12
Maddock, A. G.	3.40
Rittenhouse, Catherine (Transferred to Covell, Ralph)	0
Rittenhouse, James (Transferred to Covell, Ralph)	0
Ruebhausen, Arline (Held in common with Ruebhausen, Victor) (Transferred to City of Glendale)	0
Ruebhausen, Victor (See Ruebhausen, Arline, above)	0
TOTAL	5.52

Exhibit "D"

TABLE
SHOWING PRESCRIPTIVE PUMPING RIGHTS
AND PUMPER'S SHARE OF EACH PUMPER
AS OF JUNE, 1988

Pumper	Prescriptive Pumping Right Acre-feet	Pumper's Share Percent (%)
Adams Ranch Mutual Water Company	100.00	0.05060
A & E Plastik Pak Co., Inc. (Transferred to Industry Properties, Ltd.)	0	0
Alhambra, City of	8,812.05	4.45876
Amarillo Mutual Water Company	709.00	0.35874
Anchor Plating Co., Inc. (Successor to Bodger & Sons) (Transferred to Crown City Plating Co.)	0	0
Anderson, Ray L. and Helen T., Trustees (Successor to Covina-Valley Unified School District)	50.16	0.02538
Andrade, Marcario and Consuelo; and Andrade, Robert and Jayne (Successor to J. F. Isbell Estate, Inc.)	8.36	0.00423
Arcardia, City of	9,252.00	4.68137
(Successor to First National Finance Corporation)	60.90	0.03081
(Transferred to City of Monrovia)	951.00	0.48119
	8,361.90	4.23099
Associated Southern Investment Company (Transferred to Southern California Edison Company)	0	0
AZ-Two, Inc. (Lessee of Southwestern Portland Cement Co.)	0	0
Azusa, City	3,655.99	1.84988
Azusa-Western Inc. (Transferred to Southwestern Portland Cement Co.)	0	0
Bahnsen & Beckman Ind., Inc. (Transferred to Woodland, Richard)	0	0

Pumper	Prescriptive Pumping Right Acre-feet	Pumper's Share %
Bahnsen, Betty M. (Transferred to Dawes, Mary Kay)	0	0
Baldwin Park County Water District (See Valley County Water District)	-	-
Banks, Gale C. (Successor to Doyle, Mr. and Mrs.; and Madruga, Mr. and Mrs.)	50.00	0.02530
Base Line Water Company	430.20	0.21767
Beverly Acres Mutual Water Company	93.00	0.04706
Birenbaum, Max (Held in common with Birenbaum, Sylvia; Schneiderman, Alan; Schneiderman, Lydia; Wigodsky, Bernard; Wigodsky, Estera) (Transferred to City of Whittier)	0	0
Birenbaum, Sylvia (See Birenbaum, Max)	-	-
Blue Diamond Concrete Materials Div., The Flintkote Company (Transferred to Sully-Miller Contracting Co.)	0	0
Bodger & Sons DBA Bodger Seeds Ltd. (Transferred to Anchor Plating Co., Inc.)	0	0
Botello Water Company	0	0
Burbank Development Company	50.65	0.02563
Cadway, Inc. (Successor to:		
Corcoran, Jack S. and R. L.)	100.00	0.05060
Corcoran, Jack S. and R. L.)	100.00	0.05060
	200.00	0.10120
Cal Fin (Transferred to Suburban Water Systems)	0	0
California-American Water Company (San Marino System)	7,868.70	3.98144
California Country Club	0	0

Pumper	Prescriptive Pumping Right Acre-feet	Pumper's Share %
California Domestic Water Company	11,024.82	5.57839
(Successor to:		
Cantrill Mutual Water Company	42.50	0.02150
Industry Properties, Ltd.	73.50	0.03719
Modern Accent Corporation	256.86	0.12997
Fisher, Russell)	19.00	0.00961
	11,416.68	5.77666
California Materials Company	0	0
Cantrill Mutual Water Company (Transferred to California Domestic Water Co.)	0	0
Cedar Avenue Mutual Water Company	121.10	0.06127
Champion Mutual Water Company	147.68	0.07472
Chronis, Christine (See Polopolus, et al)	-	-
Clayton Manufacturing Company	511.80	0.25896
Collison, E. O.	0	0
Comby, Erma M. (See Wilmott, Erma M.)	-	-
Conrock Company		
(Formerly Consolidated Rock Products Co.)	1,465.35	0.74144
(Successor to Manning Bros. Rock & Sand Co.)	328.00	0.16596
	1,793.35	0.90740
Consolidated Rock Products Co. (See Conrock Company)	-	-
Corcoran, Jack S.		
(Held in common with Corcoran, R. L.)		
(Transferred to:	747.00	0.37797
Cadway, Inc.	100.00	0.05060
Cadway, Inc.)	100.00	0.05060
	547.00	0.27677
Corcoran, R. L. (See Corcoran, Jack S.)	-	-
County Sanitation District No. 18 of Los Angeles County	4.50	0.00228

Pumper	Prescriptive Pumping Right Acre-feet	Pumper's Share %
Covell, et al. (Successor to Rittenhouse, Catherine and Rittenhouse, James) (Held in common with Jobe, Darr; Goedert, Lillian E.; Goedert, Marion W.; Lakin, Kendall R.; Lakin, Kelly R.; Snyder, Harry)	111.05	0.05619
Covina, City of	2,507.89	1.26895
(Transferred to Covina Irrigating Company)	1,734.00	0.87737
(Transferred to Covina Irrigating Company)	300.00	0.15179
	473.89	0.23979
Covina-Valley Unified School District (Transferred to Anderson, Ray)	0	0
Crevolin, A. J.	2.25	0.00114
Crocker National Bank, Executor of the Estate of A. V. Handorf (Transferred to Modern Accent Corp.)	0	0
Cross Water Company (Transferred to City of Industry)	0	0
Crown City Plating Company	190.00	0.09614
(Successor to Anchor Plating Co., Inc.)	10.00	0.00506
	200.00	0.10120
Davidson Optronics, Inc.	22.00	0.01113
Dawes, Mary Kay (Successor to Bahnsen, Betty M.)	441.90	0.22359
Del Rio Mutual Water Company	199.00	0.10069
Denton, Kathryn W., Trustee for San Jose Ranch Company (Transferred to White, June G., Trustee of the June G. White Share of the Garnier Trust)	0	0
Doyle, Mr. and Mrs.; and Madruga, Mr. and Mrs. (Successor to Sawpit Farms, Ltd.) (Transferred to Banks, Gale C.)	0	0
Driftwood Dairy	163.80	0.08288
Duhalde, L. (Transferred to El Monte Union High School District)	0	0

Pumper	Prescriptive Pumping Right Acre-feet	Pumper's Share %
Dunning, George (Held in common with Dunning, Vera H.) (Successor to Vera H. Dunning)	324.00	0.16394
Dunning, Vera H. (Transferred to George Dunning)	-	-
East Pasadena Water Company, Ltd.	1,407.69	0.71227
Eckis, Rollin (Successor to Sawpit Farms, Ltd.) (Transferred to City of Monrovia)	0	0
El Encanto Properties (Transferred to La Puente Valley County Water District)	0	0
El Monte, City of	2,784.23	1.40878
El Monte Cemetary Association	18.50	0.00936
El Monte Union High School District (Successor to Duhalde, L.) (Transferred to City of Whittier)	0	0
Everett, Mrs. Alda B. (Held in common with Everett, W. B., Executor of the Estate of I. Worth Everett)	0	0
Everett, W. B., Executor of the Estate of I. Worth Everett (See Everett, Mrs. Alda B.)	-	-
Faix, Inc. (Successor to Frank F. Pellissier & Sons, Inc.) (Transferred to Faix, Ltd.)	0	0
Faix, Ltd. (Successor to Faix, Inc.)	6,490.00	3.28384
First National Finance Corporation (Transferred to City of Arcadia)	0	0
Fisher, Russell (Held in common with Hauch, Edward and Warren, Clyde) (Transferred to California Domestic Water Company)	0	0

Pumper	Prescriptive Pumping Right Acre-feet	Pumper's Share %
Frank F. Pellissier & Sons, Inc. (Transferred to Faix, Inc.)	0	0
Fruit Street Water Company (Transferred to: Gifford, Brooks, Jr. City of La Verne)	0	0
Gifford, Brooks, Jr. (Successor to: Fruit Street Water Co., Mission Gardens Mutual Water Company) (Transferred to City of Whittier)	0	0
Gilkerson, Frank B. (Transferred to Jobe, Darr)	-	-
Glendora Unified High School District (Transferred to City of Glendora)	0	0
Goedert, Lillian E. (See Covell, et al)	-	-
Goedert, Marion W. (See Covell, et al)	-	-
Graham, William (Transferred to Darr Jobe)	-	-
Green, Walter	71.70	0.03628
Grizzle, Lissa B. (Held in common with Grizzle, Mervin A.; Wilson, Harold R.; Wilson, Sarah C.) (Transferred to City of Whittier)	0	0
Grizzle, Mervin A. (See Grizzle, Lissa B.)	0	0
Hansen, Alice	0.75	0.00038
Hartley, David	0	0
Hauch, Edward (See Fisher, Russell)	0	0
Hemlock Mutual Water Company	166.00	0.08399

Pumper	Prescriptive Pumping Right Acre-feet	Pumper's Share %
Hollenbeck Street Water Company (Transferred to Suburban Water Systems)	0	0
Hunter, Lloyd F. (Successor to R. Wade)	4.40	0.00223
Hydro-Conduit Corporation	0	0
Industry Waterworks System, City of (Successor to Cross Water Company)	1,103.00	0.55810
Industry Properties, Ltd. (Successor to A & E Plastik Pak Co., Inc.) (Transferred to California Domestic Water Co.)	0	0
J. F. Isbell Estate, Inc. (Transferred to Andrade, Macario and Consuelo; and Andrade, Robert and Jayne)	0	0
Jerris, Helen (See Polopolus, et al)	-	-
Jobe, Darr (See Covell, et al)	-	-
Kirklen Family Trust (Formerly Kirklen, Dawn L.) (Held in common with Kirklen, William R.)	375.00	0.18974
(Successor to San Dimas-La Verne Recreational Facilities Authority)	62.50	0.03162
	437.50	0.22136
Kirklen, Dawn L. (See Kirklen Family Trust)	-	-
Kirklen, William R. (See Kirklen, Dawn L.)	-	-
Kiyan, Hideo (Held in common with Kiyan, Hiro)	30.00	0.01518
Kiyan, Hiro (See Kiyan, Hideo)	-	-
Knight, Kathryn M. (Successor to William Knight)	227.88	0.11530
Knight, William (Transferred to Kathryn M. Knight)	0	0

Pumper	Prescriptive Pumping Right Acre-feet	Pumper's Share %
Lakin, Kelly R. (See Covell, et al)	-	-
Lakin, Kendall R. (See Covell, et al)	-	-
Landeros, John	0.75	0.00038
La Grande Source Water Company (Transferred to Suburban Water Systems)	0	0
Lang, Frank (Transferred to San Dimas-La Verne Recreational Facilities Authority)	0	0
La Puente Cooperative Water Company (Transferred to Suburban Water Systems)	0	0
La Puente Valley County Water District (Successor to El Encanto Properties)	1,097.00 33.40 1,130.40	0.55507 0.01690 0.57197
La Verne, City of (Successor to Fruit Street Water Co.)	250.00 105.71 355.71	0.12650 0.05349 0.17999
Lee, Paul M. and Ruth A.; Nasmyth, Virrginia; Nasmyth, John	0	0
Little John Dairy	0	0
Livingston-Graham, Inc.	1,824.40	0.92312
Los Flores Mutual Water Company (Transferred to City of Monterey Park)	0	0
Loucks, David	3.00	0.00152
Manning Bros. Rock & Sand Co. (Transferred to Conrock Company)	0	0
Maple Water Company	118.50	0.05996
Martinez, Frances Mercy (Held in common with Martinez, Jaime)	0.75	0.00038
Martinez, Jaime (See Martinez, Frances Mercy)	-	-
Massey-Ferguson Company	0	0

Pumper	Prescriptive Pumping Right Acre-feet	Pumper's Share %
Miller Brewing Company	111.01	0.05617
(Successor to:		
Maechtlen, Estate of J. J.	151.50	0.07666
Phillips, Alice B., et al)	50.00	0.02530
	312.51	0.15813
Mission Gardens Mutual Water Company (Transferred to Gifford, Brooks, Jr.)	0	0
Modern Accent Corporation (Successor to Crocker National Bank, Executor of the Estate of A. V. Handorf) (Transferred to California Domestic Water Co.)	0	0
Monterey Park, City of	6,677.48	3.37870
(Successor to Los Flores Mutual Water Co.)	26.60	0.01346
	6,704.08	3.39216
Murphy Ranch Mutual Water Company (Transferred to Southwest Suburban Water)	0	0
Namimatsu Farms (Transferred to California Cities Water Company)	0	0
Nick Tomovich & Sons	0.02	0.00001
No. 17 Walnut Place Mutual Water Co. (Transferred to San Gabriel Valley Water Company)	0	0
Orange Production Credit Association	0	0
Owl Rock Products Co.	715.60	0.36208
Pacific Rock & Gravel Co. (Transferred to: City of Whittier Rose Hills Memorial Park Association)	0	0
Park Water Company (Transferred to Valley County Water District)	0	0
Penn, Margaret (See Polopolus, et al)	-	-
Pico County Water District	0.75	0.00038
Polopolus, John (See Polopolus, et al)	-	-

Pumper	Prescriptive Pumping Right Acre-feet	Pumper's Share %
Polopolus, et al (Successor to Polopolus, Steve) (Held in common with Chronis, Christine; Jerris, Helen; Penn, Margaret; Polopolus, John)	22.50	0.01138
Polopolus, Steve (Transferred to Polopolus, et al)	-	-
Rados, Alexander (Held in common with Rados, Stephen and Rados, Walter)	43.00	0.02176
Rados, Stephen (See Rados, Alexander)	-	-
Rados, Walter (See Rados, Alexander)	-	-
Richwood Mutual Water Company	192.60	0.09745
Rincon Ditch Company	628.00	0.31776
Rincon Irrigation Company	314.00	0.15888
Rittenhouse, Catherine (Transferred to Covell, Ralph)	0	0
Rittenhouse, James (Transferred to Covell, Ralph)	0	0
Rose Hills Memorial Park Association (Successor to Pacific Rock & Gravel Co.)	594.00 200.00 794.00	0.30055 0.10120 0.40175
Rosemead Development, Ltd. (Successor to Thompson, Earl W.)	1.00	0.00051
Rurban Homes Mutual Water Company	217.76	0.11018
Ruth, Roy	0.75	0.00038
San Dimas-La Verne Recreational Facilities Authority (Successor to Lang, Frank) (Transferred to Kirklen, Dawn L. and William R.)	0	0
San Gabriel Country Club	286.10	0.14476
San Gabriel County Water District	4,250.00	2.15044

Pumper	Prescriptive Pumping Right Acre-feet	Pumper's Share %
San Gabriel Valley Municipal Water District	0	0
San Gabriel Valley Water Company	16,659.00	8.42920
(Successor to:		
Vallecito Water Co.	2,867.00	1.45066
No. 17 Walnut Place Mutual Water Co.)	21.50	0.01088
	19,547.50	9.89074
Sawpit Farms, Limited		
(Transferred to:		
Eckis, Rollin		
Doyle and Madruga)	0	0
Schneiderman, Alan		
(See Birenbaum, Max)	-	-
Schneiderman, Lydia		
(See Birenbaum, Max)	-	-
Security Pacific National Bank, Co-Trustee for the Estate of Winston F. Stoody		
(See Stoody, Virginia A.)		
(Transferred to City of Whittier)	0	0
Sierra Madre, City of	0	0
Sloan Ranches	129.60	0.06558
Smith, Charles	0	0
Snyder, Harry		
(See Covell, et al)	-	-
Sonoco Products Company	311.60	0.15766
South Covina Water Service	992.30	0.50209
Southern California Edison Company	155.25	0.07855
(Successor to: Associated		
Southern Investment Company)	16.50	0.00835
	171.75	0.08690
Southern California Water Company, San Gabriel Valley District	5,773.00	2.92105
South Pasadena, City of	3,567.70	1.80520
Southwest Suburban Water		
(See Suburban Water Systems)	-	-

Pumper	Prescriptive Pumping Right Acre-feet	Pumper's Share %
Southwestern Portland Cement Company (Successor to Azusa Western, Inc.)	742.00	0.37544
Speedway 605, Inc.	0	0
Standard Oil Company of California	2.00	0.00101
Sterling Mutual Water Company	120.00	0.06072
Stoody, Virginia A., Co-Trustee for the Estate of Winston F. Stoody (See Security Pacific National Bank, Co-Trustee)	-	-
Suburban Water Systems (Formerly Southwest Suburban Water) (Successor to:	20,462.47	10.35370
Hollenbeck Street Water Company	646.39	0.32706
La Grande Source Water Company	1,078.00	0.54545
La Puente Cooperative Water Co.	1,210.90	0.61270
Valencia Valley Water Company	651.50	0.32965
Victoria Mutual Water Company	469.60	0.23761
Cal Fin	118.10	0.05976
Murphy Ranch Mutual Water Co.	223.23	0.11295
	24,860.19	12.57888
Sully-Miller Contracting Company (Successor to Blue Diamond Concrete Materials Division, The Flintkote Co.)	1,399.33	0.70804
Sunny Slope Water Company	2,228.72	1.12770
Taylor Herb Garden (Transferred to Covina Irrigating Company)	0	0
Texaco, Inc.	50.00	0.02530
Thompson, Earl W. (Held in common with Thompson, Mary) (Transferred to Rosemead Development, Ltd.)	0	0
Thompson, Mary (See Thompson, Earl W.)	-	-
Tyler Nursery	3.21	0.00162
United Concrete Pipe Corporation (See U. S. Pipe & Foundry Company)	-	-

Pumper	Prescriptive Pumping Right Acre-feet	Pumper's Share %
U. S. Pipe & Foundry Company (Formerly United Concrete Pipe Corporation)	376.00	0.19025
Valencia Heights Water Company	861.00	0.43565
Valencia Valley Water Company (Transferred to Suburban Water Systems)	0	0
Vallecito Water Company (Transferred to San Gabriel Valley Water Company)	0	0
Valley County Water District (Formerly Baldwin Park County Water District)	5,775.00	2.92206
(Successor to Park Water Company)	184.01	0.09311
	5,959.01	3.01517
Valley Crating Company	0	0
Valley View Mutual Water Company	616.00	0.31169
Via, H. (See Via, H., Trust of)	-	-
Via, H., Trust of (Formerly Via, H.)	46.20	0.02338
Victoria Mutual Water Company (Transferred to Suburban Water Systems)	0	0
Wade, R. (Transferred to Lloyd F. Hunter)	0	0
Ward Duck Company	1,217.40	0.61599
Warren, Clyde (See Fisher, Russell)	-	-
W. E. Hall Company	0.20	0.00010
White, June G., Trustee of the June G. White Share of the Garnier Trust (Successor to Denton, Kathryn W., Trustee for the San Jose Ranch Company)	185.50	0.09386

Pumper	Prescriptive Pumping Right Acre-feet	Pumper's Share %
Whittier, City of	7,620.23	3.85572
(Successor to:		
Grizzle, Lissa B.	184.00	0.09310
Pacific Rock and Gravel Co.)	208.00	0.10524
Security Pacific National Bank, Co-Trustee for the Estate of Winston F. Stoody	38.70	0.01958
El Monte Union High School District	16.20	0.00820
Gifford, Brooks, Jr.	198.25	0.10031
Birenbaum, Max)	6.00	0.00304
	8,271.38	4.18519
Wigodsky, Bernard (See Birenbaum, Max)	-	-
Wigodsky, Estera (See Birenbaum, Max)	-	-
Wilmott, Erma M. (Formerly Comby, Erma M.)	0.75	0.00038
Wilson, Harold R. (See Grizzle, Lissa B.)	-	-
Wilson, Sarah C. (See Grizzle, Lissa B.)	-	-
Woodland, Frederick G.	-	-
Woodland, Richard (Successor to: Bahnsen and Beckman Ind., Inc.)	840.50	0.42528
Totals for Exhibit "D"	**155,800.68**	**78.83276**
Totals from Exhibit "E"	41 833.75 ~~38,626.25~~	21.16724 ~~19.54431~~
GRAND TOTALS	**197,634.43**	**100.00000**

TABLE
SHOWING PRODUCTION RIGHTS
OF EACH
INTEGRATED PRODUCER
AS OF JUNE 1988

Party	Diversion Component Acre-feet	Prescriptive Pumping Component Acre-feet	Pumping Component Share Percent (%)
Azusa Agricultural Water Company	1,000.00	1,732.20	0.87647
Azusa Foot-Hill Citrus Water Company (Transfered to Monrovia Nursery Company)	0	0	0
Azusa Valley Water Company	2,422.00	8,274.00	4.18652
California-American Water Company (Duarte System)	1,672.00	3,649.00	1.84634
California Cities Water Company (See Southern California Water Company, San Dimas District)	-	-	-
Covina Irrigating Company (Successor to:	2,514.00	4,140.00	2.09478
City of Covina,		1,734.00	0.87737
City of Covina, and		300.00	0.15179
Taylor Herb Garden)		6.00	0.00304
	2,514.00	6,180.00	3.12698
Glendora, City of (Successor to:	17.00	8,258.00	4.17842
Maechtlen, Estate of J. J.,		150.00	0.07590
Maechtlen, Trust of P. A.,		50.00	0.02530
Ruebhausen, Arline, and	18.34		
Glendora Unified High School District)		9.00	0.05009
	35.34	8,557.00	4.32971
Los Angeles, County of	310.00	3,721.30	1.88292
Maechtlen, Estate of J. J. (Transferred to:	0	301.50	0.15256
City of Glendora		-150.00	-0.07590
Miller Brewing Company)		-151.50	-0.07666
	0	0	0

Party	Diversion Componet Acre-feet	Prescriptive Pumping Component Acre-feet	Pumping Component Share %
Maechtlen, Estate of J. J.	1.49	0	0
Maechtlen, Trust of P. A.	0.50	100.50	0.05085
(Transferred to:			
City of Glendora		-50.00	-0.02530
Alice B. Phillips, et al)	-0.50	-50.50	-0.02555
	0	0	0
The Metropolitan Water District of Southern California	9.59	165.00	0.08349
Monrovia, City of	1,098.00	5,042.22	2.55129
(Sucessor to:			
Eckis, Rollin		123.00	0.06224
City of Arcadia)		951.00	0.48119
	1,098.00	6,116.22	3.09472
Monrovia, Nursery Company	239.50	0	0
(Successor to:			
Azusa Foot-Hill Citrus Co.)	718.50	0	
Phillips, Alice B., et al			
(Successor to:			
Maechtlen, Trust of P. A.)	0.50	50.50	0.02530
(Transferred to:			
Miller Brewing Company)		-50.00	-0.02530
	0.50	0.50	0.00025
Southern California Water Company (San Dimas Dist.)	500.00	3,242.53	1.64076
(Formerly California Cities Water Company)			
(Successor to:			
Namimatsu Farms)		196.00	0.09917
	500.00	3,438.53	1.73984
TOTAL for Exhibit "E"	10,520.92	41,833.75	21.16724

Exhibit "F"

TABLE SHOWING
SPECIAL CATAGORY RIGHTS

PARTY	Nature of Right
The Metropolitan Water District of Southern California	Morris Reservoir Storage and Withdrawal (a) A right to divert, store and use San Gabriel River Water, pursuant to Permit No. 7174. (b) Prior and paramount right to divert 72 acre-feet annually to offset Morris Reservoir evaporation and seepage losses and to provide the water supply necessary for presently existing incidential Morris Dam facilities.
Los Angeles County Flood Control District (Now Los Angeles County Department of Public Works)	Puddingstone Reservoir Prior Prescriptive right to divert water from San Dimas Wash for storage in Puddingstone Reservoir in quantities sufficient to offset annual evaporation and seepage losses of the reservoir at approximate elevation 942.

TABLE SHOWING
NON-CONSUMPTIVE USERS

Party	Nature of Right
Covina Irrigating Company Azusa Valley Water Company Azusa Agricultural Water Co. Azusa Foot-Hill Citrus Co. Monrovia Nursery Company	"Committee-of-Nine" Spreading Right To continue to divert water from the San Gabriel River pursuant to the 1888 Settlement, and to spread in spreading grounds within the Basin all water thus diverted without the right to recapture water in excess of said parties' rights as adjudicated in Exhibit "E".
California-American Water Company (Duarte System)	Spreading Right To continue to divert water from the San Gabriel River pursuant to the 1888 Settlement, and to continue to divert water from Fish Canyon and to spread said waters in its spreading grounds in the Basin without the right to recapture water in excess of said party's rights as adjudicated in Exhibit "E".
City of Glendora	Spreading Right To continue to spread the water of Big and Little Dalton Washes, pursuant to License No. 2592 without the right to recapture water in excess of said party's rights as adjudicated in Exhibit "E".
San Gabriel Valley Protective Association	Spreading Right To continue to spread San Gabriel River water pursuant to License Nos. 9991 and 12,209, without the right to recapture said water.
California Cities Water Company	Spreading Right To continue to spread waters from San Dimas Wash without the right to recapture water in excess of said party's rights as adjudicated in Exhibit "E".
Los Angeles County Flood Control District	Temporary storage of storm flow for regulatory purposes; Spreading and conservation for general benefit in streambeds, reservoirs and spreading grounds without the right to recapture said water. Maintenance and operation of dams and other flood control works.

EXHIBIT "H"

WATERMASTER OPERATING CRITERIA

1. Basin Storage Capacity. The highest water level at the end of a water year during the past 40 years was reached at the Key Well on September 30, 1944 (elevation 316). The State of California, Department of Water Resources, estimates that as of that date, the quantity of fresh water in storage in the Basin was approximately 8,600,000 acre-feet. It is also estimated by said Department that by September 30, 1960, the quantity of fresh water in storage had decreased to approximately 7,900,000 acre-feet (elevation 237) at the Key Well).

The lowest water level at the end of a water year during the past 40 years was reached at the Key Well on September 30, 1965 (elevation 209). It is estimated that the quantity of fresh water in storage in the Basin on that date was approximately 7,700,000 acre-feet.

Thus, the maximum utilization of Basin storage was approximately 900,000 acre-feet, occurring between September 30, 1944, and September 30, 1965 (between elevations 316 and 209 at the Key Well). This is not to say that more than 900,000 acre-feet of storage space below the September 30, 1944 water levels cannot be utilized. However, it demonstrates that pumpers have deepened their wells and lowered their pumps so that such 900,000 acre-feet of storage can be safely and economically utilized.

The storage capacity of the Basin between elevations of 200 and 250 at the Key Well represents a usable volume of approximately 400,000 acre-feet of water.

2. Operating Safe Yield and Spreading. Watermaster in determining Operating Safe Yield and the importation of Replacement Water shall be guided by water level elevations in the Basin. He shall give recognition to, and base his operations on, the following general objectives insofar as practicable:

(a) The replenishment of ground water from sources of supplemental water should not cause excessively high levels of ground water and such replenishment should not cause undue waste of local water supplies.

(b) Certain areas within the Basin are not at the present time capable of being recharged with supplemental water. Efforts should be made to provide protection to such areas from excessive ground water lowering either through the "in lieu" provisions of the Judgment or by other means.

(c) Watermaster shall consider and evaluate the long-term consequences on ground water quality, as well as quantity, in determining and establishing Operating Safe Yield. Recognition shall be given to the enhancement of ground water quality insofar as practicable, especially in the area immediately upstream of Whittier Narrows where degradation of water quality may occur when water levels at the Key Well are maintained at or below elevation 200.

(d) Watermaster shall take into consideration the comparative costs of supplemental and Make-up Water in determining the savings on a present value basis of temporary or permanent lowering or raising of water levels and other economic data and analyses indicating both the short-term and long-term

propriety of adjusting Operating Safe Yield in order to derive optimum water levels during any period. Watermaster shall utilize the provisions in the Long Beach Judgment which will result in the least cost of delivering Make-up Water.

3. **Replacement Water -- Sources and Recharge Criteria.** The following criteria shall control purchase of Replacement Water and Recharge of the Basin by Watermaster.

(a) **Responsible Agency From Which to Purchase.** Watermaster, in determining the Responsible Agency from which to purchase supplemental water for replacement purposes, shall be governed by the following:

(1) Place of Use of Water which is used primarily within the Basin or by cities within San Gabriel District in areas within or outside the Basin shall control in determining the Responsible Agency. For purposes of this subparagraph, water supplied through a municipal water system which lies chiefly within the Basin shall be deemed entirely used within the Basin; and

(2) **Place of production of water** shall control in determining the Responsible Agency as to water exported from the Basin, except as to use within San Gabriel District.

Any Responsible Agency may, at the request of Watermaster, waive its right to act as the source for such supplemental water, in which case Watermaster shall be free to purchase such water from the remaining Responsible Agencies which are the most beneficial and appropriate sources; provided, however, that a Responsible Agency shall not

authorize any sale of water in violation of the California Constitution.

(b) Water Quality. Watermaster shall purchase the best quality of supplemental water available for replenishment of the Basin, pursuant to subsection (a) hereof.

(c) Reclaimed Water. It is recognized that the technology and economic and physical necessity for utilization of reclaimed water is increasing. The purchase of reclaimed water in accordance with the Long Beach Judgment to satisfy the Make-up Obligation is expressly authorized. At the same time, water quality problems involved in the reuse of water within the Basin pose serious questions of increased costs and other problems to the pumpers, their customers and all water users. Accordingly, Watermaster is authorized to gather information, make and review studies, and make recommendations on the feasibility of the use of reclaimed water for replacement purposes; provided that no reclaimed water shall be recharged in the Basin by Watermaster without the prior approval of the court, after notice to all parties and hearing thereon.

4. Replacement Assessment Rates. The Replacement Assessment rates shall be in an amount calculated to allow Watermaster to purchase one acre-foot of supplemental water for each acre-foot of excess Production to which such Assessment applies.

EXHIBIT "J"

PUENTE NARROWS AGREEMENT

THIS AGREEMENT is made and entered into as of the 8th day of May, 1972, by and between PUENTE BASIN WATER AGENCY, herein called "Puente Agency", and UPPER SAN GABRIEL VALLEY MUNICIPAL WATER DISTRICT, herein called "Upper District".

A. RECITALS

1. Puente Agency. Puente Agency is a joint powers agency composed of Walnut Valley Water District, herein called "Walnut District", and Rowland Area County Water District, herein called "Rowland District". Puente Agency is formed for the purpose of developing and implementing a ground water basin management program for Puente Basin. Pursuant to said purpose, said Agency is acting as a representative of its member districts and of the water users and water right claimants therein in the defense and maintenance of their water rights within Puente Basin.

2. Upper District. Upper District is a municipal water district overlying a major portion of the Main San Gabriel Basin. Upper District is plaintiff in the San Gabriel Basin Case, wherein it seeks to adjudicate rights and implement a basin management plan for the Main San Gabriel Basin.

3. Puente Basin is a ground water basin tributary to the Main San Gabriel Basin. Said area was included within the scope of the San Gabriel Basin Case and substantially

all water rights claimants within Puente Basin were joined as defendants therein. The surface contribution to the Main San Gabriel Basin from Puente Basin is by way of the paved flood control channel of San Jose Creek, which passes through Puente Basin from the Pomona Valley area. Subsurface outflow is relatively limited and moves from the Puente Basin to the Main San Gabriel Basin through Puente Narrows.

4. Intent of Agreement. Puente Agency is prepared to assure Upper District that no activity within Puente Basin will hereafter be undertaken which will (1) interfere with surface flows in San Jose Creek, or (2) impair the subsurface flow from Puente Basin to the Main San Gabriel Basin. Walnut District and Rowland District, by operation of law and by express assumption endorsed hereon, assume the covenants of this agreement as a joint and several obligation. Based upon such assurances and the covenants hereinafter contained in support thereof, Upper District consents to the dismissal of all Puente Basin parties from the San Gabriel Basin Case. By reason of said dismissals, Puente Agency will be free to formulate a separate water management program for Puente Basin.

B. DEFINITIONS AND EXHIBITS

5. Definitions. As used in this Agreement, the following terms shall have the meanings herein set forth:

(a) Annual or Year refers to the fiscal year July 1 through June 30.

(b) Base Underflow. The underflow through

Puente Narrows which Puente Agency agrees to maintain, and on which accrued debits and credits shall be calculated.

(c) Make-up Payment. Make-up payments shall be an amount of money payable to the Watermaster appointed in the San Gabriel Basin Case, sufficient to allow said Watermaster to purchase replacement water on account of any accumulated deficit as provided in Paragraph 9 hereof.

(d) Puente Narrows. The subsurface geologic constriction at the downstream boundary of Puente Basin, located as shown on Appendix "B".

(e) Main San Gabriel Basin, the ground water basin shown and defined as such in Exhibit "A" to the Judgment in the San Gabriel Basin Case.

(f) San Gabriel Basin Case. Upper San Gabriel Valley Municipal Water District v. City of Alhambra, et al., L. A. Sup. Ct. No. 924128, filed January 2, 1968.

6. Appendices. Attached hereto and by this reference made a part hereof are the following appendices:

"A" -- Location Map of Puente Basin, showing major geographic, geologic, and hydrologic features.

"B" -- Map of Cross-Section Through Puente Narrows, showing major physical features and location of key wells.

"C" -- Engineering Criteria, being a description of a method of measurement of subsurface outflow to be utilized for Watermaster purposes.

C. COVENANTS

7. Watermaster. There is hereby created a two member Watermaster service to which each of the parties to this agreement shall select one consulting engineer. The respective representatives on said Watermaster shall serve at the pleasure of the governing body of each appointing party and each party shall bear its own Watermaster expense.

a. Organization. Watermaster shall perform the duties specified herein on an informal basis, by unanimous agreement. In the event the two representatives are unable to agree upon any finding or decision, they shall select a third member to act, pursuant to the applicable laws of the State of California. Thereafter, until said issue is resolved, said three shall sit formally as a board of arbitration. Upon resolution of the issue in dispute, the third member shall cease to function further.

b. Availability of Information. Each party hereto shall, for itself and its residents and water users, use its best efforts to furnish all appropriate information to the Watermaster in order that the required determination can be made.

c. Cooperation With Other Watermasters. Watermaster hereunder shall cooperate and coordinate activities with the Watermasters appointed in the San Gabriel Basin Case and in Long Beach v. San Gabriel Valley Water Company, et al.

d. Determination of Underflow. Watermaster shall annually determine the amount of underflow from Puente Basin to the San Gabriel Basin, pursuant to Engineering Criteria.

e. Perpetual Accounting. Watermaster shall maintain a perpetual account of accumulated base underflow, accumulated subsurface flow, any deficiencies by reason of interference with surface flows, and the offsetting credit for any make-up payments. Said account shall annually show the accumulated credit or debit in the obligation of Puente Agency to Upper District.

f. Report. Watermaster findings shall be incorporated in a brief written report to be filed with the parties and with the Watermaster in the San Gabriel Basin Case. Said report shall contain a statement of the perpetual account heretofore specified.

8. Base Underflow. On the basis of a study and review of historic underflow from Puente Basin to the Main San Gabriel Basin, adjusted for the effect of the paved flood control channel and other relevant considerations, it is

mutually agreed by the parties that the base underflow is and shall be 580 acre feet per year, calculated pursuant to Engineering Criteria.

9. Puente Agency's Obligation. Puente Agency covenants, agrees and assumes the following obligation hereunder:

a. Noninterference with Surface Flow. Neither Puente Agency nor any persons or entities within the corporate boundaries of Walnut District or Rowland District will divert or otherwise interfere with or utilize natural surface runoff now or hereafter flowing in the storm channel of San Jose Creek; provided, however, that this covenant shall not prevent the use, under Watermaster supervision, of said storm channel by the Puente Agency or Walnut District or Rowland District for transmission within Puente Agency of supplemental or reclaimed water owned by said entities and introduced into said channel solely for transmission purposes. In the event any unauthorized use of surface flow in said channel is made contrary to the covenant herein provided, Puente Agency shall compensate Upper District by utilizing any accumulated credit or by make-up payment in the same manner as is provided for deficiencies in subsurface outflow from Puente Basin.

b. Subsurface Outflow. To the extent that

the accumulated subsurface outflow falls below the accumulated base underflow and the result thereof is an accumulated deficit in the Watermaster's annual accounting, Puente Agency agrees to provide make-up payments during the next year in an amount not less than one-third of the accumulated deficit.

c. Purchase of Reclaimed Water. To the extent that Puente Agency or Walnut District or Rowland District may hereafter purchase reclaimed water from the facilities of Sanitation District 21 of Los Angeles County, such purchaser shall use its best efforts to obtain waters originating within San Gabriel River Watershed.

10. Puente Basin Parties Dismissal. In consideration of the assumption of the obligation hereinabove provided by Puente Agency, Upper District consents to entry of dismissals as to all Puente Basin parties in San Gabriel Basin Case. This agreement shall be submitted for specific approval by the Court and a finding that it shall operate as full satisfaction of any and all claims by the parties within Main San Gabriel Basin against Puente Basin parties by reason of historic surface and subsurface flow.

IN WITNESS WHEREOF the parties hereto have caused this Agreement to be executed as of the day and date first above written.

Approved as to form:
CLAYSON, STARK, ROTHROCK & MANN

By _____
Attorneys for Puente Agency

PUENTE BASIN AGENCY

By _____
EDWARD M. BIEDERMAN
President

Approved as to form:

By _____
Attorney for Upper District

UPPER SAN GABRIEL VALLEY
MUNICIPAL WATER DISTRICT

By _____
Howard H. Hawkins
President

The foregoing agreement is approved and accepted, and the same is acknowledged as the joint and several obligation of the undersigned.

Approved as to form:

_____
Attorney for Walnut District

WALNUT VALLEY WATER DISTRICT

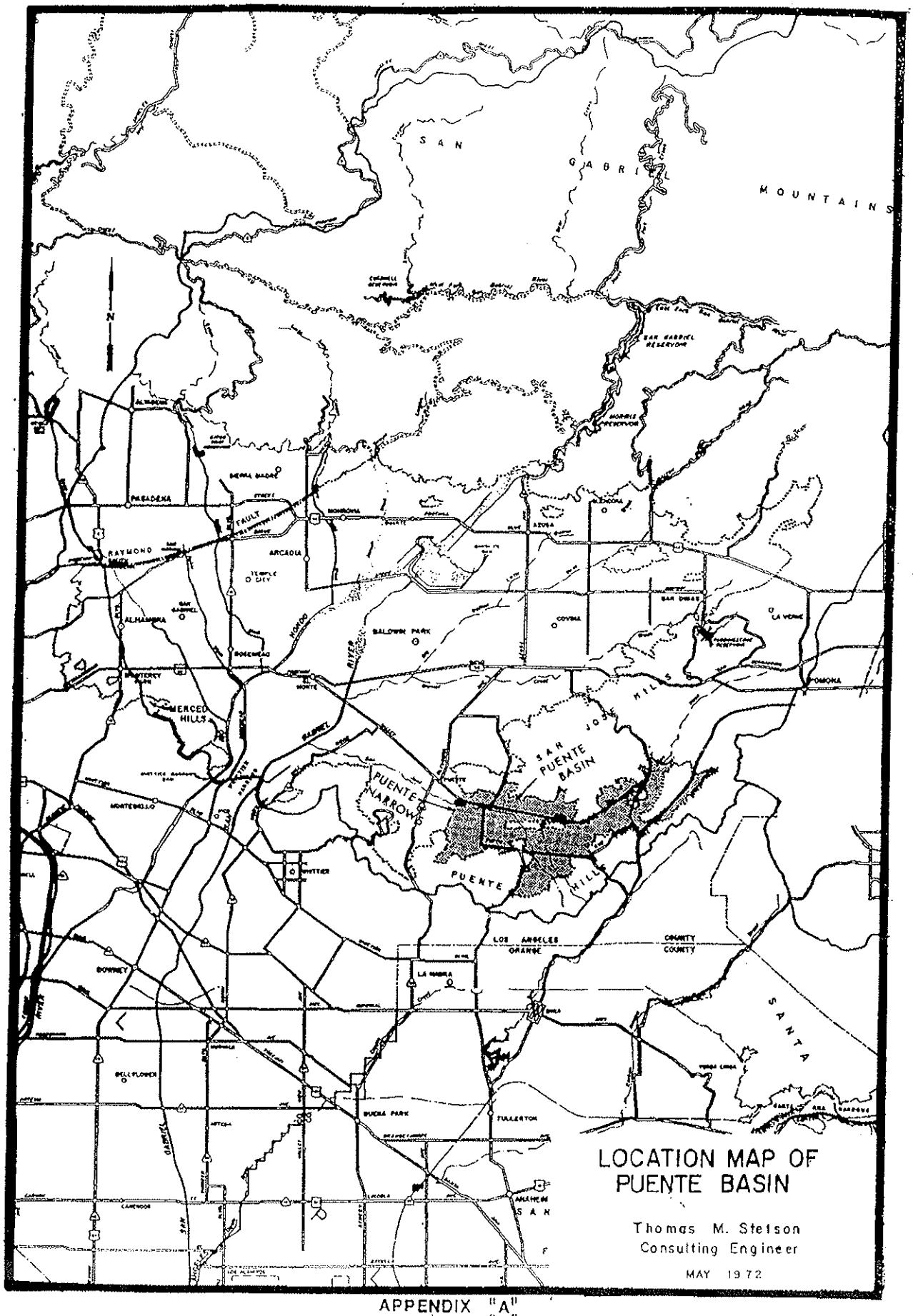
By _____
J. P. BOURDET
Vice President

Approved as to form:

_____
Attorneys for Rowland District

ROWLAND AREA COUNTY WATER
DISTRICT

By _____
President
Wm. A. Simpson

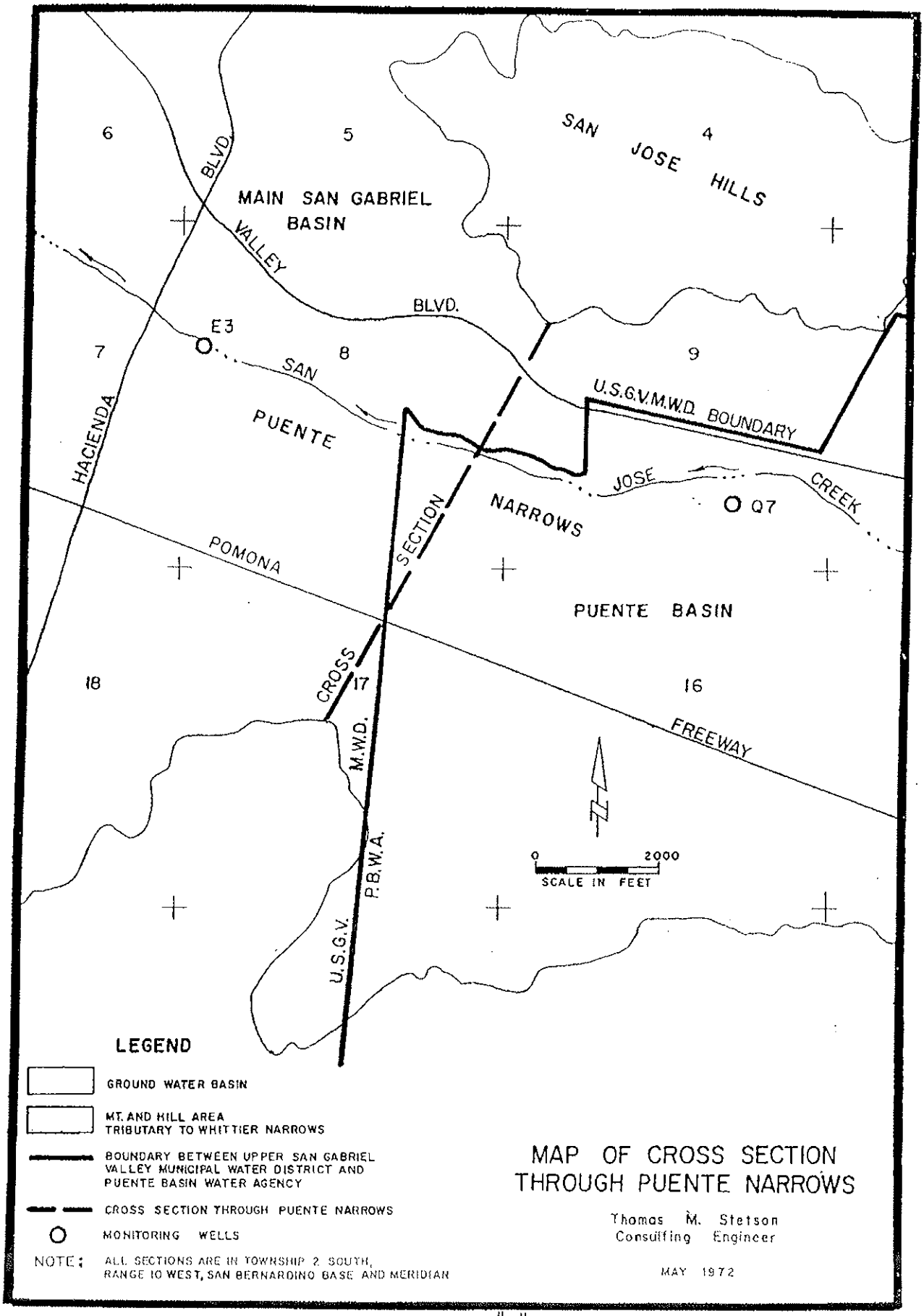


LOCATION MAP OF PUENTE BASIN

Thomas M. Stetson
Consulting Engineer

MAY 1972

APPENDIX "A"
EXHIBIT "J"



APPENDIX "B"
EXHIBIT "J"

ENGINEERING CRITERIA

APPENDIX "C"

1. Monitoring Wells. The wells designated as State Wells No. 2S/10W-9Q7 and 2S/10W-8E3 and Los Angeles County Flood Control District Nos. 3079M and 3048B, respectively, shall be used to measure applicable ground water elevations. In the event either monitoring well should fail or become unrepresentative, a substitute well shall be selected or drilled by Watermaster. The cost of drilling a replacement well shall be the obligation of the Puente Agency.

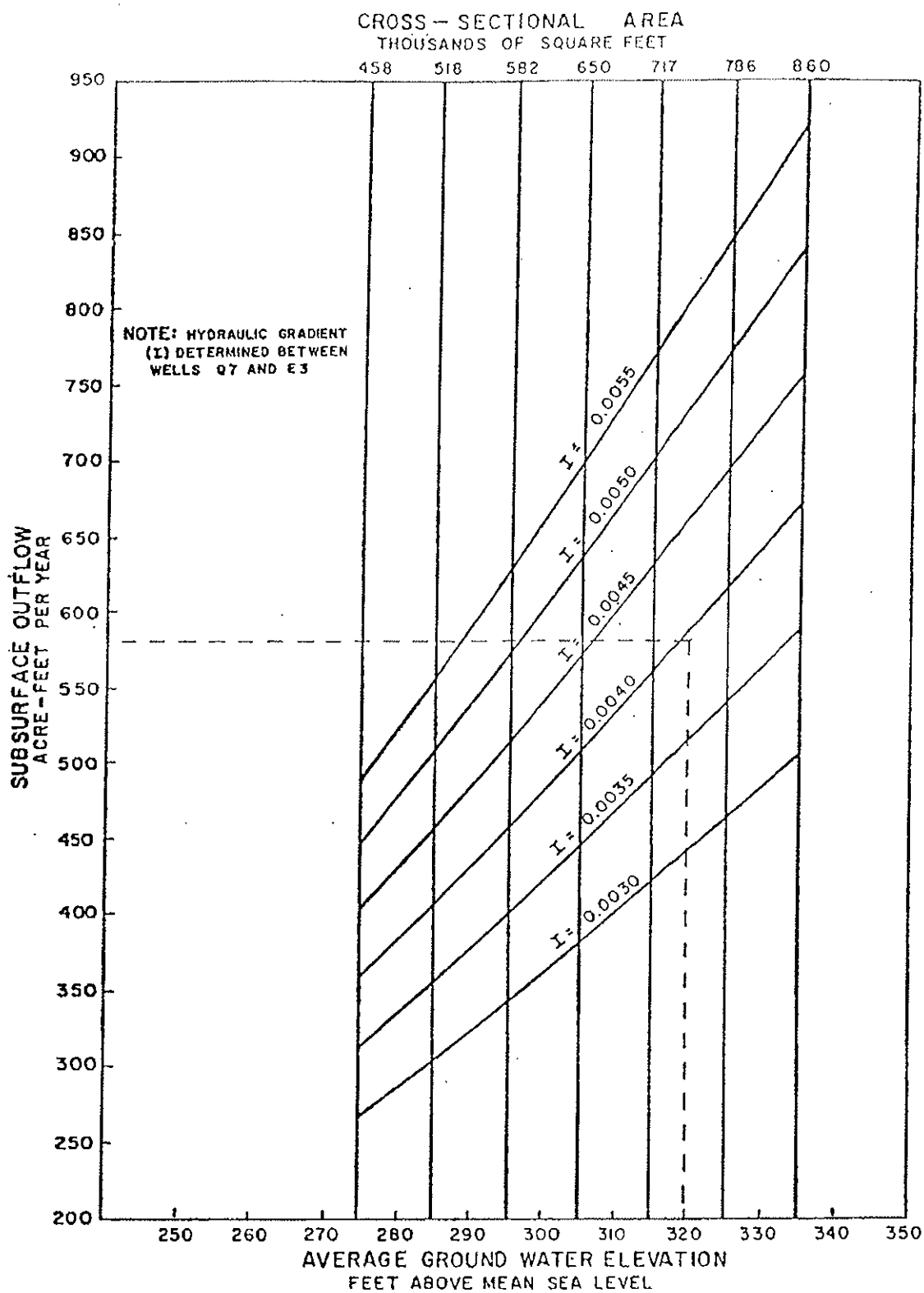
2. Measurement. Each monitoring well shall be measured and the ground water elevation determined semi-annually on or about April 1 and October 1 of each year. Prior to each measurement, the pump shall be turned off for a sufficient period to insure that the water table has recovered to a static or near equilibrium condition.

3. Hydraulic Gradient. The hydraulic gradient, or slope of the water surface through Puente Narrows, shall be calculated between the monitoring wells as the difference in water surface elevation divided by the distance, approximately 9,000 feet, between the wells. The hydraulic gradient shall be determined for the spring and fall and the average hydraulic gradient calculated for the year.

4. Ground Water Elevation at Puente Narrows Cross Section. The ground water elevation at the Puente Narrows

cross section midway between the monitoring wells shall be the average of the ground water elevation at the two wells. This shall be determined for the spring and fall and the average annual ground water elevation calculated for the year.

5. Determination of Underflow. The chart attached is a photo-reduction of a full scale chart on file with the Watermaster. By applying the appropriate average annual hydraulic gradient (I) to the average annual ground water elevation at the Puente Narrows cross section (involving the appropriate cross-sectional area [A]), it is possible to read on the vertical scale the annual acre feet of underflow.



RELATIONSHIP OF AVERAGE GROUND WATER ELEVATION AT PUENTE NARROWS AND APPLICABLE CROSS-SECTIONAL AREA WITH SUBSURFACE OUTFLOW THROUGH PUENTE NARROWS FOR VARIOUS HYDRAULIC GRADIENTS

Thomas M. Stetson
Consulting Engineer
MAY 1972

EXHIBIT "K"

OVERLYING RIGHTS

I. NATURE OF OVERLYING RIGHT

An "Overlying Right" is the right to Produce water from the Main San Gabriel Basin for use on the overlying lands hereinafter described. Such rights are exercisable without quantitative limit only on said overlying land and cannot be separately conveyed or transferred apart therefrom. The exerciser of such right is assessable by Watermaster as provided in Paragraph 21 of the Amended Judgment herein (prior Paragraph 14.5 of the Judgment herein) and is subject to the other provisions of said Paragraph.

II. OVERLYING LANDS (Description)

The overlying lands to which Overlying Rights are appurtenant are described as follows:

> "Those portions of Lots 1 and 2 of the lands formerly owned by W.A. Church, in the Rancho San Francisquito, in the City of Irwindale, County of Los Angeles, State of California, as shown on recorder's filed map No. 509, in the office of the County Recorder of said County, lying northeasterly of the northeasterly line and its southeasterly prolongation of Tract 1888, as shown on map recorded in Book 21 page 183 of Maps, in the office of the County Recorder of said County.
>
> "EXCEPT the portions thereof lying northerly and northwesterly of the center line of Arrow Highway described 'Sixth' and the center line of Live Oak Avenue described 'Third' in a final decree of condemnation, a certified copy of which was recorded August 18, 1933 as Instrument No. 354, in Book 12289, Page 277, Official Records.
>
> "ALSO EXCEPT that portion of said land described in the final decree of condemnation entered in Los Angeles County Superior Court Case No. 805008, a certified copy of which was recorded September 21, 1964, as Instrument No. 3730, in Book D-2634, Page 648, Official Records."

III. PRODUCERS ENTITLED TO EXERCISE OVERLYING RIGHTS AND THEIR RESPECTIVE CONSUMPTIVE USE PORTIONS

The persons entitled to exercise Overlying Rights are both the owners of Overlying Rights and persons and entities licensed by such owners to exercise such Overlying Rights. The persons entitled to exercise Overlying Rights and their respective Consumptive Use portions are as follows:

OWNER PRODUCERS	CONSUMPTIVE USE PORTION
BROOKS GIFFORD, SR. BROOKS GIFFORD, JR. PAUL MNOIAN JOHN MGRDICHIAN J. EARL GARRETT	3.5 acre-feet per year
Present User: Nu-Way Industries	
PRODUCERS UNDER LICENSE	
A. WILLIAM C. THOMAS and EVELYN F. THOMAS, husband and wife, and MALCOLM K. GATHERER and JACQUELINE GATHERER, husband and wife, doing business by and through B & B REDI-I-MIX CONCRETE, INC., a corporation	45.6 acre-feet per year
B. PRE-STRESS CRANE RIGGING & TRUCK CO., INC., a corporation	1.0 acre-foot per year
Present Users: Pre-Stress Crane Rigging & Truck Co., Inc., a corporation	
Total	50.1 acre-feet per year

IV. ANNUAL GROSS AMOUNT OF PRODUCTION FROM WHICH CONSUMPTIVE USE PORTIONS WERE DERIVED

183.65 acre-feet

Exhibit "L"

LIST OF PRODUCERS AND THEIR DESIGNEES
June, 1989

Producer Name	Designee
A	
Adams Ranch Mutual Water Company	Goji Iwakiri
Alhambra, City of	T. E. Shollenberger
Amarillo Mutual Water Company	Ester Guadagnolo
Anderson, Ray	Ray Anderson
Andrade, Macario, et al.	Macario R. Andrade
Arcadia, City of	Eldon Davidson
AZ-Two, Inc.	R. S. Chamberlain
Azusa, City of	William H. Redcay
Azusa Ag. Water Company	Robert E. Talley
Azusa Valley Water Company	Edward Heck
B	
Baldwin Park County Water District (See Valley County Water District)	-
Banks, Gale C.	Gale C. Banks
Base Line Water Company	Everett W. Hughes, Jr.
Beverly Acres Mutual Water User's Assn. (Formerly Beverly Acres Mutual Water Co.)	Eloise A. Moore
Burbank Development Company	Darrell A. Wright
C	
Cadway, Inc.	P. Geoffrey Nunn
California-American Water Company (San Marino System)	Andrew A. Krueger
California-American Water Company (Duarte System)	Andrew A. Krueger
California Country Club	Henri F. Pellissier
California Domestic Water Company	P. Geoffrey Nunn
Cedar Avenue Mutual Water Company	Austin L. Knapp

Exhibit "L"

Producer Name	Designee
Champion Mutual Water Company	Margaret Bauwens
Chevron, USA, Inc.	Ms. Margo Bart
Clayton Manufacturing Company	Don Jones
Conrock Company	Gene R.Block
Corcoran Brothers	Ray Corcoran
County Sanitation District No. 18	Charles W. Curry
Covell, et al.	Darr Jobe
Covell, Ralph	Ralph Covell
Covina, City of	Wayne B. Dowdey
Covina Irrigating Company	William R. Temple
Crevolin, A. J.	A. J. Crevolin
Crown City Plating Company	N. G. Gardner
D	
Davidson Optronics, Inc.	James McBride
Dawes, Mary Kay	Mary Kay Dawes
Del Rio Mutual Water Company	Gonzalo Galindo
Driftwood Dairy	James E. Dolan
Dunning, George	George Dunning
E	
East Pasadena Water Company	Robert D. Mraz
El Monte, City of	Robert J. Pinniger
El Monte Cemetery Association	Linn E. Magoffin
F	
Faix, Ltd.	Henri F. Pellissier
G	
Glendora, City of	Arthur E. Cook
Green, Walter	Dr. Walter Green
H	
Hansen, Alice	Alice Hansen

Exhibit "L"

Producer Name	Designee
Hartley, David	David Hartley
Hemlock Mutual Water Company	Bud Selander
Hunter, Lloyd F.	Lloyd F. Hunter
I	
Industry Waterworks System, City of	Mary L. Jaureguy
K	
Kiyan Farm Kiyan, Hideo	Mrs. Hideo Kiyan
Kirklen Family Trust	Dawn Kirklen
Knight, Kathryn M.	William J. Knight
L	
Landeros, John	John Landeros
La Puente Valley County Water District	Mary L. Jaureguy
La Verne, City of	N. Kathleen Hamm
Livingston-Graham	Gary O. Tompkins
Los Angeles, County of	Robert L. Larson
Loucks, David	David Loucks
M	
Maddock, A. G.	Ranney Draper, Esq.
Maechtlen, Trust of J. J.	Jack F. Maechtlen
Maple Water Company, Inc.	Charles King
Martinez, Francis Mercy	Francis Mercy Martinez
Metropolitan Water District of Southern California	Fred Vendig, Esq.
Miller Brewing Company	Dennis B. Puffer
Mnoian, Paul, et al.	Mal Gatherer
Monrovia, City of	Robert K. Sandwick
Monrovia Nursery	Miles R. Rosedale
Monterey Park, City of	Nels Palm

Producer Name	Designee
N	
Nick Tomovich & Sons	Nick Tomovich
O	
Owl Rock Products Company	Peter L. Chiu
P	
Phillips, Alice B., et al.	Jack F. Maechtlen
Pico County Water District	Robert P. Fuller
Polopolus, et al.	Christine Chronis
R	
Rados Brothers	Alexander S. Rados
Richwood Mutual Water Company	Bonnie Pool
Rincon Ditch Company	K. E. Nungesser
Rincon Irrigation Company	K. E. Nungesser
Rose Hills Memorial Park Association	Allan D. Smith
Rosemead Development, Ltd.	John W. Lloyd
Rurban Homes Mutual Water Company	George W. Bucey
Ruth, Roy	Roy Ruth
S	
San Dimas - La Verne Recreational Facilities Authority	R. F. Griszka
San Gabriel Country Club	Fran Wolfe
San Gabriel County Water District	Philip G. Crocker
San Gabriel Valley Municipal Water District	Bob Stallings
San Gabriel Valley Water Company	Robert H. Nicholson, Jr.
Sloan Ranches	Larry R. Sloan
Sonoco Products Company	Elaine Corboy
South Covina Water Service	Anton C. Garnier
Southern California Edison Company	S. R. Shermoen

Producer Name	Designee
Southern California Water Company -San Dimas District	J. F. Young
Southern California Water Company -San Gabriel Valley District	J. F. Young
South Pasadena, City of	John Bernardi
Southwestern Portland Cement Company	Dale W. Heineck
Standard Oil Company of California	John A. Wild
Sterling Mutual Water Company	Bennie L. Prowett
Suburban Water Systems	Anton C. Garnier
Sully-Miller Contracting Company	R. R. Munro
Sunny Slope Water Company	Michael J. Hart
T	
Taylor Herb Garden	Paul S. Taylor
Texaco, Inc.	E. O. Wakefield
Tyler Nursery	James K. Mitsumori, Esq.
U	
United Concrete Pipe Corporation	Doyle H. Wadley
United Rock Products Corporation	William S. Capps, Esq.
V	
Valencia Heights Water Company	Herman Weskamp
Valley County Water District (Formerly Baldwin Park County Water District)	Stanley D. Yarbrough
Valley View Mutual Water Company	Robert T. Navarre
Via, H., Trust of	Marverna Parton
W	
Ward Duck Company	Richard J. Woodland
W. E. Hall Company	Thomas S. Bunn, Jr., Esq.
White, June G., Trustee	June G. Lovelady
Whittier, City of	Neil Hudson
Wilmott, Erma M.	Erma M. Wilmott

Exhibit "M"

WATERMASTER MEMBERS

FOR CALENDAR YEAR 1973

ROBERT T. BALCH (Producer Member), Chairman

LINN E. MAGOFFIN (Producer Member), Vice Chairman

RICHARD L. ROWLAND (Producer Member), Secretary

BOYD KERN (Public Member), Treasurer

WALKER HANNON (Producer Member)

HOWARD H. HAWKINS (Public Member)

M. E. MOSLEY (Producer Member)

CONRAD T. REIBOLD (Public Member)

HARRY C. WILLS (Producer Member)

STAFF

Carl Fossette, Assistant Secretary-Assistant Treasurer
Ralph B. Helm, Attorney
Thomas M. Stetson, Engineer

FOR CALENDAR YEAR 1974

ROBERT T. BALCH (Producer Member), Chairman

LINN E. MAGOFFIN (Producer Member), Vice Chairman

RICHARD L. ROWLAND (Producer Member), Secretary

BOYD KERN (Public Member), Treasurer

WALKER HANNON (Producer Member)

BURTON E. JONES (Public Member)

M. E. MOSLEY (Producer Member)

CONRAD T. REIBOLD (Public Member)

HARRY C. WILLS (Producer Member)

STAFF

Carl Fossette, Assistant Secretary-Assistant Treasurer
Ralph B. Helm, Attorney
Thomas M. Stetson, Engineer

FOR CALENDAR YEAR 1975

ROBERT T. BALCH (Producer Member), Chairman

LINN E. MAGOFFIN (Producer Member), Vice Chairman

HARRY C. WILLS (Producer Member), Secretary

BOYD KERN (Public Member), Treasurer

WALKER HANNON (Producer Member)

BURTON E. JONES (Public Member)

D. J. LAUGHLIN (Producer Member)

M. E. MOSLEY (Producer Member)

CONRAD T. REIBOLD (Public Member)

STAFF

Carl Fossette, Assistant Secretary-Assistant Treasurer
Ralph B. Helm, Attorney
Thomas M. Stetson, Engineer

FOR CALENDAR YEAR 1976

ROBERT T. BALCH (Producer Member), Chairman

LINN E. MAGOFFIN (Producer Member), Vice Chairman

HARRY C. WILLS (Producer Member), Secretary

BOYD KERN (Public Member), Treasurer

WALKER HANNON (Producer Member)

BURTON E. JONES (Public Member)

D. J. LAUGHLIN (Producer Member)

M. E. MOSLEY (Producer Member)

CONRAD T. REIBOLD (Public Member)

STAFF

Jane M. Bray, Assistant Secretary-Assistant Treasurer
Ralph B. Helm, Attorney
Thomas M. Stetson, Engineer

FOR CALENDAR YEAR 1977

ROBERT T. BALCH (Producer Member), Chairman

LINN E. MAGOFFIN (Producer Member), Vice Chairman

HARRY C. WILLS (Producer Member), Secretary

CONRAD T. REIBOLD (Public Member), Treasurer

WALKER HANNON (Producer Member)

BURTON E. JONES (Public Member)

BOYD KERN (Public Member)

D. J. LAUGHLIN (Producer Member)

R. H. NICHOLSON, JR. (Producer Member)

STAFF

Jane M. Bray, Assistant Secretary-Assistant Treasurer)
Ralph B. Helm, Attorney
Thomas M. Stetson, Engineer

FOR CALENDAR YEAR 1978

ROBERT T. BALCH (Producer Member), Chairman

LINN E. MAGOFFIN (Producer Member), Vice Chairman

D. J. LAUGHLIN (Producer Member), Secretary

CONRAD T. REIBOLD (Public Member), Treasurer

WALKER HANNON (Producer Member)

BURTON E. JONES (Public Member)

L. E. MOELLER (Producer Member)

R. H. NICHOLSON, JR. (Producer Member)

WILLIAM M. WHITESIDE (Public Member)

STAFF

Jane M. Bray, Assistant Secrretary-Assistant Treasurer
Ralph B. Helm, Attorney
Thomas M. Stetson, Engineer

FOR CALENDAR YEAR 1979

LINN E. MAGOFFIN (Producer Member), Chairman

D. J. LAUGHLIN (Producer Member), Vice Chairman

R. H. NICHOLSON, JR. (Producer Member), Secretary

CONRAD T. REIBOLD (Public Member), Treasurer

WALKER HANNON (Producer Member)

BURTON E. JONES (Public Member)

L. E. MOELLER (Producer Member)

WILLIAM M. WHITESIDE (Public Member)

STAFF

Jane M. Bray, Assistant Secretary-Assistant Treasurer
Ralph B. Helm, Attorney
Thomas M. Stetson, Engineer

FOR CALENDAR YEAR 1980

LINN E. MAGOFFIN (Producer Member), Chairman

R. H. NICHOLSON, JR. (Producer Member), Vice Chairman

WILLIAM M. WHITESIDE (Pulic Member), Secretary

CONRAD T. REIBOLD (Public Member), Treasurer

ROBERT T. BALCH (Producer Member)

ROBERT G. BERLIEN (Producer Member)

ANTON C. GARNIER (Producer Member)

TRAVIS L. MANNING (Public Member)

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Ralph B. Helm, Attorney
Thomas M. Stetson. Engineer

FOR CALENDAR YEAR 1981

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L. E. MOELLER (Producer Member)

STAFF

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Ralph B. Helm, Attorney
Thomas M. Stetson, Engineer

FOR CALENDAR YEAR 1982

LINN E. MAGOFFIN (Producer Member), Chairman

R. H. NICHOLSON, JR. (Producer Member), Vice Chairman

WILLIAM M. WHITESIDE (Public Member), Secretary

CONRAD T. REIBOLD (Public Member), Treasurer

ROBERT T. BALCH (Producer Member)

ROBERT G. BERLIEN (Producer Member)

ANTON C. GARNIER (Producer Member)

L. E. MOELLER (Producer Member)

ALFRED F. WITTIG (Public Member)

STAFF

Jane M. Bray, Assistant Secrretary-Assistant Treasurer
Ralph B. Helm, Attorney
Thomas M. Stetson, Engineer

FOR CALENDAR YEAR 1983

LINN E, MAGOFFIN (Producer Member), Chairman

R. H. NICHOLSON, JR. (Producer Member), Vice Chairman

ROBERT G. BERLIEN (Producer Member), Secretary

CONRAD T. REIBOLD (Public Member), Treasurer

ROBERT T. BALCH (Producer Member)

DONALD F. CLARK (Public Member)

ANTON C. GARNIER (Producer Member)

L. E. MOELLER (Producer Member)

ALFRED R. WITTIG (Public Member)

STAFF

Jane M. Bray, Assistant Secretary-Assistant Treasurer
Ralph B. Helm, Attorney
Thomas M. Stetson, Engineer

FOR CALENDAR YEAR 1984

LINN E. MAGOFFIN (Producer Member), Chairman

R. H. NICHOLSON, JR. (Producer Member), Vice Chairman

ROBERT G. BERLIEN (Producer Member), Secretary

CONRAD T. REIBOLD (Public Member), Treasurer

ROBERT T. BALCH (Producer Member)

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L. E. MOELLER (Producer Member)

ALFRED R. WITTIG (Public Member)

STAFF

Jane M. Bray, Assistant Secretary-Assistant Treasurer
Ralph B. Helm, Attorney
Thomas M. Stetson, Engineer

FOR CALENDAR YEAR 1985

LINN E. MAGOFFIN (Producer Member), Chairman

R. H. NICHOLSON, JR. (Producer Member), Vice Chairman

ROBERT G. BERLIEN (Producer Member), Secretary

CONRAD T. REIBOLD (Public Member), Treasurer

ROBERT T. BALCH (Producr Member)

DONALD F. CLARK (Public Member)

ANTON C. GARNIER (Producer Member)

L. E. MOELLER (Producer Member)

ALFRED R. WITTIG (Public Member)

STAFF

Jane M. Bray, Assistant Secretary-Assistant Treasurer
Ralph B. Helm, Attorney
Thomas M. Stetson, Engineer

FOR CALENDAR YEAR 1986

LINN E. MAGOFFIN (Producer Member), Chairman

R. H. NICHOLSON, JR. (Producer Member), Vice Chairman

ROBERT G. BERLIEN (Producer Member), Secretary

CONRAD T. REIBOLD (Public Member), Treasurer

ROBERT T. BALCH (Producer Member)

DONALD F. CLARK (Public Member)

L. E. MOELLER (Producer Member)

REGINOLD A. STONE (Producer Member)

ALFRED R. WITTIG (Public Member)

STAFF

Jane M. Bray, Assistant Secretary-Assistant Treasurer
Ralph B. Helm, Attorney
Thomas M. Stetson, Engineer

FOR CALENDAR YEAR 1987

LINN E. MAGOFFIN (Producer Member), Chairman

REGINALD A. STONE (Producer Member), Vice Chairman

L. E. MOELLER (Producer Member), Secretary

ALFRED R. WITTIG (Public Member), Treasurer

ROBERT T. BALCH (Producer Member)

GERALD J. BLACK (Producer Member)

DONALD F. CLARK (Public Member)

EDWARD R. HECK (Producer Member)

JOHN E. MAULDING (Public Member)

STAFF

Robert G. Berlien, Assistant Secretary-Assistant Treasurer
Ralph B. Helm, Attorney
Thomas M. Stetson, Engineer

FOR CALENDAR YEAR 1988

LINN E. MAGOFFIN (Producer Member), Chairman

REGINALD A. STONE (Producer Member), Vice Chairman

L. E. MOELLER (Producer Member), Secretary

ALFRED R. WITTIG (Public Member), Treasurer

ROBERT T. BALCH (Producer Member)

GERALD J. BLACK (Producer Member)

DONALD F. CLARK (Public Member)

EDWARD R. HECK (Producer Member)

JOHN E. MAULDING (Public Member)

STAFF

Robert G. Berlien, Assistant Secretary-Assistant Treasurer
Ralph B. Helm, Attorney
Thomas M. Stetson, Engineer

FOR CALENDAR YEAR 1989

LINN E. MAGOFFIN (Producer Member), Chairman

REGINALD A. STONE (Producer Member), Vice Chairman

GERALD G. BLACK (Producer Member), Secretary

ALFRED R. WITTIG (Public Member), Treasurer

ROBERT T. BALCH (Producer Member) *

DONALD F. CLARK (Public Member)

EDWARD R. HECK (Producer Member)

BURTON E. JONES (Public Member)

NELS PALM (Producer Member) **

THOMAS E. SCHOLLENBERGER (Producer Member)

STAFF

Robert G. Berlien, Assistant Secretary-Assistant Treasurer
Ralph B. Helm, Attorney
Thomas M. Stetson, Engineer

* DECEASED APRIL 25, 1989

** Appointed August 24, 1989, for the balance of the calendar year term, to replace deceased member, Robert T. Balch.

Appendix H: Rules & Regulations of the Main Basin Watermaster

Azusa Light & Water 2010 Urban Water Management Plan

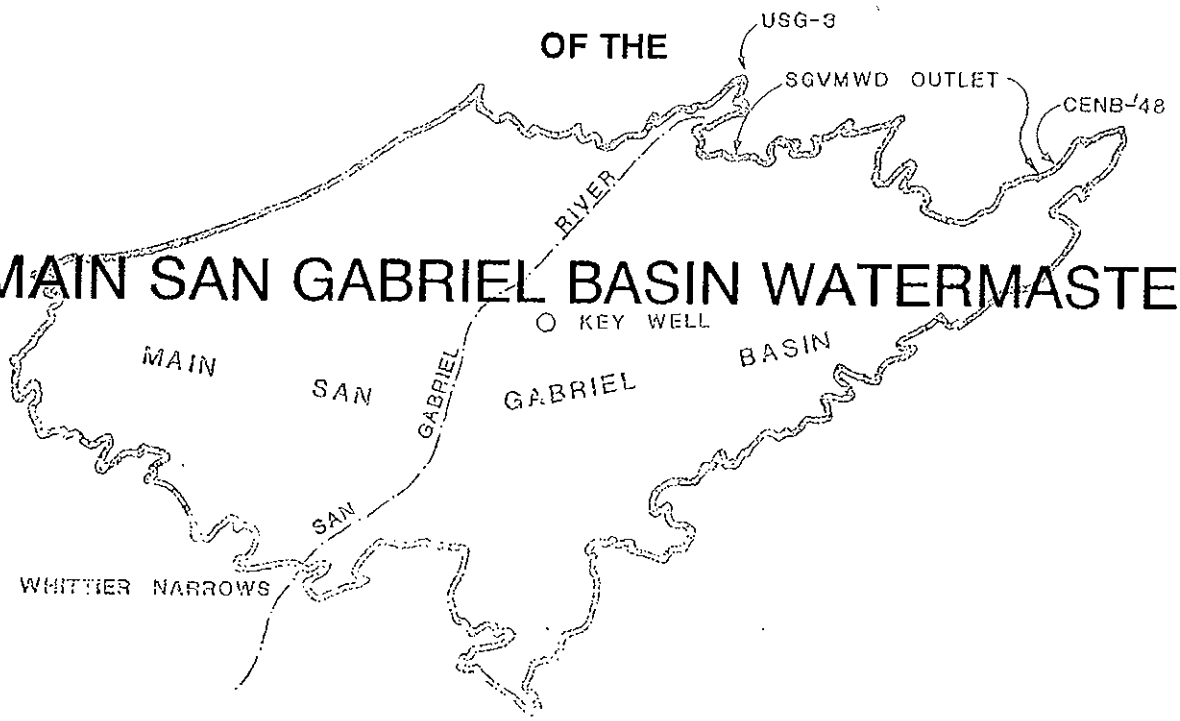
WATERMASTERS:
Linn E. Mogoffin, Chairman
Reginald A. Stone, Vice Chairman
Gerald J. Black, Secretary
Nels Palm, Treasurer
Royall K. Brown
Richard W. Cantwell
Burton E. Jones
C. Robert Keiser
A. A. Krueger

John E. Maulding, Executive Officer
Ralph B. Helm, Attorney
Thomas M. Stetson, Engineer

RULES AND REGULATIONS

OF THE

MAIN SAN GABRIEL BASIN WATERMASTER



UPPER SAN GABRIEL VALLEY MUNICIPAL WATER DISTRICT VS. CITY OF ALHAMBRA, ET AL.
CASE NO. 924128 -- LOS ANGELES COUNTY

AS AMENDED
OCTOBER 7, 1992
RESOLUTION NO. 10-92-99

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RULES AND REGULATIONS OF

MAIN SAN GABRIEL BASIN WATERMASTER

(As Revised, Amended, and Readopted by Resolution No. -92- , Adopted , 1992)

The definitions set forth in the Judgment in Los Angeles County Superior Court Civil Action No. 924128, entitled, "Upper San Gabriel Valley Municipal Water District v. City Alhambra, et al," as amended (Judgment herein), as well as additional definitions relating specifically to Section 28 of these Rules and Regulations, are used herein with the same meanings and are listed in Appendix "A" hereof.

1. Offices and Records. Watermaster's offices and records shall be maintained at:

425 East Huntington Drive, Suite 200

Monrovia, California 91016,

Telephone (818) 305-1500

Telefax (818) 305-1506

Said records shall be available for inspection by any Party during regular business hours. Copies of said records may be had upon payment of the costs of the duplication thereof and of any preparation costs pertaining thereto.

2. Watermaster Meetings and Holidays. Regular meetings of Watermaster shall be held at 1:30 P.M. on the first Wednesday of each and every month in the Council Chambers of the City of Monrovia, 415 South Ivy Avenue, Monrovia, California 91016.

(a) Holidays. The following holidays shall be observed by

Watermaster:

- January 1 (New Year's Day);
- The third Monday in January (Martin Luther King's Birthday);
- The third Monday in February (Presidents' Day);
- The last Monday in May (Memorial Day);
- July 4 (Independence Day);
- The first Monday in September (Labor Day);
- The second Monday in October (Columbus Day);
- November 11 (Veterans' Day);
- The fourth Thursday and the following Friday in November Thanksgiving);
- December 25 (Christmas Day);
- Each employee's individual birthday, to be taken as a holiday during the month of such birthday as approved by the Executive Officer; and one floating holiday each year, to be designated by the Executive Officer.

(1) If January 1, July 4, November 11, or December 25, fall on a Sunday, the Monday following shall be that holiday and if any of said dates fall on a Saturday, the preceding Friday shall be that holiday.

(2) When any regular meeting of Watermaster shall fall on a hereinabove designated Watermaster holiday (excepting employees' birthdays and said floating holiday), said regular meeting shall be held on the next succeeding regular business day

at the same time and at the same place as the said regularly scheduled meeting.

(b) Meeting Changes. Any changes in the time or place of said regular meeting shall be in compliance with the Judgment.

(c) Special Meetings. Special meetings of Watermaster may be called at any time by the Chairman or Vice-Chairman or by any three (3) members of Watermaster, by written notice in compliance with the Judgment. The calling notice shall specify the time and place of the special meeting and the business to be transacted. No other business shall be considered at such meetings.

(d) Adjournment. Any meeting of Watermaster may be adjourned to a time and place specified in the Order of Adjournment. Less than a quorum of Watermaster, or Watermaster's Secretary or Executive Officer, may so adjourn from time to time. A copy of the Order or Notice of Adjournment shall be conspicuously posted on or near the door of the place where the meeting was held or to be held, within twenty-four (24) hours after the adoption of the Order of Adjournment.

3. Quorum of Watermaster, Necessary Votes for Action and Roll Call of Votes. Five (5) members of Watermaster shall constitute a quorum for the transaction of its affairs. Action by the affirmative vote of five (5) members shall constitute action by the Watermaster, except that the affirmative vote of six (6) members shall be required: (a) to enter into any Cyclic Storage Agreement; or (b) to approve the purchase, spreading or injection of Supplemental Water for Ground Water recharge.

Any member of Watermaster may request a roll call vote on any question or motion considered and the ayes and noes thereon shall be recorded in the minutes of

the meeting.

4. Agenda of Watermaster Meetings. Any person requesting that a matter be considered by Watermaster for action thereon, shall request the same in writing directed to Watermaster's Executive Officer for inclusion on the Agenda of the next scheduled meeting to be held at least ten (10) days after receipt of said request.

5. Conduct of Meetings -- Roberts' Rules of Order. For the conduct of Watermaster meetings, Roberts' Rules of Order shall be followed and, without consent of Watermaster, the priorities of Watermaster business shall be that stated in the Agenda for a particular meeting.

6. Organization of Watermaster. At its first meeting each year, Watermaster shall elect a Chairman and Vice Chairman from its membership. It shall also select a Secretary and a Treasurer and may select such assistants as may be appropriate, any of whom may, but need not be, members of Watermaster.

7. Minutes. Minutes of all Watermaster meetings shall be kept, which shall reflect all actions taken. Draft copies thereof shall be furnished to any Party who files a request therefor in writing with Watermaster. Said draft copies of minutes shall constitute notice of any Watermaster action therein reported and failure of a Party herein to request copies thereof shall constitute his waiver of notice.

8. Designee to Receive Future Notices. Each Party who has not heretofore made a designation of the name and address of the person who shall receive service upon and delivery to Parties of various papers shall file with the Court, with proof of service of a copy thereof upon Watermaster, a written designation of the person to whom and the address at which all future notices, determinations, requests, demands, objections, reports and other papers and processes to be served upon that Party or delivered to the Party are

to be so served or delivered.

(a) Substitute Designee. A later substitute designation filed and served in the same manner by any Party shall be effective from the date of filing as to any future notices, determinations, requests, demands, objections, reports and other papers and processes to be served upon or delivered to that Party.

(b) Service upon Designee. Delivery to or service upon any Party by Watermaster, by any other Party, or by the Court, of any item required to be served upon or delivered to a Party under or pursuant to the Judgment herein may be by deposit in the mail, first class, postage prepaid, addressed to the latest Designee of the Party to be served and at the address of said latest designation filed by that Party.

(c) List of Designees. Watermaster shall maintain a current list of Party Designees to receive notices under the Judgment.

9. Election of Producer Representatives.

(a) Notice of Nomination Election. Watermaster shall annually give thirty (30) days notice to all Parties that an election shall be held at Watermaster's regularly scheduled meeting in November of each year, for the purpose of nominating Producer representatives to Watermaster.

(b) Voting. Nominations of six (6) Producer representatives shall be by cumulative voting in person or by proxy, with each Producer entitled to one (1) vote for each one hundred (100) acre-feet, or portion thereof, owned by him, of Base Annual Diversion Right, Prescriptive Pumping Right or Integrated Production Right, as defined in the Judgment. When the names placed in nomination exceed the number of representatives to be elected, votes shall be cast by ballot using

official ballot forms provided by Watermaster. Each ballot form must list the Producer and Designee or proxy holder casting the vote, the Producer's voting entitlement, the names of the nominees for whom the votes have been cast, and the number of votes cast for each nominee.

(c) Conduct of Elections. Prior to the nomination of Producer representatives, the Chairman shall appoint tellers to conduct the election. Such tellers may include any member of Watermaster staff to monitor the canvassing and counting of votes. The tellers shall distribute the ballots, and, at the conclusion of the balloting, collect the ballots, retire to tabulate the votes, and promptly report the results of the election to the Parties present at the election.

(1) In the event there is a challenge to the declared election results, the Chairman shall appoint three (3) Producer Parties as election inspectors who shall recount the election ballots and immediately certify the results of such election to Watermaster and others present at the election.

(2) All ballots shall be considered confidential, and no ballot or information thereon shall be disclosed except to the appointed tellers and election inspectors, without the express permission of the Producer casting the ballot.

10. Vacancy on Watermaster and Replacement. In the event of a vacancy on Watermaster, a successor shall be nominated at a special meeting of Watermaster and Producers to be called by Watermaster within ninety (90) days in the case of a Producer representative or by the action of the appropriate District Board of Directors in the case of a Public Representative. Subject to approval and appointment by the Court, such

successor Watermaster shall fill the unexpired term of the Watermaster member replaced.

11. Watermaster Action Subject to Court Review. Any action, decision, rule or procedure of Watermaster shall be subject to review by the Court on its own motion or on timely petition or motion for an Order to Show Cause by any Party, as follows:

(a) Effective Date of Watermaster Action. Any order, decision or action of Watermaster shall be deemed to have occurred on the date that written notice thereof is mailed. Mailing of draft copies of Watermaster minutes which contain such order, decision, action, or contemplated action, to the Parties requesting the same shall constitute such notice to all Parties, as of the date of such mailing.

(b) Notice of Motion. Any Party may, by a regularly noticed motion, petition the Court for a review of any Watermaster action or decision. Notice of such motion shall be mailed to Watermaster and to the Designees of all Parties. Unless ordered by the Court, such petition shall not operate to stay the effect of such Watermaster action.

(c) Time for Motion. Within thirty (30) days of mailing of Notice of Watermaster Determination of Operating Safe Yield together with a statement of each Producer's entitlement thereunder, any affected Party may, by a regularly noticed motion, Petition the Court for an Order to Show Cause for review of said Watermaster findings, determination or entitlement and thereupon the Court shall hear Objections thereto and settle such dispute.

Notice of motion to review any other Watermaster action or decision shall be served and filed within ninety (90) days after such Watermaster action or decision.

(d) *De Novo* Nature of Proceedings. Upon filing of such motion for hearing, the Court shall notify the Parties of the date for taking evidence and argument, and shall review *de novo* the question at issue on the date designated. The Watermaster decision or action shall have no evidentiary weight in such proceedings.

(e) Decision. The decision of the Court in such proceedings shall be an appealable Supplemental Order in this case. When the same is final, it shall be binding upon the Watermaster and the Parties.

12. Water Measuring Devices and Meter Test Program. Parties producing in excess of five (5) acre-feet per year shall, pursuant to these uniform rules, install and maintain in good operating condition, at the cost of each such Party, such necessary water measuring devices or meters as may be appropriate. Any such measuring device is subject to such inspection and testing as Watermaster may, from time to time, deem necessary. Upon testing, the meters shall be sealed by Watermaster and remain so sealed.

Watermaster will conduct a formal meter-testing program to help the Parties accurately report their Production. Watermaster intends to test every meter under its jurisdiction at least once every two (2) years.

(a) Tests of Meters Which Supply Watermaster. At least once every two (2) years, Watermaster shall request certified meter tests of all meters of Responsible Agencies through which Supplemental Water is furnished to Watermaster and of the meters which measure all Cyclic Storage deliveries authorized by Watermaster.

(b) Wells. Water wells shall be equipped with a positive displacement, velocity impeller, venturi or orifice-type meter with a totalizer. The totalizer shall

be correctable only by changing mechanical gear equipment. The meter shall be accessible and installed according to good design practices. Watermaster personnel shall assist any Party having any question as to installation requirements.

(c) Calibrated Test Equipment. Watermaster or its approved meter tester will maintain a complete line of carefully calibrated test equipment. This equipment is the standard with which all water meters must be compared. The tolerance for each meter is plus (+) or minus (-) five percent (5%) of the standard. Watermaster may require an aggregate accuracy of plus (+) or minus (-) two percent (2%).

(d) Repair or Replacement of Inaccurate Meters. Defective or inaccurate meters must be repaired within thirty (30) days of receipt of notice thereof from Watermaster.

(e) Surface Diversions. Surface Water Diversions shall be measured with a weir and recorder or meter capable of accurately measuring and recording such Diversions.

(f) Interim Meter Tests. Should a Producer discover that the meter which measures the water Production from his well is measuring inaccurately, he shall first notify Watermaster thereof, have the meter retested and, if measuring inaccurately, then have the same repaired at the earliest practical and reasonable time. Upon the completion of such repair, such Producer shall immediately have such meter tested and sealed by Watermaster and it shall remain so sealed. Such testing and sealing will be accomplished by Watermaster upon request therefor by said Producer or said repaired meter may be tested and sealed by any meter tester authorized by Watermaster, as provided in Subsection (g) of this Section 12.

Results of such meter tests shall be furnished to Watermaster within ten (10) days of testing, on forms provided by Watermaster.

(g) Watermaster Approved Meter Testers. Persons, firms or corporations in the business of repairing and/or testing water measuring devices may be approved by Watermaster to test and seal meters on behalf of Watermaster by submitting their qualifications therefor to Watermaster and obtaining Watermaster's approval to perform meter tests and seal such meters as agents of Watermaster. The name, address and telephone number of all such Watermaster approved meter testers shall be maintained at and be available from the office of Watermaster.

(h) Meter Seal by Watermaster and Notification of Meter Maintenance. At the completion of all meter tests Watermaster's seal shall be placed on the meter, if the meter test demonstrates that the meter is within the accuracy standard of five percent (5%).

Such sealing then requires that Watermaster be notified in writing within seven (7) days if Watermaster's seal has been broken or if any of the following events occur: (a) the meter is to be repaired or recalibrated; (b) there is any other interference affecting the meter or Watermaster's seal; (c) the meter is to be relocated even if Watermaster's seal is still intact; or (d) a new meter is to be installed.

(i) Estimation of Production Due to Meter Maintenance. When a Producer must estimate Production due to meter maintenance, he shall consult with Watermaster or its engineer for approval of the method of estimation. A copy of the estimate calculations shall be supplied to Watermaster with the corresponding

Quarterly Production Report.

13. Reports of Producers to Watermaster. Each Producer with an adjudicated right in excess of five (5) acre-feet per year and each Producer with an Overlying Right in any amount shall file with Watermaster a quarterly report of water Produced from the Basin or Relevant Watershed, on forms provided by Watermaster. Quarterly Production Reports shall be so filed no later than the last day of the month next succeeding the end of the relevant quarter, i.e. April 30, July 31, October 31 and January 31.

(a) Adjudicated Right in Excess of Five (5) Acre-Feet Not to be Reduced to Minimal Producer by Transfer. Any portion of: (1) the Base Annual Diversion Right of a Diverter; (2) the Prescriptive Pumping Right of a Pumper; or (3) the Diversion Component and Prescriptive Pumping Component of an Integrated Producer, adjudicated in any amount in excess of five (5) acre-feet per year [at the time that Judgment herein was entered, January 4, 1973], that is or may be reduced to five (5) acre-feet or less by assignment or transfer of rights, as permitted by Section 55 of the Judgment, shall not enjoy the status of a Minimal Producer as defined in Section 10 (o) of the Judgment.

(b) Notice to Watermaster of Transfers of Water Rights. Within fifteen (15) days thereof all Parties shall notify Watermaster of any transfer, assignment, license or lease of any water right, or portion thereof, not shown in the Judgment or previously filed with Watermaster and such transferee must be or become a Party to the action (as provided in Section 57 of the Judgment). All Parties are required to notify Watermaster of any subsequent assignment, transfer, license or lease of water rights granted or acquired by them and they shall file a duly acknowledged copy of the document(s) therefor with Watermaster, within fifteen

(15) days after execution and acknowledgement of such document(s).

For such assignment, transfer, license or lease of water rights to be effective for, or be deemed by Watermaster to apply to, Production in a particular Fiscal Year (July 1 - June 30), the document(s) therefor shall be executed and acknowledged prior to the end of said Fiscal Year (June 30) and copies thereof showing such acknowledgement must be received by Watermaster prior to July 15, following the end of said particular Fiscal Year. The transferee must be, or petition to become, a Party to the action within ninety (90) days following such assignment, transfer, license or lease of water rights.

When the term of a temporary assignment, transfer, license or lease of water rights extends beyond the end of the current Fiscal Year, it shall be the obligation of the transferee thereof to annually, during the month of July of each Fiscal Year during said term, notify Watermaster of said transferee's intention to exercise said water right during the then current applicable Fiscal Year.

(c) Conveyance of Water Right with Conveyance of Property. Parties are advised that when a water right owner conveys the property where a water right was developed, the said water right shall not be conveyed with such property unless and until the appropriate notice procedures established by Watermaster have been complied with. When it is intended to transfer or acquire adjudicated water rights in the Basin or Relevant Watershed, the Parties thereto are advised to use the appropriate forms contained in exhibits to these Rules and Regulations and to notify Watermaster of such transfers by furnishing a copy of such transfer documents(s) within fifteen (15) days of execution and acknowledgement thereof.

(d) Conveyance of Water Right without Conveyance of Property.

Replacement Water Assessment hereunder, to pay all necessary costs of administration and satisfaction of the Make-up Obligation. Such Assessment shall not be applicable to water Production of an Overlying Right.

(d) In-Lieu Water Cost. An Assessment may be levied against all Pumping to pay reimbursement for In-Lieu Water Cost except that such Assessments shall not be applicable to the non-consumptive use portion of Overlying Rights.

(e) Waivers Possible for Water Quality Improvement or Protection. In accordance with Section 45 (e) of the Judgment, a Producer of water from the Basin for the purpose of testing, protecting, or improving water quality, may apply in writing by verified petition or application (hereinafter "Application") to Watermaster, for approval of such water Production free of all or any part of Watermaster Assessments thereon, and for waiver of one or more of the provisions of Sections 25, 26, and 57 of said Judgment, where appropriate, upon terms and conditions to be established by Watermaster after a noticed hearing on such Application.

A waiver of Assessment shall not be granted for the purpose of removal of contamination or improvement of the quality of Basin water which has, or could have, resulted from the activity of the Applicant for such waiver.

In the event cleanup or Treatment Facilities are installed in the Basin by or for the benefit of a Producer, and the Basin water receiving treatment from said Treatment Facilities is subsequently delivered by or used for beneficial purposes of such Producer, the Production of such water shall not be entitled to waiver or modification of Watermaster Assessments thereon.

the succeeding Fiscal Year shall be deemed Produced pursuant to such Producer's Carry-over Rights.

16. Special Hearings. Watermaster shall conduct such special hearings as deemed appropriate upon thirty (30) days notice to the Parties hereto.

17. Policy Decisions. No policy decision shall be made by Watermaster until its next regular meeting after the question involved has been raised for discussion at a Watermaster meeting and noted in the draft of minutes thereof.

18. Assessments. Watermaster may levy and collect Assessments from the Producer Parties based upon Production during the preceding Fiscal Year. Said Assessments may be for one or more of the following purposes:

(a) Administration Costs. At its regular May meeting Watermaster shall adopt a proposed budget for the succeeding Fiscal Year and within fifteen (15) days shall mail a copy thereof to each Party, together with a statement of the level of Administration Assessment levied by Watermaster and which will be collected for purposes of raising funds for said budget. Said Assessments shall be uniformly applicable to each acre-foot of Production.

(b) Replacement Water Costs. Replacement Water Assessments shall be collected from each Producer on account of such Party's Production in excess of its Diversion Rights, Pumper's Share or Integrated Production Right, and on account of the consumptive use portion of Overlying Rights, computed at the applicable rates established by Watermaster, consistent with Watermaster's Operating Criteria (Exhibit "H" to the Judgment).

(c) Make-up Obligation. An Assessment shall be levied and collected equally on account of each acre-foot of Production, which does not bear a

Report shall be mailed to all Parties at least ten (10) days prior to a hearing thereon to be commenced at Watermaster's regular meeting in May of each year, at which time objections or suggested corrections or modifications of said determination shall be considered.

(c) Watermaster Final Determination and Review Thereof. Within thirty (30) days after completion of said hearing, Watermaster shall mail to each Pumper, Diverter, Overlying User and Integrated Producer a Final Report and Determination of said Operating Safe Yield for each such Fiscal Year, together with a statement of the Producer's entitlement in each such Fiscal Year stated in acre-feet. Any affected Party, within thirty (30) days of mailing of notice of said Watermaster determination, may petition the Court for an Order to Show Cause for Review of said determination in accordance with Section 11 hereof.

15. Carry-over Rights.

(a) Pumping. Any Pumper's Share of Operating Safe Yield, and the Production right of any Integrated Producer which is not Produced in a given year may be carried over and accumulated for one (1) year.

(b) Diversions. Diverters shall be entitled to Divert for direct use up to two hundred percent (200%) of their Base Annual Diversion Right in any Fiscal Year, provided, that the aggregate quantities of water Diverted in any consecutive ten (10) Fiscal Year period shall not exceed ten (10) times such Diverter's Base Annual Diversion Right.

(c) Overlying Rights. By definition, there is no carry-over of Overlying Rights.

(d) Presumption as to Carry-over Rights. The first water Produced in

thereunder, including authorized carry-over of unused rights.

14. Operating Safe Yield. Watermaster shall annually determine the Operating Safe Yield applicable to the succeeding Fiscal Year and estimate the same for the next succeeding four (4) Fiscal Years. Said determination shall be made at the close of the hearing thereon, which shall be commenced at Watermaster's regular meeting in May of each year. Watermaster shall notify each Pumper and Integrated Producer of his share thereof, stated in acre-feet per Fiscal Year. Thereafter, no Party may produce in any Fiscal Year any Consumptive Use Portion of any Overlying Right, or an amount in excess of the sum of his Diversion Right, if any, plus his Pumper's Share of such Operating Safe Yield, or his Integrated Production Right, or the terms of any Cyclic Storage Agreement, without being subject to Assessment for the purpose of purchasing Replacement Water. The rate of such Assessment shall be established at the same meeting at which the Operating Safe Yield is established, and it may be estimated for the years for which Operating Safe Yield is estimated. In establishing the Operating Safe Yield, the Watermaster shall follow all physical, economic, and other relevant parameters provided in the Judgment herein. Said determination shall be made in accordance with the following:

(a) Preliminary Determination. At Watermaster's regular meeting in April of each year, Watermaster shall make a Preliminary Determination of the Operating Safe Yield of the Basin for each of the succeeding five (5) Fiscal Years. Said determination shall be made in the form of a report containing a summary statement of the considerations, calculations and factors utilized by Watermaster in arriving at the said Operating Safe Yield.

(b) Notice of Hearing. A copy of said Preliminary Determination

(6) Is accompanied by a map of the service area where the water was used by transferor(s) (assignors) and a map of the service area where the water is intended to be used by the transferee(s) (assignees). Maps need not be furnished for temporary transfers of water rights unless specifically requested by Watermaster.

(h) Approved Forms of Transfer Documents and Other Forms. Approved forms of such transfer documents and other approved Watermaster forms are attached hereto, marked and identified as follows:

Exhibit "A" -	Permanent Transfer of Water Rights--Prescriptive Pumping Right
Exhibit "B" -	Permanent Transfer of Water Rights--Base Annual Diversion Right
Exhibit "C" -	Permanent Transfer of Water Rights--Integrated Production Right
Exhibit "D" -	Temporary Assignment or Lease of Water Right
Exhibit "E" -	Stipulation Re Intervention After Judgment
Exhibit "F" -	Designee to Receive Future Notices for and on Behalf of Defendant(s)
Exhibit "G" -	Notice of Transfer of Overlying Rights With Property to Which They are Appurtenant.
Exhibit "H" -	Application To Drill Water Well
Exhibit "I" -	Application To Modify Existing Water Well
Exhibit "J" -	Application To Destroy Water Well
Exhibit "K" -	Application For Water Treatment Facility

(i) Presumption as to Unexercised Rights. Unless otherwise noted on the above mentioned transfer documents(s), it will be presumed by Watermaster that the permanent transfer of water rights will include all unexercised rights

Parties are also advised that the owner of an adjudicated water right herein (except an Overlying Right) may transfer the same (temporarily or permanently) without conveyance of the property where the water right was developed.

(e) Transfer of Overlying Right. The transfer and use of Overlying Rights shall be limited (as provided in Section 21 of the Judgment) as exercisable only on specifically defined Overlying Lands and they cannot be separately conveyed or transferred apart therefrom.

(f) Intervention Stipulation Required. No conveyance of water rights to a person who is not a Party to the subject action shall be recognized by Watermaster unless the transferee thereof files with Watermaster a Stipulation in Intervention to the subject action (Exhibit "E") agreeing to be bound by the Judgment herein, and until the Court approves said Stipulation and Intervention.

(g) Notice Required. Any transfer of water rights shall be effective only when the requirements of this Section 13 are met and when the Parties file with Watermaster, within fifteen (15) days of such transfer, a copy of the transfer document(s) which:

(1) Identifies both the transferee(s) and the transferor(s);

(2) Accurately recites the total quantity (in acre-feet) of water rights transferred;

(3) Is executed by both the transferee(s) and the transferor(s);

(4) Is acknowledged by both transferee(s) and transferor(s) in a form sufficient for recordation;

(5) Lists the Designee(s) of both the transferor(s) and transferee(s) to receive future service and notice of papers and process; and

Notwithstanding the above, if Basin water is treated and immediately percolated or reintroduced to the Basin by way of spreading, injection, or otherwise, for purposes of this Section 18 (e), its Production may, upon Watermaster's approval of an Application to waive or modify its Assessments on the same, be entitled thereto. In any event, such water shall only be percolated or reintroduced to the Basin with the consent of Watermaster and said water shall be of a quality acceptable to Watermaster.

Although all Production from the Basin must be reported to Watermaster on a timely basis in accordance with these Rules and Regulations, Production which is granted a waiver of Assessment hereunder may, by reason of certain circumstances as specifically determined by Watermaster, be deemed an unused right and entitled to carry-over, in accordance with Section 49 of the Judgment.

(f) Application for Waiver of Assessment. An Application for Waiver of Assessment, as above set forth, shall contain all relevant information relied upon by Applicant which he believes justifies the granting of said Application. All such Applications shall explain the special needs and circumstances for such Production and specify the approximate amounts to be Produced, the time frame of such Production, the specific location(s) of the points(s) of extraction(s), and the place of intended disposal of such water, as well as any supplemental or additional information requested by Watermaster. All such extractions shall be metered and reported quarterly to Watermaster, along with all other Basin Production, in accordance with these Rules and Regulations.

Should an Application contain incomplete information or should

Watermaster desire additional, other, or further information in relation thereto, the same shall also be furnished and verified by Applicant.

(g) Public Hearing and Effective Date. Within thirty (30) days of the filing of any such Watermaster accepted Application, Watermaster shall give at least thirty (30) days notice to the Designees of all Parties that it will hold a public hearing on said Application. Watermaster may, after the conclusion of said hearing, under then existing conditions, waive all or any part of its Assessments on such Production, such waiver shall not be effective prior to the date of the filing of said accepted Application, and may also waive the provisions of Sections 25, 26, and 57 of the Judgment herein.

The effective date for the granting of an Application to waive or modify Watermaster Assessments shall be no later than ten (10) days after approval thereof by Watermaster and it shall continue for the period of time specified therein, unless sooner terminated or extended by Watermaster.

Nothing herein is intended to allow an increase in any Producer's annual entitlement under the Judgment.

19. Levy, Notice and Adjustment of Assessments. At its regular May meeting Watermaster shall also fix the rate(s) of or levy applicable Administration Assessments, Replacement Water Assessments, Make-up Obligation Assessments, and In-Lieu Water Cost Assessments, if any. Watermaster shall give written notice of all applicable Assessments to each Party on or before August 15 of each year.

(a) Payment. All Watermaster Assessments shall be due and payable on or before September 20, following such Assessment levy or Assessment rate fixing, subject to the rights reserved in Section 37 of the Judgment, and such

Assessment shall be paid or become delinquent after September 20.

(b) Delinquency. Any Assessment payment which becomes delinquent shall bear interest at the annual prime interest rate in effect on the first business day of August of each year, plus one percent (1%). Said prime interest rates shall be that fixed by the Bank of America NT&SA for its preferred borrowing on said date. Said prime interest rate plus one percent (1%) shall be applicable to any said delinquent Assessment payment from the due date thereof until paid, provided, however, in no event shall any said delinquent Assessment bear interest at a rate of less than ten percent (10%) per annum. Such delinquent Assessment and said interest thereon may be collected in a Show Cause proceeding in the subject action or in any other legal proceeding instituted by Watermaster, and in such proceeding the Court may allow Watermaster its reasonable costs of collection, including attorney's fees.

(c) Adjustments. By reason of Watermaster's inability to control the direct costs and other charges incurred for Supplemental Water obtained from Responsible Agencies, it may be necessary from time to time for Watermaster to adjust the foregoing Assessments. Such Assessments may only be adjusted after giving at least 15 days Notice to all Parties of the meeting at which such adjustments will be considered by Watermaster.

20. Responsibility for Watermaster Assessments. Parties Producing water from the Relevant Watershed and Party lessors or assignors of water rights shall be responsible for Watermaster Assessments levied upon all Production. The temporary lessor or assignor of water rights shall be ultimately responsible for all Watermaster Assessments of non-party lessees or assignees; such non-party lessees or assignees act as the

Production agent of the lessor or assignor to the extent of the amount of such temporary lease or assignment.

21. Over and/or Under Reporting.

(a) Over Reporting. Watermaster shall make refunds, in whole or in part, of Assessments theretofore paid, to any Producer who has erroneously overstated his Production in any sworn statement for a quarterly period required hereunder and who has overpaid any Assessment for that quarter, but only upon compliance by the Producer with the procedure hereinafter set forth and within the time hereinafter provided.

Any such Producer, within one (1) year of the last day for filing of the said sworn statement for the quarterly period in question, may file a verified application with Watermaster requesting a refund of that portion of any Assessment claimed to have been paid by reason of that Producer's erroneous overstatement of Production. If incomplete information is contained in said application, or if Watermaster desires other, further, or additional information than that set forth in said application, the same shall also be furnished by a verified statement mailed to Watermaster on behalf of Applicant within thirty (30) days of the mailing of the written notice or request therefor from Watermaster to the Producer's Designee, at his address as shown by Watermaster records, or the application shall be deemed abandoned. Such request by Watermaster shall not cause any application otherwise timely filed to be considered as not filed within said one (1) year period. The Watermaster may pay any refund claimed without a hearing thereon, but no application shall be denied, in whole or in part, without a hearing being accorded to the Applicant, in which said hearing the Applicant

shall have the burden of proof. Any determination by Watermaster on any matter in connection with said application shall be final and conclusive upon the said Producer.

Any refund authorized to be paid under the provisions of this Section may be paid only out of moneys realized from the appropriate Watermaster Assessment levied or thereafter raised. Under election of the Producer, any refund determined by Watermaster to be owing may be credited to the Producer against any subsequent Assessments which might become due and owing from him to Watermaster. No refunds shall be made except as authorized by this section and this section may not apply to over reporting unless there has been compliance with the provisions of Section 12 hereof.

(b) Under Reporting. If Watermaster shall have probable cause to believe that the Production of water from any water Producing facility is in excess of that disclosed by the sworn statements covering such water Producing facility, Watermaster may cause an investigation and report to be made concerning the same. Watermaster may fix the amount of water Production from such facility at an amount not to exceed the maximum Production capacity thereof, provided, however, where a Watermaster tested water measuring device is permanently attached to such facility, the record of Production as so disclosed by such measuring device shall be presumed to be accurate and the burden of proof shall be upon Watermaster to establish the contrary.

A determination by Watermaster that a Producer has under reported Production shall require Watermaster to give written notice thereof to such Producer by mailing such notice to his Designee, at the address shown by

Watermaster records. A determination of under reporting made by Watermaster shall be conclusive on any Producer who has Produced water from the facility in question and the Watermaster Assessments based thereon, together with interest as set forth in Section 19 (b) hereof, shall be payable forthwith, unless such Producer shall file with Watermaster within ten (10) days after the mailing of such notice, a written protest setting forth the ground or grounds for protesting the amount of Production so fixed or the Assessments and interest thereon.

Upon the filing of such protest, Watermaster shall hold a hearing at which time the total amount of water Production and the Assessments and interest thereon shall be determined, which action shall be conclusive if based upon substantial evidence. A notice of such hearing shall be mailed to protestant at least ten (10) days before the date fixed for the hearing. Notice of the determination by the Watermaster at the close of such hearing shall be mailed to the protestant. The Producer shall have twenty (20) days from the date of mailing of such notice to pay the Assessments fixed by Watermaster and interest thereon, as fixed herein, before the same becomes delinquent.

(c) Delinquent Assessments; Interest; Costs; and Attorney's Fees. Watermaster may bring suit in the Court having jurisdiction against any Producer of water from the Basin or Relevant Watershed for the collection of any delinquent Assessment and interest thereon. The Court having jurisdiction of the suit may, in addition to any delinquent Assessment, award interest and reasonable costs, including attorney's fees.

22. Information Concerning Offers to Purchase, Sell or Lease Water Rights. Watermaster shall maintain a record of any offer to purchase, sell or lease water rights

reported to Watermaster, for the purpose of encouraging the orderly transfer of such rights by acting as a clearing house for such information. Any person desiring to purchase, sell, or lease such rights may examine such Watermaster records.

23. Watermaster Control of Spreading and Ground Water Storage. Except for the exercise of non-consumptive uses and performance of Cyclic Storage Agreements with Watermaster, no Party shall spread water within the Basin or Relevant Watershed for subsequent recovery or Watermaster credit without prior Watermaster written permission to do so because Watermaster has sole custody and control of all Ground Water storage rights in the Basin.

24. Watermaster Annual Report. Watermaster shall annually file with the Court and mail to the Parties a report of all Watermaster activities during the preceding Fiscal Year, including an audited statement of all accounts and financial activities of Watermaster, summaries of Diversions and Pumping, and all other pertinent information. To the extent practical, said report shall be mailed to all Parties and filed with the Court on or before November 1 of each Year.

25. Watermaster Stipulation Re Intervention After Judgment. Attached hereto and marked "Exhibit E" is a form of Stipulation for Intervention After Judgment which Watermaster will execute, file with the Court if accompanied by the necessary filing fee, obtain a Court hearing date thereon, give Notice thereof and attempt to obtain an approving Court Order thereon.

26. Uniform Rules and Conditions of Cyclic Storage Agreements.

(a) Application for Cyclic Storage Agreements. Any person or entity, private or public, desiring to spread and store Supplemental Water within the Basin for subsequent recovery and use or for Watermaster credit shall make

application to Watermaster for a Cyclic Storage Agreement pursuant to these Uniform Rules and Conditions. Watermaster shall have first call on Supplemental Water for Replacement Water, Make-up Water and for the "Alhambra Exchange" before such water is made available for Cyclic Storage Agreements.

(b) Purpose of Cyclic Storage Agreements. All Cyclic Storage Agreements shall be for the utilization of Ground Water storage capacity of the Basin and for cyclic or regulatory storage of Supplemental Water.

(c) Available Storage Capacity. In considering the available Ground Water storage capacity of the Basin for such Agreements, Watermaster shall take into account the operation of the Basin under the Physical Solution provisions of the Judgment.

(d) Provisions of Cyclic Storage Agreements. Any such Agreement shall include provisions for:

(1) Watermaster control of all spreading (or injection) and extraction scheduling and procedures for such stored waters:

a) The time, place, and amount of said spreading shall be approved in advance by Watermaster provided, however, that when the water level of the Baldwin Park Key Well is at or above elevation two-hundred fifty (250) feet, spreading activities shall be restricted to the easterly portion of the Basin at water spreading facilities designated in advance by Watermaster, unless otherwise approved by the Court;

(2) Calculations by Watermaster of any special costs, damages or burdens resulting from such operation;

(3) Priorities for Cyclic Storage Agreements in the following order:

a) Responsible Agencies on the basis of their relative requirements for Replacement Water within their respective corporate boundaries,

b) Other Parties on the basis of priority of application to Watermaster for such Agreements, and

c) Non-parties;

(4) Determinations by Watermaster of, and accounting for, all losses in stored water, assuming that such stored water floats on top of the Ground Water supplies, and accounting for all losses of water which otherwise would have replenished the Basin. Such losses of stored water shall be assigned by Watermaster as follows:

a) First losses by non-parties in the reverse priority of the earliest original dates of their respective Cyclic Storage Agreements, to the whole of such non-parties' stored water,

b) The next losses by Parties who are not Responsible Agencies in reverse priority of the earliest original dates of their respective Cyclic Storage Agreements, to the whole of their stored water, and

c) The last losses by Responsible Agencies to be shared on the basis of water actually in storage in the Basin at the time of the loss of such stored water;

(5) The priorities for spreading of Supplemental Water are

hereby established as follows, in the order of their priority:

First: Supplemental Water ordered by Watermaster from Responsible Agencies for direct delivery to the Basin as Replacement Water,

Second: Supplemental Water for delivery to the Basin for storage under Cyclic Storage Agreements between Watermaster and Responsible Agencies. In the event that more than one Responsible Agency wishes to deliver water to Cyclic Storage simultaneously and there is inadequate spreading capacity available, deliveries by each Responsible Agency so desiring to deliver Supplemental Water shall be scheduled so that the total quantity of water in Cyclic Storage of those Agencies can be increased proportionately in percent of their maximum allowed Cyclic Storage,

Third: Supplemental Water for delivery to Individual Cyclic Storage accounts of Parties to the Judgment. In the event that more than one Party wishes to deliver water to such Cyclic Storage accounts simultaneously and there is inadequate spreading capacity available, deliveries for each such Party shall be scheduled so that the total quantity of water in such Parties' Individual Cyclic Storage accounts can be increased proportionately in percent of their maximum allowed Cyclic Storage, and

Fourth: Non-Parties as established by Watermaster at the time; and

(6) Payment to Watermaster for the benefit of Parties in said action of all special costs, damages or burdens incurred (without any

charge, rent, assessment or expense as to Parties to said action by reason of the adjudicated proprietary character of said storage rights, nor credit for offset for benefits resulting from such storage); provided, no Party shall have any direct interest in or control over such contracts or the operation thereof by reason of the adjudicated right of such Party. Watermaster has sole custody and control of all Ground Water storage rights in the Basin pursuant to the Physical Solution in the Judgment and all said Agreements are subject to review and approval of the Court.

(e) Terms of Cyclic Storage Agreements and Extensions. The term of such Agreements shall not exceed five (5) years but may be extended for additional terms, not to exceed five (5) years each, provided Watermaster shall report its intention to consider an extension of any such Agreement in minutes of its meeting held prior to its meeting when any such extension request shall be acted upon.

(f) Maximum Storage. Such Agreements shall fix the maximum amount of Supplemental Water to be stored in the Basin at any point in time by a particular storing entity.

(g) Watermaster to be Held Harmless. The storing entity of such Agreement shall save and hold harmless Watermaster, its officers, agents and employees from any and all costs, damages or liability resulting from said Agreement and shall provide Watermaster with the defense or costs of the defense of any action brought against Watermaster, its officers, agents or employees arising or alleged to arise by reason of such Agreement for storage of Supplemental Water in the Basin.

(h) Reports to Watermaster. The storing entity shall quarterly report to Watermaster the amount of Supplemental Water which it spreads and withdraws each quarter under such Agreement. Such reports shall be due on the last day of the month next succeeding the end of the relevant quarter, i.e. April 30, July 31, October 31, and January 31. Such reports shall be cumulative and shall indicate the credit balance of the relevant quarter.

(i) Court Approval of Cyclic Storage Agreements. Upon its approval of a Cyclic Storage Agreement, Watermaster shall Petition the Court for approval thereof and said Agreement shall become effective only upon such Court approval.

27. Responsible Agency from Whom Watermaster Shall Purchase Replacement Water.

(a) Responsible Agencies. There are three Responsible Agencies within or partially within the Basin. Two of such Agencies, Upper San Gabriel Valley Municipal Water District (Upper District) and Three Valleys Municipal Water District (Three Valleys District) are member agencies of The Metropolitan Water District of Southern California (Metropolitan) and supply Watermaster with Replacement Water purchased from Metropolitan. The third Responsible Agency is San Gabriel Valley Municipal Water District (San Gabriel District) which has contracted with the State of California and has constructed facilities to deliver water from the State Water Project and, thus, can directly supply Watermaster with Replacement Water.

(b) Water Used Within the Basin. For water used within the Basin, the Responsible Agency within whose boundaries is located the place of use of water Produced from the Basin will determine the Responsible Agency from whom

Watermaster shall purchase Replacement Water.

(c) Water Exported from the Basin. Except for water Produced from the Basin and used within the City of Sierra Madre (for which San Gabriel District shall be the Responsible Agency), the place of such Production of water exported from the Basin shall determine the Responsible Agency from whom Watermaster shall purchase Replacement Water.

(d) Computations of the Amount of Replacement Water to be Purchased from Responsible Agencies. In computing the amount of Replacement Water to be provided by a Responsible Agency, Watermaster shall:

(1) Determine the Replacement Water requirement of each Party to the Judgment and apportion such Replacement Water requirement as required in (b) and (c) above;

(2) Calculate the total Replacement Water requirement for each Responsible Agency as determined in (1) above;

(3) Tabulate Interagency Transfers of water rights as described in (e) (1) below;

(4) Calculate the Net Interagency Transfer adjustment as described in (e) (2) below;

(5) Determine the adjusted Replacement Water requirements, calculated for each Responsible Agency as required in (e) below; and

(6) Determine the effect of deferred Replacement Water requirements as calculated in (h) below.

(e) Net Interagency Transfer Adjustment and Replacement Water Requirement. Replacement Water requirements as heretofore calculated shall be

modified by a "Net Interagency Transfer Adjustment." "Interagency Transfer" shall mean the aggregate amount of Production Right resulting from the transfer (by sale or lease) of all or a portion of a Pumper's Share of Operating Safe Yield, or a Base Annual Diversion Right, or the Diversion Component or Pumping Component of an Integrated Production Right for use within the boundaries of a Responsible Agency other than the Responsible Agency within which such water rights were developed and adjudicated.

The annual Replacement Water requirement resulting from Net Interagency Transfers for each Responsible Agency shall be calculated as follows:

(1) Net Interagency Transfers shall be calculated for each Responsible Agency as the difference between such rights transferred for use outside or partially outside that Responsible Agency and such rights transferred for use within or partially within that Responsible Agency.

(2) Tabulate the total Interagency Transfers of water rights, calculated for each of the Responsible Agencies in (1) above. The sum of said total Interagency Transfers for each of the three Responsible Agencies is that Responsible Agency's Net Interagency Transfer Adjustment. The total of such adjustments for all Responsible Agencies shall equal zero. The Responsible Agency(s) having a positive amount shall have this Net Interagency Transfer Adjustment added to the Replacement Water requirement computed for it in (d) (2) above. The Responsible Agency(s) having a negative amount shall have this Net Interagency Transfer Adjustment subtracted from the Replacement Water requirement calculated for it in (d) (2) above.

(f) Special Provisions.

(1) The Replacement Water requirement calculated for each of the Responsible Agencies in (e) (2) above cannot exceed the total quantity of Replacement Water obligation calculated for all Responsible Agencies, and/or;

(2) If the Replacement Water requirement calculated in (e) (2) above results in a negative value, that negative value shall be adjusted to zero, as described in (h) below.

(g) Special Provisions Re Alhambra Exchange. An adjustment shall be made to San Gabriel District's calculated Replacement Water requirement, if necessary, to allow Upper District to deliver an amount of Replacement Water to the City of Alhambra equal to the quantity delivered through connection USG-5 for the previous year, the year in which the Replacement Water requirement was incurred.

(h) Adjustments to Calculated Replacement Water Requirements. Adjustments to Replacement Water requirements resulting from the calculations in (f) (2) or (g) above shall be apportioned as follows:

(1) As between Upper District and Three Valleys District, the district with a negative value shall have added to it an amount sufficient to equal zero, that amount shall be subtracted from the Replacement Water requirement of the other Responsible Agency, but it shall not be reduced to less than zero. If a negative balance still exists, then it shall be subtracted from San Gabriel District.

(2) If San Gabriel District's Replacement Water requirement is

less than zero, it shall be adjusted to zero by deducting equal amounts of San Gabriel District's adjustment from both Upper District and Three Valleys District.

(3) All adjustments shall be accumulated in a Deferred Replacement Water Requirement Account for each of the Responsible Agencies. In future years when deliveries of Replacement Water may be made by a Responsible Agency, up to the amount, or any portion of the amount, in the Deferred Replacement Water Requirement Account, such deliveries will be equally subtracted from the Replacement Water requirement of the Responsible Agency(s) from which it was derived in (1) and/or (2) above for that year so long as such deliveries shall not cause total deliveries of all Responsible Agencies to exceed the amounts provided for in paragraph (f) (1) and/or paragraph (f) (2) above. At the time that deliveries are made by a Responsible Agency from its Deferred Replacement Water Requirement Account, Watermaster shall pay to that Responsible Agency its price prevailing at that time for Replacement Water.

(i) Advanced Delivery Account. Whenever the total quantity calculated in (e) (1) above, is less than that delivered to the City of Alhambra through USG-5 for the previous year, an accounting of the difference shall be maintained in an "Advanced Delivery Account" and such difference, or as much as possible thereof, shall be subtracted from the Replacement Water Requirement of Upper District in the next year when an obligation to deliver Replacement Water exists for Upper District.

28. Ground Water Quality Management. The Watermaster, Upper District, San Gabriel District, and San Gabriel Valley Water Association, through a Joint Resolution dated February-March 1989, affirmed their commitment to participate in a coordinated federal, state and local response to contamination of Ground Water supplies of the Basin for both the purpose of preventing additional contamination and the purpose of cleaning up and limiting the spread of existing contamination. The entities adopting that Joint Resolution designated and accepted Watermaster as the entity to coordinate local involvement in the efforts to preserve and restore the quality of Ground Water within the Basin. Watermaster sought and received additional powers from the Court to regulate extractions of water from the Basin for water quality control purposes, and this Section 28 is to implement the same. These efforts shall be that any New or Increased Extraction to meet water needs from the Basin shall include planned treatment in existing areas of High Level Degradation or Contamination. An important part of exercising these additional powers and coordinating federal, state and local responses to contamination of the Basin's water supplies, is the collection and compilation of essential data from Producers and the expeditious distribution of such data to the proper state and federal regulatory agencies involved in water quality matters in the Basin.

(a) Watermaster Approvals. Each Producer shall, after the effective date of this amendment to these Rules and Regulations (June 28, 1991), apply to Watermaster, on forms provided by Watermaster, for a permit to do any of the following:

- Construct any well;
- Deepen any existing well;
- Modify the perforations of the casing of any existing well;
- Notwithstanding natural fluctuations in Basin water levels, physically increase or decrease the Effective Extraction Capacity of any existing well, including that which may occur

due to installation or modification of pipelines, booster pumps or other distribution system components, as of said effective date of these Rules and Regulations;

- Abandon any existing well; or
- Construct, relocate or abandon Ground Water Treatment Facilities.

Such application will be acted upon by Watermaster no later than at its first regular meeting following sixty (60) days after receipt of the complete application. If an emergency exists, Watermaster shall expedite its actions to the maximum extent practicable.

(b) Watermaster Directed Change in Water Production.

(1) Based on available data, Watermaster's Five-Year Plan, and/or Ground Water modeling, Watermaster will, for water quality protection purposes, direct any Producer to increase, decrease or cease Production from existing wells, initiate new well Production or deliver water to or accept water from another water system or direct a Producer to obtain water from another source in-lieu of Pumping from its own wells, or take other appropriate actions in compliance with an approved Watermaster plan by giving such Producer advanced written notice thereof, specifying a time certain for compliance.

(2) The increase in cost to a Producer resulting from a Watermaster directed change in water Production shall not be borne by the Producer, but will be reimbursed to the Producer by Watermaster through In-Lieu Water Assessments levied by Watermaster, unless such funding is made available from other sources such as federal, state or local governmental entities or by those found to be responsible for the contamination in the Basin which caused Watermaster to direct the change

in Production by the Producer.

(c) Producer Data, Initial Submittal. After June 28, 1991, Producers shall submit, within sixty (60) days of Watermaster's request, initial data in a form acceptable to Watermaster, to update and ensure the accuracy of the existing Basin database. The data shall include:

(1) Identification and location of all Active, Inactive or Abandoned Wells;

(2) Water quality data concerning organic compounds, nitrates and any other water quality parameters as specified by Watermaster, including all data from other sampling Producers may conduct in addition to governmental requirements;

(3) Available construction details of each well owned or operated by Producer, as well as all logs (driller's, electric, etc.);

(4) Depths or zones from which water is extracted from each well, if available; and

(5) A current map of the main water transmission system of Producer's distribution system showing the location and sizes of transmission mains and storage reservoirs, all interconnections with other systems and their sizes and capacities, and any other data pertinent to the transmission (but not distribution to customers) of water through the Producer's system.

(d) Quarterly Reports. After the initial submittal of data per subparagraph (c) above, the following data shall be submitted by all Producers to Watermaster quarterly, on or before the last day of January, April, July and

October:

(1) Chemical water quality data collected during the quarter and provided to any state, federal or local public agency;

(2) Data described under Section 28 (c) (3), (4) and (5) hereof which supplement, amend or change the data previously submitted by a Producer; and

(3) All data from other sampling which Producers may conduct in addition to governmental requirements.

(e) Operating Principles. Any New or Increased Extraction by a Producer in the Basin to meet water supply needs shall have prior Watermaster approval, shall not contribute to contaminant migration, and shall include planned treatment in existing areas of High-level Degradation and Contamination. In giving such approval, Watermaster shall consider the cumulative effects of multiple actions by all Producers in the area of concern by using available information, the Five-Year Plan, and Ground Water modeling.

(f) Emergency Exemptions. Where a Producer's water supply or water quality problem is so urgent that the viable option for maintaining an adequate short-term supply that meets drinking water standards involves an action in conflict with the operating principles outlined in Section 28 (e) hereof, Watermaster may approve a short-term action contingent upon the Applicant Producer concurrently submitting an acceptable long-term action plan with acceptable deadlines for implementation. In general, the long-term action plan must be approved prior to or concurrently with the short-term action.

(g) Water Quality and Supply Plans. To assure that Pumping does not

lead to further degradation of water quality in the Basin, a Five-Year Water Quality and Supply Plan must be prepared and updated annually by Watermaster, projecting water supply requirements and water quality conditions for each period of five (5) calendar years beginning November 1, 1991, and each November 1 thereafter. This Plan will also include a water quality monitoring element to obtain supplemental information as needed to assist in projecting contamination levels. Watermaster will supply the Producers with projections of contaminant migration by June 1 of each year for the preparation of these Water Quality and Supply Plans.

Each purveyor of potable water produced from the Basin shall submit the following information to Watermaster by July 31 of each year:

(1) Projected quarterly water supply requirements for each of the following five calendar years and the proposed pumping rates, in gallons per minute, for each well;

(2) Identification of each Production well known to contain contaminants and the contaminant levels;

(3) Proposed methods for meeting the water supply requirements of the system if contaminant levels are, or are projected by Watermaster to become, greater than drinking water standards; and

(4) Any intended treatment facility.

Watermaster shall analyze the information submitted by Producers and develop an overall draft Basin Water Quality and Supply Plan. A draft Plan will be submitted by Watermaster to the Los Angeles Regional Water Quality Control Board, and for public review and comment per Section 28 (i) hereof, by November

1. Appropriate modifications resulting from comments received will be reflected in the final draft, and a staff report providing an explanation of decisions will be made available.

(h) Ground Water Treatment Facilities.

(1) Producers in the Basin shall notify Watermaster in advance at the initial stages of planning of their intent to construct any Facility to remove volatile organic compounds (VOCs) and/or nitrates from water Produced from the Basin. Such notice shall include the following information:

- the intended location and a description of the Treatment Facility;
- the water production capacity;
- the rate of contaminant removal capacity;
- the expected concentration of all identified contaminants in the water to be treated;
- the expected concentration of all identified contaminants in the water after treatment;
- the intended disposition of all water to be treated;
- the expected initiation date and period of time over which the Treatment Facility will operate; and
- the expected capital and operating costs of the Treatment Facility.

(2) In addition, the Producer shall describe all necessary permits and/or all permits for which it has applied or has received from all regulatory agencies with regard to such Treatment Facility and shall supply to Watermaster copies of all environmental documents required under the California Environmental Quality Act and/or the National Environmental Protection Act. No construction of such Treatment Facilities shall be initiated without the prior written approval of Watermaster. Watermaster shall promptly examine each submittal for compatibility with available

information, the Five-Year Plan and the operating principles, and notify the Applicant of its findings and decision regarding such proposed Treatment Facility no later than at its first regular meeting following sixty (60) days after receipt of a complete submittal by the Producer. Watermaster will also report its determination to the Los Angeles Regional Water Quality Control Board.

(3) All operators of Treatment Facilities shall report quarterly to Watermaster at least the following information:

- name or other designation of the Treatment Facility;
- quantity of water treated during quarter;
- quantity of each contaminant removed;
- quality of water before treatment, at beginning and end of each quarter;
- quality of water after treatment, at beginning and end of each quarter; and
- operation and maintenance costs for each quarter.

(i) Decision Making Process, Hearings and Appeals.

(1) All Watermaster determinations relating to the control of Pumping for water quality purposes shall be based upon a staff recommendation and information and recommendations received from or furnished by affected Producers. Staff's recommendation shall result from staff's analysis of information presented by interested Parties, all available water quality data, Watermaster's Five-Year Plan, Ground Water modeling and other water quality trend analysis reports, and will be based on the operating principles set forth in these rules. Staff shall provide supporting data to document each recommendation that it makes to Watermaster. After consideration of the staff recommendation and public comment provided at the Watermaster meeting, Watermaster shall make a final

decision.

(2) Public hearings on Watermaster's draft annual Five-Year Water Quality and Supply Plan will be held following a thirty (30) day public review and comment period. A copy of such draft will be sent to all Parties to the Judgment as well as to all other interested Parties by November 1 of each year along with a notice of the date, time and place of the public hearing, to be scheduled not less than thirty (30) days after the mailing date of the draft Plan. A notice of public hearing will also be published in the San Gabriel Valley's key local newspaper(s) at the beginning of the public review period. Consideration of comments received is described in Section 28 (g) hereof.

(3) Appeal of a Watermaster decision may be made to the Watermaster who shall notice and consider the same at a public hearing. Actions by the Watermaster are subject to review by the Court. Any Party may, by a regularly noticed motion, petition the Court for review of Watermaster's action or decision. Notice of such motion shall be served and filed within ninety (90) days after such Watermaster action or decision.

APPENDIX "A"

DEFINITIONS

(a) Base Annual Diversion Right -- The average annual quantity of water which a Diverter has the right to Divert for Direct Use.

(b) Direct Use -- Beneficial use of water other than for spreading or Ground Water recharge.

(c) Divert or Diverting -- To take waters of any surface stream within the Relevant Watershed.

(d) Diverter -- Any Party who Diverts.

(e) Elevation -- Feet above mean sea level.

(f) Fiscal Year -- The period July 1 through June 30, following.

(g) Ground Water -- Water beneath the surface of the ground and within the zone of saturation.

(h) Ground Water Basin -- An interconnected permeable geologic formation capable of storing a substantial Ground Water supply.

(i) Integrated Producer -- Any Party that is both a Pumper and a Diverter, and has elected to have its rights adjudicated under the optional formula provided in Section 18 of the Amended Judgement.

(j) In-Lieu Water Cost -- The differential between a particular Producer's cost of Watermaster directed Produced, treated, blended, substituted or Supplemental Water delivered or substituted to, for, or taken by such Producer in-lieu of his cost of otherwise normally producing a like amount of Ground Water.

(k) Judgment -- Judgment entered in Los Angeles Superior Court Civil Action No. 924128, entitled "Upper San Gabriel Valley Municipal Water District v. City of

Alhambra, et al," as amended.

(l) Key Well -- Baldwin Park Key Well, being elsewhere designated as State Well No. 1S/10W-7R2, or Los Angeles County, Department of Public Works, Well No. 3030-F. Said well has a ground surface elevation of 386.7.

(m) Long Beach Case -- Los Angeles Superior Court Case No. 722647, entitled "The Board of Water Commissioners of the City of Long Beach, et al, v. San Gabriel Valley Water Company, et al."

(n) Main San Gabriel Basin or Basin -- The Ground Water Basin underlying the area shown as such on Exhibit "A" of the Judgment.

(o) Make-up Obligation -- The total cost of meeting the obligation of the Basin to the area at or below Whittier Narrows, pursuant to the Judgment in the Long Beach Case.

(p) Minimal Producer -- Any Producer whose Production in any Fiscal Year does not exceed five (5) acre-feet.

(q) Natural Safe Yield -- The quantity of natural water supply which can be extracted annually from the Basin under conditions of the long-term average annual supply, net of the requirement to meet downstream rights as determined in the Long Beach Case (exclusive of Pumped export), and under cultural conditions as of a particular year.

(r) Operating Safe Yield -- The quantity of water which Watermaster determines may be Pumped from the Basin in a particular Fiscal Year, free of the Replacement Water Assessment under the Physical Solution of the Judgment.

(s) Overdraft -- A condition wherein the total annual Production from the Basin exceeds the Natural Safe Yield thereof.

(t) Overlying Rights -- The right to Produce water from the Basin for use on Overlying Lands, which rights are exercisable only on specifically defined Overlying Lands and which cannot be separately conveyed or transferred apart therefrom.

(u) Physical Solution -- The Court-decreed method of managing the waters of the Basin so as to achieve the maximum utilization of the Basin and its water supply, consistent with the rights declared in the Judgment.

(v) Prescriptive Pumping Right -- The highest continuous extraction of water by a Pumper from the Basin for beneficial use in any five (5) consecutive years after commencement of Overdraft and prior to filing of the action, as to which there has been no cessation of use by that Pumper during any subsequent period of five (5) consecutive years prior to the filing of said action.

(w) Produce or Producing -- To Pump or Divert water from the Basin.

(x) Producer -- A Party who Produces water from the Basin.

(y) Production -- The annual quantity of water Produced from the Basin, stated in acre-feet.

(z) Pump or Pumping -- To extract ground water from the Basin by Pumping or by any other method.

(aa) Pumper -- A Party who Pumps water.

(bb) Pumper's Share -- A Pumper's right to a percentage of the entire Natural Safe Yield, Operating Safe Yield and appurtenant Ground Water storage of the Basin.

(cc) Reclaimed Water -- Water which, as a result of treatment of waste, is suitable for a direct beneficial use or a controlled use that would not otherwise occur.

(dd) Relevant Watershed -- That portion of the San Gabriel River Watershed tributary to Whittier Narrows which is shown as such on Exhibit "A" to the Judgment and

the exterior boundaries of which are described in Exhibit "B" of the Judgment.

(ee) Replacement Water -- Water purchased by Watermaster to replace: (1) Production in excess of a Pumper's Share of Operating Safe Yield; (2) the consumptive use portion resulting from the exercise of an Overlying Right; and (3) Production in excess of a Diverter's right to Divert for Direct Use.

(ff) Responsible Agency -- The municipal water district which is the normal and appropriate source from whom Watermaster shall purchase Supplemental Water for replacement purposes under the Physical Solution of the Judgment, being one of the following:

(1) Upper District -- Upper San Gabriel Valley Municipal Water District, a member public agency of The Metropolitan Water District of Southern California (MWD).

(2) San Gabriel District -- San Gabriel Valley Municipal Water District, which has a direct contract with the State of California for State Project water.

(3) Three Valleys District -- Three Valleys Municipal Water District, a member public agency of MWD.

(gg) Stored Water -- Supplemental Water stored in the Basin pursuant to a Cyclic Storage Agreement with Watermaster as authorized by Section 34(n) of the Judgment herein.

(hh) Supplemental Water -- Nontributary water imported through a Responsible Agency and Reclaimed Water.

(ii) Transporting Parties -- Any Party who has transported water from the Relevant Watershed or Basin to an area outside thereof within the Year immediately preceding the entry of Judgment, and any Party presently or hereafter having an interest

in lands or having a service area outside the Basin or Relevant Watershed contiguous to lands in which it has an interest or a service area within the Basin or Relevant Watershed. Division by a road, highway, or easement shall not interrupt contiguity. Said term shall also include the City of Sierra Madre, or any Party supplying water thereto, so long as the corporate limits of said City are included within one of the Responsible Agencies.

(jj) Water Level -- The measured Elevation of water in the Key Well, corrected for any temporary effects of mounding caused by replenishment or local depressions caused by Pumping.

(kk) Year -- A calendar year, unless the context clearly indicates a contrary meaning.

The following are supplemental definitions relating to Section 28 of these rules and regulations.

(ll) New Extraction -- Any extraction from the Main San Gabriel Basin using a well or other Ground Water extraction facility that becomes active for the first time for water supply purposes on or after June 28, 1991.

(mm) Increased Extraction (Decreased) -- Any modification to an existing well or extraction facility that physically increases (or decreases) the Effective Extraction Capacity of that well or extraction facility. Such modifications may include: (1) changing the well depth, (2) modifying the perforation intervals, (3) modifying the pump and/or motor, (4) installing or modifying distribution pipelines, (5) installing or modifying booster pumps, and (6) installing or modifying other distribution system components. Normal maintenance work would be excluded.

(nn) Effective Extraction Capacity -- The actual capacity of a well or extraction facility to extract Ground Water from the Basin using the pumping equipment and system

appurtenances in good working order as they existed on June 28, 1991.

(oo) Treatment Facility -- Any facility that provides treatment for contaminated Ground Water in order to meet drinking water standards.

(pp) Planned Treatment -- A specific Treatment Facility with a designated source of Ground Water supply and schedule for development.

(qq) Active Well -- Any well used or that could be used without modifications to extract Ground Water.

(rr) Inactive Well -- Any well that is not in service at the time of filing of an application hereinunder.

(ss) Abandoned Well -- A well that has been abandoned in accordance with the provisions of state, county or local laws and regulations.

(tt) High-level Degradation and Contamination -- Ground Water containing contaminants in excess of the federal or state maximum contaminant level. Some areas of the Basin contain higher contaminant concentrations than others and Treatment Facilities shall be planned to extract Ground Water from the higher level areas of contamination in the Basin.

APPENDIX "B"

SUMMARY OF CRITICAL DATES AND ACTIONS FOR WATERMASTER

This summary of critical dates and actions for Watermaster is presented for the convenience of Watermaster members, the Parties and others in carrying out the provisions of the Court Judgment. It does not necessarily include all critical dates and actions under the Judgment.

SUMMARY OF CRITICAL DATES AND ACTIONS FOR WATERMASTER

1. Watermaster members' terms of office.

January 1 - December 31.

2. Watermaster's first meeting in January.

(a) Election of Watermaster Chairman and Vice-Chairman (from Watermaster membership) and selection of Secretary, Treasurer and assistants (who may, but need not, be Watermaster members). Watermaster Rules and Regulations, Section 6 (R/R 6)

(b) Order Engineering Report for Preliminary Determination of Operating Safe Yield. (R/R 14(a))

3. January 31 - Quarterly Reports, as required by the Rules and Regulations, of Production (R/R 13), Cyclic Storage (R/R 26(h)) and data required by Section 28 (d), due to Watermaster.

4. March - Receive San Gabriel River Watermaster Report.

5. Watermaster's first meeting in April.

Watermaster shall make a Preliminary Determination of the Operating Safe Yield of the Basin for the next five Fiscal Years and mail a copy thereof to all Parties at least ten (10) days prior to a hearing thereon and which said hearing shall commence at Watermaster's first meeting in May. (R/R 14(a))

6. April 30 - Quarterly Reports, as required by the Rules and Regulations, of Production (R/R 13), Cyclic Storage (R/R 26(h)) and data required by Section 28 (d), due to Watermaster.

7. Watermaster's first meeting in May.

(a) Hearing on Preliminary Determination for Watermaster to make Final

Determination of Operating Safe Yield. (R/R 14(b))

Within thirty (30) days of the Final Determination of the Operating Safe Yield a copy of the Final Report and Determination must be mailed to each Pumper and Integrated Producer, including a statement of their entitlements under such Determination. (R/R 14(c))

(b) Budget.

Adopt a proposed Administration Budget for the succeeding Fiscal Year and within fifteen (15) days mail a copy thereof together with a statement of the level of the Administration Assessment levied by Watermaster which will be collected for purposes of raising the necessary funds for said budget. (R/R 18(a))

(c) Assessments.

In addition to the Administration Assessment, Watermaster shall levy the Replacement Water Assessment, Make-up Obligation Assessment and the In-lieu Water Assessments, if any. (R/R 19)

8. June 1 - Watermaster to supply Producers with projections of contaminant migration by June 1. (R/R 28(g))

9. July - Authorize preparation of Annual Watermaster Report. Receive tentative budget from San Gabriel River Watermaster.

10. July 31 - Quarterly Reports, as required by the Rules and Regulations, of Production (R/R 13), Cyclic Storage (R/R 26(h)) and data required by Section 28 (d), due to Watermaster. Producers of potable water from the Basin must submit to Watermaster the data required by Section 28(g).

11. August 15 - On or before this date Watermaster must give written notice of all applicable Assessments to all Parties. (R/R 19)

12. September 20 - All Assessments payable to Watermaster. (R/R 19(a))

13. September 30 - Must pay Upper Area share of San Gabriel River Watermaster budget by this date.

14. October 1 - Mail Notice of Nomination Election of Producer representatives to be held at Watermaster's November meeting. (R/R 9(a))

15. October 31 - Quarterly Reports, as required by the Rules and Regulations, of Production (R/R 13), Cyclic Storage (R/R 26(h)) and data required by Section 28 (d), due to Watermaster.

16. November

(a) Watermaster Annual Report filed with the Court and copies mailed to each Party by November 1. (R/R 24)

(b) Draft Annual Five-Year Water Quality and Supply Plan under Section 28 (g) to be filed with the Los Angeles Regional Quality Control Board and circulated for public review and comment by November 1.

(c) Prior to Watermaster's meeting in November, nomination of Public Representatives to Watermaster by Upper District and San Gabriel District.

(d) Watermaster's meeting in November--election of six Producer Representatives for nomination to Watermaster. (R/R 9(b)) Petition Court for confirmation of nominees and give notice of hearing on Petition to all Parties.

Within ninety (90) days of a vacancy on Watermaster, it shall be filled by nomination by Upper District or San Gabriel District if for a Public Representative and by a special election at a Watermaster meeting for a Producer Representative, after notice thereof to all Parties, and Watermaster Petition (and notice thereof to all parties) for Court confirmation of nominee. (R/R 10)

PERMANENT TRANSFER OF WATER RIGHTS - PRESCRIPTIVE PUMPING RIGHT

For a valuable consideration, receipt of which is hereby acknowledged, _____, ("Seller") does hereby assign and transfer in perpetuity to _____, ("Buyer") all rights to the quantity of_____ acre-feet of the "Prescriptive Pumping Right" and the appropriate % of "Pumper's Share" adjudicated to Seller or his predecessor in the Judgement in the case of "Upper San Gabriel Valley Municipal Water District, v. City of Alhambra, et al," Los Angeles Superior Court No. 924128, together with all the attendant rights, powers and privileges pertaining thereto.

(Check appropriate provision)

This transfer does [ ] does not [ ] include _____ acre-feet of "carry-over of unused rights" associated with said transferred rights and in existence on the date hereof.

DATED:_____

BUYER	SELLER
_____	_____
_____	_____
_____	_____
_____	_____
(Signature)	(Signature)
Name of Designee (of Buyer) to receive service of Processes & Notices:	Name of Designee (of Seller) to receive service of Processes & Notices:
_____	_____
_____	_____
_____	_____
Address	Address
Telephone No.:_____	Telephone No.:_____

To be executed by both Buyer and Seller and, if separately requested by Watermaster, be accompanied by a map of the service area where the water was used by Seller and a map of the service area where the water is intended to be used by the Buyer.

(Have the appropriate individual(s) or corporate attached acknowledgments completed by both Buyer and Seller as part of the transfer)

A TRUE COPY HEREOF MUST BE FILED WITH WATERMASTER WITHIN 15 DAYS OF EXECUTION.

(To be accompanied by completed Exhibit "E" if Buyer is not a party to the Judgment)

EXHIBIT "A"

CORPORATE ACKNOWLEDGMENT

STATE OF CALIFORNIA)
COUNTY OF LOS ANGELES) ss.

On this _____ day of _____, 199__, before me, the undersigned Notary Public, personally appeared

_____,
_____ known to me
_____ proved to me on the basis of satisfactory evidence to be the person(s) who executed the within Instrument as

_____,
or on behalf of the Corporation therein named and acknowledged to me that the Corporation executed it.

WITNESS my hand and official seal.

Signature _____

_____
Name (Typed or Printed)
Notary Public in and for said
County and State

(SEAL)

INDIVIDUAL(s) ACKNOWLEDGMENT

STATE OF CALIFORNIA)
COUNTY OF LOS ANGELES) ss.

On this _____ day of _____, 199__ before me, the undersigned Notary Public, personally appeared

_____,
_____ known to me
_____ proved to me on the basis of satisfactory evidence to be the person(s) whose name(s) _____ subscribed to the within instrument and acknowledged to me that _____ executed the same.

WITNESS my hand and official seal.

Signature _____

_____
Name (Typed or Printed)
Notary Public in and for said
County and State

(SEAL)

PERMANENT TRANSFER OF WATER RIGHTS - BASE ANNUAL DIVERSION RIGHT

For a valuable consideration, receipt of which is hereby acknowledged, _____, ("Seller") does hereby assign and transfer in perpetuity to _____, ("Buyer") all rights to the quantity of _____ acre-feet of the "Base Annual Diversion Right" adjudicated to Seller or his predecessor in the Judgement in the case of "Upper San Gabriel Valley Municipal Water District, v. City of Alhambra, et al," Los Angeles Superior Court No. 924128, together with all the attendant rights, powers and privileges pertaining thereto.

DATED: _____

BUYER	SELLER
_____	_____
_____	_____
_____	_____
_____	_____
(Signature)	(Signature)
Name of Designee (of Buyer) to receive service of Processes & Notices:	Name of Designee (of Seller) to receive service of Processes & Notices:
_____	_____
_____	_____
_____	_____
Address	Address
Telephone No.: _____	Telephone No.: _____

To be executed by both Buyer and Seller and, if separately requested by Watermaster, be accompanied by a map of the service area where the water was used by Seller and a map of the service area where the water is intended to be used by the Buyer.

(Have the appropriate individual(s) or corporate attached acknowledgments completed by both Buyer and Seller as part of the transfer)

A TRUE COPY HEREOF MUST BE FILED WITH WATERMASTER WITHIN 15 DAYS OF EXECUTION.

(To be accompanied by completed Exhibit "E" if Buyer is not a party to the Judgment)

EXHIBIT "B"

CORPORATE ACKNOWLEDGMENT

STATE OF CALIFORNIA)
COUNTY OF LOS ANGELES) ss.

On this _____ day of _____, 199__, before me, the undersigned Notary Public, personally appeared

_____,
_____ known to me
_____ proved to me on the basis of satisfactory evidence to be the person(s) who executed the within Instrument as

_____,
or on behalf of the Corporation therein named and acknowledged to me that the Corporation executed it.

WITNESS my hand and official seal.

Signature _____

_____
Name (Typed or Printed)
Notary Public in and for said
County and State

(SEAL)

INDIVIDUAL(s) ACKNOWLEDGMENT

STATE OF CALIFORNIA)
COUNTY OF LOS ANGELES) ss.

On this _____ day of _____, 199__ before me, the undersigned Notary Public, personally appeared

_____,
_____ known to me
_____ proved to me on the basis of satisfactory evidence to be the person(s) whose name(s) _____ subscribed to the within instrument and acknowledged to me that _____ executed the same.

WITNESS my hand and official seal.

Signature _____

_____
Name (Typed or Printed)
Notary Public in and for said
County and State

(SEAL)

PERMANENT TRANSFER OF WATER RIGHTS - INTEGRATED PRODUCTION RIGHT

For a valuable consideration, receipt of which is hereby acknowledged, _____, ("Seller") does hereby assign and transfer in perpetuity to _____, ("Buyer") all rights to the quantity of_____ acre-feet of the "Prescriptive Pumping Component" and the appropriate % of "Pumper's Share" together with _____ acre-feet of "Diversion Component" adjudicated to Seller or his predecessor in the Judgement in the case of "Upper San Gabriel Valley Municipal Water District, v. City of Alhambra, et al," Los Angeles Superior Court No. 924128, together with all the attendant rights, powers and privileges pertaining thereto.

(Check appropriate provision)

This transfer does [ ] does not [ ] include _____ acre-feet of "carry-over of unused rights" associated with said transferred rights and in existence on the date hereof.

DATED:_____

BUYER	SELLER
_____	_____
_____	_____
_____	_____
_____ (Signature)	_____ (Signature)
Name of Designee (of Buyer) to receive service of Processes & Notices:	Name of Designee (of Seller) to receive service of Processes & Notices:
_____	_____
_____	_____
_____ Address	_____ Address
Telephone No.:_____	Telephone No.:_____

To be executed by both Buyer and Seller and, if separately requested by Watermaster, be accompanied by a map of the service area where the water was used by Seller and a map of the service area where the water is intended to be used by the Buyer.

(Have the appropriate individual(s) or corporate attached acknowledgments completed by both Buyer and Seller as part of the transfer)

A TRUE COPY HEREOF MUST BE FILED WITH WATERMASTER WITHIN 15 DAYS OF EXECUTION.

(To be accompanied by completed Exhibit "E" if Buyer is not a party to the Judgment)

EXHIBIT "C"

CORPORATE ACKNOWLEDGMENT

STATE OF CALIFORNIA)
COUNTY OF LOS ANGELES) ss.

On this _____ day of _____, 199__, before me, the undersigned Notary Public, personally appeared

_____,
_____ known to me
_____ proved to me on the basis of satisfactory evidence to be the person(s) who executed the within Instrument as

_____,
or on behalf of the Corporation therein named and acknowledged to me that the Corporation executed it.

WITNESS my hand and official seal.

Signature _____

_____
Name (Typed or Printed)
Notary Public in and for said
County and State

(SEAL)

INDIVIDUAL(s) ACKNOWLEDGMENT

STATE OF CALIFORNIA)
COUNTY OF LOS ANGELES) ss.

On this _____ day of _____, 199__ before me, the undersigned Notary Public, personally appeared

_____,
_____ known to me
_____ proved to me on the basis of satisfactory evidence to be the person(s) whose name(s) _____ subscribed to the within instrument and acknowledged to me that _____ executed the same.

WITNESS my hand and official seal.

Signature _____

_____
Name (Typed or Printed)
Notary Public in and for said
County and State

(SEAL)

TEMPORARY ASSIGNMENT OR LEASE OF WATER RIGHT

For a valuable consideration, receipt of which is hereby acknowledged, _____,

("Assignor") does hereby assign and transfer to _____, ("Assignee") commencing

on_____ and terminating on _____, the following water right(s):

(Check the following appropriate category)

[ ] Production Right _____AF

[ ] Prescriptive Pumping Right _____AF

[ ] Base Annual Diversion Right _____AF

[ ] Integrated Production Right (consisting of _____ acre-feet of "Prescriptive Pumping Component" and _____ acre-feet of "Diversion Component")

[ ] Carry-over Right _____AF

adjudicated to Assignor or his predecessor in the Judgment in the case of "Upper San Gabriel Valley Municipal Water District v. City of Alhambra, et al," Los Angeles Superior Court No. 924128.

Said assignment is made upon condition that:

(1) Assignee shall exercise said right on behalf of Assignor for the period described hereinabove and the first water produced by Assignee from the Relevant Watershed of the Main San Gabriel Basin after the date hereof shall be that produced hereunder;

(2) Assignee shall put all waters utilized pursuant to said transfer to reasonable beneficial use; and

(3) Assignee shall pay all Watermaster assessments on account of the water production hereby assigned or leased.

DATED:_____

ASSIGNEE	ASSIGNOR
_____	_____
_____	_____
_____	_____
(Signature)	Signature
Name of Designee (of Assignee) to receive service of Processes & Notices:	Name of Designee (of Assignor) to receive service of Processes & Notices:
_____	_____
_____	_____
_____	_____
Address	Address
Telephone No. of Designee:_____	Telephone No. of Designee:_____

To be executed by both Assignee and Assignor and, if separately requested by Watermaster, be accompanied by a map of the service area where the water was used by Assignor and a map of the service area where the water is intended to be used by the Assignee.

(Have the appropriate individual(s) or corporate attached acknowledgments completed as part of the temporary transfer)

A TRUE COPY HEREOF MUST BE FILED WITH WATERMASTER WITHIN 15 DAYS OF EXECUTION.
(To be accompanied by completed Exhibit "E" if Assignee is not a party to the Judgment)

CORPORATE ACKNOWLEDGMENT

STATE OF CALIFORNIA)
COUNTY OF LOS ANGELES) ss.

On this _____ day of _____, 199__, before me, the undersigned Notary Public, personally appeared

_____,
_____ known to me
_____ proved to me on the basis of satisfactory evidence to be the person(s) who executed the within Instrument as

_____,
or on behalf of the Corporation therein named and acknowledged to me that the Corporation executed it.

WITNESS my hand and official seal.

Signature _____

_____
Name (Typed or Printed)
Notary Public in and for said
County and State

(SEAL)

INDIVIDUAL(s) ACKNOWLEDGMENT

STATE OF CALIFORNIA)
COUNTY OF LOS ANGELES) ss.

On this _____ day of _____, 199__ before me, the undersigned Notary Public, personally appeared

_____,
_____ known to me
_____ proved to me on the basis of satisfactory evidence to be the person(s) whose name(s) _____ subscribed to the within instrument and acknowledged to me that _____ executed the same.

WITNESS my hand and official seal.

Signature _____

_____
Name (Typed or Printed)
Notary Public in and for said
County and State

(SEAL)

Attorney for Watermaster

SUPERIOR COURT OF THE STATE OF CALIFORNIA

FOR THE COUNTY OF LOS ANGELES

UPPER SAN GABRIEL VALLEY MUNICIPAL WATER DISTRICT, Plaintiff, v. CITY OF ALHAMBRA, ET AL., Defendants.	)))))))))	NO. 924128 STIPULATION RE INTERVENTION AFTER JUDGMENT OF_____ as Defendant(s)

IT IS HEREBY STIPULATED by and between the Main San Gabriel Basin Watermaster for and on behalf of all parties to the instant action (pursuant to Section 57 of the amended Judgment) and _____ _____ the proposed Intervenor(s) herein, that said proposed Intervenor(s) may intervene in the instant action and become entitled to all of the benefits and bound by all of the burdens of the Judgment herein.

The Court will consider the attached proposed Order confirming said Intervention at _____ o'clock ___M on _____ 199__, in Department _____ located at _____ _____

Watermaster shall give at least 30 days notice to the parties herein of said hearing.

Exhibit "E"

DATED:_____ Watermaster

By_____
Chairman

Attest:

_____
Secretary

DATED:_____ Intervenor(s)

_____

By_____

By_____

Name of Intervenor's Designee:

_____

Address of Designee:

_____

_____

Telephone Number of Designee:

_____

Exhibit "E"

SUPERIOR COURT OF THE STATE OF CALIFORNIA

FOR THE COUNTY OF LOS ANGELES

UPPER SAN GABRIEL VALLEY MUNICIPAL WATER DISTRICT, Plaintiff,	NO. 924128 DESIGNEE TO RECEIVE FUTURE NOTICES FOR AND ON BEHALF OF DEFENDANT(S)
v.	_____
CITY OF ALHAMBRA, ET AL., Defendants.	
_____	

Defendant(s)_____hereby designate(s):_____ whose address is:

_____

and whose telephone number is_____ as said defendant's Designee to receive service of all future notices, determinations, requests, demands, objections, reports and other papers and processes to be served upon said defendant(s) or delivered to said defendant(s) herein.

A copy hereof has been served upon the Watermaster herein, by mail, on _____, 199___.

Executed under penalties of perjury at _____ California, this _____ day of _____, 199____.

_____

_____

Exhibit "F"

NOTICE OF TRANSFER OF OVERLYING RIGHTS WITH PROPERTY TO WHICH THEY ARE APPURTENANT

On _____, 19___, the undersigned (or his predecessor), adjudged Overlying Rights on the property described in Exhibit 1 attached hereto and by this inference incorporated herein, in the case of "UPPER SAN GABRIEL VALLEY MUNICIPAL WATER DISTRICT, v. CITY OF ALHAMBRA, ET AL," Los Angeles Superior Court No. 924128, transferred said property and said Overlying Rights appurtenant thereto to _____, whose address is _____, and whose telephone number is _____.

That said transferee hereby names _____ whose address is _____ and whose telephone number is _____ as his/her Designee to receive all future notices and processes in said action.

DATED_____

BUYER	SELLER
_____	_____
_____	_____
_____	_____

To be executed by both Buyer and Seller and, if separately requested by Watermaster, be accompanied by a map of the service area where the water was used by Seller and a map of the service area where the water is intended to be used by Buyer.

(Have the appropriate individual(s) or corporate attached acknowledgements completed as part of the transfer, and include Exhibit 1)

A TRUE COPY HEREOF MUST BE FILED WITH WATERMASTER WITHIN 15 DAYS OF EXECUTION

(To be accompanied by completed Exhibit "E" if Buyer is not a party to the Judgment)

Exhibit "G"

CORPORATE ACKNOWLEDGMENT

STATE OF CALIFORNIA)
COUNTY OF LOS ANGELES) ss.

On this _____ day of _____, 199__, before me, the undersigned Notary Public, personally appeared

_____,
_____ known to me
_____ proved to me on the basis of satisfactory evidence to be the person(s) who executed the within Instrument as

_____,
or on behalf of the Corporation therein named and acknowledged to me that the Corporation executed it.

WITNESS my hand and official seal.

Signature _____

_____
Name (Typed or Printed)
Notary Public in and for said
County and State

(SEAL)

INDIVIDUAL(s) ACKNOWLEDGMENT

STATE OF CALIFORNIA)
COUNTY OF LOS ANGELES) ss.

On this _____ day of _____, 199__ before me, the undersigned Notary Public, personally appeared

_____,
_____ known to me
_____ proved to me on the basis of satisfactory evidence to be the person(s) whose name(s) _____ subscribed to the within instrument and acknowledged to me that _____ executed the same.

WITNESS my hand and official seal.

Signature _____

_____
Name (Typed or Printed)
Notary Public in and for said
County and State

(SEAL)

Mailing Address:
25 East Huntington Drive
Monrovia, CA 91016

MAIN SAN GABRIEL BASIN WATERMASTER

SUPERIOR COURT CASE NO. 924128-LOS ANGELES COUNTY

(State Well Number)
(Recordation Number)
(Owner's Designation)
(To Be Completed by Watermaster)

APPLICATION TO DRILL WATER WELL

(1) APPLICANT:
Name_____
Address_____

(2) LOCATION OF PROPOSED WELL:
*Well Address:*_____
*Township, Range, and Section*_____
*Thomas Brothers Guide (Please indicate year, page number and coodinates.)*_____

*Assessors Parcel No.*_____
(Please attach copy of a map or sketch showing well location relative to streets or other major landmarks.)

(3) NAME OF WELL DRILLING CONTRACTOR: _____

(4) PROPOSED USE:
Municipal [ ] Irrigation [ ]
Domestic [ ] Industrial [ ]
Water Quality Cleanup [ ]
Other [ ]

(5) DRILLING EQUIPMENT:
Rotary [ ]
Cable [ ]
Other [ ]_____

(6) PROPOSED WELL CHARACTERISTICS:
A. Casing Installed:
STEEL [ ] PLASTIC [ ]
OTHER [ ]

Gravel Packed:
Yes [ ] No [ ] Size_____

From ft.	To ft.	Diam.	Gage or Wall	Diameter of Bore	Packed From ft.	Packed To ft.

Size of shoe or well ring:____
Describe joint_____
B. Perforations or Screen:
Type of perforation or size of screen

From ft.	To ft.	Perf. per row	Rows per ft.	Slot Size

C. Construction:
Will a surface sanitary seal be provided? Yes [ ] No [ ]
To what depth? _____ ft.
Is any strata anticipated to be sealed against pollution?
Yes [ ] No [ ]
If yes, note anticipated depth of strata
from _____ ft. to _____ ft.
from _____ ft. to _____ ft.
Proposed method of sealing_____

(7) WELL TESTS:
Will a pump test be made? Yes [ ] No [ ] If yes by whom?

Anticipated Well Yield_____
Will a chemical analysis be made? Yes [ ] No [ ]
Will an electric log be made of well? Yes [ ] No [ ]
(If yes, file copy with Watermaster upon well completion)

(8) PROPOSED PUMPING EQUIPMENT:
(A) Pump
Electric [ ] Natural Gas [ ]
Propane [ ] Diesel [ ]
Other [ ] _____
(B)Make_____
(C) Pump Size (hp)_____(gpm)_____
(D) Design Efficiency_____

(9) PROXIMITY TO POTENTIAL SOURCES OF CONTAMINATION:
(A) Distance to nearest sewer line or septic tank _____ (ft.)
(B) Wells (Please provide distance, direction and name of nearest upgradient well(s) with volatile organic chemical or nitrate levels above a maximum contaminant level, if known.)

(10) Please provide copy of County of Los Angeles permits and State Department of Water Resources Water Well Driller Reports and any other permits for construction of a new well upon completion of proposed well.

(11) Please provide Watermaster with copies of all feasibility studies, alternative water supply sources, water quality studies or other reports which validate the Applicant's need to drill a new well. Applicant must provide supporting data to show compliance with the requirements of Section 28 with particular reference to Section 28(e) of Watermaster's Rules and Regulations.

I hereby agree to comply with all regulations of the Main San Gabriel Basin Watermaster pertaining to well construction, operation, repair, modification, destruction and inactivation. The applicant will furnish the Watermaster a complete well log upon completion of well construction.

Submitted for Applicant by:_____

Signature: _____

Title:_____

Date: _____

Date Received by Watermaster: _____

Watermaster Action:
Approved [ ] Denied [ ]
Date of Action: _____

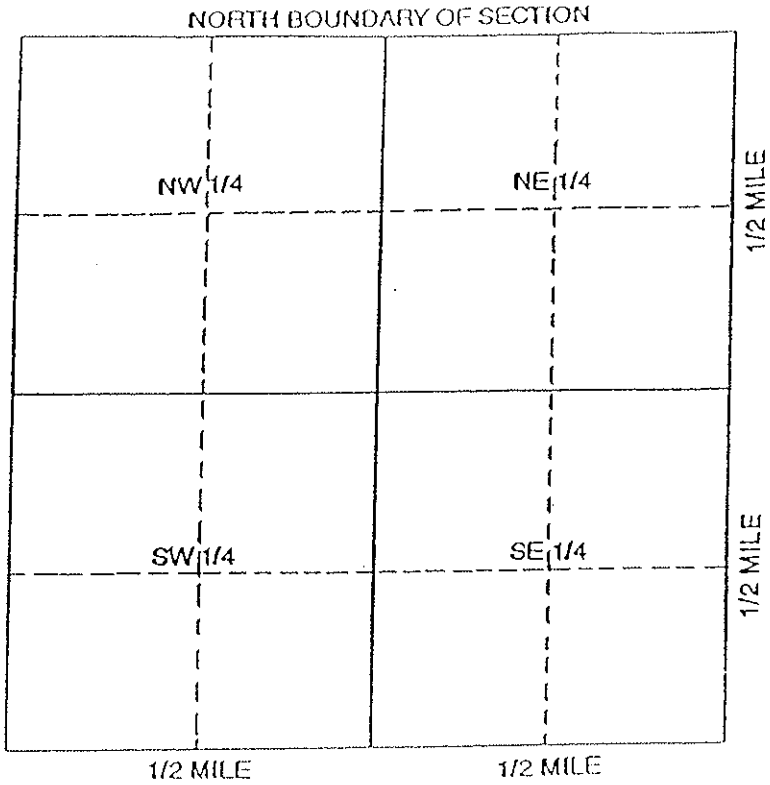
Permit Number:_____

By:_____
(Name)

(Title)

EXHIBIT "H"
H-1

WELL LOCATION SKETCH

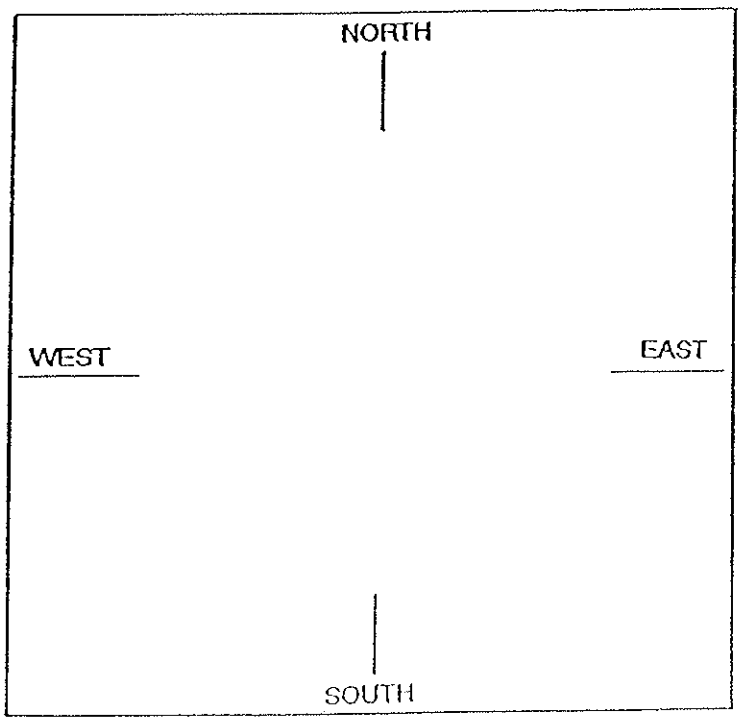


Township _____ N/S

Range _____ E/W

Section No. _____

A. Location of well in sectionized areas.
Sketch roads, railroads, streams, or other features as necessary.



B. Location of well in areas not sectionized.
Sketch roads, railroads, streams, or other features as necessary.
Indicate distances.

Mailing Address:
425 East Huntington Drive
Monrovia, CA 91016

MAIN SAN GABRIEL BASIN WATERMASTER

SUPERIOR COURT CASE NO. 924128-LOS ANGELES COUNTY

(State Well Number)

(Recordation Number)

(Owner's Designation)

APPLICATION TO MODIFY EXISTING WATER WELL

(1) APPLICANT:
Name_____
Address_____

(2) LOCATION OF WELL:
*Well Address:*_____
*Township, Range, and Section*_____
*Thomas Brothers Guide (Please indicate year, page number and coordinates.)*_____
*Assessor's Parcel No.*_____
(Please attach copy of a map or sketch showing well location relative to streets or other major landmarks.)

(3) NAME OF WELL DRILLING CONTRACTOR:_____

(4) TYPE OF WORK (*check*):
Deepening [ ] Modify Perforations [ ] Increase Yield [ ]
Reconditioning [ ] Other [ ]

(5) PROPOSED USE (*check*):
Municipal [ ] Irrigation [ ]
Domestic [ ] Industrial [ ]
Water Quality Cleanup [ ]
Other [ ]

(6) DRILLING EQUIPMENT:
Rotary [ ]
Cable [ ]
Other [ ]

(7A) CASING INSTALLED (existing):
STEEL [ ] PLASTIC [ ]
OTHER [ ]
Gravel Packed:
Yes [ ] No [ ] Size_____

From ft.	To ft.	Diam.	Gage or Wall	Diameter of Bore	Packed From ft.	Packed To ft.

Size of shoe or well ring:____
Describe joint_____

(7B) CASING INSTALLED (proposed):
STEEL [ ] PLASTIC [ ]
OTHER [ ]
Gravel Packed:
Yes [ ] No [ ] Size_____

From ft.	To ft.	Diam.	Gage or Wall	Diameter of Bore	Packed From ft.	Packed To ft.

Size of shoe or well ring:____
Describe joint_____

(8A) PERFORATIONS OR SCREEN (existing):
Type of perforation or size of screen

From ft.	To ft.	Perf. per row	Rows per ft.	Slot Size

(8B) PERFORATIONS OR SCREEN (proposed):
Type of perforation or size of screen

From ft.	To ft.	Perf. per row	Rows per ft.	Slot Size

(9A) EXISTING CONSTRUCTION:
Was a surface sanitary seal provided? Yes [ ] No [ ]
To what depth? _____ ft.
Were any strata sealed against pollution? Yes [ ] No [ ]
If yes, note depth of strata
from _____ ft. to _____ ft.
from _____ ft. to _____ ft.
Method of sealing_____

(9B) PROPOSED CONSTRUCTION:
Will a surface sanitary seal be provided? Yes [ ] No [ ]
To what depth? _____ ft.
Were any strata sealed against pollution? Yes [ ] No [ ]
If yes, note depth of strata
from _____ ft. to _____ ft.
from _____ ft. to _____ ft.
Method of sealing_____

(10) WELL TESTS:
Was pump test made? Yes [ ] No [ ] (If yes, attach most recent copy)
_____ gal./min. with _____ ft. drawdown after _____ hrs.
Temperature of water_____
Was a chemical analysis made? Yes [ ] No [ ]
Was electric log made of well? Yes [ ] No [ ]
(If yes, attach most recent copy)

(11) WELL LOG:
Total depth _____ ft. Depth of completed well _____ ft.
Formation: *Describe by color, character, size of material and structure*_____ ft. to _____ ft.
(Please attach copy of existing well log. If well log is not available, describe well lithology in space provided or on attached page.)

(12) HISTORIC WELL MODIFICATIONS:
(On an attached page, please provide a chronology of all historic well modifications which may have affected well yield or water quality.)

(13A) EXISTING WELL PUMP DATA:
A. Pump Type:
Electric [ ] Natural Gas [ ] Other [ ]
Diesel [ ] Propane [ ]
B. Pump Performance
Horsepower _____ GPM_____
Efficiency _____

(13B) PROPOSED WELL PUMP DATA:
A. Pump Type:
Electric [ ] Natural Gas [ ] Other [ ]
Diesel [ ] Propane [ ]
B. Pump Performance
Horsepower _____ GPM_____
Efficiency _____

(14) Please provide copy of County of Los Angeles permits and State Department of Water Resources Water Well Drillers Report and any other permits for modification of an existing well upon completion of modification of well.

(15) Please provide Watermaster with copies of all feasibility studies, alternative water supply sources, water quality studies or other reports which validate the Applicant's need to modify this well. Applicant must provide supporting data to show compliance with the requirements of Section 28 with particular reference to Section 28(e) of Watermaster's Rules and Regulations.

I hereby agree to comply with all regulations of the Main San Gabriel Basin Watermaster pertaining to well construction, operation, repair, modification, destruction and inactivation. The Applicant will furnish the Watermaster a complete well log upon completion of well modification.

Submitted for Applicant by: _____

Signature:_____

Title:_____

Date:_____

Date Received by Watermaster: _____

Watermaster Action:
Approved [ ] Denied [ ]

Date of Action:_____

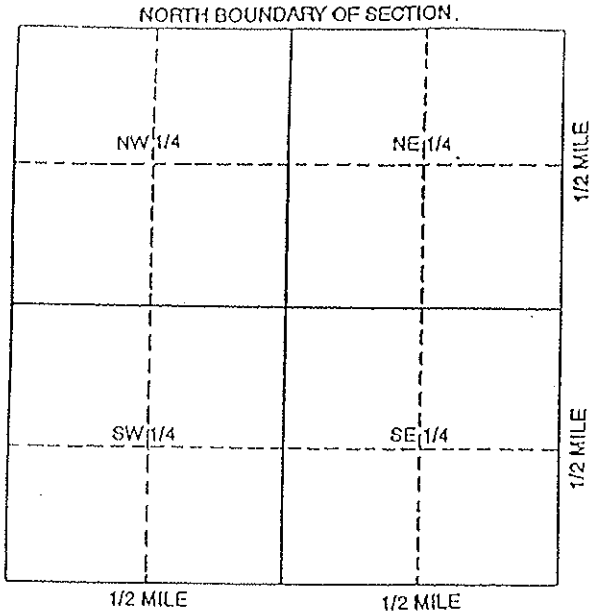
Permit Number: _____

By:_____
(Name)

(Title)

EXHIBIT "I"
I-1

WELL LOCATION SKETCH

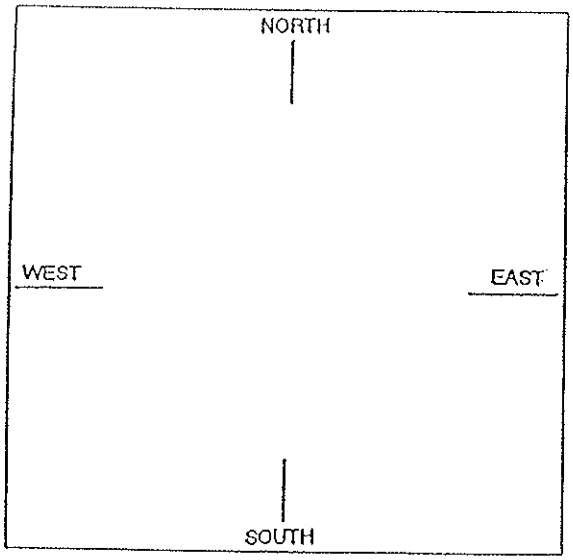


Township _____ N/S

Range _____ E/W

Section No. _____

A. Location of well in sectionized areas.
Sketch roads, railroads, streams, or other features as necessary.



B. Location of well in areas not sectionized.
Sketch roads, railroads, streams, or other features as necessary.
Indicate distances.

Mailing Address:
425 East Huntington Drive
Monrovia, CA 91016

MAIN SAN GABRIEL BASIN WATERMASTER

SUPERIOR COURT CASE NO. 924128-LOS ANGELES COUNTY

(State Well Number) _____

(Recordation Number) _____

(Owner's Designation) _____

APPLICATION TO DESTROY WATER WELL

(1) APPLICANT:
Name _____
Address _____

(2) LOCATION OF WELL:
Well Address: _____
Township, Range, and Section _____
Thomas Brothers Guide (Please indicate year, page number and corrdinates.) _____

Assessor's Parcel No. _____
(Please attach copy of a map or sketch showing well location relative to streets or other major landmarks.)

(3) NAME OF WELL DRILLING CONTRACTOR: _____

(4) PURPOSE FOR DESTROYING WELL
Water Quality [ ] Physical [ ]
Other [ ] _____

(5) CURRENT USE:
Municipal [ ] Irrigation [ ]
Domestic [ ] Industrial [ ]
Water Quality Cleanup [ ]
Other [ ] _____

(6) EXISTING CASING INSTALLED:
STEEL [ ] PLASTIC [ ]
OTHER [ ]

Gravel Packed:
Yes [ ] No [ ] Size _____

From ft.	To ft.	Diam.	Gage or Wall	Diameter of Bore	Packed From ft	Packed To ft

Size of shoe or well ring: _____

Describe joint _____

(7) EXISTING PERFORATIONS OR SCREEN:
Type of perforation or size of screen

From ft.	To ft.	Perf. per row	Rows per ft.	Slot Size

(8) CONSTRUCTION:
Was a surface sanitary seal provided? Yes [ ] No [ ]
To what depth? _____ ft.
Were any strata sealed against pollution? Yes [ ] No [ ]
If yes, note depth of strata
from _____ ft. to _____ ft.
from _____ ft. to _____ ft.
Method of sealing _____

(9) WELL LOG: (Please provide a copy of well log.)
Total depth _____ ft. Depth of completed well _____ ft.
Formation: *Describe by color, character, size of material and structure if well log cannot be provided.*
_____ ft. to _____ ft.

(10) METHOD OF DESTROYING: (Please provide an explanation of how the well is to be destroyed including drawings showing the proposed method of destroying. Please provide copy of County of Los Angeles permits and State Department of Water Resources Water Well Drillers reports and any other permits for destruction of well following destruction of the well.)

_____

I hereby agree to comply with all regulations of the Main San Gabriel Basin Watermaster pertaining to well construction, operation, repair, modification, destruction and inactivation. The Applicant will notify the Watermaster upon completion of well destruction.

Submitted for Applicant by: _____

Signature: _____

Title: _____

Date: _____

Date Received by Watermaster: _____

Watermaster Action:
Approved [ ] Denied [ ]

Date of Action: _____

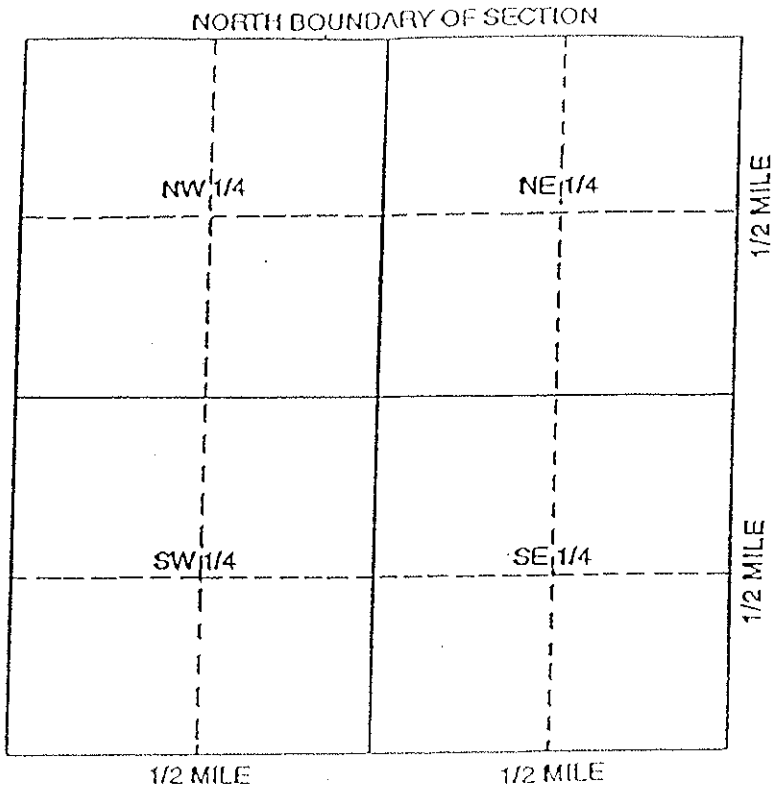
Permit Number: _____

By: _____
(Name)

_____
(Title)

EXHIBIT "J"
J-1

WELL LOCATION SKETCH



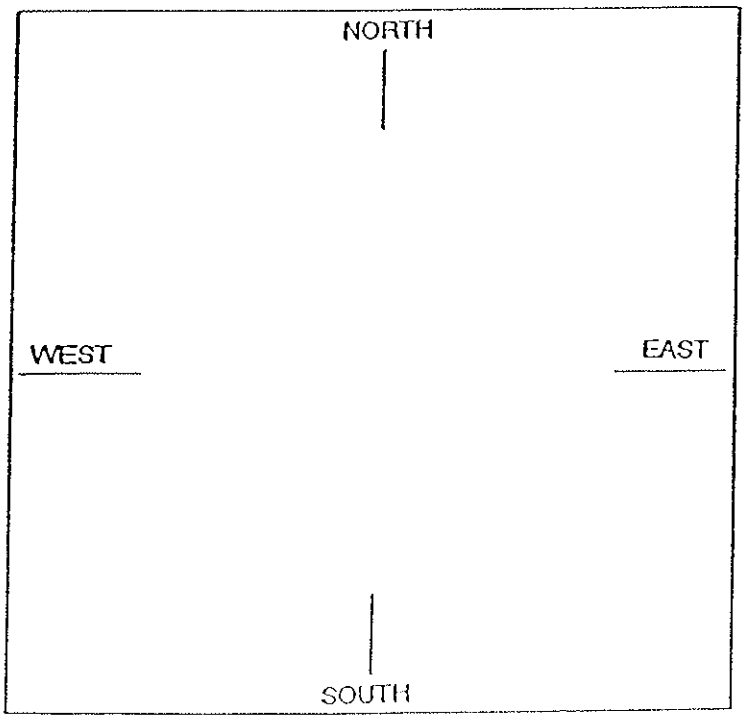
Township _____ N/S

Range _____ E/W

Section No. _____

A. Location of well in sectionized areas.

Sketch roads, railroads, streams, or other features as necessary.



B. Location of well in areas not sectionized.

Sketch roads, railroads, streams, or other features as necessary.

Indicate distances.

Mailing Address:
425 East Huntington Drive
Monrovia, CA 91016

MAIN SAN GABRIEL BASIN WATERMASTER

SUPERIOR COURT CASE NO. 024128-LOS ANGELES COUNTY

APPLICATION FOR WATER TREATMENT FACILITY

(1) APPLICANT:
Name_____
Address_____

(2) LOCATION OF TREATMENT FACILITY:
Address_____

Thomas Brothers Guide (Please indicate year, page number and coordinates.)_____

(Please include a map showing the location of the treatment facility relative to streets, buildings, water system facilities and other points of reference.)

(3) (A) NAME OF WATER TREATMENT FACILITY CONTRACTOR:_____
(B) NAME OF DESIGN ENGINEER AND STATE REGISTRATION NUMBER:_____

(4) PROPOSED ACTION AT TREATMENT FACILITY
Construction [ ] Modification [ ] Removal [ ]
Destruction [ ] Other [ ]

(5) DESCRIPTION OF FACILITY:
(A) Type of treatment:
Volatile Organic Chemical [ ] Nitrate [ ] Other [ ]
(B) Please describe the treatment process to be used at the proposed treatment plant.

(C) Please list, by Owner Designation, all wells to be treated:

(6) ANTICIPATED TREATMENT FACILITY CAPACITY:
_____ Gallons Per Minute
_____ Acre-feet Per Year

(7) EXPECTED CONCENTRATION OF CONTAMINANTS:

Contaminant	Influent Concentration (Parts per Billion)	Effluent Concentration (Parts per Billion)	Contaminant Removal Rate (Percent)
Trichloroethylene (TCE)			
Tetrachloroethylene (PCE)			
1,1,1-Trichloroethane (1,1,1-TCA)			
Carbon Tetrachloride (CTC)			
1,1-Dichloroethylene (1,1-DCE)			
1,1-Dichloroethane (1,1-DCA)			
1,2-Dichloroethane (1,2-DCA)			
Others:			

(8) DISPOSITION OF ALL TREATED WATER:
(Please describe disposition of all treated water, and the corresponding annual amount of discharge.)

(9) INITIAL START-UP DATE:_____

(10) EXPECTED OPERATING SCHEDULE:
(A) Daily schedule_____
(B) Number of days each month *(Please specify if operating schedule varies month to month)*

(11) EXPECTED COSTS:
(A) Capital cost:$_____
(B) Operation and maintenance:$_____/AF.

(12) REGULATORY PERMITS: Please describe all necessary permits and/or all permits for which you have applied or have received from all regulatory agencies with regard to the proposed treatment facility. Please supply to Watermaster copies of all environmental documents required under the California Environmental Quality Act and/or the National Environmental Protection Act.

(13) Applicant acknowledges it will comply with all portions of Section 28 of Watermaster's Rules and Regulations pertaining to quarterly data submittal, for treatment plant operation, to Watermaster. Specifically, at least the following data shall be provided on a quarterly basis:

- Name or other designation of treatment facility;
- Quantity of water treated during quarter;
- Quantity of each contaminant removed;
- Quality of water before treatment, at beginning and end of each quarter;
- Quality of water after treatment, at beginning and end of each quarter; and
- Operation and maintenance costs for each quarter.

14) Please provide Watermaster with copies of all feasibility studies, alternative water supply sources, water quality studies or other report which validate the Applicant's need to install a water treatment facility. Applicant must provide supporting data to show compliance with the requirements of Section 28 with particular reference to Section 28(h) of Watermaster's Rules and Regulations.

Applicant must provide supporting data to show compliance with the requirements of Section 28 with particular reference to Section 28(h) of Watermaster's Rules and Regulations.

I hereby agree to comply with all regulations of the Main San Gabriel Basin Watermaster pertaining to treatment plant construction, operation, repair, modification, destruction and inactivation.

Submitted For Applicant By:_____

Signature:_____

Title:_____

Date Received by Watermaster:_____

Watermaster Action:
Approved [ ] Denied [ ]

Date of Action:_____

Permit Number:_____

By:_____
(Name)

_____
(Title)

EXHIBIT "K"
K-1

Appendix I: Five-Year Water Quality & Supply Plan

Azusa Light & Water 2010 Urban Water Management Plan

Appendix J: Canyon Basin Memorandum of Understanding

Azusa Light & Water 2010 Urban Water Management Plan

062303cw

-COPY-

MEMORANDUM OF UNDERSTANDING
TO IMPLEMENT THE CANYON BASIN MANAGEMENT PLAN

This Memorandum of Understanding ("MOU") is entered into this 1ST day of JANUARY, 2004, by and between the CITY OF AZUSA, a public agency ("Azusa"), the CITY OF GLENDORA, a public agency ("Glendora"), and the CALIFORNIA-AMERICAN WATER COMPANY, a public utility ("CAWC"). Azusa, Glendora, and CAWC shall hereinafter be collectively referred to herein as "the Parties."

RECITALS

A. Azusa is a municipal corporation duly organized and existing under the laws of the State of California. Azusa, by and through Azusa Light and Water, is generally empowered to provide water service to residential, commercial, and industrial properties within its jurisdictional boundaries pursuant to Article XI, Section 9, of the California Constitution.

B. Glendora is a municipal corporation duly organized and existing under the laws of the State of California. Glendora is generally empowered to provide water service to residential, commercial, and industrial properties within its jurisdictional boundaries pursuant to Article XI, Section 9, of the California Constitution.

C. CAWC is a public utility incorporated and existing pursuant to the laws of the State of California. CAWC provides water service to its customers under the jurisdiction of the State of California Public Utilities Commission.

D. Azusa, Glendora, and CAWC each pump groundwater from the Upper San Gabriel Canyon Basin ("the Canyon Basin") as depicted on the map attached hereto as Exhibit "A" which is incorporated into this MOU by this reference. The Canyon Basin is a relatively small aquifer located in the northern section of the larger Main San Gabriel Basin, the administration of which is governed by the Main San Gabriel Watermaster ("Watermaster") pursuant to a Judgment entered by the Los Angeles County Superior Court in Upper San Gabriel Valley Municipal Water District v. City of Alhambra, et al., Case No. 924128 ("the Judgment").

E. Due to the limited capacity of the Canyon Basin, the groundwater supply can be depleted during periods of drought and/or heavy pumping. Facilities also exist to replenish the Basin with local and imported water supplies when available. Pursuant to Section 42 of the Judgment, Watermaster shall not spread Replacement Water (imported water) when the water level at the Baldwin Park Key Well (Key Well) exceeds elevation 250 feet above mean sea level.

F. As of the date of this MOU, Watermaster has not imposed any restrictions on the quantity of groundwater that can be produced from the Canyon Basin. Management of the Canyon Basin's water supply has been cooperative and somewhat directed by actual water demands and physical limitations to extracting and conveying the Canyon Basin's groundwater supplies. However, the recent installation of two new wells by Azusa has prompted concern from Glendora that a management plan may be needed to assure the equitable allocation of Canyon Basin water supplies among the Parties. Watermaster subsequently prepared a draft plan for management of the Canyon

Basin (Exhibit A), but, at the request of the Parties, has not yet formally adopted the plan.

G. In an effort to continue cooperative management of the Canyon Basin's groundwater supplies for the Parties, now and in the future, and to ensure that operation of any new Canyon Basin facilities by any Party will not adversely affect the quantity or quality of groundwater produced from the Canyon Basin by the other Parties, the Parties hereto have entered into this MOU for the purpose of voluntarily implementing the draft Watermaster plan.

H. To facilitate the implementation of the Watermaster plan and this MOU, the three municipal water districts responsible for providing supplemental water under the Judgment have stated their willingness to provide imported water for replenishment to the Canyon Basin Spreading Grounds, subject to availability of imported water and certain operational constraints. The letters from the municipal water districts are attached hereto as Exhibit B.

COVENANTS

NOW, THEREFORE, in consideration of the preceding Recitals and the mutual Covenants contained herein, the Parties hereto agree as follows:

Section 1. COOPERATION. Subject to the Parties' strict compliance with all of the conditions contained herein, the Parties agree to work cooperatively to jointly manage the Canyon Basin water supplies in a manner that optimizes available resources while minimizing adverse impacts on the Parties.

Section 2. PLAN IMPLEMENTATION AND ADMINISTRATION. The Parties shall make all good faith and reasonable efforts to manage the Basin in compliance with this MOU and the Canyon Basin Management Plan ("the Plan") set forth herein.

Section 2.1. Operations Committee. An Operations Committee ("the Committee") shall be created for the purpose of coordinating the cooperative management of the Canyon Basin.

Section 2.2. Representation. The Committee shall consist of one (1) representative each from Azusa, Glendora, and CAWC. Azusa's Director of Utilities shall designate the Azusa representative; Glendora's Director of Public Works shall designate the Glendora representative; and CAWC's Manager for its Los Angeles District shall designate the CAWC representative. The Parties shall also request that Watermaster's Executive Officer or her/his representative participate as an ex-officio member of the Committee.

Section 2.3. Quarterly Meetings. The Committee shall meet on or before the last day of June, September, December, and March of each year to determine the Parties' pumping allocation for the following quarter. Based upon the current elevation of the Key Well as determined pursuant to Section 3 of this MOU, applicable storage credits, and planned replenishment activities for the Canyon Basin, the Committee shall determine each Party's pumping allocation in accordance with the Plan.

Section 2.4 Administration of Plan. The Parties shall request that Watermaster administer

the Plan by a) installing data loggers and monitoring Key Well elevations as necessary; b) providing quarterly reports on pumping and on storage credits, c) participating in quarterly committee meetings, d) determining pumping allocations in accordance with the Plan, and e) acting on disputes and violations of the Plan pursuant to Section 8 herein.

Section 3. CANYON BASIN MANAGEMENT PLAN.

Section 3.1. Key Well Designations. The Key Wells designated for the purpose of this Plan shall be CAWC Fish Canyon Well (Recordation No. 1900358) and Glendora Well 8 (Recordation No. 1900829). Continuous recording data loggers shall be installed at these wells to provide continuous groundwater elevation monitoring. The surface water elevation in the South Pit spreading grounds shall also be monitored for reference. By mutual agreement and with concurrence of Watermaster staff, the Parties may change the Key Well designations for this Plan, if more appropriate monitoring locations are determined.

Section 3.2. Canyon Basin Operating Range and Safe Yield Allocation. The initial operating range for the Plan shall be from 635 feet above mean sea level (amsl) to 585 feet amsl at the Fish Canyon Well and from 640 feet amsl to 575 feet amsl at Well 8, based on historic fluctuations. The Safe Yield Allocation (SYA), which shall be used as the annual default pumping allocation, is 8,000 acre-feet. The SYA is based solely on basin storage capacity from natural replenishment and does not include supplemental water deliveries. Based on historic production from 1993-94 through 2000-01, each Party's share of the SYA is as follows:

Azusa:	45.6 percent	3,648 acre-feet
Glendora:	34.3 percent	2,744 acre-feet
CAWC:	20.1 percent	1,608 acre-feet

Section 3.3 Management Principles. At the quarterly meeting, each Party shall receive a quarterly pumping allocation based on a) the Party's SYA or historic production, b) stored water credits, and/or c) Key Well elevations within one week prior to the meeting date, as follows:

Fish Canyon Well at or above 635 amsl AND Well 8 at or above 640 amsl: Parties are entitled to unlimited groundwater production; however, Parties may not receive storage credit for deliveries of supplemental water (including imported and local surface water).

Fish Canyon Well below 635 feet amsl but not lower than 610 feet amsl OR Well 8 below 640 feet amsl but not lower than 610 feet amsl: The Parties' production is limited to its 5-year average production from 1996-97 through 2000-01, for the applicable quarter, as indicated in Table 1 of Exhibit A. A Party may also produce any stored water approved by Watermaster and spread into the Canyon Basin in the immediately preceding quarter. Parties may continue to deliver supplemental water for production in the following quarter if approved by Watermaster, except that supplemental water deliveries shall be limited to no more than the highest average quarterly production by that Party over the past five years.

Fish Canyon Well below 610 feet amsl but not lower than 585 feet amsl OR Well 8 below 610 feet amsl but not lower than 575 feet amsl: The Parties' production is limited to its SYA for the applicable quarter. Parties may also produce any approved stored water delivered in the

previous quarter, and may delivery supplemental water for production in the following quarter if approved by Watermaster. Supplemental water deliveries will be limited to no more than the highest average quarterly production over the past five years.

Fish Canyon Well below 585 feet amsl OR Well 8 below 575 feet amsl: The Parties' production is limited to its SYA for the applicable quarter. Parties may also produce any approved stored water, and may continue Watermaster-approved deliveries of supplemental water, without limitation.

No carry-over of SYA or quarterly pumping allocation: Parties may not carry over any unused SYA or other quarterly pumping allocation into another quarter.

Carry-over of stored water credit: Parties may carry over for one quarter any unused credit for stored water. Stored water must be either purchased imported water or local surface water entitlement that was diverted and then spread for the benefit of a Party.

Overproduction of Quarterly Allocation: If any Party produces groundwater in excess of its total quarterly allocation pursuant to this Plan, that Party shall replace that amount with supplemental water by no later than the end of the quarter following the overproduction. If supplemental water is not available for replenishment within the specified time period, the Party's subsequent quarterly pumping allocation will be reduced by the amount of overproduction.

Section 4. ALTERNATIVE WATER SUPPLY SOURCES. All Parties agree to explore in good faith other alternatives to enhance their water supply reliability from Canyon Basin and other area sources.

Section 5. RETENTION OF RIGHTS. If this MOU is terminated for any reason permitted by its provisions, the Parties agree that any claim to water rights in the Canyon Basin pre-existing this MOU will be preserved and the actions of a Party in accordance with this MOU shall not waive or compromise any legal argument with respect to said rights.

Section 6. NOTICES. All notices and other communications delivered pursuant to this MOU shall be in writing. Such writings shall be delivered personally, by courier, by telecopy, or sent by first class or certified mail, return receipt requested. All such notices or transmittals shall be deemed delivered upon the earlier of actual receipt or three days after posting by certified mail:

Azusa:	Azusa Light and Water 729 N. Azusa Avenue Azusa, CA 91702-9500 Attn: Director of Utilities
Glendora:	City of Glendora City Hall 116 E. Foothill Blvd. Glendora, CA 91741 Attn: Director of Public Works
CAWC:	California-American Water Company

2020 Huntington Drive
San Marino, CA 91108-2022
Attn: Manager

Section 7. DISPUTES. If, at any time, any representative of the Committee feels that this MOU has been, or is being, violated, a special Committee meeting may be called. If the special Committee meeting does not resolve the issue, any dispute or controversy arising out of, under, or in connection with, or in relation to this MOU, and any amendments thereto, or the breach thereof, which is not resolved informally by prior mutual agreement of the Parties hereto, shall be referred to Watermaster staff within seven days of the special Committee meeting for recommendation. If the Watermaster staff recommendation is not received by the Parties within 21 calendar days of the request, or if the recommendation is not accepted by any Party hereto, the dispute shall be immediately submitted to Watermaster's Water Problems Committee for consideration and recommendation to Watermaster for decision at its next regular meeting. Any such determination shall be subject to judicial review by the Court with jurisdiction over the Judgment in accordance with Watermaster's Rules and Regulations.

Any representative of any Party hereto who is a Watermaster member or is a member of the Water Problems Committee shall abstain from any participation, decision or action by Watermaster or the Water Problems Committee pertaining to disputes brought pursuant to this section, except that any Party's representative may participate in those discussions or proceedings solely to provide information or testimony as an affected Party. Additionally, the Parties hereto shall not engage in any ex-parte communication with Watermaster staff, Watermaster board members, or members of the Water Problems Committee with regard to disputes under this section, except to provide information requested by Watermaster staff in preparation of its recommendation. A violation of this paragraph shall subject the offending Party to a liquidated damage and penalty of a ten percent deduction of that Party's quarterly pumping allocation from the subsequent quarterly period.

Section 8. TERM. The term of this MOU shall be twelve (12) months from the effective date as stated on Page 1 herein. The Parties may extend or renew this MOU by mutual agreement.

Section 9. ATTORNEYS FEES. The prevailing Party in any action brought before the Court pursuant to Section 8 of this MOU shall be entitled to recover all attorneys' fees or other costs actually incurred in connection therewith. In any action brought, the entitlement to recover attorneys' fees and costs will be considered an element of costs and not of damages.

Section 10. INUREMENT. This MOU shall be binding on and inure to the benefit of all assignees, transferees, and successors in interest of the Parties hereto.

Section 11. ASSIGNMENT. This MOU may not be assigned to any individual or entity without the written consent of the Parties hereto, which consent shall not be unreasonably withheld.

Section 12. INTEGRATION. This MOU constitutes the entire agreement and understanding between the Parties relative to the matters addressed herein. This MOU supersedes all prior and contemporaneous agreements, representations or understandings, if any, whether oral or written.

Section 13. CAPTIONS. The captions of sections and subsections of this MOU are for

reference only and are not to be construed in any way as a part of this MOU.

Section 14. INTERPRETATION AND ENFORCEMENT. Any uncertainty or ambiguity contained in this MOU shall be construed as if all Parties jointly prepared this MOU. This MOU shall be enforced and governed by and under the laws of the State of California, and venue for any action brought to interpret and/or enforce any provision of this MOU shall be in the Court with jurisdiction over the Judgment.

Section 15. FURTHER ACTS. From time to time hereafter, the Parties hereto shall execute such instruments and other documents and take such other actions upon the reasonable request of the others as may be reasonably necessary to carry out the terms of this MOU so long as the further actions requested do not prejudice either of the Parties, increase their potential or present liability, or cause any of them undue additional expense. This MOU cannot be amended or modified in any way except by written instrument duly executed by all Parties hereto.

Section 16. SEVERABILITY AND REFORMATION. If any portion of this MOU is declared by a court of competent jurisdiction to be illegal, invalid, or unenforceable, the remaining portions of this MOU that are severable there from shall continue in full force and effect until the Parties reach agreement on a reformed MOU to conform to any requirements set forth by the court. When the Parties have agreed to a reformed MOU, said document shall supersede the severable portions of this MOU.

IN WITNESS WHEREOF, the Parties hereto have executed this MOU to be in effect as of the date as set forth above.

CITY OF AZUSA

Date: 12-24-03

By: _____
Mayor

Attest:

_____
City Clerk

062303cw

CITY OF GLENDORA

Date: 1-13-04

By: Michael Conway
Mayor

Attest:

City Clerk

CALIFORNIA-AMERICAN WATER COMPANY

Date: 1/14/04

By:
~~[Title]~~ Mgr

Attest:

[Title]

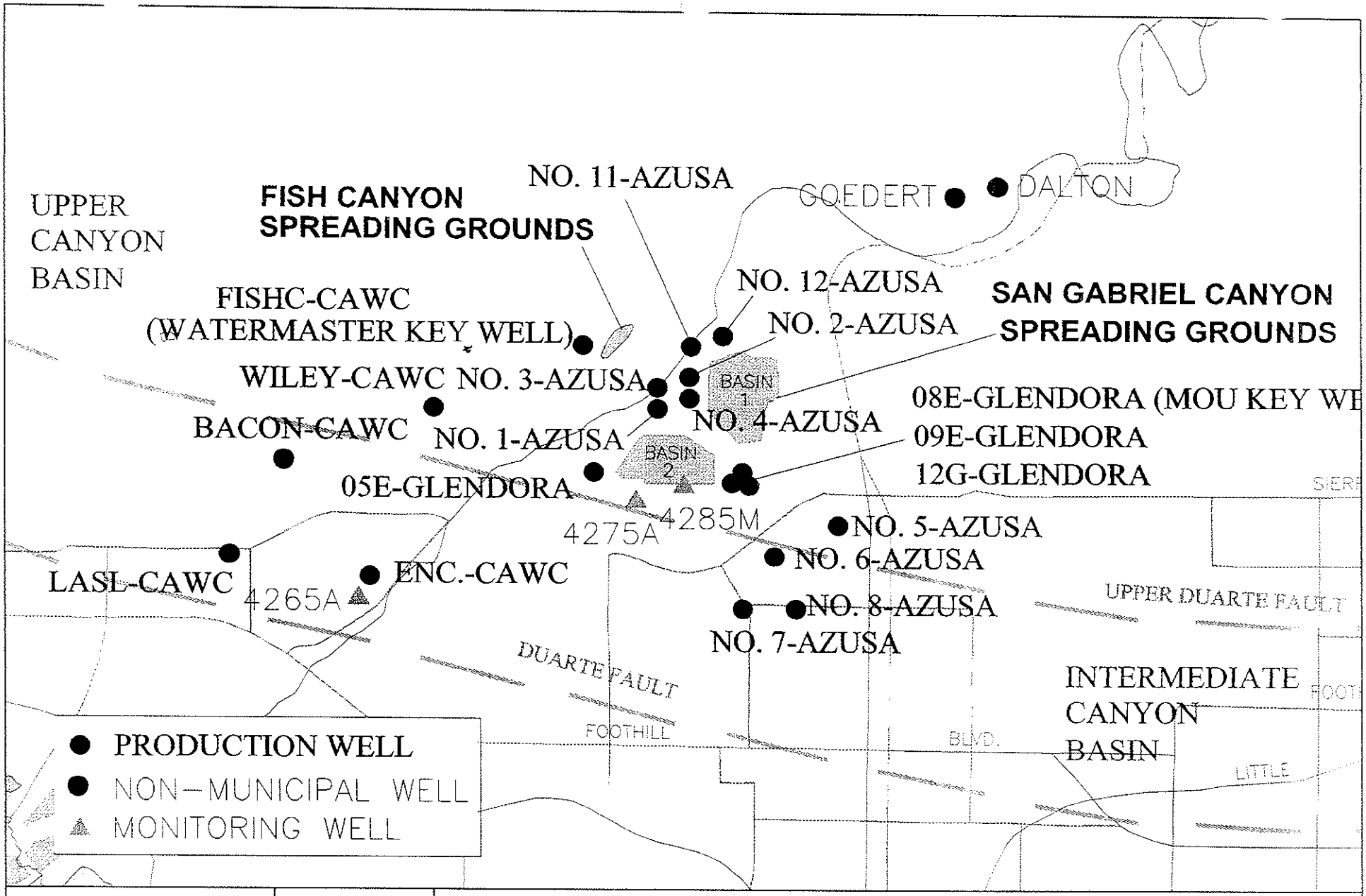
Table 1

Historic Groundwater Production
(Acre-Feet)

Fiscal Year	July - September				October - December				January - March			
	ALW	CAWC	Glendora	Total	ALW	CAWC	Glendora	Total	ALW	CAWC	Glendora	Total
1991 - 92	2425.03	882.26	2021.73	5329.02	1953.91	859.49	1851.88	4665.28	2038.32	777.31	1583.37	4399.00
1992 - 93	2851.64	912.23	2240.59	6004.46	1948.74	871.38	1919.77	4739.89	2105.94	819.23	1656.61	4581.78
1993 - 94	2844.85	1524.27	1926.72	6295.84	2076.16	1256.76	1674.60	5007.52	1976.65	1078.48	1394.05	4449.18
1994 - 95	3014.09	1583.93	1682.43	6280.45	2248.77	1264.12	1373.01	4885.90	2791.97	945.58	1701.52	5439.07
1995 - 96	3452.49	1562.58	2478.80	7493.87	2984.34	1278.65	1657.06	5920.05	2855.39	1083.55	1371.90	5310.84
1996 - 97	3553.32	1509.32	2518.65	7581.29	3120.91	1118.66	2140.74	6380.31	2883.46	1155.00	1853.18	5891.64
1997 - 98	3631.52	1586.15	2615.23	7832.90	3176.68	1287.74	2378.48	6842.90	2653.27	922.38	1699.02	5274.67
1998 - 99	4002.65	1607.47	3037.92	8648.04	2775.02	1354.98	1931.34	6061.34	2212.71	1193.79	1582.41	4988.91
1999 - 00	4895.71	1620.13	2107.46	8623.30	3865.28	1412.88	2440.07	7718.23	3150.04	1177.22	2053.81	6381.07
2000 - 01	5075.34	1452.12	2471.97	8999.43	3342.51	1506.09	1966.45	6815.05	2729.77	815.77	2102.69	5648.23
10-yr. Average (1991 - 2001):	3574.66	1424.05	2310.15	7308.86	2749.23	1221.08	1933.34	5903.65	2539.75	996.83	1699.86	5236.44
5-yr. Average (1996 - 2001):	4231.71	1555.04	2550.25	8336.99	3256.08	1336.07	2171.42	6763.57	2725.85	1052.83	1858.22	5636.90

Fiscal Year	April - June				Annual Total			
	ALW	CAWC	Glendora	Total	ALW	CAWC	Glendora	Total
1991 - 92	2438.93	334.90	2085.10	4858.93	8856.19	2853.96	7542.08	19252.23
1992 - 93	2254.54	899.03	2300.26	5453.83	9160.86	3501.87	8117.23	20779.96
1993 - 94	2326.58	1336.65	1396.56	5059.79	9224.24	5196.16	6391.93	20812.33
1994 - 95	2573.81	1386.62	1737.34	5697.77	10628.64	5180.25	6494.30	22303.19
1995 - 96	3457.69	1433.64	2414.11	7305.44	12749.91	5358.42	7921.87	26030.20
1996 - 97	3290.29	1557.59	2263.95	7111.83	12847.98	5340.57	8776.52	26965.07
1997 - 98	2832.24	1109.50	2096.63	6038.37	12293.71	4905.77	8789.36	25988.84
1998 - 99	3275.64	1315.10	2047.30	6638.04	12266.02	5471.34	8598.97	26336.33
1999 - 00	4327.88	1572.59	2403.35	8303.82	16238.91	5782.82	9004.69	31026.42
2000 - 01	3983.02	1405.19	1884.94	7273.15	15130.64	5179.17	8426.05	28735.86
10-yr. Average (1991 - 2001):	3076.06	1235.08	2062.95	6374.10	11939.71	4877.03	8006.30	24823.04
5-yr. Average (1996 - 2001):	3541.81	1391.99	2139.23	7073.04	13755.45	5335.93	8719.12	27810.50

EXHIBIT A



STETSON ENGINEERS INC.
3104 EAST GARVEY AVENUE
WEST COVINA, CALIFORNIA 91791
TEL: (818) 967-6202
FAX: (818) 331-7065
2171 E Francisco Blvd., Suite K
San Rafael California 94901
2651 W Guadalupe Rd., Suite A208
Mesa Arizona 85202

0' 2500'

MAIN SAN GABRIEL BASIN WATERMASTER

CANYON BASINS VICINITY MAP

PLATE 1

F:\JOBS\1205\1205-16\1205-16.4\PLATE 1.DWG
F:\JOBS\1205\1205-16\1205-16.4\PLATE 1.PC2

EXHIBIT B

UPPER SAN GABRIEL VALLEY
MUNICIPAL WATER DISTRICT

February 20, 2003

Ms. Carol Williams
Executive Officer
Main San Gabriel Basin Watermaster
725 N. Azusa Avenue
Azusa, CA 91702

Subject: Canyon Basin Management
Delivery of Supplemental Water

Dear Ms. Williams:

The Upper San Gabriel Valley Municipal Water District (Upper District) has been provided with, and reviewed a copy of, the draft Canyon Basin Management Plan. It is our understanding the cities of Glendora and Azusa along with California-American Water Company-Duarte District (CAWC), are cooperatively implementing a plan to equitably share limited groundwater resources in the Canyon Basins. An integral component of that management plan is the ability to have imported water delivered to recharge facilities in the Canyon Basins.

Upper District will strive to make imported water available to our sub-agencies CAWC and Azusa (60 percent) using service connection USG-3. Based on past experience, the Metropolitan Water District of Southern California (MWD) has been cooperative in making imported water available to Upper District and to modify the flow rate of USG-3, as needed.

Please feel free to contact me if we can be of further assistance.

Sincerely,

Timothy C. Jochem
General Manager

11310 VALLEY BOULEVARD • EL MONTE, CALIFORNIA 91731
PHONE: (626) 443-2297 • FAX: (626) 443-0617
www.usgvmwd.org

DIRECTORS: DR. TONY FELLOW, PRESIDENT • KENNETH R. MANNING, VICE-PRESIDENT • FRANK E. FORBES, SECRETARY/TREASURER • ALFONSO "AL" CONTRERAS • R. WILLIAM "BILL" ROBINSON

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GENERAL MANAGER/CHIEF ENGINEER
Richard W. Hansen, P.E.

March 11, 2003

Ms. Carol Williams
Executive Officer
Main San Gabriel Basin Watermaster
725 N. Azusa Avenue
Azusa, CA 91702

Subject: Canyon Basin Management
Delivery of Supplemental Water

Dear ~~Ms. Williams~~ Carol:

The Three Valleys Municipal Water District (Three Valleys) has been provided with, and reviewed a copy of, the draft Canyon Basin Management Plan. It is our understanding the cities of Glendora and Azusa along with California-American Water Company-Duarte District (CAWC) are cooperatively implementing a plan to equitably share limited groundwater resources in the Canyon Basins. An integral component of that management plan is the ability to have imported water delivered to recharge facilities in the Canyon Basins.

Three Valleys will strive to make imported water for groundwater recharge available as requested by our member agency, Glendora. This may include, from time to time, using any facilities available to Three Valleys that can deliver imported water to the Canyon Spreading Grounds. Based on past experience, the Metropolitan Water District of Southern California (MWD) and Upper San Gabriel Valley Municipal Water District (USGVMWD) have been cooperative in making the imported water service connection, USG-3, available to Three Valleys and modifying the flow rate as needed. Similarly, San Gabriel Valley Municipal Water District (SGVMWD) and MWD have been accommodating in delivering spreading water into the Canyon Spreading Grounds through SGVMWD's facilities for the benefit of Three Valleys. Assuming such cooperative behavior continues, Three Valleys anticipates no difficulty in delivering spreading water in accordance with Glendora's desires.

Please feel free to contact me if we can be of further assistance.

Sincerely,

Richard Hansen, P.E.
General Manager/Chief Engineer

1021 E. Miramar Avenue • Claremont, California 91711-2052
Telephone (909) 621-5568 • Fax (909) 625-5470 • http://www.threevalleys.com

SAN GABRIEL VALLEY MUNICIPAL WATER DISTRICT

5494 East Sierra Madre Avenue P.O. Box 1299 Azusa, California 91702-1299
Telephone (626) 969-7911 Facsimile (626) 969-7397

March 3, 2003

Carol Williams, Executive Officer
Main San Gabriel Basin Watermaster
725 N. Azusa Ave.
Azusa, CA 91702

Re: Canyon Basin Management
Delivery of Supplemental Water

Dear Carol,

The San Gabriel Valley Municipal Water District (San Gabriel District) has been provided with, and received a copy of, the draft Canyon Basin Management Plan. It is our understanding the cities of Glendora and Azusa along with California-American Water Company-Duarte District (CAWC), are cooperatively implementing a plan to equitably share limited groundwater resources in the Canyon Basins. An integral component of that management plan is the ability to have imported water delivered to recharge facilities in the Canyon Basins. An integral component of that management plan is the ability to have imported water delivered to recharge facilities in the Canyon Basins.

San Gabriel District will strive to make imported water available using our turnout to the San Gabriel Canyon Spreading Grounds. However, it must be recognized that the San Gabriel District has two constraints that may prevent or delay requested deliveries

1. An existing Power Generation Contract that requires deliveries to the San Dimas Wash during the period of June 1st through September 30th of each year, plus anytime Southern California Edison Company declares a "System Emergency".
2. The San Gabriel District must notify the California Department of Water Resources (DWR) in October of each year how much water it would like to receive in the following calendar year. Therefore, the delivery to the "Canyon Basins" is also subject to water being available to the District.

If you have any questions please call me.

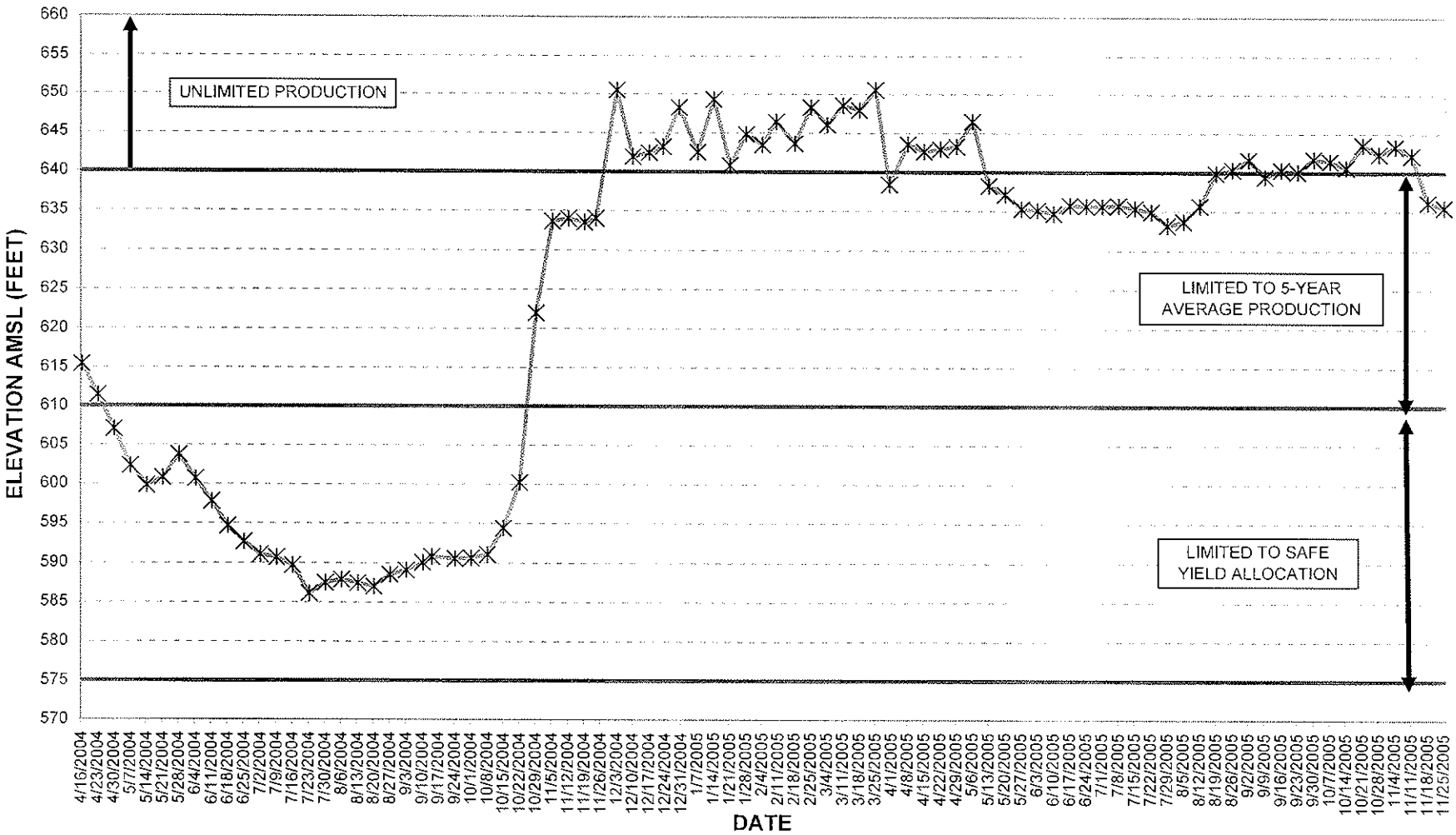
Very truly yours,

James E. Frei
General Manager

JEF:lfa

Board of Directors and Officers

ERIC SUNADA Division I | JOHN S. LEUNG Division II | JOSEPH C. REICHENBERGER Division III | THOMAS A. LOVE Division IV | CAROL A. MONTANO Division V | JAMES E. FREI General Manager



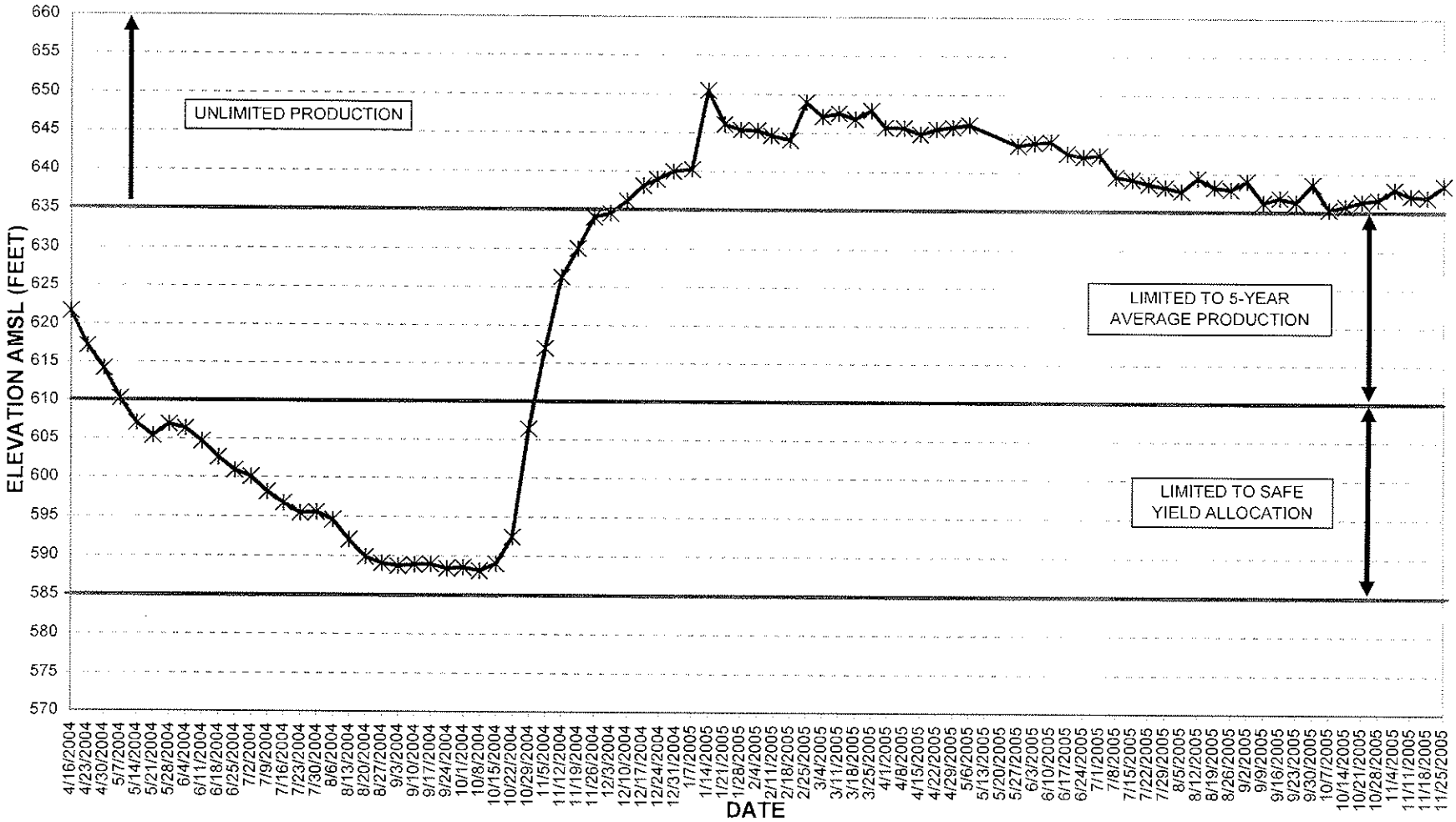
STETSON ENGINEERS INC.

Covina San Rafael Mesa, Arizona

WATER RESOURCE ENGINEERS

MAIN SAN GABRIEL BASIN WATERMASTER

KEY WELL ELEVATIONS AT GLENDORA WELL NO. 8E



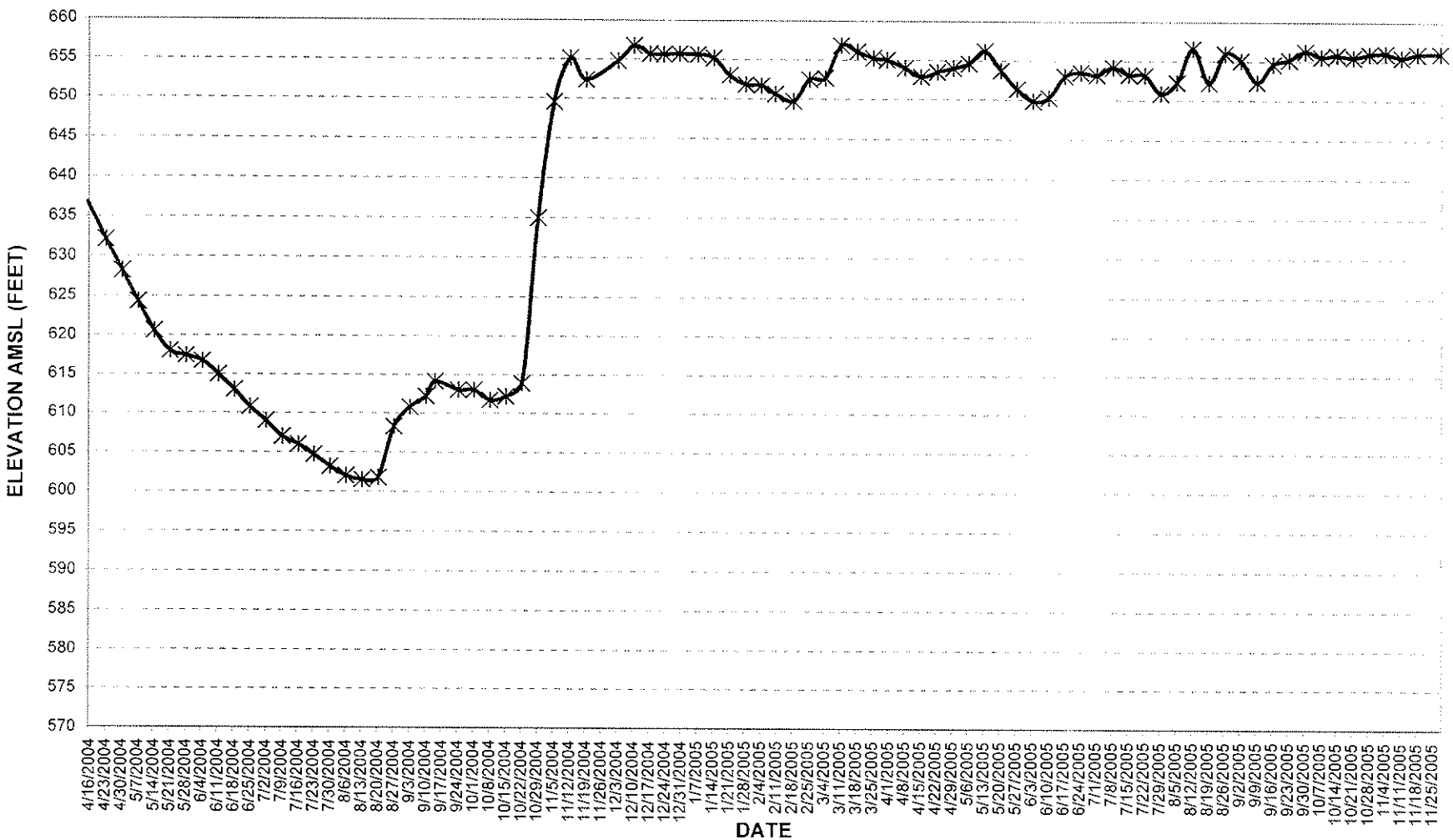
STETSON ENGINEERS INC.

Covina San Rafael Mesa, Arizona

WATER RESOURCE ENGINEERS

MAIN SAN GABRIEL BASIN WATERMASTER

KEY WELL ELEVATIONS AT CALIFORNIA AMERICAN WATER FISH CANYON WELL



STETSON ENGINEERS INC.

Covina San Rafael Mesa, Arizona

WATER RESOURCE ENGINEERS

MAIN SAN GABRIEL BASIN WATERMASTER

SURFACE WATER ELEVATIONS AT SOUTH BASIN

Appendix K: Ordinance No. 2446 & Article V Division 6: Water Conservation Plan

Azusa Light & Water 2010 Urban Water Management Plan

ORDINANCE NO. 2446

AN URGENCY ORDINANCE OF THE CITY COUNCIL OF THE CITY OF AZUSA ADDING CHAPTER 16.38 TO THE AZUSA MUNICIPAL CODE ENTITLED "WATER CONSERVATION PLAN"

THE CITY COUNCIL OF THE CITY OF AZUSA DOES ORDAIN AS FOLLOWS:

SECTION 1. The City Council of the City of Azusa does hereby find, determine and declare that:

A. Water is a limited resource, and therefore desires to improve the effectiveness of water use within the City's service area and encourage citizens to use water wisely, and

B. New development is better able to provide and install water conservation measures and devices beyond those required by existing development, and such measures and devices, as set forth in this Ordinance will significantly reduce wasteful and inefficient consumption of water, and

C. California Government Code Section 36934 authorizes the Azusa City Council to pass urgency ordinances which are effective immediately upon approval and adoptions by the City Council, and

D. By reason of an increasing overdraft of the water table due to the current drought conditions, it is necessary to adopt and enforce an urgency water conservation plan to conserve the water supplies of the City for the greatest public benefit with particular regard to domestic use, sanitation and fire protection.

SECTION 2. Chapter 16.38 is hereby added to the Azusa Azusa Municipal Code to read as follows:

CHAPTER 16.38
Water Conservation Plan

16.38.010 Definitions. For the purpose of this Chapter, the following definitions shall apply:

A. "Excess Run-off" means water accumulation on streets, gutters, neighboring properties or other surfaces in an amount sufficient to cause flow.

B. "New Development" means any addition, extension, conversion or enlargement of an existing structure, or any new construction requiring a building permit.

16.38.020 Application -- Water Users. The provisions of this Chapter apply to all water users. Water users being those persons, customers and property served within the incorporated boundaries of the City of Azusa and the area outside the City boundary served by the Azusa water utility.

16.38.030 Water User Responsibility. Water users are deemed to have under control at all times their water distribution and facilities and to know the manner and extent of their water use and excess run off. In multiple dwellings, the owner is the water user in control of the premises and is in control and responsible for the water usage.

16.38.040 Water Uses Prohibited. No water user within the City of Azusa and the service area of the Azusa water utility shall knowingly make, cause, use or permit the use of water for residential, commercial, industrial, agricultural, or any other purpose in a manner contrary to any provision of this Chapter, or in an amount in excess of that use permitted by the conservation stages hereinafter designated:

A. No water user shall cause or permit any water furnished to any property within the City and the Azusa water utility service area to run or to escape from any hose, pipe, valve, faucet, sprinkler, or irrigation device onto any sidewalk, street or gutter or to otherwise escape from the property if such running or escaping can reasonably be prevented. In the event of a break or leak within the consumer's plumbing or private distribution system, it shall be presumed that a period of forty-eight (48) hours after the consumer discovers such a break or leak, or receives notice from the Light and Water Department of such a break or leak, whichever occurs first, is a reasonable time within which to correct such a break or leak. If such a break or leak is not corrected after forty-eight (48) hours, it will be a violation of this Ordinance.

B. Commercial and non-commercial watering of grass, lawns, ground cover, open ground, shrubbery, crops, gardens and trees, including agricultural irrigation, in a manner or to an extent which allows substantial amounts of excess water to run off the area being watered shall not be permitted. A minimum amount of run-off which is a natural consequence of conservative watering, either by hand or mechanical sprinkling facilities, is permitted so long a such run-off is not excess as defined in Section 16.38.010 of this Chapter.

C. Lawn watering, landscape irrigation, and watering of public and private recreation facilities is to be done only between 6:00 p.m. and 8:00 a.m. during the months of May through October. If a hand-held hose or drip irrigation system is used, watering may be done at any time.

D. Agricultural water users and commercial nurseries shall conduct watering between 6:00 p.m. and 11:00 a.m. during the months of May through October. If a hand-held hose or drip irrigation system is used, watering may be done at any time. Watering of livestock is permitted at any time.

E. There shall be no washing down of sidewalks, walkways, driveways, parking lots, and all other paved surfaces except to alleviate immediate health, fire or sanitation hazards.

F. Restaurants may not serve water to their customers, except on specific requests by the customer.

G. It is unlawful to remove, replace, alter or damage any water meter or any components thereof including, but not limited to, the meter face, its dials or other water usage indicators, and any flow-restricting device installed.

H. Use of water from fire hydrants shall not be used for any purpose other than to fight fires or for other activities where such use is immediately necessary to maintain the health, safety and welfare of the residents of Azusa and customers of the Azusa water utility.

I. Schools, golf courses, governmental agencies, city parks and cemetaries, public or private, may be required to submit a copy of a water conservation plan and landscape irrigation schedules.

16.38.050. New Development - Standards. All new development shall be in accordance with the provisions of this Chapter as follows:

A. All new structures shall be equipped with low-flush toilets, as per Section 17921.3 of the California Health and Safety Code, and with low-flow showers and faucets, as per Title 24, Part 6, Article 1, T20-1406F of the California Administrative Code, in addition to the insulating of all hot water lines in non-habitable areas, according to California Energy Commission regulations.

B. Any additions to existing structures shall be equipped with low-flush toilets, as per Section 17921.3 of the California Health and Safety Code, and with low-flow showers and faucets, a per Title 24, Part 6, Article 1, T20-1406F of the California Administrative Code, in addition to the insulating of all hot water lines in non-habitable according to California Energy Commission regulations.

C. Multiple shower and lavatory installations within non-residential facilities shall be equipped with self-closing valves, except where necessary to protect the public health and safety.

D. It is required that all environmental evaluations for proposed development include projections for the consumption of potable and (where feasible) reclaimed water, and for the generation and disposal of liquid and solid wastes.

E. Large water users shall be encouraged to implement water recycling re-use processes.

F. Large water users shall submit a water conservation plan to the Light and Water Department and promote implementation of the same.

16.38.060 Landscape and Irrigation -- Standards. The Azusa Light and Water Department shall require as a condition of service under all applications for new or increased service connections the following conditions:

A. For services other than single-family residences, applicants shall submit landscape and irrigation plans for review by the Light and Water Department or another City department designated by it. Said new landscapes shall meet, and continue to meet, the requirements set forth by the Department's Landscape Guidelines.

B. For services other than single-family residences, applicants shall:

1. Notify the Light and Water Department or its designee prior to installation of irrigation system to schedule site inspection for compliance to the requirements of this Section;

2. Notify the Light and Water Department or its designee upon completion of landscape installation to schedule an irrigation system evaluation;

3. Water services will be rendered upon meeting the Landscape Guidelines.

C. The Light and Water Department will consider and may allow the substitution of well-designed conservation alternatives or innovations which may equally reduce water consumption for any of these requirements.

16.38.070 Exceptions. The Director of Utilities of the City of Azusa may grant variances for uses of water otherwise prohibited by this Chapter if he finds and determines that:

A. Failing to do so would cause an unnecessary and undue hardship to the applicant or the public, including, but not limited to, adverse economic impacts, such as loss of production or jobs.

B. Failure to do so would cause an emergency condition affecting the health, sanitation, fire protection or safety of the applicant or the public.

Requests for exemptions can only be made by the service customer or property owner.

16.38.080 Notice and Penalties. The City will impose the following penalties to consumers in violation:

A. The Light and Water Department shall give first-time violators of this Chapter a courtesy notice of the violation. Upon second and subsequent violations, the violator shall receive a citation and fines respectively.

B. The first citation shall specify the nature of the violation, the date on which it occurred and the corrective measures to be taken. Upon a second citation, the water user shall be charged with an infraction and shall be subjected to the following fines:

1. $50.00 for the first violation;

2. $100.00 for the second violation;

3. $200.00 for the third violation along with the installation of a flow restrictor at the customer's expense. A third violation constitutes a misdemeanor.

4. Terminate water service for a fourth violation. The charge for water service termination and restoration shall be $100.00.

SECTION 3. The City Clerk shall certify to the passage of this ordinance and shall cause the same to be published as required by law.

PASSED AND APPROVED this 21st day of May, 1990.

Eugene F. Moore
MAYOR

AZUSA
MUNICIPAL CODE

Sec. 78-483. Appeal process.

The director of utilities shall be responsible for administering this division. Decisions made by the director may be appealed to the city council within ten days of the director's decision.
(Code 1971, § 16.36.130)

Secs. 78-484–78-500. Reserved.

DIVISION 6. CONSERVATION PLAN

Sec. 78-501. Definitions.

The following words, terms and phrases, when used in this division, shall have the meanings ascribed to them in this section, except where the context clearly indicates a different meaning:

Excess runoff means water accumulation on streets, gutters, neighboring properties or other surfaces in an amount sufficient to cause flow.

New development means any addition, extension, conversion or enlargement of an existing structure or any new construction requiring a building permit.

Water user means any person, customer or property served within the incorporated boundaries of the city and the area outside the city boundary served by the city water utility.
(Code 1971, §§ 16.38.010, 16.38.020)

Cross reference—Definitions and rules of construction generally, § 1-2.

Sec. 78-502. Applicability.

This division shall apply to all water users.
(Code 1971, § 16.38.020)

Sec. 78-503. Water user responsibility.

Water users are deemed to have under control at all times their water distribution and facilities and to know the manner and extent of their water use and excess runoff. In multiple dwellings, the owner is the water user in control of the premises and is in control and responsible for the water usage.
(Code 1971, § 16.38.030)

Sec. 78-504. Phase I shortages.

A phase I shortage shall be declared and conservation measures listed in this section shall be implemented when the director of utilities declares a drought condition or the San Gabriel Valley Municipal Water District formally notifies the city that the state department of water resources (DWR) has reduced the water supply from the state water project (SWP) to the water district by at least 20 percent. No water user within the city and the service area of the city

water utility shall knowingly make, cause, use or permit the use of water for residential, commercial, industrial, agricultural or any other purpose in a manner contrary to this division or in any amount in excess of that use permitted by the conservation stages designated in this division. The conservation methods shall be as follows:

(1) No water user shall cause or permit any water furnished to any property within the city and the city water utility service area to run or to escape from any hose, pipe, valve, faucet, sprinkler or irrigation device onto any sidewalk, street or gutter or to otherwise escape from the property if such running or escaping can reasonably be prevented. If a break or leak occurs within the consumer's plumbing or private distribution system, it shall be presumed that a period of 48 hours after the consumer discovers such a break or leak or receives notice from the light and water department of such a break or leak, whichever occurs first, is a reasonable time within which to correct such a break or leak. If such a break or leak is not corrected after 48 hours, it will be a violation of this division.

(2) Commercial and noncommercial watering of grass, lawns, ground cover, open ground, shrubbery, crops, gardens and trees, including agricultural irrigation, in a manner or to an extent which allows substantial amounts of excess water to run off the area being watered shall not be permitted. A minimum amount of runoff which is a natural consequence of conservative watering, either by hand or mechanical sprinkling facilities, is permitted so long as such runoff is not excess as defined in section 78-501.

(3) Lawn watering, landscape irrigation and watering of public and private recreation facilities is to be done only between 6:00 p.m. and 8:00 a.m. If a hand-held hose or drip irrigation system is used, watering may be done at any time.

(4) Agricultural water users and commercial nurseries shall conduct watering between 6:00 p.m. and 11:00 a.m. If a hand-held hose or drip irrigation system is used, watering may be done at any time. Watering of livestock is permitted at any time.

(5) There shall be no washing down of sidewalks, walkways, driveways, parking lots and all other paved surfaces, except to alleviate immediate health, fire or sanitation hazards.

(6) Restaurants may not serve water to their customers, except on specific request by the customer.

(7) It is unlawful to remove, replace, alter or damage any water meter or any components thereof, including but not limited to the meter face, its dials or other water usage indicators and any flow-restricting device installed.

(8) Water from fire hydrants shall not be used for any purpose other than to fight fires or for other activities where such use is immediately necessary to maintain the health, safety and welfare of the residents of the city and customers of the city water utility.

(9) Schools, golf courses, governmental agencies, city parks and cemeteries, public or private, may be required to submit a copy of a water conservation plan and landscape irrigation schedules.

(10) Washing of motor vehicles, trailers, boats and other types of equipment shall be done only with a hand-held bucket or a hose equipped with a positive shutoff nozzle for quick rinse, except that washing may be done with reclaimed wastewater or by a commercial car wash using recycled water.

(11) No water shall be used to clean, fill or maintain levels in decorative fountains, ponds, lakes or other similar aesthetic structures, unless such water is part of a recycling system.

(12) The filling or replenishment of swimming pools shall be permitted, but the property owner will be liable for any use of allotted water in excess of the phase II or phase III requirements.

(13) The owner and operator of every hotel, motel, inn, guest house and short-term commercial lodging shall post a notice of water shortage and any necessary compliance measures.

(Code 1971, § 16.38.040)

Sec. 78-505. Phase II shortages.

(a) A phase II shortage shall be declared by the director of utilities and the following conservation measures shall be implemented when the San Gabriel Valley Municipal Water District formally notifies the city that DWR has reduced the water supply from the SWP to the water district by at least 50 percent:

(1) Conservation measures listed in section 78-504 shall be in effect, except that the restrictions on watering lawns, landscapes and other turf area shall be modified to limit the watering only once every third day between the hours of 6:00 p.m. and 6:00 a.m.

(2) Agricultural and commercial nurseries and golf courses shall be prohibited from watering lawns, landscapes, or commercial stocks more often than every other day and between the hours of 10:00 a.m. and 6:00 p.m., except that there shall be no restriction of watering utilizing reclaimed wastewater.

(b) No customer whose water is supplied by the city shall make, cause, use or permit the use of water for any purpose in an amount in excess of 90 percent of the amount of use on the customer's premises during the corresponding billing period during the prior calendar year.

(c) Single-family residential customers supplied water by the city shall not be required to reduce consumption below 17 (ccf) billing units per month during phase II.

(Code 1971, § 16.38.041)

Sec. 78-506. Phase III shortages.

(a) A phase III shortage shall be declared by the director of utilities, and the following conservation measures shall be implemented when the San Gabriel Valley Municipal Water District formally notifies the city that DWR has reduced the water supply from the SWP to the water district by at least 90 percent:

(1) Conservation measures listed in section 78-504 shall be in effect, except that there shall be no watering of residential lawns, landscaping and other turf areas at any time except by bucket.

(2) Agricultural, commercial nursery, golf courses, parks and other public open spaces and commercial landscaped areas shall be prohibited from watering more often than every third day and between the hours of 10:00 a.m. and 6:00 p.m., except that there shall be no restriction on watering utilizing reclaimed wastewater.

(b) No customer whose water is supplied by the city shall make, cause, use or permit the use of water for any purpose in an amount in excess of 80 percent of the amount of use on the customer's premises during the corresponding billing period during the prior calendar year. Exempt from this subsection are single-family residential water users supplied water from the city who shall not be required to reduce consumption below 15 (ccf) billing units per month during phase III.
(Code 1971, § 16.38.040)

Sec. 78-507. New development standards.

(a) A condition for approval on all new residential construction is designed to balance the water demand of new construction with the potential water savings from existing housing units. Retrofit measures are intended to save water equivalent to the amount which would otherwise be purchased by the city at greater economic and environmental costs.

(b) All new developments shall receive a water allocation based on the indoor water requirements of similar uses. Additional water allocations for landscaping purposes shall be given to development that has not been landscaped. New landscaping shall comply with all applicable sections of this division.

(c) New residential development shall adequately offset its water requirements, for each proposed new housing unit, by replacing an existing 3.5 to seven gallons per flush toilet and installing an ultra-low flow toilet of a maximum 1.6 gallons per flush, a faucet aerator of a maximum 2.2 gallons per minute, and a water-saving showerhead of a maximum 2.25 gallons per minute which meet title 24 requirements, American National Standards Institute standard A112.19.2 and this division, in a minimum of two existing single-family or three existing multiunit housing units or according to the following ratio table:

Retrofit Requirement:	*Apartment*	*Townhome/ Condominium*	*Single-Family Home*
New Development:			
Apartment	3	3.5	2
Townhome/condominium	3.5	3	2
Single-family home	4	3.5	3

(d) Any new development for which a building permit has been obtained prior to November 1, 1992, shall be exempt from this section.

(e) If the director of utilities determines that actual retrofitting of existing homes is impractical or constitutes an unusual hardship on an applicant, he may authorize the payment to the light and water department of an in-lieu retrofit fee equivalent to the cost of retrofitting existing homes with ultra-low flow toilets and other required water saving devices. The fee shall also include the cost of staff time to administer the retrofit program. The light and water department is authorized to require retrofitting and not accept in-lieu retrofit fees, regardless of hardship, if it appears unlikely the department or its authorized plumbing contractor can complete the retrofitting in the expected households. In-lieu fees must be paid upon issuance of a building permit so that sufficient time exists for the retrofits to be made prior to occupancy of new development.

(f) The light and water department will determine the number of existing homes that will offset the water use of each new residential development and verify that the required retrofits have been completed prior to issuance of a certificate of occupancy.

(g) Anyone requesting a building permit for the remodeling of or addition to an existing home must replace the existing toilets with ultra-low flow toilets if the value of the renovation is equal to 25 percent of the assessed valuation of the home.

(h) New construction multiplex housing must meet the retrofit requirements for new development stated in this section.

(i) Nonresidential construction projects will have the water demand evaluated during the project review stage. If the project is identified as a major water user, the water demand shall be mitigated through offsite retrofitting or some other method determined to be appropriate.

(j) All new construction by governmental and nonprofit agencies shall be exempt from retrofitting.

(k) Construction of new housing units that has been restricted for occupancy by low-income residents under agreement with the city or the city redevelopment agency shall be exempt from retrofitting. A low-income housing project is defined as one which either sells or rents to households whose gross annual income is less than 80 percent of the median income for the county, adjusted for household size. The low-income housing unit must be restricted to occupancy for low-income households for a minimum period of ten years.

(l) Construction of new housing units that has been restricted for occupancy for a senior citizen housing community under agreement with the city or the city redevelopment agency shall be exempt from retrofitting. A senior citizen housing community must be restricted to selling or renting to senior citizens for a minimum period of ten years.

(m) With the approval of the director of utilities, developers may retrofit school, nonprofit and government buildings to meet their retrofit requirements.

(n) Anyone with adjudicated water rights which are dedicated to the city may use such water to partially offset the city's need to acquire water for the new development. The formula to determine the retrofit requirements in such cases shall be as follows: For every acre-foot of water rights dedicated, developers will be allowed the equivalent of two existing single-family homes to be exempted from the retrofit requirement. For additional homes which exceed this formula, the standard retrofit formula shall be followed to determine the required number of retrofits.

(o) The fee for an application for a plumbing permit shall be waived for retrofits associated with the retrofit program.

(p) The city shall withhold building permits, certificates of occupancy and water connections to any developer pending compliance with this section.
(Code 1971, § 16.38.050; Ord. No. 92-030, §§ 1—16, 10-5-92)

Sec. 78-508. Reserved.

Editor's note—Ord. No. 93-03, § 1, adopted Mar. 15, 1993, repealed former § 78-508, which pertained to landscape and irrigation standards.

Sec. 78-509. Exceptions and relief from compliance.

(a) A water user may file an application for relief from this division. The director of utilities shall develop such procedures as he considers necessary to resolve such applications in accordance with the terms of this section and shall, upon the filing by a water user of an application for relief, take such steps as he deems reasonable to resolve the application for relief. The director of utilities may delegate his duties and responsibilities under this section as appropriate.

(b) The application for relief may include a request that the water user be relieved, in whole or in part, from the water use curtailment of sections 78-505(b) and 78-506(b).

(c) In determining whether to grant relief and the nature of any relief, the director of utilities shall take into consideration all relevant factors, including but not limited to the following:

(1) Whether any additional reduction in water consumption will result in unemployment;

(2) Whether additional members have been added to the household;

(3) Whether any additional landscaped property has been added to the property since the corresponding billing period of the prior calendar year;

(4) Changes in vacancy factors in multifamily housing;

(5) Increased numbers of employees in commercial, industrial and governmental offices;

(6) Increased production requiring increased process water;

(7) Water uses during new construction;

(8) Adjustments to water use caused by emergency health or safety hazards;

(9) First filling of a permit-constructed swimming pool; and

(10) Water use necessary for reasons related to family illness or health.

(d) In order to be considered, an application for relief must be in writing, filed with the director of utilities within 20 days from the date the provision from which relief is sought becomes applicable to the applicant. No relief shall be granted unless the water user shows that he has achieved the maximum practical reduction in water consumption other than in the specific areas in which relief is being sought. No relief shall be granted to any water user who, when requested by the director of utilities, fails to provide any information necessary for resolution of the water user's application for relief. The decision shall be issued within 15 days and provided to the water user.

(e) The decision may be appealed as set out in section 78-511(c).
(Code 1971, § 16.38.071)

Sec. 78-510. Notices and penalties.

The city will impose the following penalties to consumers in violation of this division:

(1) The light and water department shall give first-time violators of this division, except sections 78-505(b) and 78-506(b), a courtesy notice of the violation. Upon second and subsequent violations, the violator shall receive a citation and fine, respectively.

(2) The first citation shall specify the nature of the violation, the date on which it occurred and the corrective measures to be taken. Upon a second citation, the water user shall be charged with an infraction and shall be subjected to the following fines:

a. For the first violation, $50.00.

b. For the second violation, $100.00.

c. For the third violation, $200.00, along with the installation of a flow restrictor at the customer's expense. A third violation constitutes a misdemeanor.

d. For a fourth violation, termination of water service. The charge for water service termination and restoration shall be $100.00.

(3) For each violation by any water user of the water use curtailment provisions of sections 78-505(b) and 78-506(b), a surcharge shall be imposed in an amount equal to 25 percent of the portions of the water bill that exceed the respective percentages set in

those two subsections. This surcharge shall be paid to the city and shall be deposited in the water revenue fund as partial payment for the light and water department's conservation plan as to that user.

(4) This section shall be considered rules and regulations for water service for areas served by the city outside the city limits, and any failure to comply may be dealt with pursuant to those rules and regulations.

(Code 1971, § 16.38.080)

Sec. 78-511. Hearing regarding violations.

(a) Any water user receiving notice of a second or subsequent violation of this division shall have a right to a hearing by the director of utilities.

(b) The water user's written request for a hearing must be received within ten days of the issuance of the notice of violation. This request shall stay installation of a flow-restricting device on the water user's premises and the imposition of any surcharge until the director of utilities renders his decision. His decision shall be issued within 15 days after the hearing, and a copy shall be provided to the water user.

(c) The decision of the director of utilities may be appealed to the city manager by the water user filing with the city manager a written request for appeal within 15 days of receipt of the decision. Filing of such a request stays implementation of any surcharge or installation of flow restrictor.

(d) The appeal hearing will be scheduled to occur within a reasonable period of time following filing of the appeal. No formal rules of evidence apply. All evidence customarily relied upon by reasonable persons in the conduct of serious business affairs will be allowed, and the water user may present any such evidence which shows the alleged wasteful water use has not occurred. The decision of the city manager will be given in writing to the water user within 15 days after the appeal hearing, and that decision shall be final.

(Code 1971, § 16.38.090; Ord. No. 98-09, § 2, 6-15-98)

Sec. 78-512. Additional measures.

The city council may order implementation of water conservation measures in addition to those set forth in sections 78-504, 78-505 and 78-506. Such additional water conservation measures shall be implemented by resolution published one time in a daily newspaper of general circulation covering the service area of the city water utility. Any prohibitions on the use of water shall become effective immediately upon such publication. The application of surcharges shall commence one month after the date the curtailment becomes effective.

(Code 1971, § 16.38.100)

Sec. 78-513. Effect on public health and safety.

Nothing in this division shall be construed to require the director of utilities to curtail the supply of water to any water user when such water is required by that customer to maintain an adequate level of public health and safety. The rights of the city under this division shall be in addition to any other rights of the city under any other applicable laws.
(Code 1971, § 16.38.110)

Appendix L: Azusa Light & Water Rate Schedule

Azusa Light & Water 2010 Urban Water Management Plan

AZUSA
LIGHT & WATER

Water Service

Azusa Water Rates Schedule

The following schedule of rates is fixed and established as the rates to be collected by Azusa Light and Water for supplying water to its customers within the certificated service territories of the City of Azusa.
*Effective August 2, 2005

Meter Service Charge
Commodity Charges
Minimum Charge
Fire Service Charge
Lifeline Rate
Special Zone Rate
Multiple Dwelling Unit Rate
Residential Service With Fire Sprinkler System
Replacement Water Cost Adjustment Factor
Water System Development Fee
Water System Annexation Fee
Charges for Outside City Limits
Fire Service Installation Charge
Fire Hydrant Installation Charge
Domestic Meter Installation Charge
Temporary Service

Meter Service Charge

The basic monthly meter service charge for water supplied to domestic, commercial, industrial, irrigation, agricultural and municipal customers is as follows:

Service Size	Charge
5/8" Meter	$ 11.56
3/4" Meter	$ 11.56
1" Meter	$ 20.11
1- 1/2" Meter	$ 36.93
2" Meter	$ 59.04
3" Meter	$ 112.49
4" Meter	$ 181.77
6" Meter	$ 320.25
8" Meter	$ 463.27
10" Meter	$ 606.45
12" Meter	$ 757.90

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Commodity Charges

The commodity charge is measured in increments of cubic feet. One cubic foot is 7.48 gallons of water. Each unit of water is billed as 100 cubic feet or 748 gallons. One hundred cubic feet is commonly referred to as CCF.

Service Size	Units	Rate (per CCF)
(a) 5/8" -- 1" meter	0 -- 17 ccf	$ 0.822
	Over 17 ccf	$ 1.30
(b) 1-1/2" -- 2" meter	0 -- 50 ccf	$ 0.822
	Over 50 ccf	$ 1.30
(c) 3" -- 4" meter		
	0 -- 200 ccf	$ 0.822
	Over 200 ccf	$ 1.30
(d) 6" -- 12" meter		
	0 -- 600 ccf	$ 0.822
	Over 600 ccf	$ 1.30

Golf Course	$ 1.01

Minimum Charge

The minimum charge is the monthly meter service charge.

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Fire Service Charge

Fire service connections are provided for fire protection only. If a fire service is used for any purpose other than for fire fighting, a minimum charge of fifty-eight dollars and forty cents ($58.40) shall be assessed in addition to the commodity charge for the actual amount of water used. If a fire service customer uses a fire service for other than emergency fire fighting repeatedly, the customer, upon notice of the water utility manager, may be disconnected from service for violation of the intended use of a fire service connection.

The Monthly Charge for such service is eight dollars and eighteen cents, $8.18 per pipe diameter-inch.

Lifeline Rate

Upon written application to Azusa Light & Water, a water customer who meets the following standards is eligible for a discount of two dollars and twenty cents ($2.20) from the basic monthly meter service charge. The Lifeline Rate may only be extended to City of Azusa residents.

1. The customer must be either:

a) 62 years of age or older; or
b) Disabled within the definition of 20 C.F.R. 404.1505 and presently is receiving disability Social Security benefits.

2. The customer must be a resident of a single-family dwelling unit within the City of Azusa water service area served by a water meter no larger than 3/4".

3. The customer shall have been a water customer at the service address for at least the previous twelve (12) months prior to the application for the lifeline rate.

4. The customer's household income is at or below sixty percent (60%) of the Los Angeles County median income level.

5. Low-income customers who qualify for the lifeline rate shall re-apply every twelve months.

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Special Zone Rate

Azusa Light & Water has defined a special distribution zone rate to recover costs identified with the service associated with that specifically designated service area. For water supplied to this defined area, the charges shall be double the above applicable rates. The area was specifically designated through an agreement between the City of Irwindale and the City of Azusa, wherein, the City of Irwindale requested the City of Azusa extend it's water utility service into the City of Irwindale in order to provide water service to those special customers in the City of Irwindale. This rate applies to water customers with accounts specially coded for that purpose.

Multiple Dwelling Unit Rate

If one meter connection serves two or more separate dwelling units, stores, shops or

other concerns doing business separate and apart from each other, whether in the same building or not, the first unit is charged the basic meter service charge, billed by the meter size rate; all additional units, stores, shops or other concerns are billed at the lowest meter service charge rate above.

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Residential Service With Fire Sprinkler System

The following three rate components shall be applied to residential properties that are required to have fire sprinkler systems, where such properties: 1) have lot sizes less than one-quarter of an acre (10,890 square feet); and (2) have an actual meter service that is larger than 1".

Components	Units	Rate (per CCF)
Monthly Meter Charge:		$20.11
Commodity Charge:	0 -- 17 ccf	$0.822
	Over 17 ccf	$ 1.30
Fire Service Charge:		$ 8.18

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Replacement Water Cost Adjustment Factor(RWCAF)

The Replacement Water Cost Adjustment Factor has been established to recover the costs of imported water required to fulfill the water systems requirements under the judgement of the adjudication of the Main San Gabriel Basin Watermaster. Each year in May the Main San Gabriel Basin Watermaster recommends to the Superior Courts of

California the adoption of a basin safe yield. Said safe yield fluctuates annually from a historic low of 140,000 acre feet of allowable extraction to a historic high of 230,000 acre feet of extraction. This variable results in fluctuations of purchased imported water requirements for the City of Azusa. When the safe yield is high, the RWCAF is reduced, and when the safe yield is low the RWCAF is set higher.

Azusa Light & Water shall determine the RWCAF pursuant to the following methodology prior to the beginning of each year for the City of Azusa's water system. The Director of Utilities shall notify the City Council of the new RWCAF. It shall be applied to all water bills beginning the first billing cycle of the new fiscal year.

1. Determine Azusa's Integrated Production Rights (R) for the following fiscal year based on the Safe Yield declared by the Main San Gabriel Basin Watermaster in the Spring of each year.

2. Project Azusa's total water production (P) based on estimated sales (S) in units (CCF) of water, for the following year.

3. Derive the amount of Replacement Water (W) required by subtracting (R) from (P).

4. Derive costs ($) associated with (W) from the Main San Gabriel Basin Watermaster which include replacement water costs from the responsible agencies, administrative charges and in lieu fees.

5. Derive RWCAF by dividing ($) by (S).

6. If the RWCAF is less than $0.01/CCF, then apply $0.01/CCF commencing in July until the month ($) is attained, then discontinue the charge.

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Water System Development Fee (Per Resolution 05-C70)

The Water System Development Fee was created to fund the cost of the future water system improvements and is imposed upon future development within the water system service area.

Land Use Category	Development Acres	$ per acre	$ per unit/SF/AC
Residential Single-Family	620	$ 8,903.00.	$ 1,483.90/DU
Residential Multifamily	38	$ 15.207.00	$ 950.45/DU
Commercial	958	$ 6,824.00	$ 0.68/sf
Industrial	667	$ 7,344.00	$ 0.29/sf
	8.7	$ 5,751.00	$ 5,751.00/ac
School	184	$ 2,632.00	$ 2,632.00/ac

Water System Annexation Fee (Per Resolution 05-C69)

The City of Azusa adopted an Ordinance in 1996 creating a Water System Annexation Fee to allow properties outside the existing service area to be served by the existing water system.

Land Use Category	Development Acres	$ per acre	$ per unit/SF/AC
Residential Single-Family	620	$3,879.00	$ 646.57/DU
Residential Multifamily	38	$6,626.00	$ 414.13/DU
Commercial	958	$2,973.00	$ 0.29/sf

Industrial	667	$3,200.00	$ 0.12/sf
School	8.7	$1,147.00	$ 1,147.00/ac
Park	184	$2,506.00	$2,506.00/ac

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Charges for Outside City Limits

For water supplied by the Azusa Light and Water for use outside the incorporated limits of the City, the Charges shall be double the applicable rates within the incorporated limits of the City.

Fire Service Installation Charge

Estimated fire service connection charges, including Double Detector Check for installation of fire protection laterals, includes labor, overhead, equipment and materials. The City will be responsible for installation of Double Detector Check assembly.

In the event the estimated charge is more than the actual cost of installation, the applicant will receive a refund. If the deposit is less than the actual installation cost, the applicant will be billed for additional charges.

Lateral Size	Total Deposit
10" x 6"	$ 6,800
10" x 8"	$ 7,900
12" x 6"	$ 8,600
12" x 8"	$ 8,600
10" x 10"	$10,000

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Fire Hydrant Installation Charge

Estimated fire hydrant installation charge for installing fire hydrants will include labor, overhead, materials and equipment.

In the event the estimated charge is more than the actual cost of installation, the applicant will receive a refund. If the deposit is less than the actual installation cost, the applicant will be billed for additional charges.

Materials/Labor	Total Deposit
12" Main or less	$5,000

Domestic Meter Installation Charge

Charges for installation of meters include labor, equipment and materials.
An estimate of installation charges will be determined by the Utility and a deposit in that amount will be required prior to commencement of installation.

In the event the estimated charge is more than the actual cost of installation, the applicant will receive a refund. Should the deposit be less than the actual installation cost, the applicant will be billed for the additional charges.

Meter Size	Total Deposit
3/4" or 1"	$2,219
2"	$2,641
3"	$5,917
4"	$6,445
6"	$8,136

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Temporary Service

All water services within the system owned and operated by the City of Azusa shall be metered by meters that are owned and issued by Azusa Light & Water.

Temporary water service refers to metered water service which is subject to removal or relocation in the future. Applications include, but are not limited to construction, street sweeping or other non-permanent service connections.

The applicant shall establish credit as required by Rule No. 4 except that the amount of prepayment prescribed in Rule No. 5 shall be $1,000.00 plus a one-time charge of $100.00.

Use of Temporary Service water meters may be limited to designated connection points as set forth by representatives of the Azusa Light & Water Department.

Where it is necessary for the Utility to install a temporary service line and meter, the applicant shall pay in advance the estimated cost to install, plus the estimated cost of removal, less the estimated salvage of the facilities necessary for furnishing service.

The minimum charge for each such connection or any water supplied shall be not less than the prevailing service charge as set forth in the rate schedule.

Representatives of Azusa Light & Water shall watch for illegal connections to the City's water system and report information to appropriate City personnel. Violators who make any type of un-metered connection to the system shall be given a one-time warning and an initial charge of $100, and documentation of such fact will be maintained by Azusa Light & Water. Subsequent violations will result in a charge equal to $250 plus two times the estimated amount of water consumed for each violation. Violators may, at the discretion of the City, be back billed for the estimated consumption used during the period that can be reasonably established, not to exceed 36 months. Application of this policy is pursuant to Section 498 of the California Penal Code.

Temporary meters shall be billed according to rates set forth under the Water Rate Schedule.

Temporary meters that are designated to a single point of connection shall be secured in place for the purpose of meter reading. Meters with multiple points of designated connection must be brought to Azusa Light & Water office at 729 N. Azusa Avenue during business hours the third week of every month for purpose of meter reading. Damaged meters shall be reported immediately. Failure to comply may result in the loss of temporary water meter privileges.

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Appendix M: 2010 Azusa Light & Water Consumer Confidence Report

Azusa Light & Water 2010 Urban Water Management Plan

AZUSA
LIGHT & WATER

729 N. Azusa Ave.
Azusa, CA 91702
www.azusalw.com

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Drinking Water Source Assessment and Protection (DWSAP) Program

A copy of the complete assessment may be viewed at Azusa Light & Water. To request a viewing of the DWSAP assessment contact Chet F. Anderson, P.E., Asst. Director-Water Operations (626) 812-5209.

Azusa Light & Water submitted DWSAP package on December 19,2002, using an electronic format approved by Department of Public Health. The assessments are summarized in the table below.

DRINKING WATER SOURCE ASSESSMENT AND PROTECTION (DWSAP) PROGRAM			
SOURCE NUMBER	SOURCE ID	MOST VULNERABLE ACTIVITIES (PCA)	CHEMICAL DETECTED
001	Well 1	Mining Operations-Historic	None
002	Well 2	Mining Operations-Historic	None
003	Well 3	Mining Operations-Historic	None
004	Well 4	Mining Operations-Historic	None
033	Well 11	Mining Operations-Historic	None
034	Well 12	Mining Operations-Historic	None
005	Well 5	Animal Feeding Operations as defined in federal regulation 2 Automobile-Gas Stations Dry Cleaners Historic Gas Stations Metal Plating/Finishing/Fabricating Mining Operations-Historic Plastics/Synthetics Producers Underground Storage Tanks-Confirmed Leaking Tanks Known Contaminant Plumes Sewer Collection Systems	None
006	Well 6		None
007	Well 7		None
008	Well 8		None
010	Well 10		Perchlorate, Nitrate, PCE

(PCA) Possible Contamination Activities

2010 Consumer Confidence Report

AZUSA
LIGHT & WATER
For Quality of Life

2010 Consumer Confidence Report

Azusa Light & Water is pleased to submit this report to you, our valued customer. This report is designed to inform you about the quality of water and services we deliver every day. Our commitment is to provide our customers with a safe and dependable supply of drinking water. Your water not only meets, but also surpasses both State and Federal standards for quality and safety. To maintain this high quality, State of California Department of Public Health certified plant operators are operating Azusa's Joseph F. Hsu Water Filtration Plant continuously 7 days per week, 365 days per year, treating and monitoring the quality of the drinking water we serve.

In order to ensure that tap water is safe to drink, the U.S. Environmental Protection Agency (USEPA) and the California Department of Public Health (Department) prescribe regulations that limit the amount of certain contaminants in water provided by public water systems. Department regulations also establish limits for contaminants in bottled water that must provide the same protection for public health.

Este informe contiene informacion muy importante sobre su agua de beber. Traduzcalo o hable con alguien que lo entienda bien.

The Azusa Water System

The City of Azusa, a municipality incorporated December 29, 1898, maintains ownership and operation of the municipal utility referred to as Azusa Light & Water. Azusa Light & Water is entrusted with the responsibility for providing water utility service within its municipal boundaries, and, since acquiring the Azusa Valley Water Company in 1993, providing water utility service to portions of the communities surrounding the City of Azusa. The Azusa Water system serves the City of Azusa and portions of Covina, Glendora, Irwindale, West Covina and unincorporated Los Angeles County. Serving approximately 22,290 active service connections with an estimated population of 108,000, the combined and integrated water systems of the City of Azusa and the Azusa Valley Water Company comprise the largest municipal water utility in the San Gabriel Valley.

The Joseph F. Hsu Water Filtration Plant uses the latest filtration technology to filter 12 million gallons of water per day. Water is pressure fed through membranes in an outside-in pattern, and any particle larger than 0.04 microns is retained on the fiber surface. The Water Filtration Plant, the largest capital project in the history of the City of Azusa at $36 million, has been designed to exceed the latest water quality requirements, enabling the City of Azusa to treat San Gabriel River water, imported water from the Colorado River, and water from the State Water Project. A reliable supply of high-quality water will be delivered to the customers of Azusa Light & Water for many years to come.

Sources of Supply

In general, typical sources of drinking water (both tap water and bottled water) include rivers, lakes, streams, ponds, reservoirs, springs and wells. Water delivered to our customers in the Azusa Water system is a blend of water from the following water sources:

- San Gabriel River water treated at Joseph F. Hsu Water Filtration Plant
- Groundwater pumped from eight wells in the Canyon Basin
- Groundwater pumped from two wells in the Intermediate Basin
- Groundwater pumped from one well in the Main San Gabriel Basin
- Metropolitan Water District Treated Water Connection

Azusa produces its water in the upper reaches of the San Gabriel River, near the mouth of San Gabriel Canyon, far upstream of the contaminated groundwater zones found elsewhere in the San Gabriel Valley. Approximately 40% of the water served by the Azusa Water system is surface water diverted from San Gabriel Reservoir and treated at Azusa's Water Filtration Plant, 60% comes from Azusa's eleven groundwater wells, and less than 1% is supplied from Azusa's Metropolitan Water District treated surface water connection. The treated surface water is a blend of Colorado River and State Water Project water.

2010 WATER QUALITY TABLE

PRIMARY STANDARDS—Mandatory, Health-Related Standards Established by the State of California Department of Publich Health

PARAMETER	VIOLA-TION	UNIT	STATE MAXIMUM CONTAMINANT LEVEL (MRDL)	PHG (MCLG) [MRDLG]	AZUSA GROUNDWATER RANGE	AZUSA GROUNDWATER AVERAGE	AZUSA SURFACE WATER RANGE	AZUSA SURFACE WATER AVERAGE	MAJOR SOURCES IN DRINKING WATER
FILTRATION PERFORMANCE & MICROBIOLOGICAL									
Turbidity (a)	No	Units	0.10 (a)	N/A	N/A	N/A	0.02-0.10	0.04	Soil Runoff
Cryptosporidium	No	Oocysts/L	TT	N/A	N/A		0-0.3	0	Naturally present in the environment >99% of crypto is removed during treatment
MICROBIOLOGICAL Coliform Bacteria P/A (b)	No	% Positive	5%	(0)	0-1%	0%	0%	0%	Naturally present in the environment Human and Animal waste
DISINFECTANT, DISINFECTION BY PRODUCTS									
Chlorine Residual	No	mg/L	(4)	[4]	0.50-1.00	0.80	0.75-2.00	1.10	Drinking water disinfectant added for treatment
Total Trihalomethanes (b)	No	µg/L	80	N/A	4.7-26.0	8.7 (c)(d)	26.0-94.0	58.3(c)(d)	Byproduct of drinking water disinfection
Haloacetic Acids (b)	No	µg/L	60	N/A	2.5-7.0	4.9 (c)(d)	14.0-34.0	22.1(c)(d)	Byproduct of drinking water disinfection
ORGANIC CONTAMINANTS									
Tetrachloroethylene (PCE)	No	µg/L	5	0.06	ND-0.79	ND	ND	ND	Discharge from factories and dry cleaners
INORGANIC CONTAMINANTS									
Arsenic	No	µg/L	10	0.004	2.28-2.88	2.63	ND	ND	Erosion of natural deposits
Barium	No	µg/L	1000	2	ND-115	12.78	ND	ND	Erosion of natural deposits
Fluoride	No	mg/L	2	1	0.25-0.35	0.30	0.36	0.36	Erosion of natural deposits
Nitrate (as NO3)	No	mg/L	45	45	ND-3.6(d)	2.9 (d)	ND-2.9	ND (d)	Leaching from fertilizer use
Perchlorate	No	µg/L	6	6	ND (d)	ND (d)	ND	ND	Abnormal production of Thyroid Hormones
RADIOACTIVE CONTAMINANTS									
Gross Alpha Activity	No	pCi/L	15	(0)	ND-3.3	ND	0.28-0.84	0.56	Erosion of natural deposits
UNREGULATED CONTAMINANTS									Suspected Health Effects
Boron	No	µg/L	NL-1000	N/A	ND-110	14.0	ND	ND	Reproductive effects on some men
Vanadium	No	µg/L	NL-50	N/A	ND-9.5	0.79	ND	ND	Child development effects

(a) Standard applies to surface water only. A separate standard applies to the distribution system. See secondary standards.
(b) Based on distribution system monitoring. **(c)** Four quarter average. **(d)** Blended value.
(MRDL) The level of a disinfectant added for water treatment that may not be exceeded at the consumer's tap.

CONTAMINANTS WITH SECONDARY STANDARDS—Aesthetic Standards Established by the State of California Department of Public Health

PARAMETER	UNIT	STATE MAXIMUM CONTAMINANT LEVEL	AZUSA GROUNDWATER RANGE	AZUSA GROUNDWATER AVERAGE	AZUSA SURFACE WATER RANGE	AZUSA SURFACE WATER AVERAGE	MAJOR SOURCES IN DRINKING WATER
Turbidity	Units	5	0.06-0.57	0.08	0.03-0.26	0.04	Soil Runoff
Color	Units	15	ND	ND	ND	ND	Naturally occurring organic materials
Odor Threshold	Units	3	1.0-1.0	1.0	1.0	1.0	Naturally occurring organic materials
Chloride	mg/L	500	14.0-48.0	37.6	6.0	6.0	Runoff/leaching from natural deposits
Sulfate	mg/L	500	24.0-52.0	31.9	29.0	29.0	Runoff/leaching from natural deposits
Total Dissolved Solids	mg/L	1000	190-440	240	240	240	Runoff/leaching from natural deposits
Specific Conductance	µmho/Cm	1600	330-660	400	400	400	Substances that form ions in the water

ADDITIONAL CONSTITUENTS ANALYZED

pH	Units	No Standard	7.40-7.90	7.70	7.90-8.20	8.10	
Hardness (CaCo3)	mg/L	No Standard	110-290	155	180	180	Runoff/leaching from natural deposits
Sodium	mg/L	No Standard	22-31	28.0	13.0	13.0	Runoff/leaching from natural deposits
Calcium	mg/L	No Standard	34-85	46.0	54.0	54.0	Runoff/leaching from natural deposits
Potassium	mg/L	No Standard	3.0-5.1	3.7	3.9	3.9	Runoff/leaching from natural deposits
Magnesium	mg/L	No Standard	5.0-19.0	10.0	13.0	13.0	Runoff/leaching from natural deposits

ABBREVIATIONS

<	Less than
ND	None Detected
NTU	Nephelometric Turbidity Unit(s)
µmho/Cm	micromhos per Centimeter
µg/L	micrograms per Liter (parts per billion)
mg/L	milligrams per Liter (parts per million)
pCi/L	pico Curies per Liter
NL	Notification Level
N/A	Not Applicable
TT	Treatment Technique

When you read about water quality, you might ask yourself:

How much is one part per billion (1ppb)?
Answer: 1ppb equal to 1 drop of water in 14,000 gallons, 1 second in 32 years, 1 inch in 16,000 miles or 1 cent in $10 million.

How much is one part per million (1ppm)?
Answer: 1ppm is equal to 1 drop of water in 14 gallons, 1 second in 12 days, 1 inch in 16 miles or 1 cent in $10,000.

In addition to the above constituents, we have conducted monitoring for 32 additional organic chemicals for which the California Department of Public Health and U.S. EPA have not yet set a standard and all results were below detection levels unless otherwise noted.

SAMPLING RESULTS SHOWING TREATMENT OF AZUSA'S SURFACE WATER SOURCES	
Treatment Technique*	Low-pressure membrane filtration system.
Turbidity Performance Standards** (that must be met through the water treatment process)	**Turbidity of the combined filtered water must**: 1. Be less than or equal to 0.10 NTU in 95% of measurements in a month. 2. Not exceed 0.5 NTU at any time.
Lowest monthly percentage of samples that met Turbidity Performance Standard No. 1	**100%**
Highest single turbidity measurement during the year	**0.26**
The number of violations of any surface water treatment requirements	**0**

** A required process intended to reduce the level of a contaminant in drinking water.*

*** Turbidity (measured in NTU) is a measurement of the cloudiness of water and is a good indicator of water quality and filtration performance. Turbidity results which meet performance standards are considered to be in compliance with filtration requirements.*

ADDITIONAL DATA
CITY OF AZUSA LIGHT & WATER
LEAD & COPPER TRIANNUAL (2008)

PARAMETER INORGANIC CONTAMINANTS	UNITS OF MEASUREMENT	PHG or MCLG	MAJOR SOURCES IN DRINKING WATER	HEALTH EFFECTS LANGUAGE	MCL or AL	AZUSA DRINKING WATER CONCENTRATION	
						90th Percentile Value Distribution System	RANGE
Copper	µg/L	170	Internal corrosion of household plumbing systems; erosion of natural deposits; leaching from wood preservatives	Copper is an essential nutrient, but some people who drink water containing copper in excess of the action level over a relatively short amount of time may experience gastrointestinal distress. Some people who drink water containing copper in excess of the action level over many years may suffer liver or kidney damage. People with Wilson's Disease should consult their personal doctor.	1300 (AL)	750	ND-1000
Lead	µg/L	2	Internal corrosion of household water plumbing systems; discharges from industrial manufacturers, erosion of natural deposits	Infants and children who drink water containing lead in excess of the action level may experience delays in their physical or mental development. Children may show slight deficits in attention span and learning abilities. Adults who drink this water over many years may develop kidney problems or high blood pressure.	15 (AL)	ND	ND-7.4

PHG = Public Health Goals
MCL = Maximum Contaminant Level
MCLG = Maximum Contaminant Level Goal

AL = Action Level
ND = Non-detectable

mg/L = parts per million
µg/L = parts per billion

50 Copper & Lead Samples Collected September 2005
2 Copper Samples exceeded the Action Level
2 Lead Samples exceeded the Action Level

For additional water quality data please contact water operations at (626) 334-0414.
For customer service please call (626) 812-5225.

Our Water continues to be of superior quality and, we will, through proper planning and system protection, insure that our precious water resources continue to be safe from contamination.

For further information please contact Azusa Light & Water at (626) 812-5225 or visit our website at www.azusalw.com. For City Council information visit www.ci.azusa.ca.us

The Sources of Contamination

Drinking water, including bottled water, may reasonably be expected to contain at least small amounts of contaminants. As water travels over the surface of the land or through the ground, it dissolves naturally occurring minerals and, in some cases, radioactive material, and can pick up substances resulting from the presence of animals or from human activities. The presence of contaminants does not necessarily indicate that drinking water poses a health risk.

More information about contaminants and potential health effects can be obtained by calling the USEPA's Safe Drinking Water Hotline. (1-800-426-4791)

Nitrate

Nitrate in drinking water at levels above 45 ppm is considered a health risk for infants of less than six months of age. High nitrate levels in drinking water can interfere with the capacity of the infant's blood to carry oxygen, resulting in serious illness; symptoms include shortness of breath and blueness of the skin. High nitrate levels may also affect the ability of the blood to carry oxygen in other individuals, such as pregnant women and those with specific enzyme deficiencies. Well nitrate levels may rise for short periods of time due to rainfall or agricultural activity. Where higher nitrate levels are present, you should seek advice from your health care provider or choose to use bottled water for mixing formula and juice for your baby; if you are pregnant, you should drink bottled water. Water purveyors are required by State Health regulations to issue warnings to customers when drinking water nitrate levels exceed 45 ppm. Average nitrate levels sampled in the Azusa distribution system are: 2.9 ppm for groundwater and ND for surface water.

Total Trihalomethanes

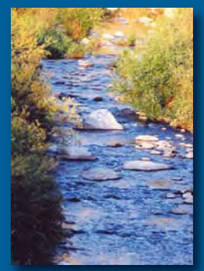
Trihalomethanes (THM's) are a family of chemicals formed when a disinfectant such as chlorine is added to the water supply. Disinfection is an important and necessary step in the water treatment process that protects against harmful bacteria and other potential contamination. Chlorine is the most widely used and approved water system disinfectant in the United States.

The amount of total THMs allowed in drinking water is regulated by the EPA, which has set a total THM annual average safe limit of 80 parts per billion (ppb) in drinking water. Results of a health study released in early 1998 suggests that women who drink five glasses of water daily and are in the first three months of pregnancy may have an increased risk of miscarriage from THM levels in drinking water above 80 ppb. State officials have cautioned that the study is not definitive and have stated that more study on the issue is needed. Average THM's levels sampled in the Azusa distribution system are: 8.7 ppb for groundwater and 58.3 ppb for surface water.

Immuno-Compromised People

Some people may be more vulnerable to constituents in the water than the general population. Immuno-compromised people, such as those with cancer undergoing chemotherapy, persons with HIV/AIDS or other immune system disorders, some elderly persons, and infants, can be particularly at risk from infections. These people should seek advice about drinking water from their healthcare providers. USEPA/Centers for Disease Control (CDC) guidelines on appropriate means to lessen the risk of infection from microbial contaminants are available from the Safe Drinking Water Hotline (1-800-426-4791).

1800 — **1812**: First recorded history of water usage on the San Gabriel River: a diversion via a dirt ditch to the Mission San Gabriel where extensive lands were cultivated by Native Americans.



1887: City of Azusa founded.

1889: San Gabriel River Water Committee (Committee of Nine) founded January 6. Compromise Agreement of 1889 establishes a water right of 134.4 cubic feet/second to the San Gabriel River Water Committee.

1897: Compromise of 1897 settles the dispute between the San Gabriel River Water Committee and the new San Gabriel Electric Company.

1898: City of Azusa Incorporated.

1900: Azusa issues bond for water system.

1937: San Gabriel River Spreading Corporation organized and incorporated.

1940

1945: Post War — San Gabriel Valley experiences tremendous growth and a transition from citrus-belt community to suburbs.

Beginning of the San Gabriel Valley Water Association.

1959: Cities of Azusa, Alhambra, Monterey Park and Sierra Madre form the San Gabriel Valley Municipal Water District.

1962: San Gabriel Valley Municipal Water District signs contract with the State of California Department of Water Resources to purchase water from Northern California through the State Water Project.

1973: Stipulated judgment issued regarding water diversion rights for the Committee of Nine. The Main San Gabriel Basin Watermaster established.

1983: Azusa Light & Water reorganized.

1993: Azusa Valley Water Company purchased by Azusa Light & Water.

2000

2010

Azusa Light & Water will continue to closely monitor future health studies and will continue working with state and federal water quality officials to maintain the high quality of our water and to safeguard the health of our customers.

Drinking Water Contaminants

Inorganic contaminants — Salts and metals, which can be naturally occurring or result from urban stormwater runoff, industrial or domestic wastewater discharges, oil and gas production, mining, or farming.

Microbial contaminants — Viruses and bacteria which may come from sewage treatment plants, septic systems, agricultural livestock operations, and wildlife.

Organic chemical contaminants — Synthetic and volatile organic chemicals, which are byproducts of industrial processes and petroleum production, and can also come from gas stations, urban stormwater runoff, and septic systems.

Pesticides and herbicides — Can come from a variety of sources such as agriculture, urban or stormwater runoff, and residential uses.

Radon — Can be naturally occurring or the result of oil and gas production and mining activities.

Perchlorate — Some people who drink water containing perchlorate in excess of the notification level may experience effects associated with hypothyroidism. Perchlorate interferes with the production of thyroid hormones, which are required for normal pre- and postnatal development in humans, as well as normal body metabolism.

Definitions

Notification Level & Action Level — The concentration of a contaminant which, if exceeded, triggers treatment or other requirements which a water system must follow.

Cryptosporidium — A microscopic organism which, when ingested, can cause diarrhea, fever and other gastrointestinal symptoms. The organism comes from animal waste and may occur in surface watersheds. If detected, cryptosporidium is eliminated by an effective treatment combination including sedimentation, filtration and disinfection.

Maximum Contaminant Level Goal (MCLG) — The level of contaminant in drinking water below which there is no known or expected risk to health. Maximum contaminant level goals are set by the EPA.

Maximum Residual Disinfectant Level (MRDL) — The level of a disinfectant added for water treatment that may not be exceeded at the consumer's tap.

Maximum Residual Disinfectant Level Goal (MRDLG) — The level of a disinfectant added for water treatment below which there is no known or expected risk to health. MRDLGs are set by the U.S. EPA.

Maximum Contaminant Level (MCL) — The highest level of a contaminant that is allowed in drinking water. MCLs are set as close to the public health goals and maximum contaminant level goals as is economically and technologically practicable.

Primary Drinking Water Standard — Primary maximum contaminant levels, specific treatment techniques adopted in lieu of primary MCLs, and monitoring and reporting requirements for MCLs that are specified in regulation.

Public Health Goals (PHG) — The level of a contaminant in drinking water below which there is no known or expected risk to health. Public health goals are set by the California Environmental Protection Agency.

Radon — A radioactive gas found throughout the United States that can't be seen, tasted or smelled. It can move up into a building through the ground through cracks and holes in the foundation and can build up to high levels. Radon can get into indoor air when released from tap water from showering, washing dishes, and other household activities. Radon entering the home through tap water will, in most cases, be a small source in indoor air as compared to radon entering the home through soil. Radon is a known carcinogen and breathing air containing radon can lead to lung cancer. Drinking water containing radon may cause increased risk of stomach cancer. If you are concerned about radon, testing the air in your home is inexpensive and easy. For information call EPA's Radon Hotline (1-800-SOS-RADON).

Treatment Technique — A required process intended to reduce the level of a contaminant in drinking water.

Turbidity — A measure of the cloudiness of the water. Turbidity is monitored because it is a good indicator of water quality. High turbidity can hinder the effectiveness of disinfection.

Variance — State or EPA may give permission not to meet an MCL or a treatment technique under certain conditions.

Unregulated Contaminants

Boron — Some men who drink water containing boron in excess of the notification level over many years may experience reproductive effects, based on studies in laboratory animals.

Vanadium — The babies of some pregnant women who drink water containing vanadium in excess of the notification level may have an increased risk of developmental effects, based on studies in laboratory animals.

Appendix N: MWD RUWMP Sections II & IV

Azusa Light & Water 2010 Urban Water Management Plan

Planning for the Future

2

The purpose of this section is to show how Metropolitan plans to meet Southern California's water supply needs in the future. In its role as supplemental supplier to the Southern California water community, Metropolitan faces ongoing challenges in meeting the region's needs for water supply reliability and quality. Increased environmental regulations and competition for water from outside the region have resulted in changes in delivery patterns and timing of imported water supply availability. At the same time, the Colorado River watershed has experienced a protracted drought since 1999 while total water demand continues to rise within the region because of population and economic growth.

As described in the previous chapter, the water used in Southern California comes from a number of sources. About one-third comes from local sources, and the remainder is imported from three sources: the Colorado River, the Sacramento-San Joaquin River Delta (via the State Water Project), and the Owens Valley and Mono Basin (through the Los Angeles Aqueducts).[1]

Because of competing needs and uses associated with these resources, and because of concerns related to regional water operations, Metropolitan has undertaken a number of planning initiatives over the past fifteen years. This Regional Urban Water Management Plan summarizes these efforts, which include the Integrated Resources Plan (IRP), two IRP Updates, the Water Surplus and Drought Management Plan, the Water Supply Allocation Plan, and the Long-term Conservation Plan. Collectively, they provide a policy framework with guidelines and resource targets for Metropolitan to follow into the future.

While Metropolitan coordinates regional water supply planning for the region through its inclusive integrated planning processes, Metropolitan's member agencies also conduct their own planning analyses – including their own urban water management plans – and may develop projects independently of Metropolitan. Appendix A.5 shows a list of these potential local projects provided to Metropolitan by its member agencies.

[1] Although the water from the Los Angeles Aqueduct is imported, Metropolitan considers it a local source because it is managed by the Los Angeles Department of Water and Power and not by Metropolitan.

2.1 Integrated Resource Planning

The 1996 IRP Process

Acknowledging the importance of water to the economic and social well-being of Southern California, Metropolitan has gradually shifted roles from an exclusive supplier of imported water to a regional water planner working in collaboration with its member agencies. After the drought of 1987-1992, Metropolitan recognized the changed conditions and the need to develop a long-term water resources strategy to fulfill the agency's mission of providing a high-quality reliable water supply to its service area. This planning process that was undertaken is now known as the Integrated Resources Plan (IRP). The first IRP was adopted by Metropolitan's Board in 1996 and guided by six objectives established early in the process:

1. Ensuring Reliability
2. Ensuring Affordability
3. Ensuring Water Quality
4. Maintaining Diversity
5. Ensuring Flexibility
6. Acknowledging Environmental and Institutional Constraints.

One of the fundamental outcomes of the IRP was the recognition that regional water supply reliability could be achieved through the implementation of a diverse portfolio of resource investments and conservation measures. The resulting IRP strategy was a balance between demand management and supply augmentation. For example, in its dry year profile, the resource framework counted on almost equal proportion of water conservation and recycled water as withdrawal from storage and water transfers. The IRP also balanced between the use of local resources and imported supplies. In a dry year, about 55 percent of the region's water resources come from local resources and conservation. Additionally, through the IRP process Metropolitan found solutions that offer long-term reliability at the lowest possible cost to the region as a whole.

The 1996 IRP, as a blueprint to resource program implementation, also established the "Preferred Resource Mix that would provide the Metropolitan region with reliable and affordable water supplies through 2020.

The IRP provided details on the Preferred Resource Mix and guidelines to established broad resource targets for each of the major supplies available to the region including:

- Conservation
- Local Resources - Water Recycling, Groundwater Recovery and Desalination
- Colorado River Supplies and Transfers
- State Water Project Improvement
- In-Region Surface Reservoir Storage
- In-Region Groundwater Storage

The 2004 IRP Update

In 2004, the Metropolitan Board adopted an updated IRP. Various legislative issues concerning population growth and water supply called for further planning considerations of these changed conditions. This IRP Update had three objectives:

1. Review the goals and achievements of the 1996 IRP
2. Identify the changed conditions for water resource development
3. Update resource development targets through 2025

The 2004 IRP process fulfilled the new objectives and updated the long-term plan to account for new water planning legislation. The updated plan contained resource development targets through 2025, which reflected changed conditions; particularly increased conservation savings, planned increases in local supplies and uncertainties. The 2004 IRP also explicitly recognized the need to handle uncertainties inherent in any planning process. For the water industry, some of these uncertainties are the level of population and economic growth which directly drive water demands, water quality regulations, new chemicals

found to be unhealthful, endangered species affecting sources of supplies, and periodic and new changes in climate and hydrology. As a result, a key component of the Updated Plan was the addition of a 10 percent planning buffer. The planning buffer provided for the identification of additional supplies, both imported and locally developed, that can be implemented to address uncertainty in future supplies and demands.

2010 Integrated Water Resources Plan Update

Metropolitan and its member agencies face increasing uncertainties and challenges as they plan for future water supplies. The 1996 and 2004 IRP resource strategies emphasized the need for a diverse and adaptable water supply strategy to cope with changing circumstances and conditions. Recent history and events have highlighted several emerging trends that need to be addressed in the context of the region's water supply planning and reliability. These trends cover a wide range of considerations including climate change, energy use and greenhouse gas emissions, endangered species protection and conveyance needs in the Sacramento-San Joaquin River Delta system. These trends point strongly to the importance of updating the region's Integrated Resources Plan, and to the need to solidify adaptive strategies to address additional challenges into the long-term future.

The basic objectives of the current IRP process are to:

1. Review the achievements of the 1996 IRP and the 2004 Update
2. Identify changing conditions affecting water resource development
    - Attention will be given to emerging factors and considerations, such as the current drought, climate change, energy use, and changes in Delta pumping operations
3. Update resource development targets through 2030
    - Discussion will focus on adaptation to future uncertainties, and potential alternatives for further diversifying Metropolitan's water resource portfolio and increasing supply reliability in the face of changing circumstances

Public Process

The current IRP Update process has sought input from member agencies, retail water agencies, other water and wastewater managers, environmental, business and community interests. In the fall of 2008, Metropolitan's senior management, Board of directors, member agency managers, elected officials, and community groups collectively discussed strategic direction and regional water solutions at a series of four stakeholder forums; nearly 600 stakeholders participated in the forums.

Similar types of ideas and issues were raised by the participants at all the forums, emphasizing the importance of local resources development and resolving issues with the Delta. Participants suggested that Metropolitan should take a leadership position in several areas including:

- Providing outreach to legislators concerning needs for water supply reliability and quality improvements
- Developing brine lines to enhance recycled water use
- Fostering partnerships with energy utilities
- Building relationships with environmental community
- Participating in research and development of new technologies
- Providing assistance to retail agencies in designing "correct" tiered rate structures

Technical Workgroup Process

Following the stakeholder forums, Metropolitan embarked upon a Technical Workgroup Process to further explore some of the issues and opportunities identified by forum participants. To facilitate the workgroup process, the technical discussions were grouped into six resource areas:

- Conservation
- Graywater
- Groundwater
- Recycled water
- Stormwater / Urban Runoff
- Seawater Desalination

The Technical Workgroup process provided a forum for review of the issues associated with each area, and in-depth discussions with area experts. The workgroups included member agency and retail agency staff, other non-governmental organizations, and staff from wastewater and stormwater management agencies, as well as Metropolitan staff and consultants.

Strategic Policy Review

As part of the current IRP update process, Metropolitan's Board initiated a Strategic Policy Review. This Review examined the ramifications of alternative roles for Metropolitan, member agencies and local retail agencies in future development of water resources. The process explored three alternative policy cases:

1. Current approach – continuation of IRP policies and partnerships with member agencies
2. Imported focus – Metropolitan focuses on addressing Delta issues, imported supplies and water transfers and leaves local supply development entirely to member agencies
3. Enhanced Regional focus – Metropolitan examines new approaches, up to and including development and ownership for implementing large regional scale water recycling, groundwater recharge and seawater desalination

A study of water supply reliability and cost impacts associated with these approaches found that it is in the region's best interest for Metropolitan to continue to explore ways of increasing regional reliability and not limiting itself to singular areas like addressing Delta issues. The study results under this process was a broader view of Metropolitan's role in comprehensive planning and implementation for regional reliability; adopting an adaptive resource development plan for the future may provide the most benefit for the region. In this adaptive approach, Metropolitan may need to take on an enhanced role in local supply development, in order to best adapt and respond to changing regional conditions and lay a solid foundation for future reliability. This role could include the creation of partnership with local agencies or Metropolitan's direct ownership of local projects to ensure regional reliability. The adaptive approach would be incorporated into the 2010 IRP for Board consideration.

Uncertainty Analysis

A major component of the current IRP update effort is to explicitly reflect uncertainty in Metropolitan's future water management environment. This involves evaluating a wider range of water management strategies, and seeking robust and adaptive plans that respond to uncertain conditions as they evolve over time, and that ultimately will perform adequately under a wide range of future conditions. The potential impacts and risks associated with climate change, as well as other major uncertainties and vulnerabilities, will be incorporated in to the update and accounted for. A key evolution from the 2004 IRP will be the identification of vulnerabilities and contingency actions that will extend the concept of a Planning Buffer into tangible actions that will enable construction and implementation of contingency supplies if they are needed.

Adaptive Planning Implementation

Regional water supply reliability largely depends on Metropolitan's preparedness to adapt to supply uncertainties. An adaptive management approach was utilized in developing a strategy that will prepare the region to deal with unforeseen supply shortages. An important step in this approach is identifying where additional water supply will come from. Four local water sources were considered:

- Stormwater
- Recycled Water
- Graywater
- Seawater

The stakeholder groups established during the IRP process evaluated the viability of using one or more of these resources to supplement existing water supply in the region. The stakeholders (e.g., member agencies, retail agencies, and industry experts) gathered important information on each resource such as regional development status, yield potential, and implementation challenges.

Another key aspect of this strategy is determining what actions are required to eliminate or mitigate the implementation challenges in developing these resources. The adaptive approach essentially provides a blueprint on how to address these challenges and develop supply within each resource.

The most important aspect of this strategy is the adaptive management approach used in responding to potential water supply shortage. The implementation elements identified within each blueprint can be executed at varying levels of urgency. Under the adaptive approach, Metropolitan developed three alternative implementation schedules for each resource:

- Status Quo
- Proactive
- Aggressive

Status Quo entails delaying action until a trigger is met. A trigger sets the point in time at which a potential shortage is identified and when deliberate action is taken to mitigate that shortage. The Proactive schedule implements low-risk actions early-on regardless of whether a trigger occurs. Implementing these low-risk actions shortens the overall time required to complete the implementation schedule. The Aggressive option implements both low-risk and medium-to-high risk actions that may require significant investment (e.g. land acquisition). By initiating these actions early-on, the overall implementation time can be shortened significantly. Table 2-1 highlights the differences between each schedule.

Table 2-1
Schedule Options

Schedule Option	Brief Description	Timeframe from Trigger to Production Yield	Financial Risk
Status Quo	Delay action until the adaptive management trigger occurs	Long	Low
Proactive	Begin planning actions (generally lower cost) before the adaptive management trigger occurs	Medium	Medium
Aggressive	Perform project implementation actions, such as land acquisition, before the adaptive management trigger occurs	Short	High

This strategy also utilizes an adaptive approach for determining an optimal project mix, or portfolio, used to meet a supply gap. The portfolio can comprise of projects from any of the four resources. Project drivers such as cost, yield, implementation time, and location of the project will be used to create customized portfolios that could address specific needs. For example, if a water supply shortage is occurring in a specific area, the portfolio could contain projects that serve that area. Another example might entail selecting projects that have the shortest implementation time in order to expedite supply development. Yet another example might involve selecting the most cost-efficient projects ($/AF) regardless of implementation time or location if minimizing costs is of highest priority. Furthermore, the number of projects within a portfolio is scalable based on the level of shortage at hand. This comprehensive approach is illustrated in Figure 2-1.

Metropolitan's adaptive approach is basically organized into four individual sections referred to as Foundational Studies. These individual studies discuss in detail the implementation challenges and recommended action for each resource. The first step in developing planning actions is categorizing the implementation challenges within each resource. In most cases the categories represent common themes such as establishing funding projects (Funding) or garnering legislative support (Legislative). The next step in developing planning actions is identifying implementation elements that mitigate the implementation challenges. This step involves identifying specific actions that are needed to support each implementation element. The last step in this process is developing of timelines and implementation schedules. Three alternative implementation schedules are developed for each resource.

Tables 2-2 through 2-5 summarize the categories and implementation elements for each resource. Detailed actions and schedules can be found in the foundational studies.

Figure 2-1 Comprehensive Approach

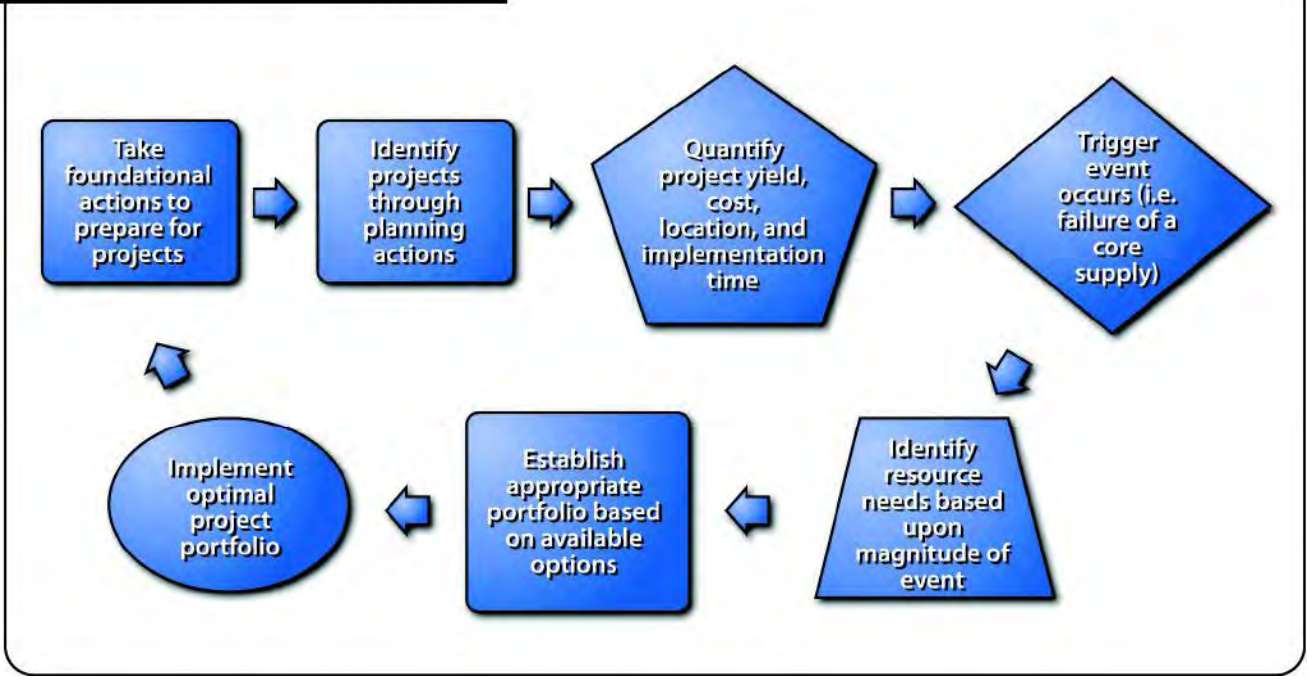


Table 2-2
Stormwater Issue Categories and Implementation Elements

Category	Implementation Element
Data Management	Regional Water Supply Project Database
Legislative/Regulatory/Education	Regional Synergy Task Force
Procedural	Regional Implementation Partnerships
Technical	Regional Feasibility Study
Funding	Funding Strategy Plan
Operational	Local Resource Baseline Plan
Implementation Planning	Alternatives Analysis Plan
Project Implementation	Incentive Programs Land Acquisition Advanced Planning Design Construction
Post Construction	O&M Performance Monitoring

Table 2-3
Recycled Water Issue Categories and Implementation Elements

Category	Implementation Element
Public Perception	Recycled Marketing Campaign Recycled Water Educational Campaign
Legislative	Recycled Water Legislative Task Force
Funding	Regional Recycled Water Finance Committee
Procedural	Regional Recycled Water Permitting and Inspection JPA Regional Recycled Water Policy Task Force
Operational	Regional Salt Management Plan Regional Basin Management Plan Recycled Water Blue Ribbon Panel (SWRCB) Regional Recycled Water Facility Plan
Facility	Regional Project (CIP) Implementation Joint Groundwater Replenishment Project

Table 2-4
Graywater Issue Categories and Implementation Elements

Category	Implementation Element
Public Perception	Graywater Marketing Campaign Graywater Educational Campaign
Legislative	Graywater Legislative Task Force
Technical	Regional Graywater Feasibility Study
Funding	Regional Graywater Finance Committee
Procedural	Regional Graywater Permitting and Inspection Regional Graywater Policy Task Force
Operational	Regional Graywater Management Plan
Construction	Regional Project Implementation

Table 2-5
Desalination Issue Categories and Implementation Elements

Category	Implementation Element
Data Management	Regional Water Supply Project Database
Legislative/Regulatory/Education	Regional Synergy Task Force
Procedural	Regional Implementation Partnerships
Technical	Regional Feasibility Study
Funding	Funding Strategy Plan
Operational	Local Resource Baseline Plan
Project Implementation	Incentive Programs Alternatives Analysis Plan Land Acquisition Advanced Planning Design Construction
Post Construction	O&M Performance Monitoring

Innovative approaches are critical to meeting the water supply needs of Southern California. Maintaining reliable water supplies given regulatory uncertainty, competing uses of groundwater and surface water, and overall variability in water supply is a growing challenge. An adaptive regional approach that develop, promote, and practice integrated regional water management of both traditional and emerging supplies may be the key to continued regional reliability.

2.2 Evaluating Supply Reliability

The Urban Water Management Plan Act requires that three basic planning analyses be conducted to evaluate supply reliability. The first is a water supply reliability assessment requiring development of a detailed evaluation of the supplies necessary to meet projected demands over at least a 20-year period. This analysis is to consider average, single-year and multi-year drought conditions. The second is a water shortage contingency plan which documents the actions that would be implemented in addressing up to a 50 percent reduction in an agency's supplies. Finally, a plan must be developed specifying the steps that would be taken under a catastrophic interruption in water supplies.

To address these three requirements, Metropolitan developed estimates of future demands and supplies from local sources and from Metropolitan. Supply and demand analyses for the single- and multi-year drought cases were based on conditions affecting the SWP. For this supply source, the single driest year was 1977 and the three-year dry period was 1990-1992. The SWP is the appropriate point of reference for these analyses since it is Metropolitan's largest and most variable supply. For the "average" year analysis 83 years of historic hydrology (1922-2004) were used to estimate supply and demand.

Estimating Demands on Metropolitan

Metropolitan developed its demand forecast by first estimating total retail demands for its service area and then factoring out water savings attributed to conservation.[2] Projections of local supplies then were derived using data on current and expected local supply programs and the IRP Local Resource Program Target. The resulting difference between total demands net of conservation and local supplies is the expected regional demands on Metropolitan supplies. These various estimates are shown in Tables 2-6 through 2-8. Major categories used in these tables are defined below.

Total Demands

Total demand is the sum of retail demand for M&I and agricultural, seawater barrier demand, and replenishment demand. Total demand represents the total amount of water needed by the member agencies. Total demands include:

- Retail Municipal and Industrial (M&I) — Retail Municipal and Industrial (M&I) demands represent the full spectrum of urban water use within the region. These include residential, commercial, industrial, institutional and un-metered water uses. To forecast urban water demands Metropolitan used the MWD-MAIN Water Use Forecasting System (MWD-Main), consisting of econometric models that have been adapted for conditions in Southern California. The demographic and economic data used in developing these forecasts were taken from the Southern California Association of Government's (SCAG) 2007 Regional Transportation Plan and from the San Diego County Association of Government's (SANDAG) Series 12: 2050 Regional Growth Forecast (Feb 2010). The SCAG and SANDAG regional growth forecasts are the core assumptions that drive the estimating equations in Metropolitan's MWD-MAIN demand forecasting model. SCAG and SANDAG's projections undergo extensive local review and incorporate zoning information from city and county general plans and are backed by Environmental Impact Reports.

  Impacts of potential annexation are not included in the demand projections for the 2010 RUWMP. However, Metropolitan's Review of Annexation Procedures concluded that the impacts of annexation within the service area beyond 2020 would not exceed 2 percent of overall demands.

[2] Information generated as part of this analysis are contained in Appendix A-1.

- Retail Agricultural Demand — Retail agricultural demands consist of water use for irrigating crops. Member agencies estimate agricultural water use based on many factors, including farm acreage, crop types, historical water use, and land use conversion. Each member agency estimates their agricultural demand differently, depending on the availability of information. Metropolitan relies on member agencies' estimates of agricultural demands for the 2010 RUWMP
- Seawater Barrier Demand — Seawater barrier demands represent the amount of water needed to hold back seawater intrusion into the coastal groundwater basins. Groundwater management agencies determine the barrier requirements based on groundwater levels, injection wells, and regulatory permits.
- Replenishment Demand — Replenishment demands represent the amount of water member agencies plan to use to replenish their groundwater basins. For the 2010 RUWMP, replenishment deliveries are not included as part of firm demands.

Conservation Adjustment

The conservation adjustment subtracts estimated conservation from total retail demand. The conservation estimates consist of three types:

- Code-Based Conservation — Water savings resulting from plumbing codes and other institutionalized water efficiency measures.
- Active Conservation — Water saved as a direct result of programs and practices directly funded by a water utility (e.g., measures outlined by the California Urban Water Conservation Council's "Best Management Practices"). Water savings from active conservation currently completed will decline to zero as the lifetime of those devices is reached. This will be offset by an increase in water savings for those devices that are mandated by law, plumbing codes or other efficiency standards.
- Price Effect Conservation — Reductions in customer use attributable to changes in the real (inflation adjusted) cost of water.

Water Use Reduction Target

On November 10, 2009, the state Legislature passed Senate Bill 7 as part of the Seventh Extraordinary Session, referred to as SBX7-7. This new law is the water conservation component of the historic Delta legislative package, and seeks to achieve a 20 percent statewide reduction in urban per capita water use in California by December 31, 2020. According to Water Code §10608.36, wholesale agencies are required to include in their UWMPs an assessment of present and proposed future measures, programs, and policies that would help achieve the water use reductions required under SBX7-7. Urban wholesale water suppliers are not required to comply with the target-setting and reporting requirements of SBX7-7. Additional discussion of the water reduction target is included in Section 3.7.

Based on Metropolitan's analysis of population and demand and the methodologies for setting targets described in the legislation, compliance with 20x2020 on an individual agency basis throughout the region would result in reduced potable demand of 380 TAF in 2020 through additional conservation and/or recycling. This estimated amount is reflected in the projected demand tables under 20x2020 Retail Compliance.

Local Supplies

Local supplies represent a spectrum of water produced by the member agencies to meet their total demands. Local supplies are a key component in determining how much Metropolitan supply is needed to supplement member agencies local supplies to meet their total demand. Projections of local supplies relied on information gathered from a number of sources including past urban water management plans, Metropolitan's annual local production surveys, and

communications between Metropolitan and member agency staff. Local supplies include:

- Groundwater and Surface Water — Groundwater production consists of extractions from local groundwater basins. Surface water comes from stream diversions and rainwater captured in reservoirs.
- The Los Angeles Aqueduct — A major source of imported water is conveyed from the Owens Valley via the Los Angeles Aqueduct (LAA) by LADWP. Although LADWP imports water from outside of Metropolitan's service area, Metropolitan classifies water provided by the LAA as a local resource because it is developed and controlled by a local agency.
- Seawater desalination — Seawater desalinated for potable use.
- Groundwater Recovery and Recycled Water — Locally developed and operated, groundwater recovery projects treat contaminated groundwater to meet potable use standards. Recycled water projects recycle wastewater for municipal and industrial use.
- Non-Metropolitan Imports — Water supplies imported by member agencies from sources outside of the Metropolitan service area.

The local supply projections presented in demand tables include existing projects that are currently producing water and projects that are under construction. Appendix A.5 contains a complete list of existing, under construction, fully designed with appropriated funds, feasibility, and conceptual projects that are within the service area.

Firm Demands

After calculating the expected regional demands on Metropolitan supplies, projected firm demands were calculated based on Metropolitan's established reliability goal. For the purposes of reliability planning, the 1996 IRP established a reliability goal that states that full service demands at the retail level would be satisfied under all "foreseeable hydrologic" conditions through 2020. This principle has been retained in the current update.

This goal allows for intermittent interruptions to non-firm, discounted rate supplies sold under the Replenishment and Interim Agricultural Water Programs. Thus, firm demand on Metropolitan equals Full Service demands (Tier I and Tier II). For the purpose of analysis, "foreseeable hydrologic conditions" is understood to mean under "historical hydrology," which presently covers the range of historical hydrology spanning the years 1922 through 2004. Tables 2-6 through 2-8 show estimates of firm demands on Metropolitan for single dry-year, multiple dry-year, and average year.

Table 2-6
Metropolitan Regional Water Demands
Single Dry Year
(Acre-Feet)

		2015	2020	2025	2030	2035
A.	**Total Demands[1]**	**5,480,000**	**5,662,000**	**5,804,000**	**5,961,000**	**6,101,000**
	Retail Municipal and Industrial	5,000,000	5,194,000	5,354,000	5,515,000	5,653,000
	Retail Agricultural	231,000	213,000	193,000	186,000	186,000
	Seawater Barrier	71,000	72,000	72,000	72,000	72,000
	Groundwater Replenishment	177,000	184,000	186,000	188,000	191,000
B.	**Total Conservation**	**936,000**	**967,000**	**1,033,000**	**1,096,000**	**1,156,000**
	Existing Active (through 2009)[2]	97,000	46,000	16,000	2,000	0
	Code-based and Price-Effect	589,000	671,000	766,000	844,000	906,000
	Pre-1990 Conservation	250,000	250,000	250,000	250,000	250,000
C.	**SBx7-7 Water Conservation**	**190,000**	**380,000**	**380,000**	**380,000**	**380,000**
	20% by 2020 Retail-Level Compliance	190,000	380,000	380,000	380,000	380,000
D.	**Total Local Supplies**	**2,260,000**	**2,322,000**	**2,366,000**	**2,405,000**	**2,419,000**
	Groundwater	1,457,000	1,395,000	1,407,000	1,423,000	1,416,000
	Surface Water	98,000	97,000	97,000	97,000	97,000
	Los Angeles Aqueduct	66,000	66,000	66,000	66,000	66,000
	Groundwater Recovery	101,000	108,000	114,000	120,000	126,000
	Total Recycling	348,000	375,000	394,000	410,000	426,000
	Other Imported Supplies	190,000	281,000	288,000	288,000	288,000
E.	**Total Metropolitan Demands (E=A-B-C-D)**	**2,094,000**	**1,993,000**	**2,025,000**	**2,080,000**	**2,146,000**
	Full Service (Tier I and Tier II)	1,991,000	1,889,000	1,921,000	1,974,000	2,039,000
	Replenishment Service[3]	103,000	103,000	104,000	106,000	107,000
	Interim Agricultural Water Program[4]	0	0	0	0	0
3	**Firm Demands on Metropolitan[5]**	**1,991,000**	**1,889,000**	**1,921,000**	**1,974,000**	**2,039,000**

Notes:
All units are acre-feet unless specified, rounded the nearest thousand.
Totals may not sum due to rounding.
[1] Growth projections are based on SCAG 2007 Regional Transportation Plan and SANDAG Series 12 2050 Regional Growth Forecast (Feb 2010).
[2] Includes code-based, price-effect and existing active savings through 2009; does not include future active conservation savings. 1990 is base year.
[3] Replenishment Service as defined in MWD Administrative Code Section 4114. Replenishment service includes direct and in-lieu replenishment.
[4] IAWP deliveries will be phased out by 2013.
[5] Firm demand on Metropolitan equals Full Service demands plus 70% of the Interim Agricultural Water Program demands.

Table 2-7
Metropolitan Regional Water Demands
Multiple Dry Year
(Acre-Feet)

		2015	2020	2025	2030	2035
A.	**Total Demands[1]**	**5,478,000**	**5,702,000**	**5,862,000**	**6,017,000**	**6,161,000**
	Retail Municipal and Industrial	5,004,000	5,232,000	5,409,000	5,572,000	5,715,000
	Retail Agricultural	231,000	214,000	195,000	185,000	184,000
	Seawater Barrier	71,000	71,000	72,000	72,000	72,000
	Groundwater Replenishment	172,000	184,000	187,000	188,000	190,000
B.	**Total Conservation**	**936,000**	**967,000**	**1,033,000**	**1,096,000**	**1,156,000**
	Existing Active (through 2009)[2]	97,000	46,000	16,000	2,000	0
	Code-based and Price-Effect	589,000	671,000	766,000	844,000	906,000
	Pre-1990 Conservation	250,000	250,000	250,000	250,000	250,000
C.	**SBx7-7 Water Conservation**	**190,000**	**380,000**	**380,000**	**380,000**	**380,000**
	20% by 2020 Retail-Level Compliance	190,000	380,000	380,000	380,000	380,000
D.	**Total Local Supplies**	**2,171,000**	**2,305,000**	**2,343,000**	**2,378,000**	**2,402,000**
	Groundwater	1,386,000	1,389,000	1,389,000	1,397,000	1,396,000
	Surface Water	91,000	91,000	91,000	91,000	91,000
	Los Angeles Aqueduct	63,000	67,000	71,000	75,000	78,000
	Groundwater Recovery	100,000	107,000	113,000	119,000	125,000
	Total Recycling	340,000	370,000	390,000	407,000	423,000
	Other Imported Supplies	191,000	282,000	288,000	288,000	288,000
E.	**Total Metropolitan Demands (E=A-B-C-D)**	**2,154,000**	**2,049,000**	**2,106,000**	**2,163,000**	**2,224,000**
	Full Service (Tier I and Tier II)	2,056,000	1,947,000	2,003,000	2,059,000	2,119,000
	Replenishment Service[3]	97,000	102,000	103,000	104,000	104,000
	Interim Agricultural Water Program[4]	0	0	0	0	0
F.	**Firm Demands on Metropolitan[5]**	**2,056,000**	**1,947,000**	**2,003,000**	**2,059,000**	**2,119,000**

Notes:
All units are acre-feet unless specified, rounded the nearest thousand.
Totals may not sum due to rounding.
[1]Growth projections are based on SCAG 2007 Regional Transportation Plan and SANDAG Series 12 2050 Regional Growth Forecast (Feb 2010).
[2]Includes code-based, price-effect and existing active savings through 2009; does not include future active conservation savings. 1990 is base year.
[3]Replenishment Service as defined in MWD Administrative Code Section 4114. Replenishment service includes direct and in-lieu replenishment.
[4]IAWP deliveries will be phased out by 2013.
[5]Firm demand on Metropolitan equals Full Service demands plus 70% of the Interim Agricultural Water Program demands.

Table 2-8
Metropolitan Regional Water Demands
Average Year
(Acre-Feet)

		2015	2020	2025	2030	2035
A.	**Total Demands[1]**	**5,449,000**	**5,632,000**	**5,774,000**	**5,930,000**	**6,069,000**
	Retail Municipal and Industrial	4,978,000	5,170,000	5,330,000	5,491,000	5,627,000
	Retail Agricultural	222,000	205,000	186,000	179,000	180,000
	Seawater Barrier	71,000	72,000	72,000	72,000	72,000
	Groundwater Replenishment	178,000	185,000	187,000	189,000	191,000
B.	**Total Conservation**	**936,000**	**967,000**	**1,033,000**	**1,096,000**	**1,156,000**
	Existing Active (through 2009)[2]	97,000	46,000	16,000	2,000	0
	Code-based and Price-Effect	589,000	671,000	766,000	844,000	906,000
	Pre-1990 Conservation	250,000	250,000	250,000	250,000	250,000
C.	**SBx7-7 Water Conservation**	**190,000**	**380,000**	**380,000**	**380,000**	**380,000**
	20% by 2020 Retail-Level Compliance	190,000	380,000	380,000	380,000	380,000
D.	**Total Local Supplies**	**2,395,000**	**2,522,000**	**2,553,000**	**2,581,000**	**2,603,000**
	Groundwater	1,429,000	1,430,000	1,429,000	1,431,000	1,431,000
	Surface Water	103,000	102,000	102,000	102,000	102,000
	Los Angeles Aqueduct	224,000	225,000	226,000	229,000	230,000
	Groundwater Recovery	101,000	108,000	114,000	120,000	126,000
	Total Recycling	348,000	375,000	394,000	410,000	426,000
	Other Imported Supplies	190,000	281,000	288,000	288,000	288,000
E.	**Total Metropolitan Demands (E=A-B-C-D)**	**1,928,000**	**1,763,000**	**1,808,000**	**1,874,000**	**1,931,000**
	Full Service (Tier I and Tier II)	1,826,000	1,660,000	1,705,000	1,769,000	1,826,000
	Replenishment Service[3]	102,000	103,000	103,000	104,000	105,000
	Interim Agricultural Water Program[4]	0	0	0	0	0
F.	**Firm Demands on Metropolitan[5]**	**1,826,000**	**1,660,000**	**1,705,000**	**1,769,000**	**1,826,000**

Notes:
All units are acre-feet unless specified, rounded the nearest thousand.
Totals may not sum due to rounding.
[1] Growth projections are based on SCAG 2007 Regional Transportation Plan and SANDAG Series 12 2050 Regional Growth Forecast (Feb 2010).
[2] Includes code-based, price-effect and existing active savings through 2009; does not include future active conservation savings. 1990 is base year.
[3] Replenishment Service as defined in MWD Administrative Code Section 4114. Replenishment service includes direct and in-lieu replenishment.
[4] IAWP deliveries will be phased out by 2013.
[5] Firm demand on Metropolitan equals Full Service demands plus 70% of the Interim Agricultural Water Program demands.

2.3 Water Supply Reliability

After estimating demands for single dry year, multiple dry years, and average years the water reliability analysis requires urban water suppliers to identify projected supplies to meet these demands. Table 2-9 summarizes the sources of supply for the single dry year (1977 hydrology), while Table 2-10 shows the region's ability to respond in future years under a repeat of the 1990-92 hydrology. Table 2-10 provides results for the average of the three dry years rather than a year-by-year detail, because most of Metropolitan's dry-year supplies are designed to provide equal amounts of water over each year of a three-year period. These tables show that the region can provide reliable water supplies under both the single driest year and the multiple dry year hydrologies. Table 2-11 reports the expected situation on average over all of the historic hydrologies. Appendix A.3 contains detailed justifications for the sources of supply used for this analysis.

Metropolitan' s supply capabilities are evaluated using the following assumptions:

Colorado River Aqueduct Supplies

Colorado River Aqueduct supplies include supplies that would result from existing and committed programs and from implementation of the Quantification Settlement Agreement (QSA) and related agreements. The QSA, which is the subject of current litigation, is a component of the California Plan and establishes the baseline water use for each of the agreement parties and facilitates the transfer of water from agricultural agencies to urban uses. A detailed discussion of the QSA is included in Section 3. Colorado River transactions are potentially available to supply additional water up to the CRA capacity of 1.25 MAF on an as-needed basis.

State Water Project Supplies

State Water Project (SWP) supplies are estimated using the draft 2009 SWP Delivery Reliability Report distributed by DWR in December 2009. The draft 2009 reliability report presents the current DWR estimate of the amount of water deliveries for current (2009) conditions and conditions 20 years in the future. These estimates incorporate restrictions on SWP and Central Valley Project (CVP) operations in accordance with the biological opinions of the U.S. Fish and Wildlife Service and National Marine Fishery Service issued on December 15, 2008, and June 4, 2009, respectively. Under the 2009 draft reliability report, the delivery estimates for the SWP for current (2009) conditions as percentage of maximum Table A amounts, are seven percent, equivalent to 134 TAF, under a single dry-year (1977) condition and 60%, equivalent to 1.15 MAF, under long-term average condition.

In dry, below-normal conditions, Metropolitan has increased the supplies received from the California Aqueduct by developing flexible Central Valley storage and transfer programs. Over the last two years under the pumping restrictions of the SWP, Metropolitan has worked collaboratively with the other contractors to develop numerous voluntary Central Valley storage and transfer programs. The goal of this storage/transfer programs is to develop additional dry-year supplies that can be conveyed through the available Banks pumping capacity to maximize deliveries through the California Aqueduct during dry hydrologic conditions and regulatory restrictions.

Delta Improvements

The listing of several fish species as threatened or endangered under the federal or California Endangered Species Acts (ESAs) have adversely impacted operations and limited the flexibility of the SWP. In response to court decisions related to the Biological Opinions for fish species listed under the ESAs, DWR altered the operations of the SWP. This resulted in export restrictions and reduced SWP deliveries. In June 2007, Metropolitan's Board approved a Delta Action Plan that provides a framework for staff to pursue actions with other agencies and stakeholders to build a sustainable Delta and reduce conflicts between water supply conveyance

and the environment. The Delta Action Plan aims to prioritize immediate short-term actions to stabilize the Delta while an ultimate solution is selected, and mid-term steps to maintain the Bay-Delta while the long-term solution is implemented.

In the near-term, the physical and operational actions in the Bay-Delta being developed include measures that protect fish species and reduce supply impacts with the goal of reducing conflicts between water supply conveyance and environmental needs. The potential for Increased supply due to these near-term fixes is included in the 2010 RUWMP as a 10 percent increase in water supplies obtained from the SWP allocation for the year. In evaluating the supply capabilities for the 2010 RUWMP, additional supplies from this interim fix are assumed to materialize by 2013. Also included as a possible near-term fix for the Bay-Delta is the proposed Two-Gate System demonstration program, which would provide movable barriers on the Old and Middle Rivers to modify flows and prevent fish from being drawn toward the Bay-Delta pumping plants. The Two-Gate System is anticipated to protect fish and increase SWP supplies.

Operational constraints likely will continue until a long-term solution to the problems in the Bay-Delta is identified and implemented. State and federal resource agencies and various environmental and water user entities are currently engaged in the development of the Bay Delta Conservation Plan (BDCP), which is aimed at addressing the basic elements that include the Delta ecosystem restoration, water supply conveyance, and flood control protection and storage development. In dealing with these basic issues, the ideal solutions sought are the ones that address both the physical changes required as well as the financing and governance. In evaluating the supply capabilities for the 2010 RUWMP, Metropolitan assumed a new Delta conveyance is fully operational by 2022 that would return supply reliability similar to 2005 condition, prior to supply restrictions imposed due to the Biological Opinions. This assumption is consistent with Metropolitan's long-term Delta Action Plan that recognizes the need for a global, comprehensive approach to the fundamental issues and conflicts to result in a sustainable Bay-Delta, sufficient to avoid biological opinion restrictions on planned SWP deliveries to Metropolitan and the other SWP Contractors. Further, recently passed state legislation included pathways for establishing governance structures and financing approaches to implement and manage the identified elements.

Storage

A key component of Metropolitan's water supply capability is the amount of water in Metropolitan's storage facilities. Storage is a major component of Metropolitan's dry-year resource management strategy. Metropolitan's likelihood of having adequate supply capability to meet projected demands, without implementing the Water Supply Allocation plan (WSAP), is dependent on its storage resources.

In developing the supply capabilities for the 2010 RUWMP, Metropolitan assumed a simulated median storage level going into each of five-year increments based on the balances of supplies and demands. Under the median storage condition, there is an estimated 50 percent probability that storage levels would be higher than the assumption used, and a 50 percent probability that storage levels would be lower than the assumption used. All storage capability figures shown in the 2010 RUWMP reflect actual storage program conveyance constraints. It is important to note that under some conditions, Metropolitan may choose to implement the WSAP in order to preserve storage reserves for a future year, instead of using the full supply capability. This can result in impacts at the retail level even under conditions where there may be adequate supply capabilities to meet demands.

Table 2-9
Single Dry-Year
Supply Capability[1] and Projected Demands
Repeat of 1977 Hydrology
(acre-feet per year)

Forecast Year	2015	2020	2025	2030	2035
Current Programs					
In-Region Storage and Programs	685,000	931,000	1,076,000	964,000	830,000
California Aqueduct[2]	522,000	601,000	651,000	609,000	610,000
Colorado River Aqueduct					
Colorado River Aqueduct Supply[3]	1,416,000	1,824,000	1,669,000	1,419,000	1,419,000
Aqueduct Capacity Limit[4]	*1,250,000*	*1,250,000*	*1,250,000*	*1,250,000*	*1,250,000*
Colorado River Aqueduct Capability	1,250,000	1,250,000	1,250,000	1,250,000	1,250,000
Capability of Current Programs	**2,457,000**	**2,782,000**	**2,977,000**	**2,823,000**	**2,690,000**
Demands					
Firm Demands of Metropolitan	1,991,000	1,889,000	1,921,000	1,974,000	2,039,000
IID-SDCWA Transfers and Canal Linings	180,000	273,000	280,000	280,000	280,000
Total Demands on Metropolitan[5]	**2,171,000**	**2,162,000**	**2,201,000**	**2,254,000**	**2,319,000**
Surplus	**286,000**	**620,000**	**776,000**	**569,000**	**371,000**
Programs Under Development					
In-Region Storage and Programs	206,000	306,000	336,000	336,000	336,000
California Aqueduct	556,000	556,000	700,000	700,000	700,000
Colorado River Aqueduct					
Colorado River Aqueduct Supply[3]	187,000	187,000	187,000	182,000	182,000
Aqueduct Capacity Limit[4]	*0*	*0*	*0*	*0*	*0*
Colorado River Aqueduct Capability	0	0	0	0	0
Capability of Proposed Programs	**762,000**	**862,000**	**1,036,000**	**1,036,000**	**1,036,000**
Potential Surplus	**1,048,000**	**1,482,000**	**1,812,000**	**1,605,000**	**1,407,000**

[1] Represents Supply Capability for resource programs under listed year type.

[2] California Aqueduct includes Central Valley transfers and storage program supplies conveyed by the aqueduct.

[3] Colorado River Aqueduct includes water management programs, IID-SDCWA transfers and canal linings conveyed by the aqueduct.

[4] Maximum CRA deliveries limited to 1.25 MAF including IID-SDCWA transfers and canal linings.

[5] Firm demands are adjusted to include IID-SDCWA transfers and canal linings. These supplies are calculated as local supply, but need to be shown for the purposes of CRA capacity limit calculations without double counting.

Table 2-10
Multiple Dry-Year
Supply Capability[1] and Projected Demands
Repeat of 1990-1992 Hydrology
(acre-feet per year)

Forecast Year	2015	2020	2025	2030	2035
Current Programs					
In-Region Storage and Programs	246,000	373,000	435,000	398,000	353,000
California Aqueduct[2]	752,000	794,000	835,000	811,000	812,000
Colorado River Aqueduct					
Colorado River Aqueduct Supply[3]	1,318,000	1,600,000	1,417,000	1,416,000	1,416,000
Aqueduct Capacity Limit[4]	*1,250,000*	*1,250,000*	*1,250,000*	*1,250,000*	*1,250,000*
Colorado River Aqueduct Capability	1,250,000	1,250,000	1,250,000	1,250,000	1,250,000
Capability of Current Programs	**2,248,000**	**2,417,000**	**2,520,000**	**2,459,000**	**2,415,000**
Demands					
Firm Demands of Metropolitan	2,056,000	1,947,000	2,003,000	2,059,000	2,119,000
IID-SDCWA Transfers and Canal Linings	180,000	241,000	280,000	280,000	280,000
Total Demands on Metropolitan[5]	**2,236,000**	**2,188,000**	**2,283,000**	**2,339,000**	**2,399,000**
Surplus	**12,000**	**229,000**	**237,000**	**120,000**	**16,000**
Programs Under Development					
In-Region Storage and Programs	162,000	280,000	314,000	336,000	336,000
California Aqueduct	242,000	273,000	419,000	419,000	419,000
Colorado River Aqueduct					
Colorado River Aqueduct Supply[3]	187,000	187,000	187,000	182,000	182,000
Aqueduct Capacity Limit[4]	*0*	*0*	*0*	*0*	*0*
Colorado River Aqueduct Capability	0	0	0	0	0
Capability of Proposed Programs	**404,000**	**553,000**	**733,000**	**755,000**	**755,000**
Potential Surplus	**416,000**	**782,000**	**970,000**	**875,000**	**771,000**

[1] Represents Supply Capability for resource programs under listed year type.

[2] California Aqueduct includes Central Valley transfers and storage program supplies conveyed by the aqueduct.

[3] Colorado River Aqueduct includes water management programs, IID-SDCWA transfers and canal linings conveyed by the aqueduct.

[4] Maximum CRA deliveries limited to 1.25 MAF including IID-SDCWA transfers and canal linings.

[5] Firm demands are adjusted to include IID-SDCWA transfers and canal linings. These supplies are calculated as local supply, but need to be shown for the purposes of CRA capacity limit calculations without double counting.

Table 2-11
AverageYear
Supply Capability[1] and Projected Demands
Average of 1922-2004 Hydrologies
(acre-feet per year)

Forecast Year	2015	2020	2025	2030	2035
Current Programs					
In-Region Storage and Programs	685,000	931,000	1,076,000	964,000	830,000
California Aqueduct[2]	1,550,000	1,629,000	1,763,000	1,733,000	1,734,000
Colorado River Aqueduct					
Colorado River Aqueduct Supply[3]	1,507,000	1,529,000	1,472,000	1,432,000	1,429,000
Aqueduct Capacity Limit[4]	*1,250,000*	*1,250,000*	*1,250,000*	*1,250,000*	*1,250,000*
Colorado River Aqueduct Capability	1,250,000	1,250,000	1,250,000	1,250,000	1,250,000
Capability of Current Programs	**3,485,000**	**3,810,000**	**4,089,000**	**3,947,000**	**3,814,000**
Demands					
Firm Demands of Metropolitan	1,826,000	1,660,000	1,705,000	1,769,000	1,826,000
IID-SDCWA Transfers and Canal Linings	180,000	273,000	280,000	280,000	280,000
Total Demands on Metropolitan[5]	**2,006,000**	**1,933,000**	**1,985,000**	**2,049,000**	**2,106,000**
Surplus	**1,479,000**	**1,877,000**	**2,104,000**	**1,898,000**	**1,708,000**
Programs Under Development					
In-Region Storage and Programs	206,000	306,000	336,000	336,000	336,000
California Aqueduct	382,000	383,000	715,000	715,000	715,000
Colorado River Aqueduct					
Colorado River Aqueduct Supply[3]	187,000	187,000	187,000	182,000	182,000
Aqueduct Capacity Limit[4]	*0*	*0*	*0*	*0*	*0*
Colorado River Aqueduct Capability	0	0	0	0	0
Capability of Proposed Programs	**588,000**	**689,000**	**1,051,000**	**1,051,000**	**1,051,000**
Potential Surplus	**2,067,000**	**2,566,000**	**3,155,000**	**2,949,000**	**2,759,000**

[1] Represents Supply Capability for resource programs under listed year type.

[2] California Aqueduct includes Central Valley transfers and storage program supplies conveyed by the aqueduct.

[3] Colorado River Aqueduct includes water management programs, IID-SDCWA transfers and canal linings conveyed by the aqueduct.

[4] Maximum CRA deliveries limited to 1.25 MAF including IID-SDCWA transfers and canal linings.

[5] Firm demands are adjusted to include IID-SDCWA transfers and canal linings. These supplies are calculated as local supply, but need to be shown for the purposes of CRA capacity limit calculations without double counting.

2.4 Water Shortage Contingency Analysis

In addition to the Water Supply Reliability analysis addressing average year and drought conditions, the Act requires agencies to document the stages of actions that it would undertake in response to water supply shortages, including up to a 50 percent reduction in its water supplies. Metropolitan has captured this planning in its Water Surplus and Drought Management Plan (WSDM Plan) which guides Metropolitan's planning and operations during both shortage and surplus conditions. Furthermore, Metropolitan developed the WSAP which provides a standardized methodology for allocating supplies during times of shortage.

Water Surplus and Drought Management Plan

In April 1999, Metropolitan's Board adopted the Water Surplus and Drought Management Plan (WSDM Plan)[3], included in Appendix A.4. It provides policy guidance for managing regional water supplies to achieve the reliability goals of the IRP and identifies the expected sequence of resource management actions that Metropolitan will execute during surpluses and shortages to minimize the probability of severe shortages and reduce the possibility of extreme shortages and shortage allocations. Unlike Metropolitan's 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.

WSDM Plan Development

Metropolitan 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 between Metropolitan and member agency staff. The result of the planning effort is a consensus plan that addresses a broad range of regional water management actions and strategies.

<u>WSDM Plan Principles and Goals</u>
The guiding principle of the WSDM plan is to manage Metropolitan's water 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 came 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 if mandatory import water allocations become necessary, they 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

WSDM Plan Implementation

Each year, Metropolitan evaluates the level of supplies available and existing levels of water in storage to determine the appropriate management stage. Each stage is associated with specific resource

[3] Metropolitan Water District of Southern California. *Water Surplus and Drought Management Plan,* Report No. 1150, August, 1999.

management actions designed to (1) avoid an Extreme Shortage to the maximum extent possible and (2) minimize adverse impacts to retail customers if an Extreme Shortage occurs. The current sequencing outlined in the WSDM Plan reflects anticipated responses based on detailed modeling of Metropolitan's existing and expected resource mix.

Surplus Stages

Metropolitan's supply situation is considered to be in surplus as long as net annual deliveries can be made to water storage programs. The WSDM Plan further defines five surplus management stages that guide the storage of surplus supplies in Metropolitan's storage portfolio. Deliveries for storage in the DVL and in the SWP terminal reservoirs continue through each surplus stage provided there is available storage capacity. Withdrawals from DVL 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.

Shortage Stages

The WSDM Plan distinguishes between Shortages, Severe Shortages, and Extreme Shortages. Within the WSDM Plan, these terms have specific meaning relating to Metropolitan's ability to deliver water to its customers.

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

Severe Shortage: Metropolitan 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: Metropolitan must allocate available supply to full-service customers.

The WSDM Plan also defines 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 Metropolitan's 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.

When Metropolitan 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. For shortage stages 1 through 4, Metropolitan will meet demands by withdrawing water from storage. At shortage stages 5 through 7, Metropolitan may undertake additional shortage management steps, including issuing public calls for extraordinary conservation, considering curtailment of Interim Agricultural Water Program deliveries in accordance with their discounted rates, exercising water transfer options, or purchasing water on the open market.

Figure 2-2 shows the actions under surplus and shortage stages when an allocation plan would be necessary to enforce mandatory cutbacks. The overriding goal of the WSDM Plan is to never reach Shortage Stage 7, an Extreme Shortage.

At shortage stage 7 Metropolitan will implement its Water Supply Allocation Plan[4] (WSAP) to allocate available supply fairly and efficiently to full-service customers.

Water Supply Allocation Plan

In February 2008 Metropolitan's Board adopted the WSAP. The WSAP includes the specific formula for calculating member agency supply allocations and the key implementation elements needed for administering an allocation.

The WSAP was developed in consideration of the principles and guidelines described in the

[4] Metropolitan Water District of Southern California, Water Supply Allocation Plan, June 2009.

WSDM Plan, with the objective of creating an equitable needs-based allocation. The WSAP formula seeks to balance the impacts of a shortage at the retail level while maintaining equity on the wholesale level for shortages of Metropolitan supplies of up to 50 percent. The formula takes into account growth, local investments, changes in supply conditions and the demand hardening aspects of non-potable recycled water use and the implementation of conservation savings programs.

Water Supply Allocation Plan Development

Between July 2007 and February 2008, Metropolitan staff worked jointly with Metropolitan's member agencies to develop the WSAP. Throughout the development process Metropolitan's Board was provided with regular progress reports on the status of the WSAP The WSAP was adopted at the February 12, 2008 Board meeting.

The WSAP Formula

The WSAP formula is calculated in three steps: base period calculations, allocation year calculations, and supply allocation calculations. The first two steps involve standard computations, while the third step contains specific methodology developed for the WSAP.

Step 1: Base Period Calculations

The first step in calculating a water supply allocation is to estimate water supply and demand using a historical base period with established water supply and delivery data. The base period for each of the different categories of demand and supply is calculated using data from the three most recent non-shortage years, 2004-2006.

Step 2: Allocation Year Calculations

The next step in calculating the water supply allocation is estimating water needs in the allocation year. This is done by adjusting the base period estimates of retail demand for population or economic growth and changes in local supplies.

Step 3: Supply Allocation Calculations

The final step is calculating the water supply allocation for each member agency based on the allocation year water needs identified in Step 2. Each element and its application in the allocation formula is discussed in detail in Metropolitan's Water Supply Allocation Plan.[5]

Annual Reporting Schedule on Supply/ Demand Conditions

Managing Metropolitan's water supply resources to minimize the risk of shortages requires timely and accurate information on changing supply and demand conditions throughout the year. To facilitate effective resource management decisions, the WSDM Plan includes a monthly schedule for providing supply/demand information to Metropolitan's senior management and Board, and for making resource allocation decisions. Table 2-12 shows this schedule.

[5] Metropolitan Water District of Southern California, Water Supply Allocation Plan, June 2009.

Figure 2-2 Resource Stages, Anticipated Actions, And Supply Declarations

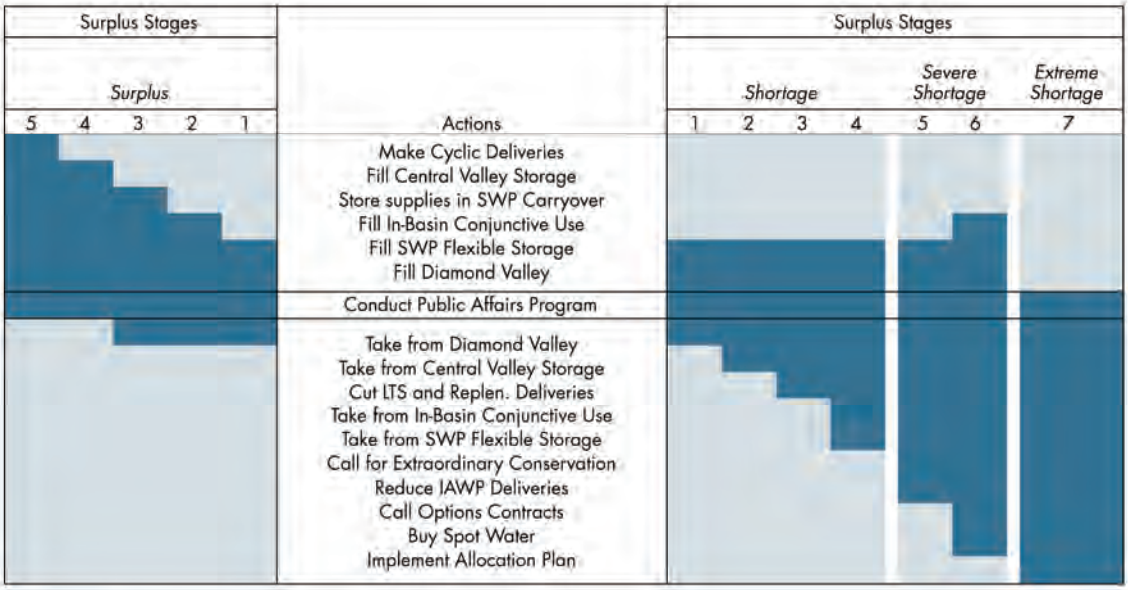


Table 2-12
Schedule of Reporting and Resource Allocation Decision-Making

Month	Information Report/Management Decision
January	Initial supply/demand forecasts for year
February - March	Update supply/demand forecasts for year
April - May	Finalize supply/demand forecasts Management decisions re: Contractual Groundwater and Option Transfer Programs Board decision re: Need for Extraordinary Conservation
October - December	Report on Supply and Carryover Storage
October	Management decisions re: Delivery Interruptions for the Replenishment and Interim Agricultural Water Programs

2.5 Catastrophic Supply Interruption Planning

The third type of planning needed to evaluate supply reliability is a catastrophic supply interruption plan that documents the actions necessary for a catastrophic interruption in water supplies. For Metropolitan this planning is captured in the analysis that went into developing the Emergency Storage Requirements.

Emergency Storage Requirements

Metropolitan established its criteria for determining emergency storage requirements in the October 1991 Final Environmental Impact Report for the Eastside Reservoir, which is now named Diamond Valley Lake. These criteria were again discussed in the 1996 IRP. Metropolitan's Board has approved both of these documents.

Emergency storage requirements are based on the potential of a major earthquake damaging the aqueducts that transport Southern California's imported water supplies (SWP, CRA, and Los Angeles Aqueduct). The adopted criteria assume that damage from such an event could render the aqueducts out of service for six months. Therefore, Metropolitan has based its planning on a 100 percent reduction in its supplies for a period of six months, which is a greater shortage than required by the Act.

To safeguard the region from catastrophic loss of water supply, Metropolitan has made substantial investments in emergency storage. The emergency plan outlines that under such a catastrophe, non-firm service deliveries would be suspended, and firm supplies to member agencies would be restricted by a mandatory cutback of 25 percent from normal-year demand levels. At the same time, water stored in surface reservoirs and groundwater basins under Metropolitan's interruptible program would be made available, and Metropolitan would draw on its emergency storage, as well as other available storage. Metropolitan has reserved up to half of DVL storage to meet such an emergency, while the remainder is available for dry-year and seasonal supplies. In addition, Metropolitan has access to emergency storage at its other reservoirs, at the SWP terminal reservoirs, and in its groundwater conjunctive use storage accounts. With few exceptions, Metropolitan can deliver this emergency supply throughout its service area via gravity, thereby eliminating dependence on power sources that could also be disrupted by a major earthquake. The WSDM Plan shortage stages will guide Metropolitan's management of available supplies and resources during the emergency to minimize the impacts of the catastrophe.

Electrical Outages

Metropolitan has also developed contingency plans that enable it to deal with both planned and unplanned electrical outages. These plans include the following key points:

- In event of power outages, water supply can be maintained by gravity feed from regional reservoirs such as DVL, Lake Mathews, Castaic Lake and Silverwood Lake.
- Maintaining water treatment operations is a key concern. As a result, all Metropolitan treatment plants have backup generation sufficient to continue operating in event of supply failure on the main electrical grid.
- Valves at Lake Skinner can be operated by the backup generation at the Lake Skinner treatment plant.
- Metropolitan owns mobile generators that can be transported quickly to key locations if necessary.

2.6 Other Supply Reliability Risks

Metropolitan provides water to a broad and heterogeneous service area with water supplies from a variety of sources and geographic regions. Each of these demand areas and supplies has its own unique set of benefits and challenges. Among the challenges Metropolitan faces are the following:

Supplies

- The region and Colorado River Basin have been experiencing drought conditions for multiple years.
- Endangered species protections and conveyance needs in the Sacramento-San Joaquin River Delta System have resulted in operational constraints particularly important because pumping restrictions impact many water resource programs – SWP supplies and additional voluntary transfers, Central Valley storage and transfers, in-region groundwater storage and in-region surface water storage.
- Changing climate patterns are predicted to shift precipitation patterns and possibly affect water supply.
- Difficulty and implications of environmental review, documentation, and permitting for multi-year transfer agreements, recycled water projects and seawater desalination plants.
- Public perception of recycled water use for replenishment.

Operations and Water Quality

- The cost and use of energy and greenhouse gas emissions.
- Water quality regulations and issues like the quagga mussels within the Colorado River Aqueduct. Controlling the spread and impacts of the quagga mussels will require more extensive maintenance and reduced operational flexibility.
- Salt and concentrate balance from variety of sources.

Demand

- Uncertain population and economic growth
- Uncertain location of growth
- Uncertain housing stock and density

The challenges posed by continued population growth, environmental constraints on the reliability of imported supplies, and new uncertainties imposed by climate change demand that Metropolitan assert the same level of leadership and commitment to taking on large-scale regional solutions to providing water supply reliability. New solutions are available in the form of dramatically improved water-use efficiency, indirect potable use of recycled water, and large-scale application of ocean desalinization.

Climate Change

Climate change adds its own new uncertainties to the challenges of planning. Metropolitan's water supply planning has been fortunate in having almost one-hundred years of hydrological data regarding weather and water supply. This history of rainfall data has provided a sound foundation for forecasting both the frequency and the severity of future drought conditions, as well as the frequency and abundance of above-normal rainfall. But, weather patterns can be expected to shift dramatically and unpredictably in a climate driven by increased concentrations of carbon dioxide in the atmosphere, as experienced in Australia. These changes in weather significantly affect water supply planning, irrespective of the debate associated with the sources and cause of increasing concentrations of greenhouse gasses. As a major steward of the region's water supply resources, Metropolitan is committed to performing its due diligence with respect to climate change.

Potential Impacts

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

- Reduction in Sierra Nevada snowpack;
- Increased intensity and frequency of extreme weather events; and
- Rising sea levels resulting in
  - Increased risk of damage from storms, high-tide events, and the erosion of levees; and
  - Potential pumping cutbacks on the SWP and Central Valley Project (CVP).

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

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

Metropolitan's Activities Related to Climate Change Concerns

An extended Colorado River drought put climate change on Metropolitan's radar screen in the mid-1990s. In 2000, Metropolitan's Board received a briefing on the potential impacts of climate change on water supply by leading experts in the field. Metropolitan then hosted a California Water Plan meeting on climate change and a held Drought Preparedness Workshop on similar issues. In March 2002, the Board adopted policy principles on global climate change as related to water resource planning. The Principles stated in part that 'Metropolitan supports further research into the potential water resource and quality effects of global climate change, and supports flexible "no regret" solutions that provide water supply and quality benefits while increasing the ability to manage future climate change impacts.'

<u>Knowledge Sharing and Research Support</u>
Metropolitan is an active and founding member of the Water Utility Climate Alliance (WUCA). WUCA consists of ten nationwide water providers collaborating on climate change adaptation and green house gas mitigation issues. As a part of this effort, WUCA pursues a variety of activities on multiple fronts.

WUCA monitors development of climate change-related research, technology, programs and federal legislation. Activities to date include such things as:

- Letter of support for Western Water Assessment's continued funding as a Regional Integrated Sciences and Assessments team under the National Oceanic and Atmospheric Administration (NOAA)
- Letter of support for the 2009 Kerry-Boxer Water Utilities Mitigation and Adaptation Partnerships congressional bill addendum
- Regular communication and consultations with federal agencies on the U.S. Environmental Protection Agency's Climate Ready Water Utility Working Group
- NOAA Climate Service and January 2010 International Climate Change Forum

In addition to supporting federal and regional efforts, WUCA released a white paper entitled "Options for Improving Climate Modeling to Assist Water Utility Planning for Climate Change" in January 2010. The purpose of this paper was to assess Global Circulation Models, identify key aspects for water utility planning and make seven initial recommendations for how climate modeling

and downscaling techniques can be improved so that these tools and techniques can be more useful for the water sector.

In order to address water provider-specific needs, WUCA has focused not only on climate change science and Global Circulation Models, but on how best to incorporate that knowledge into water planning. This was explored more thoroughly in a second January 2010 white paper on decision support methods for incorporating climate change uncertainty into water planning. This paper assessed five known decision support approaches for applicability in incorporating Climate Change uncertainty in water utility planning and identified additional research needs in the area of decision support methodologies.

In addition to these efforts, the member agencies of WUCA annually share individual agency actions to mitigate greenhouse gas emissions to facilitate further implementation of these programs. At a September 2009 summit at the Aspen Global Change Institute WUCA, members met with global climate modelers, along with federal agencies, academic scientists, and climate researchers to establish collaborative directions to progress climate science and modeling efforts. WUCA continues to pursue these opportunities and partnerships with water providers, climate scientists, federal agencies, research centers, academia and key stakeholders.

Metropolitan also continues to pursue knowledge sharing and research support activities outside of WUCA. Metropolitan regularly provides input and direction on California legislation related to climate change issues. Metropolitan is active in collaborating with other state and federal agencies, as well as non-governmental organizations on climate change related planning issues. The following list provides a sampling of entities that Metropolitan has recently worked with on a collaborative basis:

- U.S. Bureau of Reclamation
- U.S. Army Corps of Engineers
- American Water Works Association Research Foundation
- National Center for Atmospheric Research
- California Energy Commission
- California Department of Water Resources

<u>Quantification of Current Research</u>

Metropolitan continues to incorporate current climate change science into its planning efforts. A major component of the current IRP update effort is to explicitly reflect uncertainty in Metropolitan's future water management environment. This involves evaluating a wider range of water management strategies, and seeking robust and adaptive plans that respond to uncertain conditions as they evolve over time, and that ultimately will perform adequately under a wide range of future conditions. The potential impacts and risks associated with climate change, as well as other major uncertainties and vulnerabilities, will be incorporated into the update and accounted. Overall, Metropolitan's planning activities strive to support the Board adopted policy principles on climate change by:

- Supporting reasonable, economically viable, and technologically feasible management strategies for reducing impacts on water supply
- Supporting flexible "no regret" solutions that provide water supply and quality benefits while increasing the ability to manage future climate change impacts, and

- Evaluating staff recommendations regarding climate change and water resources against the California Environmental Quality Act (CEQA) to avoid adverse effects on the environment.

Implementation of Programs and Policies

Metropolitan has made great efforts to implement greenhouse gas mitigation programs and policies for its facilities and operations. To date, these programs and policies have focused on:

- Exploring water supply/energy relationships and opportunities to increase efficiencies;
- Joining the California Climate Action Registry;
- Acquiring "green" fleet vehicles, and supporting an employee Rideshare program;
- Developing solar power at the Skinner water treatment plant; and
- Identifying and pursuing development of "green" renewable water and energy programs that support the efficient and sustainable use of water.

Metropolitan also continues to be a leader in efforts to increase regional water use efficiency. Metropolitan has worked to increase the availability of incentives for local conservation and recycling projects, as well as supporting conservation Best Management Practices for industry and commercial businesses.

2.7 Pricing and Rate Structures

Revenue Management

A high proportion of Metropolitan's revenues come from volumetric water rates; during the last five fiscal years through 2008-09, water sales revenues were approximately 75 percent of Metropolitan's total revenues. As a result, Metropolitan's revenues vary according to regional weather and the availability of statewide water supplies. In dry years, local demands increase and Metropolitan may receive higher than anticipated revenues due to increased sales volumes. In contrast, in wet years demands decrease, and revenues drop due to lower sales volumes. In addition, statewide supply shortages such as those in 1991 and 2009 also affect Metropolitan's revenues. Such revenue surpluses and shortages could cause instability in water rates. To mitigate this risk, Metropolitan maintains financial reserves, with a minimum and maximum balance, to stabilize water rates during times of reduced water sales. The reserves hold revenues collected during times of high water sales and are used to offset the need for revenues during times of low sales.

Another way to mitigate rate increases is by generating a larger portion of revenues from fixed sources. Metropolitan currently has two fixed charges, the Readiness-to-Serve Charge and the Capacity Charge. Metropolitan also collects tax revenue from taxable property within its boundaries. For the last five fiscal years the revenues from fixed charges generated almost 18 percent of all Metropolitan revenues. RTS revenues have been increasing gradually, from $80 million in 2007, to $114 million in 2010, $125 million in 2011, and $146 million in 2012.

Finally, Metropolitan generates a significant amount of revenue from interest income, hydroelectric power sales, and miscellaneous income such as rents and leases. For the last five fiscal years, these averaged almost 7 percent of all Metropolitan revenues. These internally generated revenues are referred to as revenue offsets and reduce the amount of revenue that has to be collected from rates and charges.

Elements of Rate Structure

This section provides an overview of Metropolitan's rate structure. The different elements of the rate structure are discussed below and summarized in Table 2-13.

System Access Rate (SAR)

The SAR is a volumetric system-wide rate levied on each acre-foot of water that moves through the Metropolitan system. All system users (member agency or third party) pay the SAR to use Metropolitan's conveyance and distribution system. The SAR recovers the cost of providing conveyance and distribution capacity to meet average annual demands.

Water Stewardship Rate (WSR)

The WSR recovers the costs of providing financial incentives for existing and future investments in local resources including conservation and recycled water. These investments or incentive payments are identified as the "demand management" service function in the cost of service process. The WSR is a volumetric rate levied on each acre-foot of water that moves through the Metropolitan system.

System Power Rate (SPR)

The SPR recovers the costs of energy required to pump water to Southern California through the SWP and Colorado River Aqueduct. The cost of power is recovered through a uniform volumetric rate. The SPR is applied to all deliveries to member agencies.

Treatment Surcharge

The treatment surcharge recovers the costs of providing treated water service through a uniform, volumetric rate. The treatment surcharge recovers all costs associated with providing treated water service, including commodity, demand and standby related costs.

Capacity Charge

The capacity charge is levied on the maximum summer day demand placed on the system between May 1 and September 30 for a three-calendar year period. Demands measured for the purposes of billing the capacity charge include all firm demand and agricultural demand, including wheeling service and exchanges. Replenishment service is not included in the measurement of peak day demand for purposes of billing the capacity charge.

The capacity charge is intended to pay for the cost of peaking capacity on Metropolitan's system, while providing an incentive for local agencies to decrease their use of the Metropolitan system to meet peak day demands and to shift demands into lower use time periods. Over time, a member agency will benefit from local supply investments and operational strategies that reduce its peak day demand on the system in the form of a lower total capacity charge.

Readiness-To-Serve Charge (RTS)

The costs of providing standby service, including emergency storage and those standby costs related to the conveyance and aqueduct system, are recovered by the RTS.

The RTS is allocated to the member agencies based on each agency's proportional share of a ten-year rolling average of all firm deliveries (including water transfers and exchanges that use Metropolitan system capacity). The ten-year rolling average does not include replenishment service and interim agricultural deliveries because these deliveries will be the first to be curtailed in the event of an emergency. A ten-year rolling average leads to a relatively stable RTS allocation that reasonably represents an agency's potential long-term need for standby service under different demand conditions. Member agencies may choose to have a portion of their total RTS obligation offset by standby charge collections levied by Metropolitan on behalf of the member agency. These standby charges are assessed on parcels of land within the boundaries of a given member agency.

Tier 1 Supply Rate

The costs of maintaining existing supplies and developing additional supplies are recovered through a two-tiered pricing approach. The Tier 1 Supply Rate recovers the majority of the supply costs and reflects the cost of existing supplies. Each member agency has a predetermined amount of water that can be purchased at the lower Tier 1 Supply Rate in a calendar year. Purchases in excess of this limit will be made at the higher Tier 2 Supply Rate.

The Tier 1 Supply rate includes a Delta Supply Surcharge of $69 per AF in 2010, $51 per AF in 2011 and $58 per AF in 2012. This surcharge reflects the impact on Metropolitan's water supply rates due to lower deliveries from the SWP as a result of pumping restrictions designed to protect endangered fish species. The Delta Supply Surcharge will remain in effect until a long-term solution for the delta was achieved or until interim facility improvements restore SWP yield.

Tier 2 Supply Rate

The Tier 2 Supply Rate reflects Metropolitan's cost of developing long-term firm supplies. The Tier 2 Supply Rate recovers a greater proportion of the cost of developing additional supplies from member agencies that have increasing demands on the Metropolitan system.

Replenishment Program and Agricultural Water Program

Metropolitan currently administers two pricing programs that make surplus system supplies (system supplies in excess of what is needed to meet consumptive municipal and industrial demands) available to the member agencies at a discounted water rate. The Replenishment Program provides supplies, when available, for the purpose of replenishing local storage. The Interim Agricultural Water Program (IAWP) makes surplus water available for agricultural purposes. In October 2008, the Board

approved a phase out of the IAWP by 2013. Because of the critically dry conditions and uncertainty about future supply, discounted replenishment deliveries have been curtailed for the past three years. If water supply conditions improve and surplus water becomes available, Metropolitan could make Replenishment service available to its member agencies at discounted rates, subject to meeting Metropolitan's storage objectives to meet full service demands.

Table 2-13
Rate Structure Components

Rate Design Elements	Service Provided/ Costs Recovered	Type of Charge
System Access Rate	Conveyance/Distribution (Average Capacity)	Volumetric ($/AF)
Water Stewardship Rate	Conservation/Local Resources	Volumetric ($/AF)
System Power Rate	Power	Volumetric ($/AF)
Treatment Surcharge	Treatment	Volumetric ($/AF)
Capacity Charge	Peak Distribution Capacity	Fixed/Volumetric ($/cfs)
Readiness-To-Serve Charge	Conveyance/Distribution/Emergency Storage(Standby Capacity)	Fixed ($Million)
Tier 1 Supply Rate	Supply	Volumetric/Fixed ($/AF)
Tier 2 Supply Rate	Supply	Volumetric ($/AF)
Surplus Water Rates	Replenishment/Agriculture	Volumetric ($/AF)

The following tables provide further information regarding Metropolitan's rates. Table 2-14 summarizes the rates and charges effective January 1, 2010, January 1, 2011, and January 1, 2012. Average costs by member agency will vary depending upon an agency's RTS allocation, Capacity Charge and relative proportions of treated and untreated Tier 1, Tier 2, replenishment, and agricultural water purchases. Table 2-15 provides the details of the Capacity Charge, calculated for calendar year 2011. Table 2-16 provides the details of the Readiness-to-Serve Charge calculation for calendar year 2011 broken down by member agency. Table 2-17 provides the current Purchase Order commitment quantities that member agencies will purchase from Metropolitan over the 10-year period starting January 2003 through December 2012. Tier 1 limits for each member agency are also shown in this table.

Table 2-14
Metropolitan Water Rates and Charges

Effective	Jan 1, 2010	Jan 1, 2011	Jan 1, 2012
Tier 1 Supply Rate ($/AF)	$101	$104	$106
Delta Supply Surcharge ($/AF)	$69	$51	$58
Tier 2 Supply Rate ($/AF)	$280	$280	$290
System Access Rate ($/AF)	$154	$204	$217
Water Stewardship Rate ($/AF)	$41	$41	$43
System Power Rate ($/AF)	$119	$127	$136
Full Service Untreated Volumetric Cost ($/AF)			
Tier 1	$484	$527	$560
Tier 2	$594	$652	$686
Replenishment Water Rate Untreated ($/AF)	$366	$409	$442
Interim Agricultural Water Program Untreated ($/AF)	$416	$482	$537
Treatment Surcharge ($/AF)	$217	$217	$234
Full Service Treated Volumetric Cost ($/AF)			
Tier 1	$701	$744	$794
Tier 2	$811	$869	$920
Treated Replenishment Water Rate ($/AF)	$558	$601	$651
Treated Interim Agricultural Water Program ($/AF)	$615	$687	$765
Readiness-to-Serve Charge ($M)	$114	$125	$146
Capacity Charge ($/cfs)	$7,200	$7,200	$7,400

Table 2-15
Capacity Charge Detail

	Peak Day Demand (cfs) (May 1 through September 30) Calendar Year				
Agency	2007	2008	2009	3-Year Peak	Calendar Year 2011 Capacity Charge ($7,200/cfs)
Anaheim	37.9	36.1	40.7	40.7	$ 293,040
Beverly Hills	33.9	32.9	31.0	33.9	244,080
Burbank	33.7	34.2	21.6	34.2	246,240
Calleguas	260.8	250.0	192.8	260.8	1,877,760
Central Basin	125.9	102.7	94.7	125.9	906,480
Compton	7.1	4.9	5.9	7.1	51,120
Eastern	303.0	263.1	227.8	303.0	2,181,600
Foothill	25.4	21.5	24.3	25.4	182,880
Fullerton	36.9	27.1	37.4	37.4	269,280
Glendale	54.6	55.7	56.0	56.0	403,200
Inland Empire	176.2	125.8	106.1	176.2	1,268,640
Las Virgenes	45.3	45.3	42.7	45.3	326,160
Long Beach	61.3	68.1	67.2	68.1	490,320
Los Angeles	768.5	821.9	698.2	821.9	5,917,680
MWDOC	469.2	453.7	489.5	489.5	3,524,400
Pasadena	58.5	55.6	50.2	58.5	$421,200
San Diego [1]	1278.4	1039.9	1055.3	1278.4	9,204,480
San Fernando	6.5	0.1	0.0	6.5	$46,800
San Marino	5.2	5.2	3.5	5.2	$37,440
Santa Ana	29.7	14.5	16.4	29.7	213,840
Santa Monica	27.6	26.2	25.0	27.6	198,720
Three Valleys	171.4	168.1	132.7	171.4	1,234,080
Torrance	41.6	35.5	39.3	41.6	299,520
Upper San Gabriel	63.8	36.9	27.6	63.8	459,360
West Basin	262.3	243.3	221.3	262.3	1,888,560
Western	289.1	271.4	219.9	289.1	2,081,520
Total	**4,673.8**	**4,239.7**	**3,927.1**	**4,759.5**	**$ 34,268,400**

Totals may not foot due to rounding

Table 2-16
Readiness-to-Serve Charge (by Member Agency)
Calendar Year 2011 RTS charge

Member Agency	Rolling Ten-Year Average Firm Deliveries (Acre-Feet) FY1999/00 - FY2008/09	RTS Share	12 months @ $125 million per year (1/11-12/11)
Anaheim	20,966	1.11%	$ 1,382,122
Beverly Hills	12,737	0.67%	839,692
Burbank	12,908	0.68%	850,938
Calleguas MWD	113,610	5.99%	7,489,554
Central Basin MWD	63,256	3.34%	4,170,058
Compton	3,146	0.17%	207,408
Eastern MWD	92,013	4.85%	6,065,789
Foothill MWD	11,570	0.61%	762,706
Fullerton	9,694	0.51%	639,087
Glendale	24,150	1.27%	1,592,015
Inland Empire Utilities Agency	61,205	3.23%	4,034,823
Las Virgenes MWD	23,282	1.23%	1,534,813
Long Beach	36,970	1.95%	2,437,211
Los Angeles	314,757	16.60%	20,749,798
Municipal Water District of Orange County	231,692	12.22%	15,273,878
Pasadena	23,397	1.23%	1,542,428
San Diego County Water Authority	491,238	25.91%	32,384,010
San Fernando	119	0.01%	7,819
San Marino	1,001	0.05%	65,963
Santa Ana	12,743	0.67%	840,028
Santa Monica	12,794	0.67%	843,429
Three Valleys MWD	73,095	3.85%	4,818,678
Torrance	20,742	1.09%	1,367,401
Upper San Gabriel Valley MWD	15,631	0.82%	1,030,447
West Basin MWD	141,522	7.46%	9,329,606
Western MWD	71,906	3.79%	4,740,301
MWD Total	**1,896,143**	**100.00%**	**$ 125,000,000**

Totals may not foot due to rounding

Table 2-17
Purchase Order Commitments and Tier 1 Limits
(by Member Agency)

	2011 Tier 1 Limit with Opt-outs	Purchase Order Commitment (acre-feet)
Anaheim	22,240	148,268
Beverly Hills	13,380	89,202
Burbank	16,336	108,910
Calleguas	110,249	692,003
Central Basin	72,361	482,405
Compton	5,058	33,721
Eastern	87,740	504,664
Foothill	10,997	73,312
Fullerton	11,298	75,322
Glendale	26,221	174,809
Inland Empire	59,792	398,348
Las Virgenes	21,087	137,103
Long Beach	39,471	263,143
Los Angeles	304,970	2,033,132
MWDOC	228,130	1,486,161
Pasadena	21,180	141,197
San Diego	547,239	3,342,571
San Fernando	630	-
San Marino	1,199	-
Santa Ana	12,129	80,858
Santa Monica	11,515	74,062
Three Valleys	70,474	469,331
Torrance	20,967	139,780
Upper San Gabriel	16,512	110,077
West Basin	156,874	1,045,825
Western	69,720	391,791
Total	**1,957,768**	**12,495,995**

Totals may not foot due to rounding.

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Water Quality 4

Metropolitan's planning efforts have recognized the importance of the quality of its water supplies. To the extent possible, Metropolitan responds to water quality concerns by concentrating on protecting the quality of the source water and developing water management programs that maintain and enhance water quality. Contaminants that cannot be sufficiently controlled through protection of source waters must be handled through changed water treatment protocols or blending. These practices can increase costs and/or reduce operating flexibility and safety margins. In addition, Metropolitan has developed enhanced security practices and policies in response to national security concerns.

Background

Implementing the major components of Metropolitan's planning efforts – groundwater storage, recycled water, and minimized impacts on the Delta – requires meeting specific water quality targets for imported water. Metropolitan has two major sources of water: the Colorado River and the State Water Project (SWP). Groundwater inflows are also received into the SWP through groundwater banking programs in the Central Valley. Each source has specific quality issues, which are summarized in this section. To date, Metropolitan has not identified any water quality risks that cannot be mitigated. As described in this section, the only potential effect of water quality on the level of water supplies based on current knowledge could result from increases in the salinity of water resources. If diminished water quality caused a need for membrane treatment, Metropolitan could experience losses of up to 15 percent of the water processed. However, Metropolitan would only process a small proportion of the affected water and would reduce total salinity by blending the processed water with the remaining unprocessed water. Thus, Metropolitan anticipates no significant reductions in water supply availability from these sources due to water quality concerns over the study period.

Colorado River

High salinity levels represent a significant issue associated with Colorado River supplies. In addition, Metropolitan has been engaged in efforts to protect its Colorado River supplies from threats of uranium, perchlorate and Chromium VI, which are discussed later in this chapter. Metropolitan has also been active in efforts to protect these supplies from potential increases in nutrient loading due to urbanization, as well as investigating the sources and occurrence of constituents of emerging concern, such as N-nitrosodimethylamine (NDMA) and pharmaceuticals and personal care products (PPCPs). Metropolitan fully expects its source water protection efforts to be successful, so the only foreseeable water quality constraint to the use of Colorado River water will be the need to blend (mix) it with SWP supplies to meet the adopted salinity standards.

State Water Project

The key water quality issues on the SWP are disinfection byproduct precursors, in particular, total organic carbon and bromide. Metropolitan is working to protect the water quality of this source, but it has needed to upgrade its water treatment

plants to deal adequately with disinfection byproducts. Disinfection byproducts result from total organic carbon and bromide in the source water reacting with disinfectants at the water treatment plant, and they may place some near term restrictions on Metropolitan's ability to use SWP water. Metropolitan expects these treatment restrictions to be overcome through the addition of ozone disinfection at its treatment plants. Arsenic is also of concern in some groundwater storage programs. Groundwater inflows into the California Aqueduct are managed to comply with regulations and protect downstream water quality while meeting supply targets. Additionally, nutrient levels are significantly higher in the SWP system than within the Colorado River, leading to the potential for algal related concerns that can affect water management strategies. Metropolitan is engaged in efforts to protect the quality of SWP water from potential increases in nutrient loading from wastewater treatment plants. Also, as in the Colorado River watershed, Metropolitan is active in studies on the occurrence, sources, and fate and transport of constituents of emerging concern, such as NDMA and PPCPs.

Local Agency Supplies and Groundwater Storage

New standards for contaminants, such as arsenic, and other emerging standards may add costs to the use of groundwater storage and may affect the availability of local agency groundwater sources. These contaminants are not expected to affect the availability of Metropolitan supplies, but they may affect the availability of local agency supplies, which could in turn affect the level of demands on Metropolitan supplies if local agencies abandon supplies in lieu of treatment options. Metropolitan has not analyzed the effect that many of these water quality issues could have on local agency supply availability. There have, however, been some investigations into the supply impacts of perchlorate groundwater contamination as indicated later in this section.

In summary, the major regional concerns include the following:

- Salinity
- Perchlorate
- Total organic carbon and bromide (disinfection byproduct precursors)
- Nutrients (as it relates to algal productivity)
- Arsenic
- Uranium
- Chromium VI
- N-nitrosodimethylamine (NDMA)
- Pharmaceuticals and personal care products (PPCPs)

Metropolitan has taken several actions and adopted programs to address these contaminants and ensure a safe and reliable water supply. These actions, organized by contaminant, are discussed below. Another constituent previously identified in the 2005 RUWMP as a regional concern, methyl tertiary-butyl ether (MTBE), is now a decreasing concern due to the elimination of this chemical as a gasoline additive in California. This is also further discussed below, along with other water quality programs that Metropolitan has been engaged in to protect its water supplies.

Issues of Concern

Salinity

Imported water from the Colorado River has high salinity levels, so it must be blended (mixed) with lower-salinity water from the SWP to meet salinity management goals. Higher salinity levels in either Colorado River water or groundwater would increase the proportion of SWP supplies required to meet the adopted imported water salinity objectives. Metropolitan adopted an imported water salinity goal because higher salinity could increase costs and reduce operating flexibility. For example,

1. If diminished water quality causes a need for membrane treatment, the process typically results in losses of up to 15 percent of the water processed. These losses result both in an increased requirement for additional water supplies and environmental constraints related to brine disposal. In addition, the process is costly. However, only a portion of the imported water would need to be processed, so the possible loss in supplies is small.
2. High total dissolved solids (TDS) in water supplies leads to high TDS in wastewater, which lowers the usefulness and increases the cost of recycled water.
3. Degradation of imported water supply quality could limit the use of local groundwater basins for storage because of standards controlling the quality of water added to the basins.

In addition to the link between water supply and water quality, Metropolitan has identified economic benefits from reducing the TDS concentrations of water supplies. Estimates show that a simultaneous reduction in salinity concentrations of 100 milligrams per liter (mg/L) in both the Colorado River and SWP supplies will yield economic benefits of $95 million per year within Metropolitan's service territory.[1] This estimate has added to Metropolitan's incentives to reduce salinity concentrations within the region's water supplies.

For all of these reasons, Metropolitan's Board approved a Salinity Management Policy on April 13, 1999. The policy set a goal of achieving salinity concentrations in delivered water of less than 500 mg/L TDS. The Salinity Management Policy is further discussed later in this section.

Within Metropolitan's service area, local water sources account for approximately half of the salt loading, and imported water accounts for the remainder. All of these sources must be managed appropriately to sustain water quality and supply reliability goals. The following sections discuss the salinity issues relevant to each of Metropolitan's major supply sources.

Colorado River

Water imported via the Colorado River Aqueduct (CRA) has the highest level of salinity of all of Metropolitan's sources of supply, averaging around 630 mg/L since 1976. Concern over salinity levels in the Colorado River has existed for many years. To deal with the concern, the International Boundary and Water Commission approved Minute No. 242, Permanent and Definitive Solution to the International Problem of the Salinity of the Colorado River in 1973, and the President approved the Colorado River Basin Salinity Control Act in 1974. High TDS in the Colorado River as it entered Mexico and the concerns of the seven basin states regarding the quality of Colorado River water in the United States drove these initial actions. To foster interstate cooperation on this issue, the seven basin states formed the Colorado River Basin Salinity Control Forum (Forum).

The salts in the Colorado River system are indigenous and pervasive, mostly resulting from saline sediments in the Basin that were deposited in prehistoric marine environments. They are easily eroded, dissolved, and transported into the river system. The Colorado River Basin Salinity Control Program is designed to prevent a portion of this abundant salt supply from moving into the river system. The program targets the interception and control of non-point sources, such as surface runoff, as well as wastewater and saline hot springs.

The Forum proposed, the states adopted, and the U. S. Environmental Protection Agency (USEPA) approved water quality standards in 1975, including numeric criteria and a plan for controlling salinity increases. The standards require that the plan ensure that the flow-weighted average annual salinity remain at or below the 1972 levels,

[1] Metropolitan Water District of Southern California and U.S. Bureau of Reclamation, Salinity Management Study: Final Report (June 1999)

while the Basin states continue to develop their 1922 Colorado River Compact-apportioned water supply. The Forum selected three stations on the main stream of the lower Colorado River as appropriate points to measure the river's salinity. These stations and numeric criteria are (1) below Hoover Dam, 723 mg/l; (2) below Parker Dam, 747 mg/l; and (3) at Imperial Dam, 879 mg/l. The numeric criteria are flow-weighted average annual salinity values.

By some estimates, concentrations of salts in the Colorado River cause approximately $353 million in quantified damages in the lower Basin each year. The salinity control program has proven to be very successful and cost-effective. Salinity control projects have reduced salinity concentrations of Colorado River water on average by over 100 mg/L or $264 million per year (2005 dollars) in avoided damages.

During the high water flows of 1983-1986, salinity levels in the CRA dropped to a historic low of 525 mg/L. However, during the 1987-1992 drought, higher salinity levels of 600 to 650 mg/L returned. TDS in Lake Havasu was measured at 628 mg/L in November 2009.

State Water Project

Water supplies from the SWP have significantly lower TDS concentrations than the Colorado River, averaging approximately 250 mg/L in water supplied through the East Branch and 325 mg/L on the West Branch over the long-term, with short term variability as a result of hydrologic conditions.[2] Because of this lower salinity, Metropolitan blends SWP water with high salinity CRA water to reduce the salinity concentrations of delivered water. However, both the supply and the TDS concentrations of SWP water can vary significantly in response to hydrologic conditions in the Sacramento-San Joaquin watersheds.

As indicated above, the TDS concentrations of SWP water can vary widely over short periods of time. These variations reflect seasonal and tidal flow patterns, and they pose an additional problem for use of blending as a management tool to lower the higher TDS from the CRA supply. For example, in the 1977 drought, the salinity of SWP water reaching Metropolitan increased to 430 mg/L, and supplies became limited. During this same event, salinity at the SWP's Banks pumping plant exceeded 700 mg/L. Under similar circumstances, Metropolitan's 500 mg/L salinity objective could only be achieved by reducing imported water from the CRA. Thus, it may not always be possible to maintain both the salinity objective and water supply reliability unless salinity concentrations of source supplies can be reduced.

A federal court ruling and a resulting biological opinion issued through consultation with U.S. Fish and Wildlife Service addressing the effects of the water supply pumping operations on Delta smelt has limited SWP exports at specified times of the year since December 2007. These restrictions have increased reliance on higher salinity Colorado River water, impacting the ability at times to meet Metropolitan's goal of 500 mg/L TDS at its blend plants. Drought conditions leading to lower SWP water supply allocations in recent years also affects Metropolitan's ability to meet its salinity goal.

TDS objectives in Article 19 of the SWP Water Service Contract specify a ten-year average of 220 mg/L and a maximum monthly average of 440 mg/L. These objectives have not been met, and Metropolitan is working with DWR and other agencies on programs aimed at reducing salinity in Delta supplies. These programs aim to improve salinity on the San Joaquin River through modifying agricultural drainage and developing comprehensive basin plans. In addition, studies are underway to evaluate the benefits in reduced salinity of modifying levees in Franks Tract and other flooded islands in the Delta, or by placing operable gates in

[2] The higher salinity in the West Branch deliveries is due to salt loadings from local streams, operational conditions, and evaporation at Pyramid and Castaic Lakes.

strategic locations to impede transport of seawater derived salt.

Recycled Water

Wastewater flows always experience significantly higher salinity concentrations than the potable water supply. Typically, each cycle of urban water use adds 250 to 400 mg/L of TDS to the wastewater. Salinity increases tend to be higher where specific commercial or industrial processes add brines to the discharge stream or where brackish groundwater infiltrates into the sewer system.

Where wastewater flows have high salinity concentrations, the use of recycled water may be limited or require more expensive treatment. Landscape irrigation and industrial reuse become problematic at TDS concentrations of over 1,000 mg/L. Some crops are particularly sensitive to high TDS concentrations, and the use of high-salinity recycled water may reduce yields of these crops. In addition, concern for the water quality in groundwater basins may lead to restrictions on the use of recycled water on lands overlying those basins.

These issues are exacerbated during times of drought, when the salinity of imported water supplies increases because of increased salinity in wastewater flows and recycled water. Basin management plans and recycled water customers may restrict the use of recycled water at a time when its use would be most valuable. To maintain the cost-effectiveness of recycled water, therefore, the salinity level of the region's potable water sources and wastewater flows must be controlled.

In May 2009, the State Water Resources Control Board (SWRCB) adopted a Recycled Water Policy[3] to help streamline the permitting process and help establish uniform statewide criteria for recycled water projects. This policy promotes the development of watershed- or basin-wide salt management plans (to then be adopted by the respective Regional Boards) to meet water quality objectives and protect beneficial uses, rather than imposing project-by-project restrictions. The Recycled Water Policy identifies several criteria to guide recycled water irrigation or groundwater recharge project proponents in developing a salt (and nutrient) management plan.

Groundwater Basins

Increased TDS in groundwater basins occurs either when basins near the ocean are overdrafted, leading to seawater intrusion, or when agricultural and urban return flows add salts to the basins. Much of the water used for agricultural or urban irrigation infiltrates into the aquifer, so where irrigation water is high in TDS or where the water transports salts from overlying soil, the infiltrating water will increase the salinity of the aquifer. In addition, wastewater discharges in inland regions may lead to salt buildup from fertilizer and dairy waste. In the 1950s and 1960s, Colorado River water was used to recharge severely overdrafted aquifers and prevent saltwater intrusion. As a result, the region's groundwater basins received more than 3.0 MAF of this high-TDS imported water, significantly impacting salt loadings.

In the past, these high salt concentrations have caused some basins within Metropolitan's service area to be unsuitable for municipal uses if left untreated. The Arlington Basin in Riverside and the Mission Basin in San Diego required demineralization before they could be returned to municipal service. The capacity of the larger groundwater basins makes them better able to dilute the impact of increasing salinity. While most groundwater basins within the region still produce water of acceptable quality, this resource must be managed carefully to minimize further degradation. Even with today's more heightened concern regarding salinity, approximately 600,000 tons of salts per year accumulate within the region, leading to ever-increasing salinity concentrations in many groundwater basins.

[3] http://www.swrcb.ca.gov/water_issues/programs/water_recycling_policy/docs/recycledwaterpolicy_approved.pdf

Table 4-1 shows the salinity from existing productive groundwater wells within the region, and Figure 4-1 shows the distribution of those salinity concentrations. To protect the quality of these basins, regional water quality control boards often place restrictions on the salinity concentrations of water used for basin recharge or for irrigation of lands overlying the aquifers. Those situations may restrict water reuse and aquifer recharge, or they may require expensive mitigation measures.

Metropolitan has participated with water and wastewater agencies and the Santa Ana Regional Water Quality Control Board (Regional Board) in a coordinated program to develop water quality data for local and imported supplies used to recharge groundwater basins in the Santa Ana River watershed.[4] In January 2008, this workgroup submitted its "Cooperative Agreement to Protect Water Quality and Encourage the Conjunctive Uses of Imported Water in the Santa Ana River Basin" to the Santa Ana Regional Board. This initial agreement addresses nitrogen and TDS and includes the following tasks:

1. Prepare a projection of ambient water quality in each groundwater management zone at six-year intervals for the subsequent 20 years.
2. Determine the impacts of foreseeable recharge projects and compare to baseline ambient water quality with salinity objectives.
3. Compare current water quality in each groundwater management zone with the ambient water quality projection made six years earlier, together with an evaluation of the reason(s) for any differences.

The Salinity Management Policy

The Salinity Management Policy adopted by Metropolitan's Board specified a salinity objective of 500 mg/L for blended imported water. It also identified the need for both local and imported water sources to be managed comprehensively to maintain the ability to use recycled water and groundwater. To achieve these targets, SWP water supplies are blended with Colorado River supplies. Using this approach, the salinity target could be met in seven out of ten years. In the other three years, hydrologic conditions would result in increased salinity and reduced volume of SWP supplies. Metropolitan has alerted its local agencies that such conditions are inevitable, and that despite its best efforts, high salinity could be a concern at such times. Metropolitan has also urged its member agencies to structure the operation of their local projects and groundwater so they are prepared to mitigate the effect of higher salinity levels in imported waters. In addition, Metropolitan will concentrate on obtaining better quality water in the spring/summer months (April through September) to maximize the use of recycled water in agriculture.

Table 4-1
Salinity Levels at Productive Groundwater Wells

TDS Concentration (mg/L)	Annual Production (Million Acre-Feet)	Percent of Production
Less than 500	1.06	78
500 to 1,000	0.15	11
Greater than 1,000	0.15	11
Total	**1.36**	**100**

Source: Metropolitan Water District of Southern California, Salinity Management Study, Final Report, June 1999.

[4] http://www.swrcb.ca.gov/rwqcb8/board_decisions/adopted_orders/orders/2008/08_019.pdf

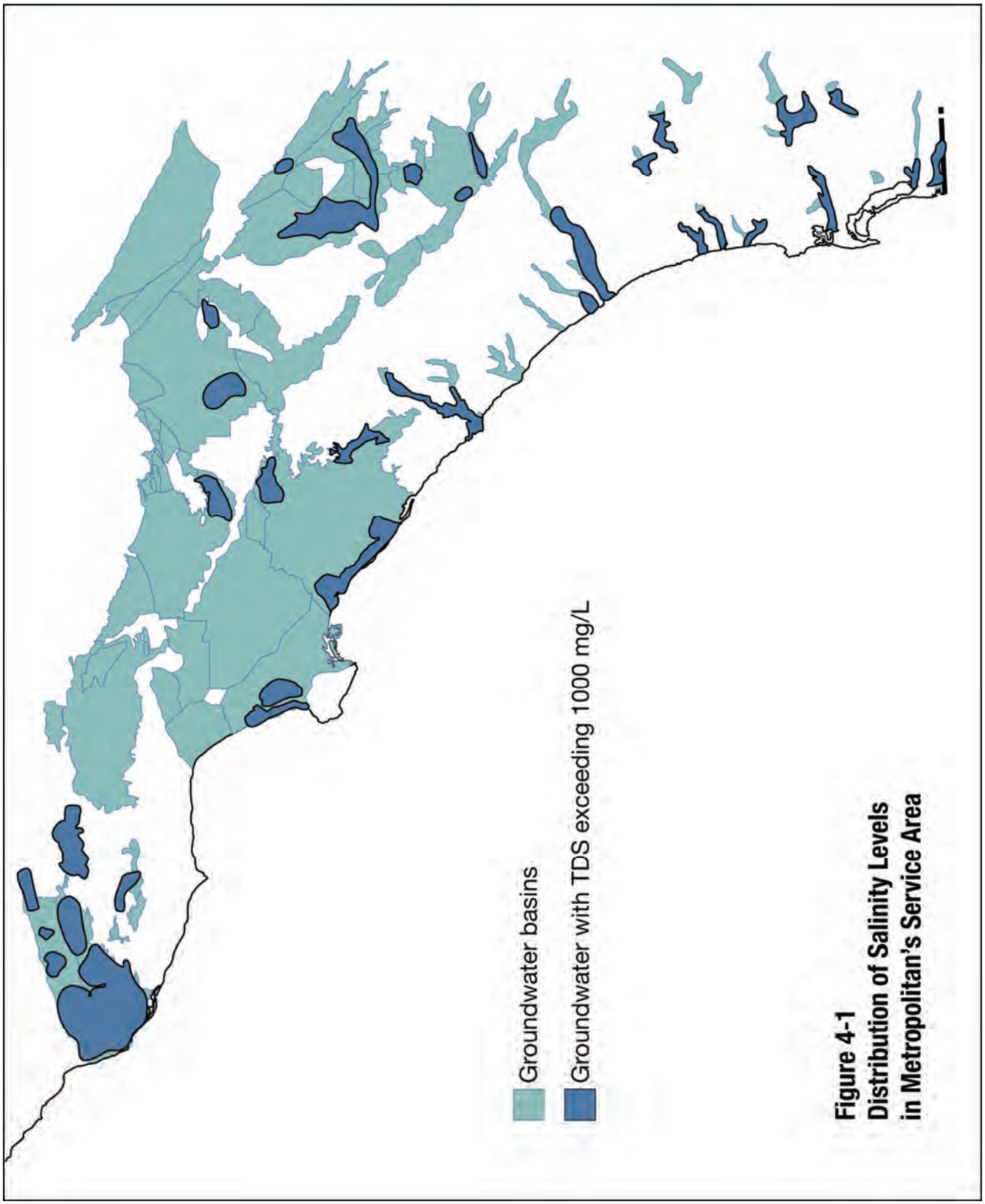

Figure 4-1
Distribution of Salinity Levels in Metropolitan's Service Area

Perchlorate

Perchlorate compounds are used as a main component in solid rocket propellant, and are also found in some types of munitions and fireworks. Perchlorate compounds quickly dissolve and become highly mobile in groundwater. Unlike many other groundwater contaminants, perchlorate neither readily interacts with the soil matrix nor degrades in the environment. Conventional drinking water treatment (as utilized at Metropolitan's water treatment plants) is not effective in removing perchlorate.

The primary human health concern related to perchlorate is its effects on the thyroid. Perchlorate interferes with the thyroid's ability to produce hormones required for normal growth and development. Pregnant women who are iodine deficient and their fetuses, infants and small children with low dietary iodide intake and individuals with hypothyroidism may be more sensitive to the effects of perchlorate.

The California Department of Public Health (CDPH) established a primary drinking water standard for perchlorate with an MCL of 6 micrograms per liter (μg/L)[5] effective October 18, 2007. There is currently no federal drinking water standard for perchlorate, but the USEPA is in the process of making its final regulatory determination for this contaminant. A regulatory determination would be the first step toward developing a national drinking water standard. Metropolitan has offered comments to USEPA during this regulatory process, focusing on the need to protect the Colorado River and to address cleanup of impacted water supplies as a result of federal institutions within its service area. In essence, Metropolitan urged for necessary actions to ensure expedited cleanup in areas that a California drinking water standard could not be enforced.

Perchlorate was first detected in Colorado River water in June 1997 and was traced back to Las Vegas Wash. The source of contamination was found to be emanating from a chemical manufacturing facility in Henderson, Nevada, now owned by Tronox, Inc. Tronox is currently responsible for the ongoing perchlorate remediation of the site. Another large perchlorate groundwater plume is also present in the Henderson area from a second industrial site, and although not known to have reached Las Vegas Wash yet, remediation activities are ongoing for cleanup of that plume by American Pacific Corporation (AMPAC).

Following the detection of perchlorate in the Colorado River, Metropolitan, along with USEPA and agencies in Nevada including the Nevada Division of Environmental Protection (NDEP), organized the forces necessary to successfully treat and decrease the sources of perchlorate loading. Under NDEP oversight, remediation efforts began in 1998 and treatment operations became fully operational in 2004. These efforts have reduced perchlorate loading into Las Vegas Wash from over 1000 lbs/day (prior to treatment) to 60-90 lbs/day since early 2007. This has resulted in over 90 percent reduction of the perchlorate loading entering the Colorado River system. In January 2009, Tronox filed for Chapter 11 bankruptcy protection citing significant environmental liabilities taken from the previous site owner. Tronox has continued operating its remediation system during the bankruptcy proceedings.

Perchlorate levels in Colorado River water at Lake Havasu have decreased significantly in recent years from its peak of 9 μg/L in May 1998 as a result of the aggressive clean-up efforts. Levels have remained less than 6 μg/L since October 2002, and have been typically less than 2 μg/L since June 2006. Metropolitan routinely monitors perchlorate at 34 locations within its system and levels currently remain at non-detectable levels (below 2 μg/L). Metropolitan has not detected perchlorate in the SWP since monitoring began in 1997.

[5] 1 microgram per liter is equivalent to 1 part per billion

Perchlorate has also been found in groundwater basins within Metropolitan's service area, largely from local sources. The vast majority of locations where perchlorate has been detected in the groundwater are associated with the manufacturing or testing of solid rocket fuels for the Department of Defense and the National Aeronautics and Space Administration (NASA), or with the manufacture, storage, handling, or disposal of perchlorate (such as Aerojet in Azusa in the Main San Gabriel Basin and the Jet Propulsion Laboratory/NASA in the Raymond Basin). Past agricultural practices using fertilizers laden with naturally occurring perchlorate have also been implicated in some areas.

Metropolitan has conducted several surveys to determine the impact of perchlorate on its member and retail agencies. As of October 2007, 18 member agencies have detected perchlorate in their service areas at levels greater than 4 μg/L, while 11 have detected levels greater than 6 μg/L in at least 101 out of 1337 wells (7.6 percent). Member and retail agencies have shut down 32 wells over the years due to perchlorate contamination, losing more than 52.5 TAF per year of their groundwater production. Many of these agencies have built new wells, blended their water, or installed ion exchange treatment systems to reduce perchlorate levels, thus lowering their potential additional demand for Metropolitan water supplies to about 15 TAF per year.

Metropolitan has investigated technologies to mitigate perchlorate contamination. Perchlorate cannot be removed using conventional water treatment. Nanofiltration and reverse osmosis do work effectively but at a very high cost. Aerojet has implemented biological treatment through fluidized bed reactors (FBR) in Rancho Cordova and is re-injecting the treated water into the ground. Tronox also utilizes an FBR process train for the cleanup of their Henderson site. A number of sites in Southern California have successfully installed ion exchange systems to treat perchlorate impacted groundwater. The city of Pasadena has been using ion exchange treatment at one well site and, in November 2009, completed a study of biological treatment for perchlorate removal in groundwater. Funding for this study was provided through a Congressional mandate from USEPA to Metropolitan.

Treatment options are available to recover groundwater supplies contaminated with perchlorate. However, it is very difficult to predict whether treatment will be pursued to recover all lost production because local agencies will make decisions based largely on cost considerations, ability to identify potentially responsible parties for cleanup, and the availability of alternative supplies.

Total Organic Carbon and Bromide

Disinfection byproducts (DBPs) form when source water containing high levels of total organic carbon (TOC) and bromide is treated with disinfectants such as chlorine or ozone. Studies have shown a link between certain cancers and DBP exposure. In addition, some studies have shown an association between reproductive and developmental effects and chlorinated water. While many DBPs have been identified and some are regulated under the Safe Drinking Water Act, there are others that are not yet known. Even for those that are known, the potential adverse health effects may not be fully characterized.

Water agencies began complying with new regulations to protect against the risk of DBP exposure in January 2002. This rule, known as the Stage 1 Disinfectants and Disinfection Byproducts (D/DBP) Rule, required water systems to comply with new MCLs and a treatment technique to improve control of DBPs. USEPA then promulgated the Stage 2 D/DBP Rule in January 2006 that makes regulatory compliance more challenging as compliance is based on a locational basis, rather than on a distribution system-wide basis.

Existing levels of TOC and bromide in Delta water supplies present significant concern for Metropolitan's ability to maintain safe drinking water supplies and comply with regulations. Levels of these constituents in SWP water

increase several fold due to agricultural drainage and seawater intrusion as water moves through the Delta. One of Metropolitan's primary objectives for the CALFED Bay-Delta process is protection and improvement of the water quality of its SWP supplies to ensure compliance with current and future drinking water regulations. Source water protection of SWP water supplies is a necessary component of meeting these requirements cost effectively.

The CALFED Record of Decision released in August 2000 adopted the following water quality goals for TOC and bromide:

- Average concentrations at Clifton Court Forebay and other southern and central Delta drinking water intakes of 50 µg/L bromide and 3.0 mg/L total organic carbon, or
- An equivalent level of public health protection using a cost-effective combination of alternative source waters, source control, and treatment technologies.

CALFED's Bay-Delta Program calls for a wide array of actions to improve Bay-Delta water quality, ranging from improvements in treatment technology to safeguarding water quality at the source. These actions include conveyance improvements, alternative sources of supply, changes in storage and operations, and advanced treatment by water supply agencies.

Source water quality improvements must be combined with cost-effective water treatment technologies to ensure safe drinking water at a reasonable cost. Metropolitan has five treatment plants: two that receive SWP water exclusively, and three that receive a blend of SWP and Colorado River water. In 2003 and 2005, Metropolitan completed upgrades to its SWP-exclusive water treatment plants, Mills and Jensen, respectively, to utilize ozone as its primary disinfectant. This ozonation process avoids the production of certain regulated disinfection byproducts that would otherwise form in the chlorine treatment of SWP water. The non-ozone plants utilizing blended water have met federal guidelines for these byproducts through managing the blend of SWP and Colorado River water. To maintain the byproducts at a level consistent with federal law, Metropolitan limits the percentage of water from the SWP used in each plant. In mid 2010, Metropolitan anticipates ozone at the Skinner water treatment plant to come online. Metropolitan's Board has also adopted plans to install ozonation at its other two blend plants with a total estimated ozone retrofit program cost of $1.2 billion for all five plants.

Nutrients

Elevated levels of nutrients (phosphorus and nitrogen compounds) can stimulate nuisance algal and aquatic weed growth that affects consumer acceptability, including the production of noxious taste and odor compounds and algal toxins. In addition to taste and odor toxin concerns, increases in algal and aquatic weed biomass can impede flow in conveyances, shorten filter run times and increase solids production at drinking water treatment plants, and add to organic carbon loading. Further, nutrients can provide an increasing food source that may lead to the proliferation of quagga and zebra mussels, and other invasive biological species. Studies have shown phosphorus to be the limiting nutrient in both SWP and Colorado River supplies. Therefore, any increase in phosphorus loading has the potential to stimulate algal growth, leading to the concerns identified above.

SWP supplies have significantly higher nutrient levels than Colorado River supplies. Wastewater discharges, agricultural drainage, and nutrient-rich soils in the Delta are primary sources of nutrient loading to the SWP. Metropolitan and other drinking water agencies receiving Delta water have been engaged in efforts to minimize the effects of nutrient loading from Delta wastewater plants. Metropolitan reservoirs receiving SWP water have experienced numerous taste and

odor episodes in recent years. For example, in 2005, Metropolitan reservoirs experienced 12 taste and odor events requiring treatment. A taste and odor event can cause a reservoir to be bypassed and potentially have a short-term effect on the availability of that supply. Metropolitan has a comprehensive program to monitor and manage algae in its source water reservoirs. This program was developed to provide an early warning of algae related problems and taste and odor events to best manage water quality in the system.[6]

Although phosphorus levels are much lower in the Colorado River than the SWP, this nutrient is still of concern. Despite relatively low concentrations (Colorado River has been considered an oligotrophic, or low-productivity, system), any additions of phosphorus to Colorado River water can result in increased algal growth. In addition, low nutrient Colorado River water is relied upon by Metropolitan to blend down the high nutrient SWP water in Metropolitan's blend reservoirs. With population growth expected to continue in the future (e.g., Las Vegas area), ensuring high levels of treatment at wastewater treatment plants to maintain existing phosphorus levels will be critical in minimizing the operational, financial, and public health impacts associated with excessive algal growth and protect downstream drinking water uses. In addition, Metropolitan continues its involvement with entities along the lower Colorado River seeking to enhance wastewater management (and therefore better manage nutrient impacts) within river communities.

Although current nutrient loading is of concern for Metropolitan and is anticipated to have cost implications, with its comprehensive monitoring program and response actions to manage algal related issues, there should be no impact on availability of water supplies. Metropolitan's source water protection program will continue to focus on preventing increases in future nutrient loading as a result of urban and agricultural sources.

Arsenic

Arsenic is a naturally occurring element found in rocks, soil, water, and air. It is used in wood preservatives, alloying agents, certain agricultural applications, semi-conductors, paints, dyes, and soaps. Arsenic can get into water from the natural erosion of rocks, dissolution of ores and minerals, runoff from agricultural fields, and discharges from industrial processes. Long-term exposure to elevated levels of arsenic in drinking water has been linked to certain cancers, skin pigmentation changes, and hyperkeratosis (skin thickening).

The MCL for arsenic in domestic water supplies was lowered to 10 μg/L, with an effective date of January 2006 in the federal regulations, and an effective date of November 2008 in the California regulations. The standard impacts both groundwater and surface water supplies. Historically, Metropolitan's water supplies have had low levels of this contaminant and would not require treatment changes or capital investment to comply with this new standard. However, some of Metropolitan's water supplies from groundwater storage programs are at levels near the MCL. These groundwater storage projects are called upon to supplement flow only during low SWP allocation years. Metropolitan has had to restrict flow from one program to limit arsenic increases in the SWP. Implementation of a pilot arsenic treatment facility by one groundwater banking partner has also resulted in increased cost. Moreover, Metropolitan has invested in solids handling facilities and implemented operational changes to manage arsenic in the solids resulting from the treatment process.

In April 2004, California's Office of Environmental Health Hazard Assessment (OEHHA) set a public health goal for arsenic

[6] William D. Taylor et al., *Early Warning and Management of Surface Water Taste-and-Odor Events*, Project No. 2614 (Denver, CO: American Water Works Association Research Foundation, 2006)

of 0.004 µg/L, based on lung and urinary bladder cancer risk. Monitoring results submitted to CDPH in 2001-2003 showed that arsenic is ubiquitous in drinking water sources, reflecting its natural occurrence. They also showed that many sources have arsenic detections above the 10 µg/L MCL. Southern California drinking water sources that contain concentrations of arsenic over 10 µg/L include San Bernardino (64 sources), Los Angeles (48 sources), Riverside (26 sources), Orange (4 sources), and San Diego (5 sources).[7]

The state detection level for purposes of reporting (DLR) of arsenic is 2 µg/L. Between 2001 and 2008, arsenic levels in Metropolitan's water treatment plant effluents ranged from not detected (< 2 µg/L) to 2.9 µg/L. For Metropolitan's source waters, levels in Colorado River water have ranged from not detected to 3.5 µg/L, while levels in SWP water have ranged from not detected to 4.0 µg/L. Increasing coagulant doses at water treatment plants can reduce arsenic levels for delivered water.

Some member agencies may face greater problems with arsenic compliance. A 1992 study for Central Basin Municipal Water District, for example, indicated that some of the Central Basin wells could have difficulty in complying with a lowered standard.[8] Water supplies imported by the Los Angeles Department of Water and Power may also contain arsenic above the MCL. The cost of arsenic removal from these supplies could vary significantly.

Uranium

A 16-million-ton pile of uranium mill tailings near Moab, Utah lies approximately 750 feet from the Colorado River. Due to the proximity of the pile to the Colorado River, there is a potential for the tailings to enter the river as a result of a catastrophic flood event or other natural disaster. In addition, contaminated groundwater from the site is slowly seeping into the river. The U.S. Department of Energy (DOE) is responsible for remediating the site, which includes removal and offsite disposal of the tailings and onsite groundwater remediation.

Previous investigations have shown uranium concentrations contained within the pile at levels significantly above the California MCL of 20 picocuries per liter (pCi/L). Metropolitan has been monitoring for uranium in the Colorado River Aqueduct and at its treatment plants since 1986. Monitoring at Lake Powell began in 1998. Uranium levels measured at Metropolitan's intake have ranged from 1-6 pCi/L, well below the California MCL. Conventional drinking water treatment, as employed at Metropolitan's water treatment plants, can remove low levels of uranium, however these processes would not be protective if a catastrophic event washed large volumes of tailings into the Colorado River. Public perception of drinking water safety is also of particular concern concerning uranium.

Remedial actions at the site since 1999 have focused on removing contaminated water from the pile and groundwater. Through 2009, over 2,700 pounds of uranium in contaminated groundwater have been removed. In July 2005, DOE issued its Final Environmental Impact Statement with the preferred alternative of permanent offsite disposal by rail to a disposal cell at Crescent Junction, Utah, located approximately 30 miles northwest of the Moab site.

Rail shipment and disposal of the uranium mill tailings pile from the Moab, Utah site began in April 2009. Through March 2010, DOE has shipped over 1 million tons of mill tailings to the Crescent Junction disposal cell. Using American Recovery and Reinvestment Act (ARRA) 2009 funding, DOE has increased shipments in order to meet its ARRA project

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[7] From the CDPH web site: http://www.cdph.ca.gov/certlic/drinkingwater/Pages/Arsenic.aspx . Note that the numbers reported there may change because the website is frequently updated.

[8] *Summary Review on the Occurrence of Arsenic in the Central Groundwater Basin, Los Angeles County, California*, prepared by Richard C. Slade & Associates, Sept. 7, 1993.

commitment to ship an additional 2 million tons of mill tailings by September 2011 and accelerate overall clean-up of the site. DOE estimates completing movement of the tailings pile by 2025, with a goal of 2019 should additional funding be secured. Metropolitan continues to track progress of the remediation efforts, provide the necessary legislative support for rapid cleanup, and work with Congressional representatives to support increased annual appropriations for this effort.

Another uranium-related issue began receiving attention in 2008 due to a renewed worldwide interest in nuclear energy and the resulting increase in uranium mining claims filed throughout the western United States. Of particular interest were thousands of mining claims filed near Grand Canyon National Park and the Colorado River. Metropolitan has since sent letters to the Secretary of Interior to highlight source water protection and consumer confidence concerns related to uranium exploration and mining activities near the Colorado River, and advocate for close federal oversight over these activities. In 2009, Secretary of Interior Ken Salazar announced the two-year hold on new mining claims on 1 million acres adjacent to the Grand Canyon to allow necessary scientific studies and environmental analyses to be conducted. In 2009, H.R. 644 – Grand Canyon Watersheds Protection Act was introduced and if enacted, would permanently withdraw areas around the Grand Canyon from new mining activities.

Chromium VI

Chromium is a naturally occurring element found in rocks, soil, plants, and animals. Chromium III is typically the form found in soils and is an essential nutrient that helps the body use sugar, protein, and fat. Chromium VI is used in electroplating, stainless steel production, leather tanning, textile manufacturing, dyes and pigments, wood preservation and as an anti-corrosion agent. Chromium occurs naturally in deep aquifers and can also enter drinking water through discharges of dye and paint pigments, wood preservatives, chrome plating liquid wastes, and leaching from hazardous waste sites. In drinking water, Chromium VI is very stable and soluble in water, whereas chromium III is not very soluble. Chromium VI is the more toxic species and is known to cause lung cancer in humans when inhaled, but the health effects in humans from ingestion are still in question. There is evidence that when Chromium VI enters the stomach, gastric acids may reduce it to chromium III. However, recent studies conducted by the National Toxicology Program have shown that Chromium VI can cause cancer in animals when administered orally.

Currently, there are no drinking water standards for Chromium VI. Total chromium (including chromium III and Chromium VI) is regulated in California with an MCL of 50 μg/L. On August 20, 2009, OEHHA released a draft public health goal (PHG) of 0.06 μg/L for Chromium VI in drinking water. The PHG is a health-protective, non-regulatory level that will be used by CDPH in its development of an MCL. CDPH will set the MCL as close to the PHG as technically and economically feasible.

Metropolitan utilizes an analytical method with a minimum reporting level of 0.03 μg/L, which is less than the State detection level for purposes of reporting (DLR) of 1 μg/L. The results from all of Metropolitan's source and treated waters are less than the State DLR of 1 μg/L (except for one detection of 1 μg/L at the influent to the Mills water treatment plant). The following summarizes Chromium VI levels found in Metropolitan's system:

- In the past 10 years, results of source and treated water monitoring for Chromium VI indicate: Levels in Colorado River water are mostly not detected (<0.03 μg/L) but when detected range from 0.03 – 0.08 μg/L. SWP levels range from 0.03 – 0.8 μg/L. Treated water levels range from 0.03 – 0.7 μg/L.

- There is a slight increase in Chromium VI in the treated water from the oxidation (chlorination and ozonation) of natural background chromium (total) to Chromium VI.
- Colorado River monitoring results upstream and downstream of the Topock site (discussed below) have ranged from not detected (<0.03 μg/L) to 0.06 μg/L.
- Chromium VI in Metropolitan's groundwater pump-in storage programs in the Central Valley has ranged from not detected (< 1 μg/L) to 9.1 μg/L with the average for the different programs from 1.4 to 5.0 μg/L.
- Chromium VI has been detected in a groundwater aquifer on the site of a Pacific Gas and Electric (PG&E) gas compressor station located along the Colorado River near Topock, Arizona.

PG&E used Chromium VI as an anti-corrosion agent in its cooling towers from 1951 to 1985. Wastewater from the cooling towers was discharged from 1951 to 1968 into a dry wash next to the station. Monitoring wells show the plume concentration has peaked as high as 16,000 μg/L. PG&E operates an interim groundwater extraction and treatment system that is protecting the Colorado River. Quarterly monitoring of the river has shown levels of Chromium VI less than 1 μg/L, which are considered background levels. The California Department of Toxic Substances Control and the U. S. Department of Interior are the lead state and federal agencies overseeing the cleanup efforts. Metropolitan participates through various stakeholder workgroups and partnerships that include state and federal regulators, Indian tribes, and other stakeholders (e.g., Colorado River Board) involved in the corrective action process. In 2010, it is anticipated that a final treatment alternative will be selected, and an Environmental Impact Report will be released for the recommended cleanup alternative.

The federal- and state-approved technologies for removing total chromium from drinking water include coagulation/ filtration, ion exchange, reverse osmosis, and lime softening. Potential treatment technologies for Chromium VI in drinking water may include reduction/chemical precipitation, an ion exchange, or reverse osmosis. For several years, the cities of Glendale, Burbank, and Los Angeles have been voluntarily limiting Chromium VI levels in their drinking water to 5 μg/L, an order of magnitude lower than the current statewide total chromium standard of 50 μg/L. The experience of these agencies in the treatment of water containing Chromium VI will be helpful in CDPH's evaluations of treatment technologies and associated costs, which are required as part of a proposed MCL regulation package.

N-Nitrosodimethylamine

N-Nitrosodimethylamine (NDMA) is part of a family of organic chemicals called nitrosamines and is a byproduct of the disinfection of some natural waters with chloramines. Metropolitan utilizes chloramines as a secondary disinfectant at its treatment plants. Wastewater treatment plant effluent and agricultural runoff can contribute organic material into source waters which react to form NDMA at water treatment plants. Certain polymers can also contribute NDMA precursor materials. Some NDMA control measures or removal technologies may be required to avoid adverse impacts on Southern California drinking water supplies. Metropolitan is involved in several projects to understand the watershed sources and occurrence of NDMA precursors in Metropolitan source waters, and to develop treatment strategies to minimize NDMA formation in drinking water treatment plants and distribution systems. Special studies conducted at Metropolitan have shown removal of NDMA using advanced oxidation processes. Other treatment process such as biological, membrane, and carbon adsorption need to be evaluated for NDMA removal.

USEPA considers NDMA to be a probable human carcinogen. USEPA placed NDMA in the Unregulated Contaminant Monitoring

Regulation 2 (UCMR2) and on the Contaminant Candidate List 3 (CCL3). CDPH also considers NDMA to be a probable human carcinogen. CDPH has not established a MCL for NDMA. However, in 1998 CDPH established a notification level of 0.01 µg/L. Occurrences of NDMA in treated water supplies at concentrations greater than 0.01 µg/L are recommended to be included in the utility's annual Consumer Confidence Report. In December 2006, OEHHA set a public health goal for NDMA of 0.003 µg/L. Metropolitan has monitored its source waters (at treatment plant influents) and treated waters on a quarterly basis since 1999. Test results for the presence of NDMA in Metropolitan's system have ranged from non-detect (reporting limit of 0.002 µg/L) to 0.014 µg/L. Preliminary data from UCMR2 confirm that the presence of NDMA is not limited to Metropolitan waters, but is widespread. NDMA, or a broader class of nitrosamines, may likely be the next disinfection byproduct(s) to be regulated by USEPA.

Pharmaceuticals and Personal Care Products

Pharmaceuticals and personal care products (PPCPs) are a growing concern to the water industry. Numerous studies have reported the occurrence of these emerging contaminants in treated wastewater, surface water, and sometimes, in finished drinking water in the United States and around the world. The sources of PPCPs in the aquatic environment include (but may not be limited to) treated wastewater and industrial discharge, agricultural run-off, and leaching of municipal landfills. Currently, there is no evidence of human health risks from long-term exposure to the low concentrations (low ng/L; parts per trillion) of PPCPs found in some drinking water. Furthermore, there are no regulatory requirements for PPCPs in drinking water. In October 2009, USEPA included 13 PPCPs on the CCL3; however, currently there are no standardized analytical methods for these compounds.

In 2007, Metropolitan implemented a monitoring program to determine the occurrence of PPCPs and other organic wastewater contaminants in Metropolitan's treatment plant effluents and selected source water locations within the Colorado River and SWP watersheds. Some PPCPs have been detected at very low ng/L levels, which is consistent with reports from other utilities. However, analytical methods are still being refined and more work is required to fully understand occurrence issues. Metropolitan has been actively involved in various studies related to PPCPs, including analytical methods improvements, and characterization of drinking water sources in California.

Metropolitan has participated with water and wastewater agencies and the Santa Ana Regional Board in a coordinated program to address emerging constituents relevant to local and imported supplies used to recharge groundwater basins in the Santa Ana River watershed. As part of the Regional Board-adopted "Cooperative Agreement to Protect Water Quality and Encourage the Conjunctive Uses of Imported Water in the Santa Ana River Basin", there are provisions for the workgroup to initiate development of monitoring for emerging unregulated constituents. Metropolitan, Orange County Water District, and the National Water Research Institute provided substantial input to the workgroup through its two-year monitoring study of emerging constituents in waters found throughout watersheds of the SWP, Colorado River, and Santa Ana River. In April 2009, the workgroup completed its Phase I Report summarizing its findings and recommendations regarding investigation into emerging constituents in water supplies. In December 2009, the workgroup submitted its proposed 2010/11 plan for monitoring of emerging constituents in imported and local waters. The workgroup also provided input to a Blue Ribbon Panel convened by the State Water Resources Control Board to review the emerging science of unregulated chemicals as it relates to the use of recycled water for irrigation and groundwater recharge.

Decreasing Concerns

Methyl Tertiary-Butyl Ether

Methyl tertiary-butyl ether (MTBE) was the primary oxygenate in virtually all the gasoline used in California, prior to the discovery that MTBE had contaminated groundwater supplies and was also found in surface water supplies. MTBE was banned in California as of December 31, 2003, although the concentration of MTBE in gasoline blends was voluntarily reduced beginning in January 2003. MTBE has subsequently been replaced by ethanol which is now the primary oxygenate in use. CDPH has adopted a primary MCL of 13 μg/L for MTBE based on carcinogenicity studies in animals. MTBE also has a California secondary MCL of 5 μg/L, which was established based on taste and odor concerns.

MTBE was introduced into surface water bodies from the motor exhausts of recreational watercraft. At Diamond Valley Lake and Lake Skinner, Metropolitan has taken steps to reduce the potential for MTBE contamination. In 2003, Metropolitan's Board authorized a non-polluting boating program for these reservoirs that calls for specific boat requirements (MTBE-free fuel and clean burning engines) and a monitoring program that will show if MTBE or other gasoline contaminants appear at the lake. Metropolitan regularly monitors its water supply for contamination from MTBE and other oxygenates. In recent years, MTBE testing results in source waters have remained at non-detectable levels (below 3 μg/L).

MTBE still presents a significant problem to local groundwater basins. Leaking underground storage tanks and poor fuel-handling practices in the past at local gas stations may provide a large source of MTBE. MTBE is very soluble in water and has low affinity for soil particles, so it moves quickly into the groundwater. Within Metropolitan's service area, local groundwater producers have been forced to close some of their wells due to MTBE contamination. MTBE is also resistant to chemical and microbial degradation in water, making treatment more difficult than the treatment of other gasoline components. A combination of an advanced oxidation process (typically ozone and hydrogen peroxide) followed by granular activated carbon has been found to be effective in reducing the levels of these contaminants.

Although some groundwater supplies remain contaminated with this highly soluble chemical, contamination of Metropolitan's surface water supplies are no longer a problem. Further, improved underground storage tank requirements and monitoring, and the phase-out of MTBE as a fuel additive, will decrease the likelihood of MTBE groundwater problems in the future.

Other Water Quality Programs

In addition to monitoring for and controlling specific identified chemicals in the water supply, Metropolitan has undertaken a number of programs to protect the quality of its water supplies. These programs are summarized below.

Source Water Protection

Source water protection is the first step in a multi-barrier approach to provide safe and reliable drinking water. In accordance with California's Surface Water Treatment Rule, Title 22 of the California Code of Regulations, CDPH requires large utilities delivering surface water to complete a Watershed Sanitary Survey every five years to identify possible sources of drinking water contamination, evaluate source and treated water quality, and recommend watershed management activities that will protect and improve source water quality. The most recent sanitary surveys for Metropolitan's water sources were completed in 2005 and 2006.[9] The next Sanitary Surveys for the watersheds of the

9 Metropolitan Water District of Southern California, *Colorado River Watershed Sanitary Survey, 2005 Update*. For the State Water Project, the sanitary survey report was prepared on behalf of the State Water Project Contractors Authority, in 2006, and was titled *California State Water Project Watershed Sanitary Survey, 2006 Update*.

Colorado River and the SWP will report on water quality issues and monitoring data through 2010. Metropolitan has an active source water protection program and continues to advocate on behalf of numerous SWP and Colorado River water quality protection issues.

Support SWP Water Quality Programs

Metropolitan supports DWR policies and programs aimed at maintaining or improving the quality of SWP water delivered to Metropolitan. In particular, Metropolitan supported the DWR policy to govern the quality of non-project water conveyed by the California Aqueduct. In addition, Metropolitan has supported the expansion of DWR's Municipal Water Quality Investigations Program beyond its Bay-Delta core water quality monitoring and studies to include enhanced water quality monitoring and forecasting of the Delta and SWP. These programs are designed to provide early warning of water quality changes that will affect treatment plant operations both in the short-term (hours to weeks) and up to seasonally. The forecasting model is currently suitable for use in a planning mode. It is expected that with experience and model refinement, it will be suitable to use as a tool in operational decision making.

Water Quality Exchanges

Metropolitan has implemented selective withdrawals from the Arvin-Edison storage program and exchanges with the Kern Water Bank to improve water quality. Although these programs were initially designed to provide dry-year supply reliability, they can also be used to store SWP water at periods of better water quality so the stored water may be withdrawn at times of lower water quality, thus diluting SWP water deliveries. Although elevated arsenic levels has been a particular concern in one groundwater banking program, there are also short-term water quality benefits that can be realized through other storage programs, such as groundwater pump-ins into the California Aqueduct with lower TOC levels (as well as lower bromide and TDS, in some programs).

Water Supply Security

The change in the national and international security situation has led to increased concerns about protecting the nation's water supply. In coordination with its member agencies, Metropolitan added new security measures in 2001 and continues to upgrade and refine procedures. Changes have included an increase in the number of water quality tests conducted each year (Metropolitan now conducts over 300,000 analytical tests on samples collected within our service area and source waters), as well as contingency plans that coordinate with the Homeland Security Office's multicolored tiered risk alert system.

Appendix O: Potential Recycled Water Users

Azusa Light & Water 2010 Urban Water Management Plan

Table 9

Reclaimed Water Study - Potential Direct Users

No.	Name of Potential Direct User	Location	Estimated Annual Water Use (AF)
1	Criterion Catalysts	1001 Todd Ave, Azusa	14.7
2	Azusa Greens Public Golf Course	919 W. Sierra Ave., Azusa	203
3	Northside Park	N/W corner of West 11th St. & Orange Ave., Azusa	9
4	Hodge School	N/W corner of N. Meeker & W. 11th St., Azusa	3
5	Pioneer Park	S/E corner of Sierra Madre Ave., & N. Dalton Ave., Azusa	6
6	Azusa City Park	N/E corner of Alameda Ave. & E. Foothill Blvd., Azusa	9
7	Dalton School	S/E corner of N. Pasadena Ave. & 10th St., Azusa	5
8	Slauson Park	N/E corner of N. Pasadena Ave. & 5th St., Azusa	1
9	Slausen School	N/W corner of N. Angeleno Ave. & 4th St., Azusa	5
10	Memorial Park	N/W corner of W. 3rd St. & N. Angeleno Ave., Azusa	20
11	Mountain View School	S/W corner of N. Vernon Ave. & W. 2nd St., Azusa	4
12	Zacatecas Park	S/W corner of W. 1st St. & S. Virginia Ave., Azusa	10
13	Paramount School	N/W corner of W. Paramount St. & Grandin Ave., Azusa	5
14	Concordia Parish School	N/W corner of Azusa Ave. & E. Russel St., Azusa	1
15	Citrus Jr. College	1000 W. Foothill Blvd.	40

Table 9 (continued)

Reclaimed Water Study - Potential Direct Users

No.	Name of Potential Direct User	Location	Estimated Annual Water Use (AF)
16	Azusa Pacific University	18527 Alosta Ave.	33
17	Azusa High School	N/E corner of Baseline Rd. & N. Cerritos Ave.	24
18	Foothill Middle School	S/W corner of Linfield St. & N. Fenmore Ave.	7
19	Powell School	N/W corner of Mauna Loa Ave. & N. Calera Ave.	4
20	Park	N/W corner of Barranca Ave. & Armstead St.	8
21	Magnolia School	N/E corner of Citrus Ave. & Nearfield St.	5
22	Gladstone St. School	Gladstone St. between Citrus Ave. & Big Dalton Wash	6
23	Center Intermediate School	S/E corner of Cerritos Ave. & Gladstone St.	7
24	Murray School	N/W corner of Renwick Rd. & Heathdale Ave.	6
25	Valleydale School	N/E corner of Lark Ellen Ave. & Woodcroft St.	6
26	Valleydale Park	S/W corner of Payson St. & Lark Ellen Ave.	12
27	Ellington School	S/E corner of Clydebank Ave. & Aspen Ave.	3
28	Gladstone High School	N/E corner of Enid St. & E. Tudor St.	20
29	Valencia School	N/E corner of Conwell Ave. & Grondahl St.	5
30	Hollenbeck Park	N/E corner of N. Hollenbeck Ave. & San Dimas Wash	12

Table 9 (continued)

Reclaimed Water Study - Potential Direct Users

No.	Name of Potential Direct User	Location	Estimated Annual Water Use (AF)
31	Fairvalley School	N/W corner of E. Stephanie Dr. & Ranger Dr.	5
32	Cypress School	N/E corner of Cypress St. & Fircroft Ave.	8
33	Northview High School	S/W corner of Azusa Ave. & Cypress St.	19
34	Lark Ellen School	S/W corner of Cypress St. & Lark Ellen Ave.	4
35	Merwin School	N/W corner of Cypress St. & Ellen St.	8
36	Griswold School	San Bernardino Rd. between Walnut Haven Dr. & Hartley Ave.	6
37	Las Palmas School	N/W corner of Lark Ellen Ave. & E. Bridger St.	7
38	Covina Valley Community Hospital	845 N. Lark Ellen Ave.	12
39	Grovecenter School	S/W corner of E. Badillo St. & N. Lark Ellen Ave.	4
40	Palm View Park	1300 Puente Ave.	15
41	Rowland School	N/W corner of N. Lark Ellen Ave. & Rowland Ave.	5
42	Vincent School	S/W corner of Workman Ave. & N. Vincent Ave.	4
43	Del Norte School	N/E corner of W. Del Norte St. & N. Nora Ave.	6
44	Del Norte Park	S/E corner of W. Rowland Ave. & N. Nora Ave.	10
45	Monte Vista School	N/W corner of Eldred Ave.	4
46	West Covina Christian School	S/W corner of N. Sunset Ave. & Badillo St.	4

Table 9 (continued)

Reclaimed Water Study - Potential Direct Users

No.	Name of Potential Direct User	Location	Estimated Annual Water Use (AF)
47	New Haven School	N/W corner of N. Irwindale Ave. & Badillo St.	3
48	Manzanita School	S/W corner of W. San Bernardino Rd. & Nora Ave.	5

Appendix P: Baseline & Compliance (2020) Per Capita Analysis

Azusa Light & Water 2010 Urban Water Management Plan

Azusa Light & Water
SBx7-7 Baseline & Target Spreadsheet

Calendar Yr. (CY)	Total Pot. Consumption	Service Area Population	GPCD
2009	21,547	107,463	179
2008	22,046	106,386	185
2007	25,206	105,152	214
2006	26,057	104,315	223
2005	25,136	103,410	217
2004	25,703	101,983	225
2003	23,380	101,322	206
2002	22,408	100,023	200
2001	21,861	99,067	197
2000	22,557	98,232	205
1999	22,347	97,318	205
1998	21,373	96,367	198
1997	23,826	95,383	223
1996	22,910	94,252	217
		5-Yr. Baseline (CY 2005-2009)	**204**
		Minimum Reduction	**194**
		Baseline (CY 1996-2005)	**210**
		2020 Target (80% of Baseline)	**168**
		2020 Target (95% of Regional)	**141.5**
		Final 2020 Target	**168**
		Final 2015 Target	**189**
		Recent Use (CY 2010 w/ December 2010 estimate)	**165**

<u>The Final 2020 Compliance Target for Azusa Light & Water is 168 GPCD</u>